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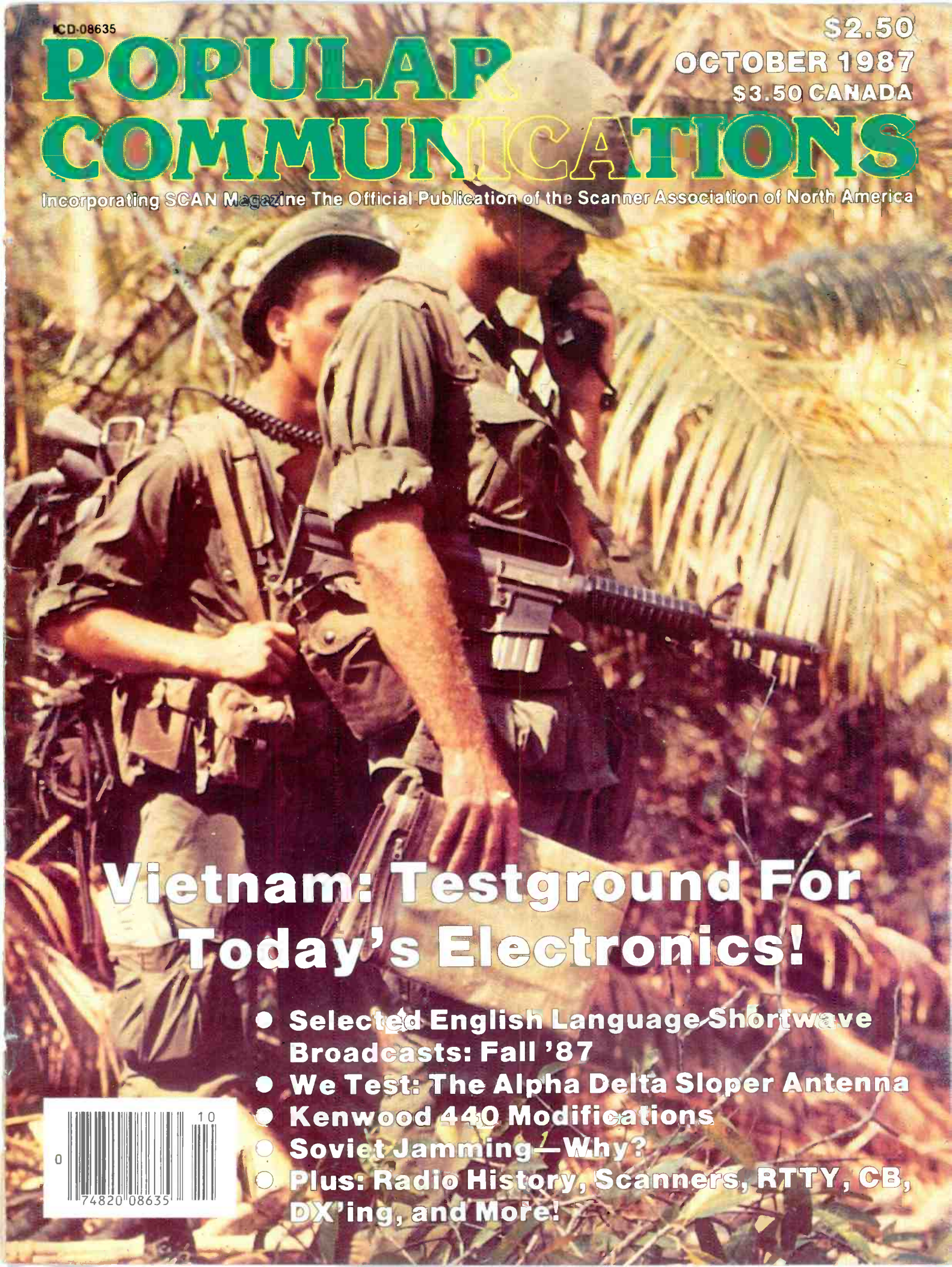

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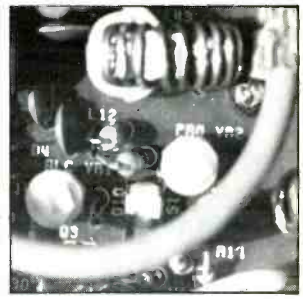

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FEATURES

This month's cover: *In the midst of the action in Vietnam. Photo courtesy United States Army.*

DEPARTMENTS

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BEAMING IN AN EDITORIAL

BY TOM KNEITEL, K2AES

It Must Be Jam, 'Cause Jelly Don't Sound Like That

Ever since the Soviets announced their much-heralded "Openness" (they call it *Glasnost*) program, the question has been if it's genuine or simply propaganda hype—*Glasnost* or *Gas-nost*! Those of us who follow the world's radio doings were especially eager to see the implications of *Glasnost* in our particular area of interest.

Openness, of course, would presumably affect jamming and other aspects of international broadcasting that relate to Eastern Bloc nations. The Soviets had been regularly jamming foreign broadcasts directed at their citizens since 1938. Starting in 1950, broadcasts from the United States and other Western Alliance nations came in for special attention of the jamming stations. By 1952 the Soviet jamming network required 1,500 transmitters; only a few years later another 500 were added to further assure that programming from the VOA, BBC, Radio Free Europe, Radio Liberty, and other stations couldn't easily penetrate this electronic wall of noise.

Local jamming transmitters exist in practically every city in the USSR having a population of 100,000 or more. These stations are used to blot out signals from the West that manage to sneak through the major jamming curtain sent out by other transmitters elsewhere in the USSR, Poland, Bulgaria, and Czechoslovakia. The primary jamming targets in recent years include certain programs of Deutsche Welle, the VOA, RFE, Radio Liberty, BBC, Kol Yisrael, Radio Beijing, Radio Tirana, and Radio Korea.

When the US/USSR Iceland Summit discussions took place last November, *Glasnost* had already been run up the flagpole and many people were waiting to see if it was worth saluting. We were all wondering if the Soviets would finally end all of their attempts to jam programs beamed to Eastern Europe from the West. Jamming is not only a clear and blatant violation of international agreements, but an affront to what many people feel are basic human rights.

Amidst all of the rejoicing, hoopla, and visions of Sugar Plum Faeries our own national media was having about *Glasnost*, the Soviet nutcracker was still putting on the pressure. Little had really changed under the veneer of propaganda and hogwash.

The real reason the Soviet jamming of the BBC stopped in January had nothing to do with *Glasnost*, it was because those eight jamming transmitters were reassigned to the job of increasing the jamming of Radio Liberty and Radio Free Europe. Although not a part of the VOA's operations, RL and RFE are (at least partially) financed by funds from Washington. RFE has an audience of 30 million listeners in Eastern Europe. RL is beamed to 20 million listeners within the USSR. The ending (or temporary suspension) of jamming the BBC programs so that the equipment could be used for knocking out RL and RFE seems a cynical gesture at best—and all too revealing about the true nature of all of this *Glasnost* palaver.

Just as the cessation of BBC jamming was more deceitful and pragmatic than altruistic, I'm afraid that the end to the jamming of the VOA also smells a bit like a week-old mackerel. How odd it seems that the very day the VOA jamming ended, Radio Moscow programs in English started to pour into the United States from a mediumwave transmitter in Cuba! The ten hours of programming were via a transmitter on 1040 kHz, and were powerful enough to be monitored throughout the southeastern part of the United States. The station promised that the programs would be sent out every Sunday and on alternating Saturdays. This was quite similar to Soviet/Cuban English language mediumwave broadcasts that existed from 1980 to 1982.

Except for some newspapers in Florida, these latest Soviet broadcasts received scant media attention. USIA/VOA Director Charles Z. Wick, however, was decidely displeased and termed them "illegal." It wasn't clear how they were actually any less legal than our country's own former Radio Swan/Radio Americas broadcasts to Cuba, or the present Radio Marti transmissions, the proposed Radio Liberation in Central America to be aimed at Nicaragua—or the pure propaganda broadcasts of any nation. Certainly Radio Moscow's broadcasts from Cuba can't be any more illegal than the shortwave jamming they replaced—and Washington managed to grin and bear that for more than thirty-five years!

Basically, the Soviets decided to unilaterally inaugurate the mediumwave English language broadcasts about which they spoke in November. Under the circumstances, the United States should be doing a lot less meaningless and unproductive crying of "foul" and "illegal." Instead, we should be seriously examining how the various factors cleverly fit together to reveal all of this to be a well-orchestrated revamping of Soviet propaganda warfare strategy that's being palmed off as *Glasnost*.

"He was the Russian Bear, incarnate."

While it doesn't say much for the sincerity of their proposal in Iceland, it does indicate that the Soviets have (or had) a genuine fear that we might jam their Cuban mediumwave transmitter.

Also note that 1040 kHz is a so-called "Clear Channel" that is presently being fought over by the U.S. and Cuba before an international frequency allocation board. Its selection for these broadcasts was therefore doubly provocative.

In my usual eagerness to do my share in getting answers to preplexing questions, about a year ago I wrote to Vladimir Posner, Radio Moscow's primary English language correspondent. He seems to have also become somewhat of a *Glasnost* spokesman for Americans, having appeared many times on our TV networks. I figured that Posner, in view of *Glasnost*, would like to explain the justifications for ongoing illegal broadcast jamming by the Soviets.

This appeared to me to be a logical ap-

(Continued on page 73)

MAILBAG LETTERS TO THE EDITOR

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

Cover Story

I've been reading *POP'COMM* since December and consider it an excellent magazine. The June issue was the best of all. Not only did it have Alice on the cover with a new receiver, she even had two stories within the issue instead of only one! Please, keep up the good work.

Joe Kubasha
Kirtland, OH

Every issue offers a surprise or two, but the June cover with Alice Brannigan was the best surprise of all!

Paul Connolly, KIL9WR
DuPage, IL

The June cover was fine, but I'd like to see more of those military covers that you ran so often a few years ago.

M/Sgt. Dan Howie
APO New York

The QSL cards on the June issue looked very sharp, so did that new all-band portable receiver. Brannigan brought it all together.

Joseph Monteverde
St. Paul, MN

I thought the June issue was very attractive, but I thought it would have looked better on *Cosmopolitan* or *Vogue* than on *POP'COMM*.

Pete Karas, Sr.
Palmdale, CA

No doubt about it, that June cover brought in more mail and more opinions than any cover we have ever run on POP'COMM! *Maybe we'll do something like it again sometime. —Editor*

Let A Smile Be Your Umbrella

When I started to look around to see what was available in 800 MHz equipment the first thing I picked up was your August (1986) editorial, "Wanted: New Faces." I immediately subscribed to *POP'COMM* and started investigating what would best suit my circumstances. It didn't take me long to discover that you are an apparent minority of one when it comes to wanting new faces in the radio hobby arena. Licensed Hams want little or nothing to do with lower life forms that don't wear plastic name tags with call letters on them. This has become apparent at several stores and a couple of radio swap meets. Local Ham radio stores look at selling scanners about the same as they would selling binoculars to a peeping Tom. I ended up buying from my local Radio Shack. I didn't see a single plastic name tag in the whole store. They take your money and give good merchandise and service in return, and they don't know from anything about radio hobbies.

Carl Dotson
Poway, CA

Permit me to clarify that Hams are far more concerned with the individual than with the presence or absence of a callsign. While we didn't have the space to print your entire lengthy letter, Carl, it does seem that you've got a negative attitude towards those you feel should accept you with open arms and flying colors. Maybe nobody has pointed out to you that today many Hams are active scanner users and shortwave monitors. Hams stopped looking askance at all SWL's several years ago and are currently making extraordinary efforts to bring new members into their fold. If you've experienced just the opposite response, then there may well be other factors involved. For starters, why not stop considering those not having licenses (including yourself) "lower life forms"—it's a turn off. —Editor

The Other End Of The Scale

I agree with *POP'COMM*'s book reviewer, R. Slattery, in his "Books You'll Like" column. I use this column as the barometer for selecting books for my own use. I think it would be of interest to also tell his readers about books that he doesn't recommend for one reason or another. Judging from his sometimes acerbic comments on parts of the books he does like, it might be great fun to see what he thinks about those he doesn't like. Also, it would balance off the column nicely.

Ed Mortenson, KUT7GY
Orem, UT

I live near Rocky Mount, NC and bought the *Police Call* directory for this area. To my disappointment, I can't seem to find certain frequencies that my Uniden 140 scanner can receive.

John Lucas
Sharpsburg, NC

To be sure, there are some books out there that just don't cut the mustard—as John Lucas observes. At one time we did seriously consider doing what reader Mortensen suggests. Our resident book reviewer, "Slats," even submitted sample reviews of several books he thought were especially inept, overpriced, or otherwise seriously lacking in one or more important ways. While these reviews contained some biting and hilarious comments, it was decided to hold the idea in abeyance. The feeling was that, within the space presently available for this column, it would be more constructive to suggest books that would be of maximum use and interest, rather than the opposite. We haven't tossed the idea down the dumper yet; it could still turn up in future issues. —Editor

Cheerful Little Earful

The August issue info on modifying the Realistic PRO-2004 was great. I did it in less than five minutes. A technician who was going to do the modification for me wanted $25 and had me under the impression that it involved reprogramming something.

Kevin Rickens
Hanahan, SC

No wonder they don't want anybody monitoring the cellular frequencies, the language and general calls that go out there far surpass anything I've ever heard going out over the airwaves. There's one particular four-letter word that seems to be mandatory in every sentence uttered. The information on restoring the cellular bands to the PRO-2004 really enabled me to fully understand why the cellular industry pushed Washington so hard to get the ECPA passed.

Maurice Bettinger
Albuquerque, NM

Between the "Big Snoop's Guide" (in the June issue) and the cellular frequency modification (August issue) to the Realistic PRO-2004, I've gotten an earful. I'd say that before the FCC goes around attempting to enforce the ECPA, they'd be eagerly enforcing their obscene language regulations on the users of cellular telephones. Sounded worse than a San Diego saloon on a Saturday night!

Jack Westin
Long Beach, CA

Amidst the FCC's tampering with free speech in the matter of so-called "Shock Radio" broadcast personalities, it does seem odd that the agency appears totally unconcerned with much saltier language that has always been freely used over mobile telephones. Even Hams and CB'ers have been hassled at times about using what the FCC considers "indecent" language. Yet, somehow, mobile telephone users look to be exempt from such scrutiny. If anything, the ECPA has served only to further isolate such operations from other FCC-governed services and establish mobile telephones as a service having special privileges. —Editor

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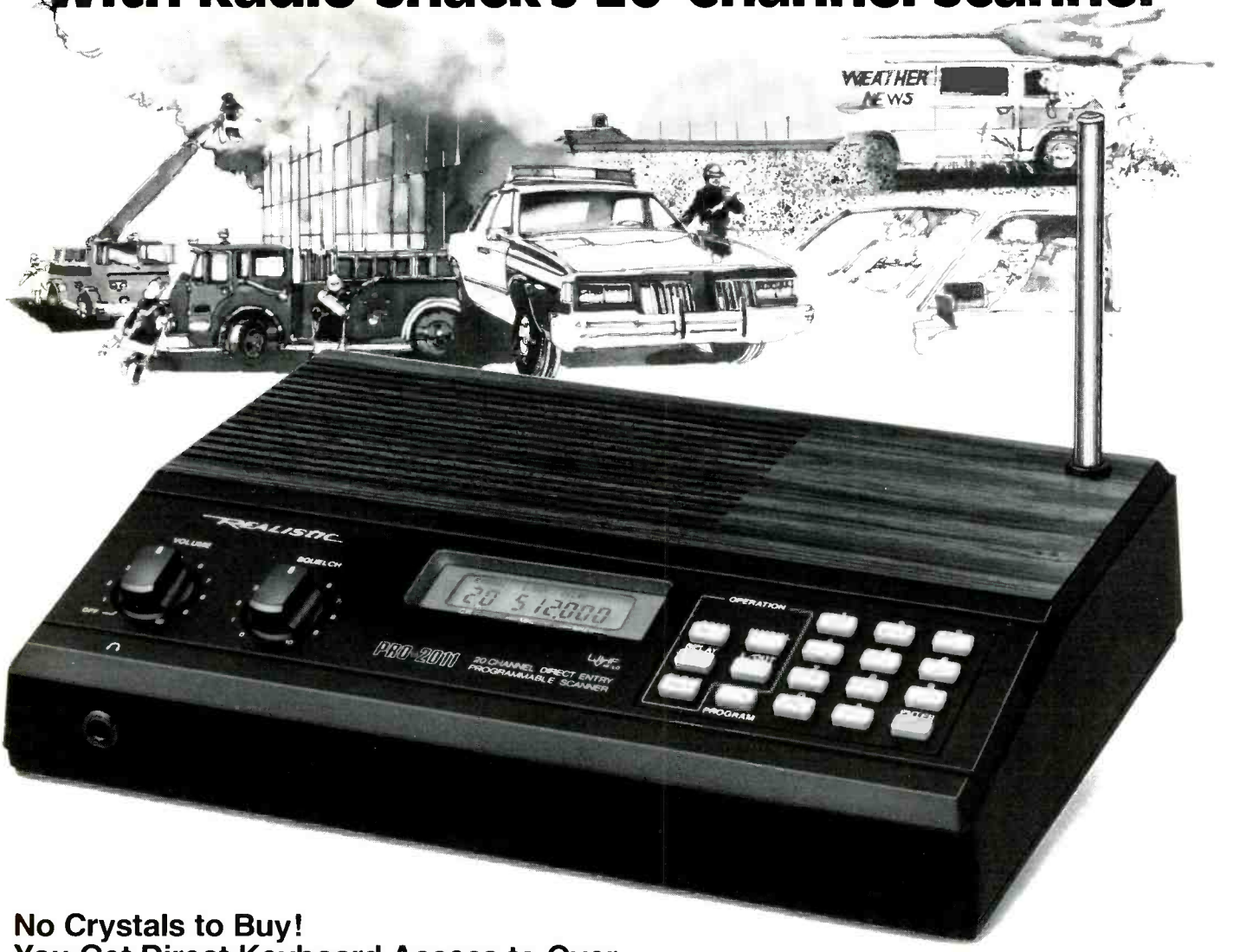

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CIRCLE 59 ON READER SERVICE CARD

Cellular Telephone Industry Association Takes Big Defeat In California

The word is getting out about the so-called "privacy" on cellular phones. It is like the emperor's new clothes; it doesn't exist!

As we predicted here months ago, the attempt to use the Electronic Communications Privacy Act (ECPA) to restrict radio reception has backfired. Our hats off to the Public Utility Commission of California for being the first in the nation to enact legislation requiring the labeling of cellular phones to warn the public that conversations on these phones are not private. Other states are sure to take a cue from the action in California, which was backed up by careful research. The Public Utility Commission learned from the research that most cellular phone users had no idea that their conversations could be overheard on even an old TV set. Clearly, action is needed to inform the public and prevent the erroneous perception that the ECPA creates. A cellular phone salesperson claiming that "federal law protects cellular privacy" simply doesn't make privacy a fact. And as long as cellular transmissions continue to be radiated in a broad, omni-directional pattern, using ordinary open FM transmission, they are by all logic and common sense *not* private.

It would be interesting to know the thoughts of the CTIA leadership and staff as they contemplate the unfolding results of ECPA. Rather than securing the prevailing public impression that "a phone is a phone," they have riveted a very bright spotlight on the lack of cellular phone privacy. SCAN had no intention of focusing attention on this problem. In fact, as a not-for-profit association with very limited resources, the chance of SCAN gaining widespread public attention would have been slim. Probably, the issue would not have come to widespread public attention at all. (At least it wouldn't have until the cellular phone manufacturers wanted it to, as they introduce encrypted or some other improved system in the future.) But CTIA has now managed to focus a glare of critical attention on the problem. Many people who use cellular for important business deals or other matters requiring privacy are shocked by the revelation that they are actually broadcasting on an ordinary FM transmitter. A typical reaction is that, "I've stopped using cellular except for the most casual conversations. I really question whether cellular is worth having anymore." Nice going CTIA. We couldn't have done it without you!

All of this would be cause for a smug laugh, except for one thing. Along the way, ECPA took away the traditional American right to free access to the airways . . . a right that we have enjoyed since the beginnings of radio. The provisions of the Communications Act provided for a practical degree of protection by making divulging the contents of what was heard illegal. It wisely didn't try to make "private" what can't logically be made private—open radio communications. The freedom to listen to open radio communications was an unquestioned right. Now, that freedom is gone from the U.S., probably never to be fully restored. Our job today is to be watchful that this concept doesn't creep further—as well it might—into banning the manufacture of equipment or requiring a nearly impossible-to-obtain special permit to possess one. There are plenty of examples of totalitarian states where this is the case today. Naturally, this is not what one expects from the world's leading democracy.

Your Second Chance For Back Issues Of SCAN Magazine

As we expected, the recent offer of back issues of *SCAN Magazine* was quickly a complete sellout! These were issues of *SCAN* before the incorporation into the pages of *POP'COMM*. Because so many scanner enthusiasts wanted these issues, you may have been one of those who missed out on the opportunity. If you had your check returned because we were already sold out, or simply didn't get around to ordering last time, here is a second chance! After assembling as many complete nine-issue sets #1 and #2 as we could, we found that we had some left over issues because we had varying quantities of each issue. We also had a few sets of #1 and #2 returned to us for one reason or another. We have taken all the copies that are left of these valuable issues to create one last chance to own a treasure of interesting scanner feature stories, ideas, technical tips, and more . . . some of the best scanner material ever written. There is no choice on the specific issues included, but each set includes nine information-packed issues, with an original cover price of $18.00. A set is yours for $12.00, which includes postage.

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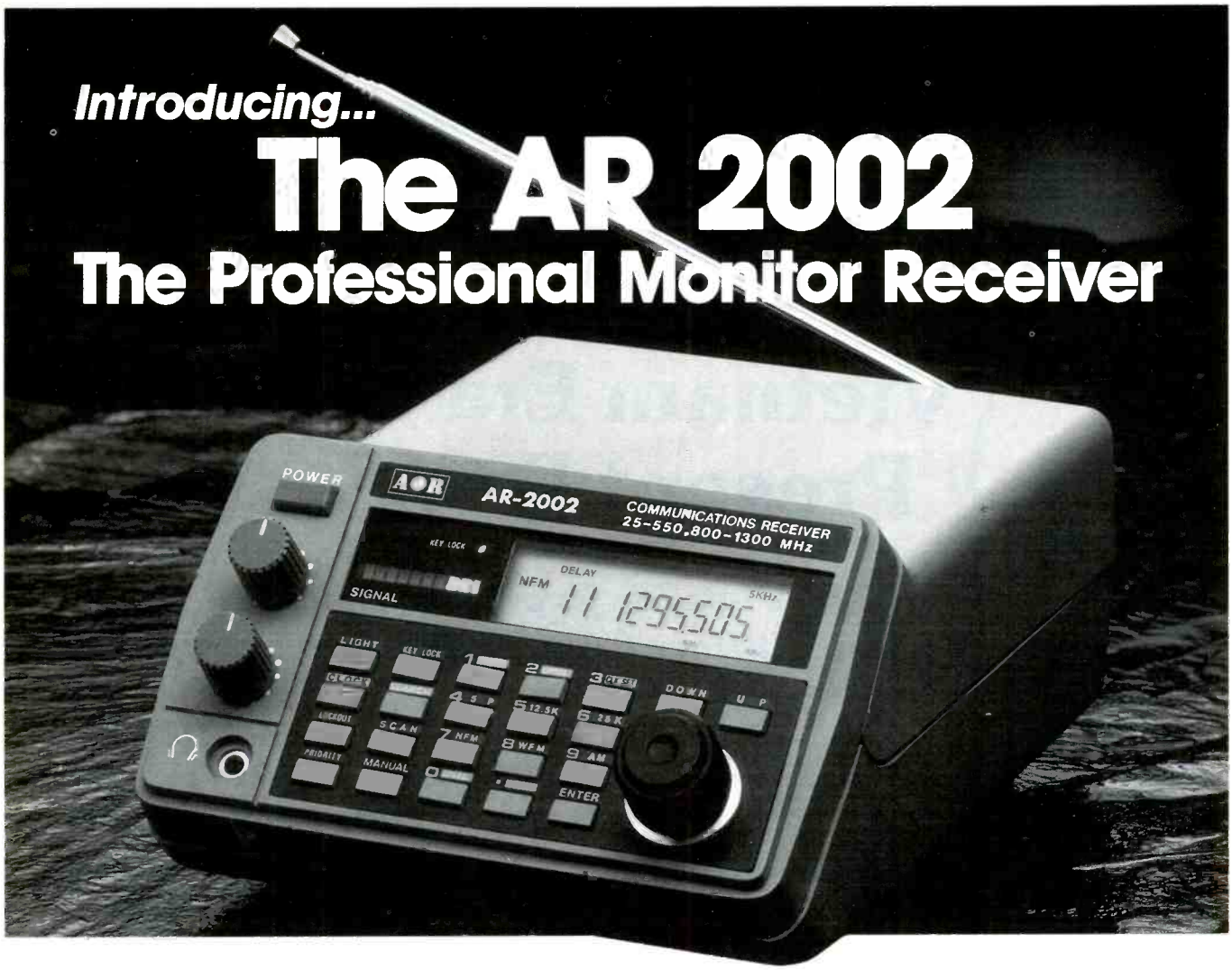
"Trunking" Systems – The Next Challenge To Scanner Listening

If you haven't heard of them yet, you soon will. To some scanner enthusiasts, "trunking" is a dreaded word. It means the end of scanning as we know it. To others it is a technological challenge on which to improve their scanning skills. But just what is trunking, anyway?

Trunking was designed to increase the utilization of available radio spectrum. Simply put, it is conservation of something scarce. Increasingly scarce is the radio spectrum, and the luxury of having one business or one police department "own" a frequency is no longer practical according to trunking advocates. But, shared channels obviously cause problems. What happens if two fire departments sharing a frequency have emergencies at the same time? Strange as it may seem, the solution may be to have twelve fire departments share a system—a trunking system. The theory is that it is highly unlikely that all of these departments will have emergencies at the same time, or even have the need for routine messages at the same time. Yet there will be times in each department when it would be helpful to have more than a single channel of communications. Enter trunking.

Trunking is made possible by microcomputers, both in the mobile units and at the central base or repeater location. When a call is initiated the system finds an open channel that is part of the trunking system and instantly, and automatically, puts the transmitters and receivers and both ends on that channel. What happens if your local police or fire department make the jump to a new 800 MHz trunking system? Well, the first thing you'll need is a new 800 MHz capable scanner, or an 800 MHz converter for your present scanner. Next will be a change in your operating procedures. You'll probably need to program in six channel "pairs," or twelve frequencies in all. Next you'll need to come to the realization that scanning is no longer a "hands off" proposition! When a call comes through on one of those channels you'll need to make a quick deci-

(Continued on page 73)



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Vietnam Era Commo — Present Day Systems

How The Vietnam Experience Helped To Evolve Modern Military Communications Equipment

BY HAROLD A. ORT

Army tactical and strategic satellite communications link operational commanders with Pentagon officials. Multichannel terminals provide secure voice and data transmissions around the globe. While once only a dream in the minds of electronics experts and military commanders, today's reality of advanced battlefield communications had its origins two decades ago during the Vietnam War.

"Electronics has never been so vital in a war as it is here in Vietnam," were the words of then Brigadier General Walter Lotz, Assistant Chief of Staff for Communications and Electronics for the U.S. Forces in South Vietnam. In Southeast Asia our forces blanketed the entire area with communications, some of which were heard thousands of miles away. Many factors contributed to this deliberate blanketing theory at the time. For instance, soldiers never knew where the "front" was; it could be in a small hamlet, a hole in the side of a hill, or on a path at night near a small village. To successfully watch all the hills and trees in a country as large as Florida, it took a large, organized, complicated commo system.

Another factor that led to the large complex communications system in Vietnam, was that tactical and smaller decisions were often made at the Pentagon or the White House, instead of on the field as in other wars. The need to transmit large quantities of data over long distances was an important consideration.

The Vietnam conflict was as bewildering electronically as it was strategically. Five basic operations comprised the system:

- The backbone communications system—

a large operation tying together all the bases in the area.

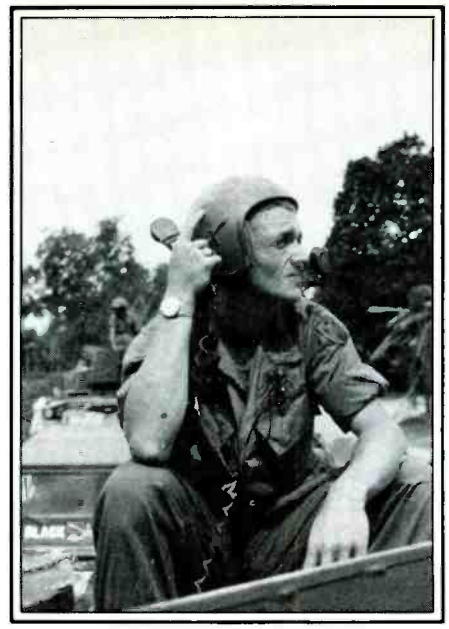
- Air support—a very complex command/control network that enabled a myriad of Air Force or Army airborne units to call for fire on a target. Used by armed helicopters and jet fighters.
- First Air Cavalry Division and Special Forces—used a large variety of forces, both land-based and helicopter-borne. These folks were the most heavily dependent on reliable communications. Every possible communications available was used to keep these isolated GI's from being overrun and killed by the Viet Cong.
- Mobile Air Traffic Control Units.
- Research and Development—The unique environment of Southeast Asia required special on-location research that couldn't be done anywhere else.

Unlike Korea, in Vietnam our commo system had to be built. This problem was compounded by the fact that the Viet Cong controlled the mountain tops (which were ideal for microwave set-ups), HF signals being plagued by the physical peculiarities of the country, and the constant shortage of spare parts. General Lotz had said it was clearly the biggest communications challenge ever presented the military services.

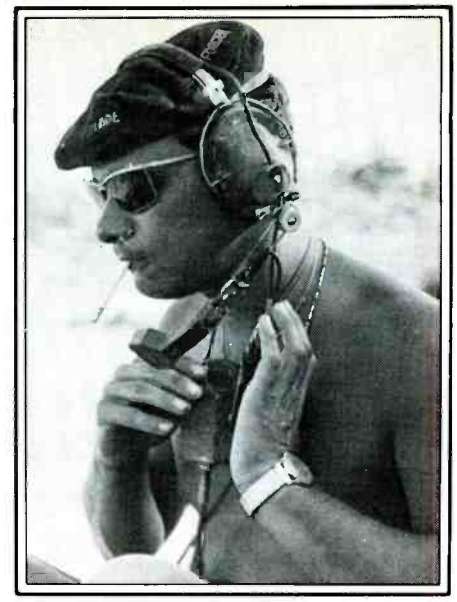
The official name for the backbone system mentioned earlier was the Integrated Wideband Communications System. The tropo link, at the time the largest in the world, operated between Saigon and Bangkok, a distance of more than 450 miles. Reception, however, wasn't always dependable and new equipment had to be installed in 1966.

South of the capital, microwave was used where line-of-sight terrain was available. Where fewer channels were used, there were radio relay towers. Lotz commented, "This is actually tactical gear, but it is used to tie the countrywide system together." HF radio allowed our soldiers to communicate with Manila and Okinawa as a backup to the tropo link with Bangkok. The main link with mainland United States was a submarine cable installed in early 1965. Computers were in use rather extensively even then, with information being fed into computers giving transmitter site location, distance to the next site, a profile of the terrain, power radiated, size and type of antenna, and orientation of the antenna.

The Defense Department, in a news release dated June 9, 1960, announced implementation of a 6,500-mile commo system that "made the Pacific area virtually trouble-free network for the Armed Forces." The new network, designed to provide reliable links from the U.S. to the Far East was called the Pacific Scatter Communication System. The release went on to say "it uses advanced propagation techniques known as ionospheric and troposcatter propagation to give over 99 percent reliability." The technique involved transmission of a signal upward to the ionosphere, where it was reflected back to earth in scattered fashion, picked up by a number of receivers. If the signal faded at one, another would hopefully receive a clearer signal, assuring a constant stream of trouble-free communication. The system was designed for communicating distances of 600 to 1,200 miles.



This platoon leader stayed in constant contact with other track units he was working with. His communications helmet, which permitted radio monitoring in a noisy track, remained on his head even when he took a breather near one of the machine guns on his armored personnel carrier. (U.S. Army photo by PFC Laszlo Kondor.)



A U.S. Army engineer kept in contact with his superiors by radio while he worked on a land clearing project on the coastline, 35 miles south of Chu Lai. More than 200 Marine and Army engineers and AMERICAL Division infantrymen were involved in the project aimed at destroying enemy sanctuaries in the area along the South China Sea. (U.S. Army photo by Laszlo Kondor.)

The troposcatter communications used in Vietnam consisted of the AN/MRC-98 parabolic antenna system, which carried 60 channels and a reflector system, and the AN/MRC-85, capable of 72 channels. A number of companies built the sets, but they were actually maintained by Page Communications. In early 1966, plans had called for the eventual permanent installation of communications sites, replacing the mobile ones in existence, but, of course, all this was to no avail with the American pullout in 1973.

One unusual aspect of communications in Vietnam was the use of civilain electronics technical representatives; about 400 of them worked alongside our military men. A Page Communications technician from Pleiku once commented that the main problem was trying to get more sensitivity out of the system, which called for realigning the circuits almost every night.

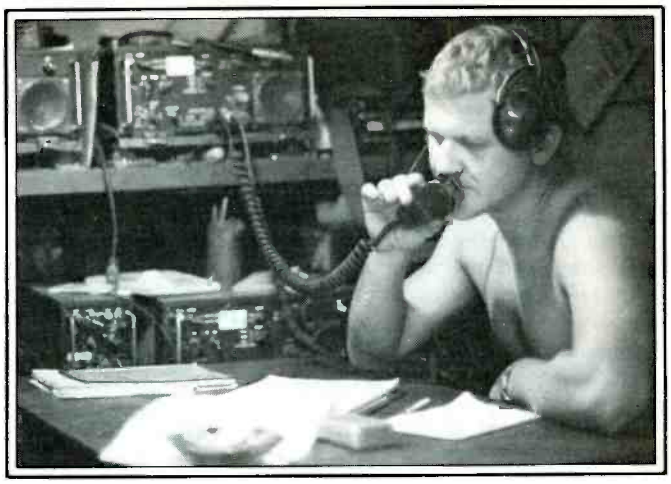
With American planes taking off from nearby Thailand, the mushrooming communication terminals clearly showed our presence there too. Tropo equipment was fast going to double to nearly 120 in early 1966. The AN/LRC-3: equipment used parabolic antennas in three sizes 30, 40, and 60 feet in diameter, with frequencies ranging from 1,800 to 2,400 MHz. At the time, generators were giving poor performance and weren't even standardized.

The tropo gear worked well up to a point, usually about 150 miles, beyond that, reception was poor. One official said, "Microwave works well. We've had some good results with it over distances of 100 miles. We use all the single sideband we can get—equipment by Collins Radio Company, the Radio Corporation of America, Japanese sets—anybody's."

The tactical systems could all be patched into the backbone system if needed. Although it might never be done, a soldier caught in crossfire along a Viet Cong trail could talk on his AN/PRC-25 manpack radio to the Pentagon. He could conceivably talk with his forward area base, which would then patch him in to the nearest backbone terminal. From that point, his message could be relayed to Saigon and on to Washington. In actual use, air strikes were coordinated and other large-scale operations were patched into the backbone network to communicate with other commands. The transistorized PRC-25 replaced the PRC-8,-9 and -10, used during the Korean War. These earlier sets are successors to World War II walkie-talkies.

Although much of the tactical equipment used in Korea should have been broken in there, actually much of the gear was still plagued with many bugs. For example, even on newer equipment, the AN/MRC-95 SSB radio antenna selection switch corroded and sometimes broke off when wet. The MRC-95 included provisions for phone patch, termination of two field phone lines and operation of a teleprinter, and was mounted on jeeps replacing the GRC-26. The HF AN/VRC-47 used by forward air controllers was fastened to its case by a simple screw on the bottom. When put on the

Private First Class Walter Tharp, Analysis Division, U.S. Army Tropic Test Center, Fort Clayton, Canal Zone, operated a portable, manpack radio set in tests to determine frequency propagation of this radio while under heavy jungle canopies and in dense vegetation. (U.S. Army photo.)



The radio telephone operator (RTO) repeated the grid coordinates that a forward observer called in for a fire mission. A vital link in the chain of artillery support, this AMERICAL Division RTO with C Battery, 3rd Battalion, 82nd Artillery, worked a 12-hour shift, eating on the spot, ready to answer all the calls from the infantry. (U.S. Army photo by SP5 A.C. Barnett.)

wet ground, water seeped into the hole and the set would simply stop working. Yet the family of AN/VRC-12 FM radios was termed "superb" by the men who used and maintained it. So was the Motorola AN/TRC-87, five-channel UHF transistorized set. It was reported that it "held the station and was sensitive with excellent reception." There were many other good examples of fine engineering.

Forward Air Controllers (FAC's) normally flew from seven to ten missions a week. One report published 21 years ago said the UHF radios failed on half the missions. Besides the AN/ARC-73, a VHF model used for communicating with Korean, Australian and New Zealander Allied fighters, and the AN/ARC-44, an FM VHF radio for talking to ground forces, most of our fighter aircraft were equipped only with UHF; the ARC-45 radio was therefore a critical radio for the tiny Cessna O1-E. It was a 12-channel crystal-controlled set. Fighters had these, as well as manually-tunable channels covering the entire UHF band.

FAC's in Army UH-1D choppers also used the ARC-44 radios that had the same dust problems that plagued many other types of gear in Vietnam. Often the soldier found that even the way certain equipment was installed created problems. Take for example the ARC-44's FM antenna coupler on the aircraft's tail section that frequently worked itself loose because of vibration. Range would then be severely limited to less than one mile from the normal 15 to 20 miles needed to talk to ground troops that were using the AN/PRC-25.

The PRC-47 was used primarily by FAC's to communicate with Tactical Air Control Parties. It had good power output—100 watts on HF (2-12 MHz) and weighed 75 pounds; with a watertight case, 175 pounds. The light PRC-25, a transistorized set, had plenty of fans and only a few detractors. It was a VHF manpack radio capable of a range of from anywhere from 2 km to 15 km without an auxillary antenna. A 1961 news release from the Department of Defense, announcing the $9 million contract to RCA for the PRC-25, said, "compact and versatile, the new walkie-talkie is well suited to the type ground action foreseen in any possible future combat, from 'bush-fire' wars on up to general conflict involving large numbers of troops."

Relatively good, sensitive reception was provided by the Motorola AN/TRC-87, used for air-ground communications. This was a new, solid-state UHF radio, as was the AN/TRC-32. Point-to-point communications was accomplished with the AN/TSC-15 radio, an HF, AM/SSB set capable of up to 900 watts; the AN/TRC-61, UHF FM radio; an AN/TRC-35, a UHF FM radio; the AN/MRC-62 radio relay; the AN/TRC-27, a super high frequency pulse-position modulation set; and a Collins HF, SSB KWN-2A.

A ground maintenance supervisor reported that "the biggest communications problem in Southeast Asia is frequency interference. The spectrum is so crowded that only a digital system will solve it and we don't have any." One squadron commo officer, also an Air Force captain, said there were other design problems. "All our UHF equipment specs call for a 5-MHz separation between channels. This is ridiculous. With the spectrum already crowded, we should have equipment with much better discrimination than 5-MHz separation." With the Viet Cong a few hundred yards away, our Control reporting Centers on mountaintops *had* to put everything close together. The same commo officer continued, "The way equipment is designed, we get interference and cross talk. I wish some electronics genius would solve this one . . . ."

All the testing in the world never really duplicated what was discovered in Vietnam. Radios that performed very well state-side did strange things in Southeast Asia. The dense vegetation acted like a large wall, blocking horizontal propagation and actually funnelling vertical propagation upward, increasing it six decibels and more. Stanford Research Institute, on contract with the government, found many oddities. For example, the whip (or dipole) antennas that should produce circular horizontal antenna patterns in clear areas, produce multilobed, starfish patterns in heavy vegetation. The nulls between the lobes were areas of complete radio silence. So, two GI's only two to three miles apart were often unable to talk with each other.

A Skytrooper of the 3rd Brigade, 1st Cavalry Division, installed an antenna for a tactical operations center in Bien Hoa, Republic of Vietnam. (U.S. Army photo by SP4 Larry Buehner, Army News Features.)

