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JANUARY 1990

VOLUME 8, NUMBER 4

Incorporating **SCAN** Magazine



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This month's cover: Airline passenger uses GTE airphone.
Photo by Larry Mulvehill.

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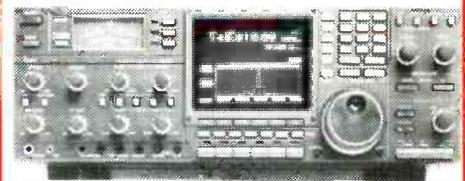
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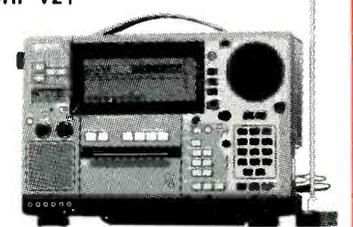
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Something's Changed

People have been monitoring their area public safety agency communications since such transmissions began going out over the airwaves in the 1920's. The 1968 invention of the scanning VHF receiver brought the technology up to date, and the sets were an instant success.

An early 1970's news story about scanners noted that one police chief encourages the use of scanners, saying, "We'd like to see one in every home. Enlightened officers recognize that their job is made easier when large segments of the public can be counted on to understand their functions, their problems, and just how risky their work is."

The same story quoted a spokesperson from the Detroit Police Department as observing, "If citizens listen, they know what we're paid for."

Then, the Chief of the Indianapolis Police Department added, "I believe strongly that an informed citizen is our best ally. By listening, citizens appreciate many of the problems and complexities with which we must work daily."

The news item pointed out at the time, nevertheless, residents of Philadelphia weren't permitted to own scanners. The head of police communications in Philadelphia explained this by saying that most scanner owners are police fans, not enemies, and that the city ordinance was, "really directed more at people who would use the monitors for their own financial benefit, like criminals, not so much at those who enjoy the communications."

Somewhere along the line, the ground rules and attitudes began to change. Between then and now, the perception of scanner owners by law enforcement officials has definitely not been enhanced, or so it would seem by the mail arriving here recently from various area.

Readers in New Jersey are sending us newspaper clippings concerning a pending state law that would prohibit citizens from having in their vehicles any scanners that are capable of receiving police and fire communications.

Many readers in Florida passed along several statewide newspaper stories telling about how the Attorney General of Florida recently came up with his own updated interpretation of a 20-year old state law against vehicular installed scanners that are tuned to police frequencies. His present view of the law seems to bypass handhelds, but casts a beady eye upon any other types

of scanners installed in vehicles. Hams and broadcast station licensees are exempt from the law, as are emergency and crime watch vehicles. The entire issue was raised when the Chief of the Boca Raton Police Department wrote to the Attorney General to push for tougher laws concerning the public's ability to have scanners in vehicles.

Despite long-standing laws in many areas of the nation that regulate or limit mobile scanner usage, new restrictive laws in the areas noted here (and in several other areas, too) are being cooked up or are pending. This certainly seems to put some sort of onus on *all* scanner owners and tends to draw a cloak of suspicion over their ownership and use by the public at large.

We haven't seen anybody step forward to supply any statistics showing the percentage of scanner owners that use their communications equipment for nefarious purposes, but we'd think it to be very small. As always, those who own all types of scanners are simply average citizens whose taxes pay for operating the agencies they wish to monitor. Finding these people, *en masse*, to be guilty of the sins of others seems illogical.

I don't imagine that there are scanner hobbyists who like crime, or endorse the negative uses of any items criminals might put to their own purposes. This includes scanners, also firearms, cars, crowbars, boats, flashlights, aircraft, knives, etc. But, for example, in New York City alone there are twice as many unregistered handguns as there are "legal" ones, despite very strong laws that are vigorously enforced.

Does anybody seriously think restrictive scanner laws are going to have any real affect on any person other than the law abiding hobbyists?

Picture a group of Miami drug dealers loading up their Mercedes with 5,000 vials of crack. There are no less than four UZI's riding along with them. But will they decide to remove the scanner from the vehicle because they just found out that it shouldn't be installed under the dashboard? *Sure!*

On the other hand, my scanner freak cousin Larry, who is an orthodontist in West Palm Beach, FL will definitely be scared out of his golf shoes by the very same law. So will thousands upon thousands of others. How can that make sense?

I discussed this with a friend of mine who is a law enforcement officer. He thought that a more reasonable approach would be to have laws stating penalties for using por-

table or mobile scanners during the commission of a felony. That way, the scanner hobbyist isn't condemned along with the criminal, and the scanner itself isn't considered a sinister object until and unless it is used in an illegal manner. At that point, toss the book at the guy.

My question to him was that this approach seemed so simple and so reasonable, that it was odd that it hadn't been used instead of the "tar 'em all with the same brush" logic. There is apparently no answer to this other than that the people who formulate and pass laws don't know (or usually care) about the finer points of what's involved in such situations. An entire community could well needlessly be inconvenienced when a law is passed with the intention of addressing the transgressions of a few. This is nothing new, it happens all the time. This is the case here.

Legislators aren't necessarily scanner owners. Perhaps they don't know what's involved, nor do they have the opportunity to get the facts - that is, if they are really interested in doing anything more than rubber stamping into law every piece of legislation upon which they are asked to vote. Let's face it, not all the people who make these laws wish to be bothered with more than the barest minimum of information.

Maybe I'm wrong, but it just seems that the scanner hobbyist is essentially the same person he or she was when the police perceived most of us as friends, not their enemies. We haven't changed, but it does appear that the idea is that it's easier to just assume that just about anybody and everybody with a mobile scanner is up to no good on one level or another. What a preposterous assumption!

Idiotic laws like this sometimes have a "get on the bandwagon" or domino affect on neighboring states. That's why it's scary to see even one or two of these insidious little time bombs ticking away in New Jersey, Florida, or elsewhere. Certainly, you should write your state legislators, even to the Governor of your state, at the very first hint that activity along these lines is cranking up. I can't guarantee it will work, but it's the only way of letting these people know the facts.

Once they convince themselves that all people with scanners in their cars are no good, how big a jump is it for them to deduce that maybe you shouldn't have one in your home, either? You figure it out. **PC**

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- REGENCY Z-60 AC/DC Digital Scanner 109.99 (7.00)
- Mobile Mounting Bracket for Z Scanners 5.99 (*)
- REGENCY RH-256 High Band Transceiver w/Ant 329.99 (9.00)
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- REGENCY RH-606B High Band Transceiver w/Ant 469.99 (9.00)
- REGENCY R806 AC/DC Crystal Scanner 79.99 (6.00)
- REGENCY INF-3 AC Informant Receiver 139.99 (7.00)
- REGENCY INF-5 AC Informant Receiver 119.99 (7.00)
- COBRA SRJ5 100 Channel Hand-Held 199.99 (7.00)
- COBRA SR12 Digital Hand-Held Scanner 189.99 (6.50)
- COBRA SR10 Digital Hand-Held Scanner 124.99 (6.00)
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- Book "Covert Intelligence, Electronic Eavesdropping" 8.95 (*)
- Book "Betty Bearcat Frequency Directory" 7.99 (*)
- Book "Rail Scan Directory" 7.95 (*)
- Book "Air Scan Directory" 12.95 (*)
- RCD MRP-1 Single Channel Hand-Held 36.99 (3.00)
- FANOM M8HLU DC Crystal Scanner 89.99 (5.00)
- FANOM PSK-1 AC Adapted for M8HLU 12.99 (*)
- REGENCY HX-1500 Hand-held Scanner 199.99 (8.00)
- FOX Mounting Bracket for BMP-1060 9.99 (*)
- ANT-1 Magnet Mount Mobile Scanner Antenna 29.99 (3.00)
- ANT-6 Base Scanner Antenna w/50' cable 29.99 (4.00)
- REGENCY CB-ONE CB Radio 34.99 (5.00)



Z60 60 Channel Automatic Programmable Scanner

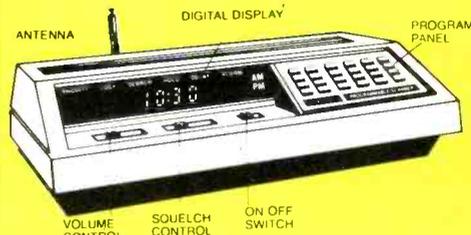
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Scanner World Special

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(plus \$7.00 shipping each)

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Z Mobile Bracket — Special \$5.99



The Regency Z-60 is a compact, programmable 60 channel, multi band, FM monitor receiver for use at home or on the road. It is double conversion, super heterodyne used to receive the narrow band FM communications in the amateur, public safety and business bands: 30-50, 118-136, 144-174, and 440-512 MHz. Size 10 3/4"Wx2 7/8"Hx8 3/8"D

Sophisticated microprocess-controlled circuitry eliminates the need for crystals, instead, the frequency for each channel is programmed through the numbered keyboard similar to the one used on a telephone. A "beep" acknowledges contact each time a key is touched. The Z60 scans approximately 15 channels per second.

An combination of channels can be scanned automatically, or the unit can be set on manual for continuous monitoring of any one channel. In addition, the search function locates unknown frequencies within a band.

Other features include scan delay, priority and a bright/dim switch to control the brightness of the 9-digit Vacu-um-Fluorescent display. The Z60 can be operated on either 120VAC or 12 VDC. Includes one year warranty from Regency Electronics (optional 3 yr extended warranty only \$39.99, gives you a total of 4 yrs complete warranty or 2 yr extended warranty only \$29.99, gives you a total of 3 yrs complete warranty.)



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Digital programmable 200 Channel hand-held portable scanner with raised button keyboard for easy programming of the following frequency ranges: 29-54MHz, 118-175MHz, 406-512MHz, 800-954MHz. Features include: Scan delay, memory backup, key pad lock, solid liquid crystal display, channel lockout, 10 twenty channel banks, direct channel access, automatic search, full one year factory warranty, 10 priority channels, Ni-Cad battery pack, AC adapter/charger, flexible rubber antenna, carry case are all included. Size is 2 1/8"Wx1 3/8"Dx7-1/2"H. Optional extended 2 yr warranty \$59.99, 3 yr extended warranty \$79.99.



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SR-925
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Digital programmable, 16 channel, AC/DC mobile/base, with raised button keyboard for easy programming of the following frequency ranges: 29.54mhz, 118.174mhz, 406.512mhz. Covering aircraft, marine, police, fire, weather, trains, public service, plus much more. Features include: digital display, priority, scan delay, weather button, channel lockout, search, scan speed, automatic squelch, memory backup, one year factory warranty, external speaker jack. (Extended warranty 2 years extra \$29.99, 3 years extra \$39.99.)

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MAILBAG

LETTERS TO THE EDITOR

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

A Different Point Of View

I found your October editorial interesting and thought-provoking. Your editorial was not the first I've read suggesting further sharing between UHF TV and land mobile. (However, it was probably the best thought-out!) As you may have read, some people, especially in the land mobile industry, have called for the eventual complete elimination of over-the-air TV. My personal feeling is that moving all television to cable would be a serious error, for the following reasons:

1. It would eliminate access to television for many poorer Americans. A new TV can be had for \$75 or less: a used set can be had for as little as \$10. Cable bills of \$15 or more per month, however, would probably break the budgets of many of the working poor. Personally, I certainly wouldn't want to be the politician telling millions of Americans that they won't be able to watch TV anymore!

2. It would eliminate access to television to local/regional television for rural residents. Obviously, it's economically impossible for cable systems to wire rural areas. At least at the current time, there simply aren't enough satellite transponders for local stations to serve these viewers via their TVRO's. Sure, national cable programs would continue to be available via TVRO, but the state and local news (and commercials) would not be available.

3. Who would control subscription fees? The FCC recently deregulated cable rates, on the assumption that those displeased with rising rates could cancel, and watch off-air stations instead. With off-air stations gone, viewers have the choice of paying what the cable system thinks it can get, or doing without TV.

4. Who would decide which programs get carried? At the current time, the courts consider cable systems to be 1st Amendment media; they may add and drop channels at will. If Channel 8 chooses to air an editorial critical of Acme Cable, Acme has the legal right to drop Channel 8 from its system. Right now, viewers displeased with that decision could simply watch Channel 8 off-air. With off-air television gone, if Acme drops Channel 8, they're out of business - which kind of puts a damper on editorial freedom!

5. How about portable TV's? As technology improves, television receivers are becoming smaller, less expensive, and more portable. Pocket TV's are selling reasonably well, and most middle-income households have at least one set that can be moved from room to room. All these sets would be made useless by the shutdown of over-the-air TV.

I'd propose a different scheme:

1. The FCC should study the possibility of changing the Table of Allocations. Right now, there are many "taboo," channels that cannot be assigned because of various interference considerations. Many of these considerations date from the early days of UHF TV, and can now be ignored with improved modern TV's. This should open up many new UHF channels for allocation.

2. Any new channels opened up in this manner should be set aside for use by existing VHF stations. Each VHF station in a city would also be given a UHF channel: they would be allowed to broadcast on both channels for, say, 5 years. At the end of this time, their VHF channel would be given to land mobile.

3. As the VHF TV channels are opened for land mobile, only ACSSB, or narrow-band (less than 5 kHz bandwidth) digital modes would be allowed.

4. Also, some of these VHF TV channels would be set aside for assignment to land mobile stations currently operating in the 470 - 512 MHz band. Eventually, all "T-band" land mobile stations would move to VHF, and the "T-band" would be reopened for urban TV stations.

Hopefully, this proposal would open sufficient spectrum to keep land mobile growing well into the 21st Century, without denying television service to any segment of the American population.

Doug Smith, W9EI,
Madison, WI

Doug makes excellent points here. He also makes you realize that FCC deregulation of the CATV industry may not have been the best of all possible moves on the part of the agency. Some of the cable systems are charging exorbitant fees, also requesting their subscribers to pay extra for several program suppliers that are intended to be part of "basic service." With the growing importance and influence of the cable, the FCC shouldn't have shrugged its shoulders and given up on the situation - Editor.

An Odd Frequency Assignment

In the December '88 POP'COMM (*Washington Pulse* column) you indicated that the FCC issued Experimental License KA2XVG for operation between 27500 and 29500 kHz to "conduct market studies." Why

would the FCC allow such a station to operate on frequencies allocated to the Amateur Radio Service and also to the Federal Government?

Brian Cassidy, Monitor KPA3LF,
Hatboro, PA

An Experimental License is granted by the FCC upon an applicant giving the FCC a detailed explanation of what purpose is to be served by the authorization granted. The applicant also identifies the frequency bands or discrete frequencies proposed for operation, as well as describing the modes, power and certain other technical details required for the activity. It isn't at all unusual for the frequencies to coincide exactly with those allocated to various industrial, or other services. Presumably, if the applicant can convince the FCC that the proposed operation is worthwhile, the FCC will issue a license for such operation. Some Experimental Licenses are to develop new technologies, others are issued for perfecting new applications for existing technologies. Apparently KA2XVG's license was awarded upon a showing that the frequencies in question served a necessary purpose for the applicant - Editor.

The Mystery of Edwin Broob

It was with great pleasure that I read Tom Kneitel's September issue description of Philo Farnsworth's development of the modern, all-electronic television. This article should be required reading for all in the broadcasting profession.

Here is a related story few people have heard:

During the 20's, my great-grandfather, Edwin Broob, was a young glass blower struggling to set up his own operation. Perhaps it was his youthful enthusiasm, or a keen sense of adventure which convinced him to take on the equally young Philo Farnsworth as a client. Over a fourteen month period, he produced more than two dozen TV tubes for Philo. Exacting tolerance led to many rejected tubes and costly reworking.

Edwin probably never made money from his associations with Philo, but he did achieve a modicum of immortality. Philo would refer to my great-grandfather's glass jars as "Broob Tubes." In the early days of the industry, this term came into wide use. However, by 1940, the public picked up on it and changed the phrase to "Boob Tube" which persists to this day.

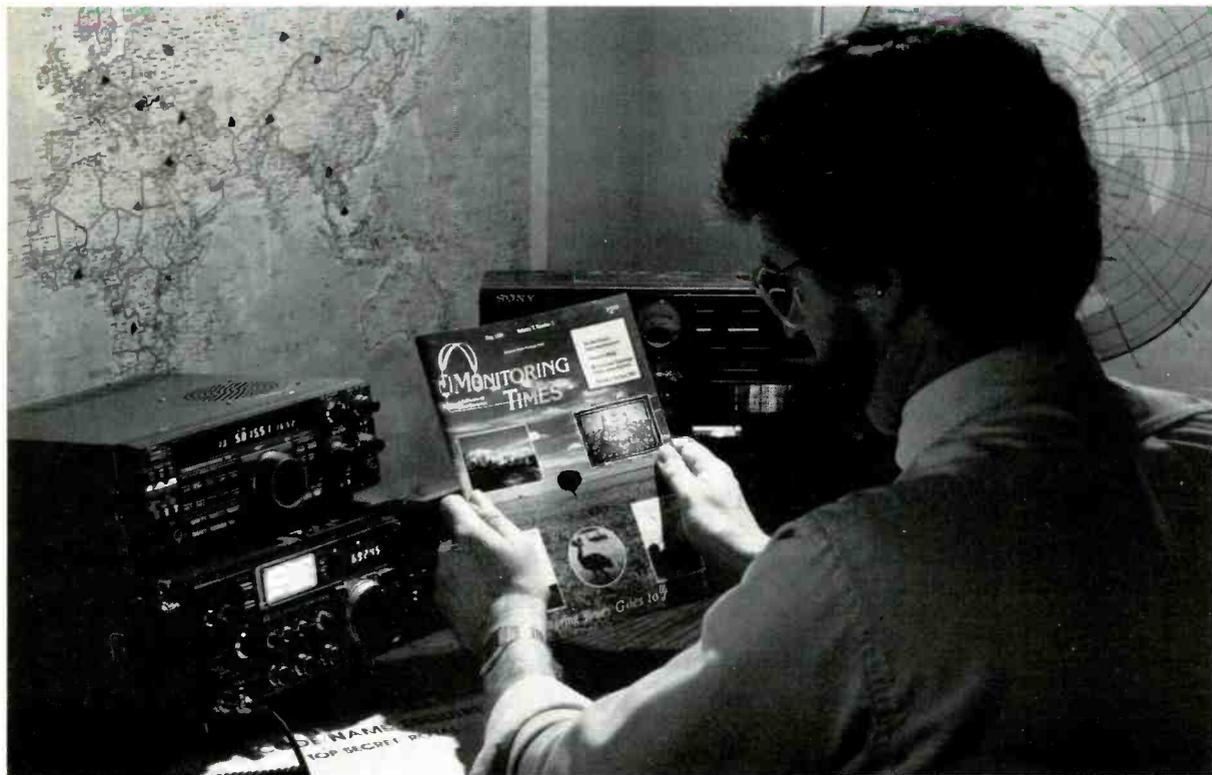
I hope your readers enjoy this little historical tidbit.

Alan Broob,
Cocheton, NY

We're accepting this great story at face value, Alan. If it isn't true, it should be and we hereby declare it so - Editor.

PC

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BOB HANSON MAY WELL HAVE HAD 200,000 FRIENDS. NOW HE NEEDS THEM ALL . . .

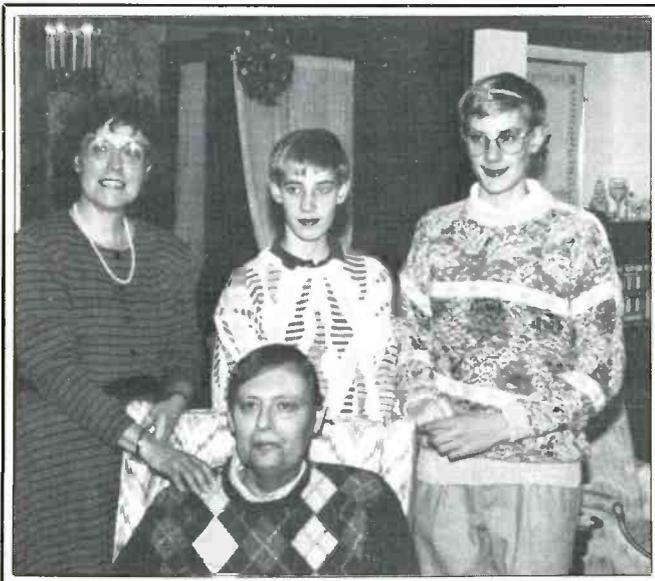
The world of communications has lost a great friend and devoted public servant. On Wednesday, May 8, 1989 Bob Hanson, W9AIF, passed away on the operating table during a delicate and enormously costly liver transplant operation.

Bob will be mourned by literally hundreds of thousands of individuals whose lives he touched throughout the world as a noted columnist . . . public service association executive (SCAN, REACT, Community Watch) . . . communications industry advertising and marketing manager . . . and active radio amateur.

But mourning alone cannot pay adequate tribute to Bob's total dedication to serving others—including his wife of 23 years, Marilyn, and two teenage sons, Peter and Andrew.



Since liver transplants are regarded by some as “experimental surgery,” not one dime of the expense—estimated in excess of \$200,000—was covered by insurance. We simply cannot allow Bob's wonderful family to live with that impossible burden.



Your help is desperately needed. Immediately. Please, please send your contribution today. Make checks payable to: **Organ Transplant Fund Inc./Robert Hanson** a legally constituted non-profit organization. Any funds collected in excess of those required to pay actual medical expenses will be used to relieve similar transplant victims.

**The Robert Hanson Fund.
A Living Memorial.**

**Organ Transplant Fund Inc./Robert Hanson
P.O. Box 766 • Morris, IL 60450-0766**

After we're done checking out our new radio gear we received for the holidays, it's time to make a few radio resolutions for the new year. A new decade is upon us and new technologies will evolve as they did in the 80's. Some of us need to spend a little less time with our hobby and more time with our families. Meanwhile, others of us need to put in a little more time in the listening post and try to find some new frequencies. Whatever the case is, now's the time to resolve doing so in 1990.

On the technology front, we saw a lot of changes in radio communications in the 1980's. We saw the 800 MHz band become popular in many areas, both metropolitan and rural. Trunking became the radio system of the future and helped eliminate busy channels in congested areas. The 80's also saw the advent of wide-spread cellular use. Now everybody can practically afford a mobile telephone (and without a five-year wait for service, too!). The 900 MHz band opened up not only to paging, but as a new ham band (902-928 MHz), as well as a new 900 MHz trunked radio band (935-940 MHz) that should prove to become popular in metro areas into the '90s.

Also in the 80's, we saw cordless telephones become commonplace. I mean, who doesn't have one these days? Well, I'll confess I won't own one because of the privacy factor (so why do I own two cellular phones, then?).

A new type of radio communications called amplitude modulated sideband, or ACSB, tried to make inroads in the VHF high band sandwiched between regular narrow-band FM channels. I even had a special developmental ACSB license from the FCC, however, I never was able to get the radio system on the air because of the prohibitive cost of the new equipment. Now, the FCC wants to move ACSB to the new 220-222 MHz band they hope to steal from the amateurs. And UPS will be the primary benefactor. Hams certainly will be reminded each time the UPS driver pulls up to the door with a package and the driver waves a bar-code reader over the package to transmit a signal back to "UPS Central."

Signals now can be sent through space via satellite to fleets such as trucks, or now even by meteor scatter in the 44-MHz band.

Coming into the 1980's, most agencies such as police had only one or two radio channels for communications. Now, with highly sophisticated radio equipment, cruisers can be equipped to operate not only on up to a hundred channels or more in one band, but in several bands. All this means is that there are more channels for scanner hobbyists to listen to these days. And where fire departments used to have just one channel, now there's one channel for dispatch, another for fireground, one for response, another for fire police, an additional for rescue, etc. It's put a real strain on available radio channels in some major metropolitan areas, and a new band of the 90's hopes to alleviate some of that problem. The new 866-869 MHz band will be used by public safety agencies, however, any agencies that move to this band must surrender their frequencies they previously were using on VHF or UHF.

On the paging front, bulky belt-clip pagers have given way to pagers in the shape and same size as pens and as we go into the 90's, there will be wristwatch pagers, all in the shades of Dick Tracy.

And paging networks that used to cover just one town now cover not just a large region, but most systems cover more than one state. My pager can reach me anywhere in at least seven states—all with one phone call. And when it goes off, I dial a toll-free number and hear my message. Paging also has moved from digital display of the caller's telephone number (entered with Touch-Tone dialing) to alpha-numeric displays. These new displays allow not only just numbers, but words as well. For instance, the pager owner could receive a call from his office telling him or her to call a client at a certain phone number at a certain time. New paging services also offer the pager owner to receive stock quotes or sports scores on their

pagers, with each pager owner customizing the information they wish to be beeped for. In fact, paging goes out not only on regular VHF, UHF and 900 MHz paging channels, but also on the subcarrier of FM broadcast stations.

The biggest development in paging in the late 1980's and which is expected to burgeon even more into the 1990's, is satellite-delivered paging services that offer coverage in most large metropolitan areas. For instance, if your office in Des Moines wants to reach you, but they don't know whether you're in Dubuque, Detroit or Denver, it doesn't matter. They dial your pager number and the pager message is sent from a ground station to a satellite and from the satellite back down to receiving stations all across the United States. Each receiving site then retransmits the signal in its city. Some satellite paging services use FM broadcast stations' subcarriers with pagers that have the capability of "scanning" for the proper station carrying the paging.

In the United States, there are three dedicated nationwide paging channels: 931.8875, 931.9125 and 931.9375. Two of the systems already are in operation and the third is in the process of going on line. In fact, the 931.9375 MHz frequency is being developed into a WORLDWIDE paging channel, where a pager owner technically could be reached anywhere in the world. Imagine the power of a single phone call!

In the marine front, ships on inland waterways of the Mississippi River system can transmit data to their offices via a special radio system that operates anywhere along the river and its major tributaries in the 216-220 MHz band. If you try tuning in, though, all you'll hear are tones and warbles. On the international front, satellites are used by almost all major ships these days. In fact, the days when ships were required to have a radio operator on board who is proficient in Morse code are coming to an end. Many shipping lines have obtained waivers from this requirement because they can instantly communicate anywhere in the world via simple satellite stations. In fact, it is now possible to direct dial a ship if you know what ocean it is in (so you know the correct area code) and the ship's phone number. For instance, if you needed to contact the Queen Elizabeth II, you would first dial the international access code of 011. Then you would dial the ocean area code: 871 for Atlantic, Caribbean, Mediterranean and the west coast of South America; 872 for the Pacific Ocean; and 873 for the Indian Ocean. You would then dial the ship's telephone number: 144-0407.

