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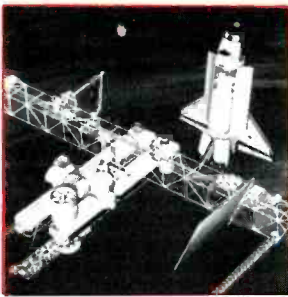
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This month's cover: USA—Travelers' Information Station, National Park Service, Point Reyes, CA. Photo by Larry Mulvehill.

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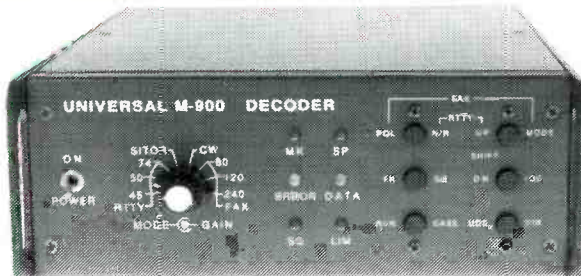
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- 12 VDC Power Supply
- Your SW Receiver
- Video Monitor
- Parallel Printer
- Cables for above

Please write to Universal for full information on the M-900 and the above optional items. Full system prices are available.

COMMUNICATIONS CATALOG

Universal now offers a new combined communications catalog covering shortwave, amateur and scanner equipment. There is also an unbeatable selection of antennas, books, parts and accessories. This huge 92 page (8 1/2" by 11") publication covers everything for the radio enthusiast. With prices, photos and full descriptions.

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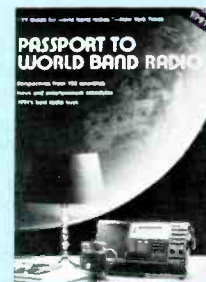


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Reading The Mail

We get a lot of mail here. Everything that's addressed to me, and isn't in the anonymous/hysterical category, does find its way to my desk and gets read. Much of it is very clever and exceptionally funny, our readers have a uniquely wry way of looking at themselves, their hobby, and the world; it makes for very enjoyable and entertaining reading.

Of course, there's a lot of serious mail, too. Some readers come up with ideas for new communications applications and equipment, and (whenever possible) I try to steer these people in a direction where their ideas can be turned into commercial realities. Sometimes, the kernel of a good idea is contained in a letter that's attempting to make a point about something totally different.

That's sort of what happened with the lengthy letter I received from Robert LaForest, of Bossier City, LA. The overall scope of Bob's letter was that the common belief that the radio spectrum is overcrowded is a complete myth; that careful analysis of frequency allocations and usage reveals that there's actually more than enough room for everybody.

Hidden away in a remote corner of Bob's letter was an idea that deserves more than the few sentences it received there. Bob suggested that a VHF or UHF frequency or band be provided for highway communication, something that would reach out for five or ten miles. He didn't amplify the thought.

Think about the idea, though. CB on 27 MHz is great for hobby purposes, but it was badly located for most other uses. CB's original premise was that it would be useful for summoning help on the highway, but CB didn't develop that way. Early FCC restrictions against hobby use had to be dropped when it became apparent that Americans had defined the service to be something totally different than the FCC had in mind. When skip begins coming through, you can hardly talk across town because you're being stepped on by hobbyists from Germany to Guatemala. That goes for Channel 9, too. Many police departments long ago gave up on monitoring CB from their headquarters because the dispatchers and desk sergeants didn't want to listen to the incessant local and DX hobby chatter, truckers, foul language, and other antics.

GMRS, with its FM and repeaters on 462 MHz, was supposed to have been a more sophisticated version of CB. It's really a fine communications service, except that it

never clicked with the public or with manufacturers. Most people never heard of GMRS, though it's been standing in the wings for decades.

Cellular phones are OK, but are an expensive overkill for people who would like to have a reliable two-way mobile radio only to summon help during a road emergency. Besides, cellular service isn't available in many areas.

That's where Bob's idea comes in. You'd buy a special VHF or UHF transceiver. Most likely, it would operate in the 800 MHz band. It would run only enough power to get out for several miles. Maybe it's a handheld, or operates from the vehicle's cigarette lighter. Like an emergency CB rig, it could have a magnetic mount antenna, or it could use a standard cellular antenna. Mobile stations wouldn't need to be licensed, but would automatically transmit a special ID number programmed into the unit that identifies its owner.

Base stations would also run only a few watts. They'd be operated by public safety agencies, using the agencies' existing license. Other base stations would also operate. They wouldn't need licenses, but would require authorization from an area public safety agency. Such authorizations would be given only to organized highway assistance volunteer organizations meeting certain established standards.

My thought would be that this would best be a paired channel simplex system; the motorists on one frequency, base stations and their associated mobile units operating on the paired frequency. This means that motorists could communicate only with bases, or with mobiles sent out to provide help. It couldn't turn into a motorists' intercom channel with smokey reports and other comms not related to actual calls for assistance.

Most likely, only a few channel pairs would be required once it's established that motorists aren't going to be able to hear or yak-yak with one another. One channel pair would be established as the nationwide primary, with two other pairs for backup use in case things got busy. There's ample room at 800 MHz to make room for this.

Surely, no-frills transceivers for this could be produced at a reasonable cost to motorists. What's more, refinements in the system could be made as time went on. A one-way channel could be established where police or sheriff base stations could broadcast repeating tape emergency messages to advise motorists when there were accident

areas, construction detours, hazardous road conditions, flood zones, etc. Nothing fancy, just a few words.

An economy approach would be like a transportable highway callbox. A handheld transmitter could have four pushbuttons; police, fire, medical, and tow truck. You'd push the appropriate button and it sends out the alarm automatically, along with your identifying code. Then a timer allows you 60 seconds of voice transmitting time to give your location and fill in the details of your problem. After that, it won't work for another ten minutes. A deluxe model could allow two-way comms for two minutes.

This highway emergency service wouldn't take away from any other communications service. You could still have your CB, ham, cellular, or business band radios, and this would only supplement what they offer. There wouldn't be any skip coming through, nobody asking where smokey is hiding—only pure, no nonsense, no toll-charge, no license, help when you need it on the highway, anywhere in the nation.

With new uses always being sought for communications services to benefit the public, here's one that we think would have practical value. If you have any thoughts on it, you're welcome to pass them along.

Another letter arrived that needs a mention, too. This one came in from a listener who reports that he was tuned to 14470 kHz (USB) monitoring a Spanish language contact between two stations. Suddenly, the contact was broken by station using a U.S. Navy MARS callsign who advised the other stations (in English), "You are on a military frequency. Please QSY por favor." For those who don't know what "QSY" means, it's an invitation to get off the frequency and talk somewhere else.

Our correspondent tells us that he was appalled at the nerve and lack of respect shown by the MARS station (whose callsign checked out to be assigned to an individual in Maryland, and not to a station at a naval ship or shore facility). The other stations were there first. Furthermore, they were engaged in what sounded like communications that were important. They weren't whistling bird calls, endlessly repeating "ola, ola, ola" or engaged in other frequency jamming practices.

The stations who had been using the frequency probably should have stood their ground and told Mr. MARS to buzz off. But

(Continued on page 71)



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MAILBAG

LETTERS TO THE EDITOR

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

Seeing America By Radio

In the August issue *Beaming In*, you wrote of driving through rural areas and tuning in on the sounds of local broadcasters. It's true that there's a big difference between "urban" and "rural" radio regarding the music, commercials, and general programming. As you mentioned, being used to big city broadcasting doesn't prepare you for what you hear a hundred miles away. But just think, a person who grows up in a small, rural community hears lots of commercials for livestock feed, gas, crop spray, and agricultural supplies. Imagine the surprise when that person heads towards the big city and doesn't hear any of this. Instead, the airwaves are filled with commercials for drinks, cellular phones, car rentals, restaurants, diet plans, and rock concerts. It's an education, and radio makes it possible!

David Olson,
Watford City, ND

In *Beaming In*, you wrote that you enjoyed driving into the boonies and listening to a day or two of broadcasting that sounds different than what may be heard in a large metro area. But, how about those of us who would like to hear some of that big city "distilled, purified, professional, refined, sophisticated, and structured" radio? After living in various parts of North America, and finally returning to my home town area, the lack of both professionalism and format variety is missed. In fact, it is both disappointing and embarrassing after enjoying what is heard over stations in the "big city." So far as I'm concerned, if you live close enough to a big city to hear its broadcasters, you're lucky, indeed. Maybe, you're also spoiled. After a dose of how professional radio broadcasting can sound, small-town radio can be irritating as well as a few steps downward in quality. I survive only on shortwave!

Martin L. Tobias,
Westfield, MA

You wrote about driving around and enjoying the bluegrass music on WAMU-FM/

88.5 in Washington, DC. I live in the southern suburbs of Philadelphia and used to be able to pick up their signal regularly. That ended recently when local WXPB-FM moved to 88.5 from 88.9 MHz, in company with two new college stations on 88.5 MHz. I use a Tecnic ST-G70 with a rotatable QFM-9 FM antenna. I enjoy FM DX'ing. Distant stations are great to hear, as you mentioned. FM DX'ing lets you do it without even leaving home!

Dan Cashin,
Havertown, PA

The Right To Listen

Three cheers for your efforts to eliminate the ECPA. Do Americans have the right to hear? What about *overhear*? Making extraordinary efforts to overhear whispers may be an invasion of privacy, but hearing what people shout seems to be a Constitutional right. The logic of the ECPA is that we are Constitutionally required to go out and buy ourselves earplugs. If a person demands the right to propagate their conversations aided by a PA system or a cellular phone, the Constitution doesn't guarantee that everybody else will shut their ears. Somehow, the ECPA manages to surpass the Constitution in making such a guarantee.

Ed Jones, WB2DVL,
Somerset, NJ

A Nice Place To Visit?

Enclosed herewith is information your readers will want to know. First, I am sending you a clipping from the *St. Petersburg Times* telling how the Florida Highway Patrol now writes speeding tickets against drivers who exceed the speed limit by as little as 5 mph. Also, I am enclosing a copy of Florida law #843.16, since it seeks to restrict the use of scanners in the state.

Mike Albergo,
Hudson, FL

The scanner law is, like similar laws from other areas, poorly conceived, badly worded, and has several loopholes large enough to drive an 18-wheeler through. The aim of the law is to prohibit police scanners in vehicles, except those operated by law enforcement agencies, or designated as emergency vehicles. It also doesn't allow police scanners in any "business establishment." But, through too much legalese and wordiness, it essentially renders itself rather meaningless. Right from the start, it specifies that you can't "install" the scanner, rather than "locate" or "place" the device. By using a portable scanner, one could probably put up a

good argument that it wasn't installed, in that it wasn't physically connected to the vehicle or structure. Next, the law specifies that the violation really only occurs when the scanner is tuned to actually receive frequencies assigned by the FCC to city, county or state law enforcement agencies. One could debate the status of frequencies entered into a scanner, but locked out. Or, suppose the scanner was adjusted slightly off the FCC assigned frequency, but still close enough to copy the communications? Furthermore, among other loopholes, it excuses all holders of ham licenses from being covered by the law. Nevertheless, no matter how badly written they may be, we have always considered such laws to be odious. The only real purpose they serve is to restrict the casual and hobby use of scanners by the average person who harbors no evil intent; the same boob who gets a speeding ticket for driving 5 mph above the posted speed limit. Those who would use scanners in connection with illegal activities are hardly going to sell their UZI's and get scared into a life of honest work by this type of low grade, meaningless legislation. — Editor

Jam Session

I live in a college dorm. One of the residents on our floor enjoys blasting his radio at what sounds like full volume. This is particularly annoying to many others who live on the same floor of the dorm. Asking him to turn it down, and also complaining to the dorm authorities have brought only short-term relief. Quite by accident, I discovered a solution, and that is by tuning my own FM radio 10.7 MHz (the IF frequency) below the station he's playing, I can jam his receiver. For instance, if he would be listening to a station on 105.9 MHz, I would tune in 95.2 MHz. My receiver (a Radio Shack 12-625) has a strong local oscillator and can zap his receiver from 100 ft. away. I'm not certain if this is legal, but after a few minutes he seems to get the message. His dorm mate tells me that every time it happens, he hits the set with his fist, fiddles with it, shakes it, then turns it off in disgust and frustration.

Ted Giovanni,
Milwaukee, WI

Making It Easier

From an ad in your magazine, I recently ordered a copy of Bill Cheek's *Scanner Modification Handbook*. This book is superb, and a "must read" for the serious scanner enthusiast. I've been an electronics technician for 25 years, and been involved in scanning for 17 years. Still, I've learned several useful things from reading the book.

William R. Young,
Merrillville, IN

Listening For Liberia

Tuning In On This Troubled Land To Find Out What's Behind The Headlines

BY GERRY DEXTER

Note: When this article was written the situation in Liberia was still in a very fluid state. By the time you read this the dust may have settled and the civil war ended. It will have no bearing on the fact that DX'ing Liberia is an activity worth your while.

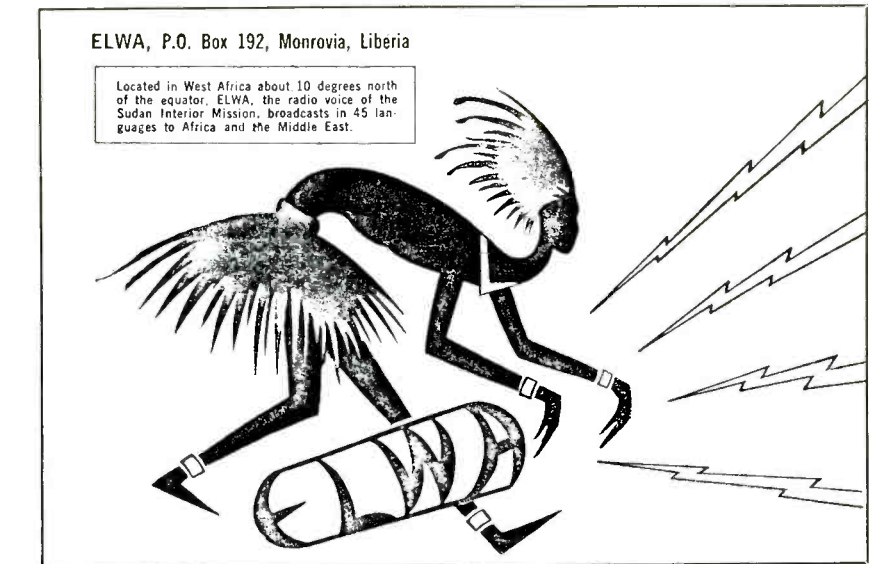
They entered the country last December, crossing the border with the Ivory Coast and into the Province of Nimba. The 150 or so rebels of the National Patriotic Front of Liberia took a few villages in the area. The government responded with brutalities against the people as much or more as against the rebels, in the process fueling anti-government, pro-rebel feelings. It was the boost the rebels needed and they made steady gains in the months which followed, practically all the way to Monrovia, the Liberian capital. They took over much of the country's sources of income, including the 125 thousand acre Firestone Tire and Rubber Plantation—largest in the world.

By this past summer, though, things had come to a standstill, a marking time waiting for—no one knew what. The rebels sat some miles from Monrovia and waited. And so did everyone else.

The rebel forces are led by Charles Taylor, a former senior official in the Doe government, who fled to the United States after having been accused of embezzling nearly a million dollars. Taylor said Doe framed him. Taylor said President Samuel K. Doe must get out of office. Doe said he wouldn't go until his term expired in October, 1991. Doe gained power in a bloody 1980 coup that saw then President William Tolbert, Jr. and several government officials bayoneted and shot on the beach. Many say Doe stole the election held five years later. Doe was killed last September.

Doe was a member of the Krahn, one of 16 ethnic groups in Liberia and one which includes only about 4% of the population. Yet Doe had placed many Krahn in important government posts. He was accused of discriminating against other tribal groups, particularly the Gio and Mono which supported the rebels.

Taylor, who is American-Liberian, is accused of getting weapons and training from Libya which is something Taylor denies, saying the weapons have all been taken from government soldiers. There are signs that the rebels are not completely unified since there have been instances during which a faction led by Prince Johnson has



ELWA's distinctive QSL card has found its way to thousands of DX'ers since the station began in 1954.

fought against rebels loyal to Taylor. Some experts think Monrovia was left twisting in the wind while Taylor solidified his position as rebel leader. As this is being written nobody's clearly in control.

Liberia has a special historical relationship with the United States. The country was founded by freed slaves who landed there in 1822. Its constitution was written at Harvard Law School. It uses the American dollar as its currency. Monrovia is named after President James Monroe who occupied the White House when the first American settlers arrived. Congress appropriated funds to allow these settlers to buy land from local tribal chiefs. By 1847, Liberia had become the first independent African republic. The American-Liberians (who still only amount to 5% of the population) gained control of the economy and government. Until the 1980 coup against President Tolbert, an American-Liberian had always been president of Liberia. The American-Liberians have long been resented by the rest of the population.

Although English is Liberia's official language there are some 20 other languages spoken in various parts of the country. Half a million of the population of 2.55 million live in Monrovia.

The situation in Monrovia and the rest of the country is bleak and will stay that way for

a long time, no matter who winds up in charge. The war has made a shambles of a country that already had a marginal economy. The nation is said to be nearly bankrupt. Aside from the death and destruction resulting from war actions there have been hundreds of brutal, "get even" murders, much of them ethnically motivated. The professionals and educated have mostly left. The UN is gone, the Peace Corps closed down, most of the airlines are no longer providing service.

Some in Washington say the US has little to lose in Liberia; many others disagree. Liberia gives the US landing and refueling rights for military aircraft and ships—the only sub-Saharan country which does. There is a low frequency Omega radio navigation station in Liberia which also serves as a backup system for the US nuclear submarine fleet. There are two communications relay stations which handle diplomatic and intelligence messages. And, of course, the Voice of America's relay base is in Carysburg, just outside of Monrovia.

Liberia, whether involved in civil war or in the long cleanup and rebuilding era, makes an interesting and timely DX target. There are three stations and you can draw one from each category up there on the big board—easy, fairly hard and very difficult.

The easy one, of course, is the VOA Re-

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ELBC's "Sound of Progress" slogan doesn't ring true these days.

lay Station at Carysburg, about 20 miles northeast of Monrovia. The installation has half a dozen 250 kilowatt and a pair of 50 kw transmitters in use, in addition to a couple of lower power communications transmitters. The relay went on the air in 1964 and serves primarily sub-Saharan Africa with Voice of America programs. A couple of dozen frequencies are in use at various times of the day and night. Recent loggings by DX'ers indicate that the following times and frequencies will offer the easiest reception by North American listeners: Try the 0300 UTC sign on on 3990, 6035, 7280, 9525 and 11835. 6180 and 7265 come into use at 0430. 11915 begins at 0600. During the daytime hours try 15315 from 1900 sign on and 15600//17870 from 1600 to 2200 sign off. The Voice of America's Washington, DC headquarters will confirm reception reports.

More difficult to log is ELWA (Eternal Love Winning Africa), which, when it went on the air in 1954, was Africa's first Christian radio station. The first transmitter was a 1 kW medium wave unit, but a 10 kW shortwave was soon added and a second 10 kW unit came on in 1963. In the meantime, ELWA put a 50 kW transmitter on shortwave in 1960 and then added a second in 1968.

ELWA was the inspiration of three students at Wheaton College, Wheaton, Illinois back in 1949. One of those students, Stan Bruning, still serves ELWA as its Director of Broadcasting. The station is part of the Sudan Interior Mission, headquartered in Cedar Grove, New Jersey. In addition to religious programs, ELWA carries a great deal of material on farming, health, sanitation and so on, as well as local news, birth and death announcements, schedules of town meetings and the like. ELWA also operates a hospital and Christian academy.

ELWA is scheduled with English broadcasts on 4760 daily at 0600-0800 (Friday to 0815, Saturdays to 0830) and at 1900-

2300. On Sundays from 0700-0830 and 1900-2230. 7270 is in use for English at 0830-1830 (not likely to be heard in the US). Vernaculars are carried on 3230 at 0610-0800 and 1805-2210 (2150 on Fridays) and also on 4760 at 1730-1900 (again, not likely to be heard in North America). The best opportunity in the above schedule is the 0600 sign on on 4760.

ELWA has an eternal service which includes Arabic on 11955 at 0700-0815 and 11910 at 1530-1700. French and vernaculars are carried on 11830 (Saturdays and Sundays) at 0800-1000, 1200-1330 on 9550, 1630-2015 and 2135-2205 on 11830. English is offered from 0630-0800 and 1240-1630 (Sundays). 1600-1630 and 2015-2135 weekdays on 11830. Several listeners have had good reception of ELWA on 11830 at various daytime hours over the past several months. ELWA is a fine verifier of reports, which should go to PO Box 192, Monrovia.

Certainly the most difficult of the three is the Liberian Broadcasting System and its shortwave station ELBC. Even though it is listed as running 50 kW, it still falls into the category of a fine DX catch. Actually, it is more than possible that the station may not even be on the air currently, due either to the war or worn out equipment, or both. The station is listed for operation on 6090 from 0900-1900, but reception on this frequency is almost never reported. A better opportunity is the station's 90 meter band frequency—3255, which is said to be in use when 6090 is not. A winter or two back there was loggings of this one around 2300. Another good time to try would be 0600, especially if ELWA on 4760 is coming in well. So, try for it, yes; but don't hold your breath. If you do get lucky and wish to send a report the address is PO Box 594, Monrovia. In years past, ELBS was a reliable QSL'er but today—who knows?

Still another broadcaster in Liberia is the Liberian Rural Communications Network

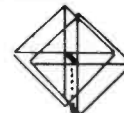
(LCRN). Created in 1986, the "Voice of Rural Liberia" operates 3-10 kilowatt transmitters on medium wave. Its programs focus on health, agriculture, education and community development on the local level. The network is comprised on ELRG at Gbarnga (588 kHz), ELRV at Voinjama (585 kHz) and ELRZ at Zwedru (1260 kHz). Each station produces about 80% of its own programs and concentrates on education and development at the local level. A production center in Monrovia does programming and public service announcements which center on national topics.

For a brief time in 1987 DX'ers were hearing LRCN on 3975 upper sideband as it relayed programming to the local stations. We know LRCN has a 10 kilowatt shortwave transmitter which it was using for this purpose, but there's no information as to what has happened to it or why it is apparently no longer being used on shortwave. Indeed, it is an open question as to whether any of the three medium wave stations are even on the air. At the very least, the one in Zwedru must be in rebel hands. Hopefully LRCN will continue and perhaps even make use of its shortwave feeder service again in the future.

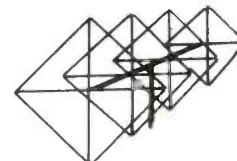
Although it may be years before Liberia returns to normal, at least two of the three shortwave stations should continue to operate regularly so some shortwave voices will remain in this beleaguered nation.

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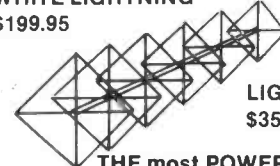


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BY "SMOKI" WHITFIELD



If you've visited any of the historic and scenic facilities operated by the National Park Service, you may have noticed that many have large signs directing guests to tune their radios to certain frequencies for information on parking, park services, things to see, etc. Similar stations are also in a number of National Forests.

Crossing the border from Mexico into San Diego, CA? Your radio will bring you English/Spanish information on Customs Ser-

vice requirements, vehicle waiting time at the border crossing point, and other useful data.

Or, maybe you have pulled into a larger airport and seen billboards advising you to use your car radio to hear which parking fields have available space.

Been to see the volcano at Mount Saint Helens, WA? A transmitter has been set up there to advise motorists of flash flood potentials, what "No Entry" signs mean, de-

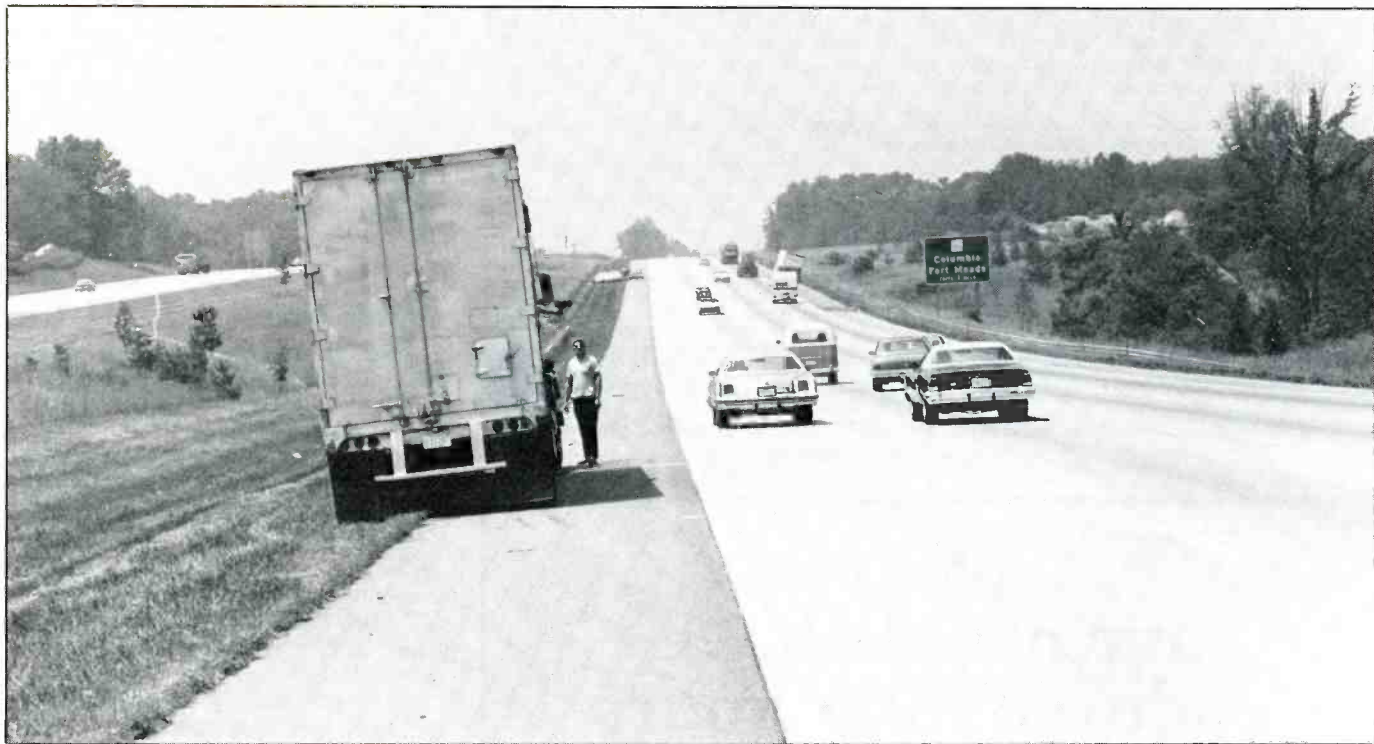
scribes what to do if a siren is heard, and tells where exhibits are located.

Possibly you were driving on an Interstate highway and, as you approached a construction zone or a complex traffic interchange, you saw a sign offering help. That sign requested that you turn on your radio in order to get useful information on detours, congestion, delays, accidents, exits, and routing.

These are just some of the uses of Travel-



You may find these micro stations at entrances to tunnels and bridges.




Interstate highways can be rich sources of TIS activity.

WXT 613
 Travelers Information Radio
 Kenton County Airport Board

1610 kHz, 2 Watts, monopole antenna 47.5 feet above the ground 10 miles SW of Cincinnati, Ohio, in Boone County, Kentucky.

We confirm your reception of our radio transmission on the 6 day of Nov, 1972.

J. E. J. Dackelbaum
 Chief Engineer


 Box 75000
 Cincinnati, Ohio 45275


Printed QSL card from the TIS facility at the Greater Cincinnati Airport. The transmitter runs 2 watts, is located in KY.

ers Information Stations (TIS) that you may have encountered and thought little about after you made use of their services and then went on your way. But wait, if you pause to think about it, they are miniature broadcasting stations. They usually have call signs, and licenses, and they are as much to be considered candidates for hobby listening as any other stations you tune for. Unfortunately, most people just take them for granted.

Those who view them properly, as stations to actively pursue as DX challenges, have a lot of fun and are often rewarded with QSL's to verify their reception.

The Nature of The Beast

Privately operated TIS transmitters are FCC licensed in either the Local Government or Experimental radio services. Those operated at federal facilities don't need to be FCC licenses. Nevertheless, just about all


 United States Department of the Interior
 NATIONAL PARK SERVICE
 Acadia National Park
 P. O. Box 177
 Bar Harbor, Maine 04609

August 26, 1982
 N382J

Howard G. Kemp
 140 Court Street
 Laconia, N.H. 03246

Dear Mr. Kemp:

We verify receiving your letter announcing that you had heard the radio broadcast identified as KFB 759 on 1610 KCS, August 16, 1982 from 3:25 pm to 3:29 pm.

We hope this acknowledgment satisfies your request.

Sincerely,
Robert Rothe
 Robert Rothe
 Chief Park Naturalist

Howard Kemp, who lives in NH, received this QSL letter after reporting reception of the TIS transmitter at Acadia National Park, on the coast of ME.

TIS transmitters are assigned call signs (even if they don't use them).

The typical TIS station uses a vertical monopole or directive array being fed from a 5 to 10 watt transmitter. The antenna can't exceed 49 feet above ground level. Some other TIS stations use a buried cable antenna that extends a mile or two along a driving route. Stations with cable antennas can run as much as 50 watts. The basic idea is to limit the service area of a TIS to a restricted area in the immediate vicinity of the transmitter. This primary service area is probably consid-

ered to be a mile, or up to about six miles. The Customs Service transmitter on 1610 kHz at San Diego uses only 100 milliwatts and covers three to six miles normally.

Most TIS activities are simply a continuously repeating tape message lasting perhaps thirty seconds; just long enough for a vehicle to travel from signal access to signal loss without missing any of the information. Certain TIS facilities, such as some at National Parks, may play the same descriptive message for months at a time. Those located on highways may require updated information every hour, or even more often. Updated information is sent to the local TIS transmitters by landline from the central office that controls their operation.

The FCC regulations regarding the operation of a TIS are quite specific. The stations must be non-commercial in nature. Their operation must relate only to traffic and road conditions, traffic hazard and travel advisories, directions, lodging availability, rest stops, service stations, and descriptions of local points of interest. A TIS must be located either near a transportation (air, train, bus) terminal, at a public park, or historic site, or bridges and tunnels, or where highways intersect with a Federal Interstate highway. Lastly, the TIS can't cause interference to any broadcasting stations operating on adjacent frequencies.

Traditionally, TIS activities have been on 530 and 1610 kHz. Now that the high frequency end of the AM broadcast band is being extended from 1605 kHz to 1705 kHz, the TIS frequency on 1610 kHz will undoubtedly be moved (possibly to 1710 kHz).

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Note that in Canada, TIS operations in National Parks are to be found on 1230 and 1490 kHz, instead of the frequencies used in the US. The Ontario Travel Information in Sarnia operates on 1150 kHz (10 watts). There's a 50-watt TIS at Toronto's Pearson International Airport, however, that uses 530 kHz.

Others, Too

There are other low powered AM stations, too, that don't exactly fit into the TIS format, although their operations may be intended to reach motorists.

For instance, there are many drive-in movie theatres running the sound from the films on 530 or 540 kHz. There is a drive-in church in South Daytona Beach, FL, reported to have their Sunday morning services broadcast to attending worshipers on 657 kHz. The entrance to Captree State Park, in NY, tells drivers to tune their radios to 640 kHz for parking information.

Walt Disney World, in FL runs low power transmitters at 810 and 900 kHz at EPCOT Center, plus 1030 and 1200 kHz at the Magic Kingdom.

Real estate brokers have been reported using short range (1 block) AM transmitters to transmit a repeating message to entice house hunters driving by to pull over and visit their model homes. A sign placed on the roadside advises the frequency to tune for the broadcasts.

All of the TIS and the many other low powered short-range AM broadcasters, then, are just sitting there waiting to be heard. While it is their intention to be heard only over a very limited range, it's a fact that the diligent DX'er can actually snag stations from hundreds of miles away. This is the time of the year to try, too!

When you're trying to hear flea-powered stations, you certainly are going to have to work hard, and wait, before you can show off a wall full of QSL's. Check 530 kHz and 1610 kHz (or whatever frequency 1610 kHz eventually becomes) regularly, especially beginning at sunrise and for the following two hours, also for the two hours before sunset, and right on into the wee hours.

If you hear commercial or religious programming on 1610 kHz, that's a legit 50 kW station on Anguilla, British West Indies. Known as *The Caribbean Beacon*, their signal dominates this frequency at night in many areas of North America. However, the 530 kHz frequency should be generally free of interference from high-powered broadcasters.

Some TIS stations will QSL, several have received so many reception reports that they've made up their own printed QSL cards. By all means, if you collect QSL's, send reception reports to any of these micro broadcasters you hear. This is good DX, by any definition of the term. And, let us know how you made out!

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Uniden Corporation of America has purchased the consumer products line of Regency Electronics Inc. for \$12,000,000. To celebrate this purchase, we're having our largest scanner sale in history! Use the coupon in this ad for big savings. Hurry...offer ends January 31, 1991.

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Remembering Radio's Turncoats, Traitors, Treasonists, Tricksters, & Trouble Makers!

World Turmoil Has Produced Many Strange Broadcasting Personalities and Stations

BY ALICE BRANNIGAN

Recently, I was reading about how the events in the Middle East have generated a spate of psychological warfare (psywar) broadcasters, clandestine and otherwise. These are stations that direct programming into specific areas for the purposes of presenting disinformation, fomenting confusion among or frightening civilians, inciting rebellion, demoralizing the military, and similar. Those that are clandestine operate from unannounced locations. Ostensibly, these stations are operated by expatriates or dissidents from the nations whose audiences they seek to reach.

At times, such stations are just what they claim and seem to be. In other instances, they are counterfeits; "gray" or "black" undercover operations of the military or intelligence services of various governments, sending out programs that seek to influence events in a direction beneficial to their interests.

In either case, the aim of the operators of these stations is to line up air personalities whose commentaries will be heeded by the audiences. This is usually considered most effective when the commentators sound like, and may actually be, genuine expatriates. The governments on the receiving end of their comments are invariably furious about such programming.

Who and Where?

Clandestine stations have long existed in abundance, issuing calls to arms, like *Radio Euzkadi*, which many DX'ers reported in the 1960's and 1970's. This was the station of the Basque resistance movement whose goal it has been to start an independent nation for the one million Basques in northern Spain.

The station was anti-Communist, and against the Franco government of Spain.



In WWII, many hours each day of psywar programming were prepared by enemy forces for the "entertainment" of American GI audiences. Air personalities such as "Tokyo Rose" and "Axis Sally" became hated, but well known, by our troops.

Although the exact location of *Radio Euzkadi* was never revealed, the assumption was that the transmitter was somewhere in France, since that was where the movement was headquartered and also where the QSL's were sent from.

Another popular clandestine bent on sedition was *Radio Free Russia*, operated from the 1950's to about 1974 by the right-wing National Alliance of Russian Solidarity (NTS). Starting out with a mobile transmitter in West Germany, RFR later was also transmitted via the facilities of various other stations, including *Radio Caribe* in the Dominican Republic; the Broadcasting Corp. of China, in Taiwan; the CIA's semi-clandestine *Radio Libertad*, and other stations.

Sometimes, the programming isn't even done in a clandestine manner. The expatriate is simply put in front of a microphone of the high-powered official government broadcasting station of the hostile nation. At that point, words such as "treason," "traitor" and "turncoat" begin to be used, and the situation escalates in serciness. Scarcely a hot, warm, or even cold war has gone by since the 1930's without noteworthy examples of this, and with broadcasting having been used as an important political tool as well as a psychological warfare weapon.

A Matter of Perception

There has been, of course, debate as to how these personalities are perceived.

DEAR FRIEND:-

This card acknowledges your report of reception of Radio Station X.E.R., owned and operated by the Villa Acuña Broadcasting Co. Inc. The entire staff of X.E.R., also Dr. Mrs. Brinkley and Johnny Boy send greetings to their friends in Kansas and everywhere. We want you to know we appreciate your interest in Dr. Mrs. Brinkley and Johnny Boy and this Radio Station.

You are invited to visit the Brinkley Hospitals at Millford, Kans. also come to Del Rio, Tex. and Villa Acuña, Mexico.

Let your next vacation be in Villa Acuña, Mex. The people are friendly and hospitable. There are plenty of lakes with bass, also lots of wild game to be found.

When driving from the west to east or east to west, route yourself through San Antonio and Del Rio west; El Paso, Del Rio and San Antonio east.

FAITHFULLY

VILLA ACUÑA BROADCASTING CO. INC.

Villa Acuña, Coah., Mexico.

DOCTOR, MRS. J. R. BRINKLEY AND JOHNNY BOY

Millford, Kansas.

A 1930 QSL from Doc Brinkley's Mexican station, XER. At this point he was still allowed to run his Kansas clinic, but his broadcasting station there had been shut down by the government. (Courtesy Joe Hueter, PA.)

Some would say that all individuals have a right (or even moral obligation) to express their deeply held, heartfelt convictions and dissenting views of actions their government takes, no matter how wrong most of their fellow citizens feel those views may be. Of course, there's a world of difference between expressing an opposition viewpoint and making propaganda broadcasts on behalf of your nation's enemies. At that point, people tend to consider such apparent dissenters as merely crackpots or dupes; eager and willing puppets of the enemy. Sorting out and defining some of these people isn't quite as simple as it might seem.



Doc Brinkley's station (XER/XERA/XERF) was located just across the Mexican border from Del Rio, TX. It ran 250 kW, or more, and could easily be heard throughout North America selling quack medical cures. The station also offered thinly-veiled pro-Nazi propaganda spun out by American commentators.

We can look back on Ronald Ramsey, a Los Angeles dissident who made anti-war tapes that were broadcast from Hanoi in the mid-1960's. In 1966, Ramsey sent a telegram to Canadian Prime Minister Lester Pearson. It read: "On behalf of free speech and the right to travel, I beseech you and the great Canadian People for refuge as a dissenter to my own country's policy of genocide and denial of self-determination in Vietnam."

But let's not forget the more well-known accused turncoats of the World War II era who weren't going the "free speech" route, like American Iva Ikuko Toguru D'Aquino Tokyo Rose, American Mildred Gillars, known as Axis Sally, or the equally infamous Brit turncoat, Lord Haw Haw. William Joyce (the Englishman known as Lord Haw Haw) was heard over the Nazi-operated official and clandestine stations (such as the so-called *New British Broadcasting Station*) reading news releases from the Imperial Fascist League that told of "Jewish ritual murder," and how Hitler was primarily concerned with defending Germany from Communism. He implored the British to surrender.

What about Norman Baillie-Stewart? He had been an officer in the Seaforth Highlanders, but in the early 1930's he was convicted of passing British military secrets to German agents. That put him in prison for five years. After his release in 1937, he quickly left England and wasn't heard from again until his voice turned up on Nazi propaganda broadcasts from Austria during WWII. He was taken prisoner in 1945 by American forces.