Out of Vietnam came other interesting

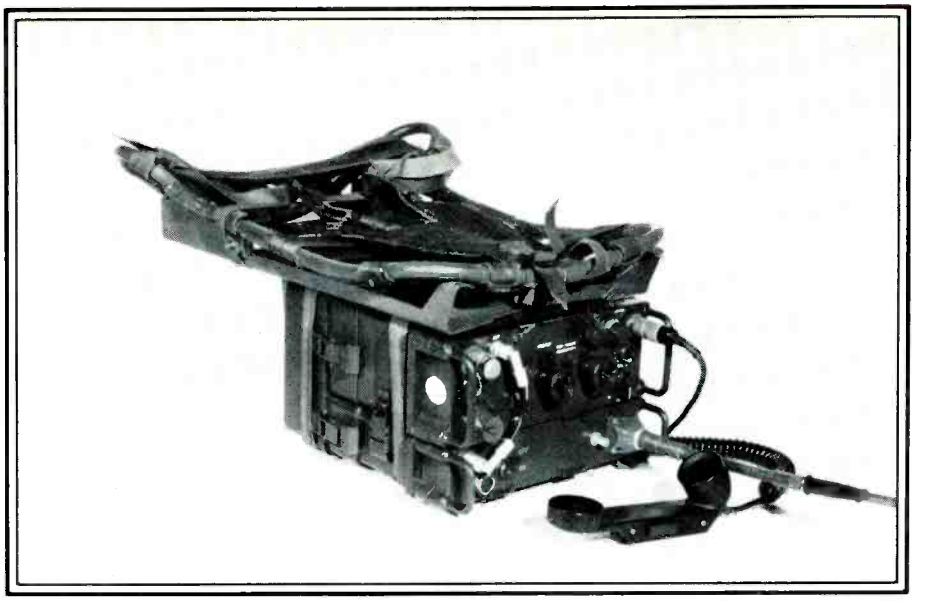
discoveries. It was well known that dipoles are set up to face each other, but one officer found that when the dipoles were aligned north and south, regardless of where the two units were, he got better propagation. When he added dipoles that faced east and west to the north/south pair, propagation improved even more. Engineers also learned that the antennas didn't have to be as high as they once thought. Dipoles at one-tenth of a wavelength produced signals nearly as good as the standard quarter-wavelength.

In 1968, solid-state equipment was finding its way into Vietnam. Although this newer equipment was slow at first to arrive on the battlefield, many officials were reporting it badly needed, but as one GI put it, "a fancy piece of equipment in the field is only as good as the length of time you can keep it on the air." This was true for most commo setups where adequate maintenance was only good until the first breakdown. Ingenious Ninth Division soldiers were actually hoisting their PRC-25's up 500 feet by a balloon, which provided considerably increased range in talking with division headquarters. Normal range was about 5 km, but hoisting it provided reliable coverage up to 18 km in jungle terrain and up to 50 km in the open.

Other methods, including using helicopters to raise the radio were implemented, but at $77 an hour to operate the choppers it became quite costly. The balloons were lowered daily for radio maintenance, a battery change and to put additional helium in the balloon. "Little Joe," as the set-ups were known, were actually quite widely used.

While testing communications is an integral part of all major military exercises, our systems haven't been put to the real test since the days of Southest Asia, with the exception of Grenada. Today, a whole new breed of military communications gear is being introduced around the world, with newer, more sophisticated radios popping up all the time. One of the Army's latest entries is called the Single Channel Ground and Airborne Radio System (SINCGARS-V). This lightweight family of VHF-FM radios is capable of providing both voice and data transmission and also has an electronic counter-countermeasures feature, known to most of us as simple frequency hopping. Weighing only 22.5 pounds, it's capable of 2320 channels at 25 kHz spacing, and will replace five current radios and reduce the maintenance burden.

A new transceiver, the AN/PRC-74 and -77, was fielded in late 1983. This superb commo system looks like a portable video game. The soldier punches in a code, and a pre-recorded message is shot out simultaneously to his headquarters. Imagine a squad easing its way through enemy lines that sights hostile troops passing through nearby brush. A message is transmitted in this manner by the commo man with the simple push of a button. The digital message unit also receives messages that the soldier can copy later in his safe, cozy hut. Its main components are the multi-mode receiver, a hand-cranked generator, a 100-volt power source and the Digital Message Device Group (DMDG).



RF Amplifier AM-6206/PRC showing equipment assembled with components of radio set AN/PRC-77 on carrying frame in manpack radio set configuration. (U.S. Army photo.)

Prior to the new AN/PRC-70, two radios were needed for maximum communications capabilities. With this new digital system, the device has a readout screen which allows the sender to review the message before sending. With the old system, anyone tuned in could hear the transmission, but with the current system, the sender can program who is to receive the message and they will be the only one to receive it. It has the ability to store up to eight messages and because of high speed transmission, resists directional finding devices.

The Army's Mobile Subscriber Equipment (MSE) is a tactical mobile radio telephone system that not only satisfies the military's expanded needs, but promises large cost savings over systems previously planned for acquisition. When fully fielded (five Corps, 26 divisions and 16 separate brigades) all active and reserve units will have standard tactical commo systems that are fully interoperable, encrypted, jam-resistant and mobile for the first time in history. The contracts include software support, as well as spare parts for 15 years after introduction into the field in 1993.

The MSE will give our tactical forces a most secure mobile commo system. It is capable of handling data, voice and facsimile transmission. It uses the latest microelectronics, digital switching and cellular radio technologies. Applications of the system will greatly reduce the need to install great quantities of wire and cable when establishing command posts. The MSE system is composed of multiple communications nodes with network features which will automatically bypass and reroute communications around damaged or jammed nodes. GTE is the prime contractor for $63 million with annual options totalling $4.3 billion.

The lessons learned from past conflicts and realistic field training exercises have resulted in state-of-the-art communications for today's soldier. While much of our gear is still too immobile, too expensive and ties us to wires and cable, MSE improves this system. Whether a soldier is in his jeep or command post, he can be in constant contact with the entire corps system. Best of all, the MSE system is used by 13 other nations worldwide. For today's soldier on the battlefield, MSE is best described as the "Bell System of the Army."

In addition to the MSE equipment, Trailblazer is another new entry in the military communications package. It's a mobile tactical commo intercept and RDF system. In specially protected Kevlar shelters, these systems provide a highly mobile tactical system for secure data link and voice command and control communications. The outfit is mounted on tracked vehicles and includes 60kW, 400 Hz power systems. Total set-up/tear down time is only 20 minutes. The Soviets have no known counterpart to either this or the MSE system.

News from the Army's Communications Electronics Command includes a series of multiplexing devices that will double the communications capability of radio terminal sets now used by the 9th Infantry Division at Fort Lewis, Washington. The contract, valued at $8.3 million, will insert commercial multiplexers into the existing military AN/TRC-145 sets. The resulting multichannel shelters will provide twice the communications capacity of the AN/TRC-145 assemblages.

The process for finding systems like these started 20 years ago. Though it took that long to arrive on the battlefield, the soldier now has the ability to communicate faster, further, and easier, than ever before. PC

Selected English Language Broadcasts

Fall 1987

BY GERRY L. DEXTER

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

Time	Country/Station	Frequencies
0000	Radio Canada Int'l.	5960, 9755
	HCJB Ecuador (30)	11910
	Kol Israel	7410, 7480, 9435
	WCSN, USA	7365
	VOA, USA	5995, 9650, 9775, 9815, 11580, 11695, 11740, 15205
	REE, Spain	6125, 9630, 11880
	Vatican Radio (50)	9605,11780
	Radio Norway (Mon)	9580, 9605
	R. Sofia, Bulgaria	6070, 11720
	R. Beijing, China	15445
	RBI E. Germany	6080, 9730
	Air India	9912, 11715, 15110
	R. Korea	15575
	R. Luxembourg	6090
	Voice of Nicaragua	6015
	R. Havana Cuba	6090, 9740
	R. Thailand	9655, 11905
	R. Portugal (30)	9680
	BBC England	5975, 6120, 6175, 7325, 9590
	R. Moscow	6000, 7150, 7185, 7290, 9600, 9640, 9685, 9765
0100	DW, W. Germany	6040, 6085, 6145, 9545, 9565, 11785
	V. of Israel	7420, 7465, 7480
	RAI Italy	9575, 11800
	V. of Greece (30)	7430
	R. Prague, Czech.	5930, 7345, 9740, 11990
	RFI France	5950, 9715
	R. Budapest, Hungary	6025, 6110, 9520, 9585, 9835, 11910
	R. Austria Int'l. (30)	9550
	R. Baghdad, Iraq	11705
	RBI East Germany (15)	6080, 9730
0200	HCJB, Ecuador	6230
	R. Havana, Cuba	6090, 6120, 6140, 9740
	R. Polonia, Poland	6095, 7145, 9525, 11815, 15120
	WCSN, USA	9745
	Radiobras, Brazil	11745
	RAE Argentina	9690, 11710
	R. Cairo, Egypt	9475, 9675
	TGNA Guatemala	3300
	R. Budapest, Hungary	6025, 6110, 9520, 9585, 9835, 11910
	R. Netherlands (30)	6020, 6165, 9590, 9895
	SRI Switzerland	6135, 9725, 9885, 12035
	R. Korea	15575
	R. Sweden Int'l. (30)	9695
	R. RSA, So. Africa	6010, 9615, 9695
	R. Kiev, Ukraine SSR	7260, 9640, 9800, 11790, 11875, 13645
	R. Bucharest, Romania	5990, 6155, 9510, 9570, 11810, 11940
0300	DW, W. Germany	5965, 6010, 6045, 9545, 9565
	MBC, Malawi	3380
	V. of Turkey	9560
	V. of Greece (40)	7430
	R. Prague, Czech.	5930, 7345, 9740, 11990
	RFI, France (30)	6055, 9800
	HRVC Honduras	4820
	R. Japan	5960, 15280, 17810, 17825
	R. New Zealand (45)	9630, 11780
	TWR Bonaire	9535
	R. Beijing, China	11970, 15180, 15280, 15445
	RBI (30)	9560, 9620

Time	Country/Station	Frequencies
	UAE Radio, U.A.E. (30)	9640, 11940, 15435, 17890
	P. Polonia, Poland	6095, 6135, 7145, 7270, 9525, 11815, 15120
0400	WCSN, USA	9465
	R. Botswana	4820, 7255
	R. Norway (Mon)	9650, 11735
	SRI Switzerland	6135, 9725, 9885, 12035
	R. Austria Int'l.	9550, 11805
	R. Beijing, China	15180, 15280
	R. Bucharest, Romania	5990, 6155, 9510, 9570, 11810, 11940
	RAE Argentina	9690, 11710
	R. Havana Cuba	5965, 6035, 6090, 6120, 6140, 9740
	BBC England	5975, 9510, 9640
	R. Moscow	7175, 7270, 7315, 7345, 9580, 9685, 9755
0500	HCJB Ecuador	6230, 11910
	DW, W. Germany	5960, 6120, 6130, 9635
	Kol Israel	7465, 9435, 9815, 9855, 11585, 11960
	VOA, USA	6035, 7280, 9540, 9670
	Vatican Radio	6185
	V. of Nigeria	7255
	R. Japan	11705, 15235, 15280, 17810
	R. Netherlands (30)	6165, 9715
	R. Dublin Int'l, Ireland	6910
	R. Doluala, Cameroon	4770
0600	WCSN, USA	9465
	R. Korea	6060, 9570
	R. Cook Islands	11760
	R. Austria Int'l (30)	5945, 6155, 9635
	SRI Switzerland (30)	12030, 15430
	GBC Ghana	3366, 4915
	R. Havana Cuba	9525
	TWR Monaco (25)	7105
0700	HCJB Ecuador	6130, 9745, 9860, 11975
	R. Japan	11705, 11875, 15195, 15230, 15280, 17810
	SIBC Solomon Islands	5020, 9545
	R. Korea (15)	9570
0800	BRT Belgium	9880, 15515
	KNLS Alaska	5960
	WCSN, USA	9465
	R. Australia	9580
	NBC Papua New Guinea	4890
	R. Austria Int'l (30)	6155, 9620, 11915
	AFRTS	6030, 9530, 15265, 15430
0900	R. Moscow	9600, 11850, 11950, 13755, 15225
	KTWR (30)	11840
	R. Beijing, China	9700, 11755
	R. Ulan Bator, Mongolia (15)	9615, 12015
	R. Afghanistan	4450, 15255
	R. Australia	6060, 9580, 11720
1000	WCSN, USA	17640
	R. Australia	9580, 11720
	V. of Vietnam	9755, 9840, 12020, 12035
	R. New Zealand (30)	6100, 9630
	R. Norway (Sun)	11870, 15175, 15230
	SLBC Sri Lanka	11835, 15120
1100	Kol Israel	11665, 11700, 12080, 13725, 15640, 15650, 17630, 17685
	VOA	7230, 9760, 15160, 15425
	RFI France (15)	9790, 11670, 11690, 11700, 15365
	VOIRI Iran (15)	11790
	R. Japan	5990, 6120, 17810
	TWR Bonaire (10)	11815
	R. Beijing, China	15606, 17660
	R. Singapore	5052, 11940
	R. Finland	11945, 15400
	R. Pyongyang, N. Korea	7300, 9977
1200	HCJB Ecuador	6075, 11740, 15115, 17890
	R. Australia	9580, 11720
	R. Bangladesh (30)	12030, 15525
	R. Austria Int'l. (30)	15320
	R. Beijing, China	9535, 11650
	R. Pyongyang, N. Korea	9600, 9715
	R. Tashkent, Uzbeck SSR	7325, 9600, 9715, 11785, 15460
	VOPK Kampuchea	9693, 11938
	R. Finland	11945, 15400
	TWR Bonaire	11815
	RCI Canada	9625, 11955, 17820
	AIR India	11620, 15120
1300	R. Beijing, China	9550, 9730
	BRT Belgium (30)	15515, 15595
	V. of Vietnam (30)	9755, 9840, 12020, 12035
	R. Norway (Sun)	6040, 9590, 15310
	AIR India (30)	9545, 11810, 15335
	AFRTS	15265, 15330, 15430
	BBC England	6195, 9510, 11775
	R. Finland	11945, 15400
	R. Korea	9750, 15575
	FEBC Philippines	11850
1400	R. Japan	5950, 9695, 11870
	KTWR Guam (30)	9840
	R. Norway (Sun)	15250, 15300, 15310
	R. Korea	15575
	R. Sweden Int'l.	11785, 15345
	R. Finland	15185, 15400
1500	HCJB	6075, 11740, 15115, 17890
	VORE Ethiopia	9560
	HKBS Jordan (30)	9560
	WRNO	11965
	V. of Nigeria	11770
	R. Japan	5950
	V. of Indonesia	11790, 15150
	Vatican Radio (10)	9645, 11740
	V. of Greece (40)	11645, 15630, 17565
1600	RFI France	11705, 15300, 15315, 17620, 17795

Time	Country/Station	Frequencies
	KNLS Alaska (30)	7355
	WCSN, USA	15270
	VOA, USA	11920, 15410, 15445, 15580, 15600, 17855, 17800, 17870
	V. of Vietnam	9755, 9840, 12020, 12035
	R. Norway (Sun)	11925, 15180, 17840
	BSKSA Saudi Arabia	9705, 9720
	R. Pakistan	9465, 11615, 11625, 15605
	UAE R. UAE	9640, 11730, 11955, 15320
	V. of Nigeria	15120
1700	R. Japan	5990, 9695
	R. Norway (Sun)	9655, 11925, 15310
	WRNO	15420
	RAE Argentina (30)	15345
	AFRTS	9700, 15330, 15430
	BBC England	11775, 15260
	R. Moscow	9600, 9765, 11840, 11860, 12050, 13605
	R. Africa, Eq. Guinea	9553
	V. of Nigeria	11770
1800	WCSN, USA	15230
	R. Jamahairya, Libya	15450
	Radiobras, Brazil	15265
	R. Discovery, Dom. Rep.	15045
	R. Kuwait	11675
	RCI Canada	15260, 17820
	V. of Nigeria	15120
1900	HCJB Ecuador	11740, 15270, 17890
	VOIRI Iran (30)	9022
	R. Norway (Sun)	11925, 15310
	R. Afghanistan	9635, 9665, 11755
	Kol Israel	11610, 11655, 13725, 15585
	R. Algiers, Algeria	9509, 9640, 15215, 17745
2000	Kol Israel	9020, 9435, 9815, 9885, 11700, 11960
	WSCN, USA	15265
	R. Damascus, Syria (05)	9950, 12085
	R. Norway, (Sun)	9590, 11865, 15310
	R. Kuwait	11675
	RCI Canada	5995, 9555, 11945, 15325, 17820, 17875
	V. of Nigeria	11770
	R. Baghdad, Iraq	9875
	RBI East Germany (45)	5965, 6125
2100	BRT Belgium	5910, 9675
	R. Sofia, Bulgaria (30)	6070, 7115, 9700
	WRNO	11705
	Kol Israel (30)	9010, 9435, 11610, 11700, 13725, 15485, 15585
	RCI Canada	11945, 15150, 17820
	R. Yugoslavia (15)	6100, 7240, 9620
2200	BRT Belgium	9925
	Kol Israel (30)	7410, 7465, 9020, 9815, 11960, 12025
	WCSN, USA	15300
	VOA	6130, 15290, 17740, 17820
	Vatican Radio	11830
	R. Jamahiriya, Libya (50)	11815
	R. Norway (Sun)	9605, 11930, 15165
	R. Sofia, Bulgaria	6070, 11720
	V. of Turkey	9560
	RBI East Germany	6125, 6175, 11750
	R. Vilnius, Latvian SSR	7260, 9640, 11790, 11875, 13645
	RCI Canada	5960, 9755
	RAE Argentina	9690, 11710
2300	RBI East Germany	6080, 9730
	R. New Zealand (45)	11780, 15150
	R. Sweden Int'l.	9695, 11705
	R. Kiev, Ukraine SSR (30)	7260, 9640, 9800, 11790, 11875, 13645, 13775
	R. Baghdad, Iraq	11705
	Kol Israel	9435, 9885, 11610
	R. Pyongyang, N. Korea	11735, 13650
	R. Japan	15300
	R. Korea	15575
	R. Sofia, Bulgaria	9700, 11720
	RCI Canada	5960, 9755

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NEW! Regency® TS2-RA

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

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

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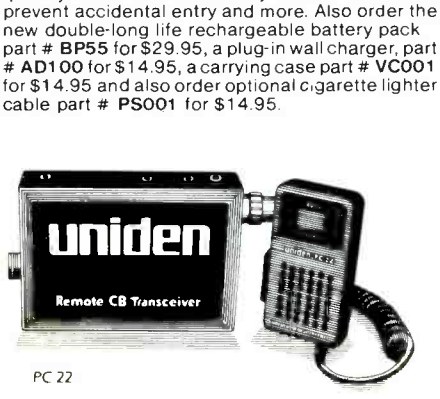
10-Band, 10 Channel • Handheld scanner

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

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



PC 22

NEW! Scanner Frequency Listings

The new Fox scanner frequency directories will help you find all the action your scanner can listen to. These new listings include police, fire, ambulances & rescue squads, local government, private police agencies, hospitals, emergency medical channels, news media, forestry radio service, railroads, weather stations, radio common carriers, AT&T mobile telephone, utility companies, general mobile radio service, marine radio service, taxi cab companies, tow truck companies, trucking companies, business repeaters, business radio (simplex) federal government, funeral directors, veterinarians, buses, aircraft, space satellites, amateur radio, broadcasters and more. Fox frequency listings feature call letter cross reference as well as alphabetical listing by licensee name, police codes and signals. All Fox directories are $14.95 each plus $3.00 shipping. State of Alaska–**RL019-1**; Baltimore, MD/Washington, DC–**RL024-1**; Chicago, IL–**RL014-1**; Cleveland, OH–**RL017-1**; Columbus, OH–**RL003-2**; Dallas/Ft. Worth, TX–**RL013-1**; Denver/Colorado Springs, CO–**RL027-1**; Detroit, MI/ Windsor, ON–**RL008-2**; Fort Wayne, IN /Lima, OH– **RL001-1**; Houston, TX–**RL023-1**; Indianapolis, IN–**RL022-1**; Kansas City, MO/ KS–**RL011-2**; Los Angeles, CA–**RL016-1**; Louisville/Lexington, KY–**RL007-1**; Milwaukee, WI/Waukegan, IL–**RL021-1**; Minneapolis/St. Paul, MN–**RL010-2**; Nevada/E. Central CA–**RL028-1**; Oklahoma City/Lawton, OK–**RL005-2**; Pittsburgh, PA/Wheeling, WV–**RL029-1**; Rochester/ Syracuse, NY–**RL020-1**; Tampa/St. Petersburg, FL–**RL004-2**; Toledo, OH–**RL002-3**. A regional directory which covers police, fire ambulance & rescue squads, local government, forestry, marine radio, mobile phone, aircraft and NOAA weather is available for $19.95 each. **RD001-1** covers AL, AR, FL, GA, LA, MS, NC, PR, SC, TN & VI. For an area not shown above call Fox at 800-543-7892 or in Ohio 800-621-2513.

Regency® Informant™ Scanners

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

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

Regency® HX1500-RA

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

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

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

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

Bearcat® 100XL-RA

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

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

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

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

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

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PC55-RA *Uniden*mobile mount CB transceiver ... $59.95

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Bearcat® 800XLT-RA

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

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

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

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

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CIRCLE NO. 151 ON FREE INFORMATION CARD

The Radio Ranch — On The Air

From Those Stirring Days Of Yesteryear, The Early Days Of Radio Come Galloping Down The Trail!

BY ALICE BRANNIGAN

Religious broadcasting was no less newsworthy in the early days of radio than it is now in the era of 1980's televangelists. Scandal, controversy, rumors, accusations, charges, and all of the rest are nothing new in this area.

There's no doubt about the fact that Sister Aimee Semple McPherson, late of Los Angeles station KFSG, held the championship belt for a good sixty years until she was replaced by the current collection of broadcasting saints and sinners.

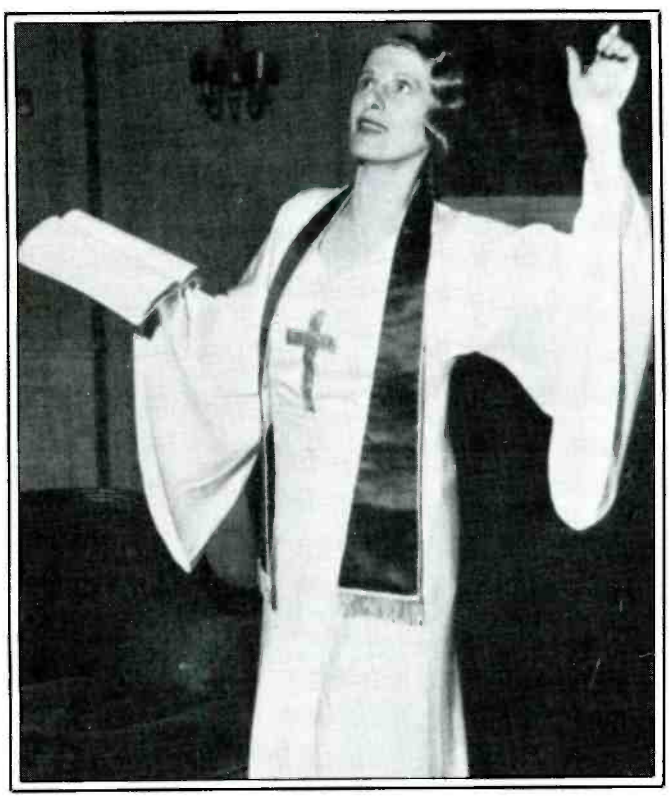
Sister Aimee's rise and fall from grace has been detailed in many books (and was the inspiration for Sinclair Lewis' novel, *Elmer Gantry*). She was born in Salford, Ontario, in 1890. She worked briefly as a missionary in Hong Kong until her first husband died there in 1908. After leaving Hong Kong, she came to the U.S. where she married Harold McPherson. She soon left McPherson and, with her two children, her mother, and a tent, she roamed Southern California as a traveling revivalist.

She stressed salvation and divine healing, and after several dramatic healings she quickly developed a national following of an almost fanatical nature. Donations from the faithful began to pour in and it wasn't long before Sister Aimee had enough ($1,500,000) to erect her beautiful Angelus Temple in Los Angeles, CA. The temple was crowned with two large broadcasting towers for her "Four Square Gospel" broadcasting station, KFSG, which was established in 1924, just after the Angelus Temple opened.

KFSG started out on 1080 kHz with 500 watts, and firmly established Sister Aimee as one of the foremost prophets of her day. Oddly enough, while KFSG helped to bring her to her greatest fame, indirectly it also led to her eventual problems. One of the main factors was Kenneth Ormiston, the man who operated the station. For one thing, he was Sister Aimee's boyfriend. For another thing, Ormiston was very married.

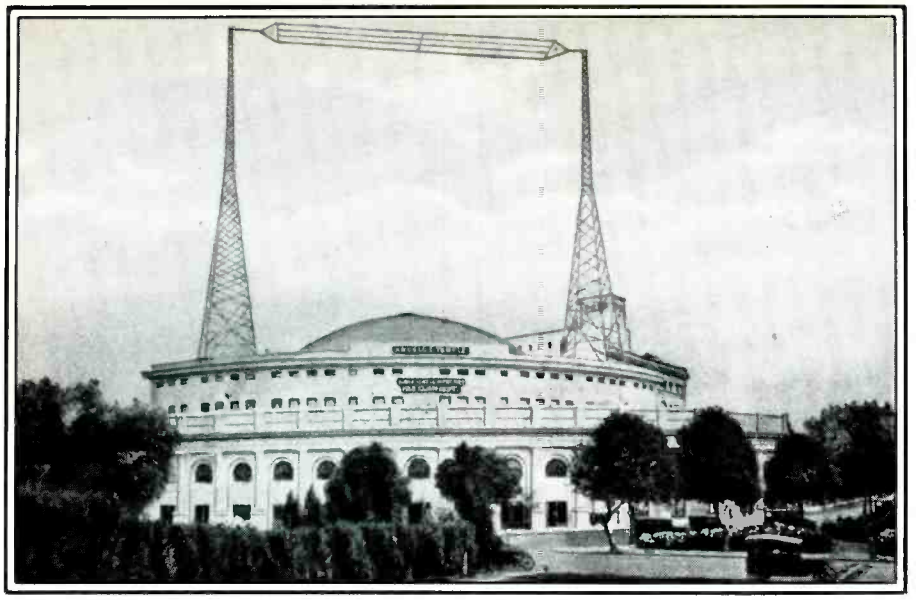
In May of 1926, Sister Aimee went to a beach hotel in order to write some sermons. Accompanied by her secretary, she was in a swimsuit on the beach doing her writing when her secretary left for a few moments. Upon returning, the secretary discovered Sister Aimee gone. It was assumed that she had gone for a swim and had drowned.

A massive search was started along the shoreline. Thousands of people camped on

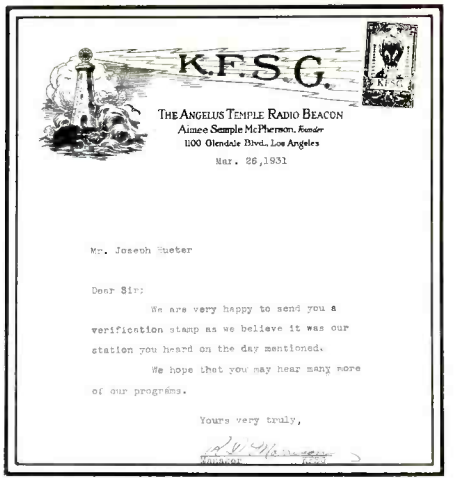


Sister Aimee Semple McPherson, 1920's radio evangelist and owner of station KFSG in Los Angeles. She made spicy headlines sixty years ahead of her modern-day counterparts.

Kenneth G. Ormiston, the amorous honcho of station KFSG at the Angelus Temple. He should have paid more attention to the plate current and less to the preacher.



The KFSG antenna towers atop the Angelus Temple were an integral part of the building's visual impact.



K.F.S.G.

THE ANGELUS TEMPLE RADIO BEACON
Aimee Semple McPherson, Founder
1100 Glendale Blvd., Los Angeles

Mar. 26,1931

Mr. Joseph Hueter

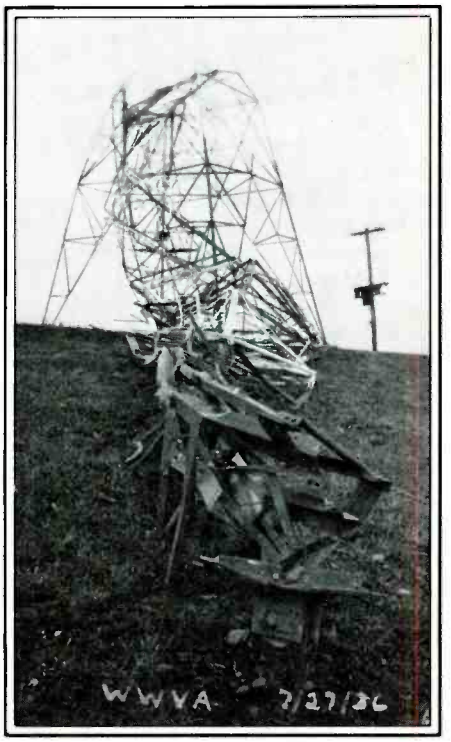
Dear Sir:

We are very happy to send you a verification stamp as we believe it was our station you heard on the day mentioned.

We hope that you may hear many more of our programs.

Yours very truly,

This 1931 QSL letter from KFSG carries an EKKO stamp and the signature of the fellow who replaced Kenneth Ormiston.



The monster hurricane of 1936 made spaghetti out of one of WWVA's towers in West Virginia.

the beach and prayed for the prophet. One young girl was so distraught that she committed suicide. During the search, a professional diver lost his life. The search continued for a month, but then a letter was received at the Temple that said McPherson had been kidnapped and would be released upon payment of a $5 million ransom. The next day, without payment of any ransom, Sister Aimee showed up, unharmed, in a Mexican border village.

She confirmed the kidnap story, saying that she had escaped and walked for miles through the desert to civilization. Police said that the details she gave didn't quite add up to the evidence. This was further complicated by the mysterious disappearance of Kenneth Ormiston on the same day Sister Aimee vanished! Further investigation by the Los Angeles DA revealed that Sister Aimee and Ormiston had spent that month vacationing together at several seaside cottages and resorts. The only thing that stopped criminal proceedings was the intervention on her behalf of publisher William Randolph Hearst.

The public at large was either outraged or amused, although a core of her most avid followers never lost faith in her. Still, Sister Aimee suffered a serious blow to her public image and general appeal. She kept on preaching into the 1940's, although what had at one time been a large national following had become diminished considerably. Those who stuck by her remained very devoted. In 1944, Sister Aimee died probably from an overdose of sleeping pills.

As for KFSG, the station had one especially interesting run-in with the Federal Radio Commission in 1925. The station, like many others, was found to be operating too far away from its assigned wavelength. The FRC closed the station until the situation was corrected—Sister Aimee said, "I am being crucified by the very bats of Hell!" She then sent a harsh telegram to the FRC's Herbert Hoover with the demand, "Please order your minions of Satan to leave my station alone. You cannot expect the Almighty to abide by your wavelength nonsense. When I offer prayers to Him, I must fit into His wave reception. Open this station at once!"

By 1930, KFSG had moved to 1120 kHz. Just prior to WWII, KFSG moved frequencies again, this time to 1150 kHz, and upped its power to 2.5 kW days (1 kW nights). After Sister Aimee's death, the temple and station were operated by her son, Dr. Rolf McPherson.

In the late 1940's, KFSG became KRKD. At that time, the KFSG callsign was used on FM 96.3 MHz to replace the callsign KRKD-FM. Today the 1150 kHz spot in Los Angeles belongs to station KPRZ (5 kW).

We have an interesting view of the Angelus Temple with the KFSG towers on the roof. Joe Hueter, of Philadelphia, kindly shared with us a 1931 QSL letter from KFSG signed by R.D. Morrison, Manager. By that time, Mr. Ormiston had probably moved on to a job at another station!

Controversy? The broadcasting evangelists of today had nothing on Sister Aimee Semple McPherson, certainly one of the most talked-about broadcasters of the early days of radio.

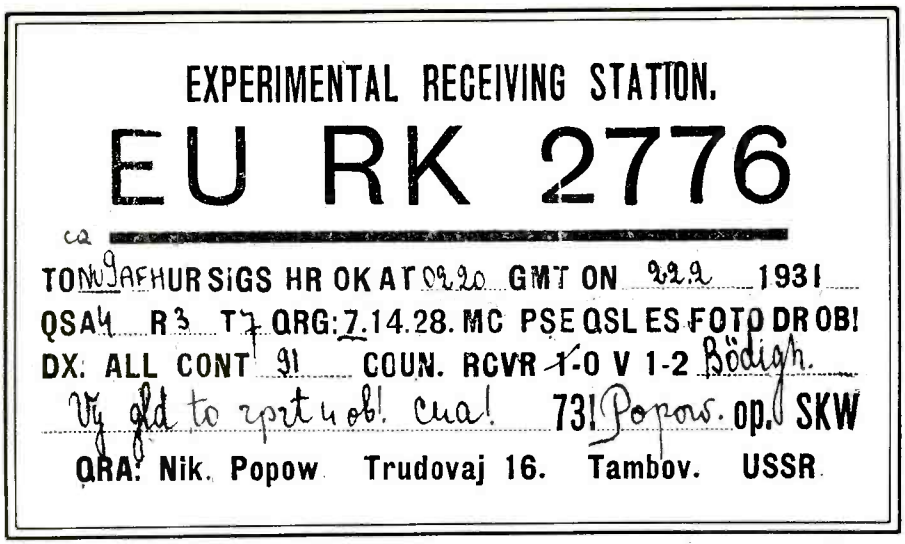
Full Blown Photo

Leapin' Lizards! Last year we ran some 1930's photo of the towers at station WWVA in Wheeling, WV. In the aftermath of that, we received a photo from William McGlumphy, St. Clairsville, OH showing one of the 225-foot towers the way it looked on 27 July 1936 after the infamous hurricane of that year came through town. The tower was crushed and crumpled like a toy in the strong winds. The towers had supported a flat top antenna system that put a lot of strain on the towers—a pulley atop the tower in our photo carried ½-inch steel support cable for this antenna.

William was a transmitter operator and chief at WWVA from 1932 to 1975 and appreciates the several mentions we have given this well-known station. William got started in radio with a Ford Spark Coil. In 1928 he took to the airwaves as 8BOH with 5 watts from a UV-202 oscillator. Eventually, he was licensed as N8BOH, then NU8BOH, and ultimately as W8BOH (a callsign he still holds).

Soviet SWL's

Though many ancient SWL cards have drifted our way from those who collect such things, perhaps none is quite as unusual as the 1931 SWL card from a DX'er in the



EXPERIMENTAL RECEIVING STATION.

EU RK 2776

ca

TONU9AFHURSIGS HR OK AT 0220 GMT ON 22.2 1931

QSA4 R3 T7 QRG: 7.14.28. MC PSE QSL ES FOTO DR OB!

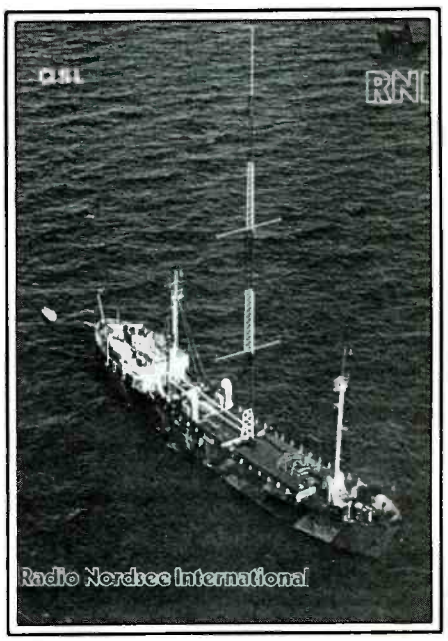
DX: ALL CONT 91 COUN. RCVR V-O V 1-2 Bödigh.

Vy gld to rprt u ob! cua! 73! Popow. op. SKW

QRA: Nik. Popow Trudovaj 16. Tambov. USSR

A rare look at a 1931 SWL card from a Soviet DX'er who used the ID of "EU RK 2776." He was located in Tambov.

This is a 1930's E.H. Scott all-band console receiver owned by Tony Peterson. Is this set a beauty, or what?



Adrian Peterson shares with us a peek at Radio Nordsee International. This was a floating pirate station whose signals were deliberately jammed by the British government.

USSR. Will Jensby, W0EOM/6, passed it along from his archives.

The card, from Experimental Receiving Station "EU RK 2776" was sent to American operator NU9AFH for reception of 7 MHz (CW) transmissions at 0220 hours. The Soviet SWL reported that he had 91 countries verified. An interesting sidelight is that this DX'er was apparently sending out these cards to stations heard on 7, 14 and 28 MHz—and, in 1931, the 28 MHz band was truly the realm of adventurers and experimenters, considered to be UHF at that time. Nevertheless, in the early 1930's, operators were working around the world on 28 MHz with very low power.

Scott Console Receiver

Tony Peterson, Blaine, MN asks that we show some receivers from days of old, fortifying his request by sending along a photo of a beautiful receiver that he owns. It's his favorite radio, in fact!

The receiver is one of those massive jobs that people would gather 'round in the parlor to hear Jack Benny or Ma Perkins. This one was made by the E.H. Scott Radio laboratories to compete in the 1938 market. It was a 30-tube set that covered from 100 kHz to 60 MHz, a very big hunk of spectrum for those days. Tony notes that the 1940 version of this receiver included the ability to receive FM broadcasts in the original 40 MHz Fm broadcast band.

Tony's console receiver features two "tuning eye" tubes (probably 6E5 types) located above and to each side of the large tuning scale. These tubes glowed with an eerie green light. As stations were tuned in, the light/dark patterns of the green glow changed. This would permit exact tuning to the center of the carrier. More than that, the tubes looked just great and were popular on many of the more expensive receivers of that era.

Pirate Broadcasting Ship

Adrian M. Peterson, KA9YPQ, Marion, IN sent us a QSL from a floating pirate broadcaster, Radio Nordzee International. RNI's career began on 22 January 1970 when it was anchored five miles off Nordwijk, Holland. The station was located aboard the 670-ton *M/V Mebo II* (former coaster *Silvretta*).

On 24 March 1970, the station changed location to six miles off Clacton, England and three months later became known as Radio Caroline International. This station used 1230, 1382, 1562, and 1613 kHz on mediumwave, 100 MHz FM, and 6210 kHz shortave. Actually, the frequencies were changed many times in Radio Caroline's effort to escape complaints of interference that were followed by jamming from the British government.

The audience was in the south, east and midlands of England. The backers of the station were Swiss businessmen Erwin Meister, Edwin Bollier, and Urs Emmenegger.

Equipment consisted of a 140-foot antenna mast, a 105-kW RCA mediumwave transmitter, two 10-kW shortwave transmitters, and a 1-kW FM transmitter. Power was supplied by two 250 kVA diesel generators.

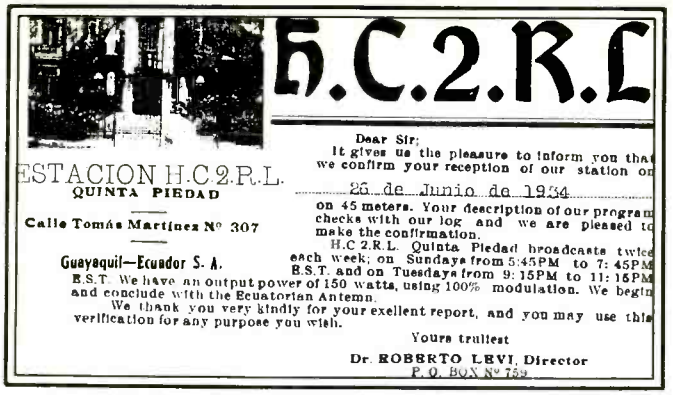
This station was a true headline-maker, meeting with more troubles and opposition from the British government than any other offshore pirate broadcaster. Adrian's attractive color QSL is dated 1973, when the station had changed its name back to RNI and was operating on 1367, 6205, and 9935 kHz, plus 100 MHz FM.

Low Power, Long Lived

From Laconia, NH we hear from Howard Kemp. He reminds us of the days when shortwave broadcasters didn't all feel the need to run megawatts in order to reach their audiences. As evidence, he submits a cherished QSL card from 1934 broadcaster HC2RL, Guayaquil, Ecuador. This was a 150-watt station, actually little more than a home station holding a broadcasting license issued to its owner, Dr. Roberto Levi.

HC2RL operated twice a week, Sundays and Tuesdays, two hours per session. This station's slogan was "Quinta Piedad," and the QSL card notes only that it operated on 45 meters. *Radio Station Treasury* specifies the exact frequency of HC2RL as 6650 kHz; it was changed to 6668 by 1938 and by then was announcing "Hello America." In 1942 the station was still plugging along, but had changed its frequency to 6635 kHz. By the end of WWII, HC2RL had shifted slightly to 6647 kHz, but had upped its power to a mighty 200 watts!