On the wireless telephone communications front, there should be a new generation of cordless telephones that you can take with you when you travel. The new technology, dubbed CT2, or cordless telephone 2, where it already is in limited operation in Great Britain, allows the CT2 phone owner to place a call from a handheld cordless phone in places such as rail stations, shopping malls, downtown districts, etc. The phone transmits to low-powered base stations called "telepoints" which relays the phone call over the CT2 frequencies. Owners of these phones can't receive phone calls and their signal isn't automatically picked up by another telepoint transmitter if they are moving, as in cellular. However, there is talk of offering a system that might incorporate a pager within a CT2 handset that would alert the CT2 phone owner of an incoming message. One entrepreneur hopes to start up a trial system in the United States in a small New York city soon. If it proves successful, and the FCC is able to find frequencies to support the new service, you can expect CT2 to become a hit for those who don't want to make the leap into the more pricey cellular market.

And from the air, it's now possible to sit back in your seat aboard an airliner and pick up a phone in the headrest in front of you and for the fee of \$7.50, call home, or to anyone else you feel like bragging about saying, "Hi, I'm calling from 30,000 feet above Den-

(Continued on page 68)



ORF-Zentrum mit Kurzwellenstudios
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Radio Austria International is housed in the ORF Building in Vienna.

Logging 100 SWBC Countries

Let POP'COMM Help You Over The Hurdles

BY GERRY DEXTER

Being able to log 100 countries has always been something of a landmark in one's shortwave listening career—a border crossing between novice and experienced short-wave monitor.

My first 20 countries are easier to hear than my second 20. The first 50 come quicker than the second. And, certainly, the first 100 are vastly easier than the second 100!

Easy is a relative term. Logging 100 countries on the shortwave broadcast bands today is a much easier task than it was 20 or 30 years ago. There are more high power stations in operation, the science of getting a signal to its destination has improved and there are more countries active on short-wave than there were way back when, although the number is down from, say, ten years ago. We also have better receiving equipment working for us than did the old-timers who DX'ed in the 30's, 40's and 50's (some would probably add the 60's and 70's to that, but let's not get carried away!) We have better sources of information, too.

Still that march to the century level takes some doing. You are not likely to write number 100 into your log very quickly (if at all) if you rely only on casual tuning around. Browsers won't succeed. You need to not only put in the time, but some real effort. You'll need to focus on your targets, to check certain frequencies at certain times and, yes, give up some sleep here and there!

The equipment equation plays a role, too. Obviously the person using a small portable receiver designed for more casual listening to big power broadcasters faces a much tougher haul than the person who's using an outdoor antenna connected to a communications type receiver. So, if possible, arm yourself as best as you can. With reasonably good equipment and determination, it's not at all unreasonable to expect to bag number 100 in less than a year of listening.

To help you achieve that goal, we've put together a list of some of the best candidates. Keep in mind that seasonal propagation changes mean that many stations will change some, or all, of their frequencies. Frequencies indicated for particular relay sites may not stay the same over long periods either. Read the *Listening Post* column to stay up with the changes.

Remember—that shortwave reception conditions change often—even within a 24 hour period, so what cannot be heard one day, may show up a few days or a week after you first start checking. Don't give up after just one attempt!

So much for preamble. Let's get going!

Alaska—"The New Life Station" religious broadcaster KNLS is currently noted in Asian languages around 1500 on 11700. There's an English ID at 1515.

Albania—Radio Tirana isn't quite as easy

a mark since it's moved further into the mainstream frequencies. Try the English segment for North America at 0230-0300 now using 9750 and 11825. 7065 is a good prospect at other times and in other languages.

Algeria—Radio Algiers has an hour of English at 1900 which is best heard on 17745. Broadcasts in other languages follow this segment, which is also aired on other standard Algerian frequencies such as 15215 and 9640.

Antigua—You can catch the Deutsche Welle/Voice of Germany Antigua relay carrying the North American service in English from 0100-0150 on 6040.

Argentina—Radiodifusion Argentina al Exterior has English twice an evening at 0200 and 0400 on 11710. 9690 may, or may not, be in use.

Ascension Island—The BBC relay here is in action from 2000 to 0330, carrying the BBC world service to South America on 15260.

Australia—Radio Australia is a snap during early mornings in North America on 9580. You hardly need to even turn on the receiver!

Austria—Radio Austria International can be found at 0130 to 0200 on 9875 and 13730. Don't buy 6015 between 0500-0600—that's via the RCI Sackville site in Canada.

Belgium—Belgische Radio en Televisie (BRT) is on at 2100-2125 and 2330-0000 on 9925, as well as 1230-1300 on 17555 (or 17560) in English.

Belize—Radio Belize, though only 1 kW, can usually be heard to 0605 closing on 3285. Programs are in English and Spanish. The station has had technical problems off and on in the last few years, so it's possible they may be a "down" period.

Benin—ORTB in Cotonou usually performs well when conditions to Africa are good. Check for its sign on at 0455 weekdays, 0555 weekends on 4870. All French.

Botswana—Radio Botswana is an easy ID if you catch it while the famous barnyard interval signal is playing. This usually begins anytime after 0345. Current frequencies are 4830 and 7255.

Brazil—The government broadcaster, Radiobras, has an English language program for North America nightly at 0200 on 11745. There are a zillion other Brazilians using shortwave, too.

Bulgaria—Radio Sofia has English for North America at 0300-0400 using 11750, 11765 and 15290. You can also check other scheduled North American broadcasts at 2230 and 0000 on 9700, 11720 and 11950.

Burkina Faso—Radio TV Burkina at Ouagadougou frequently puts in commendable signals from 0530 sign on in French on 4815.

Cameroon—Cameroon Radio and TV's main outlet at Yaounde on 4850 comes on at 0400 in French and English. Radio Garoua has recently been reported with an 0430 sign on (in French) on 7240.

Canada—Radio Canada International has several segments for North American listeners. Try 0000-0030 (0100 on weekends) on 5960 and 9755. Also easily heard is private broadcaster CFRB/CFRX in Toronto operating 24 hours a day on 6070.

Chile—Radio Nacional's Spanish language commercial programming can be heard in the afternoons and evenings on 15140.

China (Republic of)—Radio Beijing uses a number of relay sites outside of China. The current schedule, however, indicates that 15135 and 17855 at 0000 are direct, as is 11855 at 1300. The domestic Central People's Broadcasting Station can be heard early mornings on many frequencies, including 6750, 6840, 7440, 7504, 7516, 9064, 10245, 11330 12120 and others.

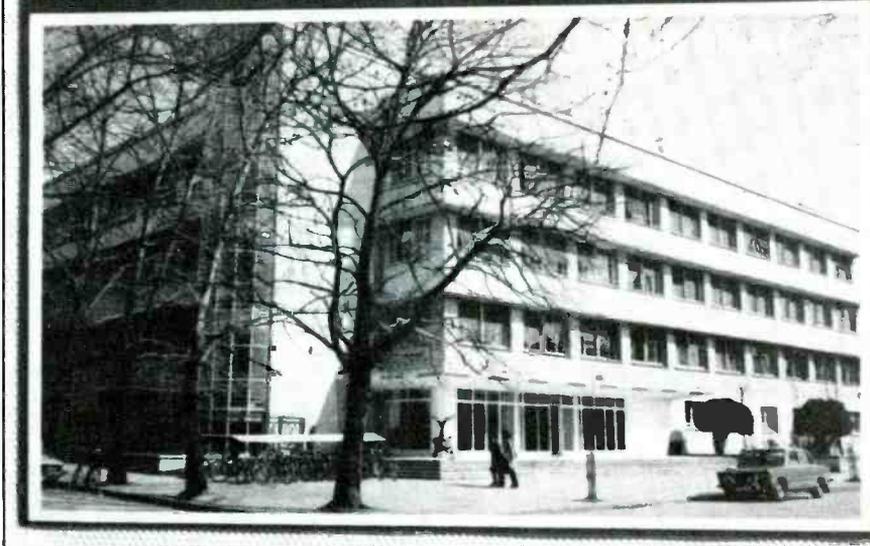
Colombia—The growing Caracol network can be heard via a number of outlets during the evenings and early morning hours. Try 4755, 4945, 5075/5095 and 6150, all in Spanish.

Costa Rica—Of the several Costa Rican stations on the air, Radio Impacto is the most tunable. Evenings on nominal 5030 (sometimes variable 5044) and 6160 (sometimes 6150).

Cote d'Ivoire—Radiodiffusion Television Ivoirienne now has high power transmitters and is scheduled at 0600 sign on; 6015 and 1900-0000 on 11920 in French. But the

Radio Tirana

Albania



The building shown on this Radio Tirana QSL is apparently the home of the station.

higher power and the name change from the former Ivory Coast has no effect on this station's rotten QSL policy.

Cuba—Radio Havana Cuba has English on 11820 at 0000-0200 and is active at other times on such spots as 9710, 11760 and 11835. If you don't want to chase these particular Fidelites, pop down to 5025 in the evening for Radio Rebelde.

Czechoslovakia—Radio Prague has English to North America at 0100-0157 which airs on 5930, 6055, 7345 (almost always good). 9540, 11990, 13715 and 15540.

Denmark—It may not be too late to catch Radio Denmark direct—they're due to close down their transmitters and broadcast via Radio Norway soon—try 2200, 2300 or 0000 on 15165. It's all Danish but for an EE announcement at sign on.

Dominican Republic—Radio Clarin on 11700 is dogged by a lot of QRM these days. The station may have shifted to 9950 by now. Daytime and early evenings are best.

East Germany—Radio Berlin International has English to North America at 0100-0145 on 6080 and 11890 and 0145-0230 on 6085, 11765, 11890 and 15125.

Ecuador—HCJB is one of the many stations with schedules so extensive they can be heard on many frequencies over a 24 hour period. During the evenings, HCJB has English for North America on such channels as 9745, 11775 and 15155.

Egypt—Radio Cairo broadcasts to North America in English from 0200-0330 on 9475 and 9675.



Trans World Radio's installation at Bonaire in the Netherlands Antilles.

England—The venerable BBC comes at us from all directions via a long list of relays. Try 7325 in the evening for the BBC direct from England.

Equatorial Guinea—Radio Nacional at Malabo is often heard at 0500 when it signs on; 6250 (it varies to the low side a bit). Another venue is Radio Africa, which carries religious programming on 7188 variable to 2300 closing.

France—Another member of the relay club, Radio France Internationals 0315-0345 English segment is currently direct from France on 9550, 9745, 11700, 11995 and 15135. Also at 1245-1315 on 9805, 11700, 15195, 15365 and 17720.

French Guiana—RFI's relay at Montsinery is currently on 9790 and 11670 relaying RFI English at 0345-0415 and 11670 at 1245-1315.

Finland—Look for Radio Finland International weekdays at 1200 and 1300 with English on 15400.

Gabon—Africa Number One's mostly French language programming starts at 0500 on 9580. You can also hear it on 15475 from 1600.

Ghana—The Ghana Broadcasting Corporation's Network One signs on in English at 0600 on 4915. Not a regular, but moderate persistence will be rewarded.

Greece—Check 9395, 9420 or 11645 for a ten minute English newscast from the Voice of Greece at 0130. And again at 0340 when 7430 is used instead of 11645. The station is in Greek for most of the evening hours.

Guam—Trans World Radio's KTWR is being heard on 11650 with English at 1500-1635.

Guatemala—There are several Guatemalan choices. Try Radio Cultural (TGNC) evenings on 3300 or Radio Tezulutlan, 4835 in Spanish and Indian languages to 0230 on 4835.

Hawaii—Listen on 5000, 10000 or 15000 for time announcements given by a woman (usually beneath WWV's signal). That's WVH in Hawaii.

Honduras—HRVC, La Voz Evangelica in Tegucigalpa is a reliable one. Evenings on 4820, with religious programs in English usually at 0300.

Hungary—Radio Budapest is on in English to North America at 0030-0100 on 6110, 9520, 9585, 9835, 11910 and 15160.

India—All India Radio uses dozens of frequencies, but few are received in North America really well. Try mornings to 1500 on 11620 and parallel 15020. Also around 0000 on 9910 in various languages.

Indonesia—Since the Voice of Indonesia revised the schedule of its 25 and 19 meter band overseas service outlets, reception of the English segment is virtually impossible. So try the regional RRI outlet at Ujang Pandang around local dawn. Either 4719 or 4753 should be in use.

Iran—VOIRI's most reliable outlet here is 15084 in Farsi most of the day and evening.

Iraq—Radio Baghdad has English for North America at 0130-0330 on 9515 and



The Radio Nacional Espana transmitter site at Noblejas, Spain.

11945. But reception is often not as good as daytimes when the Arabic channels of 13660 and 13680 are well heard.

Israel—Kol Israel has several periods of English for North America. Try 0000 on 11605, 15615 and 15640. These may not have been dropped in favor of lower frequencies for the winter months so you may wish to check such frequencies as 7460, 9435 and 9855.

Italy—RAI in Rome has an English newscast at 0100 on 9575 and 11800 to 0115 or so, then five minutes of music before going into French.

Japan—NHK's Radio Japan is relayed by overseas sites so be suspicious of extra strong signals. English at 0100-0200 on 17810 seems direct, as does 11815 at 1100-1200 and 1400-1600.

Jordan—Radio Jordan is currently heard to 1415 close on 13655.

Kuwait—Radio Kuwait is pretty much a regular in English from 1800-2100 on 11665.

Lesotho—When it escapes QRM from Latin stations, Radio Lesotho can be heard on 4800 at 0300 sign on in English.

Liberia—The VOA's Monrovia relay station is a regular on 15600 during our afternoons. Another possibility is religious station ELWA which is on 4760 from 0600 sign on.

Libya—Khadaffi's Voice of the Greater Arab Homeland is active at 1645 to 0330, and the Libyan domestic service from 1245-1645 all on variable 6110 (as high as 6122), 7245 and 15235 and all in Arabic.

Luxembourg—Try Radio Luxembourg in the afternoons on 15350, (in French) and late afternoons/evenings on 6090 (German). The station airs a pop/rock format.

Malaysia—The Voice of Malaysia external service shows up around 1200 on 15295, mostly in Malaysian.

Mali—Radiodiffusion Television Malienne is active on 4783, 4835 and 5995 in

French from 0555 sign on.

Malta—Tune for the Voice of Germany's Cyclops relay currently on 6085, 9735, 1865 and 15105 during the 0100-0150 English broadcast to North America.

Mauritania—ORTM at Nouakchott frequently shows up at 0630 sign on, in French, on 4845. Also listed for 7245.

Mexico—Radio Educacion on 6185 with Spanish in the evenings—if the QRM don't bite. Also XEWW's XEW mediumwave relays have recently been heard around 0600 on 9515.

Morocco—RTM is in French from 1000-0100 on 15335 and is often heard here in our afternoons. Also between 1400-1700 (with some English) on 17595.

Netherlands—Radio Netherlands' 0030-0125 English broadcast to North America on 6020 is currently listed as direct, with other frequencies shown as from Bonaire, Netherlands Antilles.

Netherlands Antilles—In addition to the Radio Netherlands relay, there's Trans World Radio, in English from 0300-0430 (0530 weekends) on 9535 and 11930.

New Zealand—Radio New Zealand's schedule shuffles between a quintet of frequencies: 6100, 9850, 11780, 15150, 15485 and 17705. At present, 9850 at 0900—if still in effect—should produce. Higher power transmitters, due soon, will benefit everyone.

Nicaragua—The Voice of Nicaragua is back on the air and now has English at 0100-0200 on 6100.

Nigeria—Most nights the Voice of Nigeria can be heard at 0500 sign on; 7255.

Northern Marianas—The Christian Science Network's KYOI, recently reported as inactive, or only partially active, may be back in action now. Try 1200-1400 on 9465 or 1000-1200 on 9530.

North Korea—Radio Pyongyang has English at 1100 but occupies such frequen-

cies as 6576, 9977 and 11735 for much of our early morning period.

Norway—Radio Norway International is on daily but has English only on Sundays. Check 9590 at 1300, 17840 and 21705 at 1600, 17840 at 1700, 11850 at 2300 and 15165 at 0000.

Oman—Radio Oman is being heard in Arabic at 1600 on 17735.

Pakistan—Radio Pakistan has news at 1600 on 11615, 13675, 15515 and 17895.

Paraguay—Radio Nacional, 9735, can be heard with its all Spanish language programming during the late afternoon and early evening hours.

Peru—There are dozens of Peruvian stations on the air, none of them a snap to hear. Best bets are probably Radio Andina in Huancayo on 4996 and Radio Cutervo, 6691—the former in late evenings and early morning, the latter early evenings and early mornings. All in Spanish.

Philippines—Try Radio Veritas Asia at 1500 on 11740, 15220, 15360 or 15445. Or the VOA relay at 1200 on 15410 and 15425.

Poland—Radio Polonia has Polish for seamen from 0000 to 0200 on 6095, 6135, 6145, 7270 (usually best), 9565 and 11845.

Portugal—Radio Portugal airs English for North America Monday-Friday (Tuesday-Saturday UTC) at 0230-0300 on 9680 and 9705.

Qatar—The Qatar Broadcasting Service has an 0245 sign on; 7175. Recently monitored to 1705 close on 17825. All Arabic.

Rumania—Radio Bucharest has English to North America at 0200-0300 and 0400-0500 on 5990, 6155, 9510, 9570, 11830 and 11940.

Senegal—Look for ORTS, Dakar in French and vernaculars from 0600 sign on and to 0000 sign off on 4890. This station tends to go inactive for periods but always seems to eventually return.

Singapore—The Singapore Broadcasting Corporation's Radio Singapore operates to 1630 close on 5052 and 11940. This is an English language service.

Solomon Islands—The Solomon Islands Broadcasting Corporation has dual outlets on 5020 and 9545 and can often be heard from around 0700 in English. They use the slogan "Radio Happy Isles."

South Africa—Radio RSA is easily heard in its North American service in English from 0200-0300 on 6010, 9580 and 9615.

South Korea—Radio Korea's best received English segments are probably those at 0000-0030 on 15575 and 1400-1500 on 9750 and 15575.

Spain—More easy pickins'. Radio Nacional Espana's external service in English to North America runs 0000-0200 on 9630 and 15110, though the latter may now be on 11880.

Sri Lanka—This one is tougher. Try the Sri Lanka Broadcasting Corporation at 1200 on 9720 (and, though a government outlet, don't be surprised if you hear religious programming and commercials!) Also try the Voice of Germany's Trincomalee re-

lay between 0600-1400 and 1700-2000 on 21640.

Sweden—Radio Sweden has English to North America at 0230-0300 on 9695 and 11705 and 1530-1600 on 17880 and 21610.

Switzerland—Swiss Radio International's North American service is on in English at 0200-0230 and 0400-0430 on 6095,

6135, 9725 and 9885.

Syria—Radio Damascus has English for Europe at 2005 and North America at 2105. Frequencies are 12095, 15095 and 17710, though only two of the three are in use each hour.

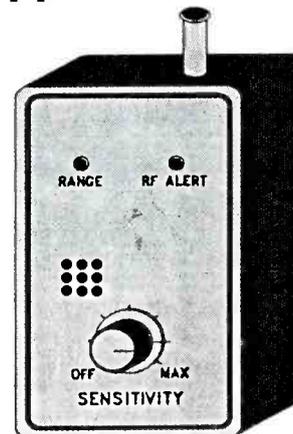
Tahiti—Check late evenings for Radio Tahiti in French and Tahitian on 6135, 9751 variable, 11825 variable and 15170.

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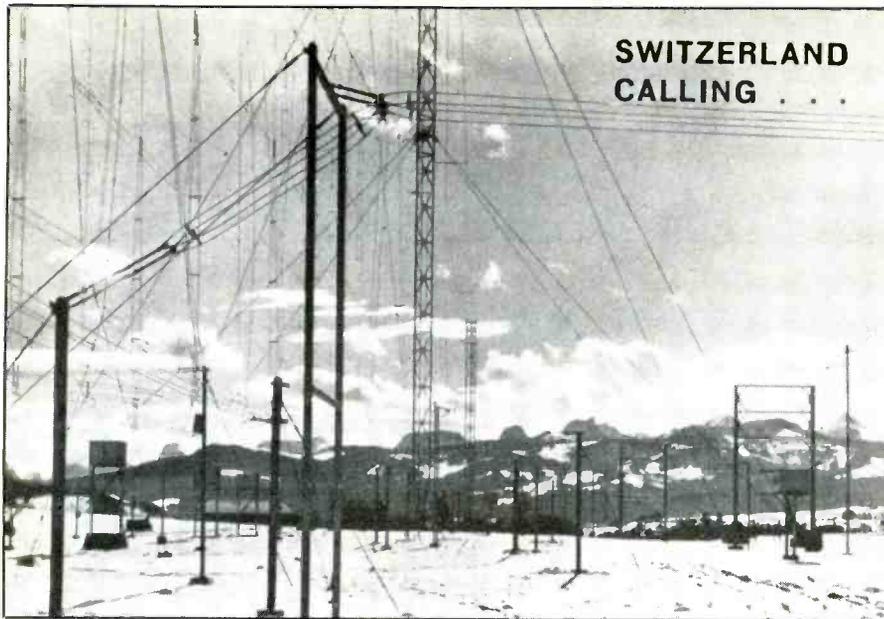
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Some of the antennas at Swiss Radio International.

Togo—Radio Television Togolaise signs on at 0530 and closes at 0000 on 5047. All French.

Tunisia—Radio Television Tunisienne is on 11550 from 0600 to 1800 and 2005 at 0430 to 2345 and usually well heard. All Arabic.

Turkey—The Voice of Turkey is on 9445

for English to North America at 2200-2250 and 0300-0350.

United Arab Emirates—Voice of the UAE at Abu Dhabi has English from 2200-0000 on 9595, 11985 and (best) 13605. UAE Radio at Dubai carries English at 1600 on 11790, 15320 and 21605.

United States—Take your pick. The

VOA is everywhere but many outlets are relays. So try KUSW from 0100-0300 on 11965 or WCSN on 15610 from 2000-2200 or KVOH from 1200-0400 on 17775.

USSR—Radio Moscow's North American service is on many frequencies through our evening hours, including 7165, 7290, 9700, 9865, 11730, 12050, 15425 and 17605. If you run across 9600, that's via Cuba. 9720 and 9750 are via Bulgaria.

Vanuatu—Check 7260 around 0700 and through the rest of the dark hours. Programs are mostly in the local Bislama language.

Vatican—Vatican Radio is regularly heard with English for North America at 0050-0110 on 9605, 1160 and 15180.

Venezuela—Best Venezuelan bet is Radio Rumbos, evenings and early mornings on 4970, all Spanish.

Vietnam—The Voice of Vietnam can be picked up local mornings with segments in English and other languages on 9840, 10010 and 15010.

West Germany Deutsche Welle's English to North America comes directly from Germany (not via a relay) on 6145 at 0100-0150 and 11810 at 0300-0350.

Yugoslavia—Radio Yugoslavia's new high power transmitters make this one much more hearable than ever before. Try 0100-0145 in English on 11735 and 15105 or 1200-1230 on 17740.

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Denver Mailman Saves Elderly Women and Teenager

As a veteran of the U.S. Postal Service for three years, Albert Dominguez knew his route well. Dominguez's route is one in which most of the residents are retired. Conscious of this fact, he always kept an eye out for things that might be askew. Thursday, April 6, 1989 seemed to be just an-

SCAN PUBLIC SERVICE AWARD

other ordinary delivery day. But when he reached the forty-seven hundred block of Vallejo Street in Denver, Colorado he noticed black smoke billowing from a home where he knew an elderly woman lived. As he dropped his mailbag and charged the home Dominguez shouted to a nearby neighbor to call the fire department. The carrier was aware of the elderly occupant because of the Meals on Wheels truck that stopped daily at her home. First he checked the front door, but it was locked, next he ran to a side door which happened to be open.



Dominguez darted daringly into the home where he saw Freida Wick standing in the living room shouting "Fire". Dominguez was quoted as saying, "I told her to forget about the fire and helped her out." After removing Wick from the home he re-entered, ran through the living room and ran up the stairs to an apartment where he awoke a sleeping seventeen-year-old.

The three were taken to St. Anthony Hospital Central for treatment of smoke in-

halation, according to The Denver Post. Dominguez and the seventeen-year-old were released in the afternoon. Wick on the other hand, due to her age, was kept overnight for observation.

The smoke apparently came from Wick placing her slippers in the oven to dry them. No fire actually broke out but the smoke alone was lethal enough to cause concern. If the postman had started his route a minute later Wick and the seventeen-year-old might both have perished. Although Dominguez said he had no thoughts of fear at the time later he was quoted as saying, "I was quite shocked about what I did."

Though he has been a postal carrier for three years he had only been on this route for about eight months.

For Dominguez's ability to observe and put his life on the line for others he will receive the SCAN Public Service Award, which consists of a commendation plaque and cash prize. For making the nomination, Patrick M. Griffith, of Denver, Colorado will also receive a plaque.

Congratulations to a postal worker who makes it his duty to deliver the mail and help others. Also a strong congratulation goes out to a very alert citizen.

Best Equipped

Can you believe all of this gear! Meet the man who owns the world's best equipped scan and ham station, Anthony A. Mirra of Roslindale, Massachusetts. Tony's ham call letters are K12FV. He is also registered as a monitoring station, KMAIEA. It took me nearly an hour just to read the lists of equipment.

Tony's lineup in the cellar starts off with two Hellicrafter's, a SX-62A and a SX-71 receiver. Second on the lineup is a series of Nationals, a HRO-500 and a NC-HF5. Next he has a mixture of various brands, a Lafayette PF-200A, a Gonsel GR-211, a Regency scanner, a Heath monitor scope HO-10, and a Hammerlind HQ 170 A.



SCAN PHOTO CONTEST WINNERS

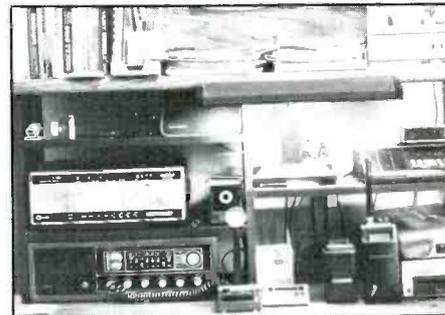
We're not done yet! Now we move upstairs to Tony's den. In the den he has an ICOM IC-R70 receiver, and a Realistic scanner PRO-2004. With all of this gear Mirra uses an array of antennas. To start off he has an eight element beam for his two meters operations, a fifty foot longwire tied to his two dipole antennas.