He Wasn't The Doc of The Bay

During the 1930's, closer to home, Doc Brinkley's old border blaster radio station (variously known as XER, XERA, and

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XERF) at Villa Acuna, Mexico, was hawking more than goat glands and quack medical cures to its American audiences. It also featured the radical political views of Brinkley's crony, Gerald B. Winrod, a Wichita preacher so friendly towards the Nazis, he was facetiously called the Kansas Fuhrer. Another featured Brinkley air personality was his friend, William D. Pelly, leader of a 1930's pro-Nazi American paramilitary organization called the Silver Shirts.

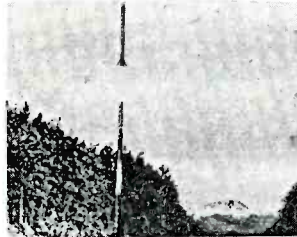
These were manifestations of Brinkley's own anger at the United States. Earlier, our government had revoked the license of his broadcasting station (KFKB) in Milford, Kansas. At that point, he moved his broadcasting activities to a spot just across the Mexican border from Del Rio, TX. Eventually the authorities in Kansas revoked his license to practice medicine there, later also shutting down his clinic. His saga was told in *POP'COMM* of February, 1983.

The 1956 Richard Widmark movie, *Run For The Sun*, showed *Lord Haw Haw* living in luxurious postwar exile on a Mexican plantation. *Haw Haw* was effectively portrayed by actor Trevor Howard. But the reality was that *Lord Haw Haw* had been hanged for treason by his fellow Britons years earlier. Norman Baillie-Stewart went to prison for five more years. Winrod was indicted for sedition (but never convicted). Pelly was convicted of sedition and served time in federal prison.

Tokyo Rose, whose story was told at length in *POP'COMM* of December, 1985, received a ten year prison sentence and a \$10,000 fine, after a lengthy and controversial trial that began in 1949. She was released from the federal reformatory in 1956 with time off for good behavior. Eventually she was able to satisfy the fine that had been imposed. In 1977, President Gerald Ford



His haughty and contempt-filled speaking style earned Englishman William Joyce the nickname of *Lord Haw Haw* to his listeners in Britain. His wartime pro-Hitler broadcasts from Germany during the 1940's led to his being found guilty of treason, and an eventual date with the hangman.



RADIO EUKADI — EUKADI IRRATIA

Date: 13-1-75 196

- 20.30 GMT
- 21.30 GMT
- 22.30 GMT

80 KW

- 23 m. 13.250 KHz.
- 19 m. 15.080 KHz.
- m. _____ KHz.

"La Voix de la Résistance Basque"

"The Voice of the Basque Underground"

Basques were a free nation throughout history. Franco's uprising in 1936, assisted by Hitler and Mussolini, crushed the Basques depriving them of the remnants of their ancient freedom. Now under Spanish rule, without elementary human rights, Basques fight under cover to restore democracy in their land.

Les Basques: un peuple uni par l'histoire, par sa langue et par sa volonté de vivre en liberté. Le but de notre lutte est une Euzkadi libre dans une Europe unie en délivrant le peuple basque de la tyrannie.

Radio Euzkadi was a clandestine that sought to incite Basques to rebellion in Spain.

granted a full pardon and restored citizenship to Mrs. D'Aquino. She had claimed (and many agreed) that her own personal role in the wartime broadcasts was minimal, and that she had been no more than an unfortunate victim of circumstances. Many American GI's, instead of being demoralized by the *Tokyo Rose* programs, said that they found them enjoyable.

When Baillie-Stewart went on trial for his WWII broadcasts, he defended his actions by saying that he had become a German citizen before those broadcasts started. Therefore, he claimed that he wasn't to be considered a traitor. The court disagreed, determining that it's a bit of a sticky wicket to change your nationality (to that of an ene-

my) in wartime. On the basis of this determination, he was convicted. This avoided the necessity of the court dealing with his motives for broadcasting, and with the content, truth, or falsehood, of his broadcasts.

Burn, Baby, Burn

Broadcasting was put to no less a tactical use by Robert F. Williams, at that time an American fugitive who had been heard on occasion in the 1960's over Radio Peking and Radio Havana. He really hit his stride over Radio Free Dixie, in Cuba. Using the facilities of 50 kW Radio Progreso (670, 680, 690, and 700 kHz), Radio Free Dixie presented nightly English-language pro-




QSL from the clandestine known as Radio Free Russia.



Mrs. Iva D'Aquino (shown at her trial in 1949) was actually only one of several Radio Tokyo announcers who were known as "Tokyo Rose."

Nazaki Station Longitude 138°51'00" E
Latitude 36°10'44" N

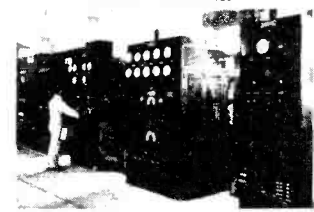


I Overseas broadcast for North America, Hawaii, etc.
Transmitter:
JVN 10660 K.C. 20 KW. Beam Antenna
JVH 14990 K.C. 20 KW. " "
Program:
0500-0600 GMT. News in English and Japanese, Music, Entertainment, Lecture, etc.

II Relaying broadcast for Manchukuo and Formosa
Transmitter:
JVT 6750 KC. 20 KW. Vertical doublet Antenna
JVP 7510 " 20 " " "
JVN 10660 " 20 " " "
JVM 10740 " 20 " " "
Program:
0900-0910 GMT. Weather forecast, Market quotations
0240-0245 Market quotations
0340-0410 News, Market quotations
0650-0720 Market quotations, News
0900-1230 Children's Hour, News, Lecture, Entertainment, Music, Drama, etc.
1230-1300 Time Signal, News, Weather forecast, etc.
2220-2240 Physical Exercise

III. Overseas Broadcasting Test
Transmitter:
JVP 7510 K.C. 20 K.W. Beam antenna
JVN 10660 " " " "
JVM 10740 " " " "
JVH 14600 " " " "
Program:
1. For the East Coast of North America & South America
2100-2200 G.M.T. Announcement, Gramophone music, Etc.
For Europe
1900-2000 G.M.T. Announcement, Gramophone music Etc.

20 KW. Transmitter



Multi-station QSL from the Japanese stations that would become known collectively as Radio Tokyo during WWII. This card was issued shortly before war was declared in December of 1941. (Courtesy of Howard Kemp, NH.)

gramming intended for black American audiences. Radio Free Dixie was apparently intended to promote unrest, subversion, and urban riots. Williams' broadcasts were impassioned and stirring.

Williams had achieved prominence in the mid-1950's as a civil rights activist. However, he left the North Carolina NAACP after expressing views that included using violence "when necessary." In 1961, Williams turned up in Monroe, NC, at a cotton-



John Amery (shown with his French wife) was the English son of a Secretary of State for India. When the British captured him in Milan in 1945, he pled guilty to making wartime propaganda broadcasts on behalf of the Nazis. He was hanged for treason.

mill strike sponsored by the National Freedom Council (NFC). After the KKK caused a fracas during the strike, Williams (acting against NFC orders) and a few others were alleged to have retaliated by kidnaping a white couple. With the FBI in hot pursuit, a defiant Williams left for Cuba.

His militant pronouncements over Radio Free Dixie were, curiously, as strongly against civil rights legislation as were those of the KKK, although he came to his views via a different thought process. Williams said that integration and civil rights laws were ineffective appeasement, a meaningless sham, a sellout, only tokenism, and far less preferable than an armed uprising.

The Vietnam War

Getting back to where we began, let's look closer at Ronald B. Ramsey and his 1966 Hanoi broadcasts directed at American forces serving in Vietnam.

Ramsey was born in the middle-class Los Angeles suburb of Compton. That was in 1939. By 1953 he had been thrown out of the local junior high school for making speeches in defense of Julius and Ethel Rosenberg, an American couple convicted of selling atomic secrets to the Soviets. There is some question as to whether he ever went back to school after that.

The year 1955 saw Ramsey, at age sixteen, publishing *The Nationalist Summary* on behalf of an organization called Americans for America. The publication claimed that Bernard Baruch and Eleanor Roosevelt were Communists, and it spoke out against our participation in the Korean War. It supported radical groups fighting integration in the South. The Anti-Defamation League of B'nai B'rith characterized Ramsey's publication as being anti-Semitic.

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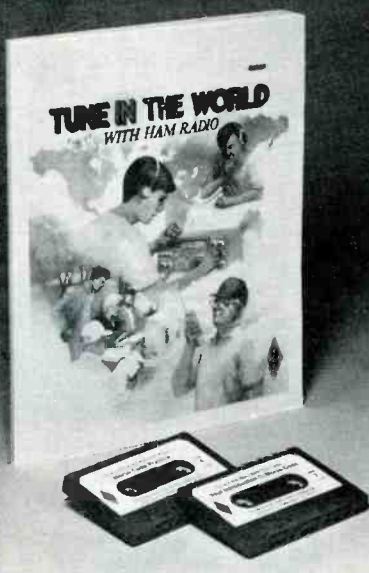
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Oddly, Ramsey later claimed that he had once been arrested while participating in a civil rights march. Nevertheless, after working to get Richard Nixon elected in 1960, Ramsey entered the army, served two years, was discharged, and ended up taking some classes at Berkeley.

Somehow, in early 1964, Ramsey appeared in Kenya. Allegedly, he then made broadcasts on behalf of Jomo Kenyatta's black supremacist regime. But, after only a month or two, he had borrowed \$1,000 from the American embassy in order to buy a ticket back to the States.

When next heard from, it was in February of 1965. The police in Algeria told our embassy they were holding an American "psychologist" on unspecified charges at the Mustapha Hospital prison ward. The embassy sent someone over. It was Ramsey, and what a story he had to tell about himself!

Ramsey's tale was that he had been summoned to Algeria by strongman Ahmed Ben Bella so that he could broadcast propaganda. That's when, he later hinted, he learned the basics of broadcasting, including production, recording, and tape editing.

Maybe Ben Bella didn't like his work. For whatever reason, in late December of 1964, the Algerian police showed up one night to arrest him on charges that were never stated. Ramsey said that he was tortured with electric shocks, and suffered a damaged kidney. The hospital allowed him to hold a press conference and to speak to embassy personnel (who believed his story), but they wouldn't release him.

Freedom finally came in May, when the Algerians turned Ramsey over to the American embassy on the condition that he get out of Algeria right away and never return. Ramsey again borrowed \$1,000 from the embassy to buy a ticket for home. After he was safely out of their country, the Algerians admitted that they had arrested him because he was acting suspiciously and they felt he might have been an American intelligence agent.

Back in the U. S. in May of 1965, Ramsey soon became involved in protest demonstrations against the war in Vietnam, ultimately getting arrested in October during a protest in Washington. That's then he came up with the idea of making tape recordings that could be heard by American troops in Vietnam, in which he would urge them to go home. He said that at the moment the idea struck him, a *Granny Goose* brand potato chip truck happened to be driving by. He saw this as a fortuitous sign, so he thereupon decided to use *Granny Goose* as his name on the radio, although he also used the air name *Joe Libre Epstein*.

Watts The Matter

Ramsey did all of his programs from a two-story wood-frame house in the Watts area of Los Angeles. Via tape recordings made for Hanoi's *Radio Stateside* and

REICHS-RUNDFUNK

European Service



William Joyce, otherwise known as "Lord Haw-Haw" at the microphone, while reading his "Views on the News"

To hear the News in English from the European Service of the Reichsrundfunk, tune in to the following stations and frequencies:

6.30 a. m. German Summer Time (or British Extra Summer Time)

Deutschlandsender on 191 kilocycles (1571 metres)

Calais on 785 kilocycles (396 metres)

Bremen on 160 kilocycles (1875 metres)

Friesland on 232 kilocycles (1293 metres)

short-wave-transmitter DJL on 15110 kilocycles (19.85 metres)

2.30 p. m. German Summer Time (or British Extra Summer Time)

Calais on 785 kilocycles (396 metres)

Bremen on 160 kilocycles (1875 metres)

Friesland on 232 kilocycles (1293 metres)

Luxemburg on 7240 kilocycles (41.44 metres)

short-wave-transmitter DXJ on 7240 kilocycles (41.44 metres)

9.30 p. m. German Summer Time (or British Extra Summer Time)

Calais on 785 kilocycles (396 metres)

Bremen on 160 kilocycles (1875 metres)

Friesland on 232 kilocycles (1293 metres)

Luxemburg on 7240 kilocycles (41.44 metres)

short-wave-transmitter DXJ on 7240 kilocycles (41.44 metres)

6.30 p. m. German Summer Time (or British Extra Summer Time)

Calais on 785 kilocycles (396 metres)

Bremen on 160 kilocycles (1875 metres)

Friesland on 232 kilocycles (1293 metres)

short-wave-transmitter DXJ on 7240 kilocycles (41.44 metres)

11.30 p. m. German Summer Time (or British Extra Summer Time) and

12.15 p. m. German Summer Time (or British Extra Summer Time)

Calais on 785 kilocycles (396 metres)

Breslau on 950 kilocycles (316 metres)

Cologne on 658 kilocycles (456 metres)

short-wave-transmitter DXM on 6200 kilocycles (48.39 metres)

"Views on the News" by William Joyce (otherwise known as Lord Haw-Haw) are broadcast daily

at 10.30 p. m. German Summer Time (or British Extra Summer Time)

via:

Calais on 785 kilocycles (396 metres)

Breslau on 950 kilocycles (316 metres)

Cologne on 658 kilocycles (456 metres)

short-wave-transmitter DXM on 6200 kilocycles (48.39 metres)

This WWII sked for English language medium and shortwave European Service broadcasts from Hitler's Germany was printed for the benefit of Britons. The photo at the top is proudly identified as "William Joyce, otherwise known as Lord Haw-Haw." The English detested this traitor almost as much as they hated Hitler, himself.

Radio Liberation, Ramsey generated hours of popular music, local news, and anti-war propaganda programming.

At first, beginning with just a stock tape recorder, Ramsey soon put together a professional quality recording and production studio. The taped programs would be mailed to a friend in Quebec, then to a certain address in Prague. After that, it was only a matter of weeks before they were aired in Hanoi and GI's could hear his rather irritating high-pitched voice. They hated the voice even more than the rhetoric.

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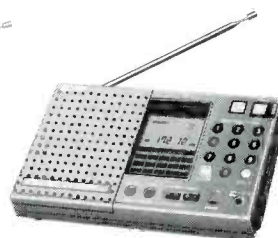
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Mildred Gillars, shown in a photo taken sixteen years after the war ended, was an American who was put on trial for making the infamous "Axis Sally" wartime broadcasts for the Nazis.

Broadcasts usually consisted of anti-war commentary and remarks possibly intended to have a demoralizing effect. There would also be lots of hometown (Los Angeles) news, especially relating to GI's. Separating the spoken items were pop tunes that had been recorded off the air from Los Angeles stations.



Ronald Ramsey, a 26-year old American, said he was the mysterious "Granny Goose" whose broadcasts were taped in Los Angeles and then broadcast by Hanoi. The half-hour programs seemed intended to demoralize American troops in Vietnam, although Ramsey claimed that he was a "super-patriot" who was against the war. This photo was taken at his 1966 press conference at U.N. Plaza in New York City.

A Slow Pace, Until The Feds Appeared

Ramsey said that although the *Granny Goose* broadcasts were each one half-hour in duration, sometimes he would spend several days tape recording the comments to be used on a single program. Then, he would edit out fluffs or ideas he didn't like, splice in the musical selections, and end up with the finished program. This leisurely pace was an inefficient method of cranking out programs. Ramsey made a total of only eleven *Granny Goose* tapes from the time he began in October of 1965 until he left California in February of 1966.

Actually, Ramsey left in a hurry. It was just slightly before government agents came knocking on his door with a subpoena from the House Un-American Activities Committee. He left behind the whole recording studio. Ramsey later showed up in New York City, telling reporters that he had brought along his Norelco Carry-Corder and was still producing programs from friends' apartments.

The strange thing was that it was Ramsey's own actions that eventually gave away *Granny Goose's* identity. Otherwise, he might have remained unidentified for an indefinite period.

A Case of Foot-in-Mouth Disease

Seems that Ramsey had anonymously sent a *Granny Goose* demo tape to Pacifica's Los Angeles FM station, KPFK. Pacifica's stations have always offered an open forum to an extremely wide range of viewpoints on all topics, but Ramsey's tape was auditioned with alarm by KPFK's staffers.

Among the choice quotes on the tape was one that said, "We're not asking you to shoot your commanding officer or sergeant in the back; not at this time." Comments such as this caused KPFK's manager to call the FBI about the tape.

Ramsey eventually called KPFK to ask why they hadn't broadcast his tape. They told him that the tape would be played January 1, 1966 over KPFK, also on Pacifica's other stations, KPFA in San Francisco, and WBAL, in New York City.

Flushed with his apparent fame and success, Ramsey contacted the Los Angeles offices of *Newsweek* and told them about *Granny Goose*. He said that he didn't consider himself a Communist, but a super-patriot acting in the best interests of the United States. By then, the government knew the identity of *Granny Goose*.

The FBI was trying to figure out how to regard Ramsey inasmuch as the U.S. wasn't officially at war with Vietnam. If there wasn't a declared war, then they weren't exactly certain that treason could exist. Congress wanted to speak with him anyway, and they issued their subpoena. But Ramsey was gone by the time it arrived.

Ramsey hit the news media on March 6,

1966 with a press conference on the steps at U.N. Plaza, outside the United Nations Building in New York City. He complained to the press that the government had forbade him to use his passport to try and leave the country. As he was speaking, two men attempted to push their way towards him through the crowd of reporters. Ramsey mumbled a couple of words about government investigators, then bolted up the steps. Apparently he slipped quietly out of the country after that, and *Granny Goose* was never again heard from.

Twenty-five years later, in 1990, American GI's are being given a helping of the same type of broadcasts. Most recently, it's Baghdad Radio, the official Iraqi government station, with the Iraqi announcer speaking in broken English. This time it isn't an American, it's local talent. "Do you want to go back home from this place? Would you like to be one of the wounded who are remembered only during charity ceremonies? Ask your friends what happened in Vietnam. The American soldiers' corpses are lost forever in Vietnam after they had been eaten by worms."

It's not quite *Granny Goose*, or even *Hanoi Hannah*, but it's still the same old message that's been played over and over to different troops, in different languages, on different frequencies, by different announcers, in different wars.

Are you tuned to your radio this Holiday Season, listening to the soothing sounds of Silent Night, and the cheery message of how Santa Claus is Coming to Town? Then, how about giving an extra good thought and a special prayer to all service personnel stationed far from their families this time of the year, especially those whose radios bring them the discomfiting sounds of psywar instead of Holiday music.

More Information

Propaganda and psywar broadcasts are a fascinating aspect of radio history. The most informative books on the subject are *Clandestine Radio Broadcasting*, by Prof. Lawrence C. Soley and John S. Nichols (Praeger Publishers, New York, NY, 1986); also *Radio Warfare*, by Prof. Lawrence C. Soley (Praeger Publishers, New York, NY, 1989); and *Cuban-American Radio Wars*, by Howard H. Frederick (Ablex Publishing Corp., Norwood, NJ, 1986). Larger libraries should have these available.

Till Next Month

We offer you our best wishes of the Season. And we thank you for your cards and kind letters, photos, QSL's, and other items for this column sent throughout this past year. As usual, our December column has been dedicated to members of the armed forces. Hope you join us in the January issue when we will return to our more traditional column format.

PC

NEW PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS



Communication Manager For The ICOM™ IC-R7000 Receiver

DELTA RESEARCH is delivering its MS-DOS version of DELTACOMM™ 1.04, a state-of-the-art communication manager for the ICOM™ R7000 receiver. With speed as a design goal, DELTACOMM's™ spectrum log function can sweep a frequency spectrum at approximately 1300 channels/minute, generate a histogram and log frequency/activity to the disk. DELTACOMM™ offers a multitude of exceptional features including priority channel monitoring, software control of a tape recorder, Morse Code ID of an active channel, automatic receiver characterization (birdie lockout), on-screen HELP and import/export file transfer capability.

Unsurpassed priority channel sampling every 2.5 seconds combined with software control of a tape recorder and Morse Code ID of channel number offers unlimited monitoring and logging possibilities.

Receiver characterization with birdie log automatically stores all receiver birdies prior to a frequency search operation. The birdie channels are then automatically skipped during a frequency search operation.

DELTACOMM's™ powerful function allows priority channel selection and the parameters of each channel number are individually programmable. The parameters are frequency, mode, resume scan delay (1-99 seconds), maximum monitor (1-999 seconds), tape record channel (on/off), channel information field (40 characters), channel lockout, clear activity counter and Morse Code ID.

The optimized spectrum log feature can sweep a frequency spectrum at approximately 1300 channels/minute, display a histogram in realtime and log frequency/activity information to disk. The disk file created during a spectrum log is a scan compatible file that may be used with DELTACOMM's™ scan function.

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ally skips those frequencies during the remaining search cycles. This feature eliminates redundant logging of channels during a search process.

User friendly window style screens with on-screen HELP reduce the need to reference the user manual.

DELTACOMM's™ delimited file information exchange capability allows unlimited possibilities for custom report generation with the user's favorite spreadsheet or database software, thus saving many hours of typing.

DELTACOMM™ comes complete with communication interface, power supply, cabling and components required to interface to the R7000 receiver. The DELTACOMM™ interface requires no internal receiver connections.

For more information, contact Delta Research, PO Box 13677, Wauwatosa, WI 53213, or circle 102 on our Readers' Service.



Monitor Offers Spectral Analysis And Logging Functions

Indianapolis: ACE Communications has announced the availability of a computer driven frequency logging and analysis system. The complete package consists of a receiver that covers 100 kHz to 2036 MHz, plus control software and serial interface hardware.

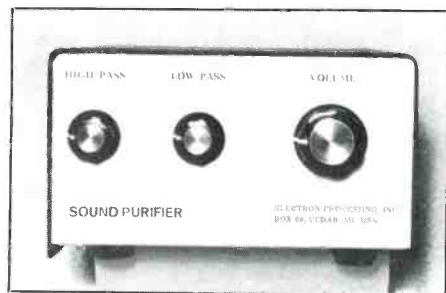
The new system is designed for stand-alone, unattended monitoring and logging of any group of frequencies within the receiver coverage range, in Wide FM, Narrow FM, AM, or single sideband operating modes.

Two basic types of analysis and logging functions are offered with the package. The first, a tabular method, lists active calls by frequency, signal strength, date, time, and even keys the call to a tape recording of the audio portion of the radio transmission.

A Spectrum Analyzer type display is the second basic method of logging and analysis. On a computer monitor, the display will show "spikes" of received frequencies vertically ranked by signal strength. The horizontal axis represents the radio frequencies being received. The display can be either viewed on a screen printed on a dot matrix or laser printer. Tabular data can also be printed, or stored to disk.

The RS232C serial interface allows for remote operation and future expansion capabilities. A transfer rate of 4800 baud is supported.

A suggested retail price of \$1,290 has been set for the system. For further information contact ACE Communications at 1-800-455-7717 or via FAX at 1-800-448-1084, or circle 101 on our Readers' Service.



Noise Reducing Audio Filter

Electron Processing, Inc announced an audio filter that improves reception of signals that are either weak or experiencing interferences. The SOUND PURIFIER makes reception more enjoyable by effectively sharpening your receivers' filters and eliminating annoying "garbage" from the sound.

Noise and interference are greatly reduced, thanks to two multi-stage active "switched capacitor" audio filters. Operation is easy with the two front panel tuning controls. A handy volume control is also provided. A potent 5-watt audio amplifier delivers plenty of sound, too!

Easily used with any receiver or transceiver, the SOUND PURIFIER connects between the external speaker and the receiver. The unit is housed in a handsome 6" x 5.25" x 3": metal cabinet and powered by regular 115 VAC. For mobile use, a +12V DC powered version is also available for an additional \$4.

The SOUND PURIFIER is priced at \$89.95 with a special limited time introductory price of \$79.95. For additional information, contact Electron Processing, Inc. at PO box 68, Cedar, MI 49621 or call (616) 228-7020, or circle 103 on our Readers' Service.

Look, Up In The Sky . . .

Mark Long's 1991 *World Satellite Annual* arrived. Formidable, yes! Each of its sections are printed on different color paper—pink, yellow, blue, white, and tan. The book doesn't have consecutively numbered pages, but it's well over an inch thick and must be at least 600 pages.

This is a comprehensive and detailed reference book for dish owners, researchers,

engineers, manufacturers, technicians, and everybody else who needs to know about the present status of present and future commercial satellites.

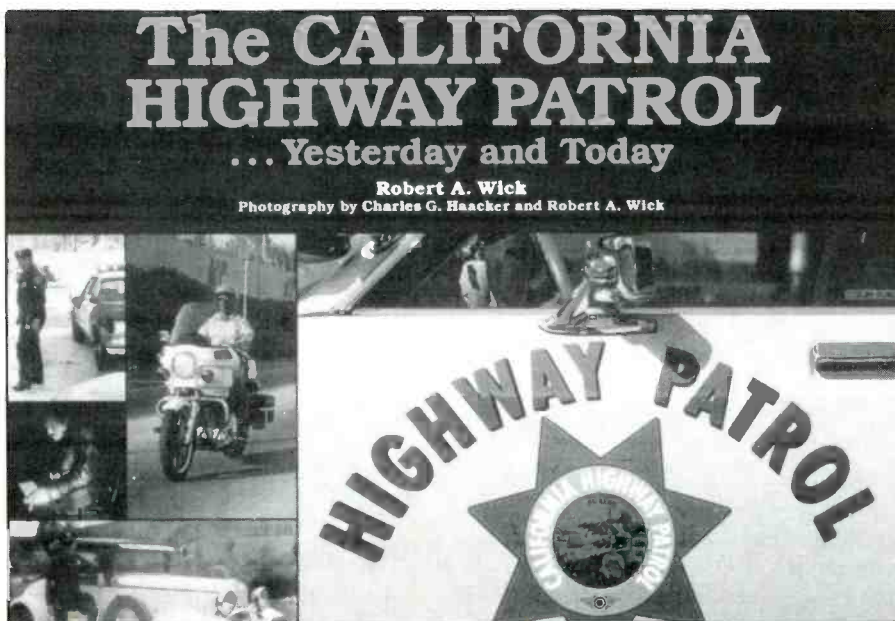
Learn what's new with DBS, launch vehicles, satellite news gathering, new antenna technologies, and new scrambling systems. There's information on next-generation satellite systems from many nations, plus updates on existing systems. There are more

than 100 new charts, graphs, and signal contour footprints.

Satellites covering each of the world's three ITU Regions are listed individually in separate sections of this book. This information tells of the history and ownership of each satellite, its tech specs, its usage, coverage, and more. Another large section of the book provides details of the locations of each satellite, and the purpose/frequency of each of its transponders, plus other related data.

There's an enormous amount of information here, and if you've got any professional or hobby interest in what's going on in the realm of commercial satellites, this big book certainly will give you more than you need to know.

The 1991 *World Satellite Almanac* is available for \$49.95, plus \$7 postage (US and Canada) from MLE Inc., P.O. Box 159, Winter Beach, FL 32971. Residents of Florida, please add \$3 state sales tax.



CHiP's Ahoy!

A new 224-page fully-illustrated book by Robert A. Wick is entitled *The California Highway Patrol . . . Yesterday and Today*. Containing more than 475 photos and other illustrations, the text of the book is a wide-ranging history and examination of one of the world's best-known public safety organizations.

The author delves deeply into the structure of the CHP, describing in each of the agency's individual divisions in considerable detail, including the operations of the organization's well-equipped Communications Center. There's information about uniforms and equipment, aircraft, ranks, awards, vehicles, and other equipment.

You'll learn about how CHP personnel train for uniformed and non-uniformed jobs within the agency. You'll find out about the civilians who work for the CHP, the various inspectors, and other specialized employees.

The book covers just about everything you'd ever want to know about the agency. Furthermore, the volume is attractive and well-produced. For those who are intrigued

by this agency, which has always had a definite charisma, this book will certainly be appreciated. Even if you haven't heard any of the agency's communications activities directly, you've probably become familiar with the CHP via the considerable coverage it receives on TV and via Hollywood.

The one thing that we would have liked to have seen added to this fine book would have been detailed information on the CHP's large statewide communications system, including frequencies, stations, call-signs, procedures, etc. There are no frequency or station listings of any kind in the book. Listings of this type would have been a great finishing touch to complete the author's portrait of the agency.

Still, it's a most worthwhile reference overview of this important agency.

The California Highway Patrol . . . Yesterday and Today, is available at \$18.95, plus \$3 shipping, from Phase Three Publishing, Dept. EJ, P.O. Box 151210, San Rafael CA 94915. Allow 4 to 6 weeks for delivery. California residents, please add \$1.14 sales tax.

Guide To Shortwave Intrigue

Harry Helms, AA6FW, scored a winner when he came up with the idea for the *Underground Frequency Guide*. The original edition of the book came out in 1989 and was an instant success. Harry defined it as, "a guide to spies, smugglers, guerrilla forces, and other unusual signals on short-wave radio." And, who better than Harry Helms to put together such a book? As our regular readers of *POP'COMM* know from his by-lines on features in our pages, he's an authority on intercepts of strange and unusual transmissions.

An all new, greatly revised, and expanded 2nd Edition of *The Underground Frequency Guide* is now available. There's text up front, some of it totally new, the rest revised from the earlier edition with new information. This material gets into Helms' very astute observations, perceptions, analysis and tidbits of hard information relating to numbers stations, phonetic alphabet stations, single-letter HF beacons, "KKN" stations, the National Communications System, foghorn, raspers, pulsers, and all manner of other (as he aptly calls) "good stuff." This includes things like Soviet spaceship tracking nets, unidentified CW nets, odd Cuban comms, smugglers, bootleggers, piccolo stations, and even a very strange announcement intercepted on a USN frequency.

The rest of the book is a huge helping of straight-by-frequency listings of mystery and other curious station intercepts. Information is given relating to the station identification,

THE UNDERGROUND FREQUENCY GUIDE

Harry Helms

A guide to spies, smugglers, guerrilla forces,
and other unusual signals on shortwave radio

language, mode, time heard, type of operation noted, and other relevant data of use to monitors. The frequency listings are all new (from the previous edition) and reflect the latest logging reports from intercept stations at various locations. There are numbers stations, mysterious networks, odd signals, and a great assortment of things to assist you in tuning in on shortwave radio's most baffling and curious signals and stations. When you tune in these mystery stations, you realize that there's a lot of strange stuff going on in the world. Not knowing what some of this stuff is might even be a blessing!

This 2nd Edition is now in a large 8½ × 11-inch format, and it's as good looking as it is useful and information-packed.

The 2nd Edition of *The Underground Frequency Guide* is 10.95, plus 1.00 postage from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725. Residents of NY State, please add 82 cents sales tax.

In Addition . . .

Universal Radio issued a new 1990-91 Edition of *The DXer's Directory*, compiled by Fred Osterman. This is a "who's who" type directory of more than 1,800 DX listeners in 75 nations of the world. It shows names, addresses, special interests, call signs, club affiliations, telephone numbers, and other handy data. Listings are arranged geographically, with Americans listed according to states and cities. A separate section lists useful information on about 125 DX clubs, worldwide. The 88 page book is \$4.95 (plus \$1 shipping) from our friends at Universal Radio, 1280 Aida Drive, Reynoldsburg, OH 43068.

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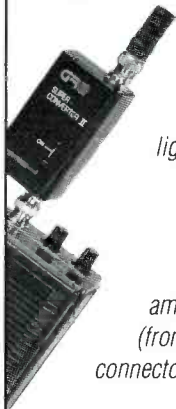
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CIRCLE 44 ON READER SERVICE CARD

Scanning The Private Detectives

Now It's Your Turn To Check Out Those Professional Snoops

BY CHUCK ROBERTSON

Like most scanner owners, I'm fascinated by a good police stakeout, surveillance, or chase. But I've discovered that there's also plenty of surveillance activity taking place in the realm of private detectives and private investigators. Their operations can be every bit as thrilling as any federal, state, county, or local police investigation—often more colorful. So, put on your trench coat and sunglasses; we're going to spy on the pros!

Type Cast

The private detective business is actually divided into two types of operations, private investigators (PI's), and private guards (so-called rent-a-cops). PI's are, by far, the most interesting to monitor. Their activities include determining the credibility of witnesses; the cause, origin, or responsibility of fires and accidents; the location or recovery of stolen property; securing evidence to be used in civil or criminal cases; checking out certain insurance claims; giving polygraph tests; acting as confidential couriers; executive protection; bringing back bail jumpers; locating runaways and persons who are trying not to be found by creditors, spouses, and others; investigating industrial espionage and pilferage; integrity shopping; electronic sweeps; executive protection; pre-employment background investigation; child custody recovery; and more.

Perhaps more than anything else, marital



Handheld and binoculars ready, the PI is set for work.

cases are the bread and butter of most PI's. Some of the things they have to do (and need to discuss over the radio) makes afternoon soaps seem like tame stuff. "I followed our client's wife to the strip pits, and well... his suspicion was right. I got photos for him to see."

One of the most intensive auto surveillances I ever heard came from a crew of PI's

in Granite City, IL. As I was tuned to 30.76 MHz, I listened as they wove their way through the labyrinth of city streets, each taking periodic turns following the target vehicle for only a few blocks so the driver wouldn't become suspicious. Agent ID's and most locations were concealed in alphanumeric codes, as good as anything you'd hear on any regular law enforcement

Table 1
VHF Low Band Channels Preferred By PI's

27.39	31.00	35.14
27.41	31.04	35.18
27.43	31.16	35.70
27.45	31.20	35.72
27.47	31.24	35.88
27.49	33.14	35.90
27.51	33.16	35.92
27.53	33.40	35.94
30.76	35.02	35.96
30.80	35.04	35.98
30.84	35.06	42.96
30.88	35.08	42.98
30.92	35.10	43.00
30.96	35.12	

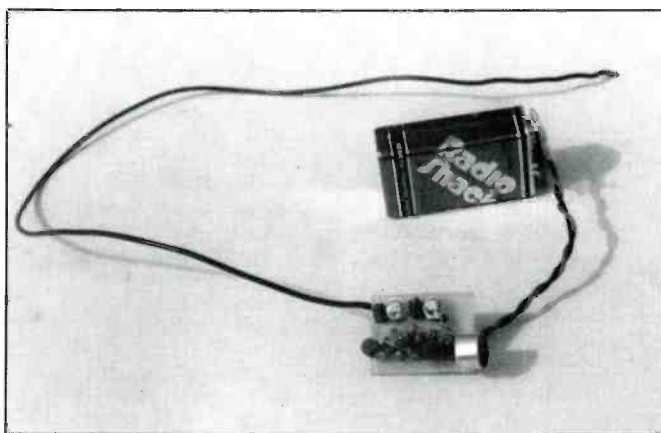
Table 2
Band Ranges Used By PI's For 2-Way Comms

72.02 to 72.98 in 20 kHz steps.
75.42 to 75.98 in 20 kHz steps.
150.815 to 151.475 in 30 kHz steps (PR & VI only).
151.625 to 151.995 in 30 kHz steps.
152.27 to 152.42 in 15 kHz steps.
154.515/154.54/154.57/154.60
157.41 to 157.68 in 15 kHz steps.
460.65 to 462.175 in 12.5 kHz steps (paired +5 MHz)
463.20 to 464.975 in 12.5 kHz steps (paired +5 MHz)
471.1625 to 511.4375 (Portions of band; major cities).
854.7625 to 865.9875 in 25 kHz steps (paired -45 MHz)



Guards, watchmen, and other descriptive terms are applied to the uniformed operatives of private security forces.

Wireless microphones may be used during the course of an investigation. This one is supposed to operate between 70 and 130 MHz, but can be tuned to beyond 300 MHz.



channel. Of course, many PI's are retired law enforcement professionals, so they're making use of years of experience.

It isn't always that way. In stark contrast, some PI's monitored on 30.60 MHz (a Special Industrial Radio Service channel) were an unintentional laugh riot. During the course of something they kept referring to as *Operation Cantaloupe* (Can't Elope?), the agents (Mr. T. and Forehead), followed the target vehicle to a house, then moved in close under cover of darkness. From their joking around, it seemed as if they were having a ball.

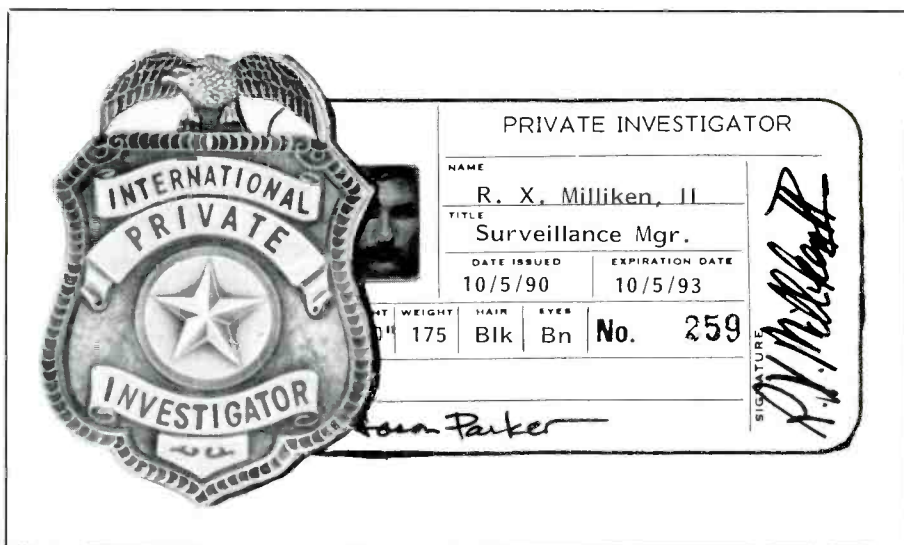
These comms were heard via Sporadic-E skip, so I'm not sure where they originated. Most PI's are licensed in the Business Radio Service, so these jokers were most likely not even licensed for operation on 30.60 kHz. But, not all PI's always play strictly by the rules.

Someone Is Listening

Wireless microphones fall into the category of being part of a PI's tools. It's not always possible to determine what frequency they may be using for such surveillance, although you can take some educated guesses.

Most professional wireless mics will operate somewhere between 26 MHz and 1 GHz (1,000 MHz). I recently purchased a wireless mike kit with specs that claimed wide FM mode operation between 70 and 130 MHz. As verified by an Optoelectronics frequency counter and an Icom R7000 receiver, with a little tinkering the unit could be made to transmit from 65 MHz to 320 MHz.

Wireless mikes with wide FM (WFM) output are almost impossible to copy on most standard scanners, since those scanners are intended to pick up NFM mode signals.



Although much of the PI's work is plodding and routine, the job has plenty of fascinating and intrigue-filled highlights. This is especially true of surveillance and undercover assignments. You can hear it on your scanner. (Credentials courtesy CRB Research.)

You'd be lucky to hear an occasional burst of audio. Use a scanner with WFM capabilities to sleuth these low-power devices.

The FCC has allocated several VHF frequencies for wireless mikes. These are: 169.45, 169.505, 170.245, 170.305, 171.045, 171.105, 171.845, and 171.905 MHz. Any of the Land Mobile services might turn up on these channels (using NFM as well as WFM). Everything from fast food restaurants to the police could appear, so keep an ear open.