This station simply wouldn't quit—in 1955 it was on 6400 kHz and planning an



H.C.2.R.L

ESTACION H.C.2.R.L.
QUINTA PIEDAD

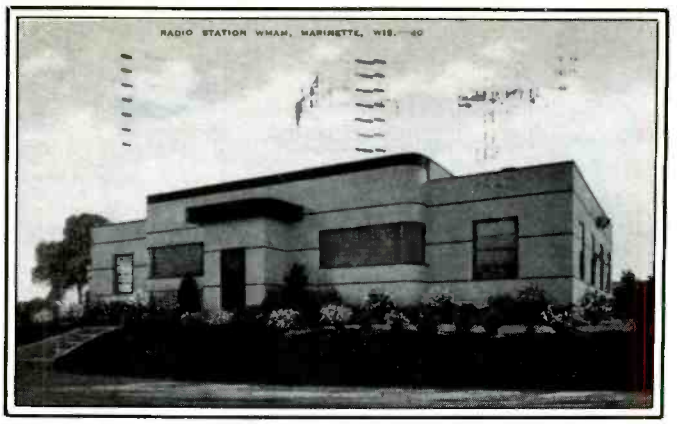
Calle Tomás Martínez Nº 307

Guayaquil—Ecuador S. A.

Dear Sir;
It gives us the pleasure to inform you that we confirm your reception of our station on
26 de Junio de 1934
on 45 meters. Your description of our program checks with our log and we are pleased to make the confirmation.
H.C 2.R.L. Quinta Piedad broadcasts twice each week; on Sundays from 5:45PM to 7: 45PM B.S.T. and on Tuesdays from 9: 15PM to 11: 15PM B.S.T. We have an output power of 150 watts, using 100% modulation. We begin and conclude with the Ecuatorian Antemn.
We thank you very kindly for your exellent report, and you may use this verification for any purpose you wish.

Yours truliest
Dr. ROBERTO LEVI, Director
P. O. BOX Nº 759

HC2RL (later known as HCRL2) was a plucky little shortwave broadcaster that ran low power and a very limited schedule during its lengthy career.



WMAM, Marinette, WI is part of a proud breed —a solid and dependable 250-watt community broadcaster that's been on the job for many decades.

increase in power, although by 1958 (on 6635 kHz) it was still pushing its 200 watts. Listings for 1964 show the callsign changed to HCRL2 and the frequency as 6120 kHz. Looks like it died around 1965, maybe the VFO finally wore itself out!

The Quiz Biz

Don't know for sure exactly how I came to be elected as the trivia authority around this place, but until someone else steps forward to volunteer, I suppose I'm stuck with the job. One of *POP'COMM*'s esteemed staffers passed along a far out question sent in by a reader. He couldn't answer it and now it's landed on my desk.

Reader Oscar Perkins of Kansas says that he remembers that in the 1930's, the famous Fleishmann's Yeast Company owned a fabulous luxury yacht that contacted many Hams during its voyages. It received much publicity at the time. Mr. Perkins remembers having heard the station, although he doesn't recall any further details. He hopes that someone can perk up his memories of station.

That question was a real stumper and took some genuine digging. While I don't have a photo of the yacht, it was named the *Haida*, and was a diesel powered 217-foot cruiser owned by Major M.C. Fleischmann, of the yeast company. The vessel's regular callsign was WKDS. The "sparks" aboard the *Haida* was J.R. Foran, W6KVA, and during the 1930's he ran 75 watts 'phone and CW on the Ham bands while the ship moved around the world's oceans.

Thank ya, 'MAM

Local community broadcasters have always been my favorites, and when I came across a photo of station WMAM, located in Marinette, WI it was definitely my kind of station.

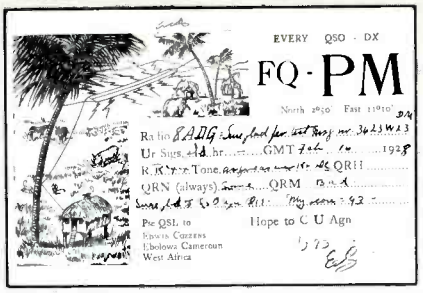
Historic Ham QSL's

There was a time, before the 1930's, when Ham radio had a very tenuous status in many nations of the world. It wasn't exactly legal, yet neither had it been declared to be otherwise. Mostly, in sparsely populated areas it was perhaps the only link with civilization, so in some nations it existed on an unofficial but tolerated (often encouraged) basis.

That meant that some operators had to create their own callsigns, and some were quite original and fanciful, perhaps including the initials of the operator. A typical example of an exotic homebrew callsign is displayed on the 1928 QSL from a station calling itself simply "FQ-PM." This station was in Cameroun, West Africa, an area so unpopulated that the QSL carries the printed inscription, "Every QSO DX."

FQ-PM was located in the village of Ebolowa (2°-50'N, 11°10'E). The operator's name was Edwin Cozzens; most likely he was an American or English missionary. Eventually, and for many years, this country provided its Hams with callsigns carrying the prefix FE8. When the nation became independent (1960), the prefix was changed to TJ.

How or why, in 1928, Edwin Cozzens decided to create for himself the callsign FQ-PM, isn't known. What is known is that he sent these QSL's to some operators throughout the world who were probably very glad to receive them!



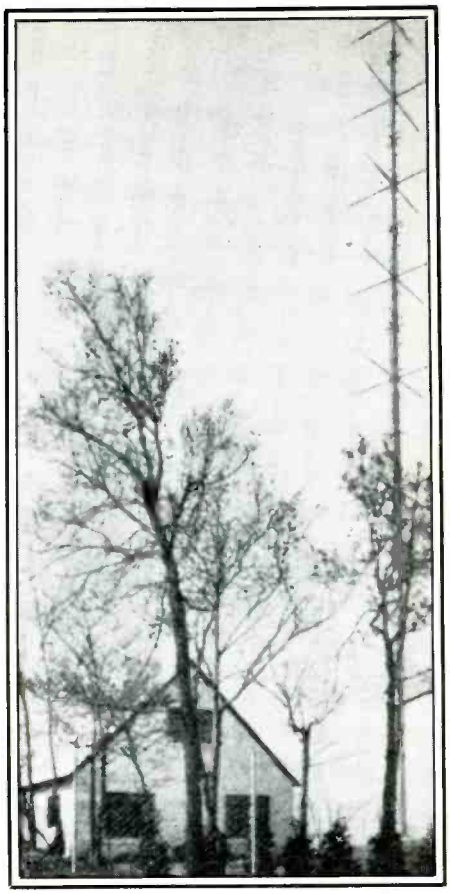
This station was put on the air in 1939 from Radio Park, in Marinette by W.E. Walker. For those unfamiliar with the Marinette area, it's the gateway to the scenic Northland region of Wisconsin, located at the mouth of the Menominee River on the shore of Green Bay. It is an area of rugged beauty that abounds with picturesque streams and lakes.

When WMAM began operations in mid-1939, it ran 250 watts (100 watts at night) on 570 kHz. Today, WMAM is still on 570 kHz and running the same day/night power. A true American gem, proudly serving its local community's needs for 48 years! We thought you'd like to know about this station.

Our photo of WMAM is via a picture postcard dated 1950. It shows a one-story Art Deco structure, yellow with maroon trim. It is surrounded by colorful and well-kept flower beds.

Pioneer FM Broadcaster

Tony Peterson, who submitted the photo of the E.H. Scott console receiver, asked for more coverage of early FM broadcasters. Tony was only echoing a request that has come in from many readers of these scribblings. Happy to accommodate with a 1939 photo of early FM (Experimental) broadcaster W1XPW, a 1-kW station on 43.4 MHz located atop West Peak in Meriden, CT.



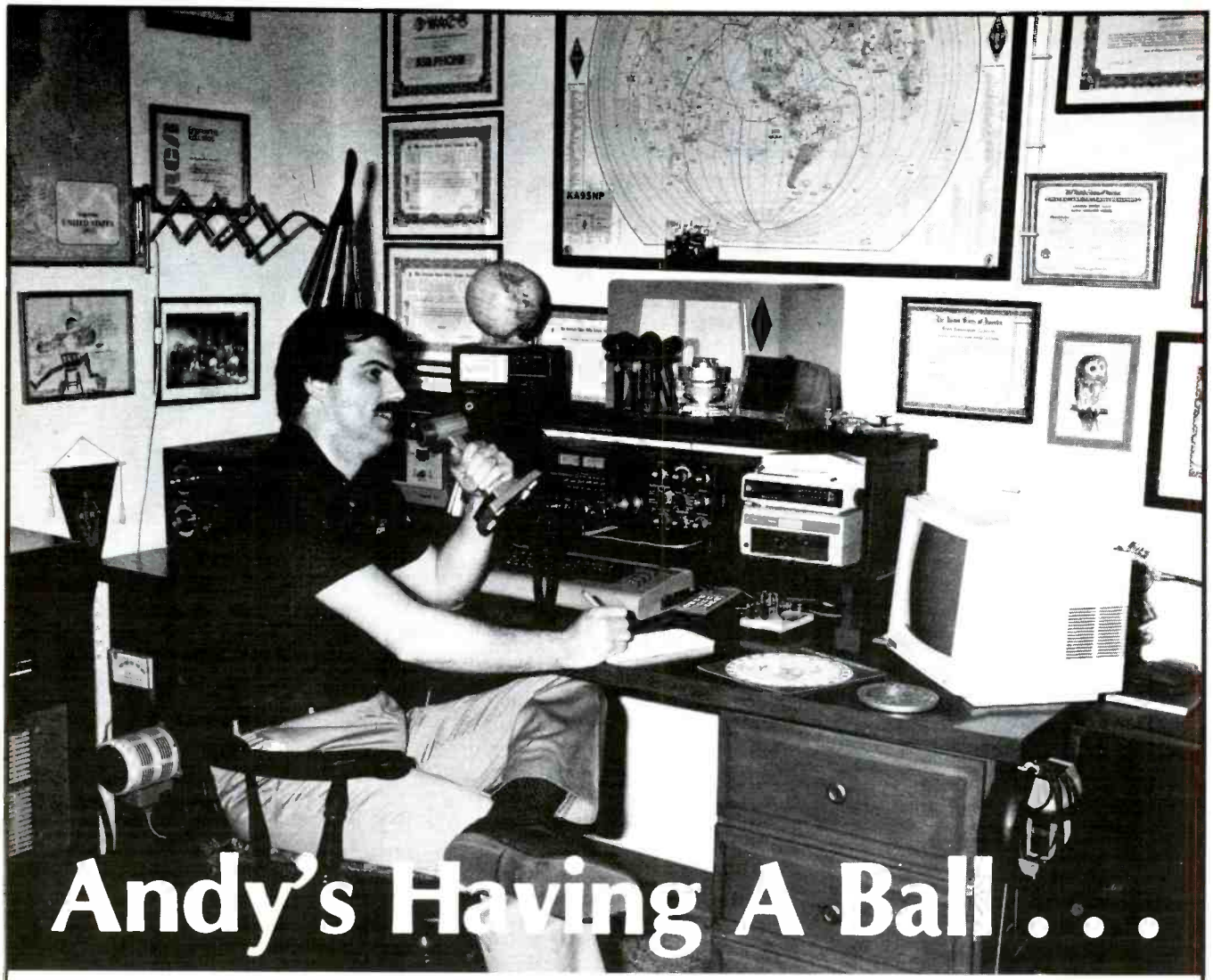
Here's a 1939 look at early FM broadcaster W1XPW located at the summit of West Peak, Meriden, CT. This station evolved into WDRC-FM, 102.9.

W1XPW used a six-bay turnstile antenna (shown at the right of the photo). The entire station was designed by Prof. Daniel E. Noble (W1CAS) of the staff of Connecticut State College. He had also designed college FM station W1XCS at CSC.

In 1941, W1XPW became known as W65H when it shifted frequency to 46.5 MHz. By 1946, the station had moved to 94.3 MHz in the "new" FM band and became known as WDRC-FM, Hartford, CT. WDRC-FM is still to be heard, except it now operates on 102.9 MHz; the transmitter still sits on West Hill. Presently sharing the WDRC-FM tower is NOAA weather station WXJ42 on 162.40 MHz. WDRC-FM is, of course, affiliated with AM station WDRC (1360 kHz, 5 kW), which has been going strong since 1922!

'Til Next Time

That's a wrap for October, but we hope to be back in November—same time, same station. Those who wrote concerning my appearance on the cover of the June issue of *POP'COMM*, your letters were most thoughtful. It was what the late Andy Warhol prophesied; fifteen minutes of fame for everyone in the world. Thanks for your letters, I really enjoyed my fifteen minutes! PC



and you can too!

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

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

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

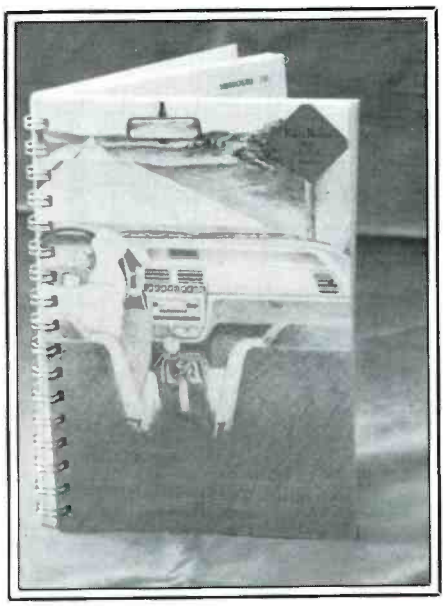
For information on becoming a Ham operator
circle number 110 on the reader service card or write to:

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

This space donated by this publication in cooperation with the American Radio Relay League.

BOOKS YOU'LL LIKE!

BY R. L. SLATTERY



Public Radio

Public radio is informally defined as those broadcasters that are presenting non-commercial, non-religious programming. This takes in about 1,100 stations in the United States. While some operate in the AM band, the majority run from 10 to 100,000 watts ERP in the FM band. For the most part, these stations are operated by schools, universities, foundations, American Indian tribal councils, and even municipalities.

Programming formats include classical music, jazz, folk, country, rock, pop, plus educational and cultural programs, such as financial, farming, political, social awareness, and ethnic features. While some stations specialize in specific formats, many include an eclectic mix of wide-ranging programs.

Author Natalie McClendon has contacted the nation's public broadcasters and received information that has enabled her to compile an interesting reference guide called, *Go Public! The Traveler's Guide To Non-Commercial Radio*. This is a spiral-bound 219-page reference guide to all of these stations, including their callsigns, power, locations, frequencies, networks, and details of their schedules and programming. Listings are arranged according to region, and cross-indexed by state. State maps show all public stations and their general coverage areas.

Text in the book explains the why's, wherefore's, aims, goals, and history of public broadcasting, discussing networks, funding, frequency allocations and related problems, programming considerations, and other relevant matters. There is a listing of numerous public radio information sources and networks (with addresses), and a bibliography.

This is an extremely well-done and comprehensive guide to public radio. Essentially, it's got all of the bases covered, although it would have been nice to see Canada included too. The programming format data is useful, not only to DX'ers, but also for those interested in enjoying the many educational and entertainment benefits of these stations—especially since commercial broadcasters see programming from a totally different viewpoint.

At the risk of leaving myself open to being attacked for daring to make the comparison, I'd like to note that the concept of providing offbeat and alternative non-commercial programming is common to licensed public broadcasters and also to many unlicensed pirate broadcasters. If you have spent time listening to public radio, you're aware that some of the programs and personalities encountered are about as far-out, weird and innovative as anybody or anything heard over the most freaky of pirate stations. It may well be that those who yearn to provide unorthodox non-commercial programming might endeavor to figure out how to obtain an FCC license for one of these stations running low power.

As I write this review, I'm listening to my own favorite non-commercial station, KNAU (88.7 MHz) in Flagstaff, AZ. Looking it up in *Go Public!*, I note that its predominant programming is classical music, with additional programs concerned with world folk music, nostalgic radio, drama, and news. The information provided offers an excellent capsulized picture of the station, going so far as to indicate days and scheduled times of many specific programs.

Go Public! is $12.95 per copy (plus $2 shipping) from Wakerobin Communications, 611 North 26th Street, Lincoln, NE 68503.

Solid, Jackson!

The new edition of the *RCA SK Guide To Reliable Replacement Semiconductors* has just rolled off the presses. This book is an inch thick, containing hundreds of pages that list 2,900 SK and KH types that replace more than 214,000 industry types. Included for the first time are QMOS logic devices and an extensive line of RF devices.

Far more than a basic computer printout of numbers, the book offers a great wealth of descriptive data, diagrams, schematics, specs, dimensions, connections, and application data. It contains all of the newest devices, yet has not overlooked simple PNP/NPN transistors going back to the 2N35, CK722, and other golden oldies from the early 1960's.

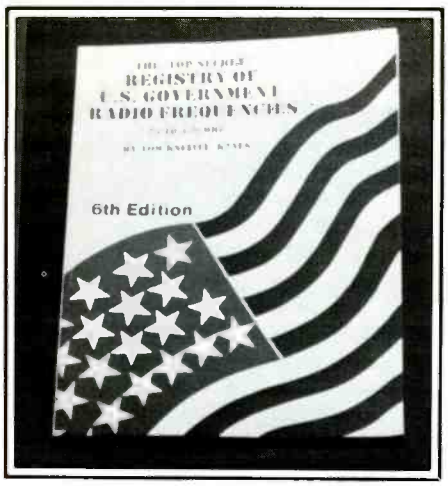
If you do any design, maintenance, or repair work with semiconductor equipment (communications, audio, broadcast, lab or test gear, computers, VCR's, TV sets, etc.), you'll certainly find this book to be chock full of information handy to your efforts. When you leaf through the reams of data in a reference book such as this, you wonder why there ever needed to be 214,000 "different" semiconductors in the first place when, ultimately, they can all be directly replaced by one seventy-fourth that number of devices! Probably the same reason why generic prescription drugs are available under many different proprietary names.

So, just as pharmaceutical products with fancy handles such as Duralone, Medralone, A-methapred, etc., are, after all is said and done, your basic Methylprednisolone—so semiconductors with macho monickers like 2SV698(G), 2ST-2SA733Q/R(AU)E, and GE-269 can all be replaced by a device called an SK-3114A.

The RCA SK Replacement Guide (Item #SKG202E) is available from local RCA SK distributors, or it may be obtained by mail for $3.25 per copy (postpaid) from the RCA Distributor and Special Products Division, Box 597, Woodbury, NJ 08096-2088.

New Federal Frequency Edition—WOW!

The long-awaited 6th Edition of Tom Kneitel's *"Top Secret" Registry of U.S. Government Radio Frequencies (25 to 470 MHz)* has boldly arrived sporting numerous



changes from the previous editions. For starters, it's grown to a hefty 192-page thickness. An easier-to-read and more condensed typeface is used, and occupies more area of the large 8-1/2" by 11" pages. So, right off the bat, the Registry contains about twice as many listings as the earlier edition.

These listings contain the latest known frequencies, callsigns, locations, tactical ID's, frequency usage data, many agency ship/aircraft rosters, and all sorts of other vital communications data. Details of the communications systems of more than 80 federal agencies are provided, including: all military services, FBI, National Forests, National Parks, Treasury, ATF, Secret Service, Customs Service, Immigration, Border Patrol, DEA, GSA, FEMA, EPA, CIA, NSA, Marshals, Federal Prisons, Postal Service, FCC, and many others. A special section lists frequencies of "bugs" and surveillance devices, another section lists many frequencies used by military and other artificial satellites.

It should also be noted that this new edition is far more comprehensive than its name implies since it provides information on many HF (2 to 25 MHz) frequencies. It also has information on frequencies used by Canadian federal agencies and military units.

Kneitel has included much explanatory text in addition to the other data offered in this new edition. While some earlier editions contained explanatory text, it wasn't included in the previous 5th Edition. Readers asked that this type of information be restored, and it was. Scanner owners also requested that frequencies such as 173.4125 MHz no longer be "rounded off" to the closest 5 kHz (such as 173.41 or 173.415 MHz). Therefore, the new edition has discontinued this practice and now lists split frequencies to all four decimal places.

Another major, and especially useful, change concerns the format of some of the listings. As before, there is a large section that lists (in alphabetical order) military facilities and also UHF aero (225 to 400 MHz) band stations. In previous editions, this section was followed by a by-frequency listing of numerous other agencies. Scanner owners suggested that the second section would be better if arranged according to agency name so that you could look up particular agencies and obtain a general overview of their known frequencies. Therefore, in the new 6th Edition, this section begins with "Accounting Office, General (GAO)" and goes, agency-by-agency, all the way to "White House, U.S."

These (and other) changes, combined with the greatly expanded listings information, combine to become a genuinely vital guide to in-depth monitoring of federal agencies and the armed forces. Over the years, this series of publications has become the standard reference to federal communications on the scanner bands. In addition to communications hobbyists, it is used by the news media, public safety agencies, and the communications industry. Many federal agencies also obtain copies for their own use. For the most part, it is data that is not available from other sources.

In view of the fact that at least half of the two-way communications spectrum lying between 25 and 470 MHz is reserved for the exclusive use of federal agency communications, scanner owners who don't know how or where to get in on the action are missing plenty. Communications "insiders" have long known that these are the most interesting and exciting frequencies to be monitored. The 6th Edition has the latest information available.

The new 6th Edition of *The "Top Secret" Registry* is available from many leading communications dealers. It can also be obtained by mail for $17.95 plus $2 shipping/handling (to addresses in USA/Canada/APO/FPO) from CRB Research, P.O. Box 56, Commack, NY 11725. PC

PRODUCT SPOTLIGHT

Alpha Delta DX-SWL "Sloper" Antenna With Delta-4 Surge Protector

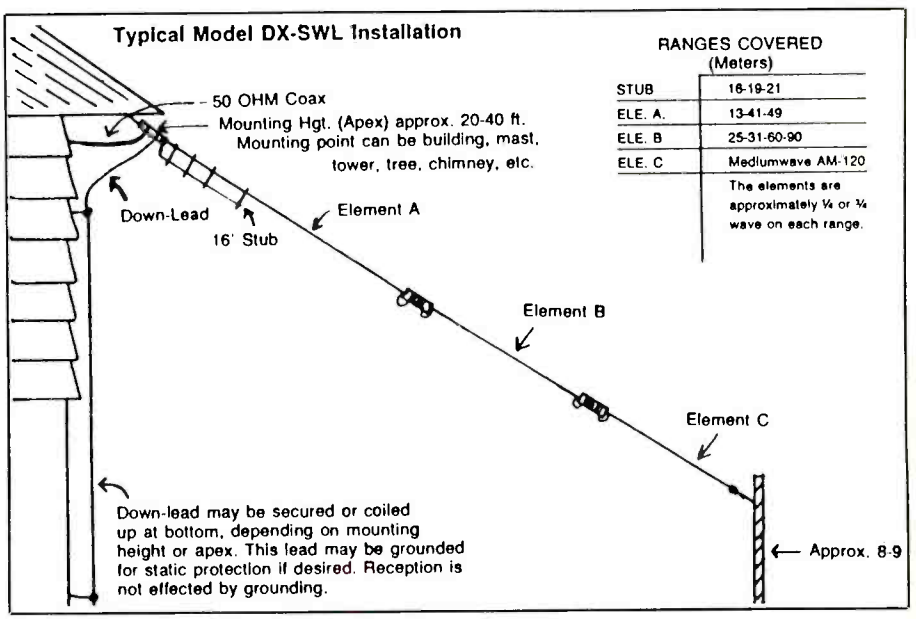
Want to have some fun, I mean real FUN? Sure you do, we all do . . . here's how: buy, beg, borrow or steal the new Alpha Delta "Sloper" antenna. It's called the DX-SWL, and it really pulls in the SWL DX. Along with this outdoor antenna, you ought to have some lightning protection for your station. Fortunately, you can get a surge protector from Alpha Delta, along with the antenna as an extra available option. It's called the Delta-4 lightning surge protected coaxial switch. That's right—coaxial switch. It has four antenna positions and one ground positon, allowing you to connect up to four external antennas that can be selected by the twist of a knob!

Describing The DX-SWL Sloper

I believe the DX-SWL "Sloper" antenna by Alpha-Delta Communications, Inc. is unique in the field of SWL antennas for two reasons: it is both a transmitting and a listening antenna capable of absorbing up to a kilowatt or so of RF power, and it incorporates a pair of ISO-RES coils that allow the antenna to become resonant on virtually *all* of the HF shortwave bands between the AM broadcast band and 30 MHz! The antenna is equivalent to a full-size dipole in performance for another reason as well: it is what is known as a quarter-wavelength antenna—using a "down lead" that can be connected to ground, or left floating, to make up the "missing" half of the dipole.

The "sloper" part of its name comes from the fact that one end of the antenna is raised higher than the other end. Why would anyone want to do that, you wonder? Logical question—and here's the answer: it hauls in DX like there's no tomorrow. It seems that when you slope an antenna, signals received from the low end are enhanced in strength. You decide from which direction you'd like to pick up the strongest signals (Europe, South America, Asia, etc.) and place the antenna so that its low end (approximately 5 feet or so above the ground) is pointed toward that direction. The signals from other areas still come in listening-loud, but the ones from the low end direction come in especially loud.

The other good reason for a sloper is that it takes up *much less* room than a dipole antenna, and is suitable for even a small lot. The sloper by Alpha Delta is 60 feet long, and made of heavy-duty insulated wire. It comes complete with everything you need to put it up *except* for the coaxial feedline that you need to connect it to your receiver. Included is an end mounting plate that attaches to a mast, tower, side of a building, or wherever you can find an elevated support . . . a tree, for example. The mounting plate has a chassis-type coaxial connector already built in, to which is screwed one end



of your coax cable connector. The plate has the "down lead" wire attached to it, and this is led down the supporting structure to ground, or left floating by being spaced away from the support by stand-off insulators, for example.

There is another wire connected to the antenna at its high end: a 16-foot matching section, somewhat similar to a gamma rod, that is spaced away from the main antenna wire by some clear plastic insulators already drilled to accept the matching wire and the antenna wire. First class quality, too. Finally, there are two ISO-RES coils which resonate the antenna to the various bands of frequencies that make up the HF shortwave "bands" in the spectrum. As the name implies, these coils isolate one band from another while resonating the antenna (tuning it) to each of these bands.

The final icing on the cake is inclusion of an end insulator and section of nylon line used to tie off the low end of the antenna to another support—either a tree or pole, or even a ground stake. The sketch of the antenna accompanying this description makes it very clear. Alpha Delta suggests that you place one end at about 25-40 feet above ground, and the other end at about 10-15 feet above ground.

Using The Alpha-Delta DX-SWL Antenna

I put mine up on a 10-foot pole attached to the chimney by means of a chimney bracket, and added a pulley to the pole so that I could raise or lower the antenna easily without having to remove the pole. After connecting the coax (I used 52-ohm RG-58A/U), I sloped the antenna in the northeast direction (because Europe was of more interest to me at the time) and tied the low end off to a convenient birch tree in my front yard.

The next thing I did was to install the Delta-4 coaxial switch with lightning surge protector on my operating desk by means of a couple of wood screws, making sure that I scraped the paint away from one of the mounting holes, and connected it to the station ground wire.

Finally, I connected the station end of the coax connector to one of the terminals of the Delta-4, and a coaxial lead from my receiver to the center terminal of the switch.

When I turned on the receiver, it nearly blew my ears off—the received signals were so loud at my East Coast location. It is the truth . . . and I was able to tune in the AM, 120, 90, 60, 49, 41, 31, 25, 21, 19, 16, and 13 meter bands on my general coverage receiver. Obviously, not all of these bands came in with the same strength at the same time because of the band conditions. Some bands were open while others were not, owing to the time of day (or evening) and the propagation conditions for HF signals at the time I listened. However, over the period of a week or so, I managed to hear all of them at one time or another by picking and choosing my listening times. To tell you the truth, the antenna worked *too* well a few times because the signals were so strong that they overloaded my receiver, and I had to reduce the RF gain to compensate! In the opposite direction, away from the low end, I was able to pick up Radio Australia, Radio Bejing, Radio Tokyo, etc., *all* with excellent signals from the DX-SWL sloper.

Here's where I decided to "cheat" a little bit. If the antenna worked on those SWL bands close to the Amateur radio bands, it ought to work on the "Ham" bands, too. I should also be able to transmit and receive on these bands. So, I connected the DX-

Table 1

Date	Time UTC	Mode	Station	Country	Signal Report	Comments
					me him	
May 24	0117	CW	UT5MD	Russian Ukraine	579/579	40M band
	0130	CW	F9KP	France	559/539	30M band
	0142	CW	W3WKP/VP9	Bermuda	not recorded	30M band
	0247	CW	HA2PP	Hungary	579/579	40M band
	0253	CW	RB5WA	USSR	599/599	40M band
	0300	CW	UO4OR	USSR	579/579	40M band
	0307	CW	YU3HR	Yugoslavia	579/589	40M band
	1125	CW	ON6DC	Belgium	529/539	20M band
	1300	CW	FE6ZU	France	579/579	20M band
	1320	CW	KK0V	Missouri, USA	589/589	not recorded, probably 20M
	1323	CW	YT7DU/MM	Atlantic Ocean Ship 46°N, 44°W	559/559	20M band
	1340	CW	N2AK	New Jersey, USA	589/579	40M band
	2325	CW	4N7ZZ	Yugoslavia	599/599	20M band
May 25	0135	CW	VE3PQB	Ontario, CAN	599/599	40M band
	0220	CW	DJ9GD	Germany	569/569	40M band
	0236	CW	YU2BQR	Yugoslavia	569/569	40M band
	0245	CW	WB0CNM	St. Paul, MN	569/569	40M band

Note: Sloper has a better signal to noise ratio than my vertical comparison antenna.

SWL antenna to my antenna tuner (so the transmitter would see a nice resistive load of 50 ohms) and proceeded to tune the antenna to the Ham bands closest to the SWL bands covered by the antenna. Voila! Good, so far . . . now to listen and try to make some contacts.

To say that I was successful is an understatment, as you can see by the appended "log" of contacts made with this antenna (see Table 1).

Furthermore, I was able to switch between my vertical four-band antenna, my 80-meter horizontal loop antenna, and the DX-SWL, making instant signal-strength comparisons on both transmit and receive. The log of contacts is just a sampling of the dozens of other contacts I made, but it will give you an idea of what 100 watts transmitting power will do with this antenna.

A very noticeable, welcome and unexpected feature that the literature doesn't mention was the excellent signal-to-noise ratio on receive. This is a *quiet* antenna as far as noise is concerned—natural static and pickup of man-made noises—and makes listening a real pleasure compared to my vertical antenna for example, which is a real noise picker-upper.

This will sound like exaggeration, but let me tell it like it happened. After the initial hour or so of listening, my wife and I decided to go out to dinner. Before leaving the "shack" I switched the antennas to ground through the Delta-4 coaxial switch. While we were gone, a typical spring thunder and lightning storm came up, and our home area was heavily hit with both wind and lightning, not to mention a torrent of rain. I was afraid that the tremendous surges of natural electricity would affect, if not destroy, the transistors in my sensitive equipment . . . so the first thing I did after the storm was over, and all lightning had stopped was to turn on the equipment to see if it still worked. Not to worry, everything was just fine. Those heavy surges had been bypassed to ground by the Delta-4 protective switch. Later on, I found that the lightning had split a tree within half a mile from my location. Two of my neighbors suffered damage in the same storm: one to a TV set, and the other to a telephone. Fortunately, I escaped unscathed—chalk one up for the Delta-4 . . . something I wouldn't be without and won't be, from now on.

Summary and Conclusions

The antenna and switch are high-quality, rugged and well-designed equipment that will serve your needs as long as you have such needs. They are simple, straightforward and easy to set up and use. I would say that if you have room for only one outdoor antenna, and you have only a limited amount of space for an antenna, you might want to seriously consider the DX-SWL Sloper by Alpha Delta. If you are a Ham, then be sure to look at it closely—although Alpha Delta makes a Ham version, too.

As far as the switch is concerned, *no one should be without this protection*. One good feature is that if the switch takes a "hit" the enclosed ARC PLUG will be wiped out, but your station will be saved in all probability. What's more, the ARC PLUG protector can be replaced easily at small cost by you. Just order another from the company, and maybe a spare just in case.

I'd have to say that the antenna worked just as well as any of my regular station antennas. Of course it could not be expected to rival a "gain" antenna such as a Yagi "beam" antenna or similar, but then, it's not expected to, since I don't have the need or desire for such a monster at this station. I think if you get the antenna and the switch, you won't be disappointed in value for the money. If you can't get one from your local or mail-order radio/electronics dealer, then try direct from Alpha Delta Communications, Inc., P.O. Box 571, Centerville, OH 45459; Tel: (513) 435-4772. PC

POP'COMM staff

Children Rescued From Fire

Two policemen had already been inside a burning building *twice* when they found they would have to go back in again—to rescue two young children.

Willingboro, New Jersey, policemen James Felice and David Retzko were the first to arrive at the scene of the fire on Granby Lane in Willingboro early one morning. They saw a woman, whom they would later learn was a babysitter, standing in the doorway of the house with a baby girl in her arms.

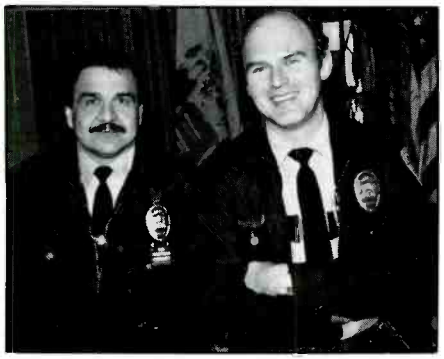
SCAN PUBLIC SERVICE AWARD

"We saw the babysitter in the doorway and there was light smoke coming out of the house," policeman Retzko told the *Trenton Times*.

The baby, seven-month-old Cindy Newman, was coughing and sputtering and her face was covered with black mucus. The two policemen got the woman and the baby out of the house.

Felice attended to the baby on an outside lounge chair while Retzko entered the building with a fire extinguisher to see if he could put out the fire.

"I went back in and found the room where the fire was and I decided to come back out and get a breath of fresh air," Retzko told the *Times*. "That's when (Felice) asked the babysitter if everyone was out of the house."



Our heroes of the month hail from Willingboro, NJ. On the left is Officer James Felice, Officer David Retzko, right.

Retzko also asked if everyone was all right. "When she said, 'the children,' I went right back in and found them lying in the kitchen near the sliding glass door," he said.

After finding the two boys, Retzko shouted to Felice to give him a hand, and the two officers carried the children to safety.

The two policemen later explained that they were "eating a lot of smoke" as they crawled out of the building. They recalled that the childrens' bodies were very hot.

"When we first got them out, you could actually see steam vapors coming off the bodies," Retzko said. "Their faces were burned and their eyes were wide open."

After carrying the two boys to safety, the policemen put them on a lounge chair, cleared their mouths and provided oxygen.

The two children were rushed to Zurbrugg Memorial Hospital-Rancocas Valley Division by the Willingboro Emergency Squad as the first fire trucks arrived.

The two boys, Dasean Marioneaux, two years old, and his one-year-old brother were badly burned, but they survived.

Fire officials traced the fire to a malfunctioning portable electric heater in a converted bedroom.

"I don't feel it took any courage to do it," Felice said of the rescue. "Any officer would do it. You're just lucky when everything turns out right."

Because officers Felice and Retzko made sure that things "turned out right," they were recognized by the Willingboro Fire Co., Jewish War Veterans Association, and Willingboro Emergency Squad and Township Council.

For their rescue, officers James Felice and David Retzko will also receive the SCAN Public Service Award. The award consists of a special commendation plaque and a cash prize. For making the nomination, Arthur F. Hagan, Jr., of Trenton, New Jersey, will also receive a commendation plaque. Congratulations to all of you.

SCAN PHOTO CONTEST WINNERS

Best Equipped

Pull up a chair and sit down for a while! That seems to be the message for visitors to the listening post of Garth Cook of Costa Mesa, California.

Garth was originally interested in scanning. Later he became involved with shortwave listening and Amateur Radio. On shortwave, he likes to tune in the BBC and Radio Moscow. Favorite scanner targets include police and aircraft transmissions.

Garth uses a Bearcat 300 scanner, Bearcat 210, Regency MX-5000, Yaesu FRG-7 communications receiver, Kenwood TR-7800 two-meter FM transceiver, Kenwood TS-820 Amateur transceiver, and Sony ICF-2010 receiver. Accessories include a Leviton clock central control system for controlling the tape recorder when Garth is away from his shack, an AEA MBA-RO Morse-Baudot ASC-II reader, and Kenwood MC-50 desk microphone.

His antennas include a Ringo Ranger two-meter vertical, 10-40 meter trapped dipole, and 80-foot longwire, all fed into a Kenwood AT-200 antenna tuner.

Thanks for the kind comments about POP'COMM, *Garth! And we would be happy to join you at the kitchen table to talk radio anytime!*

Best Appearing

The winning photo in this category this month belongs to a photographer. The man behind the camera—and behind this nice-looking radio shack—is Ron Robbins of Newbury Park, California. (Von Beals, a dispatcher/EMT for a local ambulance service, also uses this set-up.)

When he's not taking pictures, Ron is listening to a Regency D-310 scanner, Regency HX-1200, Bearcat 250, Bearcat 100, Midland 13-891 CB base station, and Lafayette Telsat SSB-140 CB base station.

A Leader frequency counter, portable television monitor and AM/FM radio are also used here. External speakers are mounted in various locations.

Ron, a freelance photographer, is not the first shutterbug to win in this category. In fact, we have had quite a number of winning entries from photographers, newspaper reporters and radio and television people who use scanners and related radio gear as part of the job. But they make it clear that they also enjoy scanning and radio listening away from the job.

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

PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS

MFJ's Dual Band VHF Antenna Tuners and Catalog

MFJ Enterprises, Inc. has introduced two new dual band VHF antenna tuners that cover both the 144 MHz and the new Novice 220 MHz bands. They both handle 300 watts PEP and match a wide range of impedances for coax fed antennas. Both are built into rugged all aluminum cabinets and are painted eggshell white with a black top.

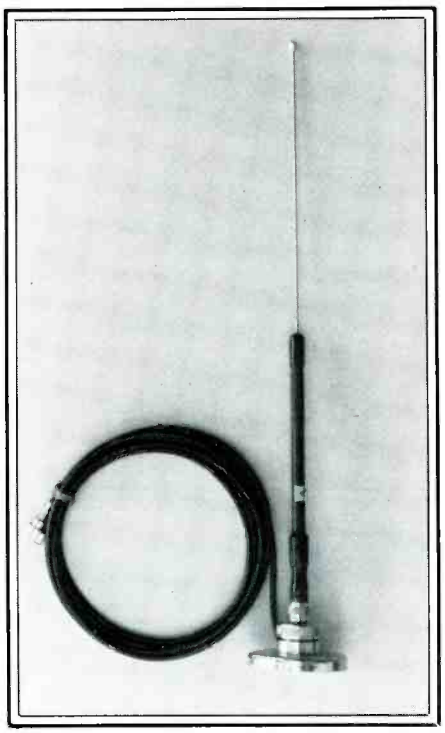
The MFJ-921 has a built-in SWR/Wattmeter, measures 9 × 2 × 3 inches and retails for $69.95.

The MFJ-920 measures a compact 4½ × 2 × 3 inches and retails for $49.95.

Both the MFJ-921 and the MFJ-920 come with a one-year unconditional warranty. If either is ordered directly from MFJ Enterprises, Inc., it can be returned within 30 days for a full refund (less shipping and handling) if not satisfied.

Also available now is the new MFJ Enterprises Amateur Radio catalog. In it you'll find the most reliable and affordable antenna tuners, filters, keyers, packet radio controllers, computer interfaces, dummy loads, antenna switches, speaker, wattmeters, noise bridge, antenna bridge, antenna current probe, tuning indicators, antennas, converters, amplifiers, preselector, microphone equalizer, code practice oscillator, frequency standard, clocks, Morse code tutor program, computer products, video products, power strips, RFI chokes and many other unique and useful accessories that are available only from MFJ!

To get your free copy, or for more info on the dual band VHF antenna tuners, call toll-free 800-647-1800 or 601-323-5869 or write MFJ Enterpirses, Inc., P.O. Box 494, Mississippi State, MS 39762. If you're using the reader service card, circle number 102.



Austin Metro mobile antenna.

Tri-band Antennas

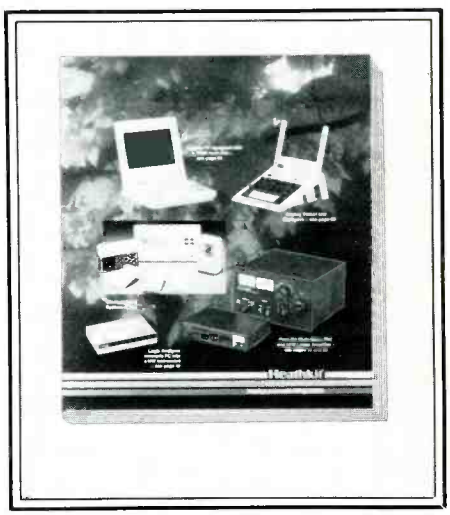
Austin Custom Antenna has come out with two new antennas that can put you on the three most active repeater bands—2M/1.25M/70CM. Both are easy to install and have patent-applied-for internal technology.