I didn't have the space to list all of Tony's equipment but I hope you appreciate the collection he has accumulated.

Best Appearing

Meet Homer J. Rajotte of Northbridge, Maine, an on-call firefighter who enjoys serving his community as well as scanning.

Rajotte's impressive-appearing shack is headed up by a powerful Bearcat scanner DX-1000 which he uses in conjunction with a seventy-five foot longwire antenna. He al-



so has a Bearcat 220 scanner with a Radio Shack all-band antenna. Since Rajotte is an on-call firefighter he uses a Bearcat 100 to keep aware of any possible emergencies. Also he uses a SBE Console Five CB to stay in touch with the fire department. If you look at the top shelf in the upper right hand corner of the photograph you can see the Plectron Fire pager which sends an Instalert tone that alerts Rajotte of the department's need for his services. You will also notice a Commodore 64 computer in the lower right hand corner. This is used to log all of the broadcasts received on the DX-1000.

In his leisure time Homer Rajotte not only enjoys scanning, but loves to read his favorite column in *POP'COMM*, The SCAN Photo Contest!

Skip Scanning Those Mystery Repeaters

LA Sheriff on 30.90 MHz? KY State Conservation on 34.575 MHz? Hey, Wait Just a Minute!

BY CHUCK ROBERTSON

The current Solar Cycle is surprising scientists just as it is providing exciting DX monitoring on the 30 to 50 MHz VHF "low band." A significantly higher level of solar activity than predicted or expected are taking place, even as you read this. Solar Cycle 22 is now prime for DX'ing these frequencies, so now's the time to make hay while the sun spots!

Mysterious Intruders

Very strange things are happening now that Solar Cycle has entered its peak years. Take the case of the rambling radio frequency interference (RFI). This puzzling signal slowly migrates between 45.35 and 34.50 MHz, occasionally managing to key U.S. Fish and Wildlife repeater inputs on 34.43 MHz. This RFI is then sent out via those repeaters on 34.83 MHz, where it causes havoc to federal conservation officers across America. My local National Wildlife Refuge usually gives up using their radios when this grinding skip is on the wing. Its origin is a complete enigma.

A classic example of repeated DX skip comes from the Dominican Republic. Last winter I noted that a Jamaican business appeared to be transmitting through a repeater output on 34.575 MHz. At first, I thought I had found another active Jamaica, but there were times when the comms dropped out of the repeater and the Jamaican didn't seem notice, they heard every word of their contact despite the missing pieces. As chance would have it, I happened to eventually stumble upon the frequency the Jamaican was actually using. It was 31.775 MHz, and the station was Brandon Hill Security in Montego Bay. Their 31 MHz simplex comms were taking place on the input frequency of a 34 MHz repeater in the Dominican Republic, which would sometimes give them a free ride when skip conditions were right.

A few minutes later, another similar voice came booming across the same repeater. This time it was KIK310, the Kentucky Con-

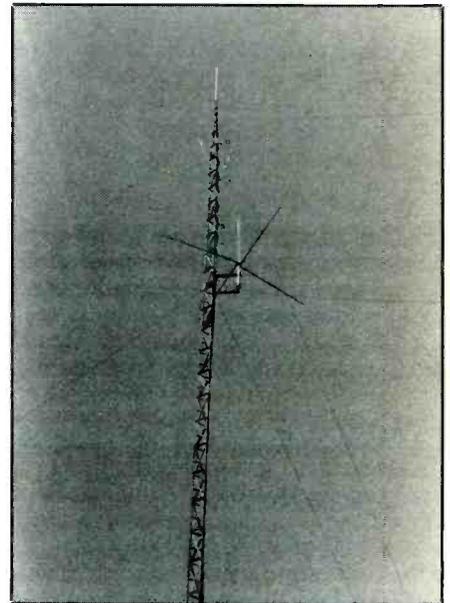
servation Police at Mayfield. I quickly programmed 31.78 MHz, their assigned frequency, into my scanner. They were coming in loud and clear. Unlike the Jamaican business coming through the Dominican repeater, there was distortion on KIK310 signals on 34.575 MHz because they were 5 kHz off-channel from the repeater's 31.775 MHz input frequency.

My friends at Gulf Fleet Marine have their 31.48 MHz signals regularly inadvertently rebroadcast over a foreign repeater on 43.70 MHz. The Gulf Fleet Marine base is south of New Orleans, and they're repeated on 43.70 MHz along with assorted signals from other businesses using that frequency. To make it all even more bizarre, there's yet another overseas repeater on 43.70 MHz that picks up and rebroadcasts U.S. radiopaging stations. Nobody knows the location of either repeater.

Police, If You Please!

It's quite a jolt to hear comms from the Los Angeles County Sheriff taking place on 30.90 MHz, which isn't even a frequency allocated to the Police Radio Service. If you check, you'll find these comms belong (and are actually taking place) on 39.20 MHz. A repeater of unknown origin is doing the honors on 30.90 MHz, sending out the base station half of a base/mobile semi-duplex channel pair. When the mobile talks to the base, you hear a beeping "busy signal" (sent out to keep other mobiles from interfering). Between the dispatching and beeping, the LASO is operating almost continually, and the 30.90 MHz repeater is likewise occupied with these comms. The actual owners of that repeater can't get in a word of their own.

If you listen on 33.425, 33.475, 33.525, 33.625, 33.675, and 33.825 MHz, you'll note that when DX conditions are right, there are Central American repeaters here that rebroadcast American police operating on 39.42, 39.48, 39.52, 39.62, 39.68, and 39.82 MHz, even though the actual in-



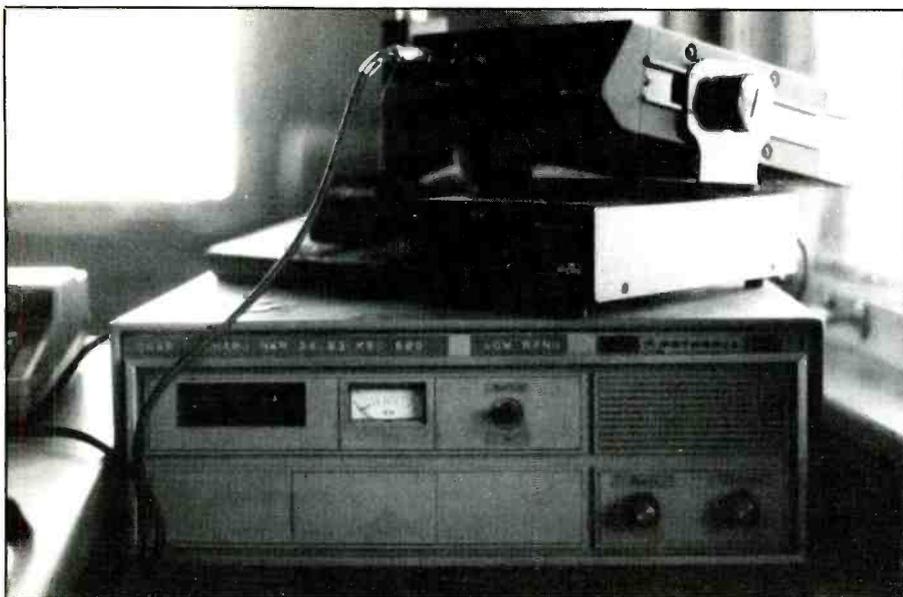
Antennas at the Fish and Wildlife station in Illinois.

put frequencies of the repeaters are 5 kHz above and below the operating frequencies of the American stations. The best of these repeaters is the one on 33.525 kHz, as the ID's of dozens of PD's on 39.52 MHz have been identified via its signals. There's even a Soviet station on 39.525 MHz that has been heard through this repeater.

The other 33 MHz repeaters are less active. The one on 33.475 MHz used to be pretty busy, with lots of American PD's from 39.48 MHz pouring through. No more. The repeater owners installed tone-access equipment that stops it from keying up except from their own stations, so it rarely keys from skip any longer.

Heaven, I'm in Heaven!

Then there's the mystery of the dueling preachers. A paging station on 35.58 MHz



U.S. Fish and Wildlife Service base at Crab Orchard National Wildlife Refuge, in Illinois. This station operates on 34.43 MHz, which is the input of the FWS repeaters on 34.83 MHz. Sometimes the interference on 34.83 MHz is so bad, that the system is useless and they have to switch to 171.75 MHz.

gives every indication of rebroadcasting two separate church services, one in English the other in Korean. The two services seem to vie for which will control the paging station. The result is that they alternate. Sometimes, neither preacher's signal has enough moxie to hold the pager's squelch open and the result is an irritating cutting on and off of the services.

My guess is that these signals originate from preachers using wireless mikes, or remote transmitters that match the input frequency of a local radio-controlled paging station, such as those using 72 MHz links. Some imported units don't operate on FCC authorized frequencies. However, their signals got there, here in the midwest, these signals can be copied from about noon to sundown on Sundays. Southern California seems likely as the source, based on the propagation pattern.

Between The Continents

A repeater on 41.30 MHz rebroadcasts several Soviet stations, sometimes simultaneously. What a mess. Sounds like official traffic, but the location of the repeater is unknown.

A Latin American repeater on 42.39 MHz (NBFM) sometimes sends out WBFM military comms of Netherlands forces. These are in Dutch and English.

Several Turkish repeaters are kept occupied retransmitting skip from West German autobahn vehicle assistance operations. The repeaters are on 34.25, 34.30, 34.40, 34.50, 34.60, and 34.70 MHz. The inputs are probably between 34.76 and 35.00 MHz. Baden Baden was heard mentioned over the repeater on 34.30 MHz.

Next time the skip comes rolling in, take a close look at those signals. Some of them may not be where they belong. Moreover, they may well be making a round-trip from North America to somewhere else (*where?*) and back again. Check our *Best Bet Repeater Log* for frequencies to tune. Send your loggings to POP/COMM.

Best Bets Repeater Log

Abbreviations: SS= Spanish; BI= Business; RBC= Rebroadcasts; BIWI= British West Indies English.

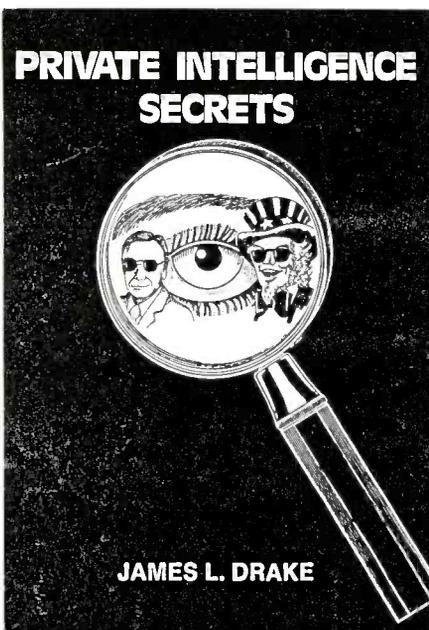
- 30.00: User unknown; RBC Los Angeles County Sheriff base from 39.20 MHz.
- 31.85: Mexican police (state & federal) repeaters; RBC a Guatemalan BI & US mil comms from 32.20 MHz. Mil tlc is distorted since it's in WBFM, but repeaters are NBFM mode.
- 33.35: Cuban agri BI; RBC US mil (distorted).
- 33.44: Canadian shared BI repeater near Wilberforce, ON; RBC US paging from 33.20 MHz.
- 33.46: Canadian shared BI repeater near Renfrew, ON; RBC US Special Industrial stations, & Argentinian pagers from 35.32 MHz.
- 33.48: Canadian shared BI repeater near Vernon, ON; RBC US pagers from 35.24 MHz.
- 33.525: Central American BI; RBC US PD's from 39.52 MHz; actual input freq is 39.525 MHz.
- 33.60: Cuban BI; RBC US PD's (freq. unknown).
- 34.25, 34.30, 34.40, 34.50, 34.60, 34.70: Turkish ops; RBC FRG motor assistance stations.
- 34.44: SS BI; RBC other SS BI's.
- 34.575: Dominican Republic BI; RBC Jamaican security ops & non-voice paging from 31.775; also RBC Kentucky conservation ops from 31.78 MHz (distorted).
- 34.825: User unknown; RBC US paging.
- 34.83: US Fish & Wildlife Service PD; RBC interference of unknown origin from 34.43 MHz.
- 35.16: SS BI; keys up with open carrier. Skip can cause some repeaters to activate from noise or open carrier.
- 36.50: SS petro ops (Venezuela?); RBC US PD's.
- 36.60: SS BI; RBC US ambulance ops: "East Oregon Run," LGH (a hospital), Midlands, Brandywine, Effortboro, Williamson County, "House 1" to "Ambulance 338," also "99-T-05" & "631" (part of a callsign?). Can anybody ID the input freq?
- 36.87: Venezuelan; RBC US FD's from 33.86 & 33.88. Repeater input is 33.87 so sigs are distorted.
- 36.90: Venezuelan BI; RBC US FD's from 33.90
- 36.97: Venezuelan BI; RBC US FD's from 33.96

- & 33.98, distorted. Actual input is 33.97.
- 37.15: SS BI; Keys up on open carrier & noise.
- 37.25: Similar to 37.15 MHz.
- 37.60: Brazilian BI; RBC US water ops: mentions Dan Harris Road; Cambridge; a well site; Interstate 91, "Unit 3 to Base." Can anybody ID the input?
- 39.18: Venezuelan National Parks repeaters; RBC US PD's.
- 40.46: Venezuelan petro ops; RBC US state PD's from 44.94 MHz.
- 40.65: Venezuelan petro ops; RBC US truckers from 44.20 kHz.
- 41.14: Venezuelan BI; RBC US BI's.
- 41.20: Venezuelan BI; RBC US BI's from 35.96.
- 41.30: User unknown; RBC several Russians.
- 41.35: Cuban BI; RBC US paging.
- 41.425: SS BI; RBC US FD's or ambulances. A partial callsign heard is KB?410. Also RBC on SS radio telephone.
- 41.55: SS BI; RBC US pager (distorted).
- 41.62: Venezuelan petro ops; RBC US PD's from 39.46 MHz.
- 41.625: SS BI; RBC US PD's from 39.68 MHz.
- 41.90: Venezuelan petro ops; RBC US PD's from 39.70 MHz.
- 42.00: User unknown; RBC US PD's.
- 42.04: SS BI; RBC US PD's "Montgomery 1," "Cleveland 50," "Broward County" (FL?), "221."
- 42.10: Keys on open carrier.
- 42.39: SS BI; RBC Dutch mil; "3-0...000," English & Dutch languages.
- 42.65: Unknown repeater; RBC US PD's; "1118."
- 42.80: Venezuelan industrial ops; RBC US BI's from 35.90 MHz.
- 42.825: Venezuelan bank or billing ops; RBC US petro ops from 48.58 MHz; actual input 48.575 MHz.
- 42.85: Venezuelan industrial ops; RBC US petro from 48.60 MHz.
- 42.875: Same BI's as 42.825 MHz; RBC US petro ops from 48.62 MHz. Actual input freq 48.625 MHz. Note that at least 3 repeaters use a 25 kHz channel spacing with inputs 5.75 MHz higher.
- 42.90: Keys on with US power utility companies from 47.70 MHz.
- 43.025: SS BI; RBC BIWI, "700 to 705" (distorted).
- 43.28: Cuban BI; RBC US petro ops from 49.12.
- 43.65: Calan (Panama) FD; RBC US PD's: "Brookhaven," "J-1," "J-21," Virginia license check, "556," & distorted US mil skip.
- 43.70: SS BI; RBC US BI's from 31.48 MHz. Also another repeater keys-up with US pagers & SS BI skip.
- 43.90: Keys-up with beeping & buzzing.
- 44.24: Keys-up with skip from truckers in US.
- 44.25: Keys-up with US BI skip.
- 44.30: Cuban or Dominican Republic BI RBC US trucker skip.
- 45.38: SS BI; RBC US ambulance ops.
- 45.50: Bogota, Colombia; RBC US skip, "Beaumont," "497."
- 45.80: Keys-up on noise.
- 46.125: User unknown; RBC US PD's; "Enroute to New Jersey;" Greensboro, Grangeville, Gideon, Eliseboro Road; partial callsign WC??26; "746" & "333," vehicle # 531; Signal 8.
- 46.15: SS BI; RBC US water ops; also RBC on SS radio-telephone, full-duplex.
- 46.90: Keys-up on open carrier.
- 46.94: SS BI; RBC US FD's from 33.98 MHz.
- 47.10: SS BI; RBC US skip; Jerseyville, & K??696.
- 47.20: SS BI; RBC US ambulances, "454," Signal 7. Any clues?
- 47.26: RBC US skip, but distorted.
- 47.325: SS BI; RBC US skip.
- 47.50: RBC US FD's.
- 47.80: SS BI; keys-up from noise.
- 47.825: SS BI; RBC US skip (distorted).
- 47.83: French Canadian BI, Montreal; RBC US BI's.
- 48.08: SS BI, RBC US FD's; Jefferson Village; Mohegan Fire, KI?603, "302."
- 48.25: SS BI; RBC US ambulances, KX?988, Bright & 12th Street, Ambulance 25.
- 48.275: SS BI; RBC US ambulances, K??694, 124th Street, Signal 1. The skip is distorted, so repeater input is probably 5 kHz from the ambulance freq.
- 48.66: SS BI; RBC taxis, "292 to Randolph," "Go to Cedarhurst," 332, 347, 501.
- 48.98: SS BI; RBC US petro BI's.
- 49.075: SS BI; RBC US BI skip.
- 49.24: SS BI; RBC US BI skip, "Unit 891 to 3."
- 49.27: RBC US skip; "Morion Local to 1359-- have 2 gas leaks, 1 at 170 Chesterfield Lane, the other on Michael Lane." Also BIWI.
- 49.325: SS BI; RBC US skip; "437" (distorted).
- 49.425: SS BI; RBC water d-pts, 92nd & Dunning Street, Station 10, Truck 63, Valve 1, Plumber 690, KK?6??.
- 49.73: Keys-up from noise.
- 49.875: BIWI; transport company in Bahamas Islands; RBC US police.
- 49.99: Keys-up with open carrier.

Collecting Intelligence

To maintain any semblance of personal and business privacy these days, you have to take some effort to stay ahead of assorted credit companies, government agencies, ex-spouses, employers, neighbors, business competitors, and a myriad of faceless computers that are specifically programmed to check you out, rate you or infringe upon your freedom, money, property, reputation, credit, and privacy. A new 112-page, large-format illustrated book entitled, *Private Intelligence Secrets*, by James L. Drake meets this problem head-on and with all the stops pulled out.

The phenomenal info in this book was researched and provided by over one hundred intelligence agents, law enforcement officers, and private investigators. The intent of this information (most of it never before-revealed to the general public) is to allow you to retain your reputation, credit rating, and privacy, fully intact.



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Private Intelligence Secrets is a book that should give you peace of mind since you'll have an in-depth understanding of a great many factors that bear upon the lives of all of us today. This book is \$16.95, plus \$2 postage to addresses in North America (NY State residents add \$1.27 sales tax) from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725.

Secret Stuff

Fred B. Wrixon's book, *Codes, Ciphers and Secret Languages* is an intrigue-filled journey from ancient times to the present. Codes, ciphers and secret languages have always played key roles in history, and this 266-page hardcover book offers plenty of information on the techniques and actual crypto systems used by Benedict Arnold, Marie Antoinette, Napoleon, etc.

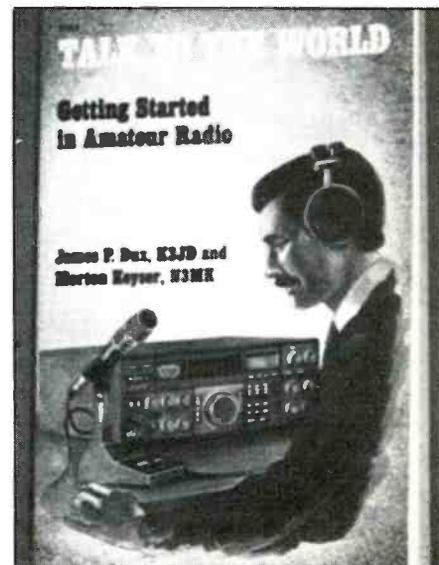
Wrixon's book actually shows you how to use these (and many other) crypto systems in clear, easy-to-understand steps. At the end of each chapter, there are encrypted sample messages using the system explained. These are challenging little brain teasers that not only test your understanding of what you've just read, but also tone up your skills for putting them to your own uses. You'll find varied uses for the Polybius checkerboard, the Porta disk, L'Epee's alphabet, Thomas Jefferson's cipher wheel, the Wheatstone/Playfair square, Native American Indian signs, heliograph signals, Esperanto, Ardois, and much more.

This is more than a history book, or a mere technical study of the subject. It's a lively survey of the ingenious, and even devious, ways in which secret communications methods have been successfully employed. You can use it to baffle your enemies, fool your friends, keep private diaries, memos, frequency listings, and also provide yourself with the hours of entertainment with this useful book.

No price is indicated in this book, it is published by Bonanza Books, and distributed by Crown Publishers, Inc., 225 Park Avenue South, New York, NY 10003. Most bookstores should be able to obtain *Codes, Ciphers and Secret Languages* for you if let them know the ISBN number, which is 0-517-657-4-X.

Getting On The Air

Seems like there has been a recent flurry of books telling you why you might wish to get a ham license, and how to get about started. Some of these books portray the hobby in a rather dull manner while also giv-



ing the impression you need an E.E. degree from MIT to become licensed.

Happily, a new book entitled *Talk To The World* doesn't have these flaws. In fact, if you've ever thought about hamming it up, but backed off because you weren't sure what it offered, or felt that it was too technical, or too expensive, or the license was too difficult to obtain, or because you didn't know where to begin, then this book might be just what you need.

Authors Jim Dux, K3JD, and Mort Keyser, N3MK, are a couple of savvy guys who hold Extra Class ham tickets and have been active in the hobby for several decades. What they don't know probably isn't worth bothering with. In their 140-page book, they discuss the various grades of licenses that are available, and they go on to explain a good approach for meeting the requirements for getting a Novice grade license. The book itself isn't intended to be a technical license-study guide, but to help eliminate the misconceptions and fears that often result in "culture shock" for those first thinking about getting started in hamming.

Dux and Keyser provide a briefing on assembling a beginners ham station, on some basic operating practices and techniques, ham jargon, and they can tell you all about what's involved in the "dreaded" FCC exam, which seems to have gotten a reputation for being something a lot more than it really is. Not only that, it isn't even administered by a scowling FCC bureaucrat, the exam is given by several ham operators in your area.

Talk To The World, by Dux and Keyser, is an \$11.95 book. It's available from TAB Books, Inc., Blue Ridge Summit, PA 17294-1024. **PC**

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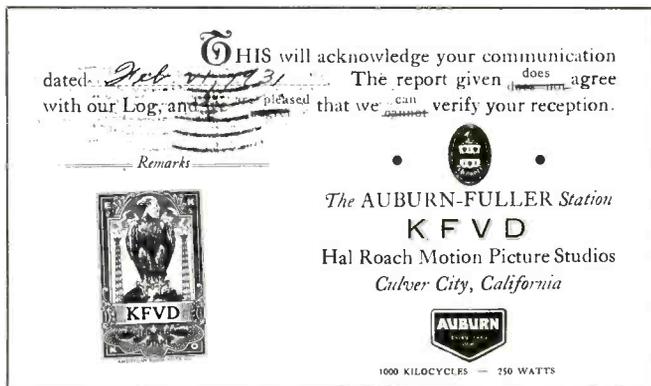
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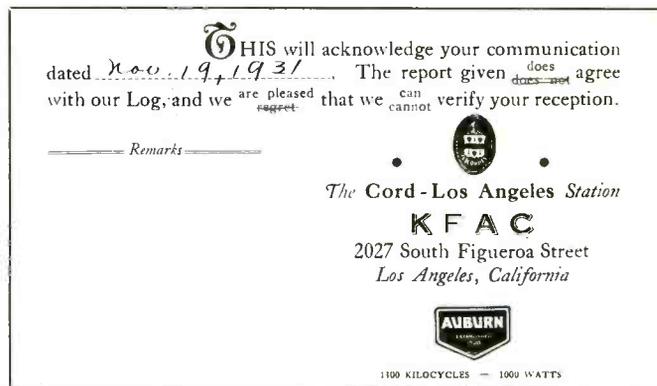
Remembering Old Time Radio

*We Dig Through The Dusty Archives to Keep
You Posted on the Past*

BY ALICE BRANNIGAN



This KFVD veri is dated February, 1931 and confirms reception for 250 watts on 1000 kHz. (Courtesy Joe Hueter.)



By late 1932, KFVD had become known as KFAC with 1 kW on 1100 kHz. (Courtesy of Joe Hueter.)

When broadcasting arrived on the scene in the 1920's, several motion picture studios (most notably Warner Brothers and their station KFWB) opened up stations. Although not in the first rush of stations, the Hal Roach Motion Picture Studios (which produced many comedies, including those by Laurel and Hardy) had a station in their studios at 8822 Washington Boulevard, Culver City, CA. But let's not get ahead of our story.

The station appears to have begun its career in 1925 as KFVD, operated by C. I. and W. J. McWhinnie, who operated an electrical supplies company in San Pedro. This was a 50 watt station on 1460 kHz. In 1928, the McWhinnies decided to move the station to the Venice Ballroom, 1925 South Pacific Avenue, Venice, CA. It then became known as *The Voice of The Sea* as it ran 250 watts on 1440, then, 1380 kHz, and late in 1928, on 700 kHz from its Culver City transmitting site.

In short order, the McWhinnies moved the studios from Venice to 4163 Minerva Avenue, in Culver City. By 1930, the station had been purchased by the Los Angeles Broadcasting Company, of 8822 Washington Blvd., Culver City. This was the Hal Roach Studios, and the station was running 250 watts on 1000 kHz.

During this time, KFVD was known as *The Auburn-Fuller* station, and affiliated with the makers of Auburn and Cord cars. That year, the callsign was changed to

KFAC (Fuller-Auburn-Cord), as the station increased its power to 1 kW and shifted to 1100 kHz.