Auditory assistance transmitters for the hearing-impaired may (illegally) be used for eavesdropping. They operate in the 72.025 to 72.975 MHz and 75.425 to 75.975 MHz ranges. Most channels are NFM, a few are set aside for WFM.

Wireless mics are made for use in the TV broadcasting and motion picture industries, and undoubtedly some of this hardware has been (again, illegally) put to illegal use for surveillance work by PI's. The tie-clip mics used by anchormen are examples of these devices, so you can see how well-suited they are as body mics ("wires").

The bands available for such units include 54 to 72 MHz, 76 to 88 MHz, 174 to 216 MHz, 470 to 608 MHz, and 614 to 806 MHz, in 25 kHz steps. As many as eight WFM channels can be thus "stacked." Also check out 26.10 to 26.48 MHz, 161.625 to 161.775 MHz, 169.00 to 172.00 MHz, 50.05 to 450.925 MHz, 55.05 to 55.925 MHz, and 94.0 to 952.0 MHz for illegal use by PI wireless mics.

List 3

Selected Private Detective & Related Frequencies

27.45	Eagle Detective Agcy., Worcester, MA		Miley Security, Greenwich, CT
27.47	Brooks Armored Car Svc., Wilmington, DE		Lane Security, Marco Isl., FL
30.76	United Security, Gallipolis, OH		Kelly Detect. Agcy., Chicago, IL
31.04	Private Detective Svc., Warren, OH		Rollo Security, Laplace, LA
31.16	Security Patrol, Summerville, SC		Cape Home Security, Dennisport, MA
33.16	Eagle Security, Lancaster, PA		Thompson Investig., Millersville, MD
35.08	Sizemore Security Int'l., Augusta, GA		Amer. Bur of Investig., Southfield, MI
35.10	Baker Prot. Svc., Los Angeles area, CA		Gulf States Invstgtns., Biloxi, MS
35.12	D&G Patrol, Longmont, CO		Williams Detectv. Agcy., Elizabeth, NJ
	Private Detective Invstgns., Jamestown, NY		Fielding Security, S. Glens Falls, NY
35.92	Neo Invstgns., Ashtabula, OH		Youngstown Secur. Patrol, Cleveland, OH
35.94	Bomard Invstgns., Salisbury, MD		Protective Security, Johnstown, PA
	Daken Invstgtve. Svc., St. Paul, MN		New England Secur., Westerly, RI
35.96	Indst'l. Secty. Det. Agcy., Greensboro, NC	151.805	Ball Investig., Nashville, TN
	Gold Star Security, Camden, NJ		Liberty Park Patrol, New York, NY
	Baker Protective Svc., Hempstead, NY		Pacific NW Investig., Veradale, WA
35.98	Baker Protective Svc., Ann Arbor, MI		Arkansas Prisoner Trnspt., Little Rock, AR
42.96	Ariz. Prot. Agcy., Tucson, AZ		Baker Protec. Svc., Colo Springs, CO
	Korbel Security, Guerneville, CA		Guardsman Security, Coral Gables, FL
	Sentry Security, Haily, ID		Ill. Counties Det. Agcy., Mt. Prospect, IL
	Gloss Guard & Invstg., Glen Ellyn, IL		Cook Security Agcy., Evansville, IN
	Nat'l. Detect. Bur., Huntington, WV		Bay Security, Quincy, MA
43.00	Int'l. Security Police, Mobile, IL		Thompson Detect. Agcy., Millersville, MD
	Investigation Svc., San Francisco, CA		Merchants Detect. Agcy., Lincoln Park, MI
	Search Security, Battle Creek, MI		Security Svc., Helena, MT
	Palitz Detect. Agcy., Tooele, UT		Baker Protec. Svc., Charlotte, NC
151.625	IB1 Security Svc., Hauppauge, NY		Valade Investig., Nashua, NH
151.655	ABA Guard Svc., Miami, FL		Burns Int'l. Security, Albuquerque, NM
	Gulf States Investgs., Biloxi, MS		MCI Security, Great Neck, NY
	Stroupe Security Ptrl., Charlotte, NC	151.835	Security & Investigs., Inc., Dayton, OH
	Gemini Security, Newark, NJ		Penn. State Invstgs., Inc., State Coll., PA
	Security Svc., Inc., Findlay, OH		Burns Int'l. Detect. Agcy., El Paso, TX
	Security Svc. Assn., San Antonio, TX		Tom King Detect. Agcy., Oakland, CA
151.685	Gore Security, Flagstaff, AZ		Tri State Secur. Patrol, Panacea, FL
	Logan Invstg., Newark, DE		Souther Security Svc., Norcross, GA
	Suburban Security, Nicholson, GA		Cosmopolitan Det. & Investig., Chicago, IL
	Hurst Security, Kankakee, IL		Twin Co. Secur. Agcy., E. Chicago, IN
	Clark Detect. Agcy., Evansville, IL		Security Guard Svc., Baton Rouge, LA
	CES Security, Baltimore, MD		Cober Security., Acushnet, MA
	Executive Invstg. Svc., Champlin, MN		Hi Teck Invstgns., Glen Burnie, MD
	Barnhart Invstgn. Co., Lee's Summit, MO		CVC Security, Muskegon, MI
	Schneider Security Agcy., Fayetteville, NC		Spartan Security, Jamaica, NY
	NH Security Guard Svc., Manchester, NH		Loss Prevention Consultnts., NY, NY
	Ace Security, Haledon, NJ		Command Security, Hato Rey, PR
	Four Corners Alarm/Patrol, Farmington, NM	151.865	Winders Security, Rock Hill, SC
	Miley Protec. Agcy., Allentown, PA		ABCO Int'l. Security, Houston, TX
	JRS Security Svc., Conroe, TX		Lambert Det. & Secur., Princeton, WV
151.715	American Protec. Svc., Oakland, CA		Crabtree Security, Rncho. Cucamonga, CA
	Bullens Detect. Agcy., Hockessin, DE		Associated Investigs., Orlando, FL
	Municipal Protec. Bur., Hallandale, FL		Pacif. Security Alarm Co., Agana, GU
	HI Protec. Assn., Honolulu, HI		Ohlson Investig. & Secur., Bloomington, IL
	Omni Security Grp., Chicago, IL		Custom Intell. Det. Agcy., Linden, MI
	Recon Security Svc., Indianapolis, IN	151.895	Statewide Investigs., Rocky Mount, NC
	Carolina Secur. Patrol, Williamton, NC		Valencia Secur. Patrol, Beler, NM
	Spear Detect. & Secur., Jersey City, NJ		Yaurel Security, Ponce, PR
	Mills Patrol Svc., New York, NY		Continental Secur. Guards, Phoenix, AZ
	Acrux Invstg. Agcy., Bellefontaine, OH		Fox Security, Fremont & San Bruno, CA
	Pilgrim/Meyer Secur., Chickasha, OK		Mountain Det. Agcy., Powderhorn, CO
	Sloan Detect. Agcy., Camp Hill, PA		J&R Security Guard Svc., Joliet, IL
	Sutton Invstg. & Secur., Greenville, SC		JMC Security, Milton, MA
	American Protec. Svc., Murray, UT		Dennis Detect. Agcy., Severna Pk., MD
	No. County Secur., Essex Jct., VT		No. NM Security, Angel Fire, NM
151.745	Loop Detect. Agcy., Chicago, IL	151.925	Bay Ridge Security Patrol, Brooklyn, NY
	Security Svc., Southfield, MI		Spartan Private Patrol, Lorain, OH
	Research Svc. Det. Agcy., Asheville, NC		Protectors Secur., Inc., Santurce, PR
	Cruz Aha Secur. Svc., Taos, NM		Protective Secur., Irasburg, VT
	Centurian Secur., Steubenville, OH		Highland Secur., Sitka, AK
	Investig. & Protec., Svc., Altoona, PA		Sanders Det. Agcy., Hot Spgs., AR
	Int'l. Security, Rio Piedras, PR		C&L Investg. & Secur., Honokaa, HI
	BFW Security, Texarkana, TX		Apollo Detect. Agcy, Calumet Park, IL
	Globe Security, Vienna, VA	151.955	Z Int'l. Investig., Long Beach, NY
	Northwest Prot. Svc., Seattle, WA		Palen Investigs., Decatur, GA
151.775	Ban Security, Hamilton, AL		Baker Protec. Svc., King of Prussia, PA
	C&S Security, Cortez, CO		Fogarty Security, Barstow, CA
			Beverly Hills Surveillance, Bev. Hills, FL
			2 Star Det. Agcy., Cedar Rapids, IA
			Hall Security, Louisville, KY

	Rocky Mtn. Secur., Bozeman, MT				Colt Protec Svc., Las Vegas, NV
	Special Police Svc., Lakewood, OH	462.025			Securguard, Washington, DC
	Douglas Secur., Roseburg, OR	462.05			ERS Secur. & Det. Agcy., Chicago, IL
	Security Enforcer, Inc., Santurce, PR				Dinatale Det. Agcy., Boston, MA
	Pinkerton Det. Agcy., Edina, MN	462.125			Protectors Security, San Diego, CA
	ILI Security, Fayetteville, NC	462.175			Ogden Security, Hartford, CT
154.515	United Intelligence, New York, NY	462.55			L&M Security, Denver, CO
460.90	Baker Prot. Svc., San Francisco, CA				Explorer Investig., New York, NY
	Baker Prot. Svc., Atlanta, GA	462.575			Carrs Security, San Jose, CA
	Baker Prot. Svc., Oahu, HI	462.70			Perry Investig., Chicago, IL
	Baker Prot. Svc., Buffalo, NY	462.725			Young Detect. & Secur., Jackson, MS
	Baker Prot. Svc., Chicago, IL (& 462.725)	462.7625			IBI Security, Hauppauge, NY
460.925	Bay Alarm Co., Oakland, CA	463.225			W. Coast Secur., S. San Francisco, CA
	Baker Prot. Svc., St. Louis, MO				Airport Private Security, Miami, FL
	Day Decectives, Jackson, MS	463.25			Diamond Secur., Washington, DC
461.05	On Guard Svc., Miami, FL				Executive Secur., Washington, DC
	Louisiana Patrol Svc., New Orleans, LA				Fiallo Detect. Agcy, Miami, FL
	Nationwide Secur., Detroit, MI (& 463.60)				Berkshire Investig. Agcy, Atlanta, GA
	Twin City Security, Minneapolis, MN	463.35			Atlanta Investig Agcy., Atlanta, GA
461.075	Doyle Det. Bur., Rochester, NY				Private Protect. Agcy., Charlotte, NC
461.10	Centennial Security, Chicago, IL	463.375			Unio Detect. Agcy, Miami, FL
	Lomprey Investig., Las Vegas, NV				Brownlee Detect. Agcy, Atlanta, GA
461.125	6 Flags Secur. & Investig., Mobile, AL				Intercept Investigators, Baltimore, MD
	Little Rock Alarm Co., Little Rock, AR	463.45			Warfield Security, Wichita, KS
461.15	Rainey Security, Washington, DC	463.475			B&B Investig. Svc., Miami, FL
	Buccolas Detect., Agcy, New Orleans, LA				Statewide Detect. Agcy., Chicago, IL
	Jabar Secur. & Detection, Detroit, MI	463.50			Baker Prot. Svc., Louisville, KY
461.175	CBA Security, Phoenix, AZ	463.525			Statewide Investig., Las Vegas, NV
	G&B Investig. Agcy., Atlanta, GA	463.575			Becker Investig. Svc., New Orleans, LA
	Quality Investig., Chicago, IL	463.60			Botac Investig. Agcy., Atlanta, GA
	A-1 Detect. & Patrol Svc., Jackson, MS				Renaissance Investig., Detroit, MI
461.20	L&L Investigs., New Orleans, LA	463.6375			Worldwide Secur. Svc., Detroit, MI
	Multi Facts Investig., Detroit, MI	463.675			Huffmaster Detect. Svc., Detroit, MI
461.275	ARC Security, Atlanta, GA	463.725			Interstate Detect. Agcy., Boston, MA
461.325	Caribbean Security, Miami, FL	463.75			Nat'l. Investig., New Orleans, LA
	Executive Security, Chicago, IL	463.80			Barton Protec. Svc., Atlanta, GA
	Alpha Detectives, Inc., Boston, MA	463.85			Warriors Secur. Agcy., Ft. Lauderdale, FL
461.35	Peays Detect. Agcy., Gary, IN	463.875			Citywide Det. Agcy., Chicago, IL
	Executive Security, Las Vegas, NV				Maximum Secur., Albuquerque, NM
461.375	K9 Suburban Secur., Buffalo, NY	463.925			Sentry Guard Svc., Ft. Lauderdale, FL
461.40	Sonitrol Security, Charlotte, NC	463.95			Able Secur., Washington, DC
461.425	New Orl. Pvt. Det. Agcy., New Orl., LA	464.00			Spence Prot. Agcy., Wilmington, DE
	Watkins Security, Baltimore, MD	464.025			Professional Secur., Albuquerque, NM
461.55	Marill Security, Ft. Lauderdale, FL	464.05			Sepac Secur., Long Beach, CA
	D&H Security, Gary, IN	464.15			Guerette Investig., Charlotte, NC
461.60	A&F Security, Miami, FL (& 461.65)	464.175			Burns Int'l. Det. Agcy., Miami, FL
	Circle Security, Chicago, IL	464.225			Shields Security, Washington, DC
461.625	4-R Security, Chicago, IL				Best Security, Ft. Lauderdale, FL
461.65	Collins Prot. Svc., Atlanta, GA	464.375			Mills Det. Agcy., Louisville, KY
461.675	Colorado Secur., Washington, DC	464.475			Burns Int'l., Fond du Lac, WI
461.70	Marill Security, Miami, FL	464.575			Intersports Secur., Miami, FL
461.725	Valley Isle Secur., Honolulu, HI	464.60			First Secur., Hartford, CT
	Associated Security, Neptune, NJ				Galaxy Secur., Springfield, IL
461.75	Pinkertons, Milwaukee, WI	464.75			BPS Guard Svc., San Diego, CA
461.825	Sun Nat'l Secur., Detroit, MI	464.80			Shrader Investig., Baltimore, MD
461.85	50 States Secur., Miami, FL (& 464.00)	464.875			Wells Fargo Guard Svc., Miami, FL
461.90	Lake Shore Det. Agcy., Chicago, IL	464.95			GER Security, St. Louis, MO
461.95	EFEC Security, Washington, DC				Shore Points Detectives, Atlantic City, NJ
	Delta Secur. & Det. Agcy., Boston, MA	471.3625			Bazooka Secur., Miami, FL
461.975	Burns Int'l. Secur. Svc., Oahu, HI	471.7125			Secur. Officers Svc., Los Angeles, CA
	Target Detect. Agcy., Chicago, IL	472.1875			Star Detect. & Secur., Chicago, IL
	Omega Detect. Agcy., Boston, MA	480.9625			HSC Security, Hicksville, NY
	Wallace Protec. Agcy, Albuquerque, NM	490.2375			Anza Patrol Svc., Oakland, CA
462.00	Nuclear Security, Boston, MA	506.2125			VCB Security, Burbank, CA

There are plenty of inexpensive wireless mics made for operation in the 49.61 to 49.97 MHz band, as well as the 88 to 108 MHz FM broadcasting band. Anybody can buy and use these, however few professionals would use either band because of the interference from cordless phones, room monitors, FM broadcasters, and the like.

Some imported mics operate on non-

FCC approved frequencies. I have heard them between 33 and 34 MHz, 35 and 36 MHz, and 39 to 40 MHz.

Have Gun, Will Travel

The second category of private detective operatives are the private guards, which takes in watchmen, special officers, security

patrols, plant security, and various other similar persons (usually uniformed, sometimes armed) privately hired for the protection of individuals or property.

These operatives might be hired for residential or industrial security, or working at hotels, resorts, sports events, hospitals, condominiums, banks, marinas, concerts, piers, construction sites, shopping malls,

casinos, airports, private residential subdivisions, office buildings, stores, factories, warehouses, theatres, schools, and as VIP or payroll escorts.

When the skip comes in from California, I often hear Baker Protective Service conducting their residential security checks on 35.10 MHz. If you didn't realize that this was a Business Radio Service frequency, you'd think it was a municipal police operation.

Three Alarm Burglary

Some security companies incorporate a Central Station (alarm company) into their activities to provide a broader range of services to their customers. In the event of a break-in or other emergency, a transmitter located in the subscriber's residence or business sends a signal to the Central Station office. The operator on duty then dispatches guards, or contacts the appropriate agency,

such as fire. The police might also be contacted.

In some areas, because of too many false triggerings, police no longer permit home burglar alarms to automatically direct-dial 9-1-1 to send a recorded announcement of a break-in. Persons owning such devices can, however, arrange with a Central Station company to take such calls, and the Central Station can then take whatever action is required.

Many Central Stations operate in the 460.8875 to 461.0125 MHz band, in 12.5 kHz steps. These channels are paired with ones 5 MHz higher. Telemetry is permitted in addition to voice.

Other Central Station activities are in the bands 952.0125 to 952.3375 MHz, and 956.2625 to 956.4375 MHz (25 kHz steps), used for the office to send out a (non voice) interrogation signal to check the operational status of remote security systems.

The remote systems can respond in the 928.0125 to 928.3375 MHz, and 956.2625 to 956.4375 MHz bands, 25 kHz steps.

Spymaster's Guide

Knowing where to look for the private security services can save a lot of time. Most are found on Business Radio Service channels, as listed in the Tables 1 and 2.

Some PI's use cellulars and other car phones as their only two-way comms. This gives them the opportunity to contact their clients directly from the field to ask questions and report progress. Baker Protective Service, in Miami, FL operates its own private car phone system with the base on 151.15 MHz, and the mobiles on 158.61 MHz.

Private guards may utilize the frequency of the firm for which they provide security. For instance, guards at an oil refinery may be hired from a private agency, but their radios may all be operating on a Petroleum Radio Service frequency licensed to the company that operates the refinery.

Armored car and transport companies are often licensed on frequencies in the Motor Carrier Radio Service.

A local security patrol operating in a fancy subdivision near me uses CB radios. To keep vandals and burglars guessing, they change to a different frequency every night.

Handhelds can show up on 'most any frequency, but the low-power Business Radio channels are best bets. Look for them at 25 kHz intervals in the following bands: 460.6625 to 462.1875 MHz, 463.2125 to 464.9875 MHz, 465.6625 to 467.1875 MHz, 468.2125 to 69.9625 MHz.

Other low-power channels include: 27.51, 27.53, 30.84, 33.14, 33.40, 35.02, 2.98, 154.57, and 154.60 MHz.

Also try itinerant Business frequencies: 27.49, 35.04, 43.04, 151.625, 464.50, 464.55, 469.50, and 469.55 MHz.

Hey, they also turn up on all sorts of strange and unauthorized frequencies, like certain VHF-FM marine channels. Favorites are 156.525 and 156.625 MHz, because those frequencies usually sound like chaos anyway, and they aren't often (or at all) monitored by the FCC or the Coast Guard. Also, because handheld transceivers for this band are cheap and easy to get. But, mostly because even clever people under surveillance would never think to listen there to snoop back on those who are spying on them.

It's Your Turn

Well, as a POP'COMM reader, you know where to listen, why to listen, and also how to listen. If you like police and federal surveillance ops, you'll probably like these comms, too. Once you find one of these stations, be prepared to get hooked. Table 3 presents a listing of some of these stations. There are others, but these are a sampling.

Turn off your lights, turn on your scanner, move in slowly!

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CIRCLE 43 ON READER SERVICE CARD

CLANDESTINE COMMUNIQUE

WHAT'S NEW WITH THE CLANDESTINES

The anti-Castro radio war is notching up a few degrees. *La Voz de Alpha 66*, the voice of the Alpha 66 group, is now running a regular program over religious broadcaster WHRI in Indiana. The Alpha 66 program is on the air Monday-Friday at 2330-0000 on 7315 and 9495, repeated at 1130 on 9465 and 11790. *La Voz de Alpha 66* has had at least two other shortwave runs, both times with its own transmitter and both times being closed down by the FCC, though not until after a fairly lengthy period of operation. The only address we have for Alpha 66 at the moment is several years old, so it might be better to write to them in care of WHRI (PO Box 12, South Bend, IN 46624).

The other anti-Castro program aired on WHRI, *La Voz de Fundacion*, produced by the Cuban American National Foundation, is reported to have increased the length of the broadcast to two hours. R.C. Watts in Kentucky and George Neff in Florida report receiving QSL cards from *La Voz de Fundacion*, along with a schedule, bumper stickers and a copy of *The Cuban Monitor*. Neff says he suggested to CANF that they include an English language segment in their broadcast. Reception reports go to CANF, 7300 NW 35th Terrace, Suite 105, Miami, FL 33122.

Another player has walked onto the stage of this Cuban-American radio drama, albeit in a minor role. Listeners in Florida report hearing *Radio Cuba Libre* with occasional five minute transmissions in Spanish on 7100.5. The station has been monitored at various times between about 0030 and 0115, also announcing 7040, 7060 and 7080. The broadcasts are heard only weakly in Florida (where they likely originate) and so are not likely to be from a very powerful transmitter. There was a *Radio Cuba Libre* active around ten years ago, operated by the *Movimento Democratica Christiano*, but it's uncertain whether this new version speaks for that group or is something new using the same name.

We've obtained some information about the Ethiopian People's Revolutionary Party which, as we mentioned recently, is operating the *Voice of EPRP*. The station began operating on May 1 and claims to be located in territory liberated by the EPRP. It began with two half-hour broadcasts per day, but plans to increase that amount and to broadcast in more of the languages of Ethiopia as well. The EPRP says the radio "will be used in the service of the democratic struggle of our people and will observe the need to be objective and truthful." As we noted last month, the station is currently scheduled for broadcasts in Amharic at 0330-0400 and



"Abyot" is published in English by the Ethiopian People's Revolutionary Party's foreign committee.

1730-1800 (0330 offers the best chance for a log) on 7010 and 9400. The group also publishes several newsletters through its Ethiopian Studies, Publications and Information Center. It has offices in Dallas and Alexandria, Virginia, as well as Paris. The EPRP seeks to establish a multi-party democracy in Ethiopia.

The war being fought by various guerrilla groups against the Ethiopian government is going badly for Addis Ababa and the EPRP's is only one of several voices now being raised against the Mengistu regime. Some of these appear to have some chance of being picked up by North American listeners, though no one seems to have done so yet. Try the *Voice of the Ethiopian People for Peace, Democracy and Freedom*. The best opportunity in North America would be 0430-0500 on 7890 and 9335. *The Voice of the Tigre Revolution* is said to be active on those frequencies at 0530. The *Voice of the Broad Oromo Masses* airs at 0400-0430 on 7890 (and perhaps 9335). In all cases, both of those frequencies should be considered as quite variable.

Still another station, though one which won't be heard here on its initial schedule, is the work of the *Ethiopian Democratic Revolutionary Movement*, scheduled for Sundays at 0800-0830 and 1930-2000 on frequencies in the 49, 44, 43, 41, 40, and 31

meter bands. Not much to go on!

ELWA, the longtime religious broadcaster in Liberia, operated by the Sudan Interior Mission, became a rebel station last July when it was taken over by the forces of Charles Taylor as he sought to overthrow Liberian leader Samuel Doe. The situation is still fluid as this is written. A QSL for reception of ELWA during this period would certainly be a prize!

The German newsletter, *Clandestine Calling*, reports that the anti-Turkey stations *Bizim Radio* and *The Voice of the Turkish Communist Party* were the work of the East German government, specifically, the Department for International Alliances through the State Committee for Broadcasting. The broadcasts were aired via transmitters at Konigs Wusterhausen (where Radio Berlin International has transmitters). No QSL's were ever issued by either of these stations, even though they began announcing an address around 1988. The stations were discontinued in 1989.

Contributions to "Clandestine Communique" are greatly appreciated. We need your loggings of clandestine broadcasts, copies of material you receive from stations or the groups which back them, schedules, news items—anything about clandestine radio.

Thanks and—good hunting!

PC

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

Is Nothing Sacred?: When you look through our charts showing call sign changes this month, you may notice one especially important change. That would be the famous old Cleveland station WGAR dropping that venerable call sign after six decades of use. This was tied in with a change in ownership for the station. If memory serves me correctly, our own Alice Brannigan did a write-up on the history of WGAR within the past year.

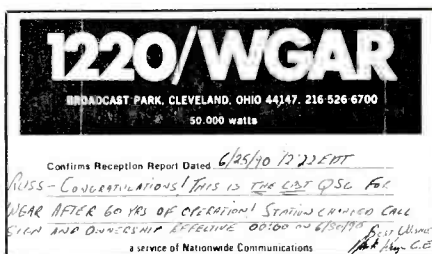
WGAR's new owners decided to change the station's call letters to WKNR. Sorry to see the old call sign dim into history, although one of our readers was lucky enough to obtain the very last QSL card ever to be issued by WGAR. That was Russ Hill, of Oak Park, MI. His WGAR veri was certified as the last of an era by the station's Chief Engineer, who wrote that information across the bottom of the card. Russ sent us the QSL for a look at this trophy!

Russ is trying to get a location for Canadian station CIGM on 790 kHz, which he can just barely hear in the sidewash of nearby powerhouse CKLW on 800 kHz. It's not listed in any directory he has available. If anybody can help Russ, his address is 22041 Sunset, Oak Park, MI 48237.

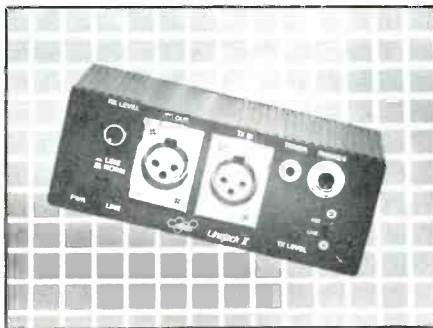
As if the WGAR fadeout weren't bad enough, there's more bad news. Philadelphia's WCAU/1210, the 50 kW CBS outlet that has used that call sign since it went on the air in 1922, also tossed those call letters into the dustbin. WCAU decided to change its format from news and talk and begin simulcasting some of the oldies programming of its more popular sister station, WOGL-FM/98.1 MHz. It seemed to make more sense to ditch the old WCAU call letters and turn the station into WOGL (AM) rather than to let the historic call sign remain intact. The WCAU identification has long been an institution in the Philly area, many listeners were quite annoyed. The changeover also meant the loss of jobs of about 35 full-time WCAU staff members.

Commenting on the WCAU fiasco, reader Giles Berry, of New Castle, DE, wrote, "I'm not a sentimental nut, but it was very strange to do away with a fine old call sign like WCAU. They should have made the FM outlet WCAU-FM if they wanted to change something. Who's running CBS, anyway?"

Cellular Remotes: Listeners may not be aware of it, but cellular phones have had a big impact on broadcasting. Many remote news pickups and interviews that used to be conducted on auxiliary broadcast frequencies in the 161, 450, and 455 MHz bands are simply being fed through cellars these days. Moreover, cellars give the station's listeners a chance to call in breaking news



End of an era. Russ Hill was awarded the last QSL card ever to be sent out by pioneer broadcaster WGAR in Cleveland, OH.



The Linejack II is a new piece of broadcast hardware intended to make it easier for stations to patch through cellular calls, inasmuch as they are becoming a regular feature of news reporting.

stories right from the scene, and be patched through "live" on the air.

One of the newest pieces of broadcast hardware is therefore an interface that easily permits stations to patch cellular calls through mixers, amplifiers, and other station equipment. This is the *Linejack II*, a small device with two balanced female XLR type connectors for input and output, a mini jack for external (mono) audio tuner input, a phono output jack for monitoring of tuner and XLR output audio sources, transmit and receive level pots with 12 dB adjustment, and a line level switch for microphone or line levels. You can plug a mike right into this thing for emergency or immediate broadcast requirements.

The *Linejack II* sells for less than \$300. For more information, contact Cellabs, 20335 Ventura Blvd., Suite 310, Woodland Hills, CA 91364. Cellabs' William Collier will fill you in on the unit, but be sure to let him know you read about it in *Popular Communications*.

Southern California Update: George Schwenk, San Pedro, CA, wrote to say that although our August column mentioned that KKGO switched from jazz to classical music, we should have presented more of the interesting background that led up to the format change.

New FM Call Letters Assigned

KMUS-FM	Burns, WY
KOUA	Mena, AR
KWHU	Midland, TX
KXDA	Chowchilla, CA
KXDE	Merced, CA
KXDJ	N. Ft. Valley, KS
KXDL	Browerville, MN
KXDM	Littlefield, TX
KXDR	Auberry, CA
WFBR	Cambridge, MD
WLGL	Riverside, PA
WTNR	Waynesboro, TN
WXJA	Emporia, VA
WXJB	Harrogate, TN
WXJD	Oscoda, MI
WXJE	Henderson, NY
WXJF	Omega, GA
WXJG	Bappanee, IN
WXJH	Milbridge, ME
WXJI	Grand Rapids, MI
WXJJ	Mt. Vernon, KY
WXJK	Farmville, VA
WXJN	Lewes, DE
WXJO	Bethalto, IL
WXUT	Toledo, OH
WYFV	Cayce, SC

New AM Call Letters Assigned

KXDS	Princeville, HI
------	-----------------

AM Callsign Changes Requested

Present	Seeking	
WGZB	WOCC	Eminence, KY
WKXF	WXLN	Corydon, IN

FM Call Letter Changes Requested

Present	Seeking	
KLRS	KDBQ	Santa Cruz, CA
KOFY-FM	KDBK	San Francisco, CA
WLSI-FM	WJDX	Jackson, MS

Requests Withdrawn For Changed FM Callsigns

Present	Wanted	
KSVN	KXEQ	Ogden, UT
WIRJ	WUNI	Humboldt, TN
WOFM	WTZR	Moyock, NC

Changed AM Callsigns

Present	Seeking	
KMYC	KRFD	Marysville, CA
KTFS	KMLA	Texarkana, TX
WBUG	WKOL	Amsterdam, NY
WDMF	WMRE	Knoxville, TN
WJDS	WJDX	Jackson, MS
WKHL	WHUM	Hugesville, PA
WKNR	WGAR	Cleveland, OH
WKNW	WDHP	Sault Ste. Marie, MI
WKRU	WTKS	Burnettown, SC
WMRH	WLKD	Waupun, WI
WMXF	WEWO	Laurinburg, SC
WUJM	WXCH	Goose Creek, SC
WBVS	WXBG	Burgaw, NC
WVVM	WOHO	Toledo, OH
WYAK	WXMB	Surfside Beach, SC

Applications For AM Facility Changes

KNTA	Santa Clara, CA	1430 kHz Drop to 1 kW nights
KVCL	Winnfield, LA	1270 kHz Drop to 820 W days
WCCF	Punta Gorda, FL	1580 kHz Drop to 710 W
WZGO	Portage, PA	1470 kHz Drop to 140 W

Applications For FM Facility Changes

KLUA	Kailua, HI	93.5 MHz To 93.9 MHz 32 kW
KIOW	Forest City, IA	102.3 MHz To 107.3 MHz 50 kW
KRCD	Chubbuck, ID	98.3 MHz To 98.5 MHz 6.2 kW
KRDI-FM	Decorah, IA	100.9 MHz To 100.5 MHz 50 kW
KTSR	College Station, TX	92.1 MHz To 107.3 MHz 25 kW
WBYQ	Baltimore, MD	96.7 MHz To 94.3 MHz
WHHS	Havertown, PA	89.3 MHz To 107.9 MHz 14 Watts
WIRQ	Rochester, NY	90.9 MHz To 94.3 MHz
WJNA	Churchville, VA	106.7 MHz To 106.3 MHz 25 kW
WSEK	Somerset, KY	96.7 MHz To 97.1 MHz 27.5 kW

FM Facility Changes Approved

KBSS	Booneville, AR	92.1 MHz To 104.7 MHz 50 kW
KCWD	Harrison, AR	96.7 MHz To 96.1 MHz 8 kW
KKLL	Colusa, CA	96.5 MHz To 103.1 MHz 134 kW
KYQT	Newport, OR	102.5 MHz To 102.7 MHz 99.2 kW
WFFN	Cordova, AL	92.9 MHz To 95.3 MHz 2.1 kW
WHUB	Cookeville, TN	94.3 MHz To 98.5 MHz 50 kW
WOLR	Branford, FL	91.3 MHz Move to Lake City, FL
WRAJ-FM	Anna, IL	92.7 MHz To 96.5 MHz 20 kW
WRJT	Monterey, TN	107.1 MHz To 106.9 MHz 34 kW

AM Facility Changes Approved

KSEV	Tomball, TX	700 kHz Increase to 25 kW days
KTER	Terrell, TX	1570 kHz Increase to 600 W
WCTF	Vernon, CT	1170 kHz Increase to 2.5 kW days
WHUM	Hughesville, PA	1190 kHz Move to 1200 kHz, 10 kW/250 W
WLPR	Prichard, AL	960 kHz Increase to 5 kW days
WNOG	Naples, FL	1270 kHz Drop to 1.9 kW nights

George advises that fifty-year veteran classical music station KFAC (AM/FM) was sold. The FM outlet became rock music KKBT. The AM'er was sold to Spanish language KWKW, which hopped over to 1330 kHz from 1300 kHz. A new all-Asian station (KAZN) moved in on 1300 kHz.

Saul Levine, owner of KKGO/KKJZ, began KKJZ (in Hesperia, CA) several years ago as show-tune station KSHO. It then changed to KKGO-AM to simulcast jazz with KKGO-FM. After increasing power and becoming all-jazz KKJZ, the station was moved from Hesperia to Costa Mesa. KKGO now fills the classical void left by the demise of KFAC in Los Angeles.

In other news of the area's stations, George writes that old timer KHJ has undergone changes during recent decades, becoming rocker KRTH (along with the FM outlet) a number of years ago. RKO recently sold both the AM and FM, and the AM owner converted it to Spanish language KKHJ

(since the FCC wouldn't reissue the old three-letter KHJ call).

Anaheim's KEZY (AM/FM) has also undergone numerous changes, according to George. In turn, the station has programmed easy listening, rock, all news, talk, and now music of the 1940 to 1959 era, using a variety of callsigns (presently KORG). KEZY-FM continues as a soft rock outlet.

Nashville Sound: Station WAMB, Nashville (Donelson), TN, puts a 50 kW (directional) signal out on 1160 kHz during daylight hours. At night, however, the station is required to drop its power to 1 kW and run it into a directional antenna. WAMB complained to the FCC that their 1 kW nighttime signal isn't good enough for WAMB to be heard locally, what with 300 kW Cuban *Radio Taino* on 1160 kHz. The FCC granted WAMB, which has no regular FM outlet, special temporary authorization to duplicate its programming on an FM chan-

nel in order to escape the serious nighttime interference from the Cuban station.

Jersey Channel: One of our readers, James J. Esposito, Jr., of Stratford, NJ, is employed at TV station WNJS, Channel 23, in Camden, NJ. He tells us that WNJS is part of the New Jersey Network, with other NJN stations located in Montclair, New Brunswick, and Trenton. A translator will soon be opened in Cape May Court House, NJ. The main NJN studio is in Trenton.

Jim tells us that WNJS has an ERP of 2.34 MegaWatts. He sent along some photos to share with our readers.

Story Behind The Statistics: James W. Hester, Registered Monitor KMS5BQ, of Jackson, MS, writes to tell us something about changes in his home town, as will be noted in our column's listings this month.

He writes that a most unusual situation recently occurred in Jackson. WJDX/620 is Jackson's oldest radio station (started 1929), so people were surprised when it

Applications For New FM Stations

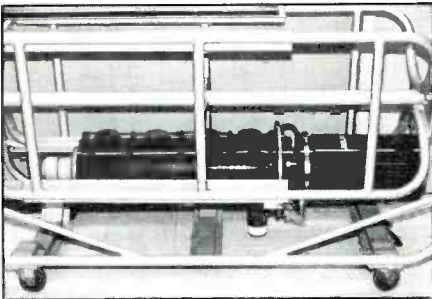
GA	Harlem	95.1 MHz	6 kW
GA	Unadilla	103.5 MHz	6 kW
IN	Austin	92.7 MHz	3 kW
IN	South Bend	89.7 MHz	87 kW
KY	Philpot	94.7 MHz	3 kW
MO	Ellington	103.9 MHz	3 kW
NC	Durham	90.7 MHz	50 kW
NE	Lincoln	88.5 MHz	5 kW
NJ	Bridgeton	89.3 MHz	4 kW
NY	Hudson	91.1 MHz	80 Watts
NY	Jamestown	90.9 MHz	10 kW
SC	Belvedere	88.3 MHz	4.5 kW
TX	Abilene	100.7 MHz	100 kW
TX	Amarillo	96.9 MHz	100 kW
TX	Amarillo	102.9 MHz	100 kW
TX	Brownfield	103.9 MHz	3 kW
TX	Howe	95.3 MHz	6 kW
TX	Lubbock	93.7 MHz	100 kW
TX	Midland	92.3 MHz	100 kW
TX	San Angelo	93.9 MHz	100 kW
TX	Slaton	92.7 MHz	100 kW
WV	Charleston	90.9 MHz	8 kW

Permits Granted For New FM Stations

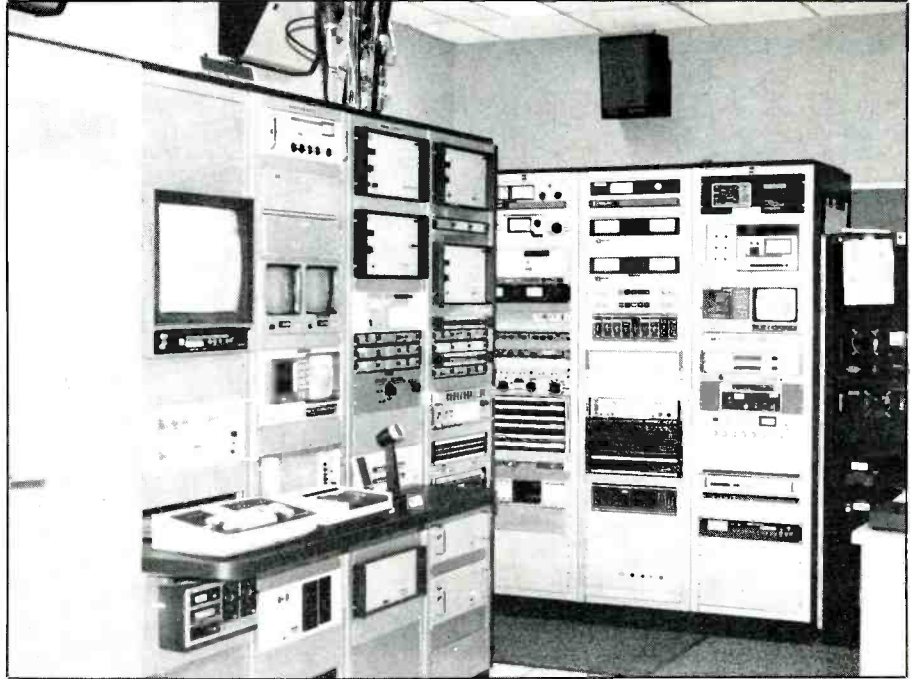
AK	Talkeetna	88.5 MHz	1.9 kW
CA	Ford City	102.1 MHz	3 kW
CA	Thousand Oaks	88.3 MHz	3 kW
IA	Eldora	99.5 MHz	3 kW
IL	Danville	94.9 MHz	6 kW
KY	Berea	106.7 MHz	3 kW
MD	Cambridge	94.3 MHz	3 kW
ME	Thomaston	106.9 MHz	50 kW
MN	Thief River Falls	91.5 MHz	100 kW
MO	Ash Grove	104.1 MHz	3 kW
NY	Hoosick Falls	97.5 MHz	1.8 kW
OH	Ripley	99.5 MHz	3 kW
OH	Toledo	88.3 MHz	17 Watts
PA	Berwick	103.5 MHz	2.1 kW
PA	Meyersdale	93.3 MHz	3 kW
TX	Midland	95.1 MHz	2.5 kW
TX	Muenster	106.5 MHz	3 kW
UT	Moab	89.7 MHz	100 kW
VA	Chase City	99.9 MHz	3 kW
WA	Goldendale	102.3 MHz	3 kW
WI	Tomah	96.1 MHz	3 kW
WV	Clarksburg	90.1 MHz	1.5 kW



The RCA TTU60B transmitter and associated exciter and driver at UHF-TV station WNJS. (Courtesy Jim Esposito, NJ.)