The Austin Suburban fixed antenna functions as a halfwave vertical on each band with low SWR, no radials, using a single cable. It is a simple five-foot staff antenna and all you need to do is to connect the PL-259 plug of your cable. Included is an aluminum mounting tube for U-bolt attachments to brackets or chimney strap.

The Austin Metro mobile antenna is a single 15-inch antenna, that comes with or without a magnet mount for the roof of your car. It functions as a low SWR quarterwave vertical on 2M and 1.25M, and a three-quarterwave on 70CM.

The cost of the fixed antenna is $69.95. The mobile antenna is $62.45 including magnet. Include $4.50 postage and handling for each. Contact Ed Noll, W3FQJ, Sales Representative, Austin Custom Antenna, P.O. Box 75, Chalfont, PA 18914, or circle number 101 on the reader service card.

Austin Suburban fixed antenna.



1987 Fall Heathkit Catalog

Heath's full color Fall '87 Catalog features an outstanding collection of electronic kit products and an assortment of new product additions. New products include Analog and Digital Educational Trainers and accessories, and Amateur Radio gear.

Heath's new ET-3600 Analog Trainer and ET-3700 Digital Trainer are versatile experimental and design tools. The ET-

3600 Analog Trainer is used to build, analyze, test and modify electronic circuits as well as to increase a user's experience in practical electronic circuit design.

New Amateur Radio equipment includes the SB-1000 Linear Amplifier and HK-232 Pack-Kit Multi-Mode TNC. Designed to operate at 1000 watts PEP output on SSB or 850 watts output on CW and 500 wats RTTY, the Linear Amplifier covers Amateur bands from 160 to 15 meters including WARC and most MARS bands. The versatile HK-232 Multi-Mode TNC works on CW, RTTY, ASCII, AMTOR, and HF and VHF Packet. It even decodes weather facsimile pictures onto an Epson or compatible printer. The Pack-Kit connects to a computer or terminal through a standard RS-232 port. The HK-232 also includes a complete operational manual outlining multi-mode TNC operation and hook-up connections for most popular HF and VHF radios.

Heath offers a wide assortment of quality products and accessories in addition to the fine variety of new products highlighted throughout the colorful, new Fall 1987 Heathkit Catalog. To receive a FREE copy, write to Heath Company, Dept. 150-985, Benton Harbor, MI 49022. In Canada, write to Heath Company, 1020 Islington Ave., Dept. 3100, Toronto, Ontario, M8Z 5Z3. Free catalogs are also available at Heath/Zenith Computers and Electronics Centers in the U.S. and Canada. You can also circle reader service number 103.

Personal Protection Products

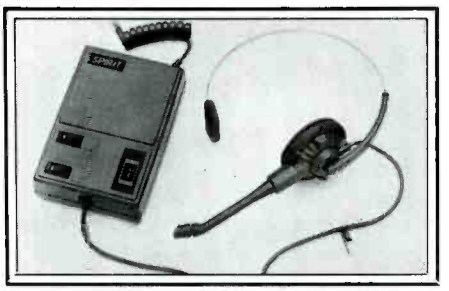
Personal Protection Products Corp., a leading manufacturer and designer of security and electronic surveillance equipment, has opened a branch office at 405 Park Avenue, New York City. The telephone is: (212) 421-4757.

The New York office/showroom will offer a complete line of products—counter-surveillance, audio and telephone-monitoring equipment, communication and investigative aids, optical/video surveillance systems, night vision, bullet-proof vests, bomb control and personal protection—to name a few—in addition to providing demonstration, training and service instruction.

"We have expanded our international market by opening a branch in New York City," stated Damian Krause, President. "Personal Protection Products can cater specifically to the security needs of the American business executive."

Headquartered in Hamburg, Germany, the company has provided sophisticated defense systems and products to protect international businesses, governments/embassies and individuals from serious criminal activities for over 20 years. All the branch offices offer substantial experience and technical competence in their products.

Printed here is a photograph of one of the many unique devices from the P3 catalog. The highly-sophisticated "Wrist-Watch Camera" enables the wearer to take photographs unobtrusively, yet doubles as a fully-operational watch! For more info, use the address above, or circle reader service card number 105.



Hands-free Communication For Multi-line Telephones

Plantronics, Inc. has introduced the Spirit™3—an affordable, lightweight telephone headset designed for use with all multi-line electronic telephones.

Spirit 3 is an addition to Plantronics' new Spirit line of user-installable, "hands-free" communication products for small businesses. Spirit 3's unique technology brings to market a broadly compatible headset that eliminates the hit-and-miss process that often occurs in trying to match a headset with existing multi-line telephone systems.

Spirit 3 consists of a lightweight, adjustable headband, a single foam-cushion receiver that rests gently on the ear, and a battery-powered control unit which plugs easily into the handset port of any multi-line electronic telephone.

The control unit, which sits on the user's desk, contains: a "mute/hold" switch that silences the headset's microphone to let users converse with others in the office without being heard by the caller; a "headset/handset" switch to let the user easily switch back and forth between headset and handset as desired; a "rotary dial" that allows the user to increase or decrease the headset's receive volume.

Spirit 3 may be purchased at independent telephone stores, office products supply houses, mass merchandisers nationwide, and through catalogs. Suggested retail prices is $79.95. For the name of a distributor or local retail outlet, call Plantronics at 1-800-538-0748 (in California, call 1-800-662-3902). Ask for extension #1250. For more information, circle number 104 on the reader service card.

BETTER SIGNALS

ANTENNAS AND SIGNAL IMPROVING ACCESSORIES

BY ED NOLL W3FQJ

Effective Use Of Active Antennas

Is there a place for active antennas? Apartments, condominiums, high-rises, restricted residential areas and small lots are ideal spots for installation. Are there other reasons? Maybe you prefer a neat dwelling with no wires or multiple antennas. Maybe you want a rather uniform antenna system sensitivity over a wide span of frequencies. Good average all-band reception may be more important to you than results on a certain band or several bands.

Around the corner is there a super active antenna that will be good from 100 kHz to better than 1000 MHz? Today, you can do with two, one for the segment between 100 kHz and 30 MHz and a second to handle the chore from 30 MHz to 1000 MHz. A typical LF/MF/HF active antenna covers a frequency span from 100-200 kHz at the low-frequency end up to its high-frequency limit somewhere between 30-50 MHz. The physical length of such an antenna is very short in comparison to the wavelength of the signals being received. Received signal level is quite weak and these signals are applied directly to an amplifier at its base.

The antenna mounted preamplifier has an advantage. The signal is built up in level before it is applied to the transmission line and starts its way down to the receiver. In this way, the effect of noise pick up on the line is reduced and the signal arrives at the receiver with a better signal-to-noise ratio (S/N). Keeping the signal as far above noise level as possible is a big help in IDing and listening to weak signals.

The antenna itself picks up noise and atmospherics, which are amplified along with the signal. This fact indicates a better S/N ratio overall can be obtained if you mount the active antenna in the clear and away from noise sources.

Atmospherics caused by weather conditions at the low end of the HF band, BCB, and LW spectrum must be taken as it comes. If you can mount the antenna outdoors and in the clear, then that is great, Fig. 1. Active antennas don't require much space and they do a commendable job indoors, Fig. 2.

Another advantage of the active antenna is its constant and low output impedance of 50-70 ohms over its bandwidth. Mismatch losses are avoided and there is a precise match between the output of the preamplifier and the input of the receiver.

The West German Dressler ara-3 active antenna made available by Gilfer has a total length of only 36.5" including the container for the amplifier. Its frequency response extends between 200 kHz and 30 MHz with an amplifier gain of 10 dB. However, acceptable pickup at less gain extends below 200 kHz and above 30 MHz. I can copy several lowfers in the 160-190 kHz band and two-way radio signals at an acceptable level in the 30-50 LO VHF band on the scanner.

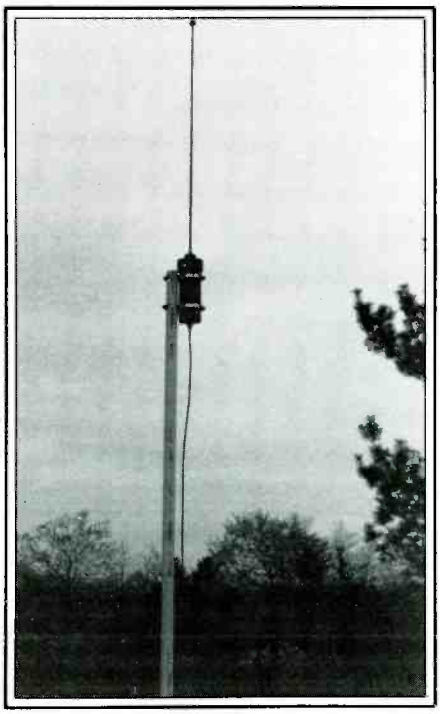


Figure 1: Dressler ara-30 mounted outdoors.

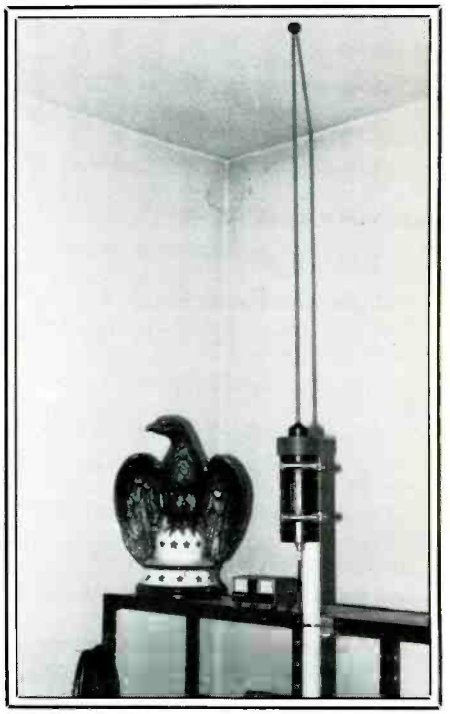


Figure 2: Indoor mount on equipment rack.

The power required is 11-15 volts DC at 100-140mA. This power is supplied to the amplifier over the signal coaxial cable. Just ahead of the receiver there is a small insert box to which the incoming line is attached. The coaxial cable that is already attached to this box connects to the receiver input. A second two-conductor line also comes out of the box and goes to the power supply which plugs into the AC line. The power supply is very small and is similar in appearance to those used to charge the batteries of many battery-operated appliances found about the house.

The active antenna performs well over its entire 200 kHz-30 MHz range, a big slice of frequency for such a small antenna. Some signals and noises come into the receiver at high signal level and you must learn to use your receiver RF attenuator and/or RF gain control with wisdom to obtain the best S/N, thereby obtaining the most listenable reception. When you over-

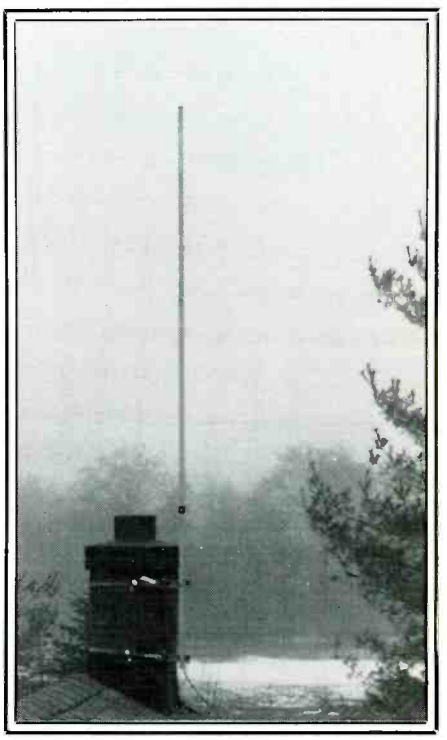


Figure 3: Austin "ferret" operated with a base preamplifier covers 30-1300 MHz spectrum.

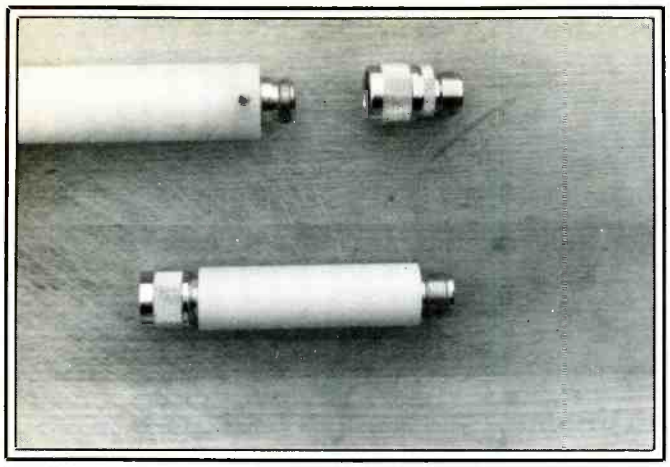


Figure 4: N to PL-258 adaptor and base-mounted preamplifier.

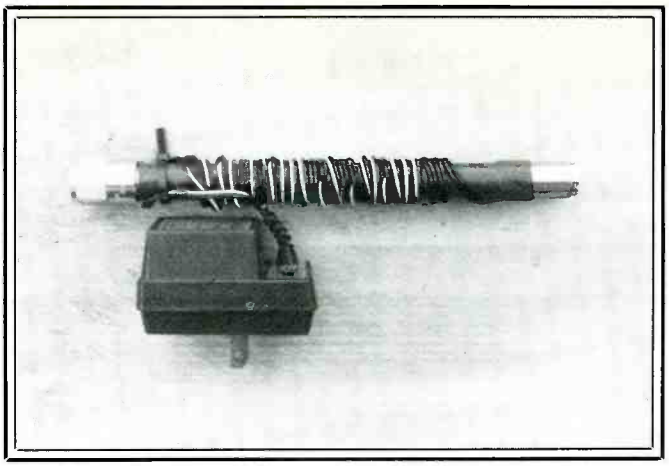


Figure 5: Device for applying power to preamplifier via coaxial line.

load the receiver input you generate more noise—so take it easy. The maximum RF gain setting does help when the incoming signal is very weak but not tormented by excessive noise or atmospherics.

An active antenna on an average basis does just about the same as the usual longwire antenna at the same height. Such results vary up and down as the impedance and pickup of the longwire varies up and down with frequency. In one check, a Delta loop cut for the 31 meter band was compared with the active antenna at the same height and came out better. However, just the opposite results were obtained on 25 and 41 meters. This demonstrates the more uniform response of the active antenna with relation to an antenna which was peaked specifically for operation on 31 meters.

Similar results were obtained by comparison with a reference vertical that used a tapped base loading coil. The tuned vertical could do well band by band, but not on a broad band reception capability as compared to the active antenna. The results *were not* based entirely on the S-meter reading but rather the *reception clarity* as related to the listenable S/N ratio. When using an active antenna always search for the RF attenuator setting that gives you a clean reproduction as clear of annoying noise and interference as possible.

The use of an active antenna immediately adjacent to the broadcast band can be a problem. It stems from the inability of many sensitive receivers to handle the extremely strong broadcast signals without overload, even though the receiver is not being tuned to the broadcast band. Such overload results in the production of unwanted signal components that can be heard above and below BCB band. Below the broadcast

band, the problem was solved by the use of a Grove TUN-3 tuner that tunes down through the LW bands. It is connected between the cable from the active antenna and the receiver input.

A special warning is in order. Whenever you connect devices into the active antenna cabling DO NOT insert units that place a DC short on the output of the active antenna because it can damage the power circuits that supply voltage to the pre-amplifier.

Turn off amplifier when making cable changes. A tuner peaks the incoming signal on the LW band, and simultaneously, its off-frequency attenuation lowers the level of the BCB signals before they reach the receiver input.

The unwanted signal components above the broadcast band are more troublesome in the approximate frequency range between 1.6-3.2 MHz. Some are harmonics generated by BCB transmitters. Tuners are of no help in fending off such a signal that could be on the same frequency as a weak DX signal you are trying to copy. Other components that are a result of broadcast band overload can be cut back with a tuner, although not as well as on the low frequency side of the BCB bands. The problem above is in no way a fault of the active antenna except that its amplifier raises the level of the BCB components that come down to the receiver. A very long BCB broadcast antenna, being more sensitive on the BCB frequencies, will also cause these components to appear immediately above and below the broadcast band frequencies.

Active antennas are effective, require little space and are easy to install. You will soon catch on to using them to your advantage.

VHF/UHF Active Antenna

The active antenna for VHF/UHF application is, at once, similar to and different from its lower-frequency counterpart. At these high frequencies the physical length of the antenna does not differ too much from the wavelength of signals to be received. Often the length corresponds to a quarter-wave or a halfwave at the lowest frequency to be received. Most unusual is the Austin "ferret," Fig. 3, which is a multi-resonant affair. It covers the frequency spectrum between 30-1300 MHz. Resonant points for a scanner version of this antenna are 40, 122, 155, 310, 465, 865 and 1280 MHz. However, with a preamplifier in place an essentially uniform sensitivity is displayed over its entire frequency range.

The preamplifier improves the sensitivity and the S/N ratio of the antenna system over its entire bandwidth. As in the case of the low-frequency active antenna, the signal level is built up before it goes down the coaxial line to the receiver. This is a definite advantage because of the much greater line attenuation at the high frequencies. Of course it also helps maintain a higher S/N ratio when such a line must be located in a noisy location where there is the possibility of line pickup. Also, the amplifier has a constant low-impedance output over the antenna bandwidth minimizing mismatch loss.

The "ferret" can be used without an amplifier for receive-only or transmit/receive operation on its resonant bands. An N-connector is mounted in its base to permit the use of low-loss N fittings which are preferred in the frequency ranges above 500 MHz. However, an adaptor can be used to change over to a PL-258 plug for lower frequency operation only as shown at the top of Fig. 4.

Shown at the bottom of Fig. 4 is a sealed plastic cylinder which serves as a mount for the preamplifier. There is an N fitting at its antenna end and an SO239 at the other end for cable connection. A similar feed-through arrangement at the other end of the cable permits insertion of DC voltage for operating the preamplifier, Fig. 5.

The preamplifier builds up the level of signal intercepted by a complete antenna and not an undersized one. The signal delivered to the receiver can be quite high. There is the possibility of receiver overload. Consequently, a voltage control is a part of the power supply and can be used to reduce amplifier gain if overload becomes a problem.

Active antennas are likely to become commonplace because so many radio listeners live where there is no accommodation for multiple antennas or the erection of antennas that require considerable space. A stronger signal is delivered to the receiver. They can improve the operating sensitivity of the receiver installation and can be especially helpful when the receiver might be an older model or one with limited sensitivity.

For more info, you may contact the following: PC

Austin Custom Antenna
P.O. Box 357
Sandown, NH 03873

Gilfer Associates
52 Park Ave.
Park Ridge, NJ 07656

Grove Enterprises
P.O. Box 98
Brasstown, NC 28902

THE HAM COLUMN

DAVE NEWKIRK, AK7M
AMERICAN RADIO RELAY LEAGUE HQ

GETTING STARTED AS A RADIO AMATEUR

Hamfests—And A Farewell

Last month's discussion of micro handheld Ham transceivers was triggered by a near brush with disaster on Interstate 84—but the hope of playing tag with high-speed traffic sure as heck wasn't why Mary, Steve and I had hit the New Hampshire trail. The object of the trip? Radio (fun), looking at radios (more fun), *buying* radios (even more fun) and rubbing elbows with thousands of *other* people buying, selling and talking about radios! In a nutshell, that's the Hosstraders flea market at Deerfield, New Hampshire. It happens every Spring and Fall.

You've probably already heard Hams refer to such gatherings as *Hamfests*, short for Ham Festival. Don't be hornswoggled by this misnomer. I see more scanners, SWL's and computer folk at every Hamfest I attend. They're catching onto the fact that every Hamfest is also a *communicationfest*—a place where people interested in electronic communication of all kinds can meet to buy, sell, eat, swap, gab and hang out.

These days, my "thing" is Amateur Radio history—and I picked up quite a hunk of history for twelve clams at the Deerfield flea market: a foot-high stack of *Radio* magazines from 1936-1940. (Those spirited issues of *Radio* were the forerunners of *POP'COMM*'s sister Ham publication, *CQ*.) But I don't go to Hamfests just to blow dust off books. It's more a case of almost having to glue my wallet into my pocket to keep myself from going broke on the radio and computer goodies at each 'fest. "Just gonna get a couple boxes of disks," I think, as I enter the gate. Four electrolytic capacitors, a mobile antenna mount, a RTTY-frequencies guide and one Q-multiplier later, I head for the car. Back in through the gate a second time: "Huh—now for those floppies . . . hey, *look* at that Collins 51S-1!" It's not all used books, magazines, surplus parts and secondhand rigs at Hamfests: The larger gatherings draw reps from Ham, CB, computer and electronics stores, and these firms may offer new-equipment goodies at special Hamfest sale prices.

Hamfests aren't limited to buying, selling, yakking, wheeling and dealing, by the way. The Federal Communications Commission no longer administers Amateur Radio examinations—*Hams* do! Any many Ham examinations, from the entry-level Novice Class ticket right on up through Extra, are routinely given at Hamfests by Ham volunteer examiners. (If you pass, you can celebrate by buying a rig; if you fail, you can *console* yourself by buying a rig. It's a great system!)

I've keyed into Hamfests here by talking about Deerfield, but you can find Hamfests and flea markets, big and small, everywhere. All you need to know is how to find them, and that's easy: Check the Amateur Radio magazines for dates, times and places. *CQ* carries Hamfest news capsules each month in Announcements; *QST* runs 'em in Hamfest Calendar and Coming Conventions; and *Ham Radio* carries Hamfest blurbs in its Flea Market column under "Coming Events." Everything you need to know should be right there, but if it isn't, there's usually a telephone number or address through which you can get more information. Worried that you'll get lost in the local streets once you're in the vicinity of a Hamfest? Many magazine listings show "talk-in" frequencies, usually in the 2-meter (144-148 MHz) and 1¼-meter (220-225 MHz) Ham bands. Punch up these channels on your scanner or handheld, and you'll get driving instructions right from the source. Don't forget 145.555 MHz, commonly used for caravaning and on-site gear-spotting.

When should you get to a Hamfest? *Early*—be sure you're in line *right when the gate opens*. (You're not the *only* one who knows a good deal, and the good stuff moves fast!) Most Hamfests and flea markets start at between 9 or 10 a.m.; the action starts to wind down by noon or so. There'll probably be a nominal entry fee—usually just a couple of bucks. (You have to get there earlier, and pay more, if you're a seller.)

Here's a tactic *not* to use at a Hamfest: "Hmmm, good price, but I'll grab a hot dog first." That bargain will be history by the time you return. Procrastination *can* work for you, though. Many sellers would rather lower a price than haul a "boat anchor" 75 miles back home. As the clock edges toward closing time, wax wistful about how you're *sure* you could take that gear off his hands *if only* the price would come down another ten dollars. . . . PC

From page 77 of January 1932 QST, *here's the ad that started it all.*

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Let us have a moment of silence for Arthur A. Collins, who died on February 25, 1987, at the age of 77. Who among us *hasn't* at least dreamed of owning—or just using—a piece of Collins radio gear from *any* era? Without Art's life, drive and genius, those radios would never have existed.

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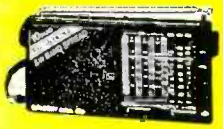

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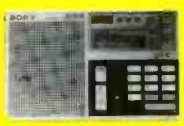

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CK-70: DC kit for VDC operation
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CB SCENE

27 MHz COMMUNICATIONS ACTIVITIES

BY BILL SANDERS, SSB-295

First Reactions

Initial response to the inclusion of *CB Scene* in *POP'COMM* has been wide ranging. Three readers thought it was an awful idea, five readers were luke warm, one reader would have preferred a computer column instead—but thusfar more than one hundred letters and cards have arrived from readers who mostly told us that *CB Scene* was not only long overdue, but was a welcome addition to *POP'COMM* that will serve a useful purpose.

The first batch of letters we received also brought in many questions from 27 MHz devotees. So, for starters, let's get to the ones that were most generally representative of those that came in.

Brad S. Carson, of South Miami, FL throws out the very first ball of the series by complaining that in the first *CB Scene* column I didn't tell anything about my background in CB and qualifications to tackle a column of this nature. It's a reasonable question!

I've been active on 27 MHz since 1965. For five years, I conducted a monthly magazine column on 27 MHz activities and operation. That column appeared in *CB Radio/S9*. The identification letters "SSB-295" that I use reflect my affiliation with the SSB Network—since 1964, the nation's largest and oldest group of 27 MHz SSB operators. I hope that my credentials are in order!

Next, a semi-technical question. This is right up my alley because my semi-technical answers to questions never fail to annoy purists. Jose, SSB-311A, of Jersey City, NJ says he heard that there's a better way of getting maximum performance from a CB antenna than by using an SWR meter when tuning up. Since most folks think that an SWR bridge is the ultimate antenna evaluation pronouncement machine, Jose asks if such talk is sheer blasphemy.

You didn't give me much to go on, Jose, but one way that's popular is worrying less about the SWR than about the maximum signal output—after all, maximum signal strength is what it's all about. The idea is that maximum signal output doesn't necessarily coincide with the point in the tune-up having minimum SWR. So, try tuning up by checking your outgoing signal on a field strength meter (FSM) placed near the antenna. Trim the antenna's radiating element in ¼-inch steps (or turn the tuning screw) until you get the best reading on the FSM. Regardless of SWR, that's your point of best signal. So long as the SWR isn't above 3:1, this approach seems viable. Well, anyway, it's another approach.

Marge Andersen of St. Louis, MO reports that several times she has been cordially invited to remove her operations from Channel 16 by operators who tell her that it's a "sideband frequency." She says that the FCC rules don't say anything about such restrictions and she feels that she has every right to use any and all allocated channels. She asks for guidance.

With the exception of Emergency Channel 9, the FCC has never designated specific CB channels for particular purposes or transmission modes; moreover, the agency has denied numerous pleas by CB users to do so. This unfortunate policy has resulted in many problems and no little amount of confusion.

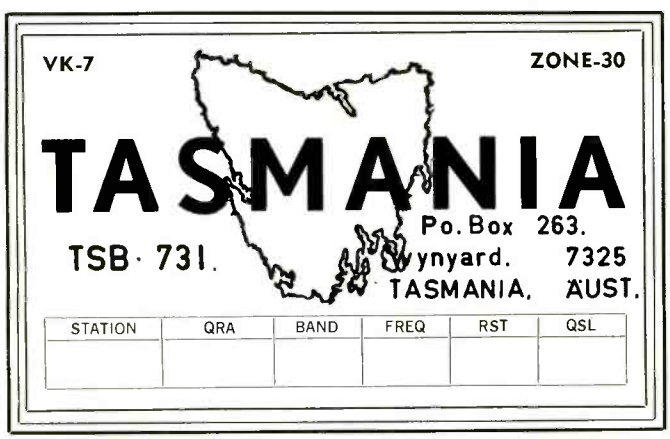
AM and SSB are both authorized for CB use, although both transmission modes are not mutually compatible on the same frequencies. While virtually all SSB mode transceivers can also operate in AM mode, the majority of CB equipment operates only in AM mode. AM and SSB operations on the same local frequencies cause severe interference to one another, although SSB operators can live with AM interference more easily than the other way around.

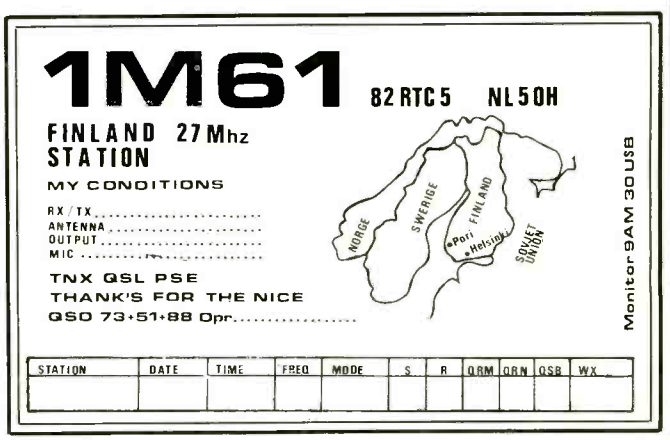
In the absence of FCC stipulated separation of AM and SSB operations, many years ago, SSB operators voluntarily (and on an unofficial basis) agreed to restrict their operations to certain channels, asking AM operators to keep clear of them. This "gentlemen's agreement" (as it is usually called) was more-or-less accepted throughout North America, with SSB operators generally sticking to Channels 16 and 18. When the band was expanded from 23 to 40 channels, SSB operators restricted their operations to the previously used frequencies plus Channels 32 through 40.

For the most part, this works only when and where operators know that it exists, and are willing to abide by the agreement for the benefit of everybody's communications. Some people (such as yourself), don't know about it, although the SSB operator who asked you to vacate the channel should have been more informative. Other operators know about all of this, but are either indifferent or simply rude and uncooperative.

There are no FCC regulations relating to any of this, it would be great if there were. We hope that our readers realize that CB, as a communications service, can work well only within an environment of cooperation and mutual respect. Cooperation and mutual respect haven't always been easy to come by on 27 MHz.

Bob Hattenbach, of Houston, TX asks about CB QSL cards. Noticing that we ran some here from DX stations last month, Bob says he thought working DX stations wasn't allowed on 27 MHz.





In the U.S. and Canada, two-way contacts aren't allowed with DX stations on 27 MHz, although not all nations have that restriction. Of course, there isn't any restriction against monitoring DX stations. Also, there are many who violate the regulations by actually working DX stations.

Bob's question, however, relates to CB QSL cards from the viewpoint of their being identical to Ham QSL cards. While inspired by, and obviously similar in appearance and general purpose, to Ham QSL's—CB QSL's have evolved into something quite different.

While the cards may well be used to verify a monitoring report or two-way contact, they are mostly used for swapping, trading, and exchanging between some hobby operators without need for any on-the-air contact. Large clubs exist which are dedicated to swapping CB QSL cards. Some feel that this is a hollow travesty of the traditional exchange of Ham QSL's to confirm contacts, yet the custom has long been an honorable and integral part of the CB hobby scene. Personally, I like 'em and will be using them here in the column from time to time.

A question from M. Y. Minh of Redondo Beach, CA is blunt and to-the-point. He wants to know why, when someone wants to use a CB channel, do they feel the need to say "Breaker, breaker," even if the channel is obviously not in use?

This is a worn-out leftover from CB's "goodbuddy" era of the mid-1970's; it hangs on by an internal energy of its own that just won't quit. Let me note that it's a practice that was (and is) never tolerated by SSB operators, and even AM operators before 1975 would never have had anything to do with such an illogical expression. Many AM'ers, even today, disdain the practice.

It dug itself in very firmly thanks to the spate of popular CB songs (and later movies) that showed up to set many bad examples of what CB was allegedly all about. At least you had the smarts to wonder why it's used; all too many folks just use it as if it were an etched-in-granite law of operation on 27 MHz that must be used at all costs.

Not long ago, I was driving along tuned to Channel 19. The silence was broken by a call of "Breaker, breaker one-nine." I chuckled to myself—this guy was not only asking someone—anyone—to give him permission to talk on his radio, he was also being thoughtful enough to let everybody know what channel we were all on, just in case we forgot.

I didn't answer him; if anybody else was out there, they didn't either. He repeated his transmission many times at intervals of approximately thirty seconds. After eight or ten minutes he started sounding panicky because nobody would tell him it was okay to talk. By then I started feeling sorry for the chap, also I was getting annoyed. This guy would have gone on like this for hours!

Finally, I forced myself to say something that I consider even more idiotic than his "Breaker, breaker one-nine." I said, "Go, breaker." He came back to me, his voice filled with relief. He needed road instructions; where did he have to exit Interstate 70 to get to Thurman?

Had this poor soul simply come on the air, from the start, and asked where to get off at Thurman, I (or someone else) would have come back and told him "Exit 383." As it was, by the time he was granted my unnecessary permission to talk, he was many miles past the exit he needed!

The message is simple: if the channel is apparently or obviously not in use when you have a call to make or a question to ask, then go right ahead and start talking. If, despite this advice, you *still* feel that you require permission—then you have mine in perpetuity!

It's easy. All you do is key up on Channel 19 and say, "Can anybody out there give me some road directions?" or, "Gear Jammer calling Bigfoot," or whatever is on your mind. *Good grief*, let's make it as simple as possible!

Here's to a more sane CB service! PC

INTERNATIONAL
SOUTH EAST ASIA DX QSL CLUB
OF INDONESIA

MONITOR 27.925
LSB & USB

1 SEA 001

Pres. DIDIET SOEHARSO
P.O.Box 73 YKKL
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OFFICIAL CLUB CARD

BROADCAST TOPIX

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

BY MARK MANUCY, W3GMG

How does one build a satellite radio network? In the months ahead, you'll get a guided tour of the newest radio network in the U.S. This tour will be conducted by yours truly, and we'll have ringside seats as the Statesman Communication Network is put together.

Statesman will be the first 24-hour news/talk network providing a walk-away format. A walk-away format is one in which the station operator does not have to be sitting at a console ready to take the next break from the network. The network sends a cue signal which trips equipment in the station to perform the insert for the local station—be it a commercial break or a station ID.

Getting the programming to the uplink in California requires another satellite link from the roof of the building in Silver Spring, MD. The satellite company also provides a return signal to us from California so we can tell how it is being received for transmission to Satcomm 1R, the bird that distributes the network program to the affiliates.

The network was scheduled to go on the air in August, so you may be able to hear it on some stations by now. Tour to continue in the next few months!

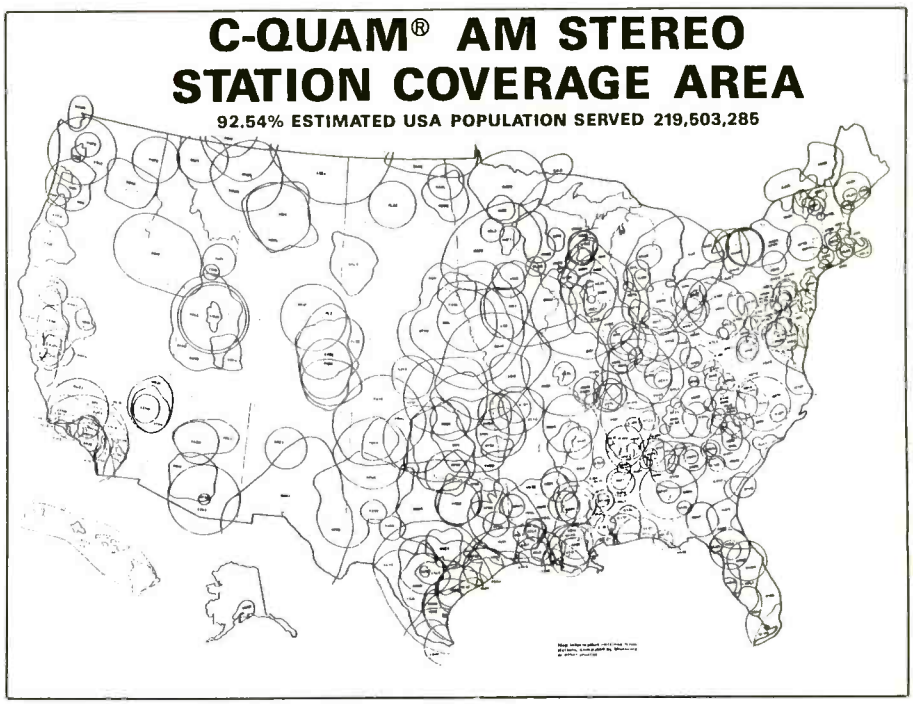
This weekend I was snooping around in an antique or "junque" shop with my bride and ran across a Zenith "wavemagnet" loop antenna. I think I may go back to pick it up. It was in pretty good shape. It stands about 30 inches tall, about 14 to 16 inches wide and maybe 6 inches deep. It is open wire on a rectangular frame with a circular coil offset inside the rectangle. The cardboard cover was still in good shape, too.

On the shelf below was an old Atwater Kent model 55 table radio. This is a radio built into a table. The table needs as much work as the radio probably does. Good thing I enjoy furniture refinishing as well as radio rebuilding. Maybe I can get both the loop and the Atwater for the price of the radio! Although the two items were not made for each other, it might be interesting to compare the Zenith loop with the ones that are available today. I could modify the Zenith loop to be a stand-alone loop without its associated radio. There's no telling what one might find, or where, for BCB DX'ing—stay tuned!

Loop antennas are going to become more and more popular in order for the DX'er to be able to pull any kind of nonsense out of the AM band. The FCC has put a clamp on new daytime stations again, however, they will process full-time (24-hour) applications. The Commission is readying a list now that will allow more power for low-power nighttime operation of existing daytime stations.

At the same time, Cuba has come on the air on 1040 kHz with what is estimated to be 300 kW. Thank goodness they are only operating on the weekends with limited nighttime operation. They're already causing some Florida stations to have fits! If they are on at night, it should be an easy catch, since Cuba is a lot closer than Bonair—we on the eastern seaboard know what PJB does with 500 kW on 800 kHz. The programming is similar to the Radio Moscow programming.

The other Cuban interference is so bad in South Florida that Ernie Lofurna says he's about ready to move back to Philadelphia! Well, between that and the Florida stations now broadcasting exclusively in Spanish, according to one of my friends in the area, the only thing left to listen to on AM is country music or talk shows, and there's not much talk either, except in Spanish. Then again, isn't Spanish the most-spoken language after English? Even Washington has a



Station Update

Call	Location	Freq	Pwr	Ant
AM				
New	Farragut, TN	670	.5/0	NDA
WELD	Fisher, WV	690	2/0	NDA
WSHO	New Orleans, LA	800	1/.29	DA-2
WGUL	Dunedin, FL	860	.2/1.6	DA-1
KFJZ	Fort Worth, TX	870	.5/0	DA-D
New	Gladstone, MO	890	1.5/0	NDA
WBML	Macon, GA	900	2/0	NDA
WCMG	Lawrenceburg, TN	910	.5/0	NDA
KKIC	Boise, ID	950	3.5/0	NDA
New	Hobson City, AL	1120	.5/0	NDA
New	Concord, NH	1140	10/0	NDA
New	Concord, NH	1140	10/0	NDA
WMET	Gaithersburg, MD	1150	1/.8	DA-2
New	Woodville, FL	1160	5/.25	DA-N
KPZE	Anaheim, CA	1190	10/2.5	DA-2
New	Madisonville, TX	1220	.5/0	NDA
WENA	Yauco, PR	1330	2/1	NDA
WNLK	Norwalk, CN	1350	2.5/.5	DA-2
KENN	Farmington, NM	1390	5/1.3	DA-N
WWKM	Harrison, MI	1540	1/0	NDA
WRHC	Coral Gables, FL	1560	50/4.4	DA-2
WSWV	Pennington Gap, VA	1570	2.3/0	NDA
WLIM	Patchogue, NY	1580	10/.5	DA-2
FM				
KAGU	Spokane, WA	88.7	100	-43′
New	Dothan, AL	89.5	5.5	213′
New	Palm City, FL	89.9	100	180′
WCFL	Culpepper, VA	89.9	12	255′
New	Salisbury, MD	90.3	.378	180′
New	Saugatuck, MI	92.7	3.0	236′
WBBO-FM	Forest City, NC	93.3	87.2	2030′
New	Barling, AR	94.5	3.0	193′
KFMN	Lihue, HI	96.9	100	984′
WJLC-FM	South Boston, VA	97.5	100	981′
KDVV	Topeka, KS	100.3	100	985′
WORZ	Daytona Beach, FL	101.9	28.2	1584′
WBIG	Reidsville, NC	102.1	100	1165′
New	King City, CA	102.1	33.2	594′
WDON	Geneva, OH	104.9	3.0	984′
WOCL	Deland, FL	105.9	100	1582′

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

station that broadcasts totally in Spanish. I think there are a couple in New York as well, and of course, there are many along the U.S./Mexican border and in southern California.

The daytime stations that have recently come on the air at night with low power will, for the most part, be applying for up to 500 watts at night over the next year or so and then trying to increase that to the level of their daytime power. Any stations left operating at night with less than 250 watts will not be protected by any additional stations in the future. No doubt the next few years will be quite interesting for nighttime AM radio.

So, if you would like to build a loop antenna, I have plans for box loops, $5.50, and a ferrite loop and preamp for $7.50. My address is at the end of the column.

Call Letters

Apparently, the FCC is not going to allow the mixing of the K and W call letters as they proposed a few months ago. There was an absolute storm of negative response from not only the broadcasters, but from the broadcasting trade as well. The NAB and several audience survey companies were adamant in the opposition to the mixing of the K and W prefixes anywhere in the country.

There must have been very little opposition aimed at the Commission about the addition of low-power nighttime operations on the already clear channels, since the boys in D.C. have been adding many low-power stations across the AM dial. The old squeaky wheel and oil situation.