Later in the 1930's, the station's studios were at 3443 Wilshire Boulevard, Los Angeles, which (until 1937) had been the Auburn-Cord showroom. The two 140 ft. transmitting towers were located at 8581 West 18th Street. KFAC's classical music format became familiar on Los Angeles' airwaves.

As the KFAC saga continued, after WWII the station remained licensed to the Los Angeles Broadcasting Company, Calvin J. Smith, CEO. The studios were at 645 South Mariposa, with the transmitter at 3725 Chesapeake. In 1948, the FM outlet on 92.3 was opened.

The ownership remained the same until 1962, when KFAC was sold for \$2-million to an Ohio company. In 1969, the AM/FM stations were sold again to another owner in Ohio. In 1986, the two stations were again sold, but this time for more than \$33-million. The sale produced major staff changes, much to the dismay of listeners.

In April of '88, the AM outlet went up for sale again, and was purchased for less than \$9-million by local Spanish language station KWKW (1130 kHz) and that let the new owners move KWKW to the old KFAC channel. The former KWKW frequency was quickly occupied by KAZN, an Asian language station.

A year ago, the KFAC outlet in the FM

band was sold for \$55-million amidst some question as to the station's ability to retain classical music as a viable format over the long run.

A picture postcard we have of KFAC dates from the early 1930's, we had previously shown this to you back in 1985. It shows two towers over at the left, each emblazoned with the word "Auburn" and the station's call letters. These towers appear to be located in the Auburn-Cord showrooms on Wilshire Boulevard. The cars went out of production in 1937, but still remain highly sought after by collectors.

The QSL's from KFVD and KFAC are both supplied by Joe Hueter, of Philadelphia. The KFVD card is dated February, 1931, while the KFAC card dates from November of that year. Note the subtle differences in the wording.

Early Wireless Station

A picture postcard sent in by Barney O'Rourke, Kingston, RI is yellowing with age, but shows a very early wireless station that we are requested to identify. The only description on the card reads, "Wireless Station—Malabang Mind." The card is undated and was distributed by a company in Manila.

The station itself doesn't look all that impressive. To the left, there's a weather shack with a thatched roof. The wireless station is the structure in the middle and into the



View of the KFAC transmitting towers on Wilshire Boulevard.

background. It consists of a small odd-looking building sprouting a three-segment vertical mast, with the top section jutting off at a rakish angle. We assume the card to be from the 1915 to 1920 era.

It seems to us that this view shows a station that engaged in commercial traffic with ships. During WWI (1914 to 1918), the station came under the control of the American military and used the U.S. Army callsign, WVT. After the war ended, the station operated under the callsign KIZ on 286 kHz and was run by the Philippine Insular Government. It was operated at least into the 1930's on 353, 275, 400, and 500 kHz.

"All American 5"

The most popular type of American table radio of the 1930's was a set that operated on AC or DC and was known to service technicians as an "All American 5." The tube filaments were wired in series and the

standard line-up consisted of five tubes having filament voltage requirements that added up to a grand total of about 120 volts, for instance: 12SA7, 12SK7, 12SQ7, 50L6GT, and a 35Z5GT. Sets, with various cabinet styles, were churned out by dozens upon dozens of manufacturers, famous and obscure, for at least a decade. It worked fine, it was easy to fix, cheap to produce. Millions were sold under every brand name imaginable.

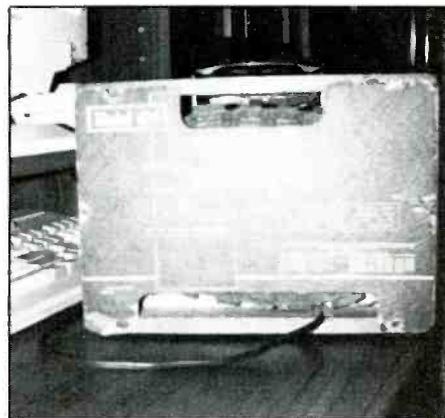
This information is relevant to a letter from Jeff Holmes, N4NRU, of Fort Lauderdale, FL. Jeff obtained the radio from an elderly woman who told him that her husband had owned the set before they were married. This one is carrying the brand name "R. H. Macy and Company," and is marked "Model 454." Besides a listing of patent numbers and a shock hazard warning (if you touched electrical ground while touching the "hot" AC/DC chassis, it was curtains,



Doesn't look like much, but the shack with the mast in the center of this photo was an early coastal telegraph station at Malabang in the Philippines.



This "All American 5" type AC/DC super-het was "the" inexpensive table radio of the WWII era. (Courtesy Jeff Holmes, N4NRU.)



Rear panel of the "All American 5" set marked "R. H. Macy Model 454." (Courtesy Jeff Holmes, N4NRU.)

for sure), there aren't any identifying marks on the receiver. There's also a notice that the set operates between 540 and 1600 kHz.

Jeff wants more information on this receiver, including some idea of the manufacturer and date it was made. He suspects it may date back to the 1920's, based upon the information the previous owner provided. While I'm not a specialist in radio hardware, I'd say that it was "private labelled" for Macy's department store by a major manufacturer. The tube types would certainly date it after the 1920's, or even early 1930's. Inasmuch as the high frequency end of the mediumwave band wasn't extended from 1500 to 1600 kHz until after 1940, that would place this receiver at least no earlier than that.

We'll yield to the expertise of others, however, and if any of our readers has any specific information on this receiver, please write to us and provide some details. We'll tentatively say it's from the WWII (1941 to 1945) era.

KGDM Revisited

We received a splendid letter from Norm Howard, morning man at KQED-FM (88.5



Radio Log

HOTEL McALPIN
Broadway at 34th Street, New York
Arthur L. Lee, Managing Director



*P*RESENTED to you by
the Hotel McAlpin
Broadcasting Station

W M C A
(wave length 341 meters)

This station acknowledges the many expressions of appreciation of its broadcasting program; and would appreciate suggestions for the improvement of the program.

Guests of the Hotel McAlpin are invited to inspect Station WMCA and to meet the Artists.

The special feature of our broadcasting program is

ERNE GOLDEN
and his
Hotel McAlpin Orchestra

W M C A
RADIO BROADCASTING STATION OF
HOTEL McALPIN
"WHERE THE WHITE WAY BEGINS"

NEW YORK CITY

What memories of New York's WMCA! Last September this old timer retreated into a religious format, thus ending decades of varied and exciting talk and music programming. This 1920's "radio log" from WMCA listed about 100 DX stations its listeners could try for. (Courtesy Will Jensby, W0EOM/6.)

MHz) in San Francisco. He commented on our story about KGDM last September, since the station gave him his first job in broadcasting, even though he was only about ten years old at the time.

That was in the late 1940's when Norm's dad was a Scout leader and produced a Saturday morning program about the Boy Scouts for KGDM in Stockton. A portion of each week's program consisted of a short drama about Scouting, and Norm recalls making his radio debut in one of those productions.

Norm's memory of KGDM (of the 1946-47 era) was that it was located upstairs above the Peffer Furniture Company in downtown Stockton, CA. The Master Control room was at the top of the stairs from street level. There was a row of about three studios with windows so that the Master Control Engineer could see all the way to the largest studio at the end. The large



WKAA, in all its glory, some time around 1924 (give or take). Seated at the operating position with a telegraph key is owner H.F. Paar, 9CNF and 9XBK. This station, after considerable evolution, is still operating, although its present owners don't appear to acknowledge its humble pioneer origins.

studio had 100 or more theatre seats, a platform, and a pipe organ.

One of the popular shows that emerged from the studio was a quizzer called *Put and Take*, emceed by Dean Maddox, who was a well known Bay Area air personality of the time.

The corridor that connected all of the studios was covered with photos of CBS radio stars, since KGDM was the CBS affiliate in the Bay Area in those years before KQW, (KCBS) in San Francisco went to 50 kW.

Another well-recalled KGDM feature was the transmitter site, which was just south of the city on Highway 99. There was a little art deco transmitter building between a two tower directional array containing the station's call letters outlined in blue neon lights.

Norm tells us that, until he read it before in these pages, he hadn't been aware that Dr. Peffer (as he liked to be called) lived until 1981. Norm remembers that after KGDM was sold and became KRAK, Stockton's first rock music station, he asked the new owners if Dr. Peffer knew what they intended doing with his station when he sold it to them. They told Norm, "It was none of his business."

From Will Jensby

Radio historian Will Jensby, W0EOM/6, of Santa Clara, CA always sends us a continuing flow of fascinating items such as photos, QSL's, documents, old skeds, etc. A recent shipment had two things that immediately caught my attention.

The first was in response to something we ran a few issues ago about New York City station WMCA and how it traveled from ho-

tel to hotel looking for a home. Will's files contained a station log published by WMCA. This contained a listing of about one hundred stations around the nation, and was issued during WMCA's tenure at the Hotel McAlpin, where it shared the studios of WPCH, and eventually (in 1933) combined with that station. This was when WMCA was on 880 kHz.

WMCA is presently on 570 kHz. Not long ago the station was sold, and in September, the new owners changed its popular talk format to religious programming. Many staffers lost their jobs in this move. Thus, ended the colorful and controversial career of WMCA, the station that was once famous as the home of "The WMCA Good Guys," and Ted Steele, Barry Gray, and so many other wonderful on-the-air personalities.

Next Customer!

Next, Will's packet of delights contained a photo identified as WKAA, showing an operator seated at a long desk containing lots of 1920's equipment, including one receiver with a loop antenna. Although the quality of the photo is poor, it looks as though the walls of the place are loaded with photos of broadcasting personalities.

That sent us digging in the POP'COMM archives to find information on this rather obscure broadcaster. We traced WKAA back to a start-up date in 1923. It was one manifestation of the talents of experimenter H.F. Paar, who held ham license 9CNF, as well as Experimental license 9XBK. All of these stations were located in his residence, which was 1444 Second Avenue East, Cedar Rapids, IA. WKAA, also known as *The*

CEDAR RAPIDS BROADCAST COMPANY

CEDAR RAPIDS, IOWA

OPERATING
Broadcasting Station
KWCR

SUMNER D. QUARTON
President and General Manager

J. E. Hunter
1722 N 18th street
Philadelphia, Pa.

Dear Friend:

We thank you for your communication of reception of our radio station during its DX program on January 5. Your reception is herewith verified.

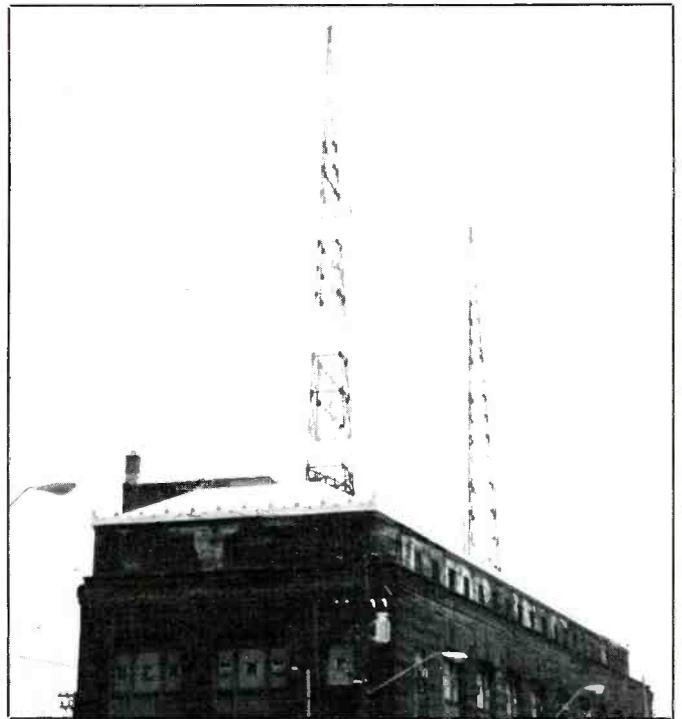
KWCR, operating on 1310 kilocycles 100 watts power, first came on the air January 5, 1932 with its new transmitter, which is with the studios located in Hotel Montrose.

We broadcast daily from six-thirty a.m. until ten p.m. excepting Saturday, when we are on the air until midnight. Soon we anticipate conducting weekly DX programs starting at midnight on Saturday.

We shall be pleased to hear from you again, and if ever in Cedar Rapids we extend to you a cordial invitation to visit our studios.

Yours sincerely,
S. D. Quarton
DX Department

An undated (early 1930's) veri letter from KWCR. This was after it was WKAA and before it became KRNT in Des Moines. (Courtesy Joe Hueter.)



The old WRBH towers date from the early days of police communications in Cleveland, OH. They still stand as reminders of an earlier era. (Courtesy Gary Cuminsky, N8GJS.)

Voice of Cedar Rapids, first went on the air with 50 watts on 1080 kHz. WKAA lasted, as such, until 1925 and then Paar made some changes. It turned into KWCR with 500 watts on 1080 kHz, then it moved to 1250 kHz where it split time with WJAM. In late 1928, KWCR moved into the Montrose Hotel and, under the ownership of S.D. Quarton, it shifted to 1310 kHz with 100 watts where it shared time with KFGY.

In the early 1930's, KWCR was running 100 watts on 1420. That arrangement didn't last very long. Soon after, the station was purchased by broadcaster Gardner Cowles, Jr. who made some extensive changes of his own. When he was through with his makeover of KWCR, on March 17th, 1935, it turned up in Des Moines, IA on 1320 kHz with 500 watts and calling itself KRNT. In the early 1940's, KRNT changed its frequency to 1350 kHz where it could run 5 kW. At that time, the station was located at 715 Locust Street, with the transmitter at S.E. 22nd Street and Park Ave, in Des Moines.

Listeners in Des Moines today still know KRNT with it's 5 kW signal on 1350 kHz and MOR program format. Of course, it's got new owners (they purchased the station in August of 1988), but it's located at 1416 Locust Street, just down the road from its former digs. Interestingly, the station acknowledges its own roots only back to 1935 when it moved to Des Moines. It doesn't seem to care about its historic origin that goes back to the days as a 50 watt outgrowth of a ham station in Cedar Rapids. Some broadcasters would kill to be able to brag about pegging a starting date in 1923!

We assume that the photo we have shows H.F. Paar between 1923 and 1925 at the master console of WKAA. Little did he think that his station would be operating more than 65 years later!

Calling All Cars

Gary Cuminsky, N8GJS, sent us some photos he took of the two large radio towers atop the Central Police Station, 2001 Payne Avenue, Cleveland, OH. The Cleveland police first went on the air in 1925, and the station in the photo was built in 1929. One of the early callsigns of the station was WRBH, that was in 1931 when it was operating on 2452 kHz, although it had moved to 2458 kHz later in the 1930's where it ran 50 watts. By 1946, it had gone up to 500 watts. But times were changing, and by 1950, WRBH was no more. It had become KQA550 with dispatchers on 33.10 and 37.18 MHz, plus 70 mobiles on 30.98 MHz as well as 179 mobiles on 33.78 and 37.34 MHz. The Cleveland Police Dept. was also licensed then as WENB on 33.10 MHz, plus WRPD on 33.50 MHz.

In 1953, KQA550 was joined by KQC900 on 37.18, plus QKB932 on 39.58 MHz. Today, these callsigns have been replaced by KQY597 and a modern communications system that reflects the latest technology.

A Wrap

That's all the space we have for January. Your ideas, old QSL's, postcards, news clippings, station directories sent for use here are very helpful and sincerely appreciated. Best wishes for the new year to all. **PG**

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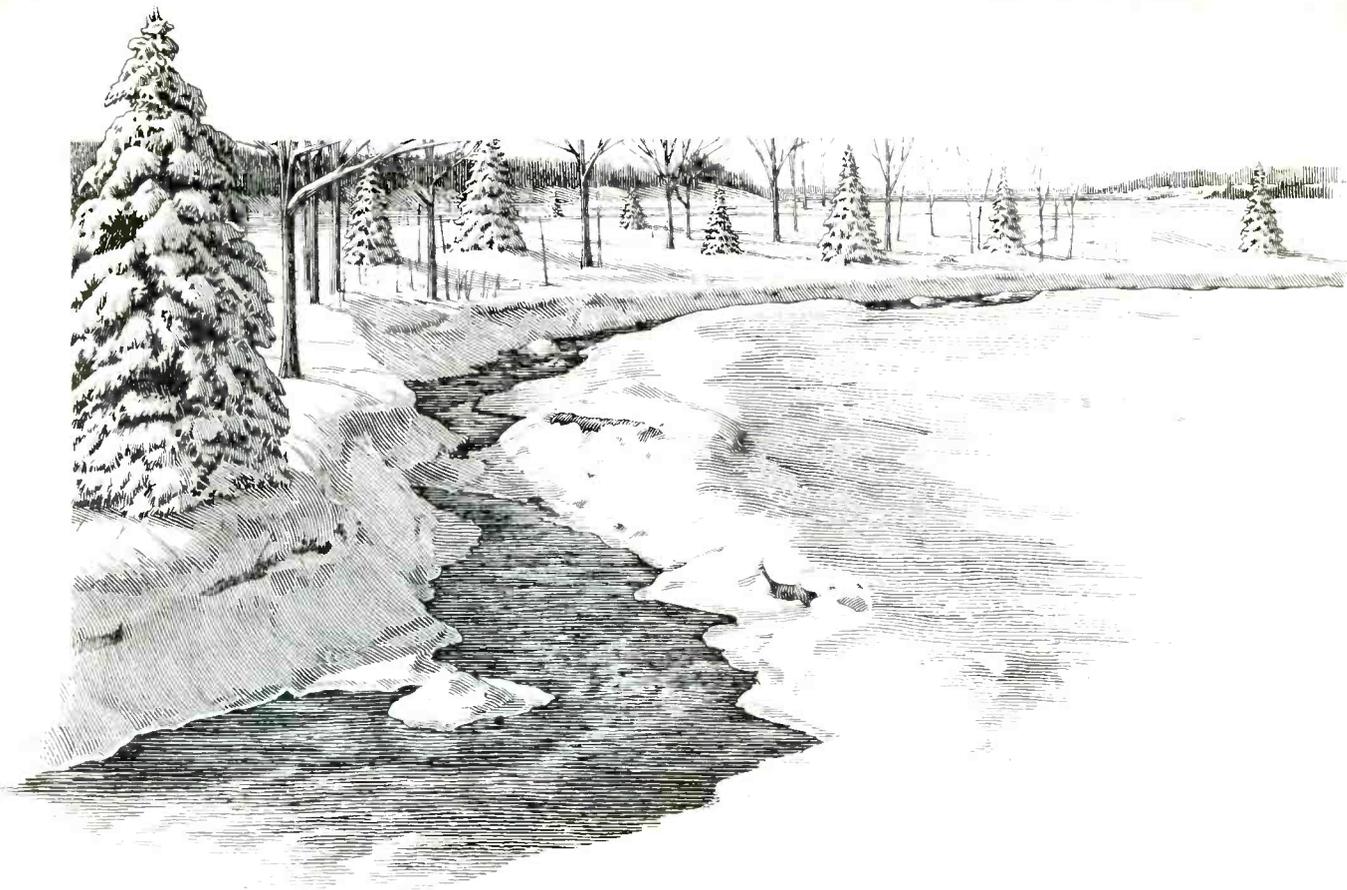
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CIRCLE 97 ON READER SERVICE CARD



Selected English Language Broadcasts

Winter 1989-90

BY GERRY L. DEXTER

Note: There are hundreds of broadcasts aired in the English Language every day on the shortwave broadcast bands. Many of them are directed to audiences in North America. This is a representative listing and is not intended to be a complete guide. The listing is as accurate as possible, however, stations often make changes in their broadcast hours and/or frequencies, often with little or no advance notice. Some broadcasters air only part of the transmission in English, or English may run into the next hour or more. Some stations have altered schedules on the weekends. Numbers in parenthesis indicate a starting time for the English broadcast that many minutes past the start of the hour. All times are in UTC.

Time	Country/Station	Frequencies
	WSHB	7400, 13760
	HCJB, Ecuador (30)	9745, 15165, 15230
	R. Netherlands (30)	6165, 15315
	RNE, Spain	9630, 15110
	Vatican Radio (50)	9605, 11780, 15180
	Radio Yugoslavia	11735
	BBC	5975, 6175, 7325, 9590, 9915, 12095, 15260
	RCI, Canada	5960, 9755
	RBI, E. Germany	6080, 11890
0100	RAI, Italy	9575, 11800
	Radio Japan	5960, 11775, 15195, 15325
	Radio Prague, Czech.	5930, 7345, 9540, 11685, 11990, 13715, 15540
	DW, W. Germany	6040, 6085, 6145, 9565, 9735, 11865
	R. Austria Intl. (30)	9875, 13730
	Voice of Greece (30)	7430, 9420, 11645

Time	Country/Station	Frequencies
0000	R. Beijing	15130, 17775, 17855
	Radio Moscow	7165, 7290, 9600, 9700, 9720, 11730, 11750, 12050
	RFPI, Costa Rica (30)	7375, 13660
	Radio Norway (Sun)	15165
	WCSN	9850
	WHRI	7365, 11790

Time	Country/Station	Frequencies	Time	Country/Station	Frequencies
	R. Budapest, Hungary (30)	6110, 9520, 9585, 9835, 11910	0600	KVOH R. Moscow	11960, 13695 9580, 12000, 12010, 12020, 12030
	R. Baghdad, Iraq	11945		WCSN	9840
	RNE, Spain	9630, 15110		WHRI	6100
	KUSW (30)	11965		WSHB	11980
0200	R. Cairo, Egypt	9475, 9675		R. Korea	9570, 11830
	R. Sweden (30)	9695, 11705		R, Kiribati	14918 USB
	WSHB	9455		SLBS, Sierra Leone	3316
	R. Portugal (M-F)	9600, 9680, 9705, 11840		TWR, Monaco (25)	9485
	R. Tirana, Albania (30)	6085, 7065, 9760		Swiss R. Intl. (30)	9535
	RAE, Argentina	11710	0700	VOFC, Taiwan	5950
	VOFC, Taiwan	5950, 7445, 9680, 9765, 11740, 11860, 15345		R. Netherlands (30)	9630
	Radiobras, Brazil	11745		BBC	5975, 9640
	RHC, Cuba	9710, 11820		V. of America	5995, 6035
	R. Bucharest, Romania	5990, 6155, 9510, 9570, 11940	0800	Solomon Is. Bcstng Corp.	5020, 9545
	R. RSA, So. Africa	6010, 9580, 9610		WHRI	7355
	SRI, Switzerland	6135, 9725, 9885, 12035		WSHB	13760
	R. Kiev, Ukranian SSR	9610, 9800, 11675, 15180		KNLS	11715
				CFRX, Canada	6070
				R. Australia	6060, 9580
0300	Voice of Turkey	9445	0900	R. Japan	15270, 17890
	Vatican Radio (10)	11725		R. New Zealand	9850, 11780
	KUSW (30)	9815		R. Australia	6060, 9580
	R. Sofia, Bulgaria	11750, 11765, 15290		RBI, E. Germany	11890
	R. Tirana, Albania (30)	9760	1000	KSDA, Guam	13720
	Radio Beijing	9690, 11715, 11730		WSHB	9495
	R. Prague, Czech.	5930, 7345, 9540, 11685, 13715		R. Netherlands (30)	6020, 9675
	TWR, Bonaire	9535, 11930		V. of America	6030, 9590, 11915
	DW, W. Germany	6085, 6130, 9545, 9605, 11810	1100	VOIRI, Iran (30)	7215, 9515, 11715, 11790
	HRVC, Honduras	4820		R. Japan	6120, 11815
	TGNA, Guatemala	3300		R. Beijing	17865
	RFI, France (15)	7135, 9550, 9790, 11670, 11700, 11995, 15135		TWR, Bonaire	11815, 15345
	VOFC, Taiwan	5950, 7445, 9680, 9765, 11745		R. Thailand (30)	9655, 11905
	R. New Zealand (30)	15150, 17705		WHRI	7520, 13760
	Voice of Greece (40)	7430, 9420, 11645		R. Ulan Bator, Mongolia	9615, 12015
	R. Netherlands (30)	6165, 9590		HCJB (30)	11740
				R. Pyongyang, N. Korea	9600, 9977, 11735
0400	R. Lesotho	4800	1200	R. Canada Intl.	9635, 11855, 17820
	R. Botswana	4830, 7255		CBC No. Que. Svc (part)	6065, 9625
	R. Beijing	11685, 11840		V. of Greece (35)	11645, 15630, 17550
	Kol Israel	11585, 15640		R. Sweden (30)	15190
	WCSN	9870		R. Bangladesh (30)	15195
	RAE, Argentina	11710		R. Beijing	17865
	Radio Havana Cuba	9710, 11760, 11820		KVOH	17775
	R. Baghdad, Iraq	11945		WSHB	11930
	R. Budapest, Hungary	9520, 6155, 9510, 9570		R. Singapore	11940
				R. France Intl. (45)	9805, 11670, 15155, 15195, 17720
0500	R. Japan	15195		HCJB, Ecuador	11740, 15115, 17890
	V. of Nigeria	7255		R. Yugoslavia	17740
	DW, W. Germany	5960, 6120, 9670, 9700		R. Finland	15400
	HCJB, Ecuador	6230, 9745, 11775, 15230		BRT, Belgium (30)	17560
	R. Austria Intl. (30)	6015	1300	R. Beijing	11855
	RNE, Spain	9630		R. Norway (Su)	9590
	KUSW (30)	6175		WHRI	9465
				R. Ulan Bator, Mongolia (45)	9575, 15305
				R. Australia	9580
				BBC	9515, 11775, 12095, 17640
				HCJB, Ecuador	11740, 15115, 17890
				R. Pyongyang, N. Korea	9600, 11335, 11735

How Walls Have Ears

Now a Scanner Can Tune In On Your Neighbors' Private Household Conversations

BY TOM KNEITEL, K2AES, EDITOR

The Commandments don't say anything against coveting you're neighbors most private conversations. In past years, folks would deftly place the open end of an empty drinking glass up against a wall and press their ear to the other end. It may have been low-tech and looked pretty silly, but it let them listen in to what was being said on the other side of the wall. For whatever reasons, lots of people have had an occasion to use that trick.