A spare Varian klystron in its rack at WNJS. The transmitter uses three of them. Each weighs 430 lbs., but it will beat a 6L6 any day! (Courtesy Jim Esposito, NJ.)



WNJS' STL and intercity relay microwave gear, monitors, and other associated terminal equipment. The black panel to the right is a new Harris exciter/driver. (Courtesy Jim Esposito, NJ.)

changed its call letters to WJDS. No more surprised than when FM station WSLI/96.3, which is licensed to a different owner, chose the same time to pick up those call letters and become known as WJDX. But that's not the real shocker!

What could top that? When WJDS (ex-WJDX) and WJDX (ex-WSLI), in the same town and owned by competing broadcasting companies, began simulcasting the same programming most of the day! Yes, even though each of these stations already had existing sister stations in Jackson. The combined programming is known as "Mix 96."

Apparently it's all part of a complex arrangement that turns out to be the first of its kind in the nation. Mostly, it had to do with new owners taking over at the former WSLI. They figured out a quick way of reducing costs (eight employees were cut from the staff), while the station was still able to be programmed locally and didn't have to rely upon a syndicated, but anonymous, satellite feed from a distant city. It took a while to get all of the ripples of the unusual agreement worked out with the FCC, but it finally happened.

Oregon Trail: Douglas H. Stingley, Salem, OR notifies us of the new FM station on 104.1 MHz to serve the area around the city of Sisters. This station will be running 1.3 kW with an antenna atop Three Creeks

Butte, 69 ft. above ground, and 216 ft. above the average terrain.

The owner of the proposed station is Schuyler H. Martin, of Burlingame, CA. He's the programming and research director of KSOL, in San Mateo, CA.

Doug tells us that he's relocating to Hawaii and he will be picking up some of the Asian broadcasters in the 153 to 279 kHz band. He asks if we would be interested in getting any reports of this DX. Doug, I don't know if you have ever been to Vermont in the winter. It's beautiful here, but anybody who tells me that they're going to send something to this place from Hawaii is certainly going to be given a green light without any hesitation.

With The FCC: A check of the broadcast licenses in the FCC's computer, as of the end of July, showed a total of 4,979 AM stations, 5,756 FM broadcasters, 1,851 FM translators and boosters, 1,458 TV stations, 4,960 TV translators, and 720 Low Power TV stations.

The FCC is working on the anticipated arrival on the scene of digital radio broadcasting. This will be a form of broadcasting that will provide higher sound quality than can now be provided by existing AM and FM broadcasting services. Digital modulation techniques promise to provide CD quality audio, improved stereo separation, greater dynamic range, better signal-to-noise and interference performance, and elimination (or reduction) of multi-path and fading problems.

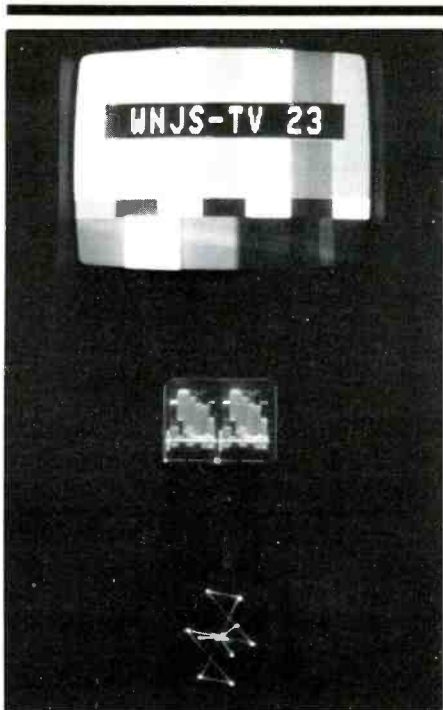
The problems with digital seem to lie in the area of FCC regulations more than anywhere else. The FCC is trying to understand

Changed FM Callsigns

New	Former	
KDBK	KOFY-FM	San Francisco, CA
KDBQ	KLRS	Santa Cruz, CA
KHCA	KSKT	Wamego, KS
KHMX	KNRJ	Houston, TX
KKVU	KUKF	Omaha, NE
KRGR	KCPI-FM	Albert Lea, MN
KROG	KHUG-FM	Phoenix, OR
KRSR	KQZY	Dallas, TX
KSJQ	KRAC	Morgan Hill, CA
KTFS-FM	KMLA-FM	Ashdown, AR
KTHK	KOKL-FM	Okmulgee, OK
KZSR	KWNJ	Reno, NV
KZUS	KTDO-FM	Toledo, OR
WBKW	WPHH	Dublin, VA
WDHZ	WEXX	Mt. Hope, NY
WEYE	WLKW	Surgoinsville, TN
WJAZ	WUCP	Summerdale, PA
WKHL-FM	WKHL	Salladasburg, PA
WKNW-FM	WKNW	Canaan, VT
WMBP	WQHD	Belpre, OH
WMXF-FM	WSTS	Laurinburg, NC
WOOO	WSVL	Shelbyville, IN
WPVA	WCQR	Waynesboro, VA
WPVB	WPAV	Culpeper, VA
WRHD	WRCN-FM	Riverhead, NY
WRXZ	WMLA-FM	Leroy, IL
WSEO	WAIS-FM	Nelsonville, OH
WSHK	WZMX	Russellville, AL
WUJM-FM	WUJM	Goose Creek, SC
WWEC	WQHE	Elizabethtown, PA
WWHK	WGKY-FM	Greenville, KY
WWWM-FM	WWWM	Sylvania, OH

Applications For New AM Stations

NY	Youngstown	770 kHz
PA	Ridgeway	770 kHz
TX	Abilene	1340 kHz

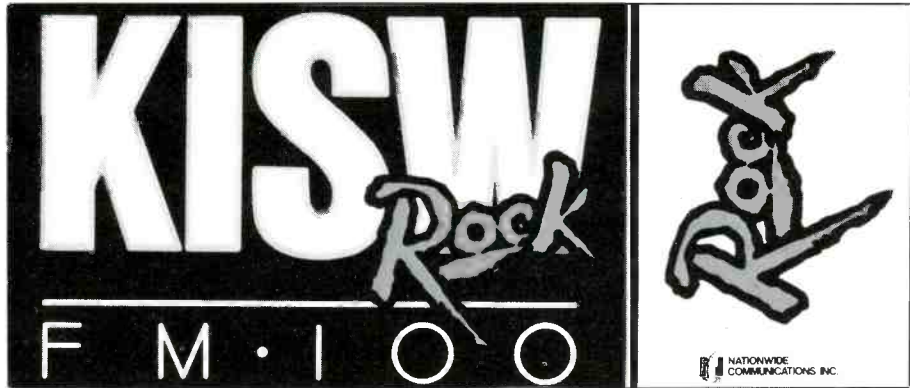


A roll-around rack at WNJS, with test and monitoring equipment aboard. (Courtesy Jim Esposito, NJ.)

what impact digital radio might have on existing AM and FM broadcasting services. Next, it hasn't yet been decided where to wedge digital radio into the spectrum so that everybody is happy, and the service is able to operate at its maximum potential. Next, since several frequency ranges have been proposed, the FCC wonders if one set of policies should be developed covering all



You've got to go some to beat the bumper sticker from country music station KPIG/107.5, Freedom, CA. It was submitted by David Palmer, CA.



KISW/99.9 is a rock favorite in Seattle, WA. Their attractive bumper sticker was sent in by Steve Saunders of that city.



Great bumper sticker from WCXR/105.9 FM, the Number One rock station in Washington, DC. It was sent in by Brad Lust, Registered Monitor KMD3HL, who is a jock at the station. Hey Brad, how 'bout some photos of the layout at WCXR and its sister station, WCPT/730 kHz?

frequencies, or if each band is going to require its own special regulations.

Satellite CD Radio, Inc., suggests the allocation of digital broadcasting frequencies to be used by satellites and terrestrial transmitters operating on channels now used for aeronautical telemetry. The Radio Satellite Corporation wants to build an earth station to uplink digital broadcasts along with mobile services through the mobile satellite system licensed to the American Mobile Satellite Corporation. Another applicant, Stro-

ther Communications, Inc., wants Experimental licenses for Washington, DC, and Boston which would provide fourteen digital audio programming channels on a single UHF-TV channel.

The engineer in the control room is giving us the "wind it up" signal for this issue, so we'll say "30" and wish you a Happy Holiday. We are always looking for AM/FM/TV bumper stickers, stories, photos, recent QSL's, clippings, loggings, or anything along the fringes.

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Organization Of Your World-Band Listening

When you tune to your local news station on the MW band say, ten-sixty (1060), it is always there. Things are much different when tuning shortwave bands because of the many time and frequency changes. Also, there is multiple occupancy on almost every channel. It is common for more than one station to operate on the same channel during different times and sometimes they operate on the same channel simultaneously. Usually the other stations are weak, or not even heard, because they are located in some other part of the world and are not directing their beams to your location. At times, however, two or more stations may be heard on the same frequency. Neither or perhaps one of the stations may be directing its beam in your direction. However, propagation conditions are not always predictable and there can be interference to a station that is beaming to your location. However, one station may eventually take over because of a propagation angular emphasis in directivity that raises one of their signal levels clearly above the other. Propagation, too, changes on a long term basis of weeks and months, and it may well be that other station now dominates the frequency. These variable reception conditions are more pronounced on the higher shortwave broadcast bands. The time and/or frequency of one or both stations may be changed if they keep receiving bad reports.

What to do! Do keep notes in a spiral or loose-leaf notebook. Use a pencil to jot down the information because there are numerous time and frequency changes throughout the year. Sometimes you have heard a good weekly show and you want to hear it again, you keep listening but you can't find the program again. Keep your records near the set so you can write down day, time and frequency. At other times the station may actually be broadcasting, but propagation is not favorable in your location. When two stations are on-frequency and interfere with each other you can often bring the one of interest above the other with two, or several antennas among which you can switch, especially when using an indoor antenna arrangement.

When a station announces frequency or time changes that affect programs, write down the information. Log it immediately. Also, request that you be kept on the list to receive schedules from the particular station. This is often taken care of automatically if you send in a station report several times a year.

It is helpful to have a listing for each band in your notebook and keep them spaced and occupying an adequate number of pages. By so doing you can add information about the particular band over a period of years.

The included table is a sample put together over a couple weeks by occasionally listening in on the 19 meter band. They were all English-language programs. Most were of good readability; others, weaker and sometimes difficult to copy. Some were excellent one day and poor the next. I will mention and disclose some of the unusual facets of world band radio broadcasting. (See Table.)

Afternoon and Evening Signals

1. 1500: The WWV-WWVH time and frequency station is not a world band broadcast station. However, at the beginning of each minute, an exact time tone is given with time stated in UTC. You can use it to set the clock on your receiver to UTC time and the other clocks in the house to your own time zone. It is highly accurate frequency source and has many other time and frequency applications. 15000 is a convenient check for use because its frequency is at the very beginning of the 19M band allocation.

A SELECTION OF 19M BAND LOGGINGS

Late Afternoon and Evening Hours

KHZ	Station and Country	UTC
1. 15000	WWV-WWVH Boulder, CO and Hawaii	24 hours
2. 15070	BBC England and other locations	most of day
3. 15100	China, Radio Beijing	0000-0100
4. 15105	Germany (DW) relayed from Malta	0100-0145
5. 15120	RSA South Africa	0200-0300
6. 15125	Germany, Radio Berlin	0144-0230
7. 15155	HCJB Ecuador	0030-0230
8. 15160	Hungary, Budapest	0030-0100
9. 15180	USSR, Radio Kiev	0300-0330
10. 15205	VOA Greenville, NC	0000-0200
11. 15205	Germany (DW) relayed from Malta	0300-0345
12. 15215	WYFR Florida	1500-2245
13. 15240	Australia (multiple locations)	0000-0100
14. 15260	BBC Ascension Island	2000-0330
15. 15280	USSR, Armavir	0300-0400
16. 15300	WCSN Maine, USA	2200-0000
17. 15315	Netherlands, Bonaire relay	0030-0130
18. 15320	Australia, Shepparton	0300-0400
19. 15325	NHK Japan, Relayed from French Guiana	0300-0330
20. 15330	RTV Rome, Italy	0345-0415
21. 15566	WYFR Florida, USA	1945-2145
22. 15580	KUSW Salt Lake City, Utah	2200-0230
23. 15640	Israel Tel Aviv	0000-0030

Daytime Hours

24. 15000	WWV-WWVH Boulder CO and Hawaii	24 hours
25. 15070	BBC England and other locations	most of day
26. 15115	HCJB Ecuador, Quito	1200-1650
27. 15150	RCI Radio Canada to Africa	2130-2200
28. 15160	VOA Philippines (weak)	1400-1500
29. 15215	WYFR Florida	1500-2230
30. 15310	Norway (Sunday only)	1600-1630
31. 15325	RCI Radio Canada to Europe	2100-2200
32. 15330	Bulgaria, Sofia	2130-2230
33. 15360	RFI France	1600-1700
34. 15400	BBC Ascension Island	1600-2300
35. 15420	WRNO USA, New Orleans, LA	1600-2100
36. 15475	USSR, Moscow	1700-2000
37. 15590	KUSW USA, Salt Lake City, Utah	1800-2200
38. 15600	VOA Monrovia, Liberia	1600-2200
39. 15690	WWCR USA, Nashville, TN	most of day

2. 15070: A utility BBC broadcast station which is used to transmit from various locations into chosen target areas as needed. It is on much of the day. Signals are weak or strong depending upon its objective at various times. Frequency is used exclusively by the BBC.

3. 15100: China was a good pick-up, with a good propagation path to America during these weeks. Signal was strong. Be on the listen for openings that bring up the strength of distant signals. They are more common during the spring/summer months on the higher frequency SW bands.

4. 15105: Germany (DW) is relayed from Malta in the Mediterranean to North and Central America from this location. Program length is 45 minutes. Nine additional stations occupy this frequency at various times of the day. All but a few SWB frequencies are occupied by a number of stations. Power levels and antenna directivities minimize interference if the station is broadcasting to your target area.

5. 15120: The Republic of South Africa directs its signal to the Americas during prime-time. This particular frequency acts as a back-up for its 9580 frequency. Spain has been using 15110 to back up its 9630 frequency during one part of the year. Presently the back-up frequency is 11880. Some stations use four or more frequencies on various bands and sometimes one or two extra on the same band simultaneously to

insure good prime coverage of the Americas. Switch among them to find the best signal.

6. 15125: Radio Berlin International is operated by the East German Government in Berlin. Its signal is strong and programming is interesting as the west and east portions adapt to the vast changes that have occurred in Europe.

7. 15155: Frequency is used by HCJB in Quito, Ecuador for English language broadcasts on religion and related subjects. Also other programs present descriptions of Ecuador as well as renditions of their appealing latin music. The schedules change frequently. Keep in touch.

8. 15160: This is a one-hour English program from Budapest, Hungary targeted on eastern North America. It is an alternate that can be used often during portions of the year when conditions are not favorable in your area for copying their 31 meter signal.

9. 15180: USSR Radio Kiev signal beamed on Western USA can also be copied in the east when conditions are right.

10. 15205: You can pick up the Voice of America signals from their Greenville, North Carolina installation even though signals are directed to Central and South America. Much VOA programming is good.

11. 15205: German relay station in Malta beams the signal on eastern North America.

12. 15215: WYFR with transmitters in

Florida beam religious programs all over the world. They are on the air for more time and on a variety of frequencies as compared to most international broadcast stations. This particular time beams its program to western USA but it is also received well in the east. Beam antennas are not perfect and radiate energy in other directions, too.

13. 15240: Australia is on the other side of the world and in recent years directs no transmission our way. However, when conditions are right, their signals can be heard. Their most reliable signal in the northeast is their early morning signal 9580, often readable as late as 10 AM EST. Also, check for their 15320 signal during prime-time hours later. When propagation conditions are just right from any station to your target area, the signal will appear even though its transmitter power may be weak and the directional beam directed toward some other some other part of the world.

14. 15260: BBC Ascension Island relay station is readable here in eastern USA although it is directed toward South America during prime-time hours. In fact, for much of the day, when the Ascension Island relay station is on the air, it can be copied well at may location.

15. 15280: This Soviet station, although it is directing its program in English to other parts of the world, comes through very well

(Continued on page 43)

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POP'COMM's World Band Tuning Tips

DECEMBER, 1990

This Pop'Comm feature is designed to help you hear more shortwave stations. Each month this handy, pull-out guide will show you when and where to tune to hear a wide variety of local and international broadcasters.

Not all of the listings are for transmissions in English, nor are most beamed to North America. Keep in mind that stations make frequent changes in their broadcast times and frequencies. Changes in propagation conditions may also make certain broadcasts difficult or impossible to receive at times. Your own receiving location and equipment also have a bearing on what stations you are able to hear.

All times are UTC.

Freq.	Station/Country	UTC	Notes	Freq.	Station/Country	UTC	Notes
2390	LV de Atitlan, Guatemala	0000	Spanish/vern.	4990	R. Ancash, Peru	0500	SS
2410	R. Enga, Papua New Guinea	1200	English/pidgin	5004	R. Nacional, Eq. Guinea	0500	SS
2485	ABC-Katherine, Australia	1200		5020	ORTV Niger	0530	sign on, FF
3200	TWR Swaziland	0300	vern.	5025	R. Rebelde, Cuba	0400	SS
3215	R. Orange, S. Africa	0300	Afrikaans	5035	R. Bangui, Cent. Af. Rep.	0430	sign on, FF
3225	R. Occidente, Venezuela	0300	SS	5059	R. Lircay, Peru	0400	SS
3240	TWR Swaziland	0300	vern.	5286	R. Moundou, Tchad	0500	FF
3245	R. Clube Varginha, Brazil	0100	PP	5900	V of Israel	2200	AA
3250	R. Luz y Vida, Honduras	0200	SS	5910	BRT, Belgium	2200	EE/SS
3255	BBC, Lesotho	0300		5945	RFI, France	0000	FF
3270	Ecos del Oriente, Ecuador	0200	SS, irregular	5955	Voz de Centauros, Colombia	0900	SS
3280	Voz del Napo, Ecuador	0200	SS	5965	Radio Havana Cuba	0300	FF
3300	R. Cultural, Guatemala	0200	SS/EE	5982	AWR Guatemala	1100	SS
3320	R. Orion, S. Africa	0230	Afrikaans/EE	6015	R. Austria Int'l	0500	various
3330	CHU, Canada	24hr	time signals	6020	R. Netherlands	0030	
3345	RRI Pontiak, Indonesia	1230	II	6025	R. Illimani, Bolivia	1000	SS/Quechua
3360	Voz de Nahuala, Guatemala	0100	SS, vern.	6035	Voice of America	0500	via Liberia
3366	GBC, Ghana	0530	EE	6050	R. Nigeria, Ibadan	2305	sign off
3381	Malawi Bc Corp	0255	sign on; EE, vern.	6065	Super Radio, Colombia	eves	SS
3385	RRI Kupang, Indonesia	1230	II	6070	CFRX, Canada	24h	relay CFRB
3400	R. Ed. 6 de Agosto, Brazil	0300	PP	6085	RBI, Germany	2345	sign on
3450v	R. Oyon, Peru	1000	sign on, SS	6090	R. Luxembourg	2330	GG
3535	V of the Strait, China	1100	CC	6100	Radio Nicaragua	0300	SS
3925	NSB/R. Tanpa, Japan	1030	JJ	6106	R. Panamericana, Bolivia	1000	sign on, SS
3927	Capital Radio, Transkei, S. Af.	2245	EE	6115v	La Voz del Llano, Colombia	0500	SS
3945	RRI Denpassar, Indonesia	1200	II	6120	R. Japan via Canada	1100	EE
3955	BBC	0300	world service	6135	R. Univ de Concepcion, Chile	0930	SS, irregular
3990	Voice of America	0500	via Liberia relay	6150	Caracol, Colombia	eves	SS
4000	R. Bafoussam, Cameroon	0430	FF	6155	R. Austria Int'l	0400	various
4300	R. Moderna, Peru	0300	SS	6165	R. Netherlands	0030	via Bonaire
4418	R. Frecuencia Lider, Peru	0400	SS	6175	BBC	0000	world service
4485	Petropavlovsk, USSR	1130	relay Moscow	6185	R. Educacion, Mexico	0400	SS
4635	Dushambe, USSR	0100	RR & Tadzhi	6250	R. Nacional, Eq. Guinea	0500	SS
4680	R. Nacional Espejo, Ecuador	0200	SS	6305	Voz del CID (clandestine)	0500	SS
4725	V of Myanmar, Myanmar (Burma)	1200	Burmese	6482	Vatican Radio	0600	various
4740	R. Kabul	1200	via USSR	6500	PBS Qinghai, China	1300	Tibetan
4765	Moscow relay, Cuba	eves	various services	6691	R. Cutervo, Peru	0200	SS
4770	R. Nigeria, Kaduna	0430	sign on, EE & vern.	6726	R. Satellite, Peru	0300	SS
4790	R. Atlantida, Peru	0300	SS	6840	CPBS, China	1200	CC
4800	R. Lesotho	0300	sign on, Lesotho & EE	6900	Turkish Met. Radio	0500	TT
4810	Voz de Galapagos, Ecuador	0100	SS	6937	PBS Yunan, China	1200	CC
4825	R. Cancao Nova, Brazil	0900	PP	7105	Voice of America	0100	via Greece
4830	R. Botswana	0350v	sign on	7115	RFE/RL	0400	various
4830	R. Tachira, Venezuela	0300	SS	7124	RN Guinee, Guinea	0600	FF
4845	R. K'ekchi, Guatemala	0130	vern.	7145	R. Polonia, Poland	0000	Polish
4860	R. Maracaibo, Venezuela	0200	SS	7170	RFO, New Caledonia	0700	FF
4865	Voz del Cinaruco, Colombia	0400	SS	7180	BBC	1100	Hong Kong relay
4875	V of Jinling, China	1200	CC	7200	R. Mogadishu, Somalia	0300	sign on, Somali/AA
4880	R. Five, S. Africa	0300	sign on	7205	R. Australia	1100	
4904	RN Tchad	0430	sign on, FF	7220	R. Yugoslavia	300	SS
4920	ABC, Brisbane, Australia	1200	EE	7255	Voice of Nigeria	0500	sign on
4940	RTV Ivoirienne, Ivory Coast	0600	sign on, FF	7270	R. Polonia, Poland	0000	Polish
4950	R. Cora, Peru	0200	SS	7300	R. Tirana, Albania	eves	various
4953	RN Angola	0400	PP, irregular	7315	WHRI, Indiana	eves	
4970	R. Rumbos, Venezuela	0330	SS	7325	BBC	0300	world service
4975	Ondas del Ortegaza, Colombia	1000	SS	7340	Voz del CID (clandestine)	eves	SS

Freq.	Station/Country	UTC	Notes	Freq.	Station/Country	UTC	Notes
7365	KNLS, Alaska	1200	RR	12205	RTT Tunisia	2300	AA
7405	R. Beijing	1400	EE	12015	R. Ulan Bator, Mongolia	1100	various
7538	V of Europe, Italy	0400		12035	Swiss R. Int'l	eves	various
9325	R. Pyongyang, N. Korea	1300	EE, others	12050	R. Cairo	2200	AA
9360	Spanish National Radio	0200	SS	12120	CPBS, China	1200	CC
9395	V of Greece	0100	Greek	13650	R. Pyongyang, N. Korea	1200	various
9410	BBC	eves		13675	BRT, Belgium	2300	various
9445	V of Turkey	eves	EE/TT	13720	WRNO, Louisiana	2200	
9465	WMLK, Pennsylvania	2000		14670	CHU, Canada	24h	time signals
9475	R. Cairo, Egypt	0200	EE	15060	BSKSA, Saudi Arabia	1800	vern.
9480	TWR, Monaco	0640	EE	15090	Vatican Radio	1500	various
9500	V of Libyan People (clandestine)	1800	AA	15100	Iran's Flag of Freedom (cland)	0330	Farsi
9515	BBC	0300	SS	15105	R. Yugoslavia	0000	EE
9530	R. Beijing, China	1200	EE	15115	HCJB, Ecuador	1500	
9535	TWR, Bonaire	0300	EE	15130	R. Beijing, China	0000	
9540	R. Nacional, Venezuela	1100	SS	15135	R. Record, Brazil	2200	PP
9545	SIBC, Solomon Is.	0730		15140	R. Nacional, Chile	2030	SS
9560	R. Jordan	2000		15150	RCI, Canada	2100	FF/EE
9570	R. Korea, So. Korea	1130	various	15160	Org. of America States	2345	SS, via VOA
9575	RAI, Italy	0100	EE	15165	R. Denmark	1230	DD via Norway
9580	Africa No. One, Gabon	0500	FF	15190	Lao National Radio	1100	FF via USSR
9585	R. Excelsior, Brazil	0900	PP, sign on	15190	RTVC, Congo	1700	FF
9590	R. Norway	1300	NN	15190	R. Bangladesh	1200	EE
9600	R. Portugal	0130	PP	15210	R. Japan	2200	JJ via Gabon
9605	Vatican Radio	0030	FF/EE	15230	HCJB, Ecuador	0030	EE
9610	ABC, Australia	1100		15235	LJB, Libya	2200	AA
9615	KGEL, California	0400	SS	15260	RCI, Canada	1900	EE/FF
9625	CBC, Canada	1130	EE, others	15280	KGEL, California	2200	various
9645	R. Japan	0300	EE/JJ via Gabon	15300	WCSN, Maine	2200	
9645	TIFC, Costa Rica	1030	SS/EE	15315	R. Netherlands	0030	via Bonaire
9655	HCJB, Ecuador	0200	RR	15330	FEBA, Seychelles	1500	
9655	HCJB, Ecuador	0200	RR	15335v	RTVM Morocco	2000	AA
9670	AWR Europe	0600	various; via Portugal	15345	RAE, Argentina	1200	
9675	R. Japan	0800	JJ, others	15345	TWR, Bonaire	1100	EE
9685	R. Gazeta, Brazil	1000	PP	15350	R. Luxembourg	2300	FF
9690	RAE, Argentina	0100	SS	15360	BBC	1200	via Singapore
9695	V of UAE	0200	AA	15365	All India Radio	1230	CC
9700	R. Sofia, Bulgaria	0300	GG	15400	UAE Radio	2000	AA
9710	R. Havana Cuba	0200	EE	15405	R. Sweden	0100	EE/Swedish
9715	R. Baghdad, Iraq	0300	AA	15420	WRNO, Louisiana	2000	
9725	AWR, Costa Rica	eves	SS/EE	15430	R. Austria Int'l	1200	GG
9730	RBI, Germany	0230	GG/EE	15445	Voice of America	2000	via Liberia
9745	HCJB, Ecuador	0030	EE	15475	Africa No. One, Gabon	1900	FF
9765	V of Mediterranean, Malta	0600	EE/AA	15480	R. Peace & Progress, USSR	1330	EE
9790	R. France Int'l	eves	FF/EE	15485	Voice of Israel	1530	various
9825	BBC	000	SS/PP	15495	R. Kuwait	2100	AA
9835	R. Budapest, Hungary	eves	various	15500	R. Peace & Progress, USSR	0000	Creole
9845	FEBC, Philippines	1100	CC	15505	R. Kuwait	20000	AA
9875	R. Austria Int'l	eves	various	15520	R. Bangladesh	1230	Bengali
9895	R. Netherlands	eves	various	15540	RTBF, Belgium	1600	FF
9940	R. Cairo, Egypt	2030	AA	15560	R. Netherlands	2030	EE
11550	RTT Tunisia	0500	AA	15575	R. Korea, So. Korea	1400	EE
11570	R. Pakistan	1645	Urdu	15580	KUSW, Utah	2200	
11580	Voice of America	0000		15615	Voice of Israel	2200	Hebrew
11605	V of Israel	0400	EE	15630	Voice of Greece	1400	Greek
11640	R. Iran (clandestine)	0200	Farsi	15640	Voice of Israel	2100	various
11660	R. Netherlands	0030	PP	15690	WWCR, Tennessee	0000	
11680	BBC	0000	SS	15880	CPBS Taiwan-2, China	1230	CC
11700	TWR, Guam	1200	CC	17535	Voice of Greece	1500	Greek
11705	R. Sweden	0200	Swedish/EE	17550	BRT, Belgium	1230	EE
11715	R. Korea, So. Korea	1030	EE, via Canada	17595	R. Cairo, Egypt	1230	EE
11720	R. Baghdad, Iraq	2100	AA	17595	Lao National Radio	1100	FF, via USSR
11734	R. Tanzania-Zanzibar	1800	Swahili	17605	R. Netherlands	1330	Indonesian
11735	R. Denmark	0230	DD, via Norway	17610	RTT Tunisia	1600	AA
11735	R. Yugoslavia	0000	EE	17630	Africa No. One, Gabon	1500	FF
11750	BBC	eves	via Ascension	17645	Voice of the UAE	1400	AA
11760	R. Havana Cuba	eves	various	17675	RTBF, Belgium	1800	FF
11780	VOIRI, Iran	0330	AA	17680	R. New Zealand	0200	
11780	Radio Nacionala, Brazil	2200	PP	17715	Spanish National Radio	2300	SS
11790	UAE Radio	1500	AA/EE	17730	Vatican Radio	1600	AA
11800	RAI, Italy	0100	EE	17735	R. Oman	1400	AA
11805	TWR, Guam	1100	RR	17740	R. Yugoslavia	1200	
11815	R. Brazil Central	0900	PP	17745	R. Algiers, Algeria	2200	FF
11835	R. Japan	2300	EE, via Gabon	17755	R. Surinam Int'l	1700	various, via Brazil
11835	R. El Espectador, Uruguay	0100	SS	17775	KVOH, California	days	SS
11855	RCI, Canada	1200		17800	R. Havana Cuba	1830	various
11870	AWR, Costa Rica	1100	EE	17810	R. Japan	2100	EE
11880	Spanish National Radio	0000	EE/SS	17815	Spanish National Radio	1700	SS
11890	R. Oman	0300	AA	17820	RCI, Canada	1300	EE
11905	CBS, Taiwan	1100	various	17825	R. Japan	0200	EE
11930	TWR, Bonaire	0300	EE	17880	R. Sweden	1430	Swedish
11938	V of People of Cambodia	1200	EE	21470	HCJB, Ecuador	2130	
11940	R. Moscow	1200		21530	R. Portugal	1500	PP
11965	R. Record, Brazil	2230	PP	21550	R. Finland Int'l	1400	Finnish
11970	R. Havana Cuba	eves		21555	R. Yugoslavia	1200	EE
11985	V of UAE	200	EE/AA	21605	UAE Radio	1600	AA/EE

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CURRENT MENU	 MAIN MENU	VERSION 9.1
MEM 394 K STACK 1 K	SELECT	FUNCTION	MODE= USB
DATE: 10-24-1989			LOCAL : 16:54:00
			U.T.C. : 20:54:00
1. READ MEMORY CHANNELS	7. MEMORY CHANNEL	DIAL	
2. INPUT DESIRED FREQUENCY	8. WRITE MEMORY TO VFO	VFO A	
3. 500 KHZ UP	9. UTILITY MENU		
4. 500 KHZ DOWN	ALT-P. CHANGE MENU PAGE		
5. ACTIVATE/DEACTIVATE CLARIFIER	ALT-Z. DISPLAY OR PRINT LOG		
6. SWEEP BETWEEN 2 LIMITS	ALT-Q. END		
A. AVIATION (VHF) COMMUNICATION	D. F.M. BROADCASTING		
B. TELEVISION BROADCASTING	E. AMATEUR FREQUENCIES (VHF)		
C. COASTAL MARINE FREQUENCIES	F. MISCELLANEOUS FREQUENCIES (VHF)		
PORT= COM2 BAUD= 9600	CURRENT PARAMETERS	FILTER	RDLY= 0.138
UPPER - BAND LIMIT - LOWER	FREQUENCY	MODE	SQ. ACTIV. ADDR
30.000 MHZ	0.100 MHZ	17.44300 MHZ	USB WIDE
			38
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You Should Know (from page 39)
late in the evening and carries some interesting programs.

16. 15300: WCSN is the Christian Science News Outlet and its program content follows the guidelines of their Christian Science Monitor Newspaper. Programs and news coverage are of high quality, enlightening and devoid of sensationalism. Its transmission site is in Maine. The 15300 transmissions at this time are being directed into Africa.

17. 15315: Netherlands relay station in Bonaire often relays Radio Netherland programs into the Americas. It gives you a good substitute when the reception of the 6020 frequency or other 31M frequencies is difficult.

18. 15320: Look out for this signal when propagation is right. It is often a strong signal until 1 AM EST. These good results occur when the band is open between eastern USA and Australia and other western nations.

19. 15325: NHK Japanese programs are relayed into the Americas from a relay facility in French Guiana. Signal is very good. Japanese programs are also relayed into the United States by Radio Canada International during the prime-time hours on the 31 meter band.

20. 15330: Late evening signals when the band remains open to southern Europe come through from the International Broadcast Station in Rome, Italy.

21. 15566: WYFR is active at night sending religious programs to Africa and Europe.

22. 15580: KUSW in Salt Lake City, Utah beams rock and other music to eastern North America during the afternoon and early evening. It is a commercial station and accepts advertising.

23. 15640: Israel broadcasts in Hebrew, English and other languages into Europe and the Americas on this frequency.

Daytime Signals

24. 15000: WWV-WVH (Refer back to #1.)

25. 15070: BBC (Refer back to #2.)

26. 15115: (Refer back to #7.) This is a morning signal broadcast to the Americas from HCJB.

27. 15150: A Radio Canada signal beamed to Africa is usually good here because of the nearness to its transmitter located at Sackville, New Brunswick.

28. 15160: This is a VOA broadcast to East Asia from the Philippines. Signal was weak but readable. DX copy of this type is not a regular occurrence, especially with my all-indoors listening post. If you are a beginning DX'er, take a tune across the entire band when conditions seem good. Search for the weak DX signals.

29. 15215: WYFR transmits afternoon religious programs for North America.

30. 15310: Norway. On some bands various stations only transmit very short programs, one or several every day, per

week. This particular program is broadcast in English on Sunday only.

31. 15325: RCI (Radio Canada International) has excellent programs. They also broadcast some of the Canadian Broadcast Company's fine internal shows.

32. 15330: Bulgaria broadcasts late afternoon English-language programs to Europe. Sometimes they provide good copy here in eastern USA.

33. 15360: Programs in English from France are directed toward East Africa and are sometimes readable here.

34. 15400: BBC Ascension Island relay signals directed to Africa are often readable here. The DX'er must be careful about identification. A beginner could think it is a BBC signal transmitted from England. You must always be aware there is a difference between direct and relayed signals in regard to your logging.

35. 15420: WRNO. This is a USA commercial station from New Orleans that broadcasts a considerable number of rock programs and at times rebroadcasts the program material used by its sister FM broadcast station.

36. 15475: This is a Soviet station that broadcasts English programs to the United Kingdom and eastern North America.

37. 15590: KUSW transmits its early afternoon programs on this frequency.

38. 15600: VOA signals from Monrovia, Liberia which are being direct to West Africa. Relay often delivers a good readable signal at this time in eastern USA.

39. 15690: WWCR broadcasts religious programs from Nashville, TN during morning, afternoon and evening hours.

Some Special Frequencies

In the previous listings we covered many of the English broadcast programs from around the world on 19M. There are more of them to seek out. Also, there are many stations that do not carry any English programming on the band but nevertheless you can enjoy their programs or do some DX logging. More important there are other bands you can organize and keep updated

for convenient scheduling and program listening. You might want to tackle next the active 31 meter band which concentrates much prime-time broadcasting to America. A big help is a copy of "Passport to World Band Radio." Remember though that frequency and schedule changes are frequent and it is a continuing process of updating for all SWB publications. And for you too, if you are to keep up with international broadcasting, its good programming and almost complete absence of commercials.

Here are a few additional items that cover other frequencies of interest on the 19M band. Radio Chile operates on 15140 with programs for the Americas at various times each day. They transmit some good Latin music but no English programming. Four Arabic countries, Kuwait (11505), Iran (15085), Syria (15095) and Iraq (15110 and 15400). Syria does transmit English on 15095 (2000-2100). In my location it is usually covered with interference. Maybe you have a better spot. I am limited to working indoors with an indoor antenna. Also English-language programs can be found on other bands for stations that do not have English services on 19 meters.

If you can copy Luxembourg on 15350 and know French you can listen to pop music all day. If you like the blend of African and French music you can listen to Africa direct programs from France on 15300 (0700-2045) or the Gabon broadcast on 15475 (1600-2100). For the latter there is often interference from Radio Moscow. Here USSR usually fades out late in the afternoon and Gabon comes out on top.

Whether you are a confirmed listener or DX'er, records save much time once completed and give you available intervals to do some avid international listening on a routine basis. Don't forget to try for Tahiti (15171) late at night. You must wait it out until the heterodyne from 15170 fades out or the station on that frequency signs off. Then you must hope that the path is good from Tahiti. Enjoy your logging and the follow-up shortwave listening you can do on 19 meters and the remaining 12 bands.



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CIRCLE 48 ON READER SERVICE CARD

27 MHz COMMUNICATIONS ACTIVITIES

Here's a reminder of just how vital CB can be. A letter from John W. Kellington, Jr., of Waynesboro, VA tells us that last July he was tuning across the frequencies between the CB band and the 10 meter ham band (these frequencies are 27.410 to 27.995 MHz).

Near 27.485 MHz (LSB), he heard a station identifying itself as RG-905 and giving its location as Trinidad. Since this was during the military coup in Trinidad, he decided that he would stick with the frequency. The operator of the station was trying desperately to reach any station in the New York City area, and he eventually made contact with such a station ID'ing only as Unit 302.

The RG-905 operator, Raymond, said that all citizens had been warned to stay indoors. Any person seen on the streets would be shot on sight. All broadcasting and communications facilities had been shut down. There was no electricity; he was running his CB rig from the power in his car battery. Raymond told Unit 302 that he had relatives in Brooklyn and was trying to get word to his brothers and sisters that he was OK. He gave Unit 302 the phone number to call, along with the name of the person to ask for.