Anyway, this is pretty good news for DX'ers because it's hard enough to catch call letters as it is. The FCC is allowing multiple city identification with the associated call letters. The biggest problem with this is the station licensed to a suburb of a larger city. Some stations take great liberties with the King's English in making a station ID. Some want to hide their city of license; some even attempt to hide their proper callsign. Although, I'm not accusing these stations of anything they should not be doing, let me use them as examples of what to listen for to get the proper ID. When they say "WTOP, Washington" it may not be as simple as that.

For instance, there is a station that announces their ID with an echo that blurs the entire call. The first letter is at a lower volume, so what you think you hear is "WMX, Baltimore is WMIX." The call letters of the station are actually WWMX—yet on the bus ads and TV ads, all you ever see is WMIX. WMIX is licensed to a station in the city of Mount Vernon, IL. WWMX is in Baltimore.

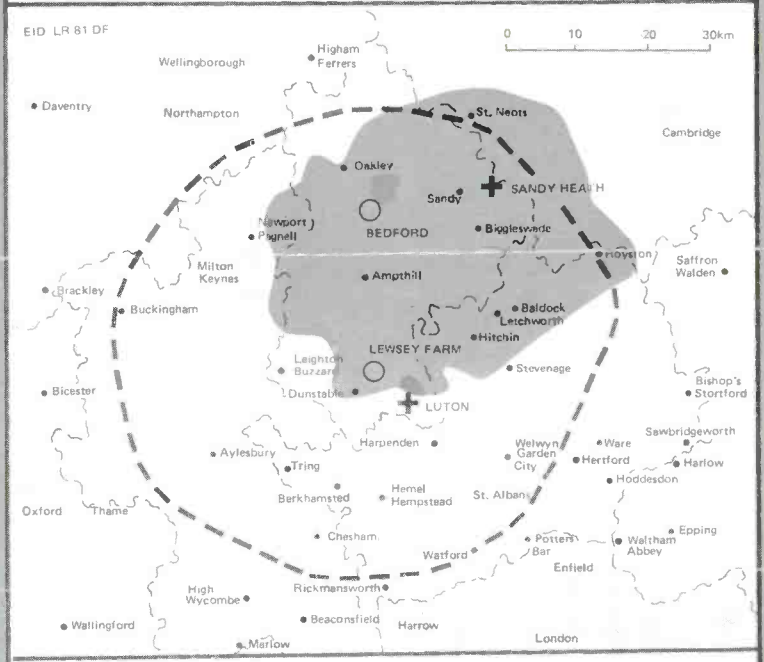
A similar situation exists in Washington. The station ID is announced in what appears to be an echo, so that you think you're hearing "WRC, Washington." When NBC sold WRC, Washington, they did not let the call letters go, so the new owners elected to use the call letters WWRC. However, the only time you hear "WWRC" is when it is required, once an hour—announced as I've described it. The rest of the time it is always "WRC," which is completely normal and acceptable—but confusing. WKBW in Buffalo always called themselves "KB Radio" and not long ago changed their call letters to WWKB! However, does WWRC want us to think they are still WRC, owned by NBC? If you visit the studios of WWRC, on the front door is not WWRC but WRC!

Suburban stations trying to be city stations might do something like WAVA in Arlington, VA: "WAVA, Arlington—Washington's music power station." A completely legal ID, but also confusing because of the

Engineering Information

BBC Radio Bedfordshire

VHF Service			MF Service		
Transmitter	Sandy Heath	Luton	Transmitter	Lewsey Farm (Luton)	Bedford
Frequency	95.5 MHz	103.8 MHz	Frequency	630 kHz	1161 kHz
Polarisation	mixed	mixed	Wavelength	476m	258m
Power (max erp)	1.6 kW	20 W	Power	300 W	80 W
Mean ht of aerial	200m agl 255 aod	33m agl 190m aod	Grid Reference	TL 043241	TL 035464
Grid Reference	TL 204494	TL 081210			



Sandy Heath VHF Service Area — Luton VHF Service Area

MF Daytime Service Area (Night-time MF coverage is more restricted due to interference from other transmitters).

Service Area Boundaries

For VHF: correspond to a field strength of 54 dB (relative to 1 μV/m) in the horizontal plane at a height of 10 metres

For MF: correspond to a field strength of 2 mV/m.

Sensitive radios may work beyond the nominal boundaries.

BBC Engineering Information, Broadcasting House, London W1A 1AA Telephone 01-927 5040

Information Sheet 1982(2)8607

emphasis given to Washington rather than Arlington. In any event, the FCC rule says that the city of license must follow the call letters. Should a station choose to use multiple cities in the ID, which they may, then the city of license must be the first city mentioned following the call letters. So, when you hear something unusual now, you know how to handle it.

Paul Herzog from London, England, sent me a coverage map of BBC Radio Bedfordshire. Take a few minutes to study the different way the British have of allocating stations. First, rather than a "coverage map," the sheet is called "Engineering Information." The Bedford area is just northwest of London and both AM transmitters, according to the map, have the same, or about the same, coverage even though the power and frequency of each is quite different. The AM coverage is not circular and it is obvious that the Bedford AM service is not as great as the Lewsey Farm service. The VHF service, which we call FM, is shown differently than the two MF stations. Notice the BBC uses MF rather than MW or BC band as is done elsewhere. As is the case in the States, the MW service is also more restricted at night.

Our "down under" letter this month is from Mark Barrow, who is seeking info about the R-70/71A. I have already mailed the modification instructions to him. For those of you who have receivers that have not been modified by a professional company, and are able to handle a soldering iron, I have modifications plans to improve the RF front end below 1600 kHz. It is a two-part mod, one of which is very simple, yet it

Call Letter Changes

Location	Old	New
AM Stations		
Fayette, AL	WWWF	WLDX
Kenai, AK	KKEN	KKNY
Rancho Cordova, CA	New	KMCE
Fort Pierce, FL	WFTP	WDKC
Hialeah, FL	WTIW	WRFM
Jacksonville, FL	WKTZ	WJAX
West Palm Beach, FL	WXAM	WQXY
Jacksonville, FL	WJAX	WAPE
McCall, ID	KMCL	KZID
Oak Park, IL	WBMX	WPNA
Clinton, IA	KLNT	KCLN
Radcliff, KY	WYCP	WHOO
Newburyport, MA	WCEA	WNCG
Camdenton, MO	KCZQ	KADI
East Helena, MT	New	KBHG
Reno, NV	KBET	KRCV
Rochester, NY	WPXY	WAHV
Eden, NC	WCBX	WWMO
Knoxville, TN	WBMK	WEMG
Brentwood, TN	WWCR	WYOR
Lufkin, TX	KLN	KNOW
Madisonville, TX	New	KMVL
Washington, UT	KCLG	KONY
Garrisonville, VA	New	WRFS
FM Stations		
Birmingham, AL	New	WBFR
Palmer, AK	New	KUZN
Phoenix, AZ	New	KPHF
Homestead, FL	WRFW	WXDJ
Jacksonville, FL	WGBF-FM	WZZG
Tallahassee, FL	New	WVFS
Forsythe, GA	WFNE	WIBB-FM
Lihue, HI	New	KFMN
Nampa, ID	KFML	KLCI
Clinton, IA	KNJY	KCLN-FM
Lafayette, LA	New	KSJY
York Center, ME	WQML	WQMI
Morningside, MD	WCLY	WPGC-FM
West Yarmouth, MA	WJFK	WOCB-FM
Saugatuck, MI	New	WEVS
Owensville, MO	KWCC	KZBR
Desota, MO	New	KOLS
Knob Noster, MO	KLUK	KSAF
St. Louis, MO	KTAD	KDHX
Ely, NV	New	KELY-FM
Mesilia Park, NM	KOPE	KMVR
Hickory, NC	WHKY-FM	WRRX
Geneva, OH	New	WDON
Durant, OK	KAFM	KLAK
Reedsport, OR	New	KSYD
Sutherlin, OR	KSTD	KSRL
Nanticoke, PA	New	WSFX
Muncy, PA	WTPS-FM	WHTO
Hilton Head Island, SC	New	WLOW
Hilton Head Island, SC	New	WTOI
Alcoa, TN	New	WYLV
Lamesa, TX	KRTX	KLSC
Denison, TX	KLAK	KMKT-FM
Culpepper, VA	New	WCFL
Alexandria, VA	WCPT	WPRD
South Boston, VA	WJLC-FM	WQOK
Park Falls, WI	New	WHBM-FM

makes a big difference. A second mod for the R-70 only, makes the AM mode capable of using the SB filter. The R-71 has this built in. The modification plans are $2.50.

To wrap up this month's column, are some questions from Des Brommage in Canada. He has recently purchased the Sony 2010 and wants to try for some trans-Atlantic DX. He thinks an external loop might be the answer and he could be right. But first, try for some "in-between" stuff like 825 kHz and then 1610 kHz to "sharpen" your DX skills. A few months ago, an article in *POP' COMM* called *DXing Across The Ponds*, gave some frequencies you should try to hear first. They are the higher power stations on frequencies that are easier to separate from stateside signals. In other words, they are not on the same channel as North American stations. The rest of the world uses 9 kHz spacing between MW channels while we use 10 kWz. That is the reason for the ability on the Sony 2010 to change the channel tuning on MW between 9 or 10 kHz. By switching the 2010 to the 9 kHz spacing, it would also be easier to scan the European frequencies. The external loop might help reject some interference, rather than pull in the distant signals.

Well, until next time, keep the headphones warm. Address all correspondence—and please send pictures—to P.O. Box 5624, Baltimore, MD 21210. PC

SATELLITE VIEW

BY DONALD DICKERSON, N9CUE

INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

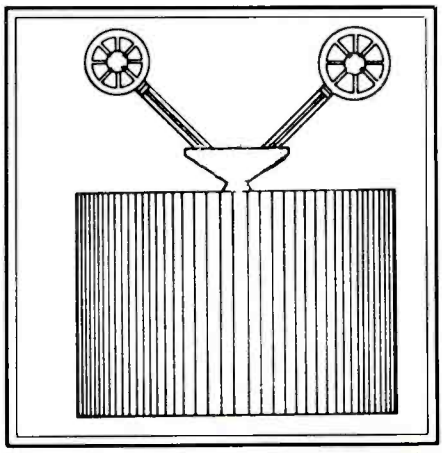
AMSTAR

A New Concept In Personal Communications

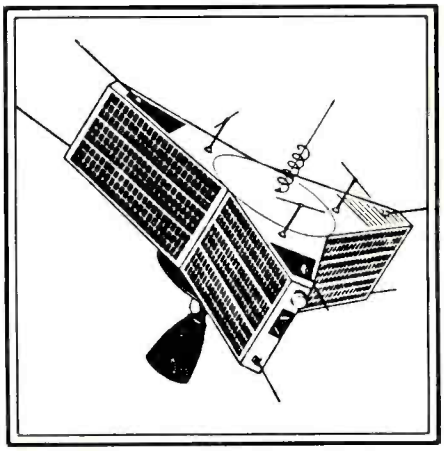
If you have ever considered getting an Amateur Radio Operators license, wait no longer. Not only have Novice and Technician class Hams received new voice and data privileges on HF and VHF, but in a few short years we will see a totally new concept in satellite communications implimented by the Amateur Radio community.

Imagine sitting in your favorite living room chair, with your 2 meter HT (handitalkie) in hand talking via satellite to your friend in France, who is also sitting in his favorite living room chair, 2 meter HT in hand. Our next generation Amateur satellites will require nothing more in the way of equipment to operate. Any standard 2 meter FM transceiver will give you access to the world. Even if you have no intention of getting a Ham ticket, this new satellite system will allow you to monitor both sides of the Amateur's conversation on your scanner, provided it covers the 2 meter band, of course.

The AMSTAR satellite system, when completed, will consist of two geo-stationary satellites, tenatively located at 46°W longitude and 145° W longitude. There is also the possibility that the two satellites can be cross-linked. This would double the coverage area and therefore the range of the satellites. Crosslinked, they could provide 14-hour communications for two-thirds of the Earth's surface.



The tentative configuration of the AMSTAR spacecraft is similar to military comsats.



AMSAT's next satellite will be of Tri-Star design and will be launched in 1988 on an Ariane launch vehicle.

Gateway

The key to this "user friendly" satellite system is a network of 24 ground stations. This nation-wide network calls for two stations to be located in each of the continental 48 states. These stations will work as an interface between the FM signal of your station and the SSB (or ACSSB) mode used by the satellites. Amateur Radio satellites all use SSB on voice mode. ACSSB (Amplitude Compandered Single Side Band) is a new, narrower voice mode than standard SSB. Its use would allow more stations to use the satellite at the same time. ACSSB just may be the mode used by the AMSTAR satellites.

The Gateway ground stations will take an FM signal and convert it to ACSSB and transmit it to the satellite. The satellite will relay it to all ground stations in its target area. The receiving ground stations will have to reverse the process used to transmit the signal to the satellite, converting the ACSSB signal from the satellite into FM by the ground station for rebroadcast.

The Spacecraft

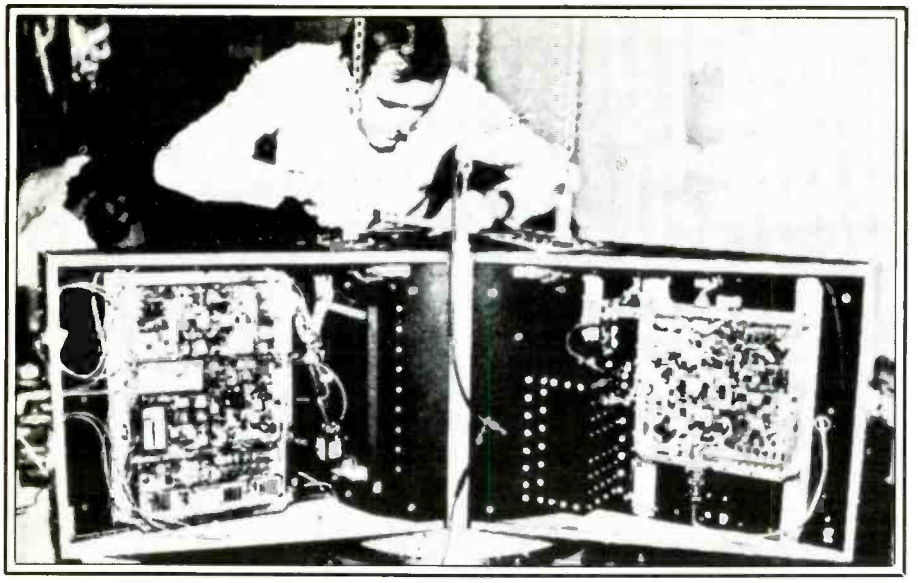
The AMSTAR satellites will be a totally new design for an Amateur Radio satellite. They will not look at all like the present Tri-star spacecraft. AMSTAR will be cylindrical with despun antennas. This will give the satellite the appearance of a scaled down DSCS III or Lesat spacecraft.

Each of the two satellites will carry four transponders. They will be capable of operating in ACSSB, SSB, CW, data and one-way emergency broadcast. The frequency bands are as follows:

AMSAT Satellite Net Schedule

Net Name	Day/Time (UTC)	Freq	NCS
AMSAT Espanol	Sunday 1900	14180	XE1TU
AMSAT International	Sunday 1800	14282	Several
AMSAT International	Sunday 1900	21280	Several
AMSAT European 20m	Saturday 1000	14280	PA0DLO
AMSAT UK 80m	Sunday 1000	3780	G3RWL
AMSAT Asia/Pacific	Sunday 1100	14305	JA1ANG
AMSAT South Pacific	Saturday 2200	28878	W6CG
AMSAT South Africa	Sunday 0900	14280	ZS1BI
SEASAT	Sunday 1300	7280	WB4ZXS
East Coast 75m	Wednesday 0200	3850	Several
Mid-America 75m	Wednesday 0300	3850	W0CY
West Coast 75m	Wednesday 0400	3850	W6CG
Australian AMSAT	Sunday 1000	3680	VK3ACR
New Zealand V.U.S.	Wednesday 0800	3850	ZL1BQ
VHF Nets			
New York City 2m	Wednesday 0300	144.400	K3JNZ/2 (ssb)
AMSAT Goddard	Wednesday 0200	146.835	Several[1]
Los Angeles 2m	Wednesday 0400	145.775	W6CG (ssb)[2]

[1]This Net is a simulcast on the Goddard FM repeater W3ZM of the East Coast 75m Net. Repeater I/O is 146.235/835 MHz.
[2]This Net is a simulcast of the West Coast 75m Net on SSB.



AMSAT's present satellite OSCAR 10 during assembly in 1983.

B-mode: 435 MHz uplink, 145 MHz downlink

J/L-mode: 145/1260 MHz uplink, 435 MHz downlink

S-mode: 1260 MHz uplink, 2401 MHz downlink

If you have SSB capability you can intercept the satellites direct. If not, you will be able to monitor one of the Gateway stations planned for your state.

AMSAT

The AMSTAR satellite system and the Gateway ground station network is a project of the Radio Amateur Satellite Corporation (AMSAT) which is a non-profit public service and space science organization. It is estimated that the AMSTAR/Gateway system will cost $2 million to complete. This is more than the Amateur Radio community can provide. According to AMSAT President Vern Riportella, negotiations are now taking place with both NASA and ESA to try to put together a funding package for this ambitious project. It will take this kind of cooperation to bring the system into operation on schedule. AMSAT is optimistic.

The Amateur Radio community has been active in space communications since 1961, when OSCAR 1, the first Amateur satellite, was launched. It was not until 1969 that AMSAT was formed to provide long-range planning and leadership on an international scale.

AMSAT presently operates one satellite, OSCAR 10. It was launched in 1983 and placed into a Molniya orbit. (See June 1987 issue for diagram of Molniya orbit.) It uses a B-mode transponder. Mr. Riportella states that a second satellite in this series is ready for launch and is being tested in West Germany. It is scheduled for launch on an Ariane rocket in 1988. This satellite will carry B, J/L and S mode transponders and be placed into Molniya orbit.

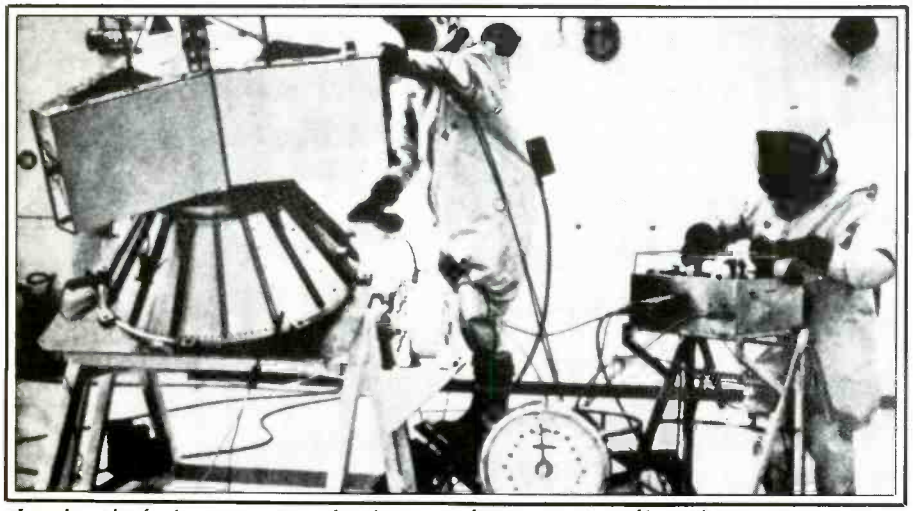
AMSAT membership is open to the public. They draw their members from a wide range of space enthusiasts—scientists, engineers, Amateur Radio operators, SWL's and others. AMSAT publishes a bi-weekly newsletter called the *Amateur Satellite Report* which is included in a $24 dollar membership fee. AMSAT also conducts a weekly satellite net on the Amateur Radio bands. They discuss and answer questions, and give tracking details on all operational Amateur Radio satellites. They also have a wide variety of books, instructional materials, and tracking aids. The AMSAT software exchange handles 26 programs for the tracking satellites. They have software for everything from an IBM-PC to a Sinclair.

On Saturday, November the 7th, AMSAT will hold its 5th Annual Space Symposium in the Southfield, Michigan Hilton. The guest speaker will be Dr. Toni England (W0ORE). Dr. England is a NASA astronaut and the most recent Amateur Radio operator to broadcast from the space shuttle. Here's where to write for more information:

AMSAT Symposium
P.O. Box 1091
Ann Arbor, MI 48109

AMSAT Headquarters
P.O. Box 27
Washington, D.C. 20044
(301) 589-6062

Questions, comments and suggestions should be sent to *Satellite View*, 3796 S. State Ave., Indianapolis, IN 46227. PC



Loading the fuel into a spacecraft is the most dangerous part of launching a satellite. One drop of fuel on the skin is fatal.

Frequency List

AMSTAR/Phase IIIC

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	*435 MHz uplink	2401 MHz downlink
DATA	1260 MHz uplink	435 MHz downlink

**AMSTAR uplink will be 1260 MHz version of S band.*

PHASE IIIC Beacons

General Beacon	145.812/435.650 MHz
Engineering Beacon	145.975/435.675/ 2400.65 MHz

PHASE IIIC is the next satellite in the Oscar series scheduled for launch in 1988.

OSCAR 10 (Phase IIIB)

B-mode	435 MHz uplink, 145 MHz downlink
Beacon	145.810 MHz
Eng. Beacon	145.987 MHz

Amateur Radio Satellite Bands

7.000 to 7.100 MHz
14.000 to 14.250 MHz
21.000 to 21.450 MHz
28.000 to 29.700 MHz
144.000 to 146.000 MHz
435.000 to 436.000 MHz
1245.0 to 1270.9 MHz
2400.0 to 2450.0 MHz
3300.0 to 3500.0 MHz

RTTY

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

BY ROBERT MARGOLIS

Every October, many RTTY monitors get involved in war games. Not with each other, but by tuning to frequencies used by NBA, the U.S. Navy facility at Balboa, Panama, to view the RTTY activity of the annual Inter-American War Games.

These war games, which start around the second week of the month, last for two weeks. They involve NBA and the Naval War Colleges of South American countries. Last year's participants were Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraquay, Peru, Uruguay and Venzuela. NBA usually acts as communications control and relay center.

For starters, tune to 13371.5 kHz, 16194 kHz, and 19616.5 kHz, during the morning and afternoon hours. Other frequencies will be learned from QSY's given during the course of events.

Traffic is devoted to all sorts of stuff, ranging from shellings and sinkings of "enemy" ships, to convoy escort assignments, and to radar and sonar reports. This always is exciting viewing, if war games are your pleasure, and this year will be no different.

After a long absence from 16106 kHz, FPQ, DIPLO, Paris, France, returns with news in French. I came upon DIPLO on this frequency in May at 0130 and viewed the news until an 0500 sign-off. Transmission was at 50/425N.

Unidentifieds Identified Department: CII, listed in May '87 *POP'COMM* at 10474.5 and 14537, is the Canadian Forces station at Shilo, Manitoba. VDD, noted in the April issue at 6826.5, is Canadian Forces Radio, Debert, Nova Scotia. In the same issue, DMK noted at 17518.5 is MFA, Bonn, FRG. Thanks and a roll of unperforated TTY tape to Rick Matthew of Vancouver, BC, Canada for passing along these ID's.

For your viewing pleasure off of HF radio you need, of course, RTTY and FAX decoding equipment. But now you have to include a TV set! Daryll Symington of Ohio sends us a logging of a slow-scan TV intercept he received recently. It was on 4470.5 kHz at 1815 and featured U.S. Navy MARS station NNN0AJN with its "4X7X SSTV NET." The announcer was an OM. Luckily, Daryll didn't send us a copy of his logging. *POP'COMM* can publish RTTY printouts and FAX charts, but what do you do with video tape cassettes?

If you're an Amateur Radio operator who uses a computer to link up your RTTY station with another operator, you might be thinking of using packet radio to send error-free data communications.

To help you learn about the system, Kantronics Inc. has published *Introduction to Packet Radio: A Newcomer's Guide*. In a question-and-answer format, this 19-page manual tells you what packet radio is, where it can be used, how it is operated, and how to obtain a Federal Communications Commission license for it.

Packet radio can be used on any radio frequency that is approved for it by the FCC. Not only will Amateur Radio operators find the system useful, so will law enforcement and fire protection personnel, and persons in the business and industrial sectors. It can be used with HF radio and on the 72 MHz, 150 MHz, 450 MHz and 800 MHz bands.

Order the manual by sending a check for $7.50 to Kantronics Inc., 1202 E. 23rd St., Lawrence, KS 66046.

Advanced Electronic Applications, Inc. has upgraded its packet radio controller to operate remotely, and with macro keys selection and data encryption. The PK-90 Packet Radio Controller includes a host computer control language and an internal 2400-baud modem as an option. For details of this $550 retail price unit, contact AEA at P.O. Box C2160, 2006—196th St. SW, Lynnwood, WA 98036-0918.

First-time contributor Robert LaPorte, whose wife is stationed with the U.S. Army at Okinawa, Japan, sends us an interesting

```
DLTX Y QQRO
A
HOCHIMINHVILLE
09477 HHBBIRI RROEGC8572 PRXWU HKI KIMLIEN 1621 PALODURO
GARLAND TX 75040 X MSGE WAS RETURNED BY U S POSTAL SERVICE X
RAJFU X IF AYTAG, WE WIL CGNCE
J
ANNNNHMMF
ZCZC SHC2;0 SAW3002 GSA0070 MRS42$MS
THZ CN RN PZPPZ
GDALLASTX 6 QQRP
A
HECHIMINHVILLE
POPR HHC789 HKR
TWW W SGA7434 PRXWU DUONGDUNG 400 W BARKER APT 2
FULLERTON CA 92632 X MSGE WGS RETURNED BY U S POSTAL SERVICE X
REKEG X IF AYTAG, WE WILL CANCEL
```

The climate of current U.S.-Vietnamese relations appears evident in these messages from PTT, Ho Chi Minh Ville, Vietnam, to SDU 9, STA, Stockholm, Sweden. These were logged on 18295 kHz at 1625, TDM 96/425. (From the collection of Robert Margolis)

```
   DAS KOMMANDO DER AMERIKANISCHEN ARMEE, DER SEESTREITSRAEFTE
UND DER LUFTSTREITKRAEFTE HAT DIE AUFGABE, SONDEROPERATIONEN DER
OPEGATIVEN GRUPPE IN EUROPA UNTER EINSATZ VON CHEMISCMEN UND
BIOLOGISCHEN WAFFEN ZU UNTERSTUETZEN. DER OBERBEFEHLSHABER, DER
DERARTIGE SONDEROPERATIONEN LEITET, IST BERECHTIGT, CHEMISCHE
UND BAKTERIOLOGISCHE WAFFEN SOGAR OHNE KONSULTATIONEN MIT DEN
KVTRBUENDETEN IN DER NATO EINZUSDTZEN.
   IN DIESEM ZUSAMMENHANG HABEN DIE EUROPAEER DAS RECHT. VON
DEN USA UEBERZEUGENDE BEWEISE ZU VERLANGEN, DASS
EURØPAEÆEÆNE DEN AMERIKANISCHEN STUETZPUNKTEN IN
EINSATZBEREITEN CHEMISCHEN UND BAKTERIOLOGISCHEN WAFFEN UND
KEINE ENTSPRECHENDEN TRAEGERMITTEL GCBT,
   B) DIE USA ZU DEN DENKBAR STRENGSTEN KONTROLLEN DER
LABORATORIEN, INSPEKTIONEN VOR ORT EINGESCHLOSSEN, BEREIT SIND,
DIE UNTER VERDACHT STEHEN, DASS DORT BIOLOGISCHE FORSCHUNGEN ZU
MILITAERISCHEN ZWECKEN DURCHGEFUEHRT WERDEN.''
(FOLGT)
OZEAN O
BEITRAEGE DER UDSSR IN CANNES .
M O S K A U .  DER SPIELFILM ''DIE SUEHNE''
ÆBTSØWNEÆ
O
 OMIKNNIL NIL  #') ?  OK  S NASTUKQ?#8. WSEGO SAMOGO HORO&3&9 T
U 73 GB
ÆDNKK ..-
```

This transmission from an unidentified station was logged on 12760 kHz at 1908 UTC, 50/170N. Notice the sign-off in Russian. Listed on this frequency for CW is UFB, Odessa R., USSR. The closest station to this frequency that has a Russian-language broadcast is UTA, Tallinn R., USSR, on 12755 kHz. (From the collection of Robert Margolis)

S S I P - SEKTOR MULTILATERALE
BROJ 3059
12.5.1987. OTVORENI TXT
AMBASADA SFRJ : TIRANA, ALZIR, BRISEL, SOFIJA, BANGUI, PRAG, PARIZ, LIBREVIL, AT
NAN KONAKRI,RIM, BRAZAVIL, BEJRUT, TANANA-
RIVA, BAMAKO, RABAT, VARSAVA, LISABON, BUKUREST, MADRID, BERN, TUNIS, ANKARA, HANOJ, KINSASA , MOSKVA
MOLIMO ZATRAZITE PODRSKU ZA IZBOR DR. I. MARGANA NOTOM SLEDECE SADRZINE:
''..... ET A L'HONNEUR DE PORTER A SA CONNAISSANCE QUE LE GOUVERNEMENT DE LA RSF DE YOUGOSLAVIE A DECIDE DE PRESENTER LA CANDIDATURE DU DP. IVO MARGAN, PRESIDENT DU CONSEIL EXECUTIF DE L' U N E S C O ET ANCIENVICE-PRESIDENT DU CONSE
T EECUTIF
FEDERAL DE LA RSD DE YOUGOSLAVIE, AU POSTE DE DIRECTEUR GENERAL
DE L' U N E S C O. L'ELECTIONAUA TIE PEN
24 ME
SESSION DE LA CONFERENCE GENERALE, EN OCTOBRE 1987.
IL Y A LIEU DE SOULIGNER QUE LA YOUGOSLAVIE A TOUJOURS OEUVRE

Traffic to various Yugoslav embassies from MFA, Belgrade, Yugoslavia, was logged on 18047 kHz at 1440 UTC, 75/425N. (From the collection of Robert Margolis)

Advanced Electronic Applications, Inc.'s PK-90 Packet Radio Controller is used with FM or HF radio to send error-free data between computers from 45 baud to 9600 baud, to up to 10 stations simultaneously. It also may be used, with FCC approval, as a periodic beacon from an unattended packet station.

REPUBLIC OF KENYA

MINISTRY OF TRANSPORT AND COMMUNICATIONS
KENYA METEOROLOGICAL DEPARTMENT
Dagoretti Corner, Ngong Road, P.O. Box 30259, Nairobi, Kenya,
Telephone: 567880/8, Telex: 22208, Cables: "*Weather* Nairobi".

When replying please quote Ref. No. Met/2507/5 Vol.2 (14)
and date

Please address all replies to the Director, Kenya Meteorological Department.
17th February, 1987

Jerry Brumm

USA

Dear Sir

RECEPTION REPORT FROM NAIROBI-METEO

Thank you very much for your reception report of 31st January 1987.

This letter is to confirm to you that the transmission you intercepted on 10th January 1987 with your receiver type R-390A/URR was a weather broadcast from Kenya Meteorological Department on a frequency of 9043 KHz.

This Department operates a broadcast service for weather data on two frequencies i.e. 9043 and 17365 KHz which you may also wish to monitor. We operate on ISB transmitters rated at 6 Kw p-e-p and radiating on quad antennae. The lower sideband of the transmitters caters for the radio teletype data while the upper sideband carries facsimile transmissions. The shift on the signal is ±2 KHz and hence your reception on 9041 KHz.

We also operate a point-to-point circuit with KANO in Nigeria on 17660 KHz which would be interesting for you to monitor. This transmitter is connected to a log periodic antenna for directional purposes.

We would appreciate it if you could send to us more reports on our transmissions in the future.

Wishing you success with your very interesting hobby.

Yours faithfully

P.M. Kimotho
For: DIRECTOR OF METEOROLOGICAL SERVICES

PMK/pan

Jerry Brumm of Illinois received this informative QSL letter from 5YE, Nairobi Meteo, Kenya.

This attractive layout belongs to Richard Gleitz of Pennsylvania. It includes an ICOM IC-R71 receiver, an Info-Tech M-6000 decoder, and Info-Tech M-610 Oscilloscope and a Commodore 128 computer. The video monitor on the left is hooked up to his computer, the one on the right to the RTTY decoder.

RTTY printout from that part of the world and asks for details about it. He copied it on 11175 kHz at 0700 UTC at 50 baud.

Well Bob, it is in Vietnamese and is from Saigon (as seen in the copy), or Ho Chi Minh Ville, if you want to be persnickety about it. It appears to be XVX 11, PTT, Ho Chi Minh Ville, which has a circuit to Paris, France at about this frequency.

He also sends a printout showing a coded message using groups of four letters. I presume the letters are substitutes for numbers and I'll let Don Schimmel, captain of the *Communications Confidential* column, figure out what the transposition is. The letters used are B, C, F, G, J, M, P, U, W, and X. Remember, we're dealing with a foreign alphabet system here. The message was viewed on 3868 kHz at 1300 UTC at 50 baud.

Bob's letter says, "... this is a good place for monitoring. Okinawa has miles of antenna farms pointed at China—all in the HF range. Boy, would I like to hook into those ... P.S. The four-digit numbers are xmitted all over the bands."

Richard Gleitz of Pennsylvania also joins our list of contributors this month. His moni-

toring station shown with this column is quite impressive. He says he is using a computer program that allows him to use his computer as a frequency database and controller for his radio receiver. The program allows him to store up to 1,500 frequencies with pertinent data about each station received.

He has also built an interface between his ICOM IC-R71 receiver and Commodore 128 computer. Both the program and interface are described in an article titled, *Computerized DX'ing*, that appeared in the Oct. 1985 *POP'COMM*. Although the BASIC program and interface was for the Commodore 64 computer, Gleitz says it works equally well with his computer model without modification.

I'm still receiving many letters asking for advice about the use of various computer hardware products for RTTY reception. Again I must state that for complete and accurate answers to such questions you must consult with vendors and manufacturers. All I know about computers is that they're great for writing this column or for playing *Zork*. I do not use a computer for RTTY monitoring, so please don't ask me how it's done. The purpose of this column is to provide you with information about RTTY utility stations and their whereabouts on the HF radio bands.

Will the person who always send me loggings as being from J.M., KY please send me his/her full ID? It's nice to know who our contributors are, and the identity *won't* be published.

Please check your logging material for accuracy and completeness before sending them to me. Incomplete or inaccurate stuff simply can't be used. I have before me a sheet of loggings giving reception times as 2510, 2738, 2743, 2505, 2736, 2453, 2656, etc. Most of the lines under "remarks" are blank, so I have no idea what this person monitored. Since this material is useless to the readers of this column, it will never be used. Sorry.

If it is at all possible, try to be more specific

```
    RSFWV YFT MCFYRFRFY UT&FH(5/?FRFY XBT&KFUDHKDV:3DVY'M
WDVWFQFYLTX';
    F3WTDVYTHV F#ZT TDV3: RDVYTYFY QF3XXBFYV GFHV GTBFBFY
FYXFCS'( GTBFRFY FHF3VY $F#3FR', QFYHFGTBK:3FY (D&DHLBRFY
FHBVRZYTH #DVSTY FQFHDY3FY7 T XTBFYF YFFXFHL3FY'
    LTXGFY #DCFYDY FXFW, DH QF3FXBFYV 0HTHP FYWRFWDFS RFHTDH
FFYL RVYV VBFVF3V T QF3FXBFYV CIFRDV:F3VY RFGTHV FCHFGYLCFY
KDWKDBCYFBYBFHKDDBRFYRFGDV:3FY
(D&DDVHLYTHV CVZT FTV F ADP'CS#YCFY QFXBFBCFY';
    LTXGFY' DV&TDHTW /ZCVFKVY; CF3H BF"FHDVK YF QFYLVGDVC
DVYTWF FCTYF3Y QF3DW KF3HFUDV3Y GFBHVFH$, RF:D&VRDXHFOUTY F?V
QTB;??0??
04CF 87 NNNN
ZE                    M
G
ZCZC BGF001
FHDR5VBX.807 3?KHQ&:$/,
                    VYN FH(T XAJY$'
    CDXRF3DVC QHFBFHVFRD& MVBTHFBDVHYF3F UFOTBFM .MUHFRFY
(TH:MK IFSF:$:TH:DVK F3X THYFUHD QHFGFHFRFK QDLFK' CV
FCQT&ZYYR'F UHFDV SDNFHD3', FHKFHKDVC
/ CV IFH$ SFHD3FRFY GHDSTKYTH, DHDY$ RFGXK TY SFHL, FHBFRFHU
QFYUFCFY$YTHDVC CFHLK FH$FUKV QTB, GTBFRFY GFIBDYFRFY
FB3FYYTHV RD&CVW LHFYW UYFQFBQCFY QTB; YF 3THXBVZ LCDVC / VH
QTHDXVYE THTFYWV IFFHI RFFGTB3FYVY, DHV CKXVY MVYN RFHD& /
CFHL'M THYFUHD CTK FRYFHR /H QHFGFHFRT MVBTHFBDVHYF3F
UFOTBF3VM 1983 CDFRFYV ATBHFHV 169V QFCFHDVC; F3YBT& GFBCDVC
/H THTFYDVC BT&V DVYTWFK LHFCFBVR VHFLFH2DV:3FYE
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News in Russian copied on 13410 kHz at 1306 UTC, 50/425R. The sender is RIF 38, TASS, Moscow, USSR. (From the collection of Robert Margolis)

```
QSL?~~~~~~~~~~~~~~~~~~~~~~~~-333398 DE SAIGUN.

NW..............


   TIN NGAYF 25 XEXIUM


      BAIF GG LYS7 NHOWN MIENF DUATS QUAR VANGFGG.

               ( DDOANF- CAU - THAWNGS, TRAANF- ANH - THIF.

                     LLWONG THANH NIEN XUNG FFNG TPHCM.).


     DUOF- NHOWN- HUAF DUWA TOI VE VOI LYS- NHOWN, MOTJ XA
CUOI DONGF  SUAIF- RAPJ, THUOCJ HUYEN DUYEN- HAIR . TP . HCM
TREN CANHS DUONG MUOIS, NANG CHANG CHANG, ANH EM DWNGF TAY
NHINF, DDO LAF THOI QUEN CUAR NHWNG NGWOIF NHO MONG THANH FO
TIM MOTJ TIN VUI TREN CHUYEN DDO TRWA TREEX TRANGF.
     DUNG NHW TOI NGHE NOIS GG MIENF DUAT NGUNS-CHHAN SS
NAY QUAR LAF MIENF DUAT CUAR TRWNG HWAS HENJ TWONG LAI, DUF THE
DAT THAF KINH RACHJ, SONG CHAWNGF CHITJ, NHWNG DUWOCJ CHIS CAS
TOM OOCS, NHAIS, CUA , CONG NHIEUF VO KEER.
     NHWNG NGAY DAU CHIR CO 80 DDONG CAI TWF NONG TRWONG DWHF
DDOX- HUAF DE VE FIAS BIENR . VOI XAF LAN CHWA 30 MET KHOI NWOC
, VRIF CHUCJ NGHNF TIENF AN. HAI CAWN NHAF 6X20 METS D
S DAU TIEN  TREN DUAT
MUOIS K
UKVMM TWF U
F DDEN 1990 THIEN
NHIEN KHO TANHS VAF KHACS NGHIEP, CO FEF CHUNG TA DDI SUONG SER
TREN CONG DUWONG XAY DWNGJ AY HAY KHONG ?.

     NAWM NAWM THOI GIAN VWA DDU CHO 4 CAWPJ TINH NHAN VWAF
XAY DWNGJ HANHJ FUC NGAY THIJ LAM TRWONG NUOI LON DUWAS CON
DAU LONGF VAF NO HAT NHWNG BAIF HAT DAU DDOI TRONG NHAF TRE
DANG XAY CHT MOI.
     NAWM NHWM TUUI TRE LYS- NHOWN KHONG THE CHAM BWOCS DUE
THOI GIHN LAN MAWIJ, OMPPP KHUON MATJ TRE SE DDEN VOI LYS- NHOWN
NAWM NAY DE VWUTJ QUA CON SO
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This traffic, monitored at Okinawa, Japan, by Robert LaPorte, is in Vietnamese and appears to be from PTT, Ho Chi Minh Ville. Further details appear in this month's column.

about what you've monitored. Generalizations such as "news in Spanish" are fine, but the loggings will be even more interesting if they say something like "news in Spanish about the Pope's visit to Chile . . ."

We now interrupt your viewing of the World Series to bring you the following loggings from some of our many devoted readers:

Abbreviations Used in The RTTY Column

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

RTTY Intercepts
(Settings are Hz/Baud/Polarity)

3781.2: XTU, ASECNA in Ouagadougu, Burkina Faso coming thru Ham QRM w/tfc to Niamey, Niger. Was TDM 96/425 at 0250 (Fred Hetherington, FL). Burkina Faso is ex-Upper Volta-- although the "WANG" computer commercials on TV still talk about Upper Volta! -- Ed.