Law enforcement and federal agencies have had more efficient ways of eavesdropping on what's being spoken about behind closed doors. Individuals and companies that can afford to hire electronics surveillance specialists can also put their ears behind the locked doors of others to overhear what's being spoken about. This may involve hard-wired devices, or room bugs that send out the conversations by radio. Placing these devices often requires *black bag* (breaking and entry) activity, which is not only illegal (unless you're an enforcement agency with a court order), but also tricky and decidedly dangerous. Then, there's always that risk of discovery—not just of the hardware, but of those who put it in place. Remember the fate of the klutzy meatballs who put the room bugs in *Watergate* in 1972.

Great Strides

Recent developments in consumer technology have vastly changed the status of listening in on what's being said behind closed doors. It seems strange when you think about it, but the person who is to be eavesdropped-on, is nice enough to go to the store and purchase the room bug, and then they are thoughtful enough to place it in a strategic location where it can best pick up any voices and other sounds made on the premises. Lastly, before they lock their doors to assure their privacy, they turn on the eavesdropping equipment and don't even bother to shut it off again!

All anybody need do to hear what's going on behind locked doors is show up with any police-type scanner receiver! All this, thanks to the wonderful and efficient devices that have caught the public's fancy and are being sold as wireless FM intercoms, room moni-



tors, and baby monitors. At prices ranging from \$25 to \$100, they are sold by electronics shops, toy stores, department stores, etc. They're hot sellers, and they're readily available from many sources, and made my numerous manufacturers.

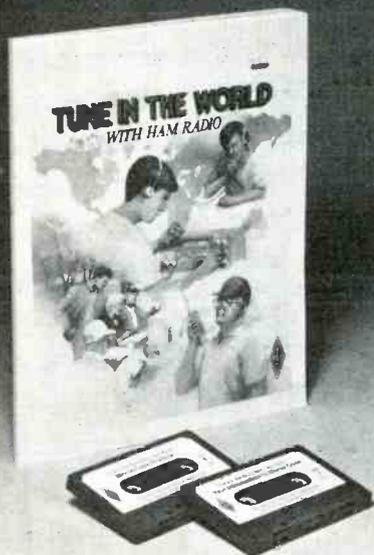
Most are, thankfully, quite good at what they are supposed to do. In fact, lots of them are much better than their specs. Their specs may state that they will operate up to a 200 or 300 foot range. It seems as if these stats may be far too conservative, for they

can be heard on scanners for a mile or two away, maybe even further in some instances!

These devices presently utilize the frequencies: 49.83, 49.845, 49.86, 49.875, and 49.89 MHz, although recently changed FCC regulations permit them to operate on any frequency within the range of 49.82 to 49.90 MHz. As newer units come on the market, they'll probably start showing up on frequencies within this band other than the five specific ones listed here. Chances are,

HAM RADIO IS FUN!

It's even more fun for beginners now that they can operate voice and link computers just as soon as they obtain their Novice class license. You can talk to hams all over the world when conditions permit, then switch to a repeater for local coverage, perhaps using a transceiver in your car or handheld unit.



Your passport to ham radio adventure is TUNE-IN THE WORLD WITH HAM RADIO. The book tells what you need to know in order to pass your Novice exam. Two cassettes teach the code quickly and easily.

Enclosed is my check or money order for \$19.00 plus \$3.50 for shipping and handling or charge my

() VISA () MasterCard () Am. Express

Signature _____

Acct. No. _____

Good from _____ Expires _____

Name _____

Address _____

City _____ State _____ Zip _____

PC

THE AMERICAN RADIO RELAY LEAGUE
225 MAIN ST.
NEWINGTON, CT 06111

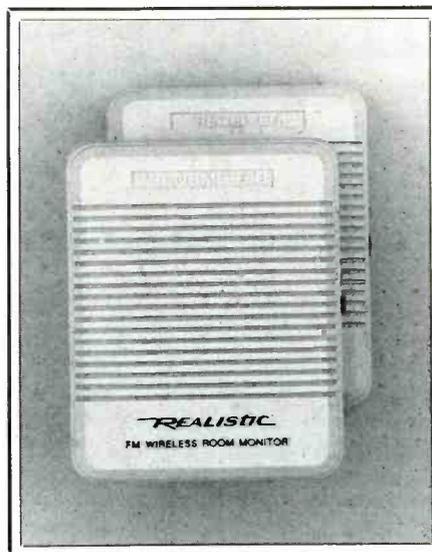


Radio Shack #43-212 intercom is an efficient miniature two way FM communications station. As such, a scanner will pick up the signals.

there may even be a user-accessible frequency adjustment control to permit owners of these devices to slide the sets to clear frequencies offering interference-free communications. Let's face it, if two systems within range of one another are both operating on the same frequency, there could be problems.

Other Problems

Not that others don't use these frequencies, too. That's also been cause for annoyance. Not long ago, the USAF's Military Airlift Command at Scott AFB, IL became aware of an unwanted signal on a USAF channel. It was discovered by a USAF Colonel who was monitoring on his scanner one evening. He checked with another scanner user at Scott, but that operator was unable to hear the signals. At that point, driving through the base housing area was begun by scanner-equipped vehicles, aided by a MARS base station at Scott which attempted to get a bearing on the mystery signal by means of a beam antenna.



Realistic #43-208 is an inexpensive wireless room monitoring system. Neighbors with scanners can tune in on everything transmitted via 49 MHz.

Within ten minutes, the signals were traced to the Shilo housing area where they turned out to be a wireless FM room monitor people had purchased to keep an ear on their baby. Part of what the searchers heard was the baby crying, door chimes, and sounds throughout the house where the device had been located.

Unfortunately for the USAF MARS, one of the groups assigned frequencies is 49.98 MHz, very close to the room monitor band. All it needed was for the room monitor to be slightly off-frequency, and there was trouble. The manufacturer of the room monitor, Cosco, Inc., was notified of the problem and they confirmed that the errant unit was an early model of their *Teddy Care Baby Lamp and Nursery Monitor*. Cosco said that they had recalled all of those units they could locate, replacing them with newer units. Apparently, some older ones hadn't been returned in the factory recall.

Reach Out And Hear Someone

With a scanner put into search/scan mode between 49.82 and 49.90 MHz, or with the five most-used discrete channels programmed into a scanner, you may well find that you're within receiving range of several of these devices. Best results are obtained with an outside antenna mounted as high as possible. Of course, use a scanner antenna that is intended for reception in the 30 to 50 MHz "VHF Low Band." Alternately, an antenna for the 6 meter ham band should work just fine, providing that it is mounted for vertical polarization.

Remember that room monitors send out a continuous carrier, so your scanner will lock on the first one it picks up. You will have to keep pressing the scan button, or else manually step through the channels to see what there is to hear. In addition to room monitors, you may also hear the handset portions of nearby cordless telephone systems, FM hands-free transceivers, as well as kiddie walkie-talkie toys, since this band is in middle of a somewhat larger band (49.67 to 49.99 MHz) those units have available.

Monitoring these frequencies does not violate the ECPA, in case you were wondering that the radio police might come banging on your door.

The Big Ear

While many of these monitors are placed in children's rooms, they're also placed in kitchens, bedrooms, basements, garages, and even bathrooms so that members of the household can communicate with or constantly monitor what's taking place at those locations. They have been used to keep an ear open for an adult confined to bed or particular room.

A colleague of mine tells of sorting through the band and finding a signal from a room monitor that a couple apparently placed in their own bedroom because the baby's crib is there. I suppose that they were



Realistic #43-202 consists of a 49 MHz transmitter plus its own receiver. The receiver can be moved from one room to another, clipped to the belt, or placed in a pocket. The signals from the room monitoring transmitter, however, don't stop at the walls of the house or apartment in which the equipment is used. Might be picked up throughout the neighborhood by all who own scanners.

able to monitor the baby while they were elsewhere in the house. Except they leave the monitor on all of the time, and that has been the source of a number of programs that they are surely little-interested in furnishing for their growing radio audience. Let's just say that they've got a better audience share than Johnny Carson most nights of the week.

Within range of my own base, there's a household with a baby monitor where the lady of the house has a regular twice-a-week male friend drop in about an hour after the old man treks off to the salt mines. Lets hope hubby buys a scanner someday!

On good authority, I understand that several show biz celebs use these devices between their homes and their driveway gates in order to interrogate visitors and find out who they are. This could be a great asset for tabloid newspaper reporters.

A Sensitive Matter

The microphones in these monitors are sensitive. Between the sensitive microphones and good locations the owners of the devices pick to locate the things, they pick up *everything*. That means that when one is located in, say, a kid's room, it will pick up conversations and sounds from assorted other rooms, too. So, while the nursery will offer its share of baby-type noises (and adult conversations), it will also pick up doorbells, telephones ringing, the TV or stereo playing, one side of all telephone conversations, the vacuum cleaner, plus fights, scandals, plots, gossip, and other chatter between the people in the house or apartment.

After a period of listening to the names used and other information freely tossed around during overheard conversations, even the untrained person can eventually figure out the identity and location of the family that is so generously broadcasting this soap opera from behind the very doors it has locked to assure its privacy. A diligent and sharp snoop would undoubtedly be able to compile a rather formidable dossier in practically no time at all. Needless to say, other than the many who casually scan these frequencies out of curiosity and just because the signals are there, there are obviously those who could devise ways of using the information for some unpleasant, or at least hilarious, purpose.

Still, these devices are convenient household aids, and that's why they're becoming so popular. It would behoove those who own and use them, though, to be aware of the potentials they have for broadcasting the family's secrets. Instead of just leaving them running all the time, they could be turned off when not needed, or at least some precautions could be taken to cut down on their diabolical efficiency. But you and I know that will never happen. Just as with car phones and cordless phones, the average person is firmly convinced that all personal communications devices are closed, impenetrable, and completely private. They are blissfully unaware of the facts, and absolutely refuse to believe such a preposterous notion when told otherwise.

Why, Grandma, what big scanners you have.

All the better to overhear you with, my dears!

MFJ SHORTWAVE ACCESSORIES REMOTE ACTIVE ANTENNA

MFJ-1024 Receive strong clear signals from all over the world with this 54 inch active antenna that rivals long wires hundreds of feet long.

\$129⁹⁵ "World Radio TV Handbook" rates the MFJ-1024 as "a first rate easy-to-operate active antenna ... Quiet with excellent dynamic range and good gain ... Very low noise factor ... Broad frequency coverage ... the MFJ-1024 is an excellent choice in an active antenna."

Remote unit mounts outdoors away from electrical noise for maximum signal and minimum noise pickup. Mount it anywhere - atop houses, apartments, ships, buildings, balconies.

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2 receivers and auxiliary or active antenna. 'On' LED. 6x2x5 inches. Remote has 50 ft. coax and connector. 3x2x4 in. 12 VDC or 110 VAC with MFJ-1312, \$9.95.



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MFJ-1020A Now you'll rival or exceed the reception of outside long wires with this tuned indoor active antenna.

\$79⁹⁵ "World Radio TV Handbook" says MFJ-1020 is a "fine value ... fair price ... best offering to date ... performs very well indeed."

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\$89⁹⁵ The MFJ-959B provides proper impedance matching so you transfer maximum signal from your antenna to your receiver from 1.6 to 30 MHz. You'll be surprised by significant increases in signal strength.

20 dB preamp with gain control boosts weak stations. 20 dB attenuator prevents overload. Select from 2 antennas, 2 receivers. 9x2x6 inches. Use 9-18 VDC or 110 VAC with optional AC adapter, MFJ-1312, \$9.95.

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A New Look At Electronic Surveillance

What is "Privacy"? Neither the Police Nor the Courts Really Know Any Longer When it Comes to Putting You Under Electronic Surveillance!

BY KENNETH SPERRY, KCA6XR

In the past 25 years, advances in imaging technology, remote sensing, telecommunications, computers, and related technologies have made it relatively simple to conduct electronic surveillance of people and their activities. Electronic surveillance includes both sensing techniques and also methods for aggregating and comparing computerized records to reveal additional information about the individual.

The Fourth Amendment of "the right of people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures" has required, and will continue to need, almost constant re-examination and reinterpretation in light of evolving means of surveillance, by both Congress and the Federal Courts.

Is It In The Title?

In 1968, Title III of the Omnibus Crime Control and Safe Streets Act extended the statutory and judicial principles regarding privacy to include surveillance technology. At that time, this technology still consisted largely of simple telephone taps and hidden microphones. It now includes many other technologies that are far more sophisticated and can be used to:

1. Identify a person's location, or track their movements;
2. Monitor actions, and record them, such as dialing telephone numbers or making automated transactions;
3. Listen in on communications or to intercept digital communications;
4. Visually monitor behavior; and
5. Test or measure reactions and emotions (polygraph testing, voice stress analysis, brain wave analysis, etc.).

In 1985, thirteen cabinet-level and twenty independent U.S. Government agencies were polled by the government itself on their use of surveillance technology, as well as other electronic technologies. NSA and DIA were not included in this survey because the results were to be unclassified.

At that time, the survey showed that electronic surveillance technologies already in

use of our government's law enforcement or intelligence agencies, and by some state and local agencies, included at least the following:

- Closed circuit TV;
- Light vision systems and image intensifiers;
- Parabolic microphones;
- Miniature transmitters;
- Electronic beepers;
- Telephone taps and recorders;
- Pen registers;
- Computer usage monitors;
- Electronic mail monitors;
- Cellular phone interception;
- Satellite beam interception; and
- Intruder detectors working on vibrations, ultrasound, infrared, etc.

Pen registers are devices attached to a phone line to make a written log of all the numbers called. Parabolic microphones greatly amplify sound. Lasers can be used to amplify window vibrations and convert them to audible sound. Night observation devices use infrared light, or intensity ambient light sources (light from stars and moon, etc.) to the visible spectrum. Image intensifiers allow individuals to be recognized at distances as far as 325 feet.

Tried and Proven Method

The surveillance most used by law enforcement agencies are still wiretaps and "bugs," or concealed microphones. In 1986, federal and state court judges approved 754 requests for electronic surveillance; only two requests were denied. The 756 total requests were 4% less than received in 1985, and 6% less than 1984. In 1986, there were 573 additional wiretaps conducted under the Foreign Intelligence Surveillance Act, plus an unknown number (in the thousands) of unauthorized and otherwise illegal wiretaps and bugs instituted by agencies, companies, and individuals.

Tap-Tap, Who's There?

Wiretapping has been a subject of constitutional challenges for 61 years. In *Olm-*

stead v. United States (277 U.S. 438) the Supreme Court ruled in 1928 that wiretapping was *not* contrary to the U.S. Constitution because there was no physical trespass and no search or seizure of physical belongings, and because voice communications projected outside the confines of one's house weren't protected.

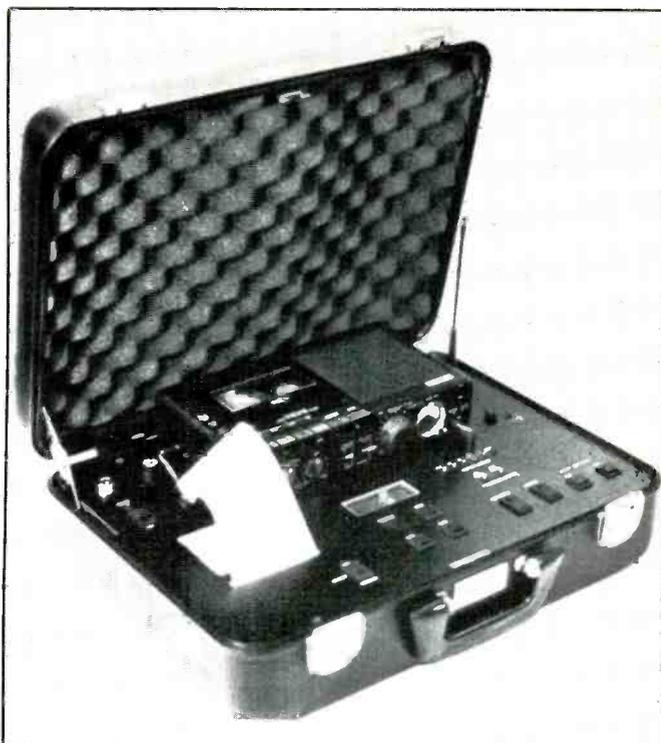
Bills were then introduced in Congress to cover wiretapping, but all failed. Six years later, Congress ratified the 1927 Radio Act. Section 605 of this 1934 Communications Act said that "no person not being authorized by the sender shall intercept any communications and divulge the contents." Congress may not have intended that prohibition to apply to law enforcement, but in 1938 (*Nardone v. United States*, 302 U.S. 379), the Supreme Court held that it prohibited all wiretapping, even by federal agencies. Bills to exempt law enforcement wiretaps from Section 605 restrictions then passed both houses, but got bogged down in a conference committee and were still there when the session ended. Despite the courts ruling, the Justice Department construed Section 605 differently from the Court, and continued to use wiretaps.

Finally, in 1967 (*Katz v. United States*, 389 U.S. 360), the Supreme Court ruled that wiretapping was a "search" under the Fourth Amendment. The Court further held that it may be "unreasonable" if the subjects have a "reasonable expectation of privacy" in the area or in the activity under surveillance.

As to how such an expectation is to be determined, the Court has adopted a two-part test based upon Justice Harlan's concurring opinion in that case: 1) the person has exhibited an actual (subjective) expectation, and 2) that society is prepared to recognize it as reasonable. This seems to mean that one's privacy is protected if one closes the telephone booth door before speaking (demonstrating an expectation of privacy), but not if one is talking on an unenclosed phone in a public office. However, the Court also said that the Fourth Amendment "protects people, not places." While it may well have been intended to avoid the tie to



The DF-42 direction finder requires four antennas, but keeps tabs on the locations of 99 different moving transmitters (bumper beepers, body mikes, etc.) operating in the 60 to 905 MHz frequency range. (Courtesy CCS Communications Control, Inc.)



The TC-1000 eavesdrops on both sides of the suspect's telephone conversation. It also keeps a file of the numbers called along with the date and time of the call. Information can be fed to the TC-1000 by means of a small concealed radio transceiver. (Courtesy Surveillance Technology Group.)

physical trespass in the 1928 decision, its full meaning isn't clear and served only to open the way for varying interpretations and possible loopholes in the decision.

The Court also ignored the question of how the *Katz* decision would apply to other forms of electronic snooping. The courts have attempted to extend the principle of a "reasonable expectation of privacy." This becomes more and more tenuous in the context of remote sensing devices, but the courts generally have continued to assume that certain places (residences, yards, etc.) should have a higher degree of protection than other places.

National Security

Wiretapping by law enforcement and federal intelligence agencies can be done under certain procedural safeguards, set out in Title III of the 1968 Omnibus Crime Control Act. That law prohibits electronic tapping of conversations except under a court order, when consented to by one participant in the conversation, or for certain telephone company operational purposes, and (under later amendment) in the surveillance permitted under the Foreign Intelligence Surveillance Act of 1978.

The court orders must be requested by high-level prosecutors, be related to one of the specified list of crimes, rest on probable cause to believe that a crime has been committed by the target of the surveillance, and be necessary because other kinds of investi-



The desktop cigar humidor looks impressive, but lift off the top tray of cigars and it reveals a VOX-controlled tape recorder that picks up voices in the room as well as recording telephone calls. It also detects any concealed body transmitters being worn in the room. (Courtesy CCS Communication Control, Inc.)

gation would be ineffective, among other procedural requirements. State officials are also allowed to wiretap under State legislation modeled after the act and for investigating specific crimes.

The Massachusetts Supreme Court recently ruled that the state constitution requires a warrant for electronic surveillance of a private home even when one party to a conversation has consented to its recording and transmission. This decision (*Commonwealth v. Blood*, 507 N.E. 2nd 1029, Mass., 1987) is an example of more stringent safeguards under a State constitution than under the U.S. Constitution, a not unusual occurrence.

Spy Stuff

The Foreign Intelligence Surveillance Act of 1978 established standards for the use of electronic surveillance in gathering foreign intelligence and counterintelligence activities within the United States. It covers wiretapping of voice communications, also taps of teleprinters, telegraphs, FAX machines, digital communications, radio intercepts, closed-circuit TV, and vehicle trackers. In these categories, protection against surveillance is limited to surveillance in which a person has a reasonable expectation of privacy. A warrant would be required if surveillance were conducted for law enforcement purposes.

The New Technology

Two recent Supreme Court cases involved surveillance by means of new technology. In *Dow Chemical v. United States*, 1986, the company contested an action by the EPA. The EPA, upon being refused permission to make an on-site inspection of a chemical facility, hired a commercial aerial photographer to take pictures from within lawful navigable air space, without benefit of a search warrant. The Court held that this was not a search prohibited by the Fourth Amendment, because the commercial facility was analogous to open field rather than a personal dwelling (in terms of the expectation of privacy) and because EPA was using a "conventional" camera that merely enhanced human vision.

In *California v. Ciraola*, which was argued the same day, the Court held that the Fourth Amendment wasn't violated by observation and photography (without a search warrant) of marijuana growing in the garden of a private house, which was enclosed and shielded by fences. The owner of the garden had obscured it from some views, but not from "a public vantage point" where police officers had a right to be, thus the expectation of privacy was not reasonable.

These two cases appear to make the "reasonable expectation of privacy" closely dependent upon rapid changes taking place in technology. They seem to say that given more and more powerful, probing, and

penetrating surveillance technology there will be fewer and fewer places or circumstances in which one could reasonably claim to expect privacy and which, therefore, one could expect to be protected against unreasonable searches and seizures, or against surveillance without a search warrant. This makes it likely that there will be additional attempts and challenges to determine the limits which surveillance may constitutionally go.

The Electronics Communications Privacy Act of 1986 (Public Law 99-508, Oct. 21, 1986, 100 Stat. 1849-1855) was enacted with the claimed intention of extending pro-

tection from electronic surveillance to voice and data digital communications, electronic mail and messaging services, and car phones, thus expanding Title III protections. It is virtually impossible to detect and collect evidence of many violations of the ECPA. It should also be pointed out that there are other surveillance technologies not covered by the ECPA since they not technically require interception of existing communications systems.

Where there's a challenge, there's a solution. Where there's a will, there's a way. Where's a law, there's apparently a loophole it doesn't yet cover.

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CIRCLE 87 ON READER SERVICE CARD

NEW PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS



New FM Wireless Intercom System

A new addition to the Fanon Courier line of Intercoms was announced—The Couriercom—a two station-two channel FM Wireless Intercom System.

The Couriercom (Model CC-2) is designed with highly sensitive circuitry that produces exceptional voice clarity and extremely quiet reception.

No installation is required. Each unit is merely plugged into an AC outlet and turned on, the FM circuitry assures instant communication without warm-up time. The electrical wiring in the home, office or warehouse provides *two* conversation paths, Channel A and Channel B. A beep "CALL" button signals the other station. A "LOCK" button provides continuous monitoring of the other station (for babysitting, listening-in on a sick room, or for dictation). Additional stations may be added if desired.

Handsomely styled in white and grey colors, Couriercom will complement any home or office decor. Each Couriercom system is packaged in an eye-catching multi-colored gift box—ideal for self-service or counter display merchandising, or mail order catalog sales.

Suggested Retail Price—\$74.94 per system.

For more information, contact Fanon Courier, 14811 Myford Road, Tustin, CA 92680 or circle 102 on our Readers' Service.

Transi-Trap Surge Protector

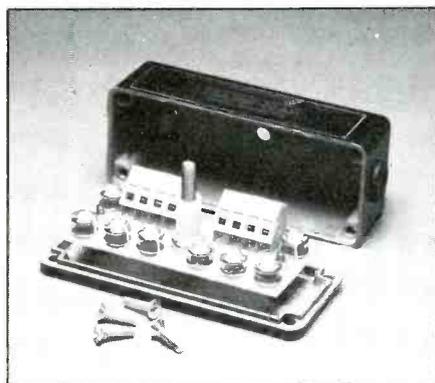
New from Alpha Delta, you can now protect your valuable communications equipment against destructive lightning-induced surge voltages that occur on the control lines to your rotor control and remote antenna switch boxes.

Straightforward Installation—NO Soldering

- Protects up to eight 16 AWG wire control line cables. Covers the most commonly used rotor and remote switch models. Requires no modification to control boxes.
- Utilizes eight NEMP-rated high surge current field-replaceable gas tube Arc-Plug car-

tridges. Each line is individually protected.

- High quality G-10/FR4 glass epoxy printed circuit board construction. Your control line connects directly to special industrial grade PC mount connectors for best low inductance discharge performance. Computer designed. No soldering required.
- Equally effective for modem/phone line protection. The low capacitance gas tube



Arc-Plug cartridges accommodate high baud data transmission and greatly outperform competitive MOV models.

Model CLP Control Line Transi-Trap Protector goes for \$49.95. It is available from Alpha Delta Communications, Inc., P.O. Box 571, Centerville, OH 45459 • (513) 435-4772.



New Gordon West Exam-Prep Tapes

Gordon West, WB6NOA, announces additional test preparation tapes for CW examinations using "Fast Code" character speeds. The tapes are designed specifically for applicants preparing to test with the American Radio Relay League volunteer examination teams.

"The League's switch from traditional Farnsworth character speeds (approximate-

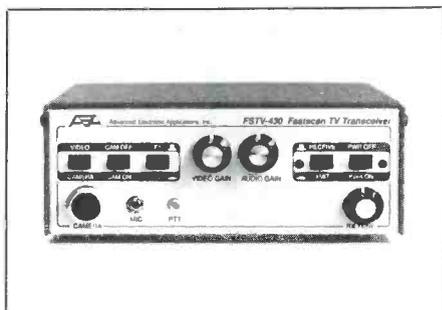
ly 15 wpm) to their new 18 wpm 'Fast Code' character rate opens up a market for special tapes for the League's 'Fast Code' examinations," comments Gordon West, a registered instructor with the American Radio Relay League.

"Our new test preparation tapes for Novice, General, and Extra will be excellent training for students that may appreciate a *faster code character rate for their 5 wpm, 13 wpm, or 20 wpm examinations*," adds West.

West attended the latest VEC conference and expressed his concern over variations in code character speeds for testing.

"It may cause students to shop around for examinations that may use traditional Farnsworth code character speeds, or the 'Fast Code' code speeds recently adopted by the ARRL."

The new tapes will be available shortly through local amateur radio dealers, or directly from the Radio Amateur Callbook, Inc., 925 Sherwood Drive, Box 247, Lake Bluff, Illinois 60044; (312) 234-6600.