John Kellington wrote that this incident made him recall the story we ran last June about the Agent 595 mystery communication from Panama on these same frequencies.

We don't normally give much coverage to these frequencies because this is a CB column and, in North America, these aren't CB frequencies. Although there has never been any shortage of North American two-way hobby communications in this band, none of it is legal. Operators in North America who get caught operating here end up in lots of trouble, as do those who make, sell, or modify equipment for operation in this band. We aren't here to tell you how to get in trouble, nor to suggest that you do, nor preach to you on how to behave yourselves. What you do is your decision, and your business.

Nevertheless, it is a fact that in other parts of the world there are operators who are roughly equivalent to CB'ers in the US and Canada. The international operators use this band rather freely and openly. Some use these frequencies illegally, however others appear to reside in nations where such communications are actually permitted, or where communications regulations are so lightly enforced that they virtually don't exist at all. These stations assume that stations in North America have the same freedom to use the frequencies that they do.

To friendly American and Canadian hobbyists, the shouts of these international DX

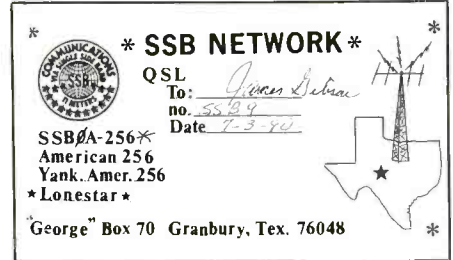


Anybody out there remember the old CB callsigns? This really ancient CB QSL from KER-7107 was sent to us by Larry Flegle, N4TMW. We figure it to be from the mid-1970's, or older.

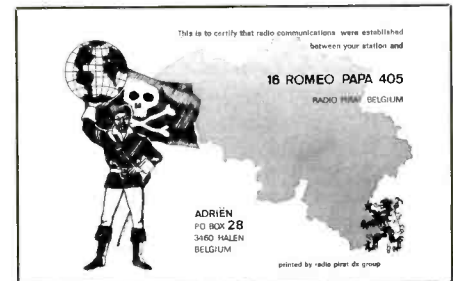
stations seeking contacts is roughly equivalent to the irresistible song of the Lorelei luring sailors to ride their ships up onto the reefs. Of course, only a small percentage of outbanders ever actually get caught, and then it's usually caused by drawing attention to their operations by running so much output power that their neighbors all complain about the TV interference they cause.

We strongly advise against unauthorized transmissions on any frequencies, but you might find it interesting just monitoring there because there are many exotic stations that can't be heard on CB Channels 1 through 40. Furthermore, these frequencies seem to produce exciting activity during times of crises such as revolutions, military action, major storms, floods, etc. There's nothing illegal about simply listening to the activity there.

The FCC has never been able to stop the illegal activity by Americans on these frequencies. It's been going on since the 1960's. Between the signals from thousands of North American and thousands more international stations, these frequencies have become virtually useless for any purposes other than they presently serve. Even if all Americans and Canadians were



This QSL comes from George, SSB Network Member SSB-0A256, of the Lone Star State. George has been an SSB Network member since 1982. Thanks to Jim, SSB-9, for sending in George's QSL.

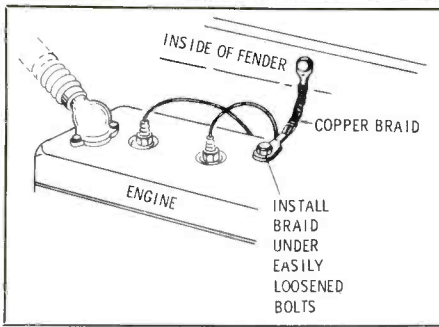


Our DX QSL this month comes from station 16-RP-405, Adrien, in Halen, Belgium. We appreciate it being sent to us by Bert, SSB Network member SSB-35F, of Sanford, TX.

to immediately quit these frequencies, skip signals pouring in from stations throughout the world would still have the frequencies thoroughly buzzing with hobby yakking.

The FCC controls the allocation of frequencies from 27.410 to 27.535 MHz, but from 27.540 MHz to 27.995 MHz the frequencies are allocated for federal use and aren't under FCC control. At this point, it does appear that the only realistic allocation of these frequencies would be one that reflects their actual usage. This is because that usage is long-term, stabilized, worldwide in scope, and obviously isn't going to go away, quietly or otherwise. No way, within the foreseeable future, will these frequencies be used according to the way the FCC presently insists they be used. This is because the FCC obviously has scant ability to stop Americans from operating there, and not even a hope of eliminating the thousands of skip signals that arrive in this country daily from all over the world. Doesn't it seem a logical approach for the FCC to work out a way to make it all legal, then attempt to establish regulations by which American stations can operate?

For the FCC to continue the policy of forcing North American operators to be ille-



Bonding between engine and frame to reduce CB noise.

gals on these otherwise useless frequencies doesn't make much sense; at least, not to me. Some way, somehow, it's a situation that should be faced in a manner which is both reasonable and realistic. The agency has invested more than twenty-five years in unsuccessfully attempting clean up operations there. Maybe it's time to try a new approach.

Taking the position of the devil's advocate, we then ask if twenty-five years of exercising squatters' rights on frequencies intended for other users deserves to be rewarded by having their stewardship given over to the squatters.

Maybe, had these frequencies ever been allowed to be used the way they were sup-

posed to have been, the proper users could have been able to get a word in edgewise and establish themselves. Or, might we suggest that, with but minor effort, people who like this part of the spectrum and enjoy DX'ing, could get a Tech Class ham ticket. Such a license grants FCC-sanctioned moderately-powered worldwide SSB operations in a portion of the adjacent 28 MHz band. I bring up these points as two examples of the various arguments used by those who are in favor of just letting the situation continue status quo.

The reason we mention these frequencies in this column is because so many of those who operate there are also CB'ers, or were CB'ers before they moved off the CB channels into this never-never land. This is probably why the FCC generally likes to consider such operators as "illegal CB'ers." Oddly enough, many of the *outbanders* happen to also hold ham tickets, so "illegal hams" could be equally appropriate. Those who hold ham licenses but operate on these frequencies, say they do so because it's a different group of operators whose company they enjoy separately from the people they find on the 28 MHz ham band.

Perhaps our readers would like to let us know their thoughts on what (if anything) should be done to resolve and improve the situation on these frequencies. Mail we continually receive on this typically suggests that the FCC should capitulate and arrange for these frequencies to become a form of

super-CB with special consideration for license-free sideband DX'ing at a 25 to 50 watt PEP maximum. Some think it should be made a ham band for Tech Class licensees (not a very practical proposal). Others tell us that all the outbanders should be tossed into the nearest lake. Some readers want the FCC to make the penalties so severe that few would chance operating there, no matter how slim the chances are of getting caught. Let us know, but please don't make it the 900-page history of the world going back to the formation of planet. Know what I mean, Vern?

Speaking of Too Much Power

In East Oakland, CA, there was a CB'er who called himself *Plumb Crazy*. Since 1983, the FCC has received about thirty complaints from his neighbors saying that his radio activities didn't mix well with their use of telephones and TV sets.

It's not that the FCC didn't know who the CB'er was. They did. They knew him to be a chap who lives on Camden Street. Twice since late 1988, the FCC turned up on his doorstep to try and get a look at his station. He refused to admit them, they issued fines for his refusal. The transmissions continued, and the FCC characterized the CB'er as "torturing his neighbors."

The third time the FCC showed up was last summer. This time they brought along an armed federal marshal and a civil order



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to let them in. Once inside, they discovered a cache of no less than five modified transceivers, also two linear amplifiers that could push out somewhere between 300 and 400 watts.

To the accompaniment of cheers from the neighbors, the FCC personnel carted off all of the offending equipment. They said that they'd been trying to collect the earlier \$1,200 fines from the operator. The neighbors hope that ends the problem with *Plumb Crazy*, previously known as *The Traveling Fisherman*, and *Thunder and Lightning*. We kinda hope so, too!

Your Word Isn't Your Bond

Unless adjoining sections of metal in a car are in good electrical contact, they can create or aggravate noise interference. Poor contact might occur due to corrosion, grease, or an intervening layer of paint. Bonding is a process of establishing electrical contact,

either through cleaning or the addition of straps made from lengths of heavy copper braid. It not only helps reduce noise radiation, but it also reduces interference that may occur from the vibration of loose metal.

An important point for bonding is between engine block and car frame. Since rubber motor mounts can insulate the block from the frame, short pieces of braid should be installed between engine and frame at several points. The inside surface of the fenders, for example, are part of the frame. The car's muffler and tailpipe should also be grounded to the frame at the underside of the car. Leave enough slack in the braid to permit flexing as the car moves over the road.

Other points that may be bonded with braid: generator to engine block; mechanical linkages (from the carburetor, for example) to the block; and metal tubing or hoses. The hood may also be bonded to the frame.

Provide sufficient slack for opening the hood.

Any point where there is a metal-to-metal contact, such as the mounting bracket of the ignition coil, should be cleaned with steel wool and the mounting bolts retightened.

Note From Canada

A letter from Laird Solomon, Oshawa, Ontario, Canada mentions that the Trans Canada Radio Club (TCR) holds weekly coffee-breaks in several Ontario locations, namely Oshawa, Scarborough, and Hamilton. Monthly breaks are in the Ontario cities of Kitchener and Orilla, plus one at a city he didn't name in Quebec Province. None of the coffee-breaks are held during the summer months.

There's a yearly gathering, too. It's in Blackstock, Ontario, in the fall. Everybody is invited. Laird didn't let us know in time to get this year's CB Fest into the October issue, but the date is October 28th (10 a.m. to 5 p.m.) at the Blackstock Recreation Centre. Perhaps if you get this issue of *POP'COMM* early enough, you can still make the get-together.

Daily check-ins are on Channel 32 (USB), and hosted by Bert, TCR-1000. They begin at 6 a.m. Eastern time (some members show up earlier), and usually run for two hours. Stations check in from as far away as Kitchener, Niagara Falls, and even into NY State. Bert is north of just about everybody else, so that's where to point your beam.

For more information about the TCR, write to Trans Canada Radio Club, Box 101, Port Perry, Ontario, Canada L9L 1A9.

Putting The Harm In A Harmonic

The *REACTer*, official publication of REACT International mentions a strange incident. The FAA in Memphis, TN, is experiencing CB interference for more than two years on VHF aero frequency 135.375 MHz. The operator's handle is *Nighthawk*, and pilots say that his voice blocks the use of the frequency for an area of 154,000 square miles around Memphis.

Some calculations have come up with the information that this is caused by the 5th harmonic of someone's operation on CB Channel 10 (27.075 MHz). Moreover, the station could well be using a 1,000 watt linear amplifier to have such a potent 5th harmonic. In fact, the 5th harmonic might well be equal to a 4 watt signal. That may not sound like much to you, but the FAA ground station with which it is competing on 135.375 MHz is running only on 10 watts. When these two signals arrive in an aircraft's receiver, the frequency is effectively blocked.

This is a disaster just waiting to happen.

Your Turn

This column seeks your input in the form of QSL's, photos, news clippings, club functions, opinions, and questions.

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to, a 5F msg. & nx in SC, 425/75 at 1437 (Ed.)

19231: JBU79, PTT, Tokyo, Japan, w/tfc in JJ to India, ARQ/425 at 1247 (Ed.)

19233: DFZG, MFA, Belgrade, Yugoslavia, w/msgs in SC, 75R at 0115 (Kuroda, Japan).

19234.5: RWW70, Tass, Moscow, w/nx in AA 1110, 425/50 (Ed.)

19265: CLP25, Cuban Embassy, Maputo, Mozambique, w/crypto after ZZZZ, 425/75 at 1201. ID in s/off at 1221 (Ed.)

19296.5: RFQP, French mil., Djibouti, w/a service msg at 2330, ARQ-E3 425/100 (Hetherington, FL).

19323.5: Un-ID Italian diplo, using tact ID of "Yankee Golf Victor" in msg w 5L gps, ARQ at 1410. S/off 1417 w "AS AS VA ciao" (Ed.)

19323.7: KAWN, Offutt AFB, NE, w/coded aero, 170/75 at 1418 (Ed.)

19390: Y7A76, MFA, Berlin, GDR, w/nx in GG, 425/50 at 1223 (Ed.)

19487: Egyptian Embassy, Kuala Lumpur, Malaysia, w/ARQ t/c to MFA, Cairo, at 1310 (Kuroda, Japan).

19498.8: RFHJ, Papeete, Tahiti, w/"controle de voie" & a 5L msg, ARQ-E3 425/100 at 1152 (Ed.)

19517: Un-ID w foxes at 1108, 850/75 (Tubbs, West Germany)

19541.5: Un-ID w/a brief QSL in combined EE & FF, ARQ at 1402. Had rcvd coded gps t/c from an un-ID master sta (Ed.)

19606: GDR Embassy, Havana, Cuba, w/5F msg at 1626, & QRU SK at 1630, 425/50 (Ed.)

19648: "Y9L," Un-ID French diplo post, clg "P6Z," MFA, Paris, FEC-A/144 at 1509 (Kuroda, Japan)

19649: RCF, MFA, Moscow (The Kremlin), w CQ/RYRY 5 5F/5L msg, for sev. days at about this time, 425/75 at 1435 (Ed.)

19671.5: MFA, Rome, Italy, w/msg in II & a 5L msg to Addis Ababa, Ethiopia, ARQ at 1203 (Ed.)

19731.6: PCW1, MFA, The Hague, Netherlands, idling in ARQ mode at 1408 (Ed.)

19755: MFA, Jakarta, Indonesia, w/msgs in Indonesia, SI-ARQ(5)/96 (Kuroda, Japan)

19810: Un-ID, possibly a Hungarian embassy, xmtng in DUP-ARQ/125 mode at 1445 (Kuroda, Japan)

19821.5: 4UZ, UN, Geneva, Switzerland, w/telexes in EE at 1554, ARQ (Ed.)

19830: Un-ID w what appeared to be telexes in AA, 425/50 at 1234. Had circuit ID of FHCU. At 1310 came HSHSHSHSHS "#8CBW 171001 "HO: BANNNN: at 1325, 1339 & 1354: HSHSHS. w a short msg in AA, foll by a final short msg at 1409 (Ed.)

19845: RWZ74, Tass, Moscow, w/nx in EE, 425/50 at 1839 (Ed.)

19865: YZJ4, Tanjug, Belgrade, Yugoslavia, w/nx in SS at 1721, 425/50 (Ed.)

19914.5: CLP1, MFA, Havana, w/presaminrex, 425/50 at 1908 (Ed.)

19914.8: VOA, Tangier, Morocco, w/nx in FF, 425/75 at 1126 (Ed.)

19920.5: CLP28, Cuban Embassy, Lusaka, Zambia, w crypto at 1712, 425/50 (Ed.)

19921.5: Egyptian Embassy, Washington, DC, re-laying telexes in AA & a 5L msg from Caracas, Venezuela to MFA, Cairo. Was ARQ at 1800. Went briefly to FEC at 1905 (Ed.)

19928: MFA, Vienna, Austria, xmtng at 1345, SI-ARQ(5)/96 (Kuroda, Japan)

19932.5: Un-ID USN sta rpts "NAWS Charlie Yankee 00002," 2353-2357, 170/75, foll by encryption at 0000 (Ed.)

19951.7: MFA, Cairo, Egypt, w telexes in AA & EE to Washington, DC, at 1324, ARQ, & a brief msg in AA to Rabat, Morocco at 1330, FEC. At 1537, the Egyptian

AVAILABILITY

PBC32/PBC34/PBC36/BUSY/PBC312/PBC317/BLANK/RYRYRYRYRYRYRYRYRYRYRYRYRYRYRY DE PBC 3 K

AVAILABILITY

PBC32/PBC34/PBC36/BUSY/PBC312/PBC317/BLANK/RYRYRYRYRYRYRYRYRYRYRYRYRYRYRY DE PBC 3 K

AVAILABILITY

PBC32/PBC34/PBC36/BUSY/PBC312/PBC317/BLANK/RYRYRYRYRYRYRYRYRYRYRYRYRYRYRY DE PBC 3 K

Test transmission of Goeree Island naval radio, The Netherlands, ran on 19970 kHz at 2256 UTC, 850/75.

Embassy, Washington, DC, w ARQ t/c in AA + a 5L msg (Ed.)

19970: PBC3, Goeree Island Navrad, Netherlands, w RYRY, 850/75 at 2256 (Ed.)

19980: 9BC33, IRNA, Teheran, Iran, w/nx in AA 1127, & nx in EE at 1710, 425/50 (Ed.)

19991: "LR" w foxes, 10C, & "LR sending," running 24 hrs, nearly every day for more than 5 wks, 850/75 (Ed.)

20076.5: Un-ID w "zczc MLA0131" and "nawarea po," 170/50 at 1403 (Tubbs, West Germany). Possible ID is Luqa Aero, Malta, which uses a circuit ID of MLA—Ed.

20078: FZN7, DiPLO, Paris (New Caledonia relay), w/nx in FF, 0135-0455 s/off, 425/50. S/off w RYRY, le bricks, & xmsn schedule (Ed.)

20179.5: RFFAB, defense ministry, Paris, w/AP & AFP nx in FF, 1544-1915 (QRT), ARQ-E3 425/100 (Ed.)

20185: VHP, Belconnen Navrad, Australia, w/RYRY & CQ, 0641-0644, 425/75 (Ed.)

20201: RGA58, Bakhtar, Khabarovsk, USSR, w/nx in EE, 850/50 at 0507 (Ed.)

20352: CCS, Santiago Navrad, Chile, w/RYRY, 0005-0006, 850/75 (Ed.)

20372: IRS23, ANSA, Rome, Italy, ends FF nxcast at 1456, begins EE nxcast at 1505, 425/50. Back to FF at 1600 (Ed.)

20402: YWM1, Maracaibo Navrad, Venezuela, w/a telex for NBA at 1630, 850/75 (J.M., KY). Same w/uncas t/c to CCS, 1000/75 at 0008 (Ed.)

20418.3: Un-ID FRG diplo sta w s/off in GG at 1900, ARQ-E 170/96 (Ed.)

20420: Y2V20, ADN, Berlin, GDR, w/nx in EE at 1745 & 1942, 425/50 (Ed.)

20482.5: VOA, Poro la Union, Philippines, w/nx in EE at 0017 & 0527, 425/75 (Ed.)

20556: "P6Z," MFA, Paris, France, w/encryption, FEC-A/144 at 1450 (Kuroda, Japan)

20560: JANA, Tripoli, Libya, w/nx in EE, 425/50 at 1623 (Ed.)

20596: Possibly HBD20, MFA, Berne, Switzerland, w/a 5L msg in ARQ at 0539, then to standby at 0542 & off at 0613 (Ed.)

20615: RCC75, Tass, Moscow, w/nx in EE, 425/50 at 0615 (Ed.)

20754.3: 5XR88, Intl Red Cross, Kampala, Uganda, w/a telex in FF to HBC88, ARQ at 1519 (Ed.)

20799: Un-ID Russian sta. w "delegacia odolete-do ghany zu 1853, QRU posl nr 57???? TK zam CW" Was 425/75 at 1239, foll by CW s/off at 1239 (Ed.)

20812: RFTJ, French mil., Libreville, Gabon, w/"controle de voie" at 1735, foll at 1740 w t/c in FF & 5L gps, ARQ-E3 850/48 (Ed.)

20835.5: Un-ID Italian diplo w s/off in II at 1558, ARQ (Ed.)

20840: Y7A82, MFA, Berlin, GDR, w/nx in GG at 0626, and RYRY at 1237, 425/50 (Ed.)

20921.9: CLP25, Cuban Embassy, Maputo, Mozambique, w/summary of previously sent msg, 505/75 at 2020 (Hetherington, FL)

20927: CLP33, Cuban Embassy, Addis Ababa, Ethiopia, w/t/c to CLP1 at 1930, 500/50. Or this could be a relay from CLP25, Maputo (Hetherington, FL)

20928.2: ZSC, Cape Town R., RSA, on standby in ARQ, 1200-1312, then "DE ZSC GA" (Ed.)

20934: SPW, Warsaw R., Poland, w/nx in Polish, FEC at 1225 (Ed.)

20996: CLP55, Cuban Embassy, Georgetown, Guyana, w/5L coded msg to CLP1 at 2100, 500/100, switched to 75 baud at 2110, sent nx in SS at 2130, foll by rpt of the 5L msg (Hetherington, FL)

21848.7-21849.5: GXQ, British Army, London, England, w/foxes, RYI's & 10 count, on four FDM channels, 300/50 at 1241 (Ed.)

22321: UJY, Kalingrad R., USSR, w/telegrams in RR, 170/50 at 1517 (Ed.)

22356.7: SAB93, Goeteborg R., Sweden, w/a telex to a ship, ARQ at 1516 (Ed.)

22422: GYA, Royal Navy, London, w/test xmsn at 1540, 850/75 (Ed.)

22457: PWZ33, Rio de Janeiro Navrad, Brazil, w/navareas in PP & "preferencial" msg, 850/50 at 1555 (Ed.)

22464: UFB, Odessa R., USSR, w/telegrams in RR, 170/50 at 1602 (Ed.)

22581: Y5M, Ruegen R., GDR, w/a msg to ship w c/s Y5KF, ARQ at 1653 (Ed.)

22888: DFZG, MFA, Belgrade, Yugoslavia, w/RYRY, 75R at 1435 (Kuroda, Japan)

22900: GPA7, Portshead R., England, w/ARQ phasing sig & CW ID at 1734 (Ed.)

23049: CLP1, MFA, Havana, w/5L circulars at 2121, 500/50 (Hetherington, FL)

23070.5: CLP1, MFA, Havana, w/t/c to sev embassies at 1414, 500/50 (Hetherington, FL)

23697.6: DFX69H6, PIAB, Bonn, FRG, w/nx in GG, FEC-A 425/96 at 1612 (Ed.)

23716.5: RFLI, French mil., Fort de France, Martinique, w/METAR msg at 1457, ARQ-E 425/96 (Ed.)

23772: "KL," Nordrhine-Westfallen Police, FRG, w/??? to Dusseldorf, ARQ-E 115/96 at 1330 (Hetherington, FL). Details not given—Ed.

23972: JMG6, Tokyo Meteo, Japan, w/coded wx at 1450, 850/50 (Hetherington, FL)

24846: Un-ID w "piccolo QRU NNNN GKCHU FKAEI" at 1200, ARQ-E 170/96 (Hetherington, FL)

24852.2-24854.5: MKD, RAF, Akrotiri, Cyprus, w/foxes & counting on sev. FDM channels, 160/50 (Hetherington, FL). No time given—Ed.

25020.5: URL, Sevastopol R., USSR, w/msgs in coded gps to many named ships, 170/50 at 1335 (Hetherington, FL)

25344: ZRH8, Cape Town Navrad, RSA, w/RYRY, 170/75 at 1455 (Hetherington, FL)

25417.7: FRG Embassy, Santiago, Chile, w/t/c in GG to MFA, Bonn, ARQ-E 170/96 at 1705 (Hetherington, FL)

25421.5: FRG Embassy, Brasilia, Brazil, w s/on to Bonn at 1430, ARQ-E 170/96 (Ed.)

25531.5: LOL, Buenos Aires Navrad, Argentina, w/a coded msg at 1527, 425/100 (Hetherington, FL)

26312: OBC, Lima Navrad, Peru, w/msgs to PWX, Brasilia Navrad, Brazil, 850/75 (Hetherington, FL). No time given—Ed.

26450: Y7A92, MFA, Berlin, GDR, w/ADN nx in FF at 1414, 425/50 (Hetherington, FL)

29870: Un-ID w encryption, 170/100 at 1426 (Ed.)



Happy Holidays

GETTING STARTED AS A RADIO AMATEUR

Amateur Radio: Pass It On

Getting your sons and daughters (nephews, nieces, your best friend's kids, etc) interested in Amateur Radio is a rewarding and worthwhile activity. For those hams who were lucky enough to have a dedicated in-the-family ham radio mentor, it's an experience they'll never forget. This month's column, written by Mike Crownover, KB5ILS, describes how he and his children discovered the magic of ham radio.

The sound of crackling voices coming from a radio receiver has intrigued me since I was a youngster. My friends at school could hardly believe that a person in the US could hear a Russian, speaking English, or that the distant culture of the Far East was readily accessible with the twist of a knob. Then, the excitement of receiving mail and QSL cards from these faraway lands was almost too much to bear. The thrill and excitement of shortwave radio had a grip on me. To this day, the knowledge I gained through listening has given me a greater insight into world events.

I had read about Amateur Radio and even received a pair of QSL cards from a couple of local hams who I heard on the bands. I had toyed with Morse code as a Boy Scout, but I shied away from the 5 and 13-WPM FCC code requirements. I was still determined, however, that someday I would get my amateur license.

As I grew older, however, the proverbial "fumes," of gasoline and perfume, gradually pulled me away from the hobby. The hours I had spent next to the radio had been exchanged for time spent next to those a little more dear to me than the announcers of Radio Prague. And so, the years came and went—marriage, college, kids, college, transfers, college, etc—and my SWL'ing days were but a distant memory.

The only artifacts from my listening days were a few old copies of the *Sweden Calling DXers* bulletin. I shared these with my sons, Michael and Jacob, and wandered off into some old yarns about how I would sit up late at night or get up early in the morning to catch a new station. To my surprise, they were interested and even asked a few questions. Their interest was only a curiosity, however, and the idea died a quick death.

As fate would have it, one Christmas soon thereafter, Grandma bought each of my boys easy-to-assemble shortwave radio kits. We quickly assembled them, rigged up a makeshift antenna and logged a couple of stations.

Not long after assembling the kits, the



14-year-old Extra Class ham Scott Voyna, KBØDCU (1), of Cresco, Iowa, says he got started in Amateur Radio thanks to the encouragement of his grandfather, Lawrence Peters, KAØFTK. Scott is a freshman at Crestwood High School, and when he's not on the air, he's into football, track and baseball. Congrats!

boys wanted a better setup, so we purchased a portable shortwave receiver, a log-book and the *World Radio TV Handbook*. We were in the SWL business.

After a few reception reports were sent off and QSL cards received, the idea of Amateur Radio again occupied my thoughts. One day, as I was browsing through a Radio Shack store, I noticed a Novice license course. The cover mentioned that Novices now had voice privileges and the license was good for ten years. That was good enough for me; there was nothing to it but to do it.

That night, I plugged in the code tape that came with the course and began learning E's and T's. My oldest son, Michael, who was 12 years old at the time, came into the room and asked if he could learn the code, too. Soon, we were copying words, then sentences—and my son was doing as well as I was. We studied the theory and quizzed one another. It became more and more apparent that I would soon be able to talk back to those who live in faraway places—not only me, but my son as well.

Harry, NF5R, our Boy Scout troop com-

mittee chairman, administered our Novice tests. After a few tense moments on the code test, we both passed.

Then came the longest wait in the history of mankind. While we were waiting for our tickets, we purchased a used Drake TR-7 transceiver and strung a piece of wire out the window and practiced copying CW.

When the Big Day arrived, I let my son open the envelopes—we had consecutive call signs, KB5ILS and KB5ILT. We called Harry. He assured us that he would help us make our first contact that night.

That evening at the rig, the excitement was unbearable. Finally, I sent out a CQ. Nothing. Another one. Then... KB5ILS KB5ILS DE NV1C KN... Oh, no, an Extra Class call sign! Didn't they have to send at 20 WPM? Wouldn't he expect me to answer at 20 WPM? Harry saw the panic on my face and took the key. He explained the situation to NV1C who graciously sent at a steady 5 WPM. My son soon followed with a contact and we were off to the races.

Ham radio has since had an impact not only on my everyday life, but in the amount

(Continued on page 71)

TELEPHONES ENROUTE

BY TOM KNEITEL, K2AES

WHAT'S HAPPENING WITH CELLULAR, MARINE & MOBILE PHONES

What's that old saying about "a myth is as good as a mile"? Well, the cellular industry has certainly been getting more mileage than you would have thought possible out of the hocus-pocus they've generated surrounding the matter of cellular privacy.

For a long time it was the myth that there was complete privacy to cellular phone calls. However, last spring there were stories in the national media that shocked the public with the information that cellular calls could be, and were, easily intercepted by using readily available scanners. So much for being able to peddle the "complete privacy" myth, at least for a while.

Maybe there had to be a fall-back position to salvage bits and pieces of that tired old chestnut that had been used to sell so many cellular phones. We thought so when S. M. Yost, NM8R, of Kalakaska, MI sent us a copy of the July issue of an industry publication called, *Cellular Business*. In a feature the publication's editor wrote, supposedly to dispel cellular myths, the fact that there was no privacy had to be finally admitted. At that point, it was no longer going to be easy to keep insisting otherwise.

However, *Cellular Business* informed its readers, "in most cases, the eavesdropper needs a special type of illegal scanner to pick up portions of the call." The story then went on to describe a person who owns such a "special type of illegal scanner" as being "the criminal element trying to beat technology."

How the editor of an industry publication can seriously state that a scanner picking up the 800 to 900 MHz band is "illegal," is a mystery to me. Such equipment has never been illegal to manufacture, sell, own, or use in the USA. Moreover, persons who own this equipment, or who unintentionally

scan across cellular frequencies, have never before been defined either as "the criminal element," nor as persons "trying to beat technology."

In fact, how can anyone consider that picking up a two-way conversation sent "in the clear" (unscrambled) is "beating" technology? Looked to me like this story, touted as dispelling the (already dead, anyway) privacy myth, made an earnest stab at spinning off several new (and even more fantastic) myths to take its place. And the beat goes on!

What's News?

If you're driving along the 470-miles of the Pennsylvania Turnpike, your cellular has a new emergency-use potential. By dialing up "11," you reach a motorists' emergency hotline. It's toll-free, too. The only place on the pike it won't work is between the Allegheny and Blue Mountain Tunnels.

Florida's first Rural Service Area (RSA) recently received cellular car phone service. An RSA is a rural area where cellular phones can't be used because they're beyond the range of services operating in large cities. Lack of service in such areas has long brought complaints from motorists passing through, also from local RSA-area residents. The new service, provided by GTE Mobilnet, will cover DeSoto, Hardee, and Charlotte Counties. It will bring service to motorists driving through on I-75, Highway 17, and State Roads 64 and 70.

BellSouth Mobility has opened RSA cellular service, too. Their operations have brought service to Morgan City, LA and also St. Mary's parish. The cell sites for this are in Berwick and Baldwin, LA. Also going on

line as this is being written is the New Iberia (LA) RSA, which will serve motorists on US Route 90 from Lafayette to Morgan City.

Of course, even in large metro areas where cellular services exist, there are sometimes isolated locations where subscribers complain that their car phones won't work. Two such dead spots are in Boston, MA where you've got to be without the use of your link to the outside world while driving through the Callahan and Sumner Tunnels. These tie Boston to the city's major airport, and to East Boston.

Have no fear. The two cellular service providers in Boston are installing cell sites in these dead spots. They may even be in operation by the time you read this!

Taking a clue from cellular services in Albuquerque, Phoenix, and Cincinnati, Cellular One/Genesee Telephone Company of Rochester, NY announced its "Calling Party Pays" cellular service. It makes it a little easier to give out your cellular number if you don't have to pay for all of the incoming calls. Opens up the usefulness of having a cellular, while also making it a bit more economical.

You Walkee, You Talkee

We have, in the past, mentioned that several concepts for short-range wireless personal telephone service (PTS) have been proposed. The best way of describing such pedestrian-oriented services is to say that they very roughly approximate a cross between a cellular and a cordless phone.

Late in 1991, NYNEX Mobile Communications will introduce such service in New York City. It will use standard cellular frequencies, but (unlike cellular phones, which use analog technology), the new PTS service will be all-digital.

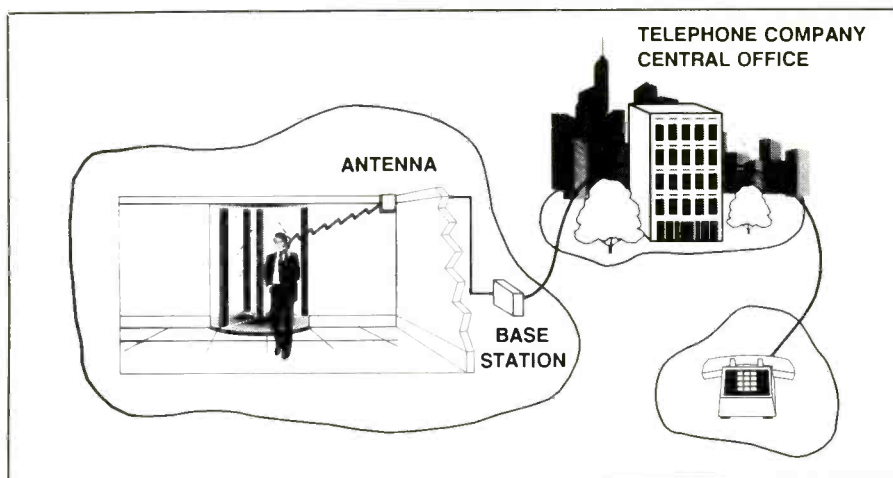


Diagram of a typical CT-2 system, showing a single microcell.



A CT2 handset telephone in use. These short-range services are designed for pedestrian (walk-around) users, rather than mobile subscribers.



The Pennsylvania Turnpike has just made it convenient for cellular car phone owners to call for help while traveling on that highway. These calls are toll-free. (Photo by Christine J. Richardson, Pennsylvania Turnpike Commission.)

The service will permit outgoing calls to be made from the small handheld sets, but will not provide incoming calls. The units will, however, respond to paging signals for the subscriber. The handsets will operate through a large number of antenna sites (micro-cells) that have a range of about 600 ft., and will not hand-off calls from one to another, as with regular cellular service.

The digital technology used is called Code Division Multiple Access (CDMA), which was explained in these pages several months ago. It allows ten to twenty users to share the same channel pair simultaneously without interference or distortion. CDMA calls can't be monitored on existing scanners.

Handhelds (made by Qualcomm, Inc.) for the new service are expected to be smaller and less expensive than standard cellular phones. And subscribers will pay less for the service.

A trial of a somewhat similar system called Telepoint CT2-CAI is under test by Bell Atlantic Mobile Systems. Their trial is being run in Philadelphia, PA and uses the 891.50 to 894.00 MHz segment of the standard cellular band.

In this system, the initials CAI stand for Common Air Interface. That means subscribers to one CT2 service would be able to make calls with their phones while roaming in any area served by a CT2 company. It is expected that CT2 systems will be working in many major European cities by 1993; it is already operational in the UK and several European nations. The CT2 equipment used in the Philadelphia test is from GPT

Mobile Systems, an English company with stateside offices in Arlington, VA.

Think Small

These new short-range services are working towards shrinking the size of the hardware, but so are manufacturers of regular cellular equipment. Some of the pocket-sized cellular equipment is so small that it's probably about as compact as it's going to get within the current technology. Remember that a transceiver can only be made so small before it gets too small to be conveniently used by most people. The keypad simply can't be read or utilized if it's too miniaturized, and the display can't be read, either. Besides, you don't want a set that's so tiny that you mistake it for a quarter and drop it into the coin slot of a Coke machine.

The smallest and lightest convenient-to-use standard cellular handheld we have yet seen is the Mitsubishi Model 3000. This handheld weighs about 10 oz., is just over 2 inches wide, less than an inch thick, and a shade over 6 inches tall.

On a single battery charge, the Model 3000 delivers nine hours of standby time, or almost an hour and a half of talk time (at minimum transmit power). An extended life battery may be used that practically doubles these times.

Yet despite its tiny size, it's easy to use, and it has a lot of features, like an alphanumeric display, battery level indicator, electronic menu function, and 114 memory functions (including 10 secret memories and 2 dedicated one-touch speed dial buttons). An excellent styling feature has the three most-used keys (power, send, and end) wrap-around (front/side) styled so you can locate them quickly and easily.

You can get the Model 3000 with a wrist strap, and it's also available in other formats and with a full line of accessories and options. There's a cigarette lighter adapter, also a one-hour battery charger.

What with full-featured standard celluar available in sizes this small, competing personal radio services are going to have to think up better selling points than small-sized gear to convince the public to select their "no incoming calls" service as the way to go, even at a cheaper price.

For more information on the tiny Mitsubishi Model 3000, contact the Communications Equipment Sales Division, Mitsubishi International Corp., 1500 Michael Dr., Suite B, Wood Dale, IL 60191, or circle 105 on our Readers' Service.

Carl Bransford, of La Habra, CA tells us that a company called Advanced Cellular Technology, located in Santa Clara, CA, is marketing a cellular "extender" known as Celltalker. He reports that it costs less than \$250, and hooks up to your car phone in only a few minutes. You can then carry the extender's own handset with you (up to 1,000 feet away from the car), and should your car phone receive a call, you'll be able



The tiny Mitsubishi Model 3000 is a full-featured cellular that's about as small as they come and still be used by a person with adult-sized hands, and normal eyesight!

to answer it and speak to the calling party. Carl notes that you can't make outgoing calls with this, and if you stray out of communications range of your vehicle, a warning light notifies you. We have no further information on this product, but it certainly sounds like a good idea.

We are always looking for your input in the form of newspaper clippings, questions, opinions, and information about car phones, radiopaging, marine telephones, and related matters. We would also like to hear from equipment manufacturers and service suppliers.

PC

Jo Gunn Enterprises

- CB Antennas
- 10 Meter Antennas


- Mobile Antennas
- Coax

Local - Groundwave - DX

Combination Antenna

JG-4 STAR


UPS SHIPPABLE






Specifications:
 Type: Horz. & Vert.
 Polarization: Twin Feed
 Gain: 15.5 DB
 Front to Back Ratio: 45 DB True
 Side Rejection: 45-50 DB True
 Back Rejection: 45 DB True
 Weight: 34 Pounds
 Length: 12 Feet
 SWR: 1.1
 Horz. to Vert. Separation: 20-25 DB
 Wind Survival: 100 MPH
 Power Multiplication: 50X
 Audio Gain: 20 DB
 Wind Load: 3.7

JGAR - HILLBILLY


UPS SHIPPABLE



Specifications:
 (Frequency Range 26.000-29.500)
 Gain: Horizontal - 5.25 DB
 Vertical - 4.75 DB
 Multiplication Factors:
 Horizontal - 17 Times
 Vertical - 15 Times
 Horz. to Vert. Separation:
 20-25 DB
 Power Rating: 2000 CW,
 4000 PEP
 Height: 11 Feet
 Weight: 10 Pounds
 Materials: Anodized
 6063 T-6 Aircraft
 Aluminum Tubing
 Requires 2 Separate Coaxial
 Cables for Hook-up

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DEALER INQUIRIES, PLEASE CALL

Global Positioning System Now 24 Hours

The satellite location system is called NAVSTAR/Global Positioning System. It's been over a decade in its implementation, and now more than half of the proposed 21 satellites, plus 3 spares, are in perfect orbit to provide most parts of the country 24-hour-a-day position fixes. And for the emergency communicator, a precise latitude and longitude coordinate of the discovered crashed aircraft is a far better message to transmit than "We are just a little left of the big peak, about 1/4 mile from the grassy knoll, and a little over to the left." The new handheld GPS receiver will allow you to pinpoint your coordinates to within 100 yards of your actual position, day or night, anywhere in the continent, within 1 second of hitting the "fix" button.