4101.5: "UBDAD," location unknown, w/RYRY & foxes, 50R at 1215 (Peter T., England). As previously noted here, UBD has been ID'd as being a prefix used by Territorial Army Units-- Ed.

4174: ELAS8, the Liberian bulk carrier **African Evergreen,** w telex in ARQ at 0327 (Richord Gleitz, PA).

4355.5: HPP, Panama R., Panama wkg a ship in ARQ at 1045 (Hetheringtn, FL).

4431.8: CCS, Santiago Navrad, Chile w/RYRY at 0930, was 850/50R (Hetherington, FL).

4549.5: LRO9, DyN in Buenos Aires, Argentina at 0234, was 850/75R (Gleitz, PA). The same on 4550 at 0332 ("J.M.," KY).

4583.2: DDK2, Hamburg Meteo, FRG w/wx in 5F format at 0640, 425/50R (Daryll Symington, OH).

4813: LZA8, Sofia Meteo, Bulgaria w/coded wx, 425/50R (Gleitz, PA); Same at 0400 but 425/50N ("J.M.," KY).

4901.5: Un-ID sta w/nx & sports in EE at 0315, 850/50N-- anybody got an ID on this one? (Gleitz, PA).

4991.5: "UBDAB," location unknown, w/RYRY & foxes, 50R at 1843 (Peter T., England). See comment re 4101.5 kHz-- Ed.

5102.8: JMG2, Tokyo Meteo, Japan w/wx data at 0935, 850/50R (Hetherington, FL).

5160: IER20, Italian Finance Guard, Rome, Italy w/tfc in Italian, 50R at 2314 (Peter T., England).

5240: 4OC2, TANJUG in Belgrade, Yugoslavia w/nx in EE at 1910 & 0128, 425/50R (Thomas Yingling, MD).

5260: "UBDAE," location inknown, w/RYRY & foxes at 1813, 50R (Peter T., England).

5879.3: 7OC, Khormaksar Aero, S. Yemen w/RYRY at 2250, 850/50N (Hetherington, FL).

6250: Un-ID sta sending what appears to be telexes in SS at 1449, 75R (Peter T., England). Madrid Navrad is often logged here-- Ed.

6814: BAL34, PTT Beijing, PRC w/RYRY,

50 baud at 1958 (Ary Boender, Netherlands).

6905: Un-ID INTERPOL sta sending "IPUQ" marker in ARQ at 0254 (Tom Kneitel, NY).

7478: 5LA, VOA Monrovia, Liberia w/nx in FF at 0158, 425/75R (Carol Kirk, CT).

7619.3: FUG, LaRegine Navrad, France calling EBA (Madrid Navrad), w/RYRY at 0915, 850/75R (Hetherington, FL).

7819.5: 5NK, Kano Aeradio, Nigeria sending RYRY & QJH1 at 0631, 575/50R (Gleitz, PA). Fred Hetherington also copied this sta but on 7817.7 kHz w/its tape running backwards & reading "YRYR KNT KNT ED IM1 KRQ," this at 0245, 630/50R-- Ed.

7877: XINHUA Beijing, PRC w/nx in EE, 50R at 2028, was //7520 & 7650 kHz (Peter T., England).

7960.1: EPX, IRNA Tehran, Iran at 2115, 425/50R saying bad things about Iraq's warfare etiquette (Hetherington, FL). So what else is new?-- Ed.

8023.7: FTI2H1, AFP Paris, France w/nx in FF at 0352, 350/50N (Kneitel, NY).

8067.5: Y2V7, ADN Berlin, GDR w/nx in EE at 2222, 425/50N (Hetherington, FL).

8070: ZRH, Capetown Navrad, RSA w/RYRY, SGSG & foxes to NMN at 0014, 850/75N (Brumm, IL).

8152: HMF86, KCNA Pyongyang, N. Korea w/nx in FF at 1240, 515/50N (Hetherington, FL).

8354.3: PHTV, Dutch tug **Smit Singapore** w/telex via WCC re ETA at Cape Henry, VA, 1230 in ARQ (Kneitel, NY).

8707: WLO, Mobile Radio, AL w/wx for many US cities, FEC at 0615 (Jerry Brumm, IL).

9041: 5YE, Nairobi Meteo, Kenya at 2054 w/coded wx, 850/75N (Brumm, IL). Jerry received a fine QSL letter from 5YE-- Ed.

9136: TJK, ASECNA Douala, Cameroon w/RYRY at 2203, 425/50N ("J.M.," KY).

9347.7: STK, Khartoum Aero, Sudan w/RYRY at 0215, 425/50N (Hetherington, FL).

9417: XINHUA Beijing, PRC w/nx at 1648, 50 baud (Boender, Netherlands).

9420: GYU, Royal Navy, Gibraltar w/RYRY at 0355, 850/50N ("J.M.," KY).

10383: 5YE, Nairobi Meteo, Kenya w/coded wx at 2247, 850.50N ("J.M., KY).

10536: CFH, Canadian Forces, Halifax, NS w/plaintext wx at 1854, 850/75N, into FAX at 1900 (Brumm, IL). See the FAX intercepts at the end of this month's column to get some idea of what is to be monitored in this interesting mode-- Ed.

10720.4: LRB72, Buenos Aires Metea, Argentina w/RYRY at 2325, 850/50R (Yingling, MD).

10805: NA Buenos Aires, Argentina at 2225 w/sports nx in SS, 425/50N (Brumm, IL).

10815: IRH58, ANSA Rome, Italy, w/nx in FF at 1537, 425/50N (Dallas Williams, CO).

10893.7: LRB39, SAPORITI Buenos Aires, Argentina, w/nx in SS at 2314, 850/50R (Yingling, MD).

10920: Y2V22, ADN Berlin, GDR w/nx in EE at 1541, 425/50N (Williams, CO).

11013: DyN sports nx from Buenos Aires, Argentina at 2306, 850/75N (Brumm, IL).

11052.5: Un-ID sta sending "ESTA UNA CINTA DE PRUEBA DE 5KM" + RY/SG, was 170/75N at 1817 (Brumm, IL). 5KM is Bogota Navrad, Colombia-- Ed.

11124: DFL26, DPA Hamburg, FRG w/nx in EE at 1605, 425/50N (Williams, CO).

12501: Soviet ship **Russkoye Polye** w/tfc to Kaliningrad R., 170/50N at 1955 (Kirk, CT). This is a floating fish factory!-- Ed.

12793: Plaintext wx in RR at 1531, 170/50N (Kirk, CT). This is RNO, SAAMC Moscow, USSR-- Ed

13372: NBA, USN Balboa, Panama sending RY/SG tape at 1938, 850/75R ("J.M.," KY); also logged with malfunctioning xmsn at 1307 "TESTING DE N-MVXMXMVXMXM IFT QSA INT QRK" (Kneitel, NY).

13398.5: OMZ, MFA Prague, Czechoslovakia w/tfc in Polish to Havana at 1310, 425/75N (Kneitel, NY).

13610: 3VF40, TAP Tunis, Tunisia w/nx in FF at 1645, 550/50N (Williams, CO).

13647.5: OLI5, CETEKA Prague, Czechoslovakia w/nx in FF at 1236, 425/50N (Kneitel, NY).

13770: VOA Tangier, Morocco w/RYRY & annct re "File" xmsn being concluded, 425/75N at 1204 (Kneitel, NY).

13883: MFA Havana, Cuba w/tfc to Cuban embassies in Sierra Leone & Conakry, in SS at 1316, 425/50N (Kneitel, NY).

13950: Y7A55, MFA Berlin, GDR w/GG text at 1206, 425/50N (Kneitel, NY).

14418: 9KT321, Safat, Kuwait w/nx in EE at 1550, 325/50N (Williams, CO).

14619: Y7A59, MFA Berlin, GDR w/GG text at 1212, 425/50N (Kneitel, NY).

15555: LZP2, BTA Sofia, Bulgaria w/RYRY at 1257, 600/50R; was //LZG3 on 13400 kHz (Kneitel, NY).

15710: RWN76, TASS Moscow, USSR w/nx in FF at 1302, 425/50R (Kneitel, NY).

18690: RYRY tape w/o any ID, 425/50N at 1229 (Kneitel, NY).

FAX Loggings Section

All FAX loggings are from Patrick C. Sullivan, who monitors from California:

6330.3: CFH, Canadian Forces, Halifax, NS w/wx maps, 120 spm (scans per minute).

7993.1: NPM, USN Pearl Harbor, HI w/wx maps at 0219, 120 spm. Also noted on 8492.

12168: RR wx maps at 0517, 60 spm. Possibly RKB78, Moscow listed on 12165 kHz-- Ed.

12743.8: JJC, Tokyo R., Japan has wx maps at 0642, 60 spm,

17067.8: JJC w/BC in JJ at 0017, 60 spm.

17670: AP wirephotos at 0421, 60 spm.

18413.3: Reuters nx photos at 0102, 60 spm.

18431.7: Reuters nx photos at 1940, 60 spm. This one may be LRO83, Buenos Aires, Argentina-- Ed.

20734.2: Un-ID sta w/press photos at 2215, 60 spm. PC

CLANDESTINE COMMUNIQUÉ

WHAT'S NEW WITH THE CLANDESTINES

BY GERRY L. DEXTER

Question: Is there another quasi-clandestine station in our future? Answer: Maybe. But, if so, it's a long, long way off.

Rolf Dammann, the Executive Director of the anti-communist Freedom Federation, wrote an editorial in that organization's Spring newsletter in which he calls for the creation of an Asian version of Radio Free Europe. Like RFE, the new station would be funded by the U.S. government and serve as a surrogate radio service in the countries targeted. It would operate under the Board for International Broadcasting (as does RFE/RL), although Dammann calls for the expansion of BIB to include persons knowledgeable in Asian affairs and the area's radio needs.

The editorial notes that, with the exception of the Khmer Rouge who have Chinese backing for their broadcasts, the other resistance movements in Cambodia say their biggest problem is the inability to match Khmer Rouge and Vietnamese effectiveness in ideological warfare. Also cited as evidence for the need of a Radio Free Asia is the lack of any anti-communist Lao broadcaster and only a very sporadic effort aimed at Vietnam.

No sooner had we received reports to the effect that the last of the anti-Chinese clandestines had finally gone silent than one of them seems to have returned. Ralph Famularo in Japan, reporting in the May issue of the SPEEDX bulletin, hears what he believes, is Song of Liberation, one of that curious group of anti-Chinese stations which make periodic, brief broadcasts. This one was heard on 7185, which is one of the frequencies historically used by this group. It was noted signing on at 1420 playing the "Internationale" and then into Chinese with the words "Shen du yi" ("attention please") after which a woman continued speaking to sign-off at 1428. At 1430 the broadcast was repeated.

This and other similar-sounding stations are still believed to be Soviet operations. A 1420 UTC sign-on is a little late in the morning for most areas of the U.S. but these outlets, when active, often have transmissions during the 0900-1200 time frame. Keep an ear on 7185 during that period.

The Iran/Contra hearings have turned up one clandestine-related piece of information. General Secord testified that one million dollars had been set aside for three special projects. One of these projects, as reported in the May 18, 1987 issue of *Newsweek*, was for "radio equipment for broadcasting to Cuba." Now it's not entirely clear yet if the money was actually spent, but, if it was, it's hard to see what it went for other than the creation of Radio Caiman. The time frame is approximately right and that kind of backing fits with Radio Caiman's almost equal focus against the Sandinista government. Further, there are no other active anti-Cuban stations on the air with an unexplained background, other than Caiman. How many coincidences does it take?

Incidently, Caiman has discontinued the use of 7470 and has returned to its earlier 9960 frequency for both morning and evening transmissions.

If you can't quite manage to pull in such stations as the Voice of the Iraqi People, Voice of Iraqi Kurdistan, Voice of the Fedai and the like, you can at least listen to them on a cassette recording now. Expert clandestine monitor Vashek Korinek (P.O. Box 910, Edenvale 1610, Republic of South Africa) has put together a tape which contains a number of these hard-to-hear Middle Eastern clandestines, all of them including ID announcements. You can order them directly from Mr. Korinek for $7 via surface mail, $10 airmail.

The French daily *Le Monde* reported in April that the clandestine station of the Communist Party of Malaysia stopped its broadcasts on or about April 25, after reaching an agreement with the authorities. Several hundred guerrillas surrendered to Thai forces and only around 1,300 remain active along the border. We believe this refers to the Voice of the People of Malaysia (a.k.a. Voice of the Malayan People) which was operated by a splinter group.

There's still another chapter in the continuing effort to get a letter to the Voice of Unity. A monitor in France, who copies the stations broadcasts well, says he believes the address is being announced as Box 2605, 2000 Hamburg 6, Federal Republic of Germany. Worth a try.

Here's a current schedule for the communist-run Bizim Radio targeted at Turkey and monitored in France: At 0200, 0300, 0600, 1900 on 6200; at 0700, 1000, 1100, 1400, 1500, 1800 on 7335; at 1015-1045 on 9500 and 2000-2030 on 5975.

Robert Ross in London, Ontario, hears the United Nicaraguan Opposition's station La Voz de la UNO on 5889.2 at 0225 in Spanish with many mentions of Nicaragua, march music and station ID's. The United Nicaraguan Opposition has become simply the Nicaraguan Resistance, so watch for a name change on this station.

J.D. Stephens in Alabama has caught Radio SPLA (Sudan People's Liberation Army) on 11710 at 1300 with an English ID, then Arabic music to 1330, then into an unidentified language.

J.D. also heard the anti-El Salvador Radio Venceremos on 3940 at 0515 with their revolutionary program in Spanish. J.D. says reception was strong and clear of Ham QRM. Maybe they were all listening to Venceremos?

We seek and welcome your information on clandestine broadcasting—whether with loggings, QSL data or leads on possible addresses of such stations or the groups backing them. There is little question that this column has some readers who are, shall we say, "well-placed" to provide exceptionally good information on the clandestine scene and we hope that, once in a while, they might drop a few crumbs our way. We'll keep identities strictly confidential!

Meantime, thanks for your continuing support and we'll be back next month with more news from radio's shadow world. **PC**

SCANNER SCENE

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

The local government radio service has proven to be a catch-all for local, county and state governments. While many radio hobbyists regard the local government radio frequencies as those that the town trash trucks, public works and recreation units use, you may be surprised to find that in many areas police and fire units use the channels as well. Any municipality, county or state is eligible to become licensed in the local government radio service for any service that is provided by that unit of government.

In many areas, particularly more urban communities, the local government radio service channels are more likely to support municipal services. These services may include refuse collection, road maintenance, animal control, airports, housing, zoning and health inspectors and emergency management. A friend of mine delights in telling a story about the local government frequency in one city where the part-time mayor has a radio in his car on that frequency and is often heard barking orders or demanding answers to questions about why this or that isn't being taken care of. It can be interesting, to say the least.

However, in many areas, local government channels are used exclusively for police, fire and ambulances. While the police, fire and special emergency radio services support each of those types of activities, respectively, some towns and cities have elected to use the local government channels to carry out their municipal emergency services. And there's nothing wrong with that. Federal Communications Commission rules allow the use of the local government radio service frequencies for any activity that supports a local government. A county, for instance, may use local government radio channels for jail security, health inspectors, public transportation, constables, and various authorities, agencies and offices within county government. A state may use the local government channels for prisons, youth facilities, state schools, mental hospitals, parks and enforcement agencies.

You also may find local government channels used by a county or town for coordination purposes, so that all emergency units share common radio channels in the event of emergencies that require intra-city communications. For instance, police, fire and ambulance units may have a local government channel to switch over to for a common channel so that they all can communicate with each other, while maintaining their own dispatch channels in their respective radio services.

In rural areas, this becomes more important because many emergency services work closely together to begin with and, in such a set up, an ambulance driver can call a police officer directly on the common channel to block off a busy intersection, a fire chief can call the police chief to the scene of a suspicious fire and a police officer can call road crew to remove an obstruction in the roadway.

The new Regency R1080 programmable, 30-channel scanner offers search, weather scan and priority channel—all at a budget price. The scanner receives the popular VHF low, VHF high, UHF and UHF-T bands and offers a capacitor, instead of battery, memory backup system.

More and more towns are beginning to realize the benefit of sharing a common channel. In fact, some states, such as New Jersey, already have set up a statewide local government radio channel for shared use by all public safety units.

If you look in your local scanner or frequency directory, you may have a tendency to overlook the local government radio service channels because most of them support services such as road crews and trash trucks. You may be delighted to find, however, that the police department uses it as a "secret" channel at night, or that the fire department uses it for drills. It's definitely worth checking out. You also may find a channel that is used on an everyday basis for dispatching and routine calls by your local fire or police department. If you find one of these "secret" channels, let us know here at *POP'COMM* and we'll let the rest of our readers in your area know as well.

Following is a list of local government radio service channels. Some channels may be shared with the police radio service in given areas. In the 453 MHz band, mobiles in repeater systems operate on frequencies 5 MHz higher than the listed frequency below. The 453 MHz channels also are shared with all other public safety radio services.

VHF Low Band

37.10	39.98	45.44
37.18	45.08	45.48
37.26	45.12	45.52
39.06	45.16	45.56
39.10	45.20	45.60
39.18	45.24	45.64
39.50	45.28	46.52
39.58	45.32	46.54
39.82	45.36	46.56
39.90	45.40	46.58

VHF High Band

153.740	154.965	155.925
153.755	154.980	155.940
153.785	154.995	155.955
153.800	155.025	155.985
153.815	155.040	156.000
153.845	155.055	156.015
153.860	155.085	158.745
153.875	155.100	158.760
153.905	155.115	158.775
153.920	155.145	158.805
153.935	155.715	158.820
153.965	155.745	158.835
153.980	155.760	158.865
153.995	155.775	158.880
154.025	155.805	158.895
154.040	155.820	158.925
154.055	155.835	158.940
154.085	155.865	158.955
154.100	155.880	
154.115	155.895	

UHF

453.050	453.425	453.725
453.100	453.450	453.750
453.150	453.475	453.775
453.200	453.500	453.800
453.225	453.525	453.825
453.250	453.550	453.850
453.275	453.575	453.875
453.300	453.600	453.900
453.325	453.625	453.925
453.350	453.650	453.950
453.375	453.675	453.975
453.400	453.700	

Low-power operations also are allowed on most frequencies 12.5 kHz on either side of the 453 MHz channels. In other words, 2-watt units are allowed on 453.5875 and 453.6125, both of which are 12.5 kHz from 453.600.)

Frequencies also are available to the local government radio service in the UHF-T

(television) and 800 MHz bands. See your local scanner directory for these frequencies.

What's New, R/C?

While there isn't that much exciting to listen to other than a bunch of blips, grinds, and whines, you might want to know what channels are used for radio control toys and models. You've seen those remote-controlled cars, boats and planes. While some of the toy versions operate on the catch-all 49 MHz band with cordless phones, kiddie-talkies and baby monitors, the more advanced models for hobbyists (the ones with gas engines and the whole nine yards) have their own set of frequencies in the 27 and 72 MHz bands.

The radio control radio service was formerly known as Class C citizens band and you used to have to obtain a separate license from the FCC to operate a Class C station. However, with the deregulation of CB, a license no longer is needed. If you see a kid, or even an adult, with a radio control model, you may be curious as to what frequency is being used by that particular unit. I checked the neighbor kid's remote control car and found out its 72 MHz frequency the last time he was running it up and down the road. Several frequencies are being eliminated from radio control service effective December 20. These include 72.16, 72.32 and 72.96 for model surface or aircraft units, and 72.08, 72.24, 72.40 and 75.64 for model aircraft. The new list of channels follows:

Model surface or aircraft: 26.995, 27.045, 27.095, 27.145, 27.195 and 27.255 MHz. (These channels lay between regular voice CB channels.)

Model aircraft: A total of fifty 8 kHz channels every 20 kHz from 72.01 to 72.99 MHz, such as 72.01, 72.03, 72.05, etc.

Model surface: A total of thirty 8 kHz channels every 20 kHz from 75.41 to 75.99 MHz, such as 75.41, 75.43, 75.45, etc.

In addition, Hams have their own ten radio control channels that only licensed Amateur Radio operators can use. These include: 50.80, 50.82, 50.84, 50.86, 50.88, 50.90, 50.92, 50.94, 50.96 and 50.98 MHz.

Readers Write

We'd like to hear from you here at *POP'COMM*. We welcome your letters, comments and questions. If you have any photographs (preferably black and white) of you and your listening post or mobile setup, a radio dispatch center, a certain radio tower or anything related, we'll consider it for publication in *Scanner Scene*. Don't hesitate to send us a list of your favorite or oddest frequencies, too. We'd love to share them with your fellow hobbyists. In fact, we get so much mail from *Scanner Scene* readers that we've set up a special mail drop where you can send your cards and letters directly to me. You can write to me now at: Chuck Gysi, N2DUP, P.O. Box 544, New Hope, PA 18938-0544. Drop *Scanner Scene* a line today! PC

LISTENING POST

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

BY GERRY L. DEXTER

Shortwave broadcast listening buffs find that each passing month brings at least one new station on the air, even though those new ones cannot always be received at our own locations. The latest crop, as is often the case, consists largely of Latins. In Bolivia, Radio 16 de Marzo at Mina Bolivar in Oruro department, has been heard widely on 4864.7. From Peru, Radiomisora Huanta in Huanta has been heard by a few DX'ers on 4891.4. This station is not connected with Radio Huanta 2000 which still operates on 4755.

Ecuador sports two new shortwavers: Radio Ecos del Oriente in Lago Agrio on 3270. That frequency is usually occupied by a utility station, so this station will be a tough log for many of us. The other new Ecuador station is Radio Interoceanica, HCRI located in Santa Rosa and heard on 4840.

Radio Interoceanica was in the area hit by the earthquake earlier this year. Like much of the area, the station was destroyed and its rebirth is being assisted by HCJB. In fact, HCRI hasn't been on shortwave before.

Let's peek into the mail: H.M.S. Richards, Jr., (WD6BDZ) in Glendale, CA sends some info he received with his QSL from the new Adventist World Radio's KSDA on Guam. The installation, officially termed AWR Asia, is the largest of the shortwave broadcast facilities planned, built and operated by the Seventh-day Adventist Church. KSDA's price tag ran to a cool $5 million! The station is located on a 40-acre tract in southwestern Guam on the slope of Mt. Lamlam, which is the highest point on the island. The site overlooks the Philippine Sea and AWR says it's excellent for beaming into Asia. A single building houses offices, two production studios, traffic, a control room and a transmitter wing occupied by two 100-kW units (and room for two more).

Andy Johns in Tyler, Texas sends along a couple of QSL's he's had laminated to protect them against wear. Good idea! And Andy says it's pretty inexpensive, too. Andy is looking for a local club or contacts in the Dallas—Ft. Worth area. He can be reached at 3324 Tealwood, Tyler, TX 75701.

Matt Briggs does his monitoring from Okinawa since he's serving with the USAF there. He says that even though he doesn't hear a lot of the programming beamed to the States, there's still plenty left to tune, though a lot of it is in Japanese and Chinese.

Bill Farley of Alamogordo, NM (WA5FLG/V31AJ) was operating from Belize for a while and made contact with Glen, HC1KN, who works for HCJB and who asked that word be passed that HCJB's low-power (nominally 100 watt) transmitter is back on the air. HCJB would appreciate reception reports on these experimental transmissions which are on at 1800 Saturdays on 26020. Speaking of HCJB we're pleased to learn that longtime DX Party Line Host Clayton Howard is reported to be in improved health and, indeed, is now serving a replacement stint on the program again.

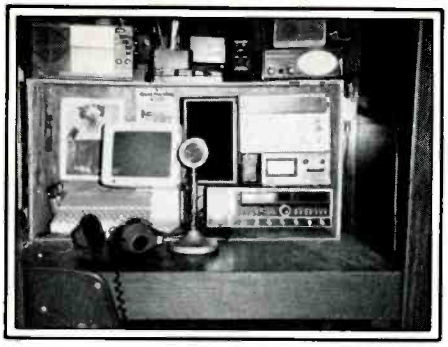
Brazil's Radio Aparecida issues this very nice QSL card.

Hugh M. Hawkins in San Antonio, TX is a little concerned that the VOA may stop using relay stations and switch over strictly to satellites. Changes like that are a long, long way off, if ever. Satellites are used, in many instances, to feed the programming to the relay station, but the days of the VOA relays are hardly numbered. Indeed, several are being upgraded and there are new sites due in the years ahead—Israel, Puerto Rico and Thailand.

Helio Soraes in Sao Paulo, Brazil provides the information that Radio Aparecida now carries a Portuguese language DX program produced by the Globo DX club. It's called "Encontro DX" and airs on Saturdays at 2300 on 5035, 6135, 9630 and 11855. Reports go to the station at Av. Getulio Vargas 185, 12570 Aparecida, Sao Paulo.

Another station that is also a good verifier is Radio Por Um Mundo Melhor (Radio For A Better World). It uses 1 kW on 4855 and is located in Governador Valadares, Minas Gerais state. Programs are mostly religious talk with some local and international music. Once in a while there's an English

This QSL from REE shows the station's transmitting facility at Noblejas, Spain. Courtesy Andy Johns.



Lance Sanders in Hot Springs, Arkansas uses this shack full of equipment which includes a Sangean ATS-803 shortwave receiver.

language ID for the station's foreign listeners. Reports go to P.O. Box 377, 35100 Governado Valadares, MG, Brazil. Thanks for the good info, Helio. Hope we'll hear from you often!

And, we hope to hear from *you* often, too. Your loggings (by country with your last name and state abbreviation after each and some space between each) are always welcome. Also, we can use unwanted original QSL's or good copies, schedules, news clippings, shack photos, your questions and comments and what-have-you.

SWBC Loggings
(All Times Are UTC)
(All BC's are EE unless otherwise noted.)

Alaska: KNLS on 7355 w/ID at 2029 (Willie, ALTA); 1220, in CC w/an EE ID at 1229 (Ross, ONT); 11930 at 1000 (Briggs, Okinawa).

Albania: R. Tirana, 7065 at 0330 w/nx (Gilbert, CA; 7300 at 0350 in un-ID language followed by anthem (Groner, BC); 9480 at 0430 (Willie, ALTA); 9760 at 0238 w/nx, talks (Johnson, AZ). R. Tirana has now moved out of the 7000-7100 kHz range-- Ed.

Algeria: R. Algiers, 9509 at 1930, YL w/nx & ID as "World Service of Radio Algiers" (Ross, ONT).

Antigua: DW relay, 6120 at 0508 (Moser, PA).

Argentina: RAE, 9690//11710 at 0403 w/nx of South America (Moser, PA).

Ascension: BBC Atlantic Relay sta, 15400 w/sports nx at 1541 (Moser, PA).

Australia: R. Australia, 9580 at 1406 w/interview

Here's the English language staff of Radio Sweden International. From left, top row: Alan Pyrke, George Wood of Sweden Calling DX'ers. Middle: Marilyn Ford-Bartfay, Kevin Billinghurst, Sarah Roxstrom, Walstan Wheeler, Fenela Childs; Azariah Kiros. Bottom: Al Simon, Bill Schiller, Tom Morell.

Abbreviations Used in Listening Post

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

(Moser, PA); 9655 at 0715 w/"International Report" (Gilbert, CA); 9710 at 1211, into JJ at 1230 (Durant, NY); 0605 on 17715 w/football (Johnson, AZ)

VLH9 Melbourne, 9680 on 1105, classical mx (Durant, NY).

VLW15, ABC Perth on 15425 w/pops & ID, off 0915 (Johnson, AZ).

Austria: R. Austria Int'l., 6155 at 0355 (Moser, PA); 0520 in GG (Groner, BC); 9550//11805 at 0441, in GG at 0527 on 15410 (Johnson, AZ).

Bangladesh: R. Bangladesh, 15525 at 1230-1300 w/sign-on, local mx, nx, ID as "This is the Overseas Service of Radio Bangladesh," off 1300 (Ross, ONT); 1243 w/talk (Moser, PA).

Belgium: BRT at 2336 on 9925, ID as "Belgium Today" (Shute, FL); 1330 w/"Radio World" on 15590 (Moser, PA).

RTBF w/drum IS & s/on in FF to Africa at 1555-1600 on 17675 (Johnson, AZ).

Belize: R. Belize, 3285 at 0300-0330 w/"Top 40" pop mx (Geraci, CT).

Benin: ORTB in FF at 2245 on 4870 (Geraci, CT).

Botswana: R. Botswana, 4820 w/0400 s/on anncts & into un-ID language (Moser, PA).

Brazil: R. Universo (tentative), Curitiba on 11905 at 2257 in PP (Durant, NY).

R. Inconfidencia, 15190 in PP 2115-2125 (Benton, WA).

Radiobras, 11745 at 0210 w/nx, mx (Moser, PA).

R. Clube de Para, 4885 w/talks, commercials, mx. In PP 0820-0845 (Geraci, CT).

Bulgaria: R. Sofia, 6070 at 2302 w/pgm onncts (Moser, PA); 9575 at 0330, into FF 0401 (Linville, ALTA; 11750 at 0307, but QRM'd from KGEI/11745 & Finland/11755 (Johnson, AZ).

Burkina Faso: R. Burkina, 4815 at 2300-2330 in FF w/mx & talks (Geraci, CT); 2252 w/African mx (Moser, PA).

Canada: RCI, 5960 at 0402 w/nx (Moser, PA); 9755 at 0024 w/"As It Happens" (Gilson, MD); 17820 at 1559 w/ID, into un-ID language, also here at 2003 (Johnson, AZ).

BBC (via Sackville), 9515 at 1530 w/sports (Moser, PA).

CBC N. Quebec Svc, 9625//11720 at 1431 (Gilson, MD).

Chad: Radiodiffusion National, 4960 at 0517 in FF w/progress report re Libyan war. Anncd listed 4904.5 (Stephens, AL). Moving to avoid Libyan jammers-- Ed.

Chile: R. Sistema Nacional, 15140 in SS at 2100 (Bentler, WA); 0139 & 0230 (Moser, PA, & Geraci, CT).

China: CPBS Beijing, 0708 on 11505 in CC (Bentler, WA).

Colombia: R. Guatapuri, Valledupar on 4815 at 0353 in SS w/pop mx to 0357 ID & 0358 s/off. Anncr said s/on was "4:30 a.m." Not listed in '87 WRTH but bot an inactive sta-- just irregular (Shute, FL). Yes, it's been around-- on & off-- for years!-- Ed.

Caracol Neiva, 4945 at 0605 in SS w/ads, ID, talks (Durant, NY).

Caracol Colombia, 5955 at 0408 w/pops, ID in SS (Groner, BC). This is V. de Centauros, Villavicencio-- Ed.

Cook Islands: R. Cook Islands, 11760 at 0500 w/rx mx & talks in Maori (Johnson, AZ); 0258-0427 w/R. Australia nx relay at 0300, pop/rock & talks in Maori, EE time checks, at 0413 an EE ID as "Radio Cook Islands, broadcasting on 11760 kHz in the 25 metre band." Heard after 10 years of trying! (Ross, ONT). Congratulations!-- Ed.

Cuba: R. Havana Cuba, 5190 (huh?-- Ed.), //6120 at 0540 (Linville, ALTA); 0047 on 6090 (Gilbert, CA); 6140 at 0407 (Moser, PA); 9525 at 0700 (McDonough, PA); 9740 at 0140 (Willie, ALTA).

R. Moscow relay, 4765 in RR at 0640 (Linville, ALTA).

Cyprus: BBC relay at 1416 w/World Service on 15420 (Moser, PA).

Czechoslovakia: R. Prague, 0345 on 5930 (Gilbert, CA); in SS at 0440 (Groner, BC); 11990 at 0000 (Gilson, MD); at 0337 (Johnson, AZ).

Dominican Republic: R. Discovery, 15045 at 2224 w/UN pgm, ID's in SS & EE (Durant, NY).

R. Clarin, 11700 in SS at 0106 (Gilbert, CA).

East Germany: RBI, 0219 on 6080 w/commentary (Moser, PA); 9560 at 0405 w/commentary (Willie, ALTA); 15240 at 0437 in GG (Johnson, AZ).

Ecuador: R. Zaracay, 3395 at 0230 w/Latin mx, SS anncts (Geraci, CT).

R. Catolica Nacional, SS at 0530 on 5055, s/off 0600 (Linville, ALTA).

HCJB, 11960 w/easy listening mx at 0430 to 0500 s/oiff (McDonough, PA); 1905 w/piano mx on 15270 (Moser, PA); 15115//17890 at 1238, also 15115 at 0100 (Gilson, MD); 17790 at 1958 w/ID & into Nordic language (Johnson, AZ).

Egypt: R. Cairo w/nx at 0317 on 9475 (Linville, ALTA); 9675 at 0219 (Durant, NY); at 0319 (Gilbert, CA).

England: BBC at 1820 on 12095 w/nx (Johnson)

Equatorial Guinea: R. Nacional Guine Ecuatorial, 5004 in SS w/mx, 0540-0600 (Geraci, CT).

R. Malabo, 9553 at 2138-2200 w/rx pgm giving pgm oddress as P.O. Bax 167, New Florence, MO 63363 USA. Into SS, then anthem & off at 2159 (Ross, ONT).

Ethiopia: VORE on 7110 at 0320-0348 in Amharic. Carrier went on at 0320, then IS & s/on onncts at 0327 (Ross, ONT).

Finland: R. Finland Int'l., 11715//11755 at 0440 re Nordic cooperation (Linville, ALTA); 0410 w/mx & IS during a technicions' strike, antenna beam change at 0519 (Johnson, AZ); 1324 on 11945 (Moser, PA); 1710 on 15400 (Shute, FL); at 1336 (Gilsan, MD).

France: R. France Int'l., 11700 at 0416 w/nx, into FF at 0430 (Johnson, AZ); 11965 at 2358 in FF; at 1326 in FF on 15365, also 1202 on 17620 (Gilson, MD).

French Guiana: RFI relay, 6175 at 0447 w/nx; also at 0449 on 9800 (Moser, PA); 0330 on 9800 (Willie, ALTA).

Gabon: Africa #1 in FF at 0510 on 4830 (Gilbert, CA); 9630 at 1741 in FF (Ross, ONT); 15475 in FF at 1900 (McDonough, PA).

Ghana: GBC w/nx at 0614 on 4915 (Gilbert, CA).

Greece: V. of Greece, nx at 0343 on 7430 (Moser, PA); 0045 in Greek on 9420 (Groner, BC); 1537 in Greek on 15630//17565, Greek mx, EE nx 1540, s/off 1551 (Johnson, AZ).

Radiofonicos Stathmos Makedonias, 11595 at 2027 in Greek (Ross, ONT).

Guam: KSDA Adventist World R., 11980 at 1358 ending mx pgm, ID, into rx pgm in Tamil (Stephens, AL), 1148 in EE & un-ID language (Ross, ONT).

Guatemala: TGNA R. Cultural, 3300 at 0300 w/rx pgm (Geraci, CT); at 0525 "La Hora de Reforma" (Gilbert, CA).

Honduras: HRVC, 4820 mx & rx talks at 0320 (Moser, PA).

HRRI Sani R., 4755 at 0000-0045 in SS, EE & Moskito, reggae mx (Geraci, CT).

Hungary: R. Budapest, 6025 at 0213 w/Hungarian history (Moser, PA); 9835 at 0110 (Johnson, AZ); 11910 w/DX pgm (Northrup, MI).

India: AIR, 11620 at 2150 w/Indian mx, nx & commentary, off at 2230 (Ross, ONT).

Iran: VOIRI, 9022 at 1930-2030 w/nx & commentaries (Geraci, CT); 1938 on 15084 (Linville, ALTA).

Iraq: R. Baghdad on 9875 from 2300-2345 when into AA; QRM'd from Taiwan at 0000 (Porter, MA).

Ireland: R. Dublin Int'l. on 6909.5 at 0052 & 0324-0404 w/pop/rock, ID's as "Radio Dublin, 24 hours a day, 7 days a week" (Ross, ONT).

Israel: Kol Israel, 7465 w/nx at 0100 (Willie, ALTA); at 2253 (Moser, PA); 9435 at 0103, at 0410 on 9815//9855 (Groner, BC); 11610 at 2150 (McDonough, PA); 15485 at 0435 w/IS & ID, into un-ID language, at 1958 on 17685 in un-ID language, then EE at 0400 (Johnson, AZ).

Possible home svc at 1653 on 17360, possible Voice of Music home svc at 0500 on 11605 in Hebrew (Johnson, AZ).

Italy: RAI, 9575 nx at 0100 (Willie, ALTA); s/on in II at 0415 on 11800, at 0531 s/on in AA (Johnson, AZ).

Japan: R. Japan, 5960 (via Canada-- Ed.) w/nx at 0535 (Willie, ALTA); 0541 on 15235, 1505 on 21700 (Johnson, AZ).

AFN Tokyo, 0855 on 6155 w/pops, $/Yen exchange rate data (Johnson, AZ).

NSB in JJ at 1639 & 0640 on 9595 (Johnson, AZ).

Kampuchea: V. of the Kampuchean People, 11937.7 at 1310-1315 in Vietnamese, w/pgm

end & ID at 1314, open carrier & off (Ross, ONT).

Lebanon: V. of Lebanon, 6548.6 at 0221 in AA & EE, ID by YL "This is The Voice of Lebanon" & continuous wasy listening instrumental mx, AA from 0313 (Ross, ONT).

Lesotho: R. Lesotho, 4860 at 0300-0430 in vernaculars & EE (Geraci, CT).

Liberia: VOA relay, 21485 at 1907 (Johnson, AZ).

ELWA on 11830 at 1615 in PP w/mx (Bentler, WA).

Luxembourg: R. Luxembourg, 15350 at 1320 in FF w/mx & talks (Gilson, MD).

Malaysia: R. Malaysia, Kuching (Sarawak), 4950 at 1400 w/"UN News on Asia" (Gilbert, CA).

R. Malaysia, 9725 w/mx & comment at 0628 (Willie, ALTA).

Mali: RTM on 4783 at 2248 w/African mx, FF (Moser, PA).

Marshall Islands: WSZO, 4940 at 0909-1001 in Marshallese & EE; nx continuous island mx to 0955 & s/off infa, possible anthem at 1000, then off 1001 (Ross, ONT).

Mexico: XEWW, 15160 at 2034, easy listening mx (Linville, ALTA).

R. Mexico Int'l., 15430 in SS at 0120 (Durant, NY).

Netherlands: R. Netherlands, 7290 at 0404 w/nx & wx (Shute, FL); 15315 at 0129 w/IS, anthem, s/on in SS (Johnson, AZ).

Netherlands Antilles: R. Netherlands (via Bonaire), 9590 w/Happy Station at 0230 (Willie, ALTA); 1832 on 21685 (Johnson, AZ).

TWR, Bonaire, 9535 at 0353 w/rx pgm (Moser, PA).

New Zealand: R. New Zealand, 9540 at 0614, 0400 on 15150 (Johnson, AZ); 0543 on 11780 (Durant, NY).

Nigeria: V. of Nigeria, 7255 w/nx at 0533 (Willie, ALTA).

R. Nigeria, Kaduna, 4770 w/nx at 0515 (Durant, NY).

North Korea: R. Pyongyang, 9977 at 1105 w/nx (Gilbert, CA); 0025 on 15140 w/talk, ID (Groner, BC); 0400 w/IS, anthem, nx (Ross, ONT).

Northern Mariannas: KYOI Saipan, 1303 in EE & JJ, rock, ID's (Ross, ONT); 1603 w/"Super Rock" ID (Groner, BC); 17780 at 0601-0729, soft rock mx (Bentler, WA). With purchase by Christian Science Monitor, pgm format has swung to softer rock for the present-- Ed.

Norway: R. Norway Int'l., 9595 at 0155 (Ross, ONT); 9610 w/nx at 0000 (Willie, ALTA); 11870 at 1625 in NN (Groner, BC); 0102 on 9620, 0400 on 9650 w/repeat of 1900 pgm, 11735 at 0359 w/IS, ID//9650, at 0610 on 11865 in NN, 0559 on 15310 into NN at 1930 (Johnson, AZ).

Pakistan: R. Pakistan, 15605 at 1120 in General Overseas Service, w/talks (Briggs, Okinawa).

Papua New Guinea: NBC Port Moresby, 4860 (do you mean 4890?-- Ed.) w/national nx at 1100 (Gilbert, CA).

Paraguay: R. Nacional, 9735 at 0120-0200. Latin mx, nx at 0133 in SS (Geraci, CT); 0144 in SS (Moser, PA).

Peru: R. Union, 6115 at 1000 in SS w/Latin mx, mucho commercials (Geraci, CT).

R. San Martin, 4810 at 0521 in SS w/ID's, mx (Durant, NY).

Philippines: R. Veritas Asia, 7190 at 1159-1220 in EE & JJ. Trumpet IS (Ross, ONT).

Poland: R. Polonia, 0338 w/commentary on 9525 (Gilbert, CA); 0345 & 0629 on 15120 (Johnson, AZ).