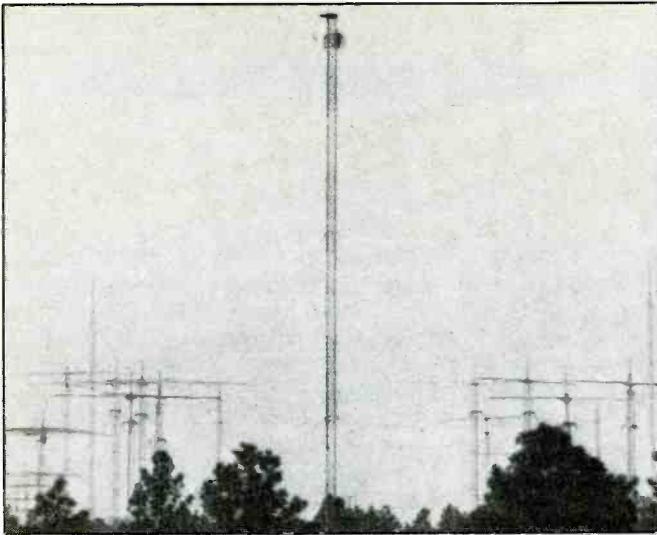
Fast-Scan TV Transceiver

Share more than conversation with AEA's new FSTV-430 Fast-Scan TV Transceiver. Personalize amateur radio communications by sending a live color transmission of yourself, your ham shack or your family that *rivals broadcast quality*.

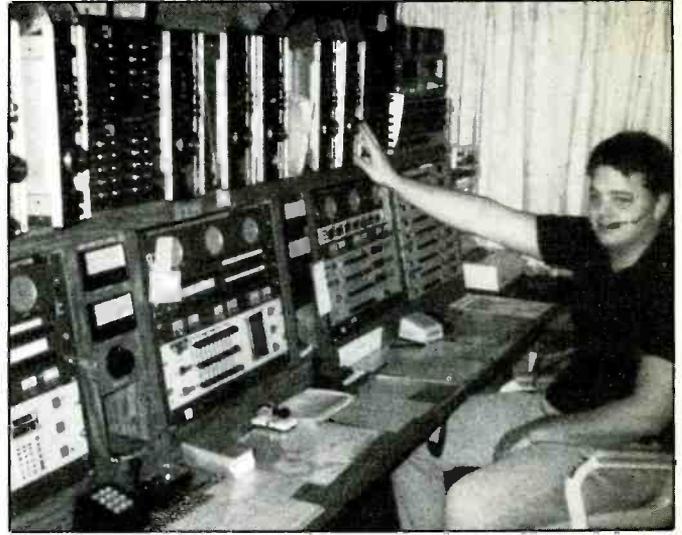
The FSTV-430 transceiver simply connects to the video output of video camera enabling you to transmit and receive live or taped videos. A second video camera can be used for studio-like "shooting" from other angles.

If you own a video camera, you can quickly and inexpensively set up your ATV station with the addition of the FSTV-430 transceiver and a 430 MHz antenna such as AEA's 430-16. The only license required is a Technician or higher amateur radio license.

The FSTV-430 is currently available through AEA authorized dealers. Suggested retail is \$499.95 and amateur net is \$439.95.



WLO's microwave antenna towers above other receiving antennas at the main operation site in Mobile.



Scott Rhodes, SSB radiotelephone operator, adjusts a receiver level.

WLO: A Most Unusual Ute

Success Story of a Marine Coast Station

BY DON HICKS



Shortly after reading Tom Kneitel's comment on the large number of frequencies occupied by marine coast station WLO in a recent issue, I happened to meet the station's owner. He and his wife were both pleased when I mentioned it and inquired about where they might get a copy of POP'COMM. One thing led to another and I decided that POP'COMM readers should be given the chance to hear about one of the most unusual "utes" in this country, and indeed the world.

It is a very unusual radio station in that it is privately owned. That may not seem out of the ordinary and it would not be for a broadcast station. But, while most Americans are not aware of it, even the telephones are operated by the government in most of the world, let alone marine radio stations. Here, coast stations have always been operated by large corporations. And they still are. Except for WLO, only AT&T offers High Seas radiotelephone service (at WOM in Florida, WOO in New Jersey and KMI in California). Also, most coast stations operate in a single mode. Only a minority use more than one mode, but these guys do it all; radiotelegraph, radiotelephone, radiofacsimile and radioteleprinter. They even provide the VHF-FM service for the area.

My first impression of WLO's receiving site was that this was the densest antenna farm I had ever seen. It incorporates a large number of beams (many of them fixed) as well as quads and other types—all clustered

closely together. But, while I saw them first when I visited the station, I will come back to the receivers later because I know that most of you are much more interested in the transmitters and modes of operation.

WLO pioneered telex (SITOR) for marine use and their present system is highly automated. It is the largest radiotelex operation in the United States and second only to a British one in the whole world. They are also pioneering the automatic telex system here now. A Danish-made Thrane & Thrane (say tron & tron) TT-1000A Communications Processor controls both circuit and message switching. Using this system, the ship's operator can direct dial the number he wishes and then exchange messages in a conversational style with the person at the keyboard on the other end—similar to the way you would discuss a matter on the telephone with a friend—all without the intervention of a human operator being necessary. Of course, he may also just send his message in the usual store-and-forward manner that has always been available since the telegraph was invented during our nation's westward expansion.

This pioneering spirit is responsible for the phenomenal growth of the station from a tiny, single-frequency operation established shortly after World War II to our nation's busiest today. Prolonged court battles with telecommunications giants have been a routine part of WLO's growth, but grow it did. And it still does today. As I visited their

facilities, I saw signs of it everywhere. When they moved their transmitter site from the Alabama State Docks on the river in Mobile to the present one on the coast at Coden, Alabama, they had only 24 acres available. Once again, this is a very dense antenna farm. Beams and verticals are squeezed together to the point that the interaction between them gives the engineers fits. All that is changing, though. Having purchased adjacent property, construction is now underway to double the size of their transmitter building and they can now expand the antenna farm by 695 acres. I saw huge reels containing 6 miles of 1½ in. co-axial cable to prove that this won't be far in the future, and the land has already been cleared. A road has been built out into the marshy coastal land where they will be expanding, too.

Inside the building, they have managed to squeeze in no less than 60 Henry 5 kilowatt transmitters. Glancing across the meters on their faces showed that they were mostly busy—carrying the single-sideband telephone calls, telegrams and telex messages to ships at sea from ship's agents and owners, wives and sweethearts at home, or possibly the captain's banker in his native Norway; "Captain, your car payment is overdue, and I'm going to put your wife to walking if it's not here soon." For even an answer to the plea for help of a vessel run aground on a reef and in danger of breaking up in the surf. All sorts of exchanges go through these stations. I recall once having

WLO Telex Frequencies (in kHz)

Channel	Ship	Shore			
		4343.0*			12886.5*
405	4172.5	4352.0	1205	12493.5	13073.5
405	4173.0	4352.2	1211	12496.5	13076.5
410	4175.0	4354.5	1215	12498.5	13078.5
411	4175.5	4355.0	1225m	12503.5	13083.5
			1229	12505.5	13085.5
606	6259.0	6497.0	1240	12511.0	13091.0
610	6261.0	6499.0	1250	12516.0	13096.0
611	6261.5	6499.0	1254	12518.0	13098.0
615	6263.5	6501.5			
619	6265.5	6503.5			
			1605	16662.5	17199.5
		8514.0*	1611	16665.5	17202.5
805m	8346.0	8707.0	1615	16667.5	17204.5
806	8346.5	8707.0	1625	16672.5	17209.5
810	8348.5	8709.5	1629	16674.5	17211.5
811	8349.0	8710.0	1654	16687.0	17224.0
815	8351.0	8712.0			
826	8356.5	8717.5			
			2215	22199.5	22568.5
			2254	22219.0	22588.0
			2260	22222.0	22591.0

* traffic list & weather broadcast at 35 minutes of each hour m Indicates manual channel

WLO Radiotelephone Frequencies (in kHz)

Channel	Ship	Shore			
	2430.0	2572.0	1225	12404.4	13175.2
405	4075.4	4369.8*	1225	12407.5	13178.3*
414	4103.3	4397.7	1607u	16478.6	17251.5
419	4118.8	4413.2	1632u	16556.1	17329.0
824	8266.3	8790.2	1641	16584.0	17356.9*
829	8281.8	8805.7	2227u	22080.6	22676.6
830	8284.9	8808.8*	2231u	22093.0	22689.0
1212	12364.1	13134.9	2237	22111.6	22707.6*

Traffic lists on the hour.

* Weather forecasts at 0600, 1200, 1800 and 2400 Z

u Indicates unguarded frequency not continuously monitored

listened in to a phone conversation from a plane high over the Andes Mountains in South America routed through a marine operator here in the states to the folks at home. Since those transmitters carrying sideband transmissions also had the audio coming out of their speakers, I paused to listen for a few moments at several of them.

Two huge Harris 10 kilowatt transmitters sit at the end of the building, ready to stand in for any of their smaller (closet-sized rack) workaday partners. They were originally built for naval vessels and, through their synthesized frequency control, can be set up to replace any of the others quickly. It is a very efficient operation and fairly hums with electrical energy, if you'll pardon the expression. When we started to leave the building, the Chief Engineer was just unpacking a new hard disk drive for one of the

computers in an area that will become their workshop—when the building's expansion is completed and they finally have some breathing room among the racks.

This organization employs over 60 people and connects to domestic land lines through some 200 odd phone pairs and a direct leased line to Western Union in New York. They maintain a point-to-point radio link with Havana, Cuba for Western Union as well. In addition to automatic and manual telex operations, they handle about 250 marine radiotelephone calls a day. Seven VHF FM stations handle traffic along Alabama's Mobile, Tensaw, Tombigbee and Black Warrior Rivers as well as in Mobile Bay and nearby coastal waters.

Two radiotelegraph operators were on duty (they were one short that day) when I passed through their operating room at the

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WLO Shore Radiotelegraph Frequencies (in kHz)

434.0	4257.5	8473.5	12660.0	13024.9	17172.4
500.0	6446.5	8514.0*	12704.5	16968.5	22320.0
4243.0*	8445.5	8658.0	12886.5*	17021.6*	22487.0

* traffic list & weather broadcast at 00 minutes of each hour

Ship Radiotelegraph Frequencies Monitored by WLO

Channel					
C5	4181.8	6272.7	8363.6	12545.4	16727.2 22232.0
C6	4182.2	6273.3	8364.4	12546.6	16728.8 22234.0
C9	4183.4	6275.1	8366.8	12550.2	16733.6 22236.0

WLO Telegraph & Telex Broadcast Schedule

(Consists of Traffic List followed by Weather on 4343.0, 6xxx.x, 8514.0, 12886.5, 17021.6 and 22487.0 kHz)

Telegraph Time(Z) Area	Telex Time(Z) Area
0000 North Atlantic	0135 Pacific High Seas
0100 Pacific High Seas	0335 North Atlantic
0300 North Atlantic	0435 Gulf of Mexico
0400 Gulf of Mexico	0535 Caribbean & SW N Atlantic
0500 Caribbean & SW N Atlantic	0635 Tropical Outlook
0600 Tropical Outlook	0735 Pacific High Seas
0700 Pacific High Seas	0835 Weather Schedule, WLO Info
0800 Weather Schedule, WLO Info	0935 North Atlantic
0900 North Atlantic	1035 Gulf of Mexico
1000 Gulf of Mexico	1135 Caribbean & SW N Atlantic
1100 Caribbean & SW N Atlantic, Pacific High Seas	1235 North Atlantic
1200 North Atlantic	1335 Caribbean & SW N Atlantic, Tropical Outlook
1300 Caribbean & SW N Atlantic, Tropical Outlook	1435 Gulf of Mexico
1400 Gulf of Mexico, Pacific High Seas	1535 North Atlantic
1500 North Atlantic	1635 Caribbean & SW N Atlantic
1600 Caribbean & SW N Atlantic	1735 Gulf of Mexico
1700 Gulf of Mexico	1835 Pacific High Seas
1800 Pacific High Seas	1935 Tropical Outlook
1900 Tropical Outlook	2035 Weather Schedule, WLO Info
2000 Weather Schedule, WLO Info	2135 North Atlantic
2100 North Atlantic	2235 Gulf of Mexico
2200 Gulf of Mexico	

receiving complex. They still use their paddles to "pound brass" just like in the old days even though the keyboards and monitors before them can exchange messages without an operator skilled in the code that every ham has to master to get his "ticket." Unlike former times when coast station operators were usually seasoned sea-going radio officers who had quit the sea to be at home with their families, today these positions are mostly filled by young operators preparing for a career at sea. So this area has the highest turnover rate in an organization where most employees like their jobs and don't often leave. This area was also one of the few where I found domestic electronic equipment (such as Drake receivers), since most of the specialized gear used here is not man-

ufactured (or even designed) in this country any longer.

The telex operator's area is dominated by two Lane 9500 Telex machines and the many receivers allied with them. I watched one of the operators who had a request for weather information from a ship. As it came in, she mentioned it over her shoulder to a co-worker who quickly ran out a tape of the recorded data from NOAA while the ship's operator was completing his manual message. Nimble twisting it round her fingers, she passed it into a reader to be transmitted to the ship within moments of his request. I was impressed by the slick efficiency of these operators as they went about their work, but the majority of the telex transactions never come to them. While this was

WLO VHF-FM Frequencies (in MHz)

Location	Channel	Ship	Shore
Tuscaloosa	27	157.350	161.950
Demopolis	84	157.225	161.825
Myrtlewood	28	157.400	162.000
Grove Hill	86	157.325	161.925
Calvert	24	157.200	161.800
Mobile	87	157.375	161.975
Mobile	28	157.400	162.000
Coden	26	157.300	161.900
Coden	25	157.250	161.850

WLO Weather FAX Broadcasts

Broadcast on 6852.0 kHz (24 hours) and 9157.5 kHz (1200Z - 2400Z)

Time(Z) Data

0250	00 Z Surface Analysis	1450	12 Z Surface Analysis
0300	Offshore Marine Forecasts	1500	Offshore Marine Forecast
0850	06 Z Surface Analysis	1900	Gulf Aviation Forecasts
0900	18/36 Hour Surface Prognosis	2030	18 Z Surface Analysis
0910	Coastal Marine Forecast	2040	18/36 Hour Surface Prognosis
1100	Gulf Aviation Forecast	2050	Coastal Marine Forecast
1440	Radiofax Schedule (Monday only)	2100	Oceanographic Data*

* Schedule;

Monday:	East and West Gulf Sea Surface Temperature Charts
Tuesday:	East and West Gulf Stream Flow Charts
Wednesday:	East and West Gulf Sea Surface Temperature Charts
Thursday:	East and West Gulf Stream Flow Charts
Friday:	East and West Gulf Sea Surface Temperature Charts
Saturday:	East and West Gulf Stream Flow Charts

May not be available during summer months due to isothermal conditions

going on, a printer was pouring out hard copy of the automatic telex exchanges occurring under control of the computerized system without an operator's intervention. Shipboard and shore-based telex machines were chattering back and forth through the equipment all around us, but only their operators were aware of what was going on. Just the printer acknowledged all that activity here.

The latest weather follows hourly traffic lists on 4, 8, 12, 17, 22 (and soon 6) MHz broadcasts in both telegraph and telex formats around the clock from here. Weather fax transmissions are broadcast directly as they are fed from the Weather Bureau under their direct control to the transmitters without delay. In the next building, the VHF stations come together and the big Thrane & Thrane automatic telex equipment mentioned earlier presides over an assembly of computers and other electronic, telephone and telegraph equipment. The database for the telex system is maintained by a Hewlett-Packard 1000 computer nearby and beside it are two rack-mounted CompuPro computers (one a development system and the other the operating system). This is where the telephone lines, telegraph system and point-to-point link to Cuba all join the rest of the equipment with the land-based world we know.

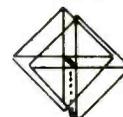
The man behind all this, and self-styled "country boy", is James L. "Jimmy" Dezauche, winner of the NEMA 1987 Fessenden Award for his contributions to the industry. The station's rags-to-riches story is the story of his perseverance in building the largest public coast station in our nation and having to fight the big utilities every inch of the way for his right to do so. AT&T tried to deny permission to interconnect to the public telephone network. After a long legal battle, which they lost, they then tried to block the station's license for a VHF/FM station. So it has been a rocky road all the way for WLO.

What impressed me most, and I'm sure would any visitor, was the state-of-the-art equipment and the cheery enthusiasm of the operators I found there. The most ancient electronics device I saw was an old Radio Shack Model II computer still maintained with pride in one of the offices. If you log this station, send your report to WLO or Mobile Marine Radio (the company that operates the station) at 7700 Rinla Ave., Mobile, AL 36619-1199 for a QSL. If, along with the usual reception report details, you include a bit of personal information about yourself; such as your age, occupation, SWL experience and equipment, they will appreciate it and speed your reply. They are just that kind of folks. Personal.

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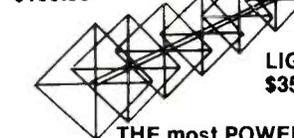


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CIRCLE 132 ON READER SERVICE CARD

The Indoor Active Antenna

Indoor active antennas serve a special need in modern shortwave and medium-wave reception for the DX'er and program listener alike. Apartment and condo high-rise dwellers must cope with weak signals. In some situations, they are so weak, that they fall to a level much like the sharp dip of a signal when motoring through a tunnel. Listeners surrounded by skyscrapers and bridges have the same problem. Many modern mobile home parks permit no external antennas and they are often not wanted in modern home tracts.

The modern indoor active antenna, Fig. 1, provides a low noise level and the good gain needed to build up the weak signals that sometimes exist in a worst-case, high-rise situation, where metal girders shield the signals out.

An active antenna does its best work where the going is tough. Except for special situations, they are not needed where a reasonable outdoor, somewhat in the clear, antenna can be erected. For outdoors, if you like, you can go for an outdoor active antenna, if you wish a tidy, small installation that can pull in far away weak signals. As such, it can even be mounted on the railing of a patio if your lease permits. This type of installation can give you some hot reception angles, although they may not be all around the compass when you are hemmed in by tall structures. MFJ Enterprises has both types. The outdoor version has a small box with a built-in amplifier and an attached 54 inch whip antenna. A control box and a power source is positioned indoors near the receiver. The DC power to the remote pre-amplifier is conveyed to that amplifier over the coaxial cable that brings the signal down to the control box.

The MFJ 1020A indoor version is self-contained with a short telescoping antenna. At first I positioned the unit on the top rack of the equipment frame that is a part of the operating position, so I could fully extend the whip antenna. The improvement in performance was exceptional compared to single wire antennas despite our fifth-floor, signal-rejecting apartment.

As my column readers know, I do a lot of antenna testing and I had to stand up to tune it, which got to be a bit inconvenient when making a series of tests. Consequently, the unit was moved down to the second rack, as shown in Fig. 2, where it was positioned near the antenna switching assembly and receiver. The active antenna can be adjusted conveniently for comparisons with various experimental antennas and other

indoor styles that come in for review.

Fortunately, the MFJ 1020A has a position for attaching external antennas and one can check out the improvements that can be made with all sorts of antenna configurations. Actually, the unit is acting as a pre-selector rather than an active antenna in this mode of operation. In fact, during weak signal portions of the day and on weak nighttime signals, it is often the difference between acceptable listening to a weak station, as compared to the knowledge that a signal is there somewhere on the frequency. On strong evening prime-time stations, I often use the control switch to bypass the signal completely around the amplifier.

When you do use an external antenna, be certain to collapse the attached telescoping antenna to its lowest height. Also, in operating the pre-selector with an external antenna, your dial readings may not be accurate. The reactance of the external antenna you attach has an influence on the resonant frequency of the pre-selector input circuit. Not to worry. Just hunt for the peak. On rare occasions, this might take you to an adjacent setting of the band switch.

Antenna Switching

Usually there are several indoor antennas accessible here at the operating position and they are arranged for easy switching to various inputs, Fig. 3, one of which is the external antenna input terminal of the 1020A active antenna. I have found that things are not always the same with changes in propagation (angle of arrival and selective fading), time, noise levels and, I suspect, what is happening in the rest of the building. Wire antennas, according to direction and position have different directional characteristics, and several stations on each band may not peak on the same antenna the rest of the



Fig. 1- Indoor antenna—top shelf on the right.



Fig. 2- Indoor active antenna on second shelf.

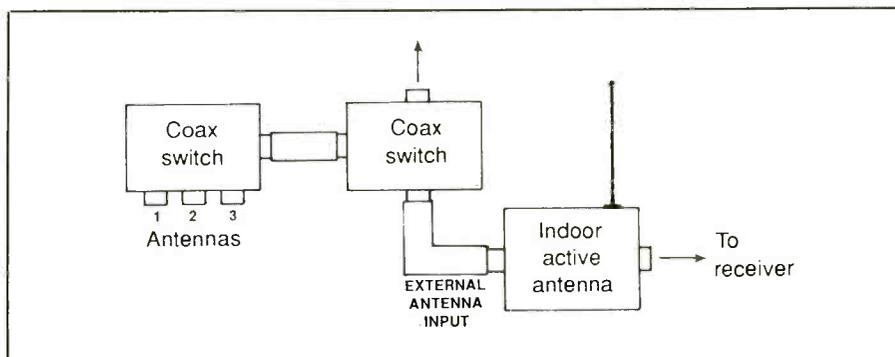


Fig. 3- Test arrangement for using indoor active antenna.

band occupants favor. Going a step further, things will be different between nighttime and daytime reception. One of the antennas in use (to be covered next) always shows its best form at night on the 25 through 60 meter bands.

Of course, there are noise conditions and you can switch among the three antennas for the best signal-to-noise ratio at any one time. It won't always be the same one for a given station. With stations going on and off the air on adjacent channels another setting may be preferred in terms of lower background interference.

End-Loading!

Recently, one of my three antennas has been an 11 foot length of single wire attached to a metal bed frame. I use a large alligator clip to clamp it to one of the leg casters. Well, it worked like a charm. The antenna bridge was than put to work and resonant points fell on 2.56, 4.3, and 6.5 MHz. Don't ask for an explanation! Day or night, with the pre-selector attached, it is really a fine all-band performer. Noise level is low and received stations are steadier than from the other two comparison antennas.

I tuned it up on the broadcast band with similar results and also copied several air beacon stations in the LW spectrum. Even without the pre-selector in circuit, it did well except at the low end of the broadcast band. This result probably indicates a more massive end load is needed for that low a

frequency.

I noticed a similar experience and reported it some years ago using a large metal desk. Is it time to take a more serious look at end-loaded antennas on a larger scale? Well, this is one I've got to sleep on.

Sideband For SWL Identification

In dealing with both weak signals and in catching every word of news or other voice programming. I have found the sideband reception capability of my receiver of definite value. Even a strong incoming signal at times has moments of AM voice garble during which time you can miss some important words. However, a weak signal on one of the higher frequency bands when there is fast and deep fading is a catch-a-little and miss-a-lot situation. It is just your luck to encounter the distortion of selective fading when a possible new catch is making a station identification.

On my R-2000, it is possible to change over from AM to sideband without touching the receiver tuning control by switching between AM and upper sideband (LSB). First use AM to set the receiver on the precise frequency of the station, say 15110. Now you will have one-button switching between AM and LSB. You will find the voice much more intelligible on sideband and there will be less background noise and reduction in lows. Turn up the volume a bit. I do the same on the AM band when DX'ing. **PC**

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CIRCLE 130 ON READER SERVICE CARD

BROADCAST DX'ING

BY ROGER STERCKX, KVT1JH

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

The Federal Communications Commission initiated enforcement proceedings against three broadcasters which may have broadcast indecent programs.

Each proceeding was initiated following review of complaints and extensive supporting materials received from the public. The Enforcement Division of the FCC's Mass Media Bureau sent letters to the three broadcasters requiring them to explain their actions within 30 days. After receiving their responses, the Commission will decide whether a violation has occurred and, if so, what sanction to impose.

The letters were directed to:

1) Evergreen Media Corp. of Chicago AM, licensee of radio station WLUP-AM, Chicago, Ill, regarding portions of the "Steve and Gary Show," which airs at 2:30 p.m.;

2) Narragansett Broadcasting Co. of California, licensee of radio station KSJO-FM, San Jose, CA, regarding portions of the "Perry Stone Show," which aired at 6 a.m.;

3) Great American TV and Radio Co., licensee of radio station WFBQ-FM, Indianapolis, IN, regarding portions of the "Bob and Tom Show," which airs at 6 a.m.

Title 18 of the United States Criminal Code prohibits the broadcast of obscene or indecent material. The Communications Act authorizes the FCC to determine whether a violation has occurred (Section 503) and to impose sanctions when there has been a violation (Sections 312, 503).

In April 1987, in finding three broadcasts to be indecent, the Commission stated that it would enforce Section 1464 by applying the definition of indecency previously affirmed by the Supreme Court in the 1978 *Pacifica* case. Under this definition, indecent material is language or material that, in context, depicts or describes, in terms patently offensive as measured by contemporary community standards for the broadcast medium, sexual or excretory activities or organs. More particularly, to be indecent, the material broadcast must, in context, be clear and capable of a specific, sexual meaning and be patently offensive.

The U.S. Court of Appeals for the District of Columbia Circuit, in July 1988, upheld the Commission's use of this definition as well as its decision to take action against all broadcasts meeting the definition instead of only those cases closely resembling the George Carlin monologue at issue in *Pacifica*, as was previously the case. In doing so, the court rejected challenges that the Commission's enforcement was impermissibly vague and overbroad, and, therefore, unconstitutional. The court also affirmed the Commission's determination that portions of the "Howard Stern Show," which aired at 6:00 a.m., were indecent and actionable.

The court fully affirmed the Commission's authority to take enforcement action against daytime indecent broadcasts. The court reversed, however, the Commission's rulings on two evening broadcasts, after concluding that the Commission had insufficient evidence to justify evening enforcement actions against indecent broadcasts. Under the court's decision, therefore, the Commission's enforcement authority is limited to daytime broadcasts of indecent material. (Obscene broadcasts continue to be prohibited at all times of day and night.)

Congress subsequently passed a law requiring the Commission to enforce the prohibition against indecency (along with obscenity) on a 24-hour basis. The Commission adopted such a rule, but the D.C. Circuit stayed its implementation last January, pending the court's review on the merits of the Congressionally mandated ban.