The Global Positioning System will be the new national standard for position determining on land, in the air, and at sea. Not only will the orbiting satellites read out your exact location, but you will also know your height, velocity, and magnetic heading with a dynamic range greater than 1 second of your motion.

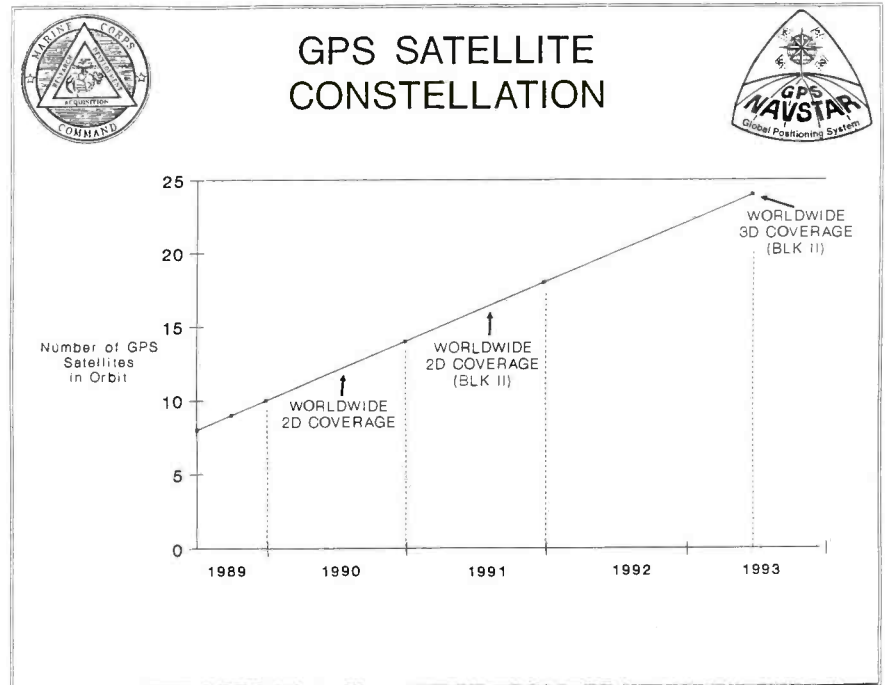
"Our Magellan NAV-1000 portable GPS receiver continuously collects almanac satellite data when operated in the continuous mode. This almanac data, a schedule of satellite positions stored in memory, allows our receiver to update the position of the operator every second," comments Richard Sill, Vice-President/Marketing & Sales, of Magellan Systems.

The GPS satellites serve as known reference points, and the receiver on earth determines its position by timing how long it takes radio signals from the satellites to arrive, comparing this data to the almanac information. The receiver then triangulates the position.

The GPS satellites transmit near 1,500 MHz, 10 times higher than the 155 MHz search and rescue band. A very small antenna captures these microwaves, and the radio waves are unaffected by engine noise, aircraft engines, skip, and atmospheric noise.

The satellites time their transmitted pulses with an onboard atomic clock. This \$100,000 clock is not nuclear powered, but does rely on the oscillations of a particular atom as a time reference. Your portable GPS receiver compares the time of the data transmission with its own clock in order to figure out the satellite's range. Receiver clock error is corrected by averaging the estimated ranges of several satellites until they intersect at a specific point.

A phenomenal accuracy of better than 25



GPS receiver with built-in electronic chart to better visualize your position.



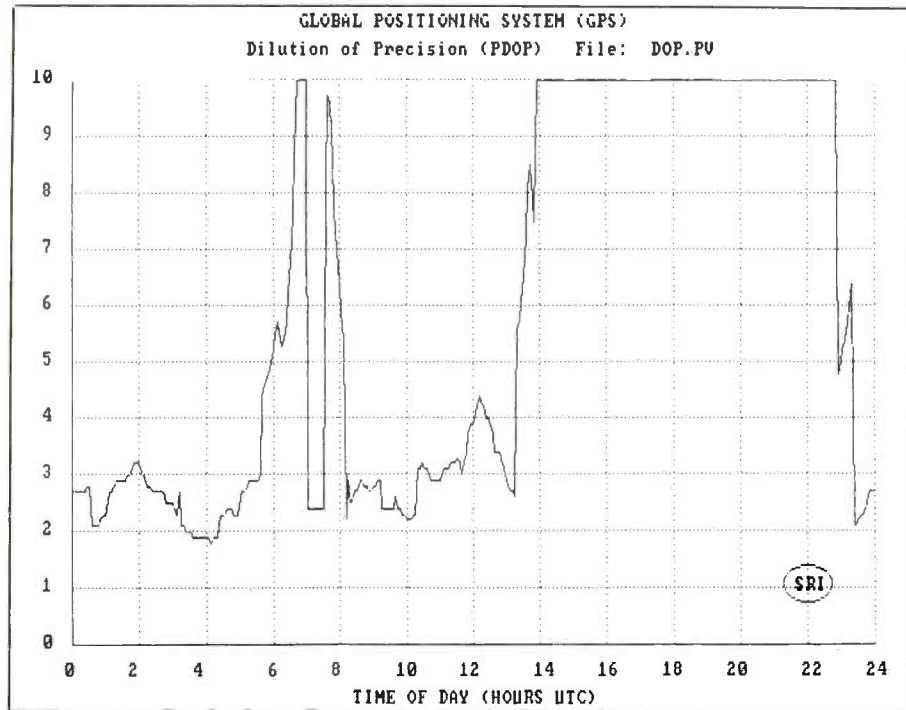
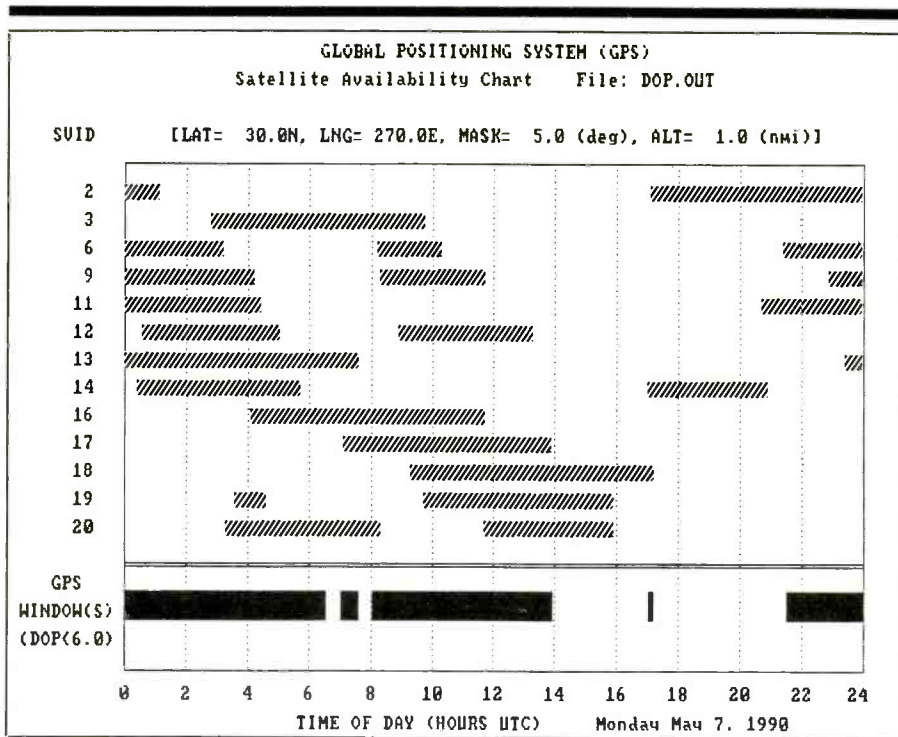
Gordon West tests new mobile GPS set on Harbor Patrol boat to mark the spot of a light plane crash in the ocean. Courtesy Gordon West.

yards of your precise position has been achieved until last June. In June, the Department of Defense "fuzzed up" the incoming signals, called Selective Availability, and this has now degraded our precise position information down to 100 yards, which is 300 feet. And 300 feet is worst case S/A. Most of your fixes will be better than 100 feet of your precise position.

By the end of this century, the new GPS navigation system may cause the phase out of more traditional forms of radio location, such as radio beacons, Loran, transit satellite, Omega, and aeronautical Omni and Tacan. By the year 2000, GPS will become

the national standard for surveyors, mariners, aviation, and rescue squads like yours, needing precise position information to transmit back to the rescue coordination center.

There are over 20 manufacturers of GPS receivers priced under \$5,000. The majority of these GPS receivers are designed for 12-volt permanent mounting in a boat, in a vehicle, in an airplane, or unattended operation on overland transportation devices where automatic transfer of position information is broadcast back through alternate satellite systems. In other words, a trucking company will know instantly where their ve



hicles are, all over the United States.

But it is the portable GPS receiver that holds the greatest promise for emergency communicators attached to cover the wilderness areas where there is not a benchmark or sign post for hundreds of miles.

Magnavox (2829 Maricopa Street, Torrance, CA 90503; 213-618-1200) has been producing "Man Pack" military GPS receivers for several years. Their tiny sets operate up to 12 hours between charges, but like most Magnavox gear, is priced "sky high" for civilian users. But that didn't stop Trimble (585 N. Merry Avenue, Sunnyvale, CA 94086) from developing a similar

looking device called "Trans-Pack", a completely portable receiver which sequences through the satellite under track at a rate of 50 times a second. This is more technically called "fast sequencing multiplex receive." The rate at which they sequence enables these receivers to read all the message bits from each satellite under track, typically 4, which transmitted at a rate of 50 bits per second. This fast sequencing portable receiver is quick to respond to a quick change in direction from an aircraft.

Magellan (260 E. Huntington Drive, Monrovia, California 91016), the first to premier an under-\$3,000 portable receiver,

PC SWL \$99.00

A Complete Digital Reception System

PC SWL contains the hardware, software, instructions and frequency lists needed to allow you to receive a vast variety of digital broadcasts transmitted over shortwave radio with any IBM PC or Compatible computer. The product consists of:

- Demodulator
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- 80 Page Tutorial Reference Manual
- World Press Frequency List
- Tutorial Audio Cassette with Samples

PC SWL automatically decodes Morse code, Radio Teletype, FEC (forward Error Correcting Code), SELCAL (Selective calling transmissions), and NAVTEX.

ADVANCED FEATURES:

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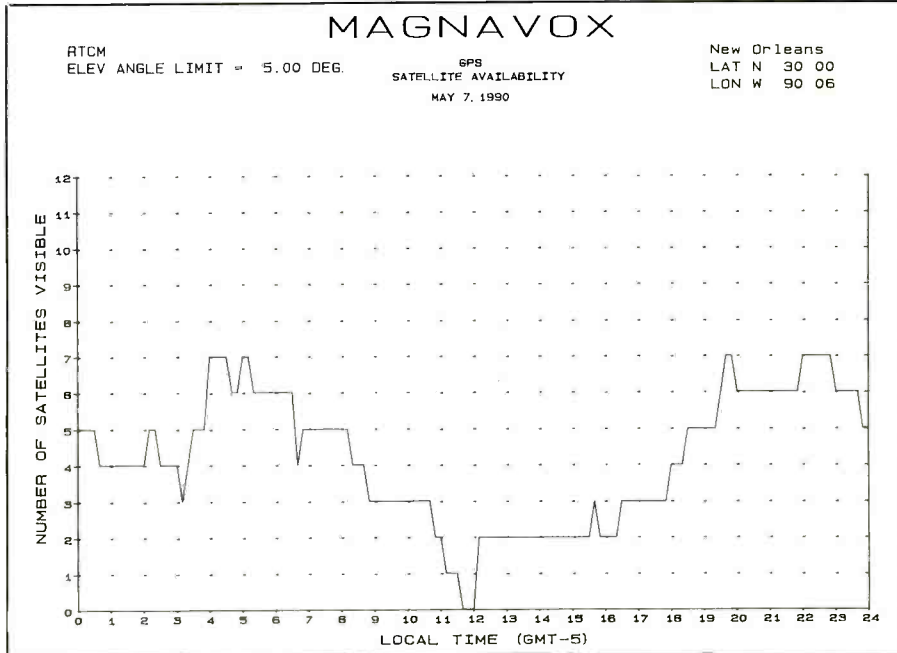
CIRCLE 51 ON READER SERVICE CARD



The portable Magellan receiver will also indicate direction to a stored "Way Point." Courtesy Gordon West.

keeps track of all satellites by single channel slow sequencing to establish pseudo-range measurements, plus almanac data. Although you might think that the Magellan unit might not react quickly to changes in direction as the Trimble set, its unique circuitry is quick to respond to any change in speed or heading that you should take. It's also the lowest priced unit on the market, now selling for around \$2,300 new.

A brand new GPS receiver has been announced by Pro-Nav International (11206 Thompson Avenue, Lenexa, Kansas 66219), which weighs only 25 ounces and measures 6.25 inches x 2 inches x 3.95 inches. The display is an easy-to-read, illuminated LCD with LCD back illumination for each keypad for nighttime operation. The receiver allows the GPS-100 form Pro-Nav to track up to 8 satellites and provide continuous navigation updates while consuming less power and space than any other system on the market. "The unit's built-in in-



Excellent GPS satellite coverage, except for an hour in the early morning.

telligence makes the receiver operation completely automatic and extremely easy to use," comments Gary Burrell, a well-known search and rescue flyer who was formerly with King Radio.

"We even have a built-in simulator for self-teaching someone who is not familiar with how a GPS receiver works," adds Burrell.

The suggested price for this completely portable GPS receiver is well below \$3,000.

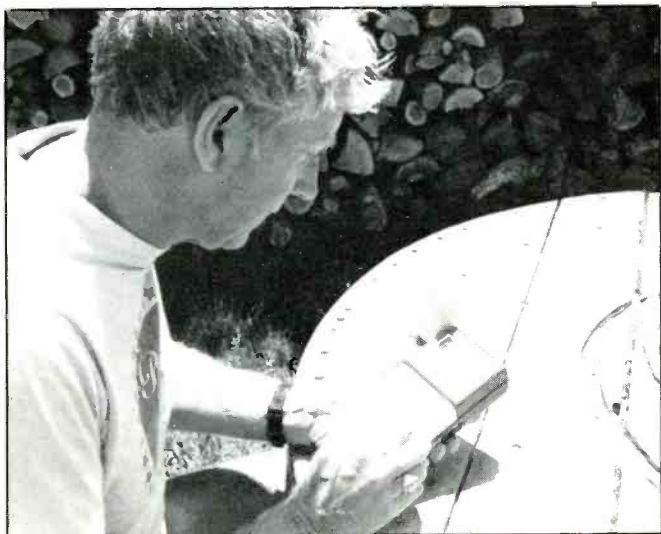
But there are some things that a GPS receiver can't do for the user—in deep canyons, it might take longer to acquire the orbiting satellites because the satellites must be in view of the tiny antenna. This also means the unit absolutely won't work in tunnels, deep inside an aircraft with no view of the horizon, nor underwater in a search sub.

For vehicle use, an external antenna will be required in order to "see" 3 or 4 satellites for a quick fix. Recently, the Department of Defense adjusted the orbits of the satellites coming over the U.S. to give us more available hours of day and night operation—now approaching 24 hours.

And every time you hear of a new successful launch of a GPS satellite aboard a modified Delta rocket, do know that it will add more and more satellites in the NAVSTAR orbit.

If your communications team is considering position finding instrumentation equipment, GPS is now your logical choice. Now that we have 24-hour-a-day coverage, there is nothing close to it for finding yourself within several feet of where you really are within 1 second.

PC



Gordon West operates portable Magellan 1000 GPS receiver for a quick position fix. Courtesy Gordon West.



Portable GPS receiver reads out position and bearings within 300 yard accuracy. Note small 1.5 GHz antenna on top of portable GPS set. Courtesy Gordon West.

HOW I GOT STARTED



Colonel Jean Lafaurie, FD6ACC, in a recent photo.

POP'COMM invites readers to submit, in not more than roughly 125 to 150 words, how they got started in the communications hobby. We'll accept them (preferably) type-written, or otherwise easily legible. If you have a photo of yourself taken recently, or when you got started, please include it with your story. We can't return or acknowledge material, whether we use it or not. You need submit your story only once, we'll keep it on file to consider it for future issues. All submissions become the property of *Popular Communications*.

Entries will be judged taking into consideration if they tell a story that is interesting, amusing, or unusual. We reserve the right to make syntax, spelling, grammatical, or other editorial changes and corrections to improve style and readability.

Each month, the writer of the entry selected for use in this column will receive a 1-year gift subscription (or 1-year subscription extension) to *Popular Communications*.

Address all entries to: How I Got Started, *Popular Communications*, 76 North Broadway, Hicksville, NY 11801.

Our Winner For December

The story selected this month was submitted by Colonel Jean Lafaurie, FD6ACC, of Paris, France. He wrote:

"Radio has been a part of my life since age ten, particularly with listening to the BBC news during World War II. Radio (especially shortwave) was a great mystery to me then.

"I was 16 in 1948, and I had a 5-tube superhet receiver with a "magic tuning eye." While tuning the shortwaves, I heard a nearby ham, F8PQ. Within three years, I had my own ham license, F3MB (a callsign I held until 1959).

"Owing to my interest in communications, I was admitted as an officer in the Signal Corps during my military service, specifically in the police unit known as *Gendarmerie* in 1961.

"In 1986, my activity on NATO matters at the French Department of Defense directed my interests towards English language programming (VOA, BBC, WCSN, etc.). So, while I have long been a ham (presently

FD6ACC), I returned to SWL'ing. Now I use an ICF-7600-DS. Once, listening had been a necessity, now it's a pleasure.

"Today, I am military advisor to the Legion of Honor headquarters. I'll soon be retired, except (of course) for radio.

"Thanks to those who have helped further my interest in radio—Edouard Branly, General Ferrie, many others, and *Popular Communications*!" **PC**



World's Most Powerful CB and Amateur Mobile Antenna*

Lockheed Corp. Test Shows
Wilson 1000 CB Antenna Has
58% More Gain Than The
K40 Antenna (on channel 40).

In tests conducted by Lockheed Corporation, one of the world's largest Aerospace Companies, at their Rye Canyon Laboratory and Antenna Test Range, the Wilson 1000 was found to have 58% more power gain than the K40 Electronics Company, K40 CB Antenna. This means that the Wilson 1000 gives you 58% more gain on both transmit and receive. Now you can instantly increase your operating range by using a Wilson 1000.

Guaranteed To Transmit and Receive
Farther Than Any Other Mobile
CB Antenna or Your Money Back**
New Design

The Wilson 1000 higher gain performance is a result of new design developments that bring you the most powerful CB base loaded antenna available.

Why Wilson 1000 Performs Better

Many CB antennas lose more than 50% of the power put into them. The power is wasted as heat loss in the plastic inside the coil form and not radiated as radio waves.

We have designed a new coil form which suspends the coil in air and still retains the rigidity needed for support. This new design eliminates 95% of the dielectric losses. We feel that this new design is so unique that we have filed a patent application on it.

In addition, we use 10 Ga. silver plated wire to reduce resistive losses to a minimum.

In order to handle higher power for amateur use, we used the more efficient direct coupling method of matching, rather than the lossy capacitor coupling. With this method the Wilson 1000 will handle 3000 watts of power.

The Best You Can Buy

So far you have read about why the Wilson 1000 performs better, but it is also one of the most rugged antennas you can buy. It is made from high impact thermoplastics with ultraviolet protection. The threaded body mount and coil threads are stainless steel; the whip is tapered 17-7 ph. stainless steel. All of these reasons are why it is the best CB antenna on the market today, and we guarantee to you that it will outperform any CB antenna (K40, Formula 1, you name it) or your money back!

*Inductively base loaded antennas
**Call for details.

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A Division of Lockheed Corporation
Burbank, California 91520

Aug. 21, 1987

Wilson Antenna Company Inc.
3 Sunset Way Unit A-10
Green Valley Commerce Center
Henderson, Nevada 89015

Subject: Comparative Gain Testing of Citizen's Band Antennas
Ref: Rye Canyon Antenna Lab File #870529

We have completed relative gain measurements of your model 1000 antenna using the K-40 antenna as the reference. The test was conducted with the antennas mounted on a 16' ground plane with a separation of greater than 300' between the transmit and test antennas. The antennas were tuned by the standard VSWR method. The results of the test are tabulated below:

FREQUENCY (MHZ)	RELATIVE GAIN (dB)	RELATIVE POWER GAIN (%)
26.965	1.30	35
27.015	1.30	35
27.065	1.45	40
27.115	1.60	45
27.165	1.50	41
27.215	1.60	45
27.265	1.75	50
27.315	1.95	57
27.365	2.00	58
27.405	2.00	58

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K40**

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SCANNING VHF/UHF

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

Winter time means cold-weather monitoring for most of the country, and that means plugging in the snowplowing frequencies for your area before the "big one" buries you under a few feet of flakes. Make sure you know your town's, county's and state's snowplowing frequencies so you know what roads have been cleared and are safe to drive. In the mean time, here's some scanner news for this month:

The Rev. Mike Dieckmann, KA0IAR, passes along some frequencies he found in use at St. Louis Blues ice hockey games. Father Mike reports the Blues using 466.5375 and 466.375 and maintenance units use 464.000. When in town, the Minnesota Red Wings have been heard using 464.550, and the Philadelphia Flyers were heard using 49.830 and 49.875. The Boston Bruins and Chicago Blackhawks use radios, however, Father Mike was unable to find their frequencies (how about it frequency sleuths?). Father Mike also reports that the new 800 MHz trunked system has been used by St. Louis police for more than a year now.

Pete Croydon of Victoria, Australia, writes in to query whether any stateside or Canadian scanner listeners are hearing any Aussie stations on the 68-88 MHz midband or on VHF lowband. He notes that East Coast listeners are hearing Europe and Africa, but is curious if Australian signals are being heard on the West Coast here. Anyone tuning in down under?

Marc Hoppe of Milwaukee, Wisconsin, adds to some Blue Angels frequencies that appeared in the July issue. Marc says he's heard the Blue Angels flight team on 251.6, 275.35, 250.8 and 319.8. He also reports hearing them on the VHF frequencies of 142.000 and 143.000. Marc goes on to report that the Thunderbirds flight team uses 283.5, 322.6 and 382.9, as well as the VHF frequencies of 141.850 and 142.000. For air shows, Marc reports that the following ground support frequencies are used by the two flight demonstration teams: Thunderbirds on 413.000 and 413.025 and the Blue Angels on 142.025.

Jason L. Hutchinson of Killdeer, North Dakota, is yet another reader who inquires about what a "Registered Monitor" is and whether scanner listeners can apply for one. Yes, it's an ID that you can obtain for your SWL or scanner monitoring station. Although it doesn't purport to give you transmitting privileges; it does help identify your monitoring station to other hobbyists and professionals as a serious listening post. If you are interested in obtaining one of these registered monitor callsigns (my own registered ID is KPA3CA), apply to: CRB Re-



Who says an elaborate listening post is necessary? This more-than-adequate station is owned by Ken Fowler of Fairfax, Virginia. His gear consists of a Uniden Bearcat 800XLT, a Radio Shack PRO-38 and a Radio Shack disccone antenna on the roof.

search Books Inc., PO Box 56, Commack, NY 11725. The fee is \$5.

Ken Fowler of Fairfax, Virginia, sends along some additional frequencies for his area: 855.4875, George Mason University police F-1; 855.7125, George Mason University police F-2 (special events at Patriot Center); 854.7875, Media General Cable dispatch for maintenance and construction. In addition, Ken says he runs a computer bulletin board conference for scanners. The Metro Net BBS can be accessed by calling (202) 475-7543 (baud rate of 1200 to 9600; N-8-1; PC board software; Scanner Files)

Joel M. Mero of Gaylord, Michigan, says that the Otsego County Sheriff's Department in his area has started scrambling their transmissions. Joel has attempted to obtain a descrambler through local suppliers, but has come up empty-handed and was wondering if we knew of a source. Unfortunately, descramblers died a quick death with the passage of the Electronics Communications Privacy Act of 1986. This federal law outlawed the use of these devices except by law enforcement agencies. Thus, without a market to sell these devices, such as had been done previous to 1986 without any problems, the firms selling descramblers got out of the market quickly to avoid having federal agents knocking on their doors to confiscate their supply of devices. Basically, unless you can find a hobbyist who is selling one second-hand, you're out

of luck (unless of course you can find a schematic of such a device and are handy at building things!).

Raymond Bethel of Coleman, Texas, also wrote in asking about the availability of descrambler devices, such as in a kit or pre-wired. Again, we don't know of anyone selling these (although black-market sales might be possible!).

Bill Young of Merrillville, Indiana, says that he's used Bill Cheek's "Scanner Modification Handbook" to modify his Radio Shack PRO-34. He also made the cellular modification on his new Radio Shack PRO-2006, and Bill says the modification was accomplished in minutes! Bill says that he recommends that PRO-34 and PRO-2006 owners should make the simple modifications to their radios. Bill goes on to say that he gets a lot of useful and interesting information from Scanning VHF/UHF and enjoys the rest of POP'COMM, too.

Rich Dixson of Binghamton, New York, says he recently bought a Uniden Bearcat 100 handheld scanner. He wondered whether the radio could be modified to receive the 225-406 MHz military aircraft band in addition to the regular 118-136 MHz aircraft band it already receives. Rich, there's no way I've heard for this radio (or any similar) to be modified for this big band from 225 to 406 MHz. It actually would be too wide a band for most scanners to handle anyway, when you consider that the widest receive coverage is either 20 to 25 MHz on



Check out the antennas on the roof of the Monterey County Courthouse in Salinas, California. This photo by David Palmer shows there's plenty to listen to in this county!

VHF and 100 MHz plus on UHF. Some handheld scanners can cover this military aircraft band, but right now, it's only two AOR handhelds that can do the trick. Some others are in the works, so stay tuned!

Robert J. Murphy of Estes Park, Colorado, says he is a regular reader of *POP'COMM* and enjoys Scanning VHF/UHF. He asks whether we've published anything in the past on monitoring communications used in auto racing, both for officials and the systems used between the cars and the pit crews. He wants to know the frequencies used by the sanctioning organizations and the teams themselves. We have published some articles here in *POP'COMM* on this subject, but as soon as any of these frequencies get published they are subject to change. Some race teams change their frequencies more often than you probably wash your hands in a given day. However, there is one club devoted to the art of finding race teams' frequencies, and we recommend you contact them. The Frequency Fan Club publishes a newsletter several times a year and also maintains a hot line

service for use on the day of a race, too. In addition, the club offers for sale equipment, such as, special headsets that help drown out the drone of engines when you're trying to follow the action on your handheld scanner. For more information, write Frequency Fan Club, PO Box 991, Mulberry, FL 33860, or call them at (800) RACE-FAN. Tell them *POP'COMM* sent you.

Ben Hurston of Pittsburg, New Hampshire, says that he's heard mention of what are called itinerant frequencies, but wonders what they are. Simply put, these are frequencies used by businesses or special industrial operations that move around from one area to another on a regular basis. To avoid potential interference to radio users who use a set channel all the time, the Federal Communications Commission has set aside several frequencies that can be used anywhere with a minimum of interference. For instance, in the business band radio service, these frequencies are 27.490, 35.040, 151.625, 464.500, 464.550, 469.500, and 469.550 MHz. The most popular of these frequencies are 151.625,

464.5000 and 464.550. The two 469-MHz channels can be used for mobiles, handhelds or repeater inputs only, while base stations are allowed on the other channels. In the special industrial radio service, which can include farming and road construction, the following itinerant frequencies are available: 151.505, 158.400, 451.800 and 456.800 MHz. The 456-MHz channel can be used only for mobiles, handhelds or repeater input, while the other channels also can be used for bases as well as mobiles and handhelds. Itinerant channels should be monitored by all scanner listeners because you never know who might pop up on one. For instance, if the circus comes to town, chances are you'll hear its operations on 151.625. Likewise, a parade in town might activate 464.500 or 464.550. Also of note are the frequencies of 154.570 and 154.600; these two business band channels are not available to itinerant users, however, the frequencies are restricted to 2 watts of power output, and are typically used for handhelds. Although, they aren't supposed to be used for itinerant purposes, they sometimes are, but more so on a local basis. They also bear keeping an occasional ear on.

What are you hearing on your scanner? If you have questions, comments, QSL cards, photos or frequencies, write to: Chuck Gysi, N2DUP, Scanning VHF/UHF, Popular Communications, 76 North Broadway, Hicksville, NY 11801-2909.

30-54 MHz	108-174 MHz
REGISTERED MONITORING STATION	
KCA6TJ	
ROBERT E. BIRCH	
521 SIXTH AVENUE, SAN DIEGO, CA 92101	
Member - Southwestern R.E.A.C.T.	
380-512 MHz	530-1610 KHz

Station card used by Bob Birch, Registered Monitor, KCA6TJ, of San Diego, CA.



Happy Holidays



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WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

As this is being written we're still in the position of having to guess at the changes German reunification will mean for shortwave broadcasting there. But it seems logical to assume that Deutsche Welle will probably absorb Radio Berlin International—perhaps all at once, perhaps over a period of time. We may well have an answer by the time you read this. In any event, this is probably the last time we'll be listing East and West Germany in our loggings section. A year ago, who'd've thunk it!

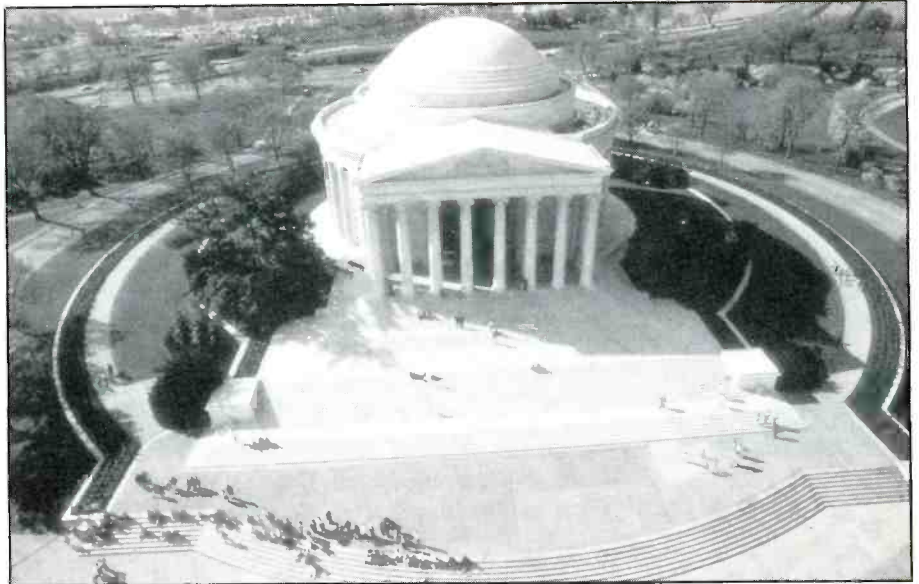
We've already seen any number of changes in the world of shortwave which are direct results of the stunning and on-going changes in the USSR and its former pals. One of the most recent and more unusual involves a plan for reciprocal broadcasts between Radio Moscow and a local Danish station, Radio Vicktor in Esbjerg, Denmark. Radio Moscow's Danish language programs are to be carried on Radio Vicktor and vice versa. According to a report on Radio Denmark, quoted in the *Australian DX News*, Radio Vicktor is also looking for a German shortwave outlet for its programs. If the target date was met the Danish-Soviet exchange should be in effect by now.

Another change which should have happened by now is the addition of a second weekly broadcast of Radio Norway's English program "Norway Today," which has been a once-per-week event for as long as we can remember. Thanks to Bill Walbesser in New York for that information. Incidentally, Radio Norway had to discontinue its regular programming for a period in June and July due to a labor dispute.

By now, HCJB should have a couple of transmitters on the air broadcasting in single sideband. The station's "Ham Radio Today" program announced that 25950 will be used 24 hours a day and 21470 will be in operation from 0600-1600. The 25 MHz frequency will use a quarter wave omnidirectional vertical antenna and the other frequency, intended for Europe and the South Pacific, will use a rhombic. Thanks to Bill Walbesser for this item, too.

Israel's National Planning Board has voted to approve the VOA relay station in the Negev. The Israeli Parliament was expected to approve the Board's recommendation. The Israeli government had earlier decided to put any further work on the facility on hold until studies could be made on the possible negative impact on the environment the station might cause.

Even though the two Yemens have united, the stations of the two former governments were still going their separate ways, as of this writing. For North American listeners the best shot at hearing the station



Here's one of the color photo VOA QSL cards, one of a series they've issued over the years. (Thanks to R. Rogers, Vancouver, BC)

at San'a is from 0300 sign on on 9780 (actually closer to 9779). For the station at Aden, check 7170, also at 0300 sign on. All programs are in Arabic.

KHBN—The Voice of Hope in Asia—operated by High Adventure Ministries, may well be on the air from Guam by now. Voice of Hope programs have been aired over Adventist World Radio's KSDA on Guam for a number of months now, but that has

been discontinued. KHBN will operate on 9830 from 1000-1600 and 9820 from 2000-0000. Programs will be in English, Chinese and Korean.

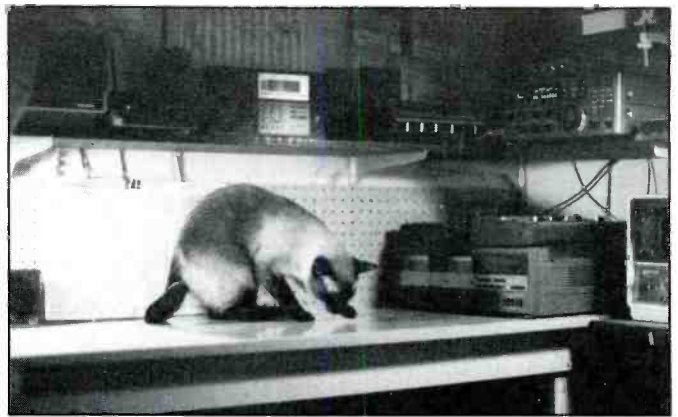
Bruce McGibbon ("Listener's Notebook" editor for *The Journal of the North American Shortwave Association*) reports that Radio Philippines says it is not active on shortwave now—even though 6170 is in use to relay programs to Philippine provin-



One of the current Radio Kiev QSLs. (Thanks to Bill Walbesser, NY)



Here's broadcaster Mark Burns in his Somerville, MA shack.



Preston Sewell of Franklin, New Jersey didn't say whether his Siamese cat helps ID the stations Preston hears on that NRD525 shown in the upper right hand corner.

cial stations. Radio Philippines told McGibbon it plans to be on the air with an international service sometime next year.

FROM THE MAIL: David Olson of Watford City, North Dakota, needs a frequency schedule for KHBI in Saipan. The schedule is too long to run through here, but if you are trying to log the station, David, here are some possibilities: 1000-1200 on 9530 or 15115 or 1200-1400 on 9465 and 15285. Guess you are a full-fledged member of the US Air Force by now!

Preston Sewell, Jr., of Franklin, New Jersey sent a photo of his shack, which includes a Japan Radio Company NRD-525 receiver and a Siamese cat. We also heard from Mark Burns of Somerville, Massachusetts, who uses a Panasonic RF-B65. Thanks to both of you. We always appreciate getting shack photos!

Bill Walbesser wrote to comment very strongly about a commercial on an American shortwave broadcaster that calls on overseas listeners to send in \$10 for "valuable information on how to become an American citizen." Bill notes that such information is available free from embassies and notes that "\$10 is probably more than a week's income for many of the station's listeners in underdeveloped countries."

Remember, we always welcome your loggings. Just list them by country, leave some cutting space between each one and add your last name and state abbreviation after each one. Your questions, comments, news clippings extra QSLs, schedules and other station literature are always appreciated. Let's hear from you!

Here are this month's reports. All times are UTC and language used is English unless indicated otherwise.