Romania: R. Bucharest, 9570 at 0417 w/"Letterbox" (Gilbert, CA); 0400 on 11940 (Johnson)

Rwanda: DW relay, 11765 at 1235 in FF (Johnson, AZ).

Saudi Arabia: BSKSA on 15060 at 1235 in AA, prayers (Durant, NY).

Senegal: ORTS in FF at 2244 on 4890 (Moser, PA).

Seychelles: FEBA in AA at 0342 on 15300 w/IS, ID talks (Ross, ONT).

Singapore: SBC Radio 1, 0230 on 11940 w/kiddie pgm (Briggs, Okinawa).

Solomon Islands: SIBC on 5020 at 1050-1110 w/Top 40 mx (Geraci, CT).

South Africa, Rep. of: Radio RSA, 9615 at 0213 w/freq annct., was //6010 & 9720. Address, time check & "Africa Today" (Shute, FL); 0200 a/test on 9695 (Willie, ALTA); 0235 on 11900 (Groner, BC); 1546 on 17780, at 1600 anncd going into Swahili but left the air (McDonough).

R. Orion, svc, 3955 at 0238 in EE & Afrikaans, pop & rock, QRM'd by Hams (Ross, ONT).

Capital R., Transkei at 0300 on 3927.3 w/ID, pops (Ross, ONT).

R. Oranje svc, 3215 in EE & Afrikaans at 0409 (Ross, ONT).

South Korea: R. Korea, 15475 at 0003 (Moser, PA); 0040 (Groner, BC); 0045 (Willie, ALTA).

Spain: REE, 6125//9630 at 0104 w/nx, better on 9 MHz (Moser, PA); 0300 in SS on 9745 (Groner, BC); 11880 at 0000 (Johnson, AZ); 15375 at 1900, into FF at 1930 (Groner, BC); 17845 at 1217 (Gilson, MD).

Sweden: Radio Sweden Int'l., 9695 at 2330 w/IS & ID in several languages, into Swedish (Gilbert, CA); 0130 s/on & sked (Willie, ALTA); 0230 on 11705 in un-ID language w/ID & IS (Johnson, AZ); 15345 w/Nordic nx (Moser, PA).

Swaziland: TWR, 4760 at 0400-0428 w/GG language rx pgms (Geraci, CT).

Switzerland: Swiss R. Int'l., 6135 in GG at 0450 (Groner, BC); 0210 w/"Dateline" on 9725, 1326 on 12030 in EE into II at 1330 (Gilbert, CA); 0630 w/nx (Linville, ALTA); 0002 w/nx in FF on 12035 (Gilson, MD); 2113 (Johnson, AZ); 1726 on 17830, into AA 1730 (Johnson)

Syria: R. Damascus at 1940 in FF, 2005 nx in EE, ID's-- on 9950 kHz (Groner, BC).

Taiwan: VOFC, 9555 w/nx 0200 (Willie, ALTA); w/anthem, into an Asian language (Johnson)

Tahiti: R. Tahiti, 15170 at 0330 in FF (Bentler, WA); 0835 w/jazz (Johnson, AZ).

Togo: RTT on 5047 at 2330 w/easy listening mx, OM singing (Moser, PA); 0600 nx in FF (Geraci, CT).

Tunisia: RTT at 1137 w/AA talks, mx on 1760, ID at 1230 (Gilson, MD).

Turkey: V. of Turkey, 9560 at 2306 w/nx (Moser, PA); 0308 press review (Gilbert, CA); 11705 in Turkish at 0420, on 15220 at 0523 in Turkish (Johnson, AZ).

Uganda: R. Uganda, 4976 at 0354-0416 in EE & vernaculars w/talks, many mentions of Uganda, marches, nx in EE at 0400 (Ross, ONT).

Ukranian SSR: R. Kiev, 7165 at 0303 (Moser, PA); 7260 at 0200 (Sanders, AR); 13645 at 0500 (Groner, BC).

United Arab Emirates: UAE R&TV, 17775 at 1332 w/nx (Moser, PA); 17830 at 0535; 0338 on 17890, 0438 on 21700 (Johnson, AZ).

United States: VOA, 0059 w/sked info on 5995, 11740 at 0030, 0102 on 15205 (Gilson, MD); 6020 at 0436 in PP (Gilbert, CA); 0012 on 11580 (McDonough, PA).

R. Marti (via VOA), 9525 in SS at 0219 (Ross)

La V. de la OEA (Voice of The OAS) (via VOA) on 11830 at 2345 in SS (Gilson, MD).

WINB, Red Lion, PA on 15145 at 0036 w/piano mx, EE/SS ID at 0059, rx pgm 0100 (Gilson, MD).

WHRI on 5995 at 1128 w/rock, multi-lingual ID. Also 2341 on 11770 (Gilson, MD).

AFRTS on 6030 at 0032 w/UPI nx (Gilson, MD); 9700 at 1533 (Moser, PA).

WCSN on 7365 at 0057 w/trumpet IS, ID (Ross, ONT); 15270 at 1708 (Shute, FL).

WYFR. at 1314 on 5985 (Durant, NY); 11855 at 2348 (Gilson, MD).

KVOH on 17775 w/rx mx at 2116 (McDonough, PA)

USSR: R. Moscow, 7175 at 0610 (Willie, ALB); 9685//11750 at 0016, 15360 at 2332, 17655 at 1206 (Gilson, MD); 11750 at 1413 (Moser, PA); 17740 on 0437 (Johnson, AZ).

Radiostantsiya Tikhiy Okean (Radio Station Pacific Ocean) at 0737 on 11815 in RR, into EE at 0742, back to RR 0745. Transmitter at Vladivostok (Johnson, AZ).

Vatican: 9645 at 0500 w/"The Church Today" (Gilbert, CA); ending rx svcs at 0600 on 11715, into Ukranian (Linville, ALTA); 0638 on 11740 w/nx, "Spotlight Today," Bible readings, time check, into SS & 0700 s/off (Shute, FL); 11780 at 0055, 2010 on 15120 in FF, then PP at 2015. back to FF 2030 (Groner, BC); EE s/on at 1545 (Moser, PA).

Venezuela: R. Capital, 4850 at 0302 in SS w/US & Latin mx (Durant, NY).

R. Rumbos, 0141 in SS at 9660 (Johnson)

Vietnam: V. of Vietnam, 15010 in EE at 1344 (Ross, ONT); in FF 1950 tune-in to 1957 off (Groner, BC).

West Germany: DW (various sites) 5960 at 0510 (Moser, PA); 6045 w/nx 0300 (Willie, ALTA); 15275 at 1244, 17715 at 1211 (Groner, BC); 17765 at 1501, 17780 at 0920 (Johnson, AZ).

Deutschlandfunk (via DW) on 9615 at 2105 w/pgms in Hungarian this sta produces, along w/several other E. European language svcs (Stephens).

Zaire: La V. du Zaire, 15245 at 2200 'neath VOA. VOA s/off 2201 thru carrier on to 2212. Hi-life mx, but knocked out at 2230 by (believed) WYFR (Stephens, AL).

Thanks and a tip o' the 'phones to: Amund Groner, Kamloops, BC; Paul Johnson, Phoenix, AZ; Pat McDonough, Pittsburgh, PA; John Bentler, Renton, WA; Mike Northrup, Ann Arbor, MI; Michelle Shute, Pensacola, FL; Robert S. Ross, London, ONT; J.D. Stephens, Huntsville, AL; Lance Sanders, Hot Springs, AR; William Moser, Pittsburgh, PA; Ron Porter, Watertown, MA; Bruce R. Gilson, Silver Spring, MD; Warren Gilbert, Sherman Oaks, CA; Vincent A. Geraci, Waterbury, CT; Allen Willie, Edmonton, ALB; Alexander Durant, Albany, NY.

'Til next month—good listening! PC

PIRATES DEN

FOCUS ON FREE RADIO BROADCASTING

BY EDWARD TEACH

Once again this month there's news of another FCC bust and closing of a pirate radio station. Two readers in Tacoma, Washington sent clippings from the Tacoma *Morning News Tribune* dated May 1. The story concerns a station operated from DuPont, Washington by 44-year-old John R. McCall, Jr. who devoted 90 minutes on Sunday evenings to playing rock and the occasional off-color story.

The station's transmitter used about $10 worth of transistors mounted on a 6-inch square of plywood and was able to broadcast for about one mile. McCall never used any call letters for the station nor did he identify himself on the air in any other way. But he said that some people did recognize his voice and he thought he had developed something of a following.

McCall was issued a citation with a potential penalty of up to $1,000. According to the story, McCall says the broadcast which was interrupted by the FCC was his last.

Then there have been the occasional times when a pirate radio station has actually grown into something both big and legitimate. One such instance is described by Dr. Bruce F. Elving, in the May 1 issue of *Radio World,* a professional publication. Elving notes that he had a hand in starting a pirate station at the University of Minnesota at Duluth some 30 years ago. That pirate eventually grew into what is now the 100-kilowatt KUMD, official voice of the university. According to Elving, the original station got started after he donated a McGee Radio Phono oscillator back in 1956. The antenna was a longwire strung between two buildings on the campus. The station operated illegally for about two years before someone alerted the FCC. Elving, incidently, is the publisher of the *FM Atlas and Station Directory,* as well as the *FMedia!* newsletter. Thanks to Warren Arnett in Marion, Indiana, for sending along this story.

Doug Smith, who is Ham operator W9WI in Madison, Wisconsin, says an apparent pirate has appeared in his area using 91.5 FM. The programming is progressive rock and Doug says the station is easily spotted since it's the only one on the dial which isn't in stereo! Doug says another FM'er is occasionally heard somewhere around 87.9 (between TV 6 sound on 87.75 and a legitimate station on 89.1). This pirate *is* in stereo and identifies as "**WFRR**, Wisconsin's Free Rock Radio" and also uses the identification "**88-X**." Its programming is also a progressive rock format. Thanks for the information, Doug!

An odd one was noted last February by Keith Baker of Waterloo, Iowa. Keith caught a station on about 1650 kHz identifying itself as **KRXY-108** and claiming to be broadcasting from Denver. This was on a Sunday evening from 2300 hours tune-in and well into the evening. Periodic checks of this frequency have turned up nothing more. Programming was pop music. Keith says that the station did mention "mountains" so he assumes it was in Denver, Colorado. He points out, though, that there's a small town called Denver near his location. Well it's hard to say which, Keith. I think I'd vote for the nearby location though, mountains or not. Do any of our Denver, CO readers know anything about such a station?

*A QSL from the **Gold Coast Ghost**, aka **KDTA** — The Delta, mentioned in the March and April columns. Note the frequencies given — 1700 AM, 91.5 FM and 28 MHz shortwave.*

Two readers, Bradley C. Lucken of Cincinnati and Paul Johnson in Phoenix, Arizona, report receiving the standard form letter verification for their receptions of **Radio Clandestine.** Replies from this station are sometimes slow but, other than that, Radio Clandestine can be saluted for their better than average programming and production. Certainly Radio Clandestine has proved to be a survivor.

Attention Paul Johnson! This column has received a note from **PMR Radio** in response to the unidentified station you reported last March. The note says the station you had was PMR Radio—this was on 2 November last, 0127-0136 on 7412. PMR says it was running 30 watts and that you had them at a distance of 1800 miles! Broadcasts from PMR will evidently continue as they note that "as sunpot conditions improve our transmissions should be heard more often." Watch the usual 7.3 to 7.5 MHz pirate band for future appearances of this station—which notes it has no mail drop available at this time.

In general terms, the pirate patterns are continuing to be about the same: most activity is taking place via the very limited range FM band operations and, to a lesser extent, the 1600 kHz and above mediumwave area. The shortwave frequencies are continuing to see relatively little activity even though that area offers the greatest distance potential. Perhaps, as PMR Radio noted, this will increase as sunspot numbers swing upwards and operators realize they are likely to be heard more clearly and at greater distance than has been the case during the dark days of low sunspot counts.

Other recent loggings of pirates on shortwave include **KNBS** on 7445, **WDOG** on 7475, **Radio X** on 7416 and **Radio Lambda** or **KMUD** on 7434—the latter announcing a San Francisco location. There may well be other activity on the main shortwave pirate band though it's difficult to know when schedules are inconsistant. Still, regular and frequent checks are the best means of turning up pirate logs. As noted in the past, weekend evenings offer the best chance to hear pirates on any band.

I hope you'll report what you hear, what you QSL, send copies of QSL's received, clippings of pirate station news. Readers who are operating pirates are encouraged to write and provide details of your stations, with pictures if possible. No one person can catch all the pirate news so your eyes and ears are needed.

Thanks, and good sailing! PC

BY GORDON WEST, WB6NOA

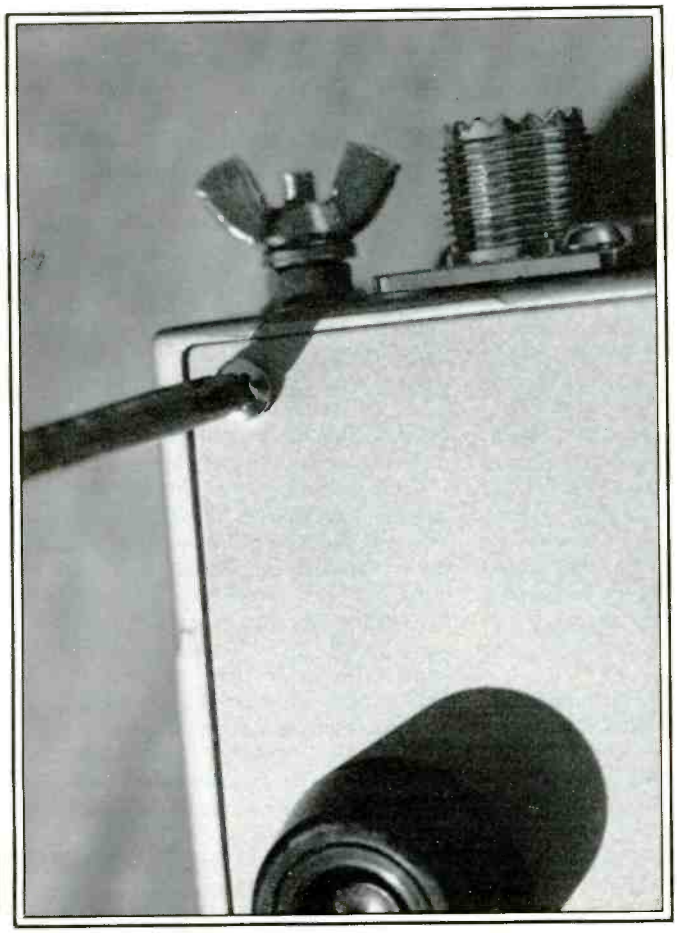
Kenwood 440 Modifications

For high frequency operation, Yaesu, Ten-Tec, ICOM, and Trio-Kenwood offer the latest in all-band, worldwide transceivers. Kenwood, Yaesu, and ICOM sets are all made in Japan. Ten-Tec is a U.S. made transceiver.

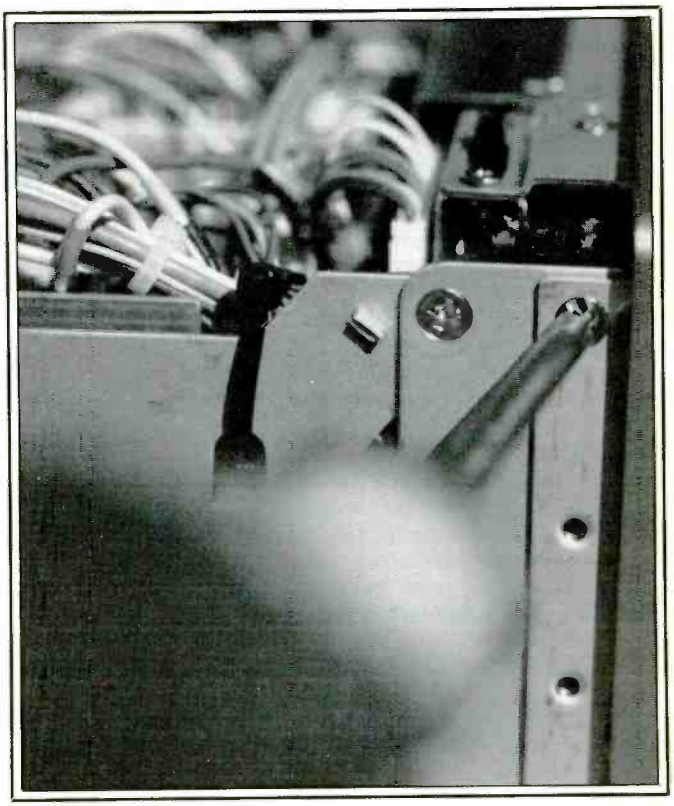
All of these Amateur Radio transceivers are equipped for general coverage receive. The addition of shortwave capabilities into a worldwide Ham set is nothing new. ICOM did it first with their IC-720 almost ten years ago. Now, *everyone* is including shortwave in their worldwide Ham sets.

The general coverage receiver usually begins at 500 kHz and extends up to 29.999 MHz. I have compared the receiver section of these Ham transceivers to dedicated shortwave sets, and the receivers are identical. The shortwave sets simply don't include the Ham transmitter circuitry.

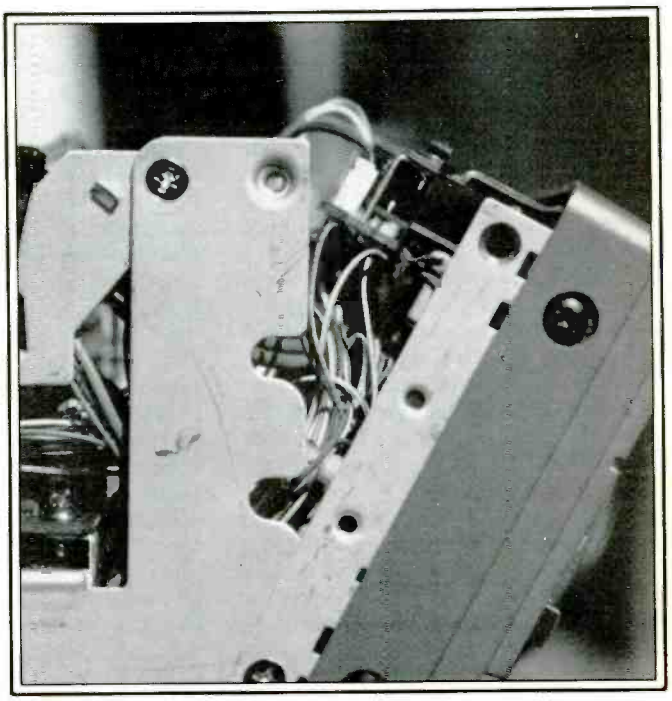
When you compare pricing of a shortwave-only receiver and pricing of a Ham transceiver with general coverage reception capabilities, it's obvious which way to go—spend an extra $50 to $100 and get a set that also doubles as an Amateur Radio transceiver with 100 watts output.



1. Remove 17 screws holding on the bottom and top covers. The bottom cover comes off, and the top cover is carefully removed and put next to the radio. It is still connected via the speaker wire.

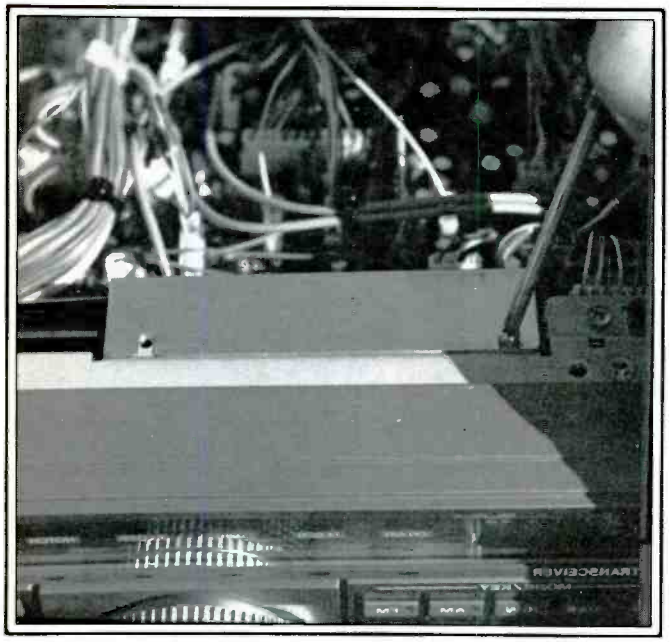


2. Gain access to the front of the unit by removing two top side screws and loosening two bottom side screws.

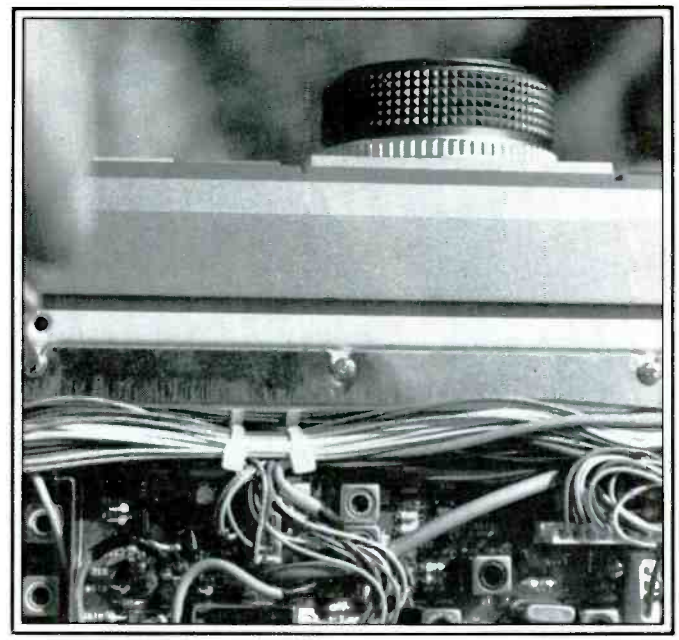


3. This allows the front assembly to swing open.

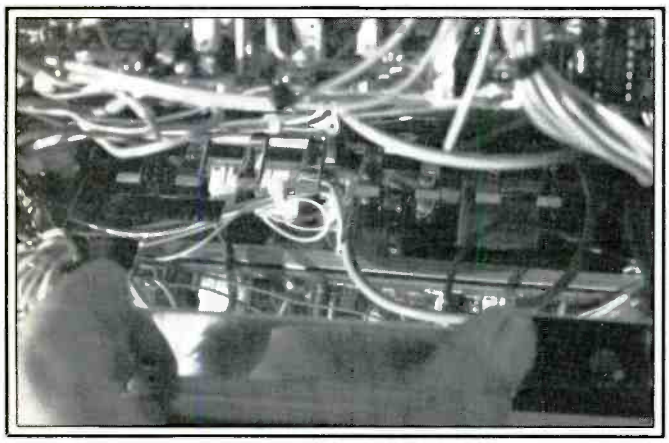
Kenwood 440 Modifications



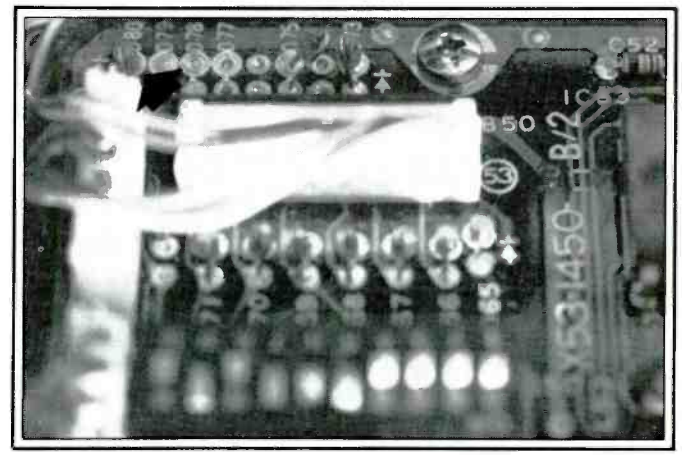
4. *Remove the shiny silver control board protection plate. This requires removing two screws on the top . . .*



and three screws on the bottom.



5. *Lift the plate out carefully.*



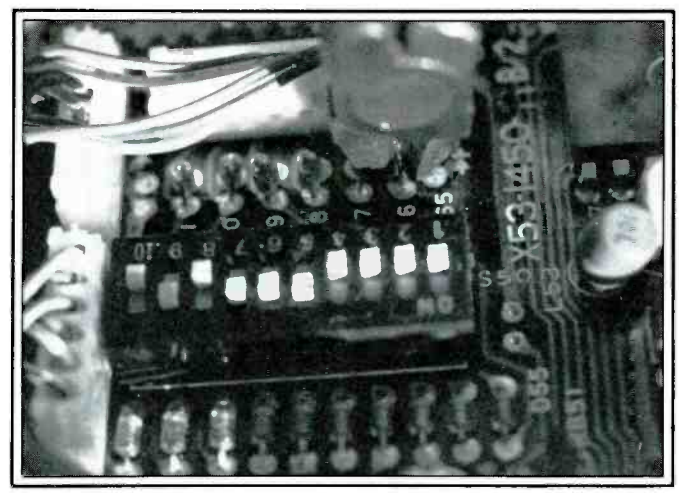
6. *Locate diode D-80 in the bottom left-hand corner. Snip it for all-band transmit.*

These worldwide Ham sets with general coverage receive may also be modified for all-band transmit for emergency purposes. The broad-banded Ham transmitter goes anywhere the receiver goes (except below 1.6 MHz), so why not have the capability in case disaster strikes? Remember, in an emergency, you can use any frequency to signal for help.

Kenwood TS-440

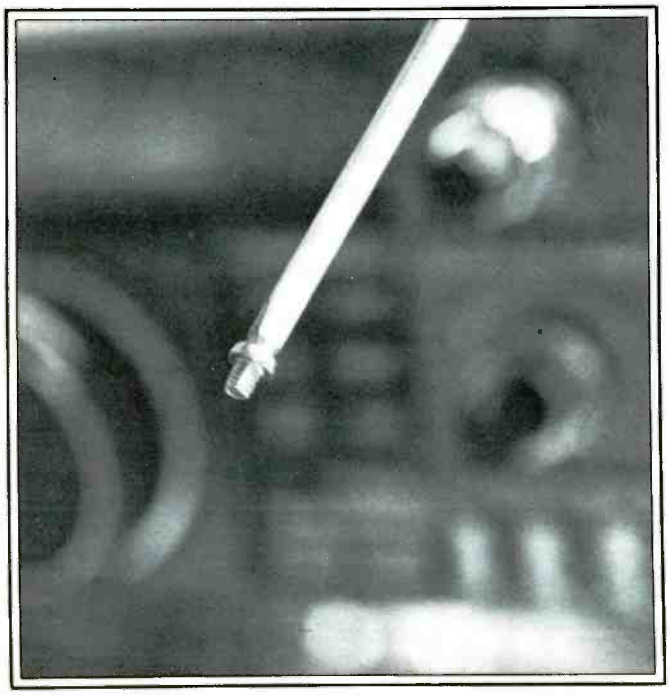
The Kenwood TS-440 is best suited for emergency communicators because of its all-band circuitry and 100 memory channel bank. No other worldwide set has as many memory channels as the 440. The 440 also dedicates ten of those 100 memory channels for duplex split-channel operation. This would allow the emergency communicator to transmit on one frequency, and receive on another—both of which are stored into one memory channel. The United States Coast Guard and the high seas worldwide telephone service all operate duplex, so communicating with these services in an emergency with the 440 is easy once the ten memory channels have been programmed.

Follow the photo caption steps for all-band transmit modification

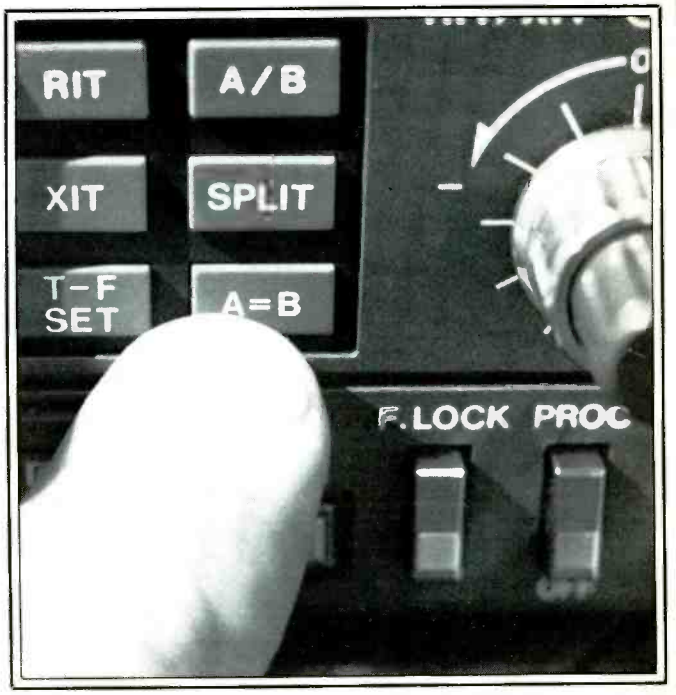


7. *Now locate D-66 and snip it. It adds 10 Hertz readout to your frequency digital display.*

Kenwood 440 Modifications



8. Carefully reassemble the control plate using a magnetized tiny screwdriver to hold the five tiny screws in place. Don't pinch any wires. Also, close up the front and replace the top and bottom covers with 17 screws.



9. Plug in the power cord and add 12 volts DC. Depress A=B switch and turn on the power simultaneously. This resets the micro-processor for all-band transmit and 10 Hertz frequency display.

to the 440. Also included are two additional modifications for more precise tuning and increased power output.

This completes the all-band transmit modification. **Warning:** licensed Hams could easily lose their license if found operating on frequencies not assigned to the Amateur Radio service. Non-licensed operators using this equipment on frequencies not authorized become liable for stiff fines or imprisonment. Use the transmitter on any frequency outside of normal limits *only* as a last resort where life or property is at stake. (Modifications will probably negate factory warranties on the equipment.)

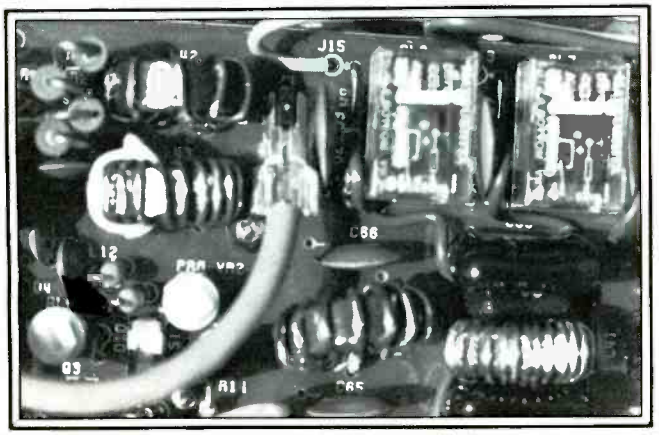
CAUTION. If you operate RTTY, CW, Amtor, or packet, you must be very careful not to exceed the recommended 100 watts output. Too little ALC action could result in overheating of the finals and premature shutdown.

However, if you normally only use voice, this ALC trick dramatically improves voice-power output, yet still provides protection for your finals. Just make sure you see that ALC meter wiggle on your front panel on voice transmit.

Button up the set, and enjoy your new capabilities with caution. Remember, transmitting outside of your authorized band limits could result in the loss of your license. Use this all-band transmit modification only in an emergency to call out for help. As emergency communicators reading this column, it's nice to know you have this capability at your fingertips.

Power Output Modification

You will need at least a 20 amp, 12 volt, power supply to check for proper power output. You will also need a watt meter and preferably a dummy load for our next modification. The same trick I'm going to give you also works with other high frequency transceivers to obtain better voice-power output.



On the Kenwood 440, remove three screws that hold on the bottom plate next to the rear heat sink. This allows you access to the P.A. section and the low-pass filter network. On other sets, it's usually on the bottom and near the back.

Locate the control pot that allows you to vary your voice ALC (automatic limiting control) line. On the 440, it is VR-1. You can turn it gently with your fingers, but I recommend using a jeweler's screwdriver. (See photo.)

Transmit into the dummy load using normal voice, and watch the swing of your watt meter. Also note the action on the ALC meter on your front control panel. Chances are the ALC action looks "heavy," and typical voice modulation is around the 40 watt level of an average reading meter. Yes, you can whistle it up to 100 watts, but average voice still only hovers around 40 watts.

Adjust the ALC pot slightly to the right for a dramatic increase in average voice power output. Make sure you don't adjust it too far where the front panel ALC meter shows no action. You must have some sort of meter action in order to protect the finals from overdrive. A 3-degree clockwise turn usually does the trick nicely. Now your voice power is around the 60 watt level, with peaks to 80 watts. This is where you want it. **PC**

ON THE LINE

NEW AND EXCITING TELEPHONE TECHNOLOGY

BY JULIAN MACASSEY, N6ARE

The Telephone Company's Wire Color Code Explained

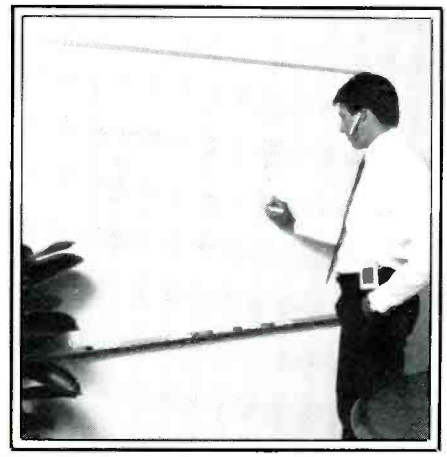
Most people know that every numbered ball on a pool table has a particular color. Horse owners have "colors" so their jockeys and horses can be spotted in the field. Resistors have a color code determining their value. Anyone who has looked at a telephone cable will have noticed that the wires are all different colors. This is the telephone company wire color code.

Colors, whole or with stripes or patterns, are often used instead of words and letters. Ships can signal whole paragraphs of meaning with just a couple of flags. A resistor with a few bands of color can tell you its value, tolerance and temperature stability. The phone company can identify one pair of wires out of thousands with a simple but brilliant color code. When trying to identify a phone line in a crowded phone closet, knowledge of this code is indispensable.

Anyone who has ever worked on a computer wire-wrap board will know what a nightmare it is. You are confronted with hundreds of tangled wires, all of them blue. If those wires were color coded, even simply, life would be so much easier. Red for power, black for ground and blue for signals would be a start. Few computer buffs believe it, but wire-wrap was not invented by the computer industry. Wire-wrap was invented in Bell labs. Most telephone wire, yes even telephone wire-wrap wires, is color coded. There could only be two reasons why the computer industry does not color code its hundreds of wires: economy or stupidity.

Apart from some wires associated with phone jacks and single-line phones which are single colors such as green and red (see the February 1987 *On the Line* column), all phone wires consist of a main color and a stripe color. All phone wires are called out in "pair," two wires. There is rarely a common ground in telephones. Two wires are needed, just like TV twinlead, it is a balanced system. One of the pair will carry a body color of, say, blue with a white stripe. The other wire of the pair will be the reverse, white with a blue stripe.

There are two sets of five colors that make up the code. The first five are called the Major colors. The second five are called the Minor colors. This may seem complex, but Figure 1 should make it clear. Each Major color is repeated five times by having a minor color as a stripe. Therefore, you will have 25 alternatives and by changing the body color between the Major and Minor colors, you get the second half of a pair of



The Plantronics Liteset cordless headset with dial.

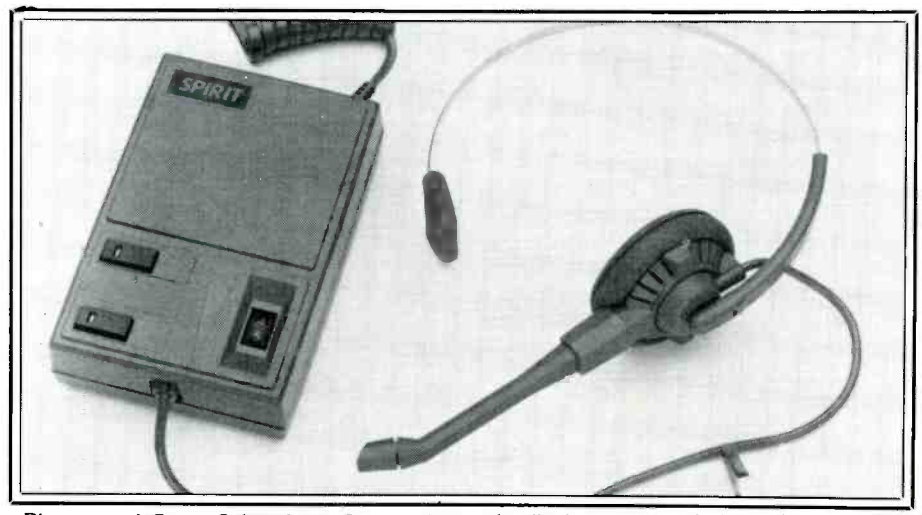
wires. Note that the wire in the pair that has the Major color as the body color is the Tip; the wire with the Minor color as the body color is the Ring. Of course, not all the wires in a telephone system are "phone lines" many carry lamp voltages, control signals, etc.

Major Colors	Minor Colors
White	Blue
Red	Orange
Black	Green
Yellow	Brown
Violet	Slate (gray)

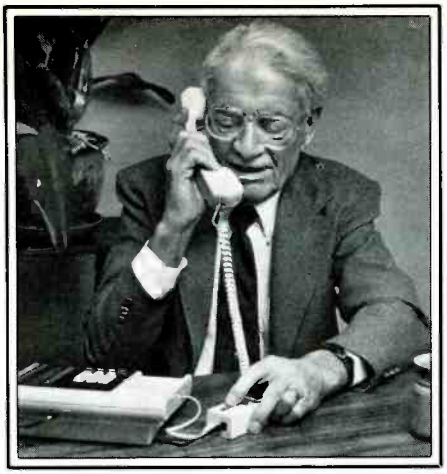
The color code takes care of a standard bundle of 25 pair (fifty wires). It then takes care of the order of the bundles by applying the same color code. Around each bundle is a colored tape called a "Binder." On large cables, the Binder can be two tapes, a Major and Minor color. Twenty-five bundles would then have another Binder round them. As an illustration, if you were looking for the 110th pair in a large cable, you would ignore the first 25 pair wrapped with the white/blue Binder, also ignore the second, third and fourth Binder groups which would have white/orange, white/green and white/brown tape wrapped around them. The fifth bundle with the white/slate tape wrapped around it is the bundle you want. The first pair white/blue is pair 101. The red/slate pair are pair 110. So, by going to white slate binder and red/slate pair, you have picked out exactly the right pair of wires. Fast and efficient and no problems trying to read small numbers stamped on wire.

When 25 pair cable is connectorized, there is a standard connector used. This connector is often referred to as an "Amphenol," the name of the original manufacturer. These days, these connectors are now made by many manufacturers, including Amp and TRW/Cinch. One way of describing these connectors is to imagine a large Centronics parallel printer connector.

Most people are familiar with these connectors, they are connected to the end of old style office telephones. The old phones with the buttons for lines and blinking lights are called "key sets" or 1A2 in the phone



Plantronics' Spirit 3 headset. Compatible with all electronic multi-line phones. The headset has adjustable volume.



The Plantronics Startone handset amplifier. This is an externally powered device, ideal for the hard of hearing, or for use in noisy environments.

business. With separate wires for each phone line, light bulb, ringer, buzzer and control signals, the phones needed 25 pair for four lines and an intercom. These connectors are often used to rapidly attach and disconnect large equipment such as PBX's to the phone network.

The Amphenol connectors come in male and female configurations. When installing cables with these connectors on them, the "live" end should be female and the dead or unpowered end male. The connector is made up of two parallel rows of teeth. Respective Tips and Rings are opposite each other. The way numbering goes, the first pair, white/blue are pin 26 Tip while pin 1 is Ring. The last pair are on pins 25 and 50. Tip is on pin 50. (See Figure 2.)

Amphenol connectors can have the wires soldered on or "punched down" using insulation displacement. Each connector manufacturer has its own punch down system and associated expensive tool to do the job. The insulation displacement connectors made by Amp can be assembled slowly with a special small hand tool. This tool is slow but certain, it also works in cramped quarters. In a pinch, Amp connectors can be punched down with a small screwdriver. Connectors are available with plastic or metal shells. Plastic is obviously cheaper, but not recommended if they are going to be stood upon.

Various manufacturers make adapters that have an Amphenol connector on one end and regular RJ11 type jacks on the other end. There are limitless varieties of these adapters, they can be handy for adding a phone answering machine on a key system. The major use of these adapters is when using old 25 pair cable to connect to a single line phone or modem.