That case is now pending before the D.C. Circuit. In order to provide the strongest possible defense to the statute, the Commission and the U.S. Department of Justice today filed a Motion for Remand in that case. In its motion, the government argued that the court should not expend resources deciding this case before a full factual record has been established by the FCC. After noting that the relevant data have not been assembled in a single proceeding, the Commission committed to undertake such a proceeding expeditiously.

In the motion, the Commission and Justice also expressed their disagreement with petitioners' argument that the government cannot under any circumstances ban indecent broadcasts. To the contrary, the government stated that the Supreme Court's *June Sable* decision on dial-a-porn transmissions left open the possibility that indecent broadcasts may be banned under proper circumstances. The government sought the remand so that it could put itself in the best position to demonstrate that such circumstances exist in this case.

The FCC denied Catocin Broadcasting Corporation of New York reconsideration of its decision denying Catocin's application for renewal of license for WBUZ, Fredonia, NY.

Catocin was found unqualified to remain a Commission licensee because its sole principal, Henry Serafin, had: 1) willfully violated the FCC's equal employment opportunity rule by discriminating against a job applicant because of her race; 2) willfully violated an FCC rule by keeping the prize donated by a sponsor for a promotional contest instead of awarding the prize in keeping with the contest's advertised terms; and 3) knowingly misrepresented the facts regarding those violations and concerning the

Application Filed For New AM Stations:

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CA	San Luis Obispo	89.3 MHz
GA	Warrenton	93.1 MHz
ID	Gooding	101.3 MHz
ID	Wallace	100.7 MHz
KS	Hutchinson	91.7 MHz
MN	Le Sueur	96.1 MHz
MO	St. Robert	96.5 MHz
MS	Flora	97.5 MHz
NC	Lenoir	103.3 MHz
NY	Oneonta	91.7 MHz
PR	Mayaguez	88.3 MHz
VT	Marlboro	101.5 MHz
WI	Mishicot	107.5 MHz

Construction Permits Granted for New AM Stations:

ME	Bangor	1250 kHz
NV	Sun Valley	730 kHz

Construction Permits Granted for New FM Stations:

AR	Glenwood	104.5 MHz
AZ	Yuma	88.9 MHz
CA	Lenwood	104.9 MHz
FL	Chattahoochee	105.3 MHz
FL	Marco	92.7 MHz
LA	Buras	94.1 MHz
LA	Mamou	101.1 MHz
ME	Fairfield	93.3 MHz
MN	Staples	94.7 MHz
MS	State College	104.3 MHz
NM	Roswell	99.5 MHz
NV	Wendover	102.3 MHz
NY	Deposit	94.7 MHz
NY	Sodus	103.5 MHz
OH	Barnesville	93.5 MHz
RI	Narragansett Pier	102.7 MHz
TX	Daingerfield	106.9 MHz
VA	Accomac	99.3 MHz
VT	Canaan	94.1 MHz
WV	Fairmont	94.3 MHz

placement of documents in WBUZ's public-inspection file, with intent to deceive the Commission.

Catocin asked the Commission to reconsider its action in light of the FCC's decision to approve the settlement agreement providing for the divestiture of RKO's Los Angeles VHF station, KHJ-TV. According to Catocin, the Commission's decision to deny its renewal application and to reject its contingent request for a chance to divest was inconsistent with the Commission's decision to approve the settlement proposal for station KHJ-TV. Catocin asserted that the findings of misconduct against Serafin "paled in comparison" with the findings against RKO and that to deny it relief like that accorded RKO creates the appearance

New FM Callsigns Assigned:

KDMD	Anchorage, AK
KQPR	Albert Lea, MN
KTDX	Winslow, AZ
KVRK	Atwater, CA
KWTA	Electra, TX
KXSS-FM	Waite Park, MN
WAZF-FM	Yazoo City, MS
WDVI	Dadeville, AL
WESP	Dothan, AL
WGRM-FM	Greenwood, MS
WJLY	Ramsey, IL
WKGV	Tioga, PA
WMLY	Conway, NH
WPJB	Narragansett Pier, RI
WSLL	Saranac Lake, NY
WTRJ	Troy, OH
WYOO	Springfield, FL
WZAC	Danville, WV

New AM Callsigns Assigned:

KWOM	Watertown, MN
WEXS	Patillas, PR

that the Commission applies double standards, a harsh one for small licensees and a lenient one for "the RKO's of this world."

Rejecting Catoctin's arguments, the Commission pointed out that the compelling public interest considerations that weighed in favor of approving the KHJ-TV settlement are not present in this case. The Commission noted that the RKO case was unique in the degree to which it had frustrated the best effort of the Commission to bring it to a satisfactory resolution. Under the circumstances, the Commission concluded that approval of the RKO settlement agreement was in the public interest. By contrast, the Catoctin proceeding presented no such extraordinary public interest considerations, as it was not unusually protracted or complex. Moreover, Catoctin has already exhausted its administrative remedies, and no complicated factual issues remain subject to litigation.

Finally, the Commission pointed out that RKO, unlike Catoctin, had already forfeited

a valuable station license because of the misconduct at issue, which was a significant factor in concluding that the Commission's policy of deterrence would not be compromised by approving the settlement. As the Commission emphasized in KHJ and reiterated in this proceeding, it is the public interest that is its overriding concern and these distinctions are material to the public interest and therefore warrant a different treatment for Catoctin than that accorded RKO. To grant Catoctin the relief it seeks, the Commission said, would be tantamount to holding that any unqualified renewal applicant will be permitted to assign his license for compensation at the conclusion of proceedings should he fail on the merits.

Cross-Ownership Waivers In Markets With 30 Or More Voices And "Failed Station" Waivers

The FCC affirmed its relaxation of the broadcast multiple ownership rules. While retaining the one-to-a-market rule, the FCC had established a new waiver policy for common ownership of radio and television stations in the same market.

Under this revised one-to-a-market waiver policy, the FCC determined that it would look with favor upon waiver applications involving radio and television station combinations in the top 25 markets where there are at least 30 separately owned, operated and controlled broadcast licensees or "voices" after the proposed combination, as determined by counting television licensees in the relevant ADI television market and radio licensees in the relevant television metropolitan market.

The FCC also determined that it would look favorably upon waiver requests for proposed combinations involving at least one "failed" station—i.e., a station that has not been operating for a substantial period of time or that is involved in bankruptcy proceedings. The Commission further stated that for proposed combinations not meeting either of the two specific criteria above, a more rigorous case-by-case analysis would be made to determine if the proposed combination served the public interest based upon an evaluation and balancing of other specific factors, including the types of facilities involved, the number of stations already owned by the applicant, the financial difficulties of the station(s), and the nature of the market in light of diversity and competition concerns. Finally, the FCC emphasized that no waiver application would be granted if the proposed combination would result in any one entity holding an attributable interest in more than one AM and one FM radio station within any single television "metro" market.

Two parties requested partial reconsideration of the Commission's relaxation of its one-to-a-market rule. Great American Television and Radio Co., Inc. sought elimi-

Changed AM Callsigns

New	Old				
KBQC	KTSS	Davenport, IA	WLSY	WJYL	Louisville, KY
KBSG	KASY	Auburn, WA	WMMM	WCFS	Westport, CT
KBZR	KBEQ	Blue Springs, MO	WMKT	WKHQ	Charlevoix, MI
KFBN	KBSO	Laurel, MT	WODZ	WRVR	Memphis, TN
KIGS	KCLQ	Hanford, CA	WOIC	WODE	Columbia, SC
KJME	KDZR	Denver, CO	WOMG	WOIC	Columbia, SC
KLUC	KRSR	Las Vegas, NV	WPES	WMMM	Ashland, VA
KQKL	KZXY	Apple Valley, CA	WPIQ	WNYR	Brunswick, GA
KTIM	KCLW	Wickenburg, AZ	WPUV	WPSK	Pulaski, VA
KZAK	KTYL	Tyler, TX	WQMG	WEAL	Greensboro, NC
WAFS	WGST	Atlanta, GA	WRNS	WTFC	Kinston, NC
WALE	WEAN	Providence, RI	WTOX	WLKN	Lincoln, ME
WCRM	WHYS	Ft. Myers, FL	WTSH	WRJY	Rome, GA
WEAZ	WFIL	Philadelphia, PA	WWKY	WVEZ	Louisville, KY
WGST	WPBD	Atlanta, GA	WWRV	WNYM	New York, NY
WHTB	WALE	Fall River, MA	WWSF	WKYD	Andalusia, AL
WJKI	WSJW	Woodruff, SC	WZKG	WXTC	Charleston, SC
WJKL	WAPE	Jacksonville, FL	WZOT	WPLK	Rockmart, GA

Changed FM Callsigns

New	Old				
KBAC	KLNM	Las Vegas, NM	KTIM-FM	KCIW-FM	Wickenburg, AZ
KBEQ	KBEQ-FM	Kansas City, MO	KTXI	KCGQ	Gordonville, MO
KBQC-FM	KBQC	Bettendorf, IA	KVOL-FM	KFND	Opelousas, LA
KBSG-FM	KBSG	Tacoma, WA	WBFX	WYQT	Marais, MN
KCMO-FM	KCPW	Kansas City, MO	WBGF	WSWN-FM	Belle Glade, FL
KCZY	KOSG	Osage, IA	WCKP	WCKD	Shelbyville, KY
KDGE	KZRK	Gainesville, TX	WDXX	WTUN	Selma, AL
KDKK	KPRM-FM	Park Rapids, MN	WEAZ-FM	WEAZ	Philadelphia, PA
KFBN	KBSO	Laurel, MT	WHJX	WPIQ	Brunswick, GA
KIIK-FM	KMCD-FM	Fairfield, IA	WHMX	WGUY	Lincoln, ME
KJJO	KJJO-FM	St. Louis Park, MN	WHUM-FM	WKBE	Patton, PA
KKCL	KVOQ	Lorenzo, TX	WHKL	WXKU-FM	Salladasburg, PA
KLGG	KIPP	Delta, UT	WLGC	WLGC-FM	Greenup, KY
KLPR	KOVC-FM	Valley City, ND	WLSY-FM	WLSY	Louisville, KY
KLUB	KUDO	Milton-Freewater, OR	WOKW	WWWS	Curwensville, PA
KLUC-FM	KLUC	Las Vegas, NV	WOMG-FM	WOMG	Columbia, SC
KLZX-FM	KLZX	Salt Lake City, UT	WOZZ	WNBK	New London, WI
KMA-FM	KQIS	Clarinda, IA	WQMG-FM	WQMG	Greensboro, NC
KMGX	KGIL-FM	San Fernando, CA	WSHZ	WNYJ	Rotterdam, NY
KNSN	KAFR-FM	Walla Walla, WA	WTFX	WMLW	Wattertown, WI
KRXX	KFBA	Billings, MT	WTMS-FM	WEGP	Presque Isle, ME
KRYL	KHQS	Gatesville, TX	WTSH-FM	WTSH	Rockmart, GA
KRZR	KMGX	Hanford, CA	WYAI	WEKS-FM	La Grange, GA
KSXM	KUMA-FM	Pendleton, OR	WWSF-FM	WWSF	Andalusia, AL

Broadcast Station Totals

AM Radio	4965
FM Radio	4222
FM Educational	1397
Total	10584
UHF Commercial TV	527
VHF Commercial TV	547
UHF Educational TV	219
VHF Educational TV	122
Total	1415
FM Translators & Boosters	1772
UHF Translators	2155
VHF Translators	2715
Total	6642
UHF Low Power TV	397
VHF Low Power TV	145
Total	542

nation of the 25 market cut-off criteria. Holston Valley Broadcasting Corp. requested that the FCC consider granting a waiver of the radio-TV cross-ownership rules where common ownership of a UHF station and more than one radio station in the same service is involved.

On reconsideration, the Commission pointed out that contrary to Great American's contention, it had carefully considered what should be the appropriate market cut-off for the waiver standard. The FCC

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AM Facilities Changes Requested:

KASH	Modesto, CA	1360 kHz	Run 360 watts days, 210 nights
KKDA	Grand Prairie, TX	730 kHz	Add 500 watt night operation
KKXX	Paradise, CA	930 kHz	Add 500 watt night operation
KOBO	Yuba City, CA	1450 kHz	Increase to 1 kW nights
KPBC	Dallas, TX	1040 kHz	Increase to 10 kW days
KSSA	Plano, TX	1600 kHz	Reduce to 930 watts nights
WAGE	Leesburg, VA	1200 kHz	Increase to 20 kW days
WAMU	Washington, IN	1580 kHz	Increase to 500 watts
WAUR	Sandwich, IL	930 kHz	Increase to 4.2 kW nites
WCQL	Portsmouth, NH	1380 kHz	Increase to 5 kW
WILC	Laurel, MD	900 kHz	Add 500 watt night operation
WMLX	Florence, KY	1180 kHz	Change to 1160 kHz, 5 kW/1 kW
WMUU	Greenville, SC	1260 kHz	Increase to 5 kW
WNAM	Neenah-Menasha, WI	1280 kHz	Increase to 5 kW nights
WOND	Pleasantville, NJ	1400 kHz	Increase to 1 kW days
WORD	Spartanburg, SC	910 kHz	Reduce to 3.6 kW/890-watts

FM Facilities Changes Requested:

KEZP	Canadian, TX	103.1 MHz	Move to 94.9 MHz
KKSR	Sartell, MN	96.1 MHz	Move to 96.7 MHz
KMGZ	Lawton, OK	95.3 MHz	Move to 99.5 Mhz
KNBU	Baldwin City, KS	92.5 MHz	Move to 89.7 Mhz
KRGN	Amarillo, TX	103.1 MHz	Move to 102.9 MHz
KSKI	Sun Valley, ID	93.5 MHz	Move to 103.7 MHz
KWYX	Jasper, TX	102.3 MHz	Move to 102.7 MHz
WCNG	Murphy, NC	104.3 MHz	Move to 102.7 MHz
WKLT-FM	Kalaska, MI	97.7 MHz	Move to 97.5 MHz
WQON	Grayling, MI	100.1 MHz	Move to 100.3 MHz
WTPC	Elsah, IL	89.7 MHz	Move to 105.3 MHz

AM Facilities Changes Approved:

KBBI	Homer, AK	1250 kHz	Increase to 10 kW
KPBC	Dallas, TX	1040 kHz	To 770 kHz, 5 kW/1 kW
KRHZ	Bullhead City, AZ	1000 kHz	To 5 kW days
KUTR	Salt Lake City, UT	860 kHz	Reduce to 10 kW days
KZRC	Milwaukie, OR	1010 kHz	Increase to 8 kW/500 watts
WAEB	Allentown, PA	790 kHz	Increase to 38 kW days
WFHM	Vineland, NJ	1270 kHz	Run 360 watts days, 210 watts nights
WNIS	Norfolk, VA	850 kHz	Increase to 50 kW/25 kW
WNJO	Seaside Park, NJ	1550 kHz	Increase to 10 kW/3.5 kW
WTWZ	Clinton, MS	1120 kHz	Increase to 5 kW days
WWRJ	Hollywood, SC	1200 kHz	Move to Jones Island, SC
WZBS	Ponce, PR	1490 kHz	Increase to 5 kW days

FM Facilities Changes Approved:

KGID	Giddings, TX	101.7 MHz	Move to 101.5 MHz
KMXQ	Socorro, NM	92.7 MHz	Move to 104.7 MHz
KSPI-FM	Stillwater, OK	93.9 MHz	Move to 91.7 MHz
WZWD	New Albany, MS	106.3 MHz	Move to 106.7 MHz

adopted the top 25 market cut-off "out of an abundance of caution," after determining that a "careful approach" limiting the new waiver policy to the very largest, or top 25 markets, was the most reasonable method of relaxing the radio-TV cross-ownership rules.

The FCC emphasized that its new waiver policy was not an abandonment of traditional concerns for encouraging diversity of voices and economic competition, since the new waiver policy would enable both the public and broadcasters to benefit from joint ownership, while providing a safety net by retaining the substance of the current rule. The Commission took the opportunity, however, to clarify that it would carefully consider all waiver petitions, both within and outside the top 25 markets, in order to ensure that the public benefits from such efficiencies of operation as may be achieved

through the use of common facilities and staff, consistent with the maintenance of diversity and vigorous competition within the market area involved.

In addition, the Commission found that its previous statement which barred waivers involving combinations of a television station and more than one radio station in the same service should be modified. It noted that a flat prohibition precluded the FCC from evaluating, on a case-by-case basis, such combinations that clearly could be demonstrated to be uniquely in the public interest. Consequently it amended Note 7 of Section 73.3555 of the rules to reflect this revised policy. However, the FCC emphasized that it did not foresee approving any combination involving a television station and more than one radio station in the same service unless it clearly can be demonstrated to provide unique public interest benefits. **PC**

ON THE LINE

NEW AND EXCITING TELEPHONE TECHNOLOGY

Army Common Channel Signaling Network in Korea to be Most Modern in World

“We have the most up-to-date, modern, comprehensive, self-contained digital telephone network in the world.”

That was how Ed Howe, Deputy Project Manager for Army Switched Systems, described the common channel signaling capability introduced this spring into the network of U.S. Army switches in the Republic of Korea. Howe's office is part of the Fort Monmouth, NJ based Program Management Office for Army Information Systems.

Known as the Signaling System 7 (SS7), the system is the first major network implementation of common channel signaling technology anywhere in the world and will include features that are not currently available in any other system.

“Other systems, such as SPRINT, employ common channel signaling,” noted Howe. “However, they don't provide its capabilities as our implementation of SS7 does.”

The system extends features that are usually limited to a single switch—such as Automatic Recall and Call Forward Busy/Don't Answer—across the entire network.

“If someone's phone isn't answered after three or four rings—the number of rings is programmable—the call can automatically be transferred to a phone on a different switch anywhere across the network,” explains Howe. “This is an important selling point to a subscriber, since much of the value-added to this system will be transparent to users—although the value-added will be obvious to us as the provider.”

Another special feature that will be appre-

ciated is the forwarding of classmarks to operators, who will be able to see, on displays, the priority authorized to callers, as well as the ID's of subscribers making calls.

SS7 is being installed by Northern Telecom, Inc., of Vienna, Virginia. Hardware and software installation and switch and network testing were completed in three locations in early May. The effort, a continuation of a major upgrade of a U.S. Army telephone system in Korea that began about five years ago, has seen outmoded 1940's vintage switching equipment in 24 locations replaced by 34 Northern Telecom SL-100 digital switches. All 34 switches were officially assigned to the 1st Signal Brigade in Korea for operation and maintenance last February.

“We still have one more switch—a late requirement—which is being installed and should be in service by this summer,” explained Howe, stressing that besides installing new switches with expanded line capacity, the overall Korea telephone upgrade has resulted in replacing many miles of cable and the replacement of over 30,000 rotary dial phones with modern pushbutton telephones.

“The new digital phone system has not only improved administrative phone service, but it also handles command and control requirements and performs AUTOVON switching,” said Howe. It will use the common channel signaling features as a stepping stone to the emerging Integrated Services Digital Network (ISDN), an international voice and data network capability, which is expected to become commercially available in the early 1990's.

“We expect the SS7 technology we're employing in Korea to become the industry standard for the technology of transferring signal and call processing information between switching systems and specialized databases in the future networks,” said Hal Edwards, Director of Technical Marketing for Northern Telecom.

In addition to the contract awarded in 1984 to Northern Telecom for this effort in Korea, the Department of the Army also awarded separate contracts in 1983 with B.K. Dong Ah Telecom, Inc., of Hauppauge, NY, for the cable plant replacement; and in 1986 to AT&T for the two new Emergency Action Consoles.

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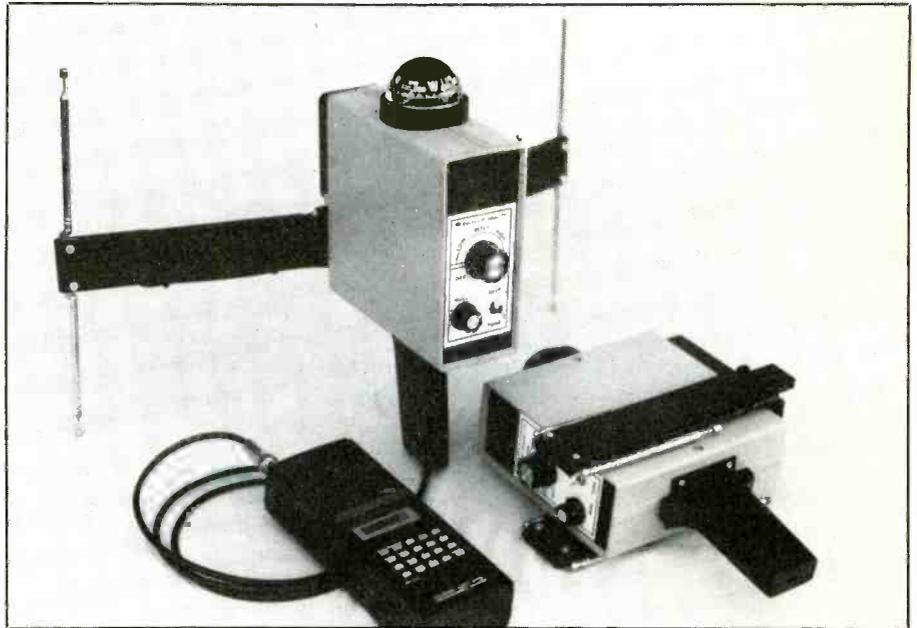
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VHF Trackers

An important part of your emergency communications equipment should be a VHF direction finder. The very high frequency direction finder could assist you in pinpointing 121.5 MHz emergency position indicating radio beacon (EPIRB) signals in a downed aircraft. A VHF ADF quickly tracked down a separated search party team member transmitting on 155.160, the national search and rescue frequency. You could also use your ADF to work with the United States Coast Guard and the Civil Air Patrol in tracking down marine VHF signals on 156.800 MHz, the international and distress calling frequency. I have personally used ADF for finding my way back to base camp in the forest—I would have them give me a short count, and then home in on the signal.

Since you probably already own a VHF handheld transceiver, or a VHF portable programmable scanner, you have most of the equipment necessary for D.F. (direction finding) high band signals. There are many add-on devices that quickly screw into your VHF high band equipment, turning it into a sensitive direction finder.

Coax Loop. For a buck, you can D.F. on VHF. Build this simple loop, and try it. You will receive maximum signal intensity when the loop is broadside to the transmitting station. you will receive an accurate null (quick drop in signal strength) with the loop in two directions. It will be up to you to decide



Portable \$125.00 add-on VHF direction finder.

which 180 degree difference direction the signal is coming in. Build this simple loop, and see what you can track down (Fig. A).

Inexpensive Tracking Antenna. A little 2-meter, 4-element beam costs less than \$50. It's easily handheld, and tied in to your VHF handheld transceiver or scanner makes for a positive signal direction indicator. You could also D.F. with a 2-meter portable quad antenna, for about \$75, and fold it up when not in use (Radio Engineers, 3941 Mt. Brundage Avenue, San Diego, California 92111).

This company, Radio Engineers, also offers \$125.00 handheld RDF loop assembly, complete with attenuator and magnetic compass, ideal for tracking down VHF signals. I've tried it personally, and the null is so deep that you can pinpoint a transmitting signal within 1 or 2 degrees.

Automatic Add-On. If you really want to go high-tech at your command center, consider an add-on VHF automatic direction finder. There are no antennas to rotate—it does it automatically, electronically. Simply plug the ADF add-on unit to any existing

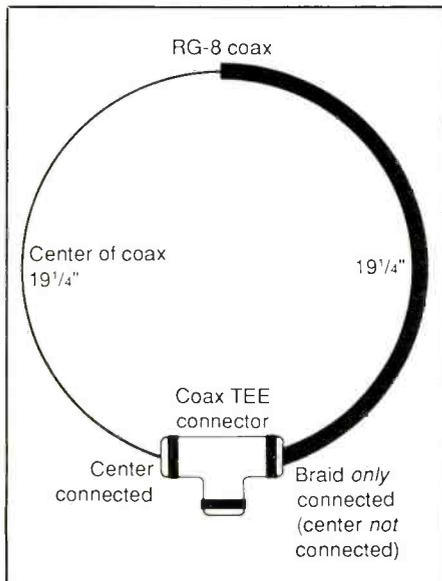
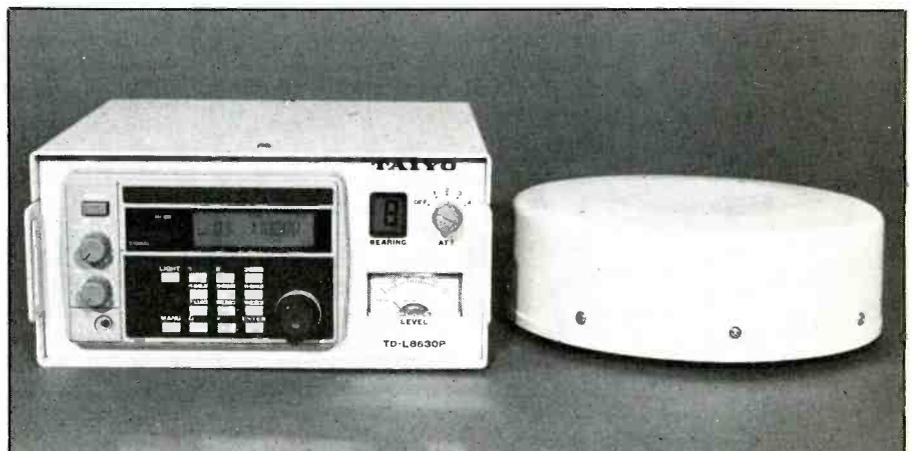


Fig. A



Portable VHF-ADF unit.

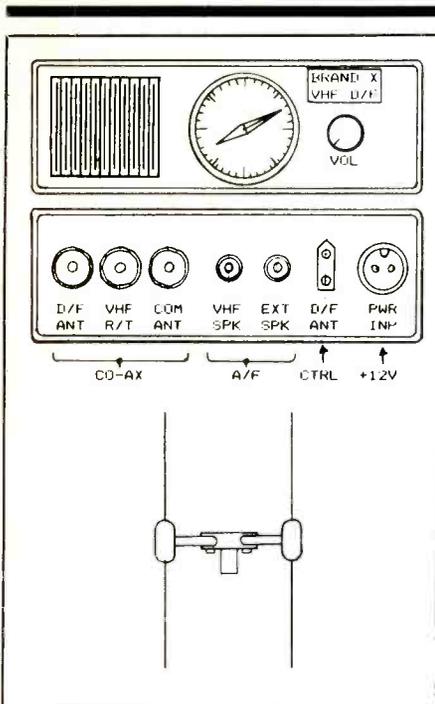


Fig. 1. A typical VHF D/F and antenna.