Antigua: Deutsche Welle relay at 0310 on 15205. (Walbesser, NY) BBC relay on 5975 at 0256. (Walbesser, NY)

Armenian SSR: Radio Yerevan at 0255 on 11770 with "Review of Your Letters." (Miller, GA)

Australia: Radio Australia. 15320 at 0540 with news. (Burns, MA) 17795//21740 in Pacific Service at 0400. (Walbesser, NY) 21740 at 0150 with ID. sports news. (Vaage, CA)

Abbreviation Used In Listening Post

AA	Arabic
BC	Broadcasting
CC	Chinese
EE	English
FF	French
GG	German
ID	Identification
IS	Interval Signal
JJ	Japanese
mx	Music
NA	North America
nx	News
OM	Male
pgm	Program
PP	Portuguese
RR	Russian
rx	Religion/ious
SA	South America/n
SS	Spanish
UTC	Coordinated Universal Time (ex-GMT)
v	Frequency varies
w/	With
WX	Weather
YL	Female
//	Parallel frequencies

Austria: Radio Austria International, 9870//9875 at 0145 with DX program, ID, music. (Zamora, ND) 9875 at 0130. (Johnson, IL)

Belgium: BRT with "Brussels Calling" on 13675 at 2339. (Johnson, IL)

Botswana: Radio Botswana, 7255 at 0350 with barnyard IS. (Johnson, IL)

Brazil: Radiobras, 11745 at 0200 with announcement about program reconstruction & "best of Brazilian popular music." (Miller, GA)

Bulgaria: Radio Sofia, 15290 at 0310 with commentary and mailbag program. (Johnson, IL)

Canada: Radio Canada International, 9755 at 2345. (Olson, ND) 15275 to Middle East at 0453. Severe QRM from DW from 0455. (Walbesser, NY) 17875 at 2105 with Listener's Corner. (Neff, FL)

China: Radio Beijing, 15100/17705 at 0015 with heavy QRM on 15100. (Walbesser, NY) 17705 at 0045. (Johnson, IL) 17855 at 1204. (Neff, FL)

Costa Rica: Radio For Free International, 7375.1 USB, UN Radio features at 0215. Also on 13660 at 0200. (Johnson, IL) 21566 at 2300. (Neff, FL)

TIAWR at 1245 on 9725 with ID, religious programs. (Northrup, MO)

Cuba: Radio Havana Cuba, 9710 at 0400-0430. (Burns, MA) 9710//9750//11760//11820 at 0400. (Walbesser, NY) 11800 at 1902. (Neff, FL)

Czechoslovakia: Radio Prague International, 7375 with 0100 sign on, news, commentary. (Miller, GA)

Denmark: Radio Denmark, via Norway, 21705 with EE IDs at 1630, 1655, business news in Danish. (Vaage, CA)

East Germany: Radio Berlin International, 11890//13610 at 0000, talk on US investment in Ger-

many. (Johnson, IL) 21450 at 0930 to the far east. (Burns, MA)

Ecuador: Radio Jesus del Gran Poder, 5050 at 0935 in SS with music and talk, ID at 0945 and 1000. (Mierzwinski, PA)

Radio Quito, 4920 at 0445 in SS with announcer, flute music with ID and sign off at 0456. (Mierzwinski, PA) 0421-0457 in SS with music and ID mentioning "Radio Comercio." (Burns, MA)

HCJB, 17875 with DX Party Line at 0312. (Walbesser, NY) 0124. (Zamora, MD) 0032. (Neff, FL) 17890 at 1459. (Olson, ND)

Egypt: Radio Cairo, 0200 to North America on 9475. Also 15220 at 0038 with AA and very poor modulation. (Johnson, IL)

England: BBC, 2232 on 9595, 2325 on 9590//9915. (Olson, ND) 12095 at 2106. (Zamora, ND) 0214. (Walbesser, NY) 15310 at 1700. (Vaage, CA) 17760 at 2000 sign on. (Miller, GA)

Finland: Radio Finland, 11755 at 0600. Also noted 15000 booming in over WWV at 0000 in possible RR Anthem and IS played at 0028. Not a receiver fault as my brother heard them. What gives? (Possibly a trans-



All India Radio has upgraded the quality of its QSL replies in recent years. This one pictures an 11th century court dancer. (Thanks to John Miller, Thomasville, GA)

mitter fault. editor) 27550 at 1340. (Neff, FL)

French Guiana: Radio France International relay. 9800, 0315 with news. (Perry, TX)

Radio Japan relay, 15325 at 0300. (Burns, MA) 0315. (Walbesser, NY)

Gabon: Africa No. One, 9580 at 2140 in FF with music. (Johnson, IL)

Greece: Voice of Greece at 0215 in Greek on 11645. (Johnson, IL)

Guam: KTWR on 11805 at 0907 with Swindall study guide. EE and CC word study. (Neff, FL)

Honduras: Voz Evangelica, 4820 in SS at 0456-0500 with religious talk. ID, music. abrupt close at 0500. (Mierzwinski, PA)

Hungary: Radio Budapest, 0030 on 9835 with news. commentary. (Rabinowitz, MI)

Iceland: ISBS in Icelandic at 2300 on 13855//15770//17440. "Utvarp Reykavik" ID. (Johnson, IL)

India: All India Radio with sign on at 1230 on 11620. (Perry, TX)

Iran: VOIRI, 15084 at 0129 with IS, anthem, wom-

an announcer, all in SS. (Rabinowitz, MI) 0400 with Arabic music. (Johnson, IL)

Iraq: Radio Baghdad, 13660 at 2035 with music, feature on an Iraqi artist. (Johnson, IL)

Israel: Kol Israel, 15640 at 2310 with mailbag, DX program. (Johnson, IL) 0010. (Walbesser, NY)

Japan: Radio Japan, 11865 at 1455 with commentary and closing. (Johnson, IL)

Kuwait: Radio Kuwait, 13620 in AA at 0218. (Walbesser, NY)

Luxembourg: Radio Luxembourg, 6090 at 0110 with pop. (Johnson, IL)

Malaysia: Voice of Malaysia, 15295 at 1233-1240 with talk and music. Heavy QRM. (Perry, TX)

Malta: Voice of the Mediterranean, 9765 at 0605, "Theme For Living." (Johnson, IL)

Mexico: Radio Educacion, 6185, 0405 with jazz. (Perry, TX) 0415 with talk. All SS. (Johnson, IL)

Netherlands: Radio Netherlands, 9895 at 0136 with sports news in DD. (Zamora, ND)

Netherlands Antilles: Radio Netherlands Bonaire relay at 0330 on 6165. (Walbesser, NY)

Trans World Radio, Bonaire, features at 1120 on 11815. (Neff, FL)

New Zealand: Radio New Zealand International, 9855 at 1006 with news, cricket. (Neff, FL) 17675 at 0550, report on Tongan History Conference. (Johnson, IL)

Niger: La Voix du Sahel, 5020, Koran recitations in AA 0510. (Johnson, IL)

Nigeria: Voice of Nigeria, 7255 at 0505 with music. man in FF. (Johnson, IL)

Norway: Radio Norway, 17765 at 1085. IS and announcement in NN/EE about reduced schedule due to an industrial strike. (Johnson, IL) Ditto at 1315 on 21705. (Zamora, ND) (Back to normal now, editor)

Portugal: Radio Portugal, 15285 at 1505 with music program and PP. (Johnson, IL)

Romania: Radio Romania International, 5990 at 0202 with woman and news. (Johnson, IL) Here and //9510//9570//11940 at 0240 with tourist news and DX report. (Walbesser, NY) 11940 at 0300 with SS sign on. (Perry, TX)

Rwanda: Deutsche Welle Kigali relay, 15270//17860 in GG. (Walbesser, NY) (Time? editor)

Saudi Arabia: BSKSA, 15060 at 0520 with AA music and Turkish program. (Johnson, IL)

South Africa: Radio Oranje, 7285 at 0510, music and man in EE. (Johnson, IL)

Radio Suid Afrika, 4810 at 0445 with talk in Afrikaans. (Johnson, IL)

South Korea: Radio Korea, 9750 at 1220-1230 with news, commentary. ID. (Perry, TX)

Spain: Spanish National Radio, 9630 at 0540 with feature on Spanish Art. (Johnson, IL)

Sweden: Radio Sweden, 11705 at 0230 with news. Also 17880 at 1535. (Johnson, IL)

Switzerland: Swiss Radio International, 12035 at 0420 with Swiss SW Merry Go Round. (Burns, MA)

Syria: Radio Damascus, 15095 at 2140 with exotic music. (Johnson, IL)

Tunisia: RT Tunisienne, music and AA talk at 2125 on 15550. (Johnson, IL) 17610 in AA at 0334. (Walbesser, NY)

Turkey: Voice of Turkey, 9445 at 0254 with IS. Horrible QRM from WSHB 10 kHz higher. (Johnson, IL)

Ukraine SSR: Radio Kiev, 15485 at 2340, link-up with WBEZ-Chicago for open discussion of political affairs. (Walbesser, NY)

United Arab Emirates: UAE Radio, Dubai, 15435 at 0530 in AA. (Johnson, IL) 21605 at 1355 with "Beautiful Arabia" program, 1356 ID and close in English. Continued in AA. (Zamora, ND)

United States: Radio Marti (via VOA) 9590 in SS at 1235. (Northrup, MO)

WWCR, 7520 at 0020 with Radio Free America program. This is a very strange show! (Johnson, IL) 15690 at 1400, religion. (Neff, FL) Radio Newyork International - Sunday nights - not to be missed.

WRNO, 15420 at 2030. (Johnson, IL)

WINB, 15295 at 1830, inspirational music. (Neff, FL)

KUSW, 15590 at 1818 with Grundig commercial, t-shirt offer. (Neff, FL)

USSR: Radio Moscow, 11710 at 2200, 17670//17695 at 1720. (Johnson, IL) 11895 at 1706. (Vaage, CA) 15355 at 2334, 15550 at 0000, 17560 at 0332. (Walbesser, NY)

Uzbek SSR: Radio Tashkent, 15460 news by man and woman and ID, 1213-1229 sign off. (Perry, TX)

Vatican: Vatican Radio, 9605 at 0050 with "Heart and Mind" program. (Miller, GA) 21650 to Africa at 2112 to 2128 close. (Zamora, ND)

West Germany: Deutsche Welle, 11810 at 0330 with sports. ID. (Perry, TX)

Yugoslavia: Radio Yugoslavia, 15105 at 2100 with various features. (Miller, GA)

A toast to the following who made it possible:

Frank Mierzwinski, Mt. Penn, PA; Mike Perry, Beeville, TX; Hohn Miller, Thomasville, GA; George Neff, Lutz, FL; William Walbesser, Ravena, NY; David Olson, Watford City, ND; Larry R. Zamora, Grand Forks, ND; Bjorn F. Vaage, Granada Hills, CA; Mark A. Northrup, Gladstone, MO; Tim Johnson, Galesburg, IL; Sander J. Rabinowitz, Farmington Hills, MI and Mark T. Burns, Somerville, MA.

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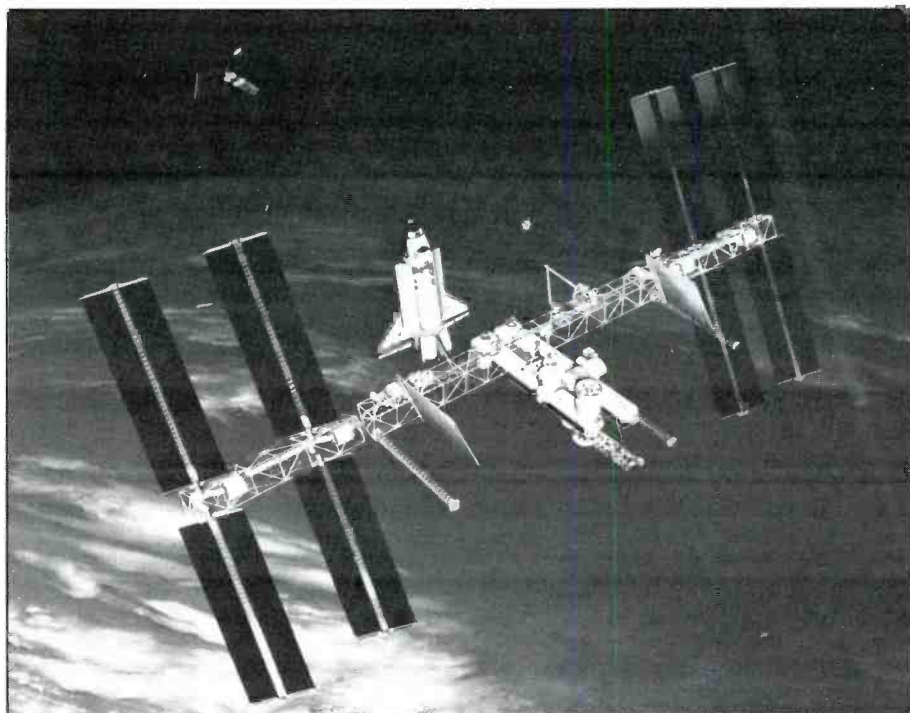
Freedom

Freedom is a funny thing. Ask a dozen people what the word means and you will get a dozen different answers. There is one definition spouted by those who think the government's only legitimate role is to collect taxes and to participate in wars. They don't feel the government has any role to play in people problems or any problem-fixing for that matter. A paraphrase of their philosophy would go something like this: "In this country you are free to succeed or fail totally on your own"; apparently without the help or interference of the government. Of course, such people forget about such things as Rural Electrification, TVA, Child Labor Laws, the 40 hour work week, Workers Comp, Social Security, the Post Office and even reaching the moon within ten years of President Kennedy's making it a national goal.

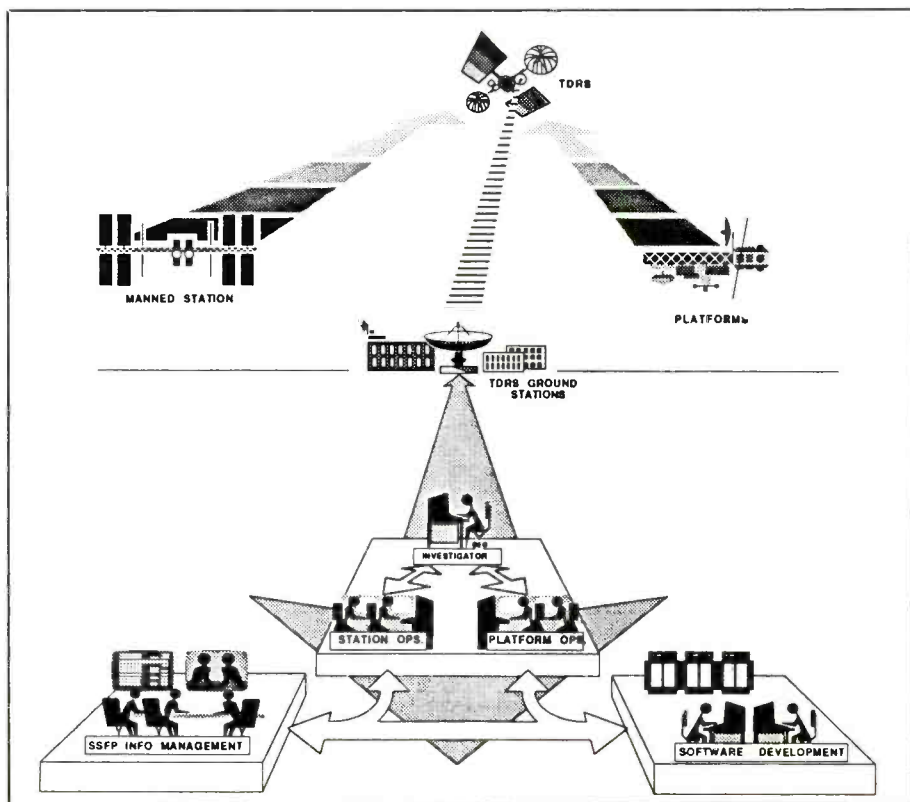
This brings us to the subject of Freedom, our proposed space station project. If the rather conservative formula for success or failure is applied to space station project, it would appear to be a failure, at best it is floundering. It has already taken longer to decide the configuration of the space station than it took us to reach the moon, starting from scratch 21 years ago. As NASA, DOD, and the government in general, flounder into the second decade without leadership or well-defined goals, (for the space program or any of the other pressing problems of our times, i.e., housing, health care, education, trade, the national debt, and, of course, now, the price of gouging by the oil companies) the cost of the space station has gone from 8 to 40 billion dollars. We have a Shuttle fleet we can't fly and we can't really afford them when they do. We even have trouble launching what could be called 'dumb' rockets with any regularity.

What has brought one of the more powerful, some still think most powerful, space faring nations to place second in space behind, of all countries, the economically crippled USSR? What has happened during the last ten years to turn our nation into the world's greatest debtor nation? We had always been the world's greatest lending nation. The nation that was instrumental in defeating the Germans and Japanese in World War II, and in holding off the Communists in Eastern Europe has been reduced to gloating about it's military victory over 50 Cubans with machine guns on an isolated rock in the Caribbean.

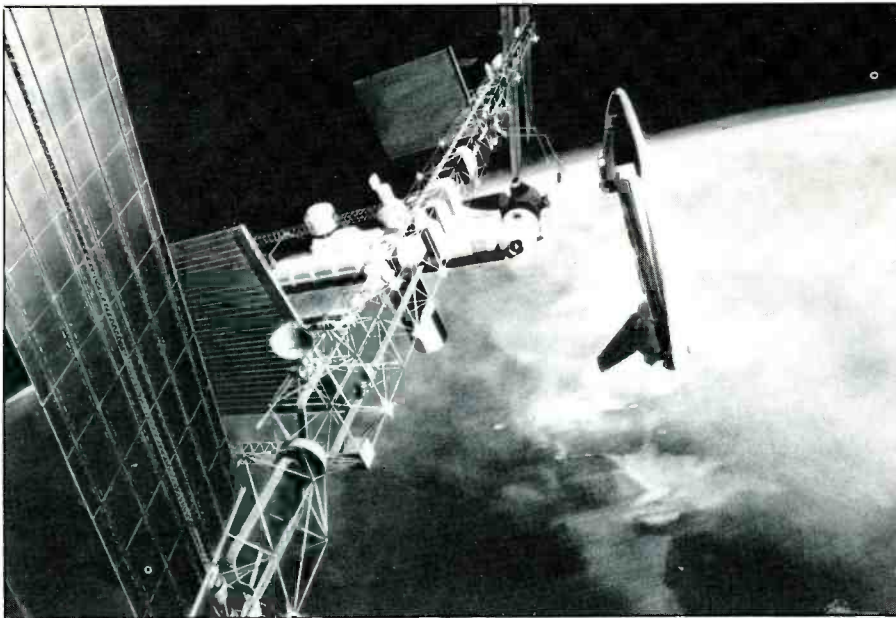
One of America's oldest professions is responsible, in part, for America's decline. No, not that one, but espionage. The Spy.



Artist conception of the baseline configuration of Space Station Freedom manned base.



Management Support and Information Systems



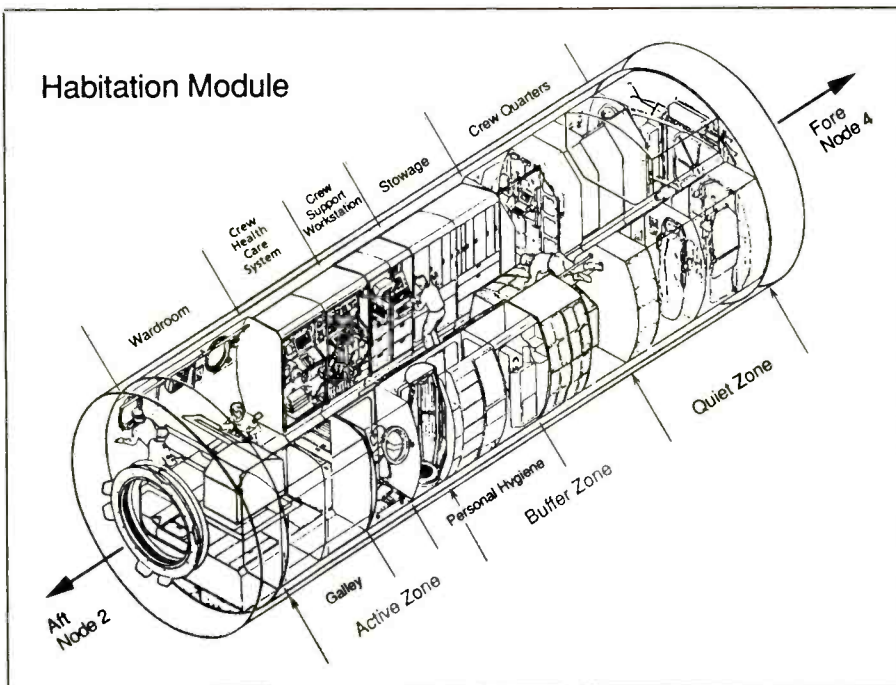
Artist conception of enhanced configuration of Space Station by; Alan Chinchar.

The Traitor. Not the traditional spying between Nations which in most circles is still considered a noble and necessary endeavor. The real game, the real power is economic-money. Profits and the power it brings are the prime motivators of Capitalism. Profit is the code word for greed, white-hot uncontrolled Avarice. Corporate spies have so infiltrated every agency and department that it's hardly accurate to say we have any government at all. The mob, so to speak, has taken over. Of course, the only difference between a mobster and a businessman is getting caught. And even when DOD contractors, for example, are caught, as in the

case of the infamous \$800 toilet seats, which have risen in price to \$1,900, any fine imposed by the government is simply a small percentage which is subtracted from their next government contract as was the case in the Challenger incident.

So what does this have to do with the space station program, you ask? Plenty. The problem was first identified publicly by a most unlikely person. A conservative, pro-business, Republican retired General, WWII Hero and President of the US named Eisenhower. He warned us over 32 years ago that unless the Federal Government took steps to control what he called Military

Industrial Complex, a marriage surely made in Hell, we would one day find ourselves facing our greatest National Security Risk, one of our own making. Instead of taking action to correct this problem, we have, during the last 10 years complicated any possible solution by an almost total deregulation



Crew Quarters

Each astronaut will have his own sound proof compartment on the new space station. It will measure 150 square feet and will contain a TV set, VCR, stereo, video telephone for those personal talks to the family, and a computer.

Freedom Radio

Bill Tynan, AMSAT's Manned Spaceflight Coordinator reports AMSAT and the ARRL have submitted a formal proposal to NASA for a permanent Amateur Radio station on-board Freedom. Mr. Tynan further stated that the up-coming SAREX (Shuttle Amateur Radio Experiment) flights, STS-35 and 37, will play an important part in selling the idea to NASA. Both flights will demonstrate that Amateur audio, video and data transmissions can be sent from the Shuttle during normal operation. Once Freedom has been equipped with the Amateur gear, it will be used to provide regular demonstrations for our public school system. As Freedom will be in low earth orbit, at least three geostationary satellites will be needed to provide continuous communication for the educational system. AMSAT hopes to have its own satellites in place in the near future. Until then the TDRS satellites will be used for the system.

EOS

One specialized area of operation for space station Freedom will be several free flying platforms. The EOS, Earth Observation System is one of three such systems planned for the station. EOS will be used to monitor environmental concerns on earth. The other two systems will be provided by The European Space Agency (ESA). The Columbus Polar Platform and Free Flying laboratory will be used for experiments and projects that are too dangerous to be carried on Freedom. The platforms will orbit at 98 degrees inclination at 433 miles altitude.

FREEDOM FREQUENCIES

Proposed AMSTAR (Phase IV bands)

B-Mode	435 MHz uplink	145 MHz downlink
J-Mode	145 MHz uplink	435 MHz downlink
L-Mode	1260 MHz uplink	435 MHz downlink
S-Mode	1260 MHz uplink	2401 MHz downlink

Proposed TDRS Video Link
1,750 - 2300 MHz

Proposed SAREX / Freedom bands
144.70 - 144.97 MHz uplink
145.51 - 145.59 downlink

AMSAT hopes to equip Freedom with all AMSTAR bands as well as 220 and 10 meters to accommodate the new communicators class license.

of business at the same time we stopped any enforcement of antitrust laws. Even in the light of the Challenger incident, there is not and has been no accountability, and nothing in the system has been changed to prevent this from happening again. Why does a space shuttle explode in mid-air? Why can't we get a launch vehicle off the ground? Why is the Hubble space telescope a 2 billion dollar piece of space junk before it reaches space? And after 12 years in the planning we don't find out about it until after it reaches orbit. The answer, my dear Watson, is simple, the profit motive. Who gets the next multi-million dollar contract to build more poorly designed fuel tanks for the Shuttle? The contractor who built the first ones. Who do you think will get the multi-billion dollar contract to try to fix the Hubble? The contractor who built the first one. The Fox is in the henhouse as they say down on the farm. Even if we had the political will to change things, and I don't for a minute think we do, the fix would have to be radical. That's the same as saying it will never happen. 1984 will just arrive later than anticipated and Big Brother won't be the government, but multi-national corporations. If you don't believe it, just look at what happened to gasoline prices the day after Iraq invaded Kuwait.

If the Freedom project is an example of the best our Space and Defense contractors can do, it's time to Nationalize the industry. That would go a long way in retiring our national debt. With our current debt it is doubtful we could sustain a protracted war in the Middle-East; even if our war machines work better than our space machines, let's hope corporate greed has not already determined the winner of the next war.

See you next month.

PC

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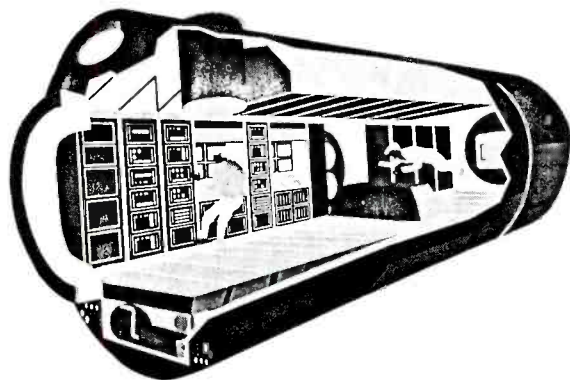
"Now in use in 45 countries." -Gilder Shortwave in 1983

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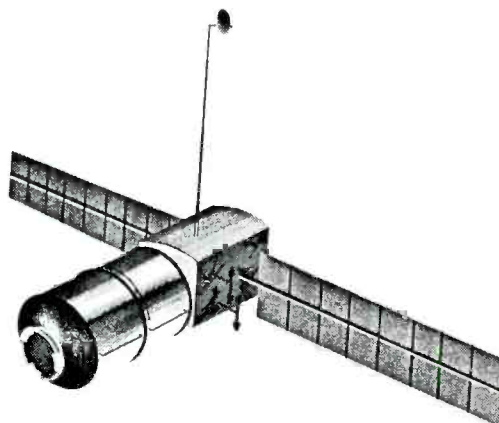


Columbus Attached Laboratory

Columbus Free Flying Laboratory



Columbus Polar Platform



European Space Agency (ESA)

COMMUNICATIONS CONFIDENTIAL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Some more first time contributors have joined us. Thomas Nichols, IN uses a Sony 2010, Mag D2999 and a PRO 2005 for his monitoring.

Keith Wyatt, CA says he has a Realistic DX440 with an indoor 65' dipole. He has been a SWL since the age of 15 and a Ham since he was 17. He was in the service stationed in W. Germany for 3 years and reports he heard numerous number transmissions that were S9+30. He and a friend tracked one of the stations and found it to be located only about 10 km from where he was stationed. The site had two large satellite dishes and several HF antennas.

Bjorn Vaage, CA recently got a new ICOM-765 HF Transceiver. It also covers the VLF band so he checked out that band to see what he could hear. After reducing the noise level by adding a 6' ground rod to the installation he heard many beacons. He lengthened his longwire antenna to 378'.

Darrell Larose, Ontario, Canada wrote "I have been monitoring VHF/UHF for about 5 years starting with a Realistic 2001, then a Realistic PRO-30, and now a PRO-2005. Last Winter, I bought an old Hallicrafters S-108 receiver and recently put up a 66' Windom suspended 25' high with bungees. I oriented the Windom (22' x 44') with the long leg running East/West and the short leg running SE to NW (due to lot size)."

We welcome these first time contributors and look forward to receiving additional loggings from them.

Larry McMahan, GA reports he heard Freemason on 17937 kHz calling Hammer for a "radio check on 17 MHz." At 1706, Freemason again called for a radio check from Hammer. Larry did not hear a reply to the two requests so he checked 17601 kHz, channel XG but likewise did not hear anything on that frequency. He later found another anti-smuggler freq of 17592 kHz which has the channel designation of "Yankee Foxtrot."

The latest information from Andy Gordon, CT indicated that the new Nimitz class aircraft carrier, USS George Washington CVN73, would have MARS call NNN0CGW and that the vans of the Fleet Electronic Warfare Support Group (COMFEWSG) all have their own sets of MARS call signs. These vans are called "CSS" vans. The CSS stands for Countermeasures Simulation System.

Andy also describes two emergency situations he heard while monitoring USCG communications. "A trawler was working USCG Comsta Boston to advise that the skipper and a trusted mate had locked

UNITED STATES NAVAL COMMUNICATIONS			
To	WAOFCM	QSL UR SWL RPT	
From	NHR	At	2212 GMT
Of	8578	Kc	On 23 DEC 19 64
Remarks Thank you for your letter. This is one of several frequencies providing communications throughout the Pacific.			
Signature		R. G. KORSLAND Executive Officer	

QSL from the collection of Owen Williamson, MN. Sent in by Rita Williamson, TX.

themselves in the pilot house because the crew was threatening to kill them." The vessel was off Nantucket, MA and USCG Group Woods Hole and USCGC Alert WMEC630 coordinated a rescue effort. A USCG Falcon aircraft was overheard with 2 rescue helos nearby. The crew gave in and let the trawler sail into New Bedford, MA.

The same type of scenario was also taking place out of Long Beach Island, NJ as a fishing vessel reported the skipper had been assaulted by a belligerent crew, also threatening his life.

The USCG Cape May, NJ station advised the vessel that they would try to get a Falcon a/c overhead, or a Cutter to them on the next day.

Communications concerning the two situations continued through the night between USCG Group Woods Hole, MA,

USCG Group Sandy Hook, NJ and USCG Group Cape May, NJ during 2330-0230 on 6200 and 2670 kHz.

Simon Mason, England, forwarded a British press item with a Bonn, West Germany dateline which described the discontinuance of a East German "Spy" broadcast. Simon passed on these comments about the article. "Here is a cutting from a recent edition of 'The Daily Telegraph' newspaper. Unfortunately, the frequency of the 'Lightship Bell' sign-on station was not the 3220 kHz indicated in the article, but rather was 3258 kHz. It also terminated transmissions in April 1990 and not in June as stated in the item text. The station was apparently an important one because it was on the air virtually every night from 1700-2100 and also sometimes around 0400-0600. It thus seemed to be a working station and not a bogus one like some EE & GG 3/2F stations that send the same text up to a year apart."

From Stephen Biro, FL, we received a news item carried in the "Orlando Sentinel" which seemed to be based on the same Bonn released information.

A person signing as "Anonymous, PA" sent in some details related to anti-drug operations in the Caribbean. AMBUSH is a military base possible in Puerto Rico. CONDOR is a military base somewhere farther south of AMBUSH. ANGRY WARRIOR is possibly March AFB, CA. Morale calls are regularly heard on 17,443 kHz (Tango



Here is a photo of the listening station of Jerry Cody, WA. His equipment includes a Trio/Kenwood R2000, Yaesu FRG-9600, and a Realistic COMP-100 Scanner.

COMMANDING OFFICER
U S NAVAL COMMUNICATIONS STATION PHILIPPINES, RP
BOX 2
FPO SAN FRANCISCO CA. 96656

N P O


TO MR. DICK MOON

CONFIRMING OUR TRANSMISSION ON 12867 KHZ

AT 1330 GMT DATE 30 JAN 89

TRANSMITTER USED FRT-96 RADIATED POWER 100W

ANTENNA USED OMNI-DIRECTIONAL



Dick Moon, South Africa received this QSL from NPO in the Philippines.

Echo), 23,343 kHz (Tengo Hotel), 17,312 kHz (Delta Zero Seven). A CONDOR-ANGRY WARRRIOR freq is 14,443 kHz (Yankee Foxtrot). ANGRY WARRIOR and VIEWFINDER 2 (Howard AFB, Panama) are regularly heard on 26,600 kHz (Sierra Zero One); 25,410 kHz (Sierra Zero Two); 24,120 kHz (Sierra Zero Three); 19,015 kHz (Sierra Zero Seven); 17,301 kHz (Sierra Zero Eight); 15,443 kHz (Sierra One Three); 12,215 kHz (Sierra Two Nine); and 16,300 kHz (Designator unknown).

The same contributor also reported that SLINGSHOT operations were heard on 15,964 kHz (Victor Delta); 11,408 kHz (Victor Golf); and unconfirmed frequency 17,171 kHz (Sierra Hotel?)

In response to my query to Australian National University I received the ordering info for the two excellent SIGINT Publications authored by Professor Desmond Ball that were reviewed exclusively in the POP' COMM October 1989 and March 1990 "Books You'll Like" column. The price of each book is Australian \$15 plus Australian \$8 for air shipment of one book or Australian \$12 for air shipment of both books. Payment should be in a bank draft in Australian dollars, payable to the Australian National University per SDSC. If payment is made in foreign currency, you must add US \$10 equivalent for bank charges. Orders and remittances to be forwarded to: Publications Officer, Strategic and Defence Studies Centre, Research School of Pacific Studies, Australian National University, GPO Box 4, Canberra, ACT 2601, Australia.

Abbreviations Used For Intercepts

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

- 290: Beacon AOP, Rock Springs, WY at 0520. (Vaage, CA)
- 305: Beacon ONO, Ontario, OR at 0544. (Vaage, CA)
- 326: Beacon MCY, Mercury, NV at 0530. (Vaage, CA)
- 329: Beacon TAD, Trinidad, CO at 0645. (Vaage, CA)
- 329: Beacon IA, Niagara Falls, NY at 0534. (Vaage, CA) There is a Beacon IC, Wichita, KS on the reported freq of 332 kHz. (Ed.)
- 347: Beacon NUD, Adak NAS, AK at 1430. (Vaage, CA)
- 350: Beacon NY, Enderby, BC, Canada at 0517. (Vaage, CA)
- 359: Beacon BO, Boise, ID at 0514. (Vaage, CA)
- 397: Beacon LLJ, Challis, ID at 0512. (Vaage, CA)
- 400: Beacon LKO, Billings, MT at 0510. (Vaage, CA)
- 411: Beacon RD, Redmond, OR at 0500. (Vaage, CA)
- 2714: USS Tennessee SSBN734 (off freq) making rdo check w/NRWS USS Simpson FFG56 at 0850. (Gordon, CT)
- 2716: USS Gunston Hall LSD44 clg Little Creek Tug Control at 0930. NOTH, USS Halyburton FFG40 clg Navy New Orleans Control at 1015. No joy as New Orleans only guards VHF bridge-to-bridge CH 13 harbour common: US Navy Yard Patrol Craft TP676 clg Portsmouth Harbour Control at 0910. This YP is operated by Annapolis to train future USN Officers. NJEC, USS Trippe FF1075 clg NECT Newport Quarterdeck at 0935. Newport Port Control Secondary responded to Trippe at 0940. NDIB, USS Briscoe DD9787 clg Norfolk Harbour Control at 1000 but no joy, then did any stn this net and Charleston Navy Tug Control responded; USNS Marshfield T-AK-282 using callsign Inbound Navy Unit clg Charleston Navy Tug Control at 1040; USS San Juan SSN751 using callsign Lima 9 Xray clg 4 Victor Sierra Canaveral Control at 1100. This attack submarine was testing equipment in the Canaveral operations area; NMUX, USS Boston SSN703 using callsign 5 Oscar Romeo clg 0 Charlie Echo, Canaveral Control at 1120. USS Groton SSN694 using callsign Kilo 0 Hotel clg Victor 7 Alpha, Canaveral Control at 0900. Groton asked permission enter port & use radar & sonar. TR841 wkg AUTEK operations at 1200, also clg Snapper 841. The USN classifies Torpedo retrievers as TWR but this civilian operated Torpedo retriever wkg for AUTEK Ops is just called TR-841. LCU1647 wkg AUTEK Ops at 1130. Vessel is operated by civilians for AUTEK.
- 3349.5: WAR, USA MARS, Ft. Detrick, MD w/unclas CW t/c at 0140. (Margolis, IL)
- 4248: ZRQ, Cape (Simonstown) Naval Stn, S. Africa in CW w/CQ mkr at 1940. (D.P., NC)
- 4349: CBV, Valparaiso Radio Maritima, Chile in CW at 0025. (D.P., NC)
- 4467: Florida CAP net, callsign Sparrow, in USB at 00376 w/info re school. (D.P., NC)
- 4723: YL/RR rptng 671 Prunta zero zero 2300-2305 w/RAF Volmet on 4722 in background. (Mason, England)
- 4740: At 2000 in USB an excerpt from Verdi's Aida playing on brass instruments between 2000-2020 then off. (Mason, England)
- 5315: YL/GG rptng 143 (3x) 19257 76 from 2100-2105. Then five long tones and into 5F in AM mode. Also 4395. (Mason, England)
- 5340: Swedish Rhapsody tune in music box 1900-1905. Then YL/GG w/5F headers 68803/73719/20059. After starting 5F grp text for 68803, text suddenly changed to either 64646 or 46464. These rptd alternately until 1910 when normal random numbers started until end of text at 1918. Hrd in USB. (Mason, England)
- 5535: Speedbird London (British Airways) wkg Speedbird 292 flying Miami to Heathrow Airport, London w/eta 0746/ Was on USB at 0307 (Margolis, IL)
- 5696: Miami/Rescue 1492 (helo) in USB re helo reporting their fuel critical now after finding medivac vessel many miles from first reported position and now 270 miles out trying to reach St. Lucia Airport (on Florida East Coast). Helo asks Miami to contact St. Lucia to have them turn on every light available to assist in visual approach. At 0538 helo advises Miami it has safely landed at St. Lucia and to make arrangements for patient to be transported to hospital. Miami then in comms w/2103 (Falcon jet) which on way to St. Lucia to transfer patient

to either Melbourne or Miami. Several other USCG stns (a/c) came on in last minutes of helo's flight to be of assistance if needed. Portsmouth/Rescue 1483 (helo) in USB along w/Rescue 1503 on way to medivac 200 miles ESE of Elizabeth City, NC. Comms shifted to 8130 kHz for rest of mission. 1483 was in comms w/vessel who relaying comms to/from medivac vessel, that was 4000 feet away. The Sealord Performance, a container vessel was assisting in comms relay. 1483 made his patient hoist & then was instructed to refuel aboard the USS Enterprise on way back to coast. This was to be a "hot refuel" so as to not tie up carrier's deck any longer than necessary. At 0530, 4 hours after mission started, 1483 landed at E. City and transferred patient to awaiting ambulance. 1503 provided radio comms backup when needed several times during mission. After helo landed at E. City, comms then shifted back to 5696 kHz. Patient & ship info was requested to not be given out over the air. Who could be so important aboard a container vessel??? Hrd 0150-0500. (Fernandez, MA)

6200: NZXF, USS Sampson DDG10 wkg USCG Comsta Miami at 0845. Sampson requested secure RTTY freq; NFGF, USS Fahrion, FFG22 clg USCG Comsta Miami at 0040. Fahrion needed pass some RTTY f/c to this USCG SCN net station; NKID, USS Kidd DDG993, clg USCG Chesapeake at 2355. Kidd actually meant to call NMN, who in fact answered and corrected them: NEGX, USS Fulton AS11, clg USCG Comsta Boston at 0020. NMMI, USS Miami SSN755, clg USCG Comsta Miami at 0045. (Gordon, CT)

6720: Tango 5 Mike/Zulu 9 Whiskey in USB trying shift to another freq but they barely hear each other. Hrd at 0241. (Fernandez, MA)

6725: Strange carrier w/sidebands changing in pitch at 0915. On another day hrd continuously from 0451 past 1001. (Cafferky, MA)

6730: SAM 204 in USB at 1104 wkg Andrews AFB w/comm checks. (Smyngton, OH)

6761: Yuletide (OM/EE) with alpha/num msg in USB at 0908. (Cafferky, MA)

6785.9: Msg in USB addressed to 944 w/234 5F grps rptd 10 times during 0513-1054. (Cafferky, MA)

6840: YL/SS in AM at 0235 w/2352 . . . 4534 rptd, then off air. (Fernandez, MA)

7404: YL/GG in USB at 0040 w/nbr grps in progress. (McAtee, WV)

7485: SESEF Charleston wkld foll ships for transmission tests: USS Wisconsin BB64 at 1750, ship shifted to 9950 kHz; NSVN, USS Nicholas FFG47 at 1700; NDVW, USS Nashville, LPD13 at 1725, Nashville assisted by NAVELEX Portsmouth; NNWI, USS Whidby Island LSD41 & NZDN, USS Fairfax County, LST1193 both cld at 1740. SESEF finally responded & assisted LSD41 and then LST1193. Norfolk area ships use SESEF Charleston instead of Norfolk SESEF when they want to test emitters & radiation patterns from a farther distance. (Gordon, CT)

7535: The foll ships wkld Norfolk SESEF for transmission tests: USNS Tanner, T-AGS 40 at 1715, this is a surveying ship operated by the MSC; NRKX, USS LeMoure County LST1194 at 1500; NFBS, USS Stump DD978 at 1900; NHJK, USNS Henry J. Kaiser T-AO-187 at 1810; NGKO, USS Saginaw LST1188 at 1245, also wkld on 12315 kHz; NHTV, USS Newport News SSN750 at 1745. (Gordon, CT)

7588: YL/EE in AM at 0001 w/callup 940 (3x). 1-0 count rptd. At 0004 a sweeping jammer almost covered the #stn. Then a 3/2F text begun. (Fernandez, MA)

7626: KWS78, US Embassy, Athens, Greece in CW w/call tape. Hrd at 2345. (DP, NC)

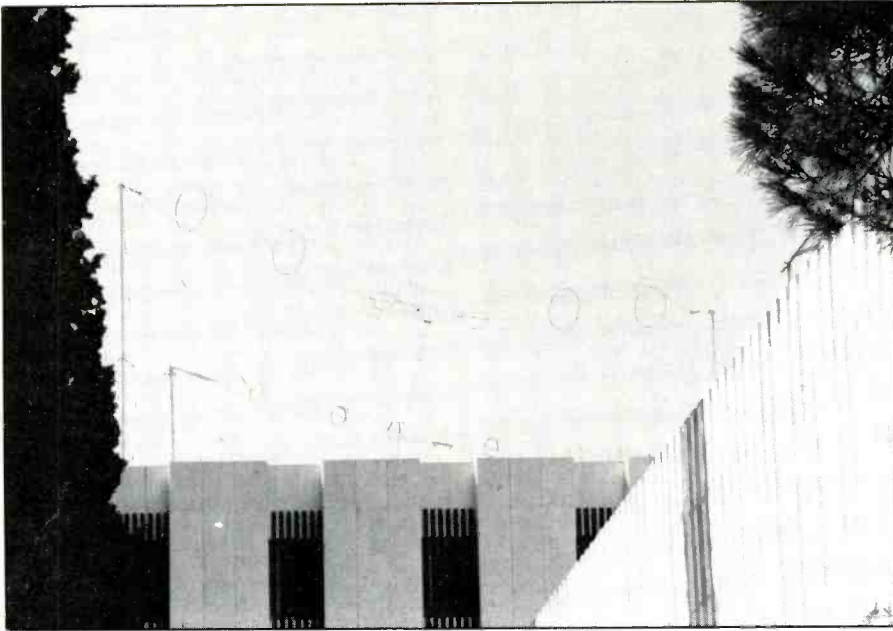
7725: Carrier w/very long tone form 0932 til 1001. At 1030 YL/ss began rptng 4980 8197 0748 until stopping at 1040. (Cafferky, MA)

7850: YL/SS w/callup for 678-04-02 and into 5F grps in AM. Off by 0735. (Cafferky, MA)

7887: YL/SS w/Atencion 890 form 0600-0603. Then 0690 until 0605 when 5F grps started. Ended w/Final. (Mason, England)

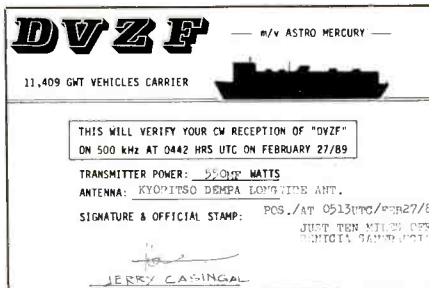
8136: YL/SS in AM at 0800 w/callup 768-02 & into 70.5F grps. Final at 0811. (Cafferky, MA)

8241.5: NLDL, USS Milwaukee AOR2 wkg USCG Comsta Portsmouth, NMN, at 0010. The Milwaukee needed to arrange for secure RTTY circuit to pass priority msgs: AAEC, US Army Vessel Frank S. Besson Jr. LSV1 wkg USCG Comsta Portsmouth at 0010. This US Army roll-on/roll-off vehicle landing ship is homeported at Fort Eustis, VA and is part of 4 units like the Besson, designed for Logistic Support capability. (Gordon, CT)



Antennas on roof of Soviet Embassy, Athens, Greece. Photo courtesy of Desmond Ball, Australia.