The Amphenol connector does an excellent job providing a low profile moveable connection to 25 pair cable, but is too expensive and not reliable enough for splicing out of the way cable. For those hard to get at

Figure 1

Wire identification used in the U.S. and Canada

Pair #	Wire #	Colors
1	1	white/blue
	2	blue/white
2	3	white/orange
	4	orange/white
3	5	white/green
	6	green/white
4	7	white/brown
	8	brown/white
5	9	white/slate
	10	slate/white
6	11	red/blue
	12	blue/red
7	13	red/orange
	14	orange/red
8	15	red/green
	16	green/red
9	17	red/brown
	18	brown/red
10	19	red/slate
	20	slate/red
11	21	black/blue
	22	blue/black
12	23	black/orange
	24	orange/black
13	25	black/green
	26	green/black
14	27	black/brown
	28	brown/black
15	29	black/slate
	30	slate/black
16	31	yellow/blue
	32	blue/yellow
17	33	yellow/orange
	34	orange/yellow
18	35	yellow/green
	36	green/yellow
19	37	yellow/brown
	38	brown/yellow
20	39	yellow/slate
	40	slate/yellow
21	41	violet/blue
	42	blue/violet
22	43	violet/orange
	44	orange/violet
23	45	violet/green
	46	green/violet
24	47	violet/brown
	48	brown/violet
25	49	violet/slate
	50	slate/violet

Figure 2

25 pair Amphenol connector wiring diagram

Pin Number	Color
26	white/blue
1	blue/white
27	white/orange
2	orange/white
28	white/green
3	green/white
29	white/brown
4	brown/white
30	white/slate
5	slate/white
31	red/blue
6	blue/red
32	red/orange
7	orange/red
33	red/green
8	green/red
34	red/brown
9	brown/red
35	red/slate
10	slate/red
36	black/blue
11	blue/black
37	black/orange
12	orange/black
38	black/green
13	green/black
39	black/brown
14	brown/black
40	black/slate
15	slate/black
41	yellow/blue
16	blue/yellow
42	yellow/orange
17	orange/yellow
43	yellow/green
18	green/yellow
44	yellow/brown
19	brown/yellow
45	yellow/slate
20	slate/yellow
46	violet/blue
21	blue/violet
47	violet/orange
22	orange/violet
48	violet/green
23	green/violet
49	violet/brown
24	brown/violet
50	violet/slate
25	slate/violet

connections that never need to be got at or changed, the old fashioned splice is used. This is matching wires joined with insulation displacement or crimp connectors handling one wire at a time. The nickname for these devices is "jelly-beans." They are used to join two bits of cable of any number of pairs. They are also used to repair cable, especially if the swimming pool contractor just put his back-hoe through it, cutting off the neighborhood.

After a cable has been spliced with jelly beans, it is covered in a sleeve. In a harsh environment, a putty-type moisture excluding filler can be poured round the splice. These splices are common on aerial cable. Looking along utility poles, it is easy to spot the splices as pod-like growths on the cable. Some splices are used to tap in a second cable, usually to take 25 or more pair to another location. These days with deregulation and reduced costs, many splices inside buildings are no longer sheathed. In a sheltered environment, leaving the cable unsheathed may not harm it, but it does improve the aesthetics and will protect the cable, just in case the building floods.

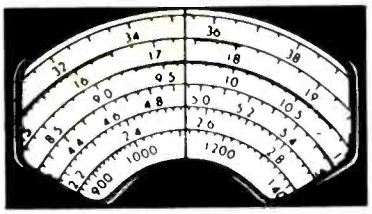
Back in the old days, a cable splice would have twisted the wires together then placed a paper sleeve other the bare wires. Finally, the whole splice was placed in a bucket and tar poured in. Many of these old splices are still working fine after over half century of use.

At the business end of most 25 pair cable, it is usually connected to an exchange, PBX, Key System Unit (KSU) or some sort of semi-permanent switch or control device. At this point the wire is usually "punched down," although sometimes it is plugged right into a system with the Amphenol connectors.

Cable referred to as "punched down" in turn refers to insulation displacement connection—yet another Bell Labs first—into a block of terminals. These terminal blocks are usually referred to as "66 Blocks." They come in a variety of configurations. They are all laid out so that, vertically, 50 wires (25 pair) can be punched across them. The layout of the wire is simple, the first pair is at the top of the block and the last pair is at the bottom of the block. The Tip of the pair is always on top, i.e., the white/blue wire is on pin number one. To remember which wire of the pair goes where, Tip = Top.

Some 66 blocks have six pins per horizontal row, all six pins connected in common. Others have four pins per horizontal row. These usually have two pins on each side commoned. They are called "split blocks." There are special metal clips that will join the two sides called bridging clips. Split blocks are the most common type. They are often used to join a 25 pair cable to another, via the bridging clips.

To join one cable or part of a cable on a 66 block to another cable or part of a cable on another block single twisted pair, 22 gauge wire called "Cross Connect wire," "Jumper wire" or "Red and White" is used. This is most often red and white wire with white being "Tip." The wire can also be seen red/black, orange/white and blue/white. Occasionally, five pair wire using the white major color listed above is used. Tracing this wire across a "Backboard" of punch down blocks is usually done by finding one end and tugging the wire to find the other end—really high-tech. PC



COMMUNICATIONS CONFIDENTIAL

BY DON SCHIMMEL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Several reports have been received from readers who have described what appears to be intentional interference with official communications circuits. Gary Vendetti, NJ, tells of monitoring some SAC channels and hearing, on several occasions, intrusions on a SAC frequency by someone who played music thereby tending to disrupt net operation on that frequency.

The next similar report was received from Mike Dieter Gierschevski in West Germany, who summarized various interfering activities he observed both within and outside of the Amateur bands. According to his report, some NATO and U.S. Forces communications have been affected by apparent pirate operators and Mike advised he has seen a lot of this interference. Much of it has been noted between 3.4-3.5 MHz and 6.6-6.75/6.9 MHz when such transmissions caused QRM to legitimate frequency users.

Some of the interfering stations attempted to contact USAF and NATO stations while other intruding operators get on those frequencies and just whistle repeatedly, thereby interrupting net communications. Various languages have been observed in use by these interfering stations, including English, French, Spanish, Italian and German.

Reader information regarding past instances of apparent deliberate jamming of SAC comms claims it was done by the USAF itself for training and drill purposes so that SAC ops would learn how to deal with this type of interference.

Mystic Star monitoring is enjoyed by Thomas Stovall, AL, and Table 1 shows the frequencies he has prepared.

Mr. Stovall informs us that when you monitor the SAM flights and Andrews AFB, they will specify the frequency by saying something like FOXTROT 45 UPPER or F45 UPPER. When they talk about INDIA OSCAR, they are referring to the FAX or

Here is a picture of the equipment installation belonging to Frank Speirling, CA. Frank says it occupies one side of his trailer. The equipment includes a TS430S with antenna tuner, Collins R390A, Info-Tech 600A, UHF scanner 2010, VIC 20 (for logging), Uher tape recorder, 116' dipole antenna for low frequencies, and a Starduster antenna for the higher frequencies.

MANY THANKS RECD FEB. 09 1987

for your report

of JANUARY 11 1987

at 00.13 gmt.

You have been listening to our transmitter

PZN

on 2182 kHz. power used 5 kw

class of emission J3E

antenna VERTICALLY POLARIZED

73 es BCNU

F. H. MUSKIET

CHIEF PARAMARIBORADIO/PZN

To PATRICK O'CONNOR

For further information about our country, please write to the

National Information Service
P.o.box 1139
Grote Combéweg 5
Paramaribo-Suriname-South America

ROYAL NAVY COMMCEN WHITEHALL

Communications Centre Whitehall
Old Admiralty Buildings
Spring Gardens
Whitehall
London SW1A 2BE

31 March 1987

Patrick O'Connor

USA

RECEPTION VERIFICATION

Thankyou for your letter dated 22 Feb 1987.

I am pleased to be able to verify your reception of the Royal Navy Wireless Station at Gibraltar.

STATION/CALLSIGN.....	GIBRALTAR/GYU
FREQUENCY.....	8625 khz
POWER OUTPUT.....	1 KW
AERIAL	OMNI
TIME/DATE.....	2119 GMT/ 22 FEB 1987

M.WARRINER
CRS Operations 3
Commcen Whitehall

Patrick O'Connor sends some more QSL's from his collection.

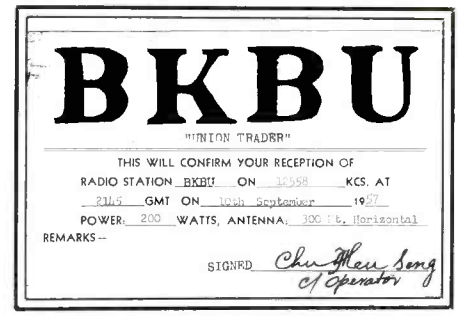
Table 1

Mystic Star Network

Frequency	Foxtrot	Frequency	Foxtrot	Frequency	Foxtrot
2.014	580	9.004		13.212	
3.046	50	9.007	828	13.215	23
3.054.5	838	9.018	31	13.247	
4.721		9.023		*13.472.5	22
4.731		9.026	26?	13.445	
*4.793.5		9.958	919	13.485	225
5.688		9.991		13.585	224
5.700	41	*10.185		*14.671.5	
6.680		11.035		15.015	21
6.683	15	11.055		15.048	20
6.712		11.118	423	*15.620	
6.715.5	39	11.121	315	16.090	568
6.730	38	11.176		16.320	
6.738	37	11.180	608	*17.670.5	
6.746	67	11.180.5	27	17.972	19
6.756	36	11.201		17.993	18
6.760	35	11.225	26?	18.027	17
*6.912.5		11.241		18.629	312
6.989	239	11.249	25	18.650	
*7.400.7		11.460	572	*19.955	
7.632		11.467		20.016	
7.735		11.607		20.053	60
7.758		11.988		20.400	59
8.052		*12.201		20.885	
8.101		13.201	24	*23.068.5	
8.967		13.204	607	23.265	16
8.993		13.210	606	25.578	
				29.899	

*Frequency used for RTTY and/or FAX as well as Voice.

U.S. Coast Guard QSL sent in by J.D. Stephens, AL.



Ute QSL's from behind the Bamboo Curtain weren't too common in the 1950's. Tom Kneitel was able to coax this one out of BKBU, the PRC freighter Union Trader. *The ship was logged on 12558 kHz in September of 1957. It ran 200 watts into a 300-foot longwire. The prepaid reply card was signed by Chu Heu Seng, the ship's Chief Radio Operator.*

Table 2

Freq	Call	Identifier	Remarks
6730	86971	SAM flight	Secretary Shultz onboard
9007	AFA3	Andrews AFB	Working SAM 681
13247	AFA3	Andrews AFB	Working SAM 468
18027	AFA3	Andrews AFB	Working SAM 86970. Later heard working SAM Command & then p/p from Sen. Sam Nunn.

RTTY mode. If they mention GOING TO BLUE BOX, GOING TO GREEN BOX, GOING TO UPPERS, DVP, then they are going to scramble mode. 960U is telephone via satellite, 960S is data via satellite.

Carl Kappesser, MO, also likes to follow SAM communications and he has provided a summary of such activity as shown in Table 2. The mode for all entries was USB.

Frank Aden, Jr., ID, commented on the RAL-7 photo carried in the May column. He said he recalled seeing one of that type of receiver in the *U.S.S. Constellation* at the Navy Pier in Chicago and also seeing one in the movie *Run Silent, Run Deep*. Frank asked about a possible source of a manual for this equipment.

I have also received some other requests for sources of Military Surplus Electronic manuals. I am aware of a few such outlets and here they are:

Wayne D. Russell
9410 Walhampton
Louisville, KY 40222

M. Consalvo
7218 Roanne Drive
Washington, DC
20021

HI, Inc.
Box 864
Council Bluffs, IA
51502-0864

Fair Radio Sales
Box 1105
Lima, OH 45802

From across the Pacific we heard from David Sabo, a Staff Sergeant in the U.S. Air Force, who is currently stationed in Korea. David wrote, "Far from being a salty old pro as far as the world of shortwave listening goes, I'm relatively new to the hobby having just started in the Fall of last year, and at the present time possess only a modest setup. I chase static with a Panasonic RF-B300 six-band radio and a Toshiba RF-P11. I can't install an outdoor antenna so I've had to make do with an indoor setup of about 20 feet of 14-gauge wire strung up along the walls of my room." David added that the radio environment in that part of the world is dominated by strong signals from the USSR and the PRC but there are also ute monitoring opportunities of U.S. and ROK military nets, air-ground activity, VOLMET broadcast and an occasional numbers transmission.

David Bush, OH, forwarded the results of his monitoring of some 5-figure numbers transmissions. There was perhaps some form of QRM on the initial frequency observed by David because the transmitter was periodically shifted to what must have been the most audible spots in the band. The transmission was in the AM mode and by an OM/SS and commenced at 0505 on 8122 kHz. The frequency was then changed to 8115, 8122, 8130, 8145, 8155 and finally to 8165 kHz. The continual change in frequency suggests the possibilities of either

US Department of Transportation
United States Coast Guard

Commanding Officer
U.S. Coast Guard
Communication Station
Boston/NMF

PO Box 608
Marshfield, MA
02050-0005

10 April 1987

Hugh,
Thank you for your reception report. The information you recorded was correct. The information included with your reception report is very interesting and useful to this station.

The callsign "NIK" is used by this station for ICE broadcasts only. Our primary callsign is "NMF". This station gives several broadcasts each day both in the MF and HF range. The ice broadcasts began several years ago to provide updated information to mariners transiting the northern Atlantic. The Coast Guard has been tasked with ice patrols since the sinking of the TITANIC in 1911. COMMSTA Boston is the only Coast Guard station to broadcast this information.

The equipment in use is as follows:
HF-8090 COLLINS Transmitter - pwr out - 10KW
TCI 548-3-03 and TCI 527B-2 antennas. Antennas are oriented at 030. 060 and 065 degrees.
Frequencies keyed: 5230, 8502 and 12750 during the day, and 5 and 8MHZ at night.
The broadcast is sent from a Teletype Corp. Model 40II-B teletype and a Model 660C TTY to Morse converter.

As I stated before, this station makes several broadcasts per day in the CW, SITOR, VOICE, FAX and RATTY modes. Our area of responsibility is primarily the north Atlantic, so the majority of our antennas are directioned this way. It is very surprising that you were able to copy this broadcast from Texas even though a very strong signal is emmitted from the back side of the antenna.

I am enclosing the QSL card you requested along with some other information about COMMSTA Boston. I hope you find this information interesting. Again, I would like to thank you for your report.

Sincerely,

Ronald I Breen, Radioman 1st class
USCG COMMSTA Boston/NMF/NIK

Reception verification received by Hugh Hawkins, TX.

MINISTRY of TRANSPORT
NEW ZEALAND METEOROLOGICAL SERVICE

P.O. BOX 722, WELLINGTON 1
TELEPHONE: 729 379
TELEGRAMS: METEO
TELEX: 31392

SALAMANCA ROAD,
KELBURN,
WELLINGTON 1

Met: 26/1/15

Mr Jerry Brumm

U.S.A.

Dear Mr Brumm,

Thank you for your letter dated 21 January 1987 in which you enclosed details of the transmissions you received from our transmitters in Auckland. (ZKLF).

I can confirm that you received part of one of our broadcasts to shipping. I have enclosed a computer print-out of the broadcast so that you can compare it with the text you received. Although the quality of the reception was poor I was able to recognise several words from each of the three sections of the broadcast. The last part of your reception appears to be part of a hurricane warning from a storm named "TUSI". This warning was prepared by the Fiji Meteorological Service and was broadcast by us on their behalf.

The broadcasts are compiled and encoded by computer in Wellington and relayed to Auckland for transmission. The transmitters are 5kw Aerocom, attached to Marconi conical monopole aerials. The transmitters are used for our radio-facsimile broadcasts as well as for radio-telegraph and the frequencies used are 5806.6, 9458.6, 13550.1 and 16221.6 kHz.

The broadcasts are designed to meet the use of shipping in the South Pacific Ocean with the 5806.6 kHz frequency being used for the most part close to New Zealand. It is therefore not surprising that the reception of this frequency in Chicago was poor.

Unfortunately we do not have a QSL card, although I hope we can get one designed and printed this year.

I hope that this letter will serve as recognition of your reception. Thank you once again for your letter.

Yours sincerely

M W Pointer
Superintendent, Services Development
for Director

A reception verification received by Jerry Brum, IL from the New Zealand Meterological Service.

transmitter problems or that the shifts were intended to escape jamming efforts.

Before we go to this months loggings, here are some more QSL addresses supplied by Pat O'Connor, NH.

GND Beacon on 362 kHz

GND Beacon
Point Salines Airport
Grenada, West Indies

RAF Transport Command Aircraft (ASCOT)

ASCOT #____
Aircraft Commander/Comm. Officer
HQ 1 Group, RAF Upavon
Pewsey, Wiltshire SN9 6BE
England

British Naval Radio Land Stations

Royal Navy Communications Centre
Operations Office
Chief Radio Supervisor
Old Admiralty Building
Spring Gardens
Whitehall
London SW1A SBE
England

Intercepts
(All Times Are UTC)

2514: WLC, Rogers City, MI w/wx in USB at 0632 ("J.M.," KY).

2572: WIO, Mobile, AL w/wx in USB at 0601 ("J.M.," KY).

2716: NJLK, **USS Kaufmann (FFG-59)** at 1310 working **USS Valdez** (Pat O'Connor, NH).

3413: EIP, Shannon Volmet, Ireland w/aero wx in USB at 0503. Also intercepted on 13624 kHz in USB at 1203 ("J.M.," KY).

4030.2: Un-ID sta sending "Load QRA de A7B -P- T 130300Z GR 120 BT" in CW at 0315. Data burst at 0330, at 0335 began sending tfc w/DTG of 130330Z (A. Nonymous, MO).

4131.2: C6DN, cruiseship **Scandanavian Sun** in USB at 0055 w/patch thru WOM (Daryll Symington, OH).

4143: KVA78, Sand Point, WA wkg WYN9784, vessel **Marlin** re indured crew member. Heavy QRM from river tfc (Hall, WA).

4243: Un-ID station w/scrambled speech in USB at 0610 ("J.M.," KY).

4376: JDO, Tokyo, Japan w/test tape in USB at 1229. YL/EE at the mic (Sabo, S. Korea).

4586: Red Dog 402 & others on SENTRY net in USB at 0241. Talked of setting up a repeater in VA/NC (Krizanek, NJ). This is the NC wing of the CAP-- Ed.

4747: YL/EE ID'ing as "Yokota" w/mixed alphanumeric tfc in USB at 1830. Same tfc sent by OM on 6738 at 1835. Aircraft w/ID of SJ296 to Yokota in USB at 1842 (Sabo, S. Korea). Probably Yokota Air Base (USAF) in Japan-- Ed.

4821: YL repeating Kilo Golf in USB at 0430 followed by 4F gps in GG at 0435 (Rogers, PA).

4890: Romeo Deita wkg "207" in USB/DVP/CW at 0639 w/SS conversations re map coordinates, a raid(?), Nicaragua. Possibly located in southern Honduras. CW xmsn of CV CV CV superimposed on voice comms (Hall, WA).

4950: "Show Me A" sending encrypted msg in grps of 3L/F in USB at 1630 to "Show Me LW." This is a MO National Guard net that was activated during a manhunt around Rolla, MO (A. Nonymous, MO).

6505: Honolulu High Seas sta at 0513 w/marine wx in USB (Linville, Canada).

6509: KVJ, NOAA Pacific Marine Center, Seattle, WA wkg NOAA vessels WTEJ, **MacArthur**, WTEJ, **Davidson**; & WTEF, **Rainier** in roll call & supply/message net. Vessels on survey missions in N. Pocific & Alaskon Gulf (Hall, WA).

Abbreviations Used For Intercepts

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

6517: Ship tfc in Italian, USB at 0215 (Krizanek).

6518.5: Ship to shore in EE & SS mixed at 0059, USB mode. Both ops talked of refitting the ship at sea. The shore station experienced comm problems & xmsn ended at 0115 (Stinnett, WV)

6532: United 830 to Honolulu Aeradio in USB at 1456 w/position report & selcall tone checks (Sabo, S. Korea).

6577: Piarco Airport, Trinidad & Tobago wkg various aircraft in Caribbean area, USB at 0140 (Homuth, AZ).

6649: Panama LDOC wkg Avianca & other SS air tfc enroute Mexico City, at 0511 in USB (Hall, WA).

6715: SAM 86971 wkg Andrews AFB in LSB at 2040, coordinating RTTY tfc in conjunction with trip being made by a high level official (Symington, OH).

6775: Un-ID sta in CW at 0341 w/5L gps (cut #'s). At end of msg sent AR AR AR then DW DW DW BT BT & into another msg that ended AR AR VA at 0345 (Hall, WA).

6676: Bangkok Radio, Thailand w/OM giving

Volmet bc in EE, USB at 1813-1815 (Saba, S. Korea).

6679: Aukland Volmet, New Zealand w/aero wx at 0451 ("J.M.," KY).

6705: VXA, Edmonton Military, Alberta, Canada in USB at 0248. Canadian Military 3730 (aircraft) w/patches thru VXA to Ottawa, then got wx for Vancouver (Kappesser, MO).

6711.4: OM/SS w/6F gps in LSB, sounded "live" at 2235 (Rogers, PA).

6712: Jammer on SAC channel w/rock mx. SAC op went to scrambler after asking, "Does that music sound familiar?" SAC op ceased xmsns but mx continued until 0043 (Vendetti, NJ). Possible source was the USAF itself, w/jamming sent to train ops ta deal with jamming-- Ed.

6721: A5Y un-ID sta w/alphanumeric tfc in USB at 0829 (Sabo, S. Korea).

6738: AIC2, Clark Air Base (USAF), Philipines in USB at 1617 w/Skyking tfc (Hall, WA).

6812: Andrews AFB w/patch to Crown & Purdue University (IN), USB at 1841; Air Force 1 & Andrews w/patch to Crown at 0022 (A. Nonymous, MO).

6926: Sounded like 2 tones from a TouchTone 'phone being repeated in AM at 2230. Also noted here at other times (Rogers, PA).

6970: C5A & other un-ID stas passing tfc in USB at 2145. One sta mentioned, "No enemy sighted" (Rogers, PA).

7323: Airliners in SSB wkg San Francisco & Honolulu (Spierling, CA).

7535: NTSG, **USS Thomas S. Gates (CG-51),** a new ship, testing its radio gear in all modes w/Norfolk Navrad at 1818 ("J.M.," KY).

7635: Pikes Peak 60, CO Wing of CAP, calling stas in "National Communicators' Net," USB at 0148 (Kappesser, MO).

7662: 3/2F gps in USB at 0214 by YL/EE (Krizanek, NJ).

7706: Continuous tape loop in EE of "Woodward Space & Missile Test Center testing 12345-54321 test out." This freq used by Abnormal 1 (Vandenberg AFB) which is the location of the Western Space & Missile Test Center. Tape runs for 30 mins (Hall, WA). Could the tape have been saying "Goddard" instead of "Woodward"? That's in Maryland-- Ed.

8301.5: C5FA5, tanker **Chevron Edinburgh** at 1927 w/patches thru Portishead R. (O'Connor, NH

8425: KCI, un-ID sta, in CW at 0014 repeating DE KCI (Vendetti, NJ).

8445: S7Q, Mahe, Seychelles in CW at 1246 w/call marker (Ross, Canada).

8484.5: HZG, Dammam, Saudi Arabia in CW at 0043 w/call marker (Ross, Canada).

8490: OM/RR w/5F gps, AM-mode at 1322 (Sabo, S. Korea).

8496: CLA20, Cojimar, Havana, Cuba in CW w/call marker & freq list at 1000 (Moran, IL).

8511: XSW2, Taichung, Taiwan in CW at 1245 calling CQ (Ross, Canada).

8523.4: JOR, Nagosaki, Japan in CW at 0953 w/CQ-freq list marker (Moran, IL).

8598.4: ZLO4, Irigangi Navrad, New Zealand in CW at 0937 w/marker (Moran, IL).

8609: CLJ, Caibarien, Cuba in CW at 0641 w/marker asking for replies on 4183, 6273 & 8362 kHz. Circuit used for USSR MORFLOT maritime tfc (Hall, WA).

8646: VTP, Vishakhapatnam Navrad, India in CW at 1233 w/VVV marker (Ross, Canada).

8654: JCS, Choshi, Japan in CW at 1348 calling CQ (Homuth, AZ).

8693: XSZ, Dalian, PRC in CW at 1348 w/tfc for un-ID sta. Very weak (Hall, WA).

8701.9: CLA22, Cojimar, Havana, Cuba in CW at 0922 w/CQ-freq tape (Moran, IL).

8765: USCG Comsta Honolulu, HI w/High Seas wx forecast at 1752 in USB, s/off 1806 (Sabo, S. Korea).

8787: VCS, Halifax CG R., NS w/wx in USB at 0109 ("J.M.," KY).

8811.9: WOM, Miami, FL in USB at 0411 wkg ship **Royal Viking Scott** (A. Nonymous, MO).

8828: Tokyo VOLMET, Japan wx bc in USB at 1411; Aukland VOLMET, New Zealand w/wx bc in USB at 0450 ("J.M.," KY).

8864: GULL 29, USAF wx recon flight wkg NY Aeradio, USB at 1925 (O'Connor, NH).

8984: NHKG, **USS Ranger (CV-61)** wkg CG Comsta, San Francisco in USB at 0850 (Moran, IL).

9014: Sludge # w/QSO to Sludge 2 in USB at 1532. Msg was, "Go 205 for 67 miles" (Homuth).

10048: Japan Air 65 & PDO4 to Tokyo Aeradio w/position rpt in USB at 0644 (Sabo, S. Korea).

10121: JIW, un-ID sta w/5L gps in CW at 1745 ("J.M.," KY).

10452: Ice Cube & Therapy w/alphanumeric tfc in USB at 0720 (Sabo, S. Korea).

10495.5: Beacon HHH, un-ID sta, in CW at 1500 (Rogers, PA).

10732: IIS (Italian allocation) in CW at 1846 repeating callsign (Vendetti, NJ).

11156: Un-ID CW sta at 1750 w/long string of letters ("J.M.," KY).

11176: Gulf 29 in USB at 0039 calling Croughton AFB, England (A. Nonymous, MO).

11200: MVU, RAF W. Drayton, England w/VOLMET bc in USB at 1904 ("J.M.," KY).

11344: SAC Pacific channel, USB w/OM op using scrambler at 0742 (Moran, IL).

11412: Un-ID CW sta at 1950 w/5F gps (cut #'s). Seems to be //11507 kHz, same time shuts down after sending BT 7856 7856 7856 BT BT, then into rpts of other 4F gps (Hall, WA).

11746: Low pitch CW whine changing to high pitch every 7 secs, then low pitch for 6 secs, then repeats. Intercepted at 0023 (Vendetti).

12000: VNG, Lyndhurst, Australia in AM mode at 0612 w/time pips (Moran, IL).

12667.5: JCX, Naha R., Okinawa, Japan in CW at 0012 w/CQ marker (Ross, Canada).

12703.6: PKD, Surbaya, Indonesia in CW at 1140 calling CQ (Rass, Canada).

12707: 9VG34, Singapore in CW at 1841 w/VVV marker (O'Connor, NH).

12709.3: 9HD, St. Georgeos, Malta in CW at 1309 w/VVV marker (Ross, Canada). That's one you don't log very often!-- Ed.

12725: YL/SS in AM mode, 3/2 gps at 0130. The word "fero" repeated for 3 mins before #'s started. Off at 0142 (Stinnett, WV).

12727: HLJ, Seoul, S. Korea in CW w/CQ call at 2348 (Ross, Canada).

12800: HSA3, Bangkok, Thailand in CW at 1233 w/CQ marker (Ross, Canada).

12935: HLG, Seoul, S. Korea at 1915 in CW w/CQ tape (O'Connor, NH).

12963: HAR, Budapest, Hungary in CW at 1204 w/CQ (Ross, Canada).

12969: XSV, Tianjin, PRC in CW at 2322 calling CQ (Ross, Canada).

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13011: AQP4, Karachi Navrad, Pakistan in CW at 2258 w/VVV marker (O'Connor, NH).
13020.4: VPS, Cape D'Agular, Hong Kang in CW at 0036 w/marker (Rass, Canada).
13045.3: PZN, Paramaribo, Suriname calling CQ in CW at 1755 (A. Nanymous, MO).
13069: JOS, Nagasaki, Japan in CW w/CQ call at 1354 (Homuth, AZ).
13069: TFA13, Reykjavik, Iceland in CW at 1700 (Homuth, AZ).
13086.5: A9M, Manama, Bahrain at 1748 in CW w/call marker (O'Connor, NH).
13021: XPH, Thule AB (USAF), Greenland in USB at 1733 w/wx to New York Aeradio (Brawnrigg, Canada).
13204: Gilcrest, un-ID aircraft in USB at 1619 telling aircraft Ranger 01 that the tanker was cancelled (Symington, OH).
13231: Lahr VOLMET (Canadian Forces), FRG in USB at 1416 (Brawnrigg, Canada).
13247: Spar 60 aircraft wkg SAM 26000 in LSB at 1609 (Symingtan, OH).
13248: Aircraft 3939 in USB at 1610, FRG Air Force tfc in GG & EE (Symingtan, OH).
13270: New York R. in USB at 1610 w/aera wx 1745-2045 (Spierling, CA).
13282: Takya VOLMET, Japan w/EE wx bc in USB at 1212; Aukland VOLMET, New Zealand at 0422 in USB ("J.M.," KY).
13384: Juarez, Mexico in USB at 2127 w/'phone patch for Mexican mil aircraft. Other Mexican mil ops heard here calling several flights w/o any luck (Hall, WA).
13993: AGA4SH, USAF MARS Sheppard AFB, TX w/tfc for AGA6TR in CA, USB at 1746 ("J.M.," KY).
14445: VXV9, Canadian Forces, Galan Heights in USB at 1953 calling CIW645 (O'Connor, NH).
14686: Atlas wkg Panther & Slingshot in USB at 0030 tolking about anti-smuggling 'copter that was fired upon (Symington, OH). The new 6th Edition of Kneitel's "Top Secret" Registry has lots of info on anti-smuggler stations, freqs, etc., etc.-- Ed.
15015: Ascot 5712 (RAF aircraft) in USB at 1605 wkg Albrook (USAF, Panama) w/patch re freight pickup (Symington, OH).
15985.5: Z2H26, Dutch Embassy, Zimbabwe in USB at 0420 w/patches (Moran, IL).
16915.9: XSG, Shanghai, PRC in CW at 0246 w/CQ marker (A. Nonymous, MO).
16921: CLS, Havana Fisheries, Cuba calling CQ in CW at 1220 (Tom Kneitel, NY).
16943: YUR, Rijeka, Yugoslavia w/CW marker in CW at 1358 (Homuth, AZ).
16966.5: 9VG58, Singapore in CW at 1755 w/CQ tape (O'Connor, NH).
16998.5: JDC, Choshi, Japan in CW at 0250 w/CQ marker (A. Nonymous).
17018: Beacon D in CW, slight flutter possibly indicating European/USSR location (Homuth, AZ). Time?-- Ed.
17091: XSQ, Guangzhou, PRC at 1555 calling CQ (O'Connor, NH).
17166.6: JCT, Choshi, Japan in CW at 0301 w/CQ marker (A. Nonymous, MO).
17172.4: 9MG11, Bayan Lepas, Malaysia calling CQ in CQ at 1520 (O'Connor, NH).
18002: Hickam AFB, HI wkg MAC 70015 in USB at 0243 (Moran, IL).
18005: Purse String w/alphanumeric tfc, USB at 2325 (Sabo, S. Korea).
18111: KM2XDU, Experimental (Ham) sta wkg other similar stas, USB at 1920 (Homuth, AZ).
18666: Atlas, Trans-Atlas, 93D (aircraft confiscating items on ground), 63F (chase aircraft), 183D (apparent location FL), all in anti-smuggler ops southeastern coastal waters, USB at 2210 (A. Nonymous, MO).
20225: NAM, Norfolk Navrad, VA w/call marker in CW at 1913 ("J.M.," KY).
22320: WLO1, Mobile R., AL w/tfc for KVXW, ship **Delaware Star,** in CW at 1917 ("J.M.").
22461: FUJ, Noumea (French) Navrad, New Caledonia in CW at 0022 w/VVV marker (Homuth).
22557: KPH, San Francisco R., w/CW call marker at 2252 ("J.M.," KY).
22588: WLO, Mobile R., AL w/CW call marker at 1838 ("J.M.," KY).
24781: WLO, Mobile R., AL in CW wkg numerous ships around 0151 (Moran, IL).
26450: Remote news mobile unit of TV sta KTSP-TV in Phoenix, AZ, NBFM mode at 0014. Techs talking to studio (Homuth, AZ).
26702: YL/SS in AM w/4F gps, but weak at 0131 (Moran, IL).
28262: VK2RSY, CW beacon in Australia-- long dash then ID at 2320. Weak & fading. Not a ute but interesting anyway-- probably low power (Homuth, AZ). Ah yes, the higher freqs are on the way back!-- Ed. PC

Beaming In (from page 5)

proach. During and just after WWII, Vladimir and I were kids in the same neighborhood of New York City. In 1947 and 1948, just before he moved to East Germany with his family, we attended Stuyvesant High School together. I figured that for old times sake, he'd be willing to give me the full scoop on this and several other topics I wanted to know about, like the *woodpecker* radar signals.

Forty years ago, when he was only thirteen, Posner had taken upon himself the heavy mantle of being the Ambassador and spokesman for Mother Russia in our neighborhood. He was the Russian Bear, incarnate. Trouble was, while he was unrelenting in his proselytizing the other kids with Soviet dogma and examples of the superiority of Communism over "decadent bourgeois" American lifestyles, he was totally inept at responding to our counterclaims and questions regarding such matters. His inability and/or unwillingness to defend his eloquent political pronouncements caused his listeners enormous frustration, resulting in direct hostile action.

Intellectuals that we were, we usually ended up tossing his schoolbooks, one at a time, down the subway stairs. The radical political tracts that he liked to distribute were always good for bringing home and leaving on the table to scare the hell out of our parents. Little did any of us realize that the kid we all considered a pencil-neck geek would parlay his undeniable talents into world class prominence and the Donahue Show!

My recent inquiry to Posner brought absolutely no response, thus leaving open several possibilities. First, he never overcame being the dweeb he was as a kid. Second, he has horrible visions of a contingent of paunchy middle-aged guys from his old neighborhood flying over to Moscow to throw his scripts down the stairs of the *Metro*. Third, there are no justifications to be offered on behalf of broadcast jamming by the Soviets. Or, four, all of the above.

Hey, I'm not Scrooge McDuck, always looking at the dismal side of things. An East/West broadcasting thaw is *long* overdue. Then again, after more than forty years of the Cold War, this whole scene is becoming a drag. I'm talking about the areas of diplomacy, trade, the environment, science, cultural endeavor, and the arms race. But, *Glasnost, Schmasnost*—in respect to broadcasting, at least, the whole thing is a joke! *More* than a joke, the Soviets have been canny enough to turn it into a public relations and propaganda coup in which they are portrayed as having taken all of the initiatives. In actual fact, they've done nothing constructive in respect to winding down their abuse of the world's airwaves.

All they've done is shift gears and leave us talking about the great strides they've made. When the last Soviet jamming transmitter goes off the air for good, then tell me about *Glasnost*! PC

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(from page 8)

sion as to whether or not it is the department you want to monitor. If it isn't, you'll want to temporarily lock out those channels and continue scanning. Given that many departments these days don't identify themselves on the air, a keen sense of knowing the voices of local dispatchers, their operating methods, and locations mentioned will be necessary.

While it might be great for frequency conversation, trunking is very controversial with public safety officials. Many are concerned that, when an open channel is critically needed, other users may have filled all available frequency slots. And while systems are being devised to make sure critical messages get through, many are skeptical about putting this into the control of an automated system rather than a skilled dispatcher who can simply say "all units stand by."

There is also concern that, just like scanner owners, public safety departments will have difficulty in keeping track of what's happening. The luxury of knowing that the report on Channel 6 was from neighboring town "A" will be taken away. It could be from any of a dozen towns and, if transmissions are not clearly identified, it could add to much confusion in emergency situations. In any case, trunking is the subject of much heated debate in both scanning and public safety circles. We'll keep you posted as the situation develops. In the meantime, if you've had any experience scanning trunking systems and can offer any tips or comments about monitoring these systems we'd like to hear from you. Our address is: SCAN, P.O. Box 414, Western Springs, IL 60558.

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LOOKING FOR professional speaker mic for scanner portable. Will do necessary hook up. Speaker must have shirt clip on back as Motorola's. Steve Dube, 31½ Lowell Road, Hudson, NH 03051.

NEED TEN CODES, signal numbers, frequency information, communication with other scanner owners. Ripley, Franklin, Decatur, Dearborn Counties, Indiana. Solly Widener, 212 Huntersville, Batesville, IN 47006. Call collect (812) 934-3302.

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WANTED: Shortwave frequencies for Canada, and USSR. Send to Keith Kaleas, 1781 CTHV, Columbus, WI 53925.

WANTED: All types of codes from "Q", "10", color, and 900 series codes to vehicle and personnel if available. Please send to Alex Pilanaro, 448 So. 4th Street, Maplewood, NJ 07040.

NEED INFORMATION about using VIC-20 as scanner or connecting it with scanner to increase reception of more channels or storage: Bobby Beck, Rt. 4, Box 237, Yadkinville, NC 27055.

BEARCAT 100 accessories: two adaptors connect PL259 or Motorola plug to antenna socket; car power cord with cigarette lighter plug. $17 total COD. Martin Sewecke, 1028 George, Sharon, PA 16146.

SELL: ANTIQUE 1900's sounder and key-$50; Surplus Conversion Handbook by Tom Kneitel, 1964-$15. Joseph Schwartz, K2VGV, 11 Windham Loop, #1JJ, Staten Island, NY 10314, (718) 698-8069.

WANTED: Schematic on "Delta Alert" Ultrasonic Control. Gene Schmutzer, 6133 E. Sunny Drive, Tucson, AZ 85712-2339.

CONTACT WANTED: I wish to exchange frequency information with SCAN, Popular Communications readers and members in the Pittsburgh, PA area. J. Robert Apple (Pa223), 1312 Hillsdale Drive, Monroeville, PA 15146.

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WANTED: Frequencies for Augusta, Georgia as well as Ocala, Florida listening areas. David Glorius, 1607 Wildwood Drive, Augusta, GA 30909-4345. (404) 738-0145.

WANTED: Canadian scanner frequencies especially New Brunswick, also 10-codes, identifiers, etc. Will swap info. Call collect 1-506-832 7633 or write S. Saveall, Site 7, Box 10, Hampton, New Brunswick E0G 1Z0.

Would appreciate any information on WWII (Pacific) radio communication. Recollections, equipment, interception of Japanese code, etc. Does anyone else have this interest? Dan Craig, Box 349, Port Orchard, WA 98366.

FOR SALE: Realistic DX-302 all bander and Globe Ham transmitter, both for $250.00/OBO. Write to: Joshua Stanfield KB6SUD, 23884 Gamma, Moreno Valley, CA 92388.

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WANTED: 10 codes and unit signals for Duncan, OK Police Dept., OK Highway Patrol and Fire Dept. Jimmy Dockall, 1212 Main, Duncan, OK 73533.

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WANTED: Frequency list of DuPage County in Illinois including Sheriff, Forest Preserve Rangers and Commonwealth Edison emergency crews. I have complete Ducomm "codes" to trade or ? Duke Syc, 1308 McDowell #102, Naperville, IL 60540.

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INFO WANTED: Looking for public (police, fire, etc.) and private (security, cable, etc.) frequencies for Riverside County, California. Gary Growell, P.O. Box 1470, Palm Springs, CA 92263.

SONY ICF-2010. Mint. $290, postpaid. Box 874, Kankakee, IL 60901.

WANTED: friendshtp exchange with other SW hobbyist. 527 North Azusa Ave. #333, Covina, CA 91722.

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AMATEUR RADIO operators who are scan enthusiasts please contact K1JIY, Joel Tenenbaum, 20 Bourne St., Brockton, MA 02402. Also police officers who can help out on "Ten" codes.

VIRGINIA BEACH area frequencies and codes wanted: city, state, federal, commercial. Will trade info for same. Write to: Paul, Box 61413, Virginia Beach, VA 23462. Include phone number.

CONTACT WANTED: To exchange frequencies with Pennsylvania scanner owners. I'm about 8 miles from Pittsburgh. Bob Apple, 1312 Hillsdale Drive, Monroeville, PA 15146.

WANTED: SCANNER FREQUENCY DIRECTORY for Washington State. Send info with price to: Trevor Batstone, Box 616, Surrey, B.C. Canada, V3T 5L9 Tel. (604) 591-6772.

BEARCAT 260—all accs.—manual key hard to push—suffers memory loss—otherwise performs well—$50. JIL SX400—all accs.—no problems—$150. Will ship either or both free for first m.o. or bank check. Lewis S. Harvey, 3 Egrets Nest Drive, Willy Island, Savannah, GA 31406.

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