VHF base, mobile, or portable transceiver. Switch on the set, and within 3 seconds see a digital and relative LCD readout to the transmitting signal. Four memory channels allow you to select different signals for memory retention. When you key your mike, the ADF antenna automatically disconnects, and you operate off of your normal VHF antenna.

The ADF antenna assembly uses an Adcock design—characterized by 4 vertical halfwave antennas, spaced evenly around a circular dome. nothing moves—it senses the signal direction electronically.

A good unit is the Apelco AXL1550, available for under \$600.00 it works with any high band transceiver from 138 to 180 MHz. Call (800) 600-2378 for information. Also, check out the VHF RDF (108 to 1000 MHz) from Doppler Systems, P.O. Box 31819, Phoenix 85056.

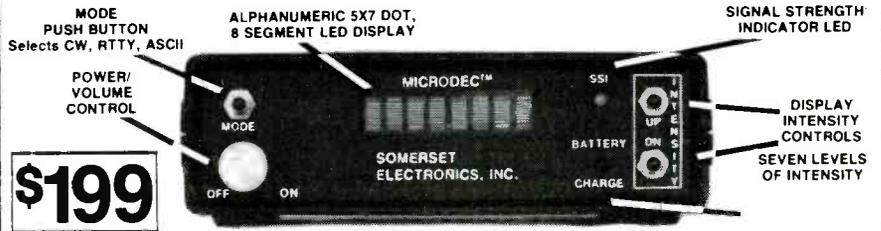
Finally, if you have an unlimited budget, your command center might consider the Taiyo TD-L8630P VHF/UHF portable direction finder that spans 108 MHz—470 MHz. This receiver and direction indicator fits into a compact “over-the-shoulder” bag with the antenna, pistol grip, and battery charger stored in a hand case.

Bearings are displayed by a single digit LCD which corresponds to one of 8, 45 degree, omnidirectional segments. This rig is what the big boys use—after all, at over \$5,000 cost, would they want anything less?

So for a single buck, you can make yourself a simple VHF direction finder. I suggest spending \$50, and get a nice little directional beam—this is what the pros use on the ham bands in tracking down 2-meter signals. Your search and rescue communications should not be without VHF direction-finding capabilities.

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The Search Is On

Many of our readers collect older CB rigs, and write to the column for help in expanding their horizons. We do what we can. This month, for instance, James Cole, 154 Deeridge Drive, Barrington, NH 03825 advises that he recently acquired a Browning Golden Eagle Mark IV receiver and has been very impressed with its performance. Now he wants to know how to acquire its companion transmitter.

This may be the \$64 question. Browning equipment, which was made in NH included some of the most highly regarded and expensive gear produced in the 1960's and 1970's, but the company has been gone for almost ten years and its equipment doesn't often turn up on the resale market. When it does, it's still expensive. The Mark IV was one of Browning's most deluxe units, and perhaps one of our readers can help Jim out.

Next comes Don W. Patrick, 3701 Old Jenny Lin, Fort Smith, AR 72901. He was licensed in CB's early days as 8W0435. Over the years, Don has built up a collection of more than 100 CB rigs, but he's missing a few critical sets that date back to the early 1960's. Can anybody aid Don in obtaining any of the following: any Philmore unit; Heath GW-1 and GW-10; Globe CB-100 and CB-200; Lafayette HE-15; any Gonset unit; and Eico units 770, 771, or 772. From Don's letter, we get the impression that he would like "donations" of these rigs.

My own opinion is that these days antique CB rigs are being snapped up by many people. While Philmore CB rigs, the Lafayette HE-15, etc., may have been absolute junk during the early 60's, today they are worth many times more than their original prices. The Globe CB-100, a 3-channel transceiver with single-conversion superhet ears was one of the first reasonably good CB rigs to appear on the market at a popular price around 1960 when many rigs had super-regen receivers. It was good-looking, too. Still, you could insert receive crystals for Channels 2, 4, and 7 in one, and copy stations operating on any frequency below Channel 9. If anybody's giving this stuff away as free donations, we've yet to meet them.

Who's On The Line?

Jumping Jack, a/k/a Cecil Tilley, Grand Rapids, MI wrote to tell us he was using a roadside payphone and a car pulled up near the booth and the driver began yakking on his CB. Cecil says that the CB transmissions came through on is telephone call.

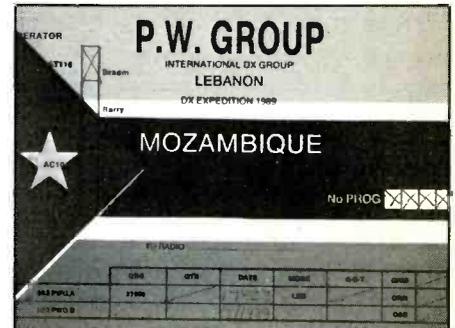
Next, Michael Hawke, Uniondale, NY wrote to say that there are times when he's speaking on his home telephone and suddenly he (and the party on the other end of his call) are surprised to clearly hear a CB transmission coming through the telephone. He says neither the FCC nor the phone company appeared very interested in this information, but it made him curious (if not annoyed), anyway.

Let's just say that most consumer electronics equipment (TV's, VCR's, audio equipment, telephones) aren't sufficiently shielded and filtered to be able to escape unscathed while operating in areas of high RF energy, regardless of the frequency being transmitted. Even a 5-watt CB rig, if it's close enough to a piece of audio equipment, or telephone (or telco line) can be sufficient to cause the signal to overwhelm the equipment and bleed through. Because there are so many CB receivers around, the problem involves CB signals more than others, yet a "stock" (unmodified) CB transceiver isn't the blame, it's caused by the inefficient equipment that is picking up the signals when it isn't supposed to be doing so. Some folks have made enough of a stink to telco to get them to come out and properly shield their equipment from RF interference, however, it's a big and expensive job and they can't easily be convinced it really needs to be done.

This is one reason the FCC is always so hysterical about CB'ers running linear amplifiers and other illegal high power CB equipment. Apparently they receive plenty of these interference complaints involving legal equipment, but when someone is pushing out from 50 to 1,000 watts, their signal begins coming out of neighborhood water faucets and even mattresses.

A clear example of how this works was brought to our attention recently by F.E. Gray, K6ACC, of Walnut Creek, CA. He sent us a story that appeared in *The Sacramento Bee* under the banner "Quiet Returns To Neighborhood After Super CB Is Seized." The story told of one John Robinson, of Sacramento, whom the FCC said was known on the airwaves as *Kujo*. People as far as fifteen miles away from Robinson's CB station had been complaining since 1986 about interference that was bleeding into the telephones, TV's, and even the TV cable.

After a petition signed by fifty irate area residents was made up, the FCC showed up at Robinson's home. He refused to let them inspect his station, so (in October of 1988) they fined him \$600. But the complaints



A few great tourist places were along the route of the P.W. Groups recent DXpedition.

CB RADIO STATION DELTA דלתא
Oth Central Israel op. Toly

Date of Qso: 27-6-89 Time 23⁴⁰ (gmt)
To station "KA-147" (c.s.)
Personal name Yabu (operator)
Contact frq. 26.295, - Mhz
Band of -11m- 26.245, 27.425, 59J!
Mode: AM-FM-USB-LSB-CW
Your signal: ○○○○○○○○○○ db
Radio: 3+4!! Rxtx "Pred. U HCOU"
Antena 3/8 G.P. 5 F.Bant. 4czi.
Liner Zetop 8550r output ± 5000w
Mike A20 DX-357 (HAG)

QSB: QRM QRN
RST: TNX KOT QSL Yabu!
Base Home! Mobile

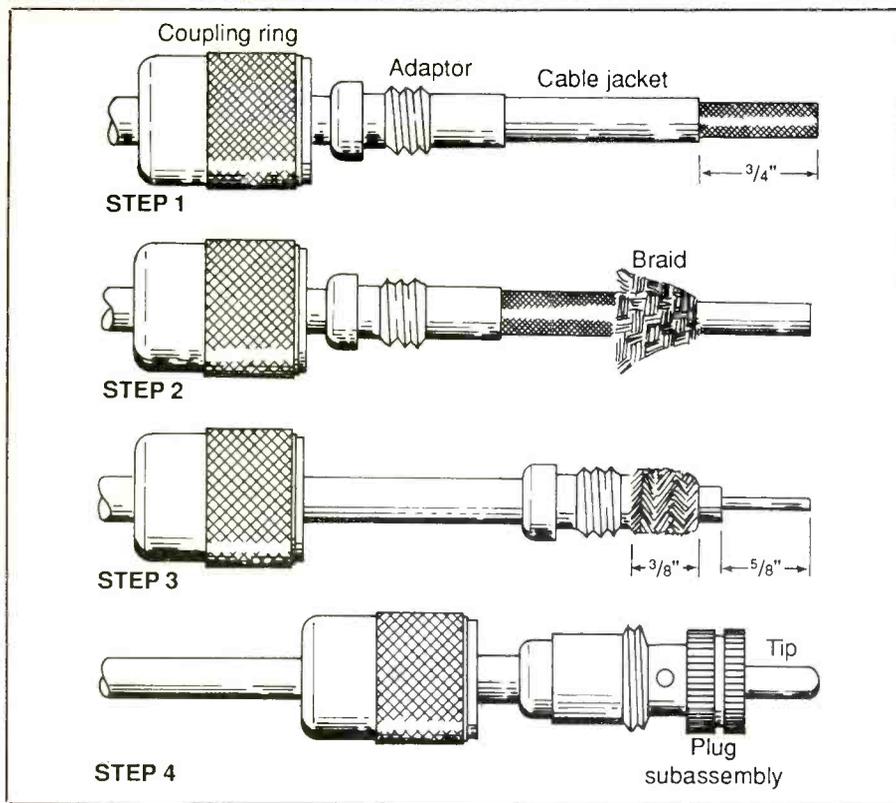
dx: 73+51+88 Best Wishes!
I hope to meet You soon on the Air.
The station was established in 1983.

Best DX to You!

Don't see too many QSL's from Israel. Here's one!



This sharp QSL is now ready for swapping, says Pat.



PL-259 connections, without too much pain.

didn't stop, so in March of 1989, they increased the fine to \$2,000. One day last July, federal agents obtained a seizure warrant to remove the equipment. They showed up when nobody was home and took away no less than two linear amplifiers and a modified transceiver. The newspaper report stated that the equipment ran 200 watts. After three years, quiet had returned to the neighborhood.

Checking In?

We heard from Bryan A. McKay, SSB Network Member SSB-67D, also CASBC-151, who advises us that the Central Alberta Sideband Club holds check-ins on Channel 15-LSB at 9 p.m. local time on Tuesdays. Regular coffee breaks are held at the South Bonanza Restaurant, south of Red Deer, Alberta. All are invited to check in, and show up when they hold a coffee break. For more info, contact Bryan McKay, 51 Martin Close, Red Deer, AB T4R-1P6, Canada.

Your Card Please!

We got some interesting cards this month. John, of Long Island (who requested no further identification other than "KA-147") sent in a QSL from a station in Israel known as *Delta*. The card specifies operation on Channels 28 and 29, also 27.495 and 27.595 MHz, which are beyond the pale of the authorized band in the U.S. and Canada. The rig is a President Lincoln, and the antennas are a 5/8-wave ground plane and a 5-element beam.

Still on the DX trail, an anonymous reader in the RSA sent in a colorful QSL card representing a recent 5-operator CB DXpedition, apparently to Lebanon and Mozambique sponsored by the P.W. Group.

Pat Burke, SSB-349A and RMS-245, had some beautiful new QSL's printed up that he'd like to swap with other ops. His AD is: Pat Burke, 5330 Goshen Road, Fort Wayne, IN 46818. Pat just installed an Antron 99 base station antenna and reports good results. By the way, the RMS-245 numbers were issued to Pat by Rhein Main Sidebanders of Germany.

Tech Department

Philip Nordstrand, SSB Network Member SSB-43L, of South Haven, MI asks us to continue with tech tips and simple CB projects here in the column. This information has proven popular Phil, and we will keep it coming.

This month let's mention a common problem, the PL-259. You will undoubtedly recognize this as the nomenclature for the type of connectors commonly used with CB antenna systems. They tend to vex.

One manufacturer of CB antennas has noticed that a major cause of poor range can be traced to the connector that joins the coaxial cable to the bottom of the antenna. The problem tends to occur approximately six months after antenna installation. The reason for the trouble is that the standard coaxial connector (PL-259, for example) is not intended for all-weather operation.

Rain and moisture can enter the connector joint even when the plug has been tightly screwed to the socket. The result is corrosion, which interferes with normal operation.

To prevent short circuits or open connections, wire a coaxial PL-259 connector as illustrated in the four steps. Before starting, check to see if the end of the cable is cut squarely. Then continue as follows:

Step 1. Insert the end of the cable through both the coupling ring and adapter. Notice that the *knurled end* of the coupling ring and *narrow end* of the adapter face toward the free end of the cable. Next, carefully remove $3/4$ inch of the black cable jacket. (A useful tool is a razor blade.) Just be certain that the braid is not nicked while you are cutting away the jacket.

Step 2. Fan out the braid slightly with your fingers and fold it back on the cable as shown.

Step 3. Move the adapter under the braid and trim off the braid to an overall length of $3/8$ inch. Next, remove $5/8$ inch insulation from the center conductor and tin the wire with a bit of solder. (Be careful not to overheat and melt the insulation.)

Step 4. Take the plug subassembly and screw it on the adapter. Apply the iron at the holes and solder the braid to the assembly. Do not overheat; hold the iron at the hole for just enough time to melt the solder. After this has cooled, solder the center connector to the tip of the plug. Finally, screw the coupling ring onto the plug subassembly.

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TELEPHONES ENROUTE

BY TOM KNEITEL, K2AES

WHAT'S HAPPENING WITH CELLULAR, MARINE & MOBILE PHONES

Flying Phones

For many years, airline telephone service was operated only with the ground stations in the 454.70 MHz to 454.975 MHz band (aircraft 5 MHz higher in frequency). This service is still in use, but is being challenged by the completely different *GTE Airfone* system that is gaining in popularity.

The *GTE Airfone* system was specifically designed for commercial airline use, as opposed to the earlier system which is (for the most part) a simple aeronautical adaptation

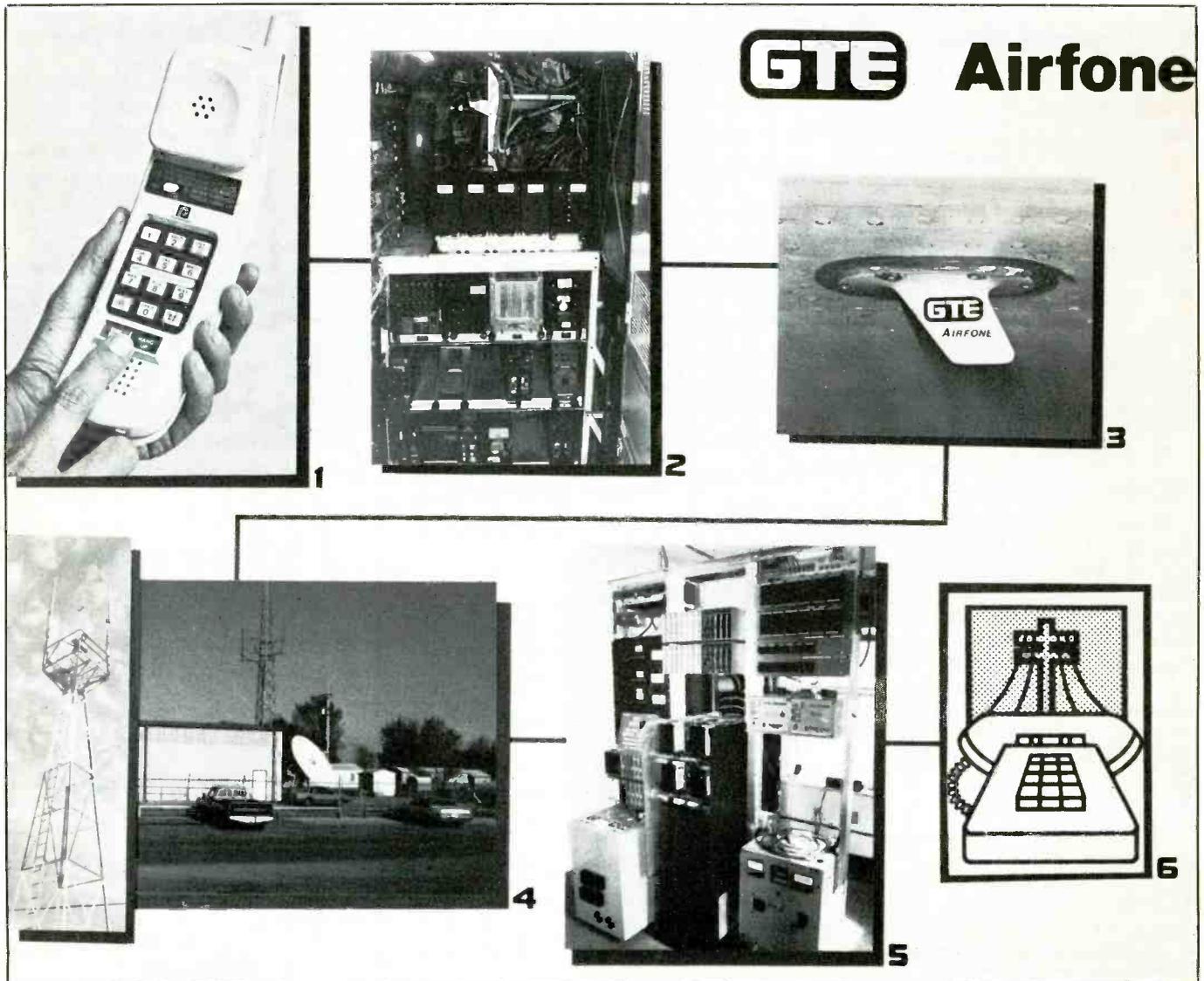
of 454 MHz car phone technology. The *GTE Airfone* system allows passengers in-flight over the U.S. and southern Canada to make credit card telephone calls to telephones anywhere in the world.

The idea began in October of 1984 with the inaugural of the *GTE Airfone* on 12 aircraft operated by five of the major airlines. Since then, the flying pay phones have become a reality on more than 1,000 aircraft operated by Delta, TWA, United, Ameri-

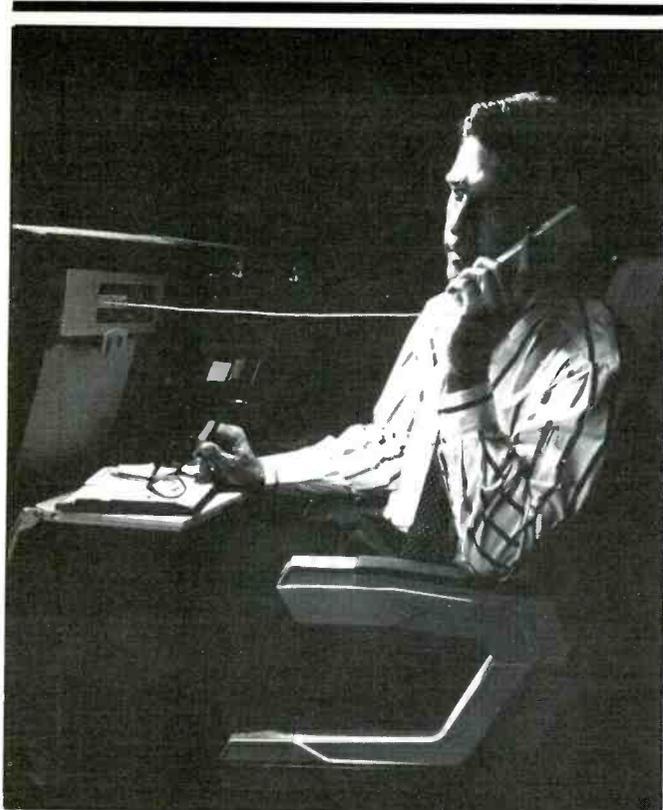
can, Braniff, Northwest, Pan Am Shuttle, Eastern, Piedmont, Alaska Airlines, Continental, America West, Five Star, MGM Grand, Midway, and the Trump Shuttle.

More than 5.1-million calls have been placed through the system, and *GTE Airfone* are contracted to be installed in about 2,700 airliners.

Airfone, Inc. was established in 1975. In 1979, the company petitioned the FCC for an experimental license. When the license



A call is placed over a *GTE Airfone* by using a standard cordless handset (#1). The call is processed through an on-board computer (#2) which selects an available frequency at one of about 80 ground stations. The call is transmitted and received through an antenna (#3) attached to the aircraft's belly. At the selected ground station (#4), the call and billing is processed as required, and then switched to (#5) the public landline telephone network. From there, it goes to (#6) any telephone in the world.



Seatfone is a new feature of GTE Airfone that saves you the walk up the aisle to acquire the handset from the wall mount. With this refinement, the handset is installed right in the seat-back in front of you.



The executive who is used to having a car phone available while he is driving, can now equal this access to the outside world while he's aboard a commercial airliner.

was granted in October, it came to life. During the following two years, the technology as developed and, by 1983, the concept entered the manufacturing phase. Meanwhile, in 1981, Western Union Corp., had become a joint-venture partner with Airfone, Inc. By late 1984, enough of the ground network had been deployed to commence service and the first aircraft were equipped with the *Airfone* system in September of that year, with tests starting soon after. Both AM and SSB transmissions have been monitored on channels spaced at 6 kHz in the bands: 849 to 851, 894 to 896, 899 to 901, and 944 to 946 MHz. Each of the ground stations can operate on 32 discrete channels.

In December of 1986, the company was acquired by GTE. In 1989, there were 80 ground stations located in the contiguous U.S. providing full coast-to-coast coverage. In late 1987, a refinement to *GTE Airfone* was introduced. Now available on about 60 aircraft, *Seatfone* features a hard-wired handset and is installed on the back of one or more seats in each row. The phones will accept any of seven major credit cards into a slot on the seat back. In the near future, the *Seatfone* will provide message services, in-flight reservation services, stock quotes, and in-flight shopping.

Using GTE Airfone

The *GTE Airfone* is easy and convenient

to use. To place a call, you insert any major credit card into the wall-mounted cabin handset holder located in the forward or aft sections of the aircraft. Once the card has been validated, the cordless handset is released, and may be taken by the passenger back to the seat for placing the call.

When a call is placed, a computer aboard the aircraft decides which ground station will offer the best connection, then connects with the ground station. Each ground station has an operating range of 400 miles, and that's enough to deal with a call lasting about 45 minutes. Calls may be placed over the U.S. (including Alaska and Hawaii), southern Canada, within 200 miles of the U.S. coastline, or even while on the ground at most major airports.

From the ground station, calls are routed through the public telephone network and the billing data is channeled to the appropriate credit card companies. Domestic prices for an *Airfone* call from the contiguous U.S. to anywhere in the U.S. or southern Canada are \$7.50 for the first three minutes and then \$1.25 for each additional minute. International rates (for calls to other locations) are \$15 for the first three minutes and \$2.50 for each additional minute.

When a call is completed, the passenger can place another call, or may disconnect and return the cordless handset to its holder.

GTE Airfone has proven itself to be an extremely efficient system, and hugely suc-

cessful. Airliners are filled with business people and others who find that having a telephone at hand while enroute to their destination saves time and money, and can be useful in putting into productive use time which would otherwise have been considered wasted and beyond contact with the world below. For those who have gotten used to being able to stay in contact via a car phone while driving, *GTE Airfone* certainly seems to fill the void.

GTE Airfone, Inc., is headquartered at 2809 Butterfield Road, Oak Brook, IL 60522-9000.

Meanwhile, Back On The Ground

Just when you thought it was safe to buy a cellular car phone, it looks as though cellular technology will be threatened by the introduction of a new type of car phone based on digital technology. That's what I've been told by Roger Newell, honcho at *CT2 Associates*, a telecommunications consulting firm in New York City.

CT2 stands for *Cordless Telephone, Version 2*, it's a hybrid between cellular and cordless phones offering an interface with the public telephone network. Newell feels the concept has mass market appeal because the instrument is lightweight, pocket-sized, and will cost several hundred dollars less than larger cellular units offering equal con-

venience. He also claims that usage rates will be a fraction of the cost of cellular and more along the rates of standard landline phone service. This is because the network of base stations will be lower powered and cost less than \$4,000 each. Cellular bases cost many hundreds of thousands of dollars each.

Newell, who is a practicing communications attorney, tells me that many (like tens of thousands) of base stations are now going

into operation in the U.K. The FCC is presently being pushed to cough up frequencies for a rapid kick-off for CT2 here in the U.S. If and when such frequencies come through, Newell foresees a rush for licenses to get in on the ground floor of an industry he feels has "even more promise than cellular."

At this point, no companies have announced plans for a U.S. network, but NYNEX owns 12% of one of four groups installing CT2 in the U.K.



You saw it here first! A photo of one of the new CT2 telephones — a technology that offers a low-cost cross between cordless telephones and a cellular phone. A most interesting concept, in every respect.

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SATISFACTION GUARANTEED

It's claimed that digital technology will provide better audio quality than cellular or cordless phones, and that each base station will have "about ten times the number of channels available to standard cordless phones, thereby decreasing the likelihood of busy signals." That would appear to mean, roughly 100 channels, since there are presently ten 46/49 MHz cordless phone channel pairs.

Low power will mean that the range of CT2 handsets will be somewhat limited, so calls that will be able to be placed only when near a public base station, or the owner's office or home phone. Also, CT2 units don't receive incoming calls, but radio paging service can be provided that should make up inability, especially when balanced against the significant cost differential between CT2 units and cellulars.

Should be interesting to see how this develops. For more information on CT2 technology, contact CT2 Associates, 170 Broadway, Suite 1515, New York, NY 10038 (tell them we sent you), or circle 106 on our Readers' Service.

In reference to