- 8288:** WTF7049. Yacht Queen Mary 4 in USB at 0110 wkg WOM, Miami, FL w/pp. (Symington, OH)
- 8592:** HPP. Panama Intelmar Radio, Panama in CW at 0749 w/mkr. (Wyatt, CA)
- 8793:** WOM, Miami, FL in USB at 0108 wkg m/v Sunball (on 8269 kHz) for pp. (Symington, OH)
- 8846:** New York ATC in USB at 2355 wkg Cubana 148 & other a/c re flight data. (Fernandez, MA)
- 8867:** Sydney, Australia ATC in USB at 0548 wkg numerous a/c re flight data. (Fernandez, MA)
- 8912:** Two u/i stns in USB at 0218 w/comms re suspect a/c passing over airfield (no locations given). (Fernandez, MA)
- 8972:** USN-ASW Atlantic ops USB w/3 Mike Yankee, Romeo 6 Alpha & other stns (incl Blue Star) on net w/radar tracking at 0203. (Fernandez, MA)
- 9010:** Halifax Military (RCAF), OM/EE in USB w/best of wx conditions at Canadian terminals at 0221. (Fernandez, MA)
- 9015:** SLHFB "W" hrd at 0200. (Margolis, IL)
- 9124:** YL/SS at 0600 w/callup for 684-04 into 855F grps. Final at 0611. (Cafferky, MA)
- 9222:** YL/SS in AM at 0218 w/4F text. (Fernandez, MA)
- 9317:** Andrews AFB in USB at 2330 wkg Executive 1 Foxtrot. a/c enroute from ME w/pp to Meteo & SAM Command Post. Callsign used by a/c carrying 1st Family members. (McMahan, GA)
- 9865:** YL/GG in AM at 0438 w/3 + 2F grps. (Watts, KY)
- 9950:** NQTN, USS Fortify, MSO446 wkg Charleston Test Control (SESEF Charleston) at 1800. Fortify tested 3 HF emitters in all modes then shifted to UHF testing. (Gordon, CT)
- 10400:** YL/GG in AM at 0210 w/3²F grps. (Fernandez, MA)
- 10970:** YL/EE in AM at 0148 w/Victor Lima Bravo 2 callup rptd. No text to follow. (Fernandez, MA)
- 11108:** YL/GG rptng Papa November at 0600 in AM w/electronic tones in background. At 0605 msg for 351/974/156/064 & 541 Simulcast on 7404, 5015 & 2707 kHz. Rptd every 6 hrs. (Mason, England)
- 11111.2:** Two u/i stns w/OM-EE oprs (one using foul language) to vent his feelings re current duty QTH. One said he had to fix his stabilizer. S/off w/"smooth sailing" & off at 0015. USB at 0010. (D.P., NC)
- 11160:** YL/EE in AM at 0142 w/5F grps. each grp x 2. (Fernandez, MA)
- 11179:** MAC 60148 in USB wkg Command Post via pp thru Letterman at 0450 re flight data, passengers & mission status reports. Also request for wx at Hickham AFB, HI for upcoming landing. (Fernandez, MA)
- 11191:** Hershey (Control) wkg several u/i stns re ra-



This PFC was returned to Steve McDonald, BC, Canada.

- dar tracks. Ops similar to those of FACSAC in Va. Capes. USB at 2310. (Fernandez, MA)
- 11193:** Moscow ATC in USB at 2312 wkg several a/c w/Aeroflot prefix IDs w/flight data in RR. (Fernandez, MA)
- 11200:** NVU, West Drayton, England in USB at 0028 w/wx. (D.P., NC)
- 11204:** Architect (RAF, England) w/wx for terminals around England. USB at 0500. (Fernandez, MA)
- 11212:** U/I stn in CW at 0030 w/what appears be coded wx. (D.P., NC)
- 11237:** YL/GG w/1-0 count and 349. At 1900 ten tones & Gruppen 144. Text in 4F grps and simulcast on 10135 kHz. USB mode. (Mason, England)
- 11233:** Canadian Force 409 (a/c) in USB at 2323 wkg Trenton Metro via pp thru Trenton Military re wx at upcoming landing sites in Germany. (Fernandez, MA)
- 11239:** 50257 (a/c) w/pp to McClellan in USB at 0825: a/c K60 w/pp at 0145 to Gunrunner. Changed eta to 3 hours later. Gunrunner advised K60 to arrive by 2230 local due to quiet hours; Navy a/c 119 at 0145 w/pp to Hickam AFB. VIP needed 20 lbs of ice at gate upon arrival. (Wyatt, CA)
- 11267:** 6 Mike Sierra calls 9 Romeo Alpha at 0235: Lima 3 Echo calls 6 Mike Sierra at 0236, no answer; 1 Tango Kilo calls Lima 3 Echo at 0237; Lima 3 Echo calls 6 Mike Sierra at 0238, no answer. All calls for rdo checks. (Nichols, IN)
- 11309:** Santa Maria Air Control in Azores w/positions of various North Atlantic a/c. USB at 0110. (Mason, England)
- 11342:** USAF Task Force on USB at 0216. Talked about 12 hour mission to SE Asia. Old Salt notified them "Go Green" (encrypt) which they then did. (Wyatt, CA)

- 11545YL/Yiddish** on USB a 2242 w/msg in 3/2F grps. Not in Hebrew as thought by some people. Nbrs sound like ein, tsvei, drei, fier, finef, seks, sibben, acht, nein, and tsero (instead of the usual "nul" for zero). End at 2248. (Margolis, IL)
- 12315:** NTCH, USS Thomas C. Hart FF1092 wkg Norfolk SESEF at 1830 for testing on 12 megs. After that no joy on 7 megs. (Gordon, CT)
- 12907.5:** VHP, Royal Australian Navy, Belconnen, Australia in CW at 1033 w/mkr of VVV (3x) VHP 2/3/4/5/6QK. (Margolis, IL)
- 13113.3:** USCG Comsta Guam at 0650 wkg Philippine ship Micronesia Commerce (on 12342.4 kHz) re medivac case. Navy a/c Papa Romeo 42 and Rescue 04 were dispatched and arrived by 0815. Terms changed from "patient" to "body" so the subject didn't make it. Guam was also hrd helping US Army vessel Klinger conduct RTTY tests. (Watts, KY)
- 13244:** MAC 60019 in USB at 2250 wkg Navy Jacksonville via pp thru Ascension re cargo/passenger data, flight data, and wx. (Fernandez, MA)
- 13280:** Tokyo, Japan Aeronautical radio w/wx reports at 0810. (Wyatt, CA)
- 13323:** U/I stn clg RG2 repeatedly. Sometimes sends RG2 DE but never completes with callsign. CW at 1220. At 1223 begins send msg in broken EE. Xmsn ended 1253. (Margolis, IL) This poss from Taiwanese fishing vessels in Atlantic and/or Caribbean waters. (Ed.)
- 13330:** Houston w/wx for Key 10416 in USB at 1826. (Watts, KY)
- 13907:** OM/EE talking about test. Broke to landline contact USB at 2103. (Wyatt, CA)
- 13931.5:** ONY27, NATO, Mons, Belgium in CW at 2000 2020 w/alphanumeric ttc to ONY24 (u/i). Rptd same ttc continuously as a mkr. (McMahan, GA)
- 13940.2:** OM/SS & YL/SS w/comms on USB at 2017. This freq used by CLP1, MFA, Havana, Cuba for RTTY xmsns. (Margolis, IL)
- 13996:** AGAOAS, Paraguay in USB at 0050 wkg 4BW in Puerto Rico. (Symington, OH)
- 14270:** XYL/EE with YL/EE in background reading nbrs slightly before XYL. AM mode at 0455. Then at 0503 00000 & XYL stopped but YL said 136 (x8) then silence. (Larose, Canada)
- 14383:** NNN0CXU, USNS Neosha wkg NNN0KRQ w/pp. USB at 0057. (Symington, OH)
- 1441.5:** NZTV, USS Jouett CG29 (NNN0NZO) clg "any Conus MARS station" at 0225. (Gordon, CT)
- 14465.5:** U/I stn w/5F grps, zero cut as T, in CW at 2331. Msgs were sent to stn on 14465 kHz that gave QSL's in SS. Xmsn ended at 2342. (Margolis, IL)
- 14470:** NNN0CEJ in USB at 0043 attempted 3 pp's w/NNN0NIM. (Symington, OH)
- 14487:** YL/EE rptng 75531 between 0600-0610 w/tune Lincolnshire Poacher. The pair of this freq is 15682 kHz. Warble jammers not affecting station as is usually the case. USB mode. (Mason, England)
- 16244:** U/I w/telex in FF requesting quick response for wx from a Director of Civil Aviation. Telex mentioned Air Mauritius. CW at 1232. At 1241 same msg sent in EE. Off at 1252 returning at 1300 w/brief coded msg with ltr O's and ##'s foll by request for clearance and overflight. Off at 1310. (Margolis, IL) One form of cut nbrs is where 1-9 are sent full but zero is cut as the Ltr O. (Ed.)
- 17015:** SLHFB "O" at 0015. The "O" sent 20 times per minute. (D.P., NC)
- 17952:** Ranch House, Almighty and Slingshot w/rdo checks on Anti-Smuggler channel Yankee Foxtrot. USB at 1736. (McMahan, GA)
- 19070:** Moscow Radiotelephone Service in LSB at 1623 with YL/EE test tape. (McMahan, GA)
- 19594:** U/I stn in CW w/5L msg that begin "OLOAD QRA DE RIQ..." First hrd at 1750 & ran continuously for many hours. (Margolis, IL)
- 20129:** U/I in CW rptng VAVE ENDE UB4V (cut nbrs). Hrd 2337-2341. (Margolis, IL)
- 20720:** PPX, Embratel, Rio de Janeiro, Brazil w/fon call in PP on USB at 2304. (Margolis, IL)
- 21863.5:** North Korean Embassy, Havana, Cuba in CW at 1824 w/coded ttc. Digits noted were 3,4,5,6,7 and letters were ADEFGHKMNPRSTUVW. (Margolis, IL)
- 23946.3:** OM/EE w/USB pp in dpx at 1530. Appeared be from USAF Ascension Island to Patrick AFB, FL. OM mentioned he was "on the island" and having been to Patrick. (Margolis, IL)

Beaming In (from page 4)

they didn't, they politely left without any fuss. This was followed by the MARS station who cleared the frequency then commencing a casual gabfest with one of his cronies.

I have, myself, noticed something very similar to this in the VHF "low band." A Spanish language comms system was being monitored when an official-sounding voice came on and advised them that they were on an operational frequency assigned to the U.S. Army at Fort Huachuca, and would they please vacate the frequency immediately. I don't know where the Spanish stations were, but either they couldn't hear Ft. Huachuca (in Arizona), and/or they couldn't understand English, and/or they were less than impressed with his directive. They kept right on talking through continuing efforts by Fort Huachuca to evict them.

There are some frequencies (like 500 kHz, 5680 kHz, 121.5 MHz, etc.) that are set aside internationally for specific purposes. But no one nation has the right to lay exclusive claim to any frequency, on a global basis, for its own military or other uses. No station or nation has the right to order a foreign station off a frequency based upon the concept of having claimed such rights.

The worst thing about this policy isn't that it's incorrect, nor that it's rude and arrogant. It's that it's being transmitted so that everybody with a receiver, throughout the world, has a chance to hear it taking place. It goes a long way towards giving these people the image they have of Americans.

Maybe the military should teach its communicators about radio etiquette when dealing with the public, even when it comes to foreign nationals blundering on to frequencies that they should know better than using because we think we own them.

Of course, the image of Americans propagated via radio isn't limited to this alone. When you listen on certain ham frequencies (I have 3868 kHz and 14313 kHz in mind, but there are many others), and when you hear the barnyard sounds and distorted echo chambers on CB, you realize that we are hard at work painting a very negative image of ourselves, while also wasting a lot of spectrum.

The only plus to this is that if any cosmic civilization is also monitoring all of these lids, that's probably enough to convince them not to invade this place.

Winding Down 1990

Here's a wish for all of the best wishes of the Holiday Season from us to you and yours!



PC

Ham Column (from page 51)

of quality time my son and I spend together. Michael's confidence has increased tenfold, his knowledge of geography, a hundredfold. He now thinks of ideas with a world consciousness. He is also ahead of me on DXCC....

I can think of few pastimes where father and son can participate on equal footing and learn so much about the world we live in. Additionally, we have gained technical knowledge as we have upgraded. Currently, Michael is a General Class and I am an Extra. Through pushing and encouraging one another, we achieved this in less than a year.

If there's a moral to the story, it's simple. Invest time in your children or your grandchildren. Encourage them in ham radio if you can. Encourage them to become SWLs. Either will mature them immensely. But if you can't, encourage them in something worthwhile. We can all afford to spend more time with our children and grandchildren, right?

Currently, my youngest son, Jacob, and my XYL, Cris, are working toward their Novice tickets. Then, we'll have four hams vying for time on the radio. What a pleasant problem!—Mike Crownover, KB5ILS.

If my mailbox is an indicator, you must be gearing up for the fall/winter operating season. Keep your letters and photos coming to me at ARRL, Department PCN, 225 Main Street, Newington, CT 06111. **PC**

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WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Pirate Station Shut Down Again In Floral Park, New York

The FCC's New York Office shut down an unlicensed FM radio station operating on 91.9 MHz on the FM band. The unlicensed station was being operated by Joseph Sapanaro, Jr., who was fined \$1,500 for unlicensed operation. The Commission had previously shut down a pirate radio station operated by Joseph Sapanaro, Jr. on January 7, 1981. The pirate station was called WFPA.

An FCC public affairs specialist heard the pirate station broadcasting on the evening of July 26, 1990. Subsequently, an FCC engineer used mobile radio direction-finding equipment to locate the station at a house in Floral Park, New York.

Unlicensed radio operation is a violation of Section 301 of the Communications Act of 1934, as amended. Sanctions may include administrative fines of up to \$10,000 and/or criminal penalties of up to \$100,000 and/or imprisonment for up to one year. Misuse of radio frequencies is a serious offense because of its potential for interfering with safety-of-life services such as aviation, law enforcement and marine.

Amateur Operator Arrested After Threatening FCC Investigator

On August 2, 1990, FBI agents with assistance of FCC investigators arrested a New York City amateur radio operator and seized 20 pieces of his radio transmitting equipment. The action took place after the amateur made death threats over the radio against an FCC investigator. The United States charged Anthony V. Marcantonio, of the Douglaston section of Queens, with making threats by radio. This crime is a felony and carries a penalty of up to five years in prison, a \$250,000 fine, or both. A federal judge set Mr. Marcantonio's bond at \$50,000 following a hearing.

This case came to the FCC's attention after members of the amateur community complained that Marcantonio was interfering with amateur radio communications by transmitting unidentified, disruptive signals on the two-meter amateur radio band. On July 27, 1990, FCC investigators, using direction-finding equipment, traced the signal to the Marcantonio home. The investigators discussed the situation with a family member who then shut the transmitter off. The transmissions resumed that evening and continued into the next day. It was then that Marcantonio made the threat.

Mr. Marcantonio holds a Novice Class radio operator license, KA2ZGE.

Unlicensed Ham Radio Operator Convicted Of Felony

Richard A. Burton, an unlicensed radio operator, was found guilty in Federal District Court on July 20, 1990, in Los Angeles of operating an amateur radio station without an FCC license. A jury found the defendant had violated Sections 301 and 501 of the Communications Act regarding unlicensed radio operation. The latest conviction is a felony conviction since Mr. Burton had been convicted of similar violations in 1982.

Mr. Burton made the unlicensed radio communications in the two meter Amateur Band from his residence in Harbor City, California, during March 1990. His equipment was seized as evidence and on May 11, 1990, he was indicted by a Federal Grand Jury in Los Angeles.

The FCC had suspended Mr. Burton's radio operator's license in September 1981 for violation of several FCC Rules and Regulations. Shortly thereafter, evidence of his continued radio operation was obtained by the FCC's Los Angeles Office. At the time of his first conviction he was sentenced to six months in prison and placed on probation for five years.

For this latest offense, Mr. Burton faced a possible sentence of up to two years in prison and/or a fine of up to \$250,000.

FCC Reorganizes Emergency Broadcast System Functions

The Commission reassigned the Emergency Broadcast System (EBS) function, including responsibility for the Emergency Broadcast System Advisory Committee, from the Office of the Managing Director to the Field Operations Bureau (FOB).

The EBS was established in response to a Presidential statement of requirements and, in recent years, has been used extensively on a voluntary basis at the State and local levels to provide the public with emergency notification and information. The Commission is charged by statute with promoting national defense and safety of life and property in its regulatory activities. In addition, the Executive Office of the President has delegated or assigned to the Commission additional responsibilities for civil sector emergency communications. These activities are carried out under the overall direc-

tion of the Defense Commissioner, Andrew C. Barrett.

FOB will review the objectives of the EBS program and evaluate how well the current program meets them, and as necessary, develop and implement plans to better achieve the EBS objectives. The reorganization, the Commission stated, will integrate EBS activities into FOB's field infrastructure, thus increasing the technical and administrative support of the program. This will allow the FCC to work closely with states and local areas in maintaining an effective EBS program.

Restricted Radiotelephone Operator Permit In Domestic Aviation And Maritime Services Eliminated

The Commission has, in certain cases, eliminated the requirement for the Restricted Radiotelephone Operator Permit in the domestic Aviation and Maritime Services.

Those aircraft pilots who fly only in U.S. airspace and those vessel captains and operators who communicate using only VHF frequencies and never plan to sail into a foreign port are no longer required to hold a Restricted Radiotelephone Operators permit.

This action was taken by the Commission in PR Docket 84-760 in January of 1986 (FCC85-42). This is a reminder.

Amateur Service More Accessible To Handicapped Persons

The Commission proposed amending its rules to make the amateur radio service more accessible to handicapped persons. The Commission is taking this action to accommodate those persons who, because of severe handicaps, have extraordinary difficulty in passing the higher speed Morse code telegraphy examinations for amateur operator licenses.

The amateur service is open to qualified persons interested in radio technique for personal reasons and without pecuniary interest and provides those individuals with the opportunity for self-training, intercommunication and technical investigation. To qualify for an amateur operator license, applicants must pass both written and telegraphy examinations which are used by the administering volunteer examiners (VEs) to determine the class of operator license for which the person is qualified. Currently, the required telegraphy speed for the Novice and Technician classes of operator license is 5 wpm, 13 wpm for the General and Ad-



vanced classes, and 20 wpm for the Amateur Extra class.

To make all classes of operator licenses accessible to persons who, because of their handicaps, cannot pass the required telegraphy examinations, the VEs, at the Commission's request, have already expanded special procedures to accommodate handicapped individuals. However, the Commission said that there still remains a significant number of otherwise qualified licensees who, because of their severe handicaps, cannot pass the higher speed examinations even when provided with special accommodations. To assist such individuals, the Commission has proposed to exempt from these examinations, individuals holding current or renewable Novice, Technician, General, or Advance Class operator licenses. The Commission said that the exemption provision would be incorporated into the existing volunteer examiner coordinator system.

In accordance with the Rehabilitation Act of 1973, the Commission has proposed to define the term "severely handicapped individual" as a person having a severe physical or mental disability which seriously limits one or more functional capacities. Under the proposed rules, the VEs would give examination credit to severely handicapped licensees seeking exemption from the 13 wpm or the 20 wpm telegraphy examinations. The examinees would also be required to show an authentic certification signed by a physician attesting that they cannot pass these examinations because of physical or mental disabilities.

The Commission said that the international requirement of this proposal would be met because all licensees would have demonstrated their telegraphy proficiency by having passed at least the 5 wpm telegraphy examination. Moreover, the proposed rule changes would be more efficient and effective than reviewing waiver requests from severely handicapped individuals on a case-by-case basis.

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• kW size components, stainless steel hardware, and 12 GA. copper wire means the Model DX-EE has less loss than light-duty receive-only antennas. The Alpha Delta design concept does not permit the use of small, lossy traps as found in other brands. If you put RF power in the small trap-type models they will "smoke"—not what you want in a precision antenna!

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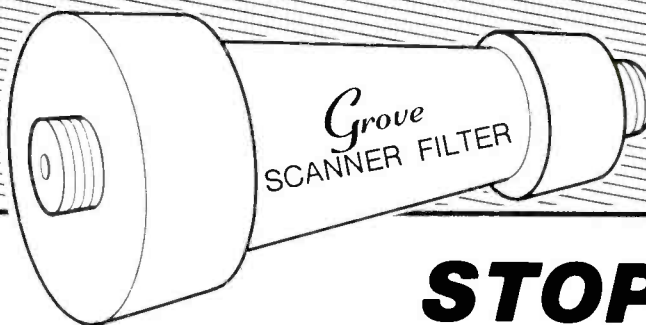
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CIRCLE 46 ON READER SERVICE CARD

FOCUS ON FREE RADIO BROADCASTING

Readers Phil Bikkala reports on a visit he made to **Radio Dublin**, at 26 years Ireland's oldest pirate station. Radio Dublin was running 25 watts on 99.5 FM and planned to increase that to 300 watts with a move to 101.4 FM. Radio Dublin also has plans to add mediumwave and shortwave services. Although the station was raided by the authorities last year, Phil says it is still going strong.

WRAR (Rock and Roll Radio) says it is running daily programs with 2.5 kW on 27.035 from "somewhere in Illinois." The station expects to have a mail drop soon.

Readers who logged the now defunct **CHGO** can send their reception reports to the station's operator and air person John Rosengarten (who used the name Long John Silver). He's at 4426 W. Atgeld, Chicago, IL 60639 and might QSL all correct reports.

Gary Daniels of the Voice of Bono tells me the station "really does exist" and, although a firm schedule isn't set, readers should keep an ear peeled for future broadcasts in the 7330-7450 area. Gary says their first broadcast brought a good deal of attention.

Pat Murphy of **WNIS Radio** in Norfolk, Virginia, notes that the SWL Net is a good source of pirate info. It's on Sundays at 1500 UTC on 7240.

We'll lead off the logs with a new one—**9X2V**—the Voice of 1932, heard by Jeff Foster in Michigan on 7415 at 0130 playing big band music. Address was given as POB 2112, Johnson City, TN 37601.

Radio ESP was heard by Pat Murphy at 0313 on 7415 with things like the Allman Brothers and Jefferson Airplane. The address in POB 452, Wellsville, NY 14895.

Radio Freddie's Nightmare and **Radio Texaco** were heard in contact on 7407.1 USB at 0528. Chris Meloche of London, Ontario (who would like to get in touch with Robert Ross, also in London) says both stations gave an address in Blue Ridge Summit, PA as their maildrop.

Several heard **CFBN** (Fly By Night). Meloche heard them on 7418 at 0158 signing on with loon sounds and hosted by the "Fly Brothers" (Black and Horse). Uses the Wellsville address. Pat Murphy had them on 7420 at 0207 as "The North American Service of CFBN" and wildlife sound effects in the background. Sign off was at 0217. Keith Mehl in Iowa found them at 0115 on 7415 with the inaugural broadcast, including mentions of "100 megawatts" and an antenna tower "way, way up there." Off with military music. Jeff Foster heard them in Michigan at 0111 with fake commercials and folk music.



"Joe" is on the air at Radio Dublin, Ireland's oldest pirate station. (Thanks: Radio Dublin via Phil Bikkala)

Tim Johnson in Illinois had **Action Radio** on 7415 at 0200 with comedy songs. Later that evening Tim heard them on 7480 and 7392. Wellsville address announced. Murphy got them on 7415 at 0148 with a test broadcast during which they asked for information on the equipment used by listeners. Also noted they were broadcasting from the city of "three rivers." (I don't know if that's a name or a description, Pat) Off at 0155, after which someone called them on the air, unsuccessfully.

Rockabilly Radio was heard by Mehl on 7412 in sideband at 0149 with a southern-accented announcer, country-western and country-rock music to sign off at 0154. Foster had them from 0134-0154 with host "Rockin' Rino," who said he'd responded to reports "in the usual North American shortwave radio publications."

Jeff got **Radio Free Massachusetts** (RFM) on 7400 at 0220 and again at 0415, including a broadcast of the song "We Want the Airwaves" by the Ramones at sign off. Meloche had this one also and Chris says the announcer ID'd himself as "H.V. Short" and promoted a special first anniversary QSL. Blue Ridge address.

Chris reports **Hope Radio International** on 7400 at 0224 with comedy skits and pirate radio news with "The Radio Animal" to 0301 sign off. Johnson had them at 0028 on 7370, including an offer to air any studio quality programming submitted to them. The host was "Justice Gustice." Murphy had them at 0231 airing an announcement urging the designation of 1700-1800 kHz as an amateur broadcast service. Steve Gutierrez in Michigan heard the station in contact with several others between 0118-0138.

Foster had **One Voice Radio** a couple of times on 7415 at 0000 and 0248, both times with health readings.

Bob Ross in Ontario had **Radio Clandestine** on 7399.12 at 2110 with rock, ID and funny commercials. Foster had them at 0315 on 7397.

Bob also had **WENJ** on 7414.8 at 0152 with rock, IDs as WENJ and "J-Rock," giving the Blue Ridge Summit address.

Foster had **The Cheap Radio Thrills Network** on 7415LSB at 0326 with a fake phone number for reports. The station interrupted its transmission a few times to take over the air input from listeners equipped with transmitters. No address noted.

K-ZAP was on 7415 at 0000 with ID and theme from The Munsters TV show, notes Tim Johnson. Foster had them with a mention of a special QSL card and the Blue Ridge Summit address.

Radio Happy Isles was the ID heard by Douglas W. Bauer in New York on 7420 at 0115. This was heard as part of a multi-station on-the-air discussion.

Tim Johnson had a tentative log of **WKND** at 2339 on 7415, signing on with the Dr. Who theme.

Due to space limitations I did not include a number of logs of two-way pirate contacts. An argument can be made that these aren't really broadcasts so they'll have to play second banana to reports on actual broadcasts, at least in this column.

That does it for this round. Keep those reports coming! And you pirate operators—remember the gang's always interested in having more info about your station, including QSL's and station photos!

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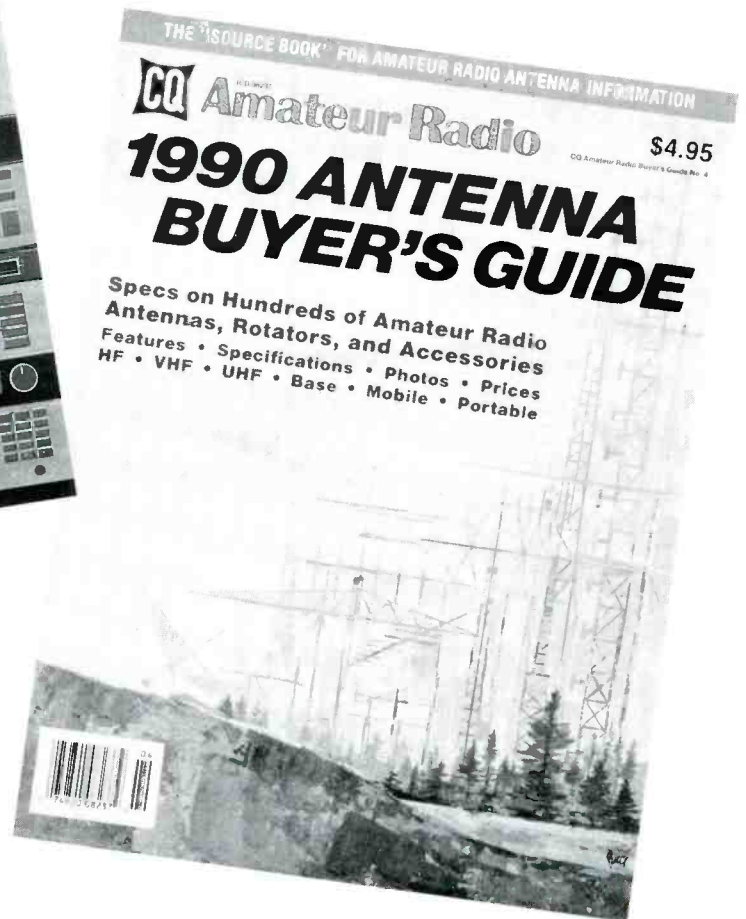
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JRC NRD 515 w/NDH515 Memory Unit \$850.00. Drake RR2 General Coverage HF Receiver, Rademount \$575.00. All excellent to mint condition. Mike, (713) 332-0341.

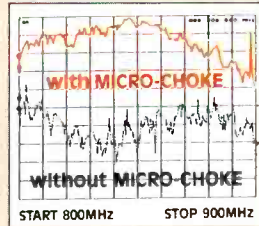
POP'COMM 62 issues, 7/85-8/90, \$100 + shipping. Monitoring Times, 45 copies, inc. 3/87-8/90, \$100. Send SASE to J. Netzel, 4529 S.K. Tacoma, WA 98408.

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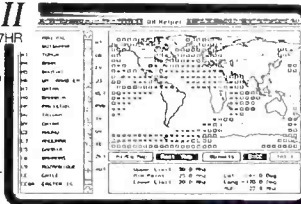
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- Backlighted LCD display.
- 10 Scan Banks, 10 Search Banks.
- Selectable Priority Channel.
- Delay, Hold Features.
- Selectable Search Increments, 5-955KHz.
- Permanent memory backup.
- 4 AA Ni Cad batteries included.
- AC adaptor/charger.
- Carry Case.
- Cigarette Lighter Charger.
- Belt Clip.
- Earphone.

Options:

- External Speaker. Mobile Mount. MS190 \$19.50
- Extended Warranty. 2/3 yrs \$45/\$55

Specifications:

- Coverage: 8-600, 805,1300MHz
- Sensitivity: .35uV NFM, 1.0uV WFM, 1.0AM
- Speed: 20 ch/sec. scan. 40 ch/sec. search
- IF: 561.225, 58.075, 455KHz or 10.7MHz
- Increments: 5 to 955KHz selectable/ 5 or 12.5 steps.
- Audio: .4 Watts
- Power: Input 9 - 13.8 V. DC
- Antenna: BNC
- Display: LCD
- Dimensions: 6 7/8H x 1 3/4D x 2 1/2W. 12oz wt.

AR950

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100 Channels. Low, Air, High, UHF & 800MHz.

Standard Features:

- Extremely compact size.
- Unrestricted 800MHz coverage.
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- Earphone Jack & Attenuator.
- Delay, Hold features.
- Channel 1 Priority.
- 5 Scan Banks, 5 Search Banks.
- Telescopic and Flexible Antennas w/ BNC connector.
- AC & DC Power cords w/ mtng hardware.
- One Year Limited Warranty.

Options:

- Base type antenna
25 to 1000MHz w 50' coax. AS300 \$59.95
- Mag Mnt Mobile Antenna. 15' coax. MA100 \$25.00
- Cigarette Lighter power adaptor. CP100 \$4.00
- External Speaker
with mobile mount. MS100 \$19.50
- Extended Warranty. 2/3 yrs \$40/\$55

Specifications:

- Coverage: 27-54, 108-174, 406-512, 830-950MHz
- Sensitivity: .4uV Lo,Hi. .8uV Air. .5uV UHF. 1.0uV 800
- Scan Speed: 15 ch/sec.
- IF: 21.4MHz, 455KHz
- Increments: 10,12.5,25,30
- Audio: 1W
- Power: 12.8VDC, 200MA
- Antenna: BNC
- Display: LCD w/backlight
- Dimensions: 2 1/4H x 5 5/8W x 6 1/2D. 14oz wt.

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400 Channels. 100KHz to 2036MHz.

Standard Features:

- Extremely compact size.
- Continuous coverage
- Attenuation Programmable by Channel.
- Manual tuning knob.
- Tuning increments down to 50Hz.
- AM, FM, wide band FM, LSB, USB, CW modes.
- Backlighted LCD display.
- 4 Scan and Search Banks, Lockout in Search.
- 4 Priority Channels.
- RS232 control through DB25 connector.
- Delay, Hold Features.
- 15 band pass filters, GaAsFET RF amp.
- Sleep and Alarm Features.
- AC adaptor/charger. DC power cord.
- Telescopic Antenna.

Options:

- | | | |
|---------------------------------|-------|----------|
| Earphone. | EP200 | \$2.00 |
| External Speaker. Mobile Mount. | MS190 | \$19.50 |
| Extended Warranty. 2/3 yrs. | | \$65/75 |
| Mobile Mounting Bracket. | MM1 | \$14.90 |
| RS232 Control Package | SCS3 | \$295.00 |
- (software & cable) offers spectrum display and database.

Specifications:

- | | |
|--------------|---|
| Coverage: | 100KHz - 2036MHz |
| Sensitivity: | .35uV NFM, 1.0uV WFM,
1.0AM/SSB/CW |
| Speed: | 20 ch/sec. scan. 20ch/sec. search |
| IF: | 736.23, (352.23) (198.63) 45.0275, 455KHz |
| Increments: | 50Hz and greater |
| Selectivity: | 2.4KHz/-6db (SSB) 12KHz/-6db
(NFM/AM) |
| Audio: | 1.2 Watts at 4 ohms |
| Power: | Input 13.8 V. DC 500mA |
| Antenna: | BNC |
| Display: | LCD |
| Dimensions: | 3 1/7H x 5 2/5W x 7 7/8D Wt. 2lb 10oz. |

AR2500

\$499



2016 Channels. 1 MHz to 1500 MHz

Standard Features

- Continuous coverage
- AM, FM, wide band FM, & BFO for SSB, CW.
- 64 Scan Banks.
- 16 Search Banks.
- RS232 port built in.
- Includes AC/DC pwr crd. Antenna, Mntng Brckt.
- One Year Limited Warranty.

Options:

- | | | |
|---------------------------------|-------|----------|
| Earphone. | EP200 | \$2.00 |
| External Speaker. Mobile Mount. | MS190 | \$19.50 |
| Extended Warranty. 2/3 yrs. | | \$65/75 |
| Mobile Mounting Bracket. | MM1 | \$14.90 |
| RS232 Control Package | SCS2 | \$295.00 |
- (software & cable) offers spectrum display and database.

Specifications:

- | | |
|--------------|---------------------------------------|
| Coverage: | 1 MHz - 1500MHz |
| Sensitivity: | .35uV NFM, 1.0uV WFM,
1.0AM/SSB/CW |
| Speed: | 38 ch/sec. scan. 38 ch/sec. search |
| IF: | 750.00, 45.0275, 5.5MHz 455KHz |
| Increments: | 5,12,5,25 KHz |
| Audio: | 1.2 Watts at 4 ohms |
| Power: | Input 13.8 V. DC 300mA |
| Antenna: | BNC |
| Display: | LCD, backlighted. |
| Dimensions: | 2 1/4H x 5 5/8W x 6 1/2D Wt. 1lb. |

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(The VHF converter options must be used in the R-5000 and R-2000.)

R-5000

The R-5000 is a high performance, top-of-the-line receiver, with 100 memory channels, and direct keyboard or main dial tuning—makes station selection



R-2000

The R-2000 is an all mode receiver with 10 memory channels and many deluxe features such as programmable scanning, dual 24-hour clocks with timer, all-mode squelch and noise blankers, a large, front-mounted speaker, 110 volt AC or 12 volt DC operation (with the DCK-1 cable kit) and 118-174 MHz VHF capability with VC-10 option.

Optional Accessories

- R-2000:**
- VC-10 VHF converter
 - DCK-1 DC cable kit for 12 volt DC use.

R-5000:

- VC-20 VHF converter
- VS-1 Voice module
- DCK-2 for 12 volt DC operation
- YK-88A-1 AM filter
- YK-88SN SSB filter
- YK-88C CW filter
- MB-430 Mounting bracket.

Other Accessories:

- SP-430 External speaker
- SP-41 Compact mobile speaker
- SP-50B Mobile speaker
- HS-5 Deluxe headphones
- HS-6 Lightweight headphones

super easy! Other useful features include programmable scanning, large, built-in speaker, 110 volt AC or 12 volt DC operation (with optional DCK-2 cable), VHF capability (108-174 MHz) with the VC-20 option, dual 24-hour clocks with timer, and even voice frequency readout with the VS-1 option.

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The RZ-1 wide-band, scanning receiver covers 500 kHz-905 MHz, in AM, and narrow or wideband FM. The automatic mode selection function makes listening

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- Optional Accessory**
- PG-2N Extra DC cable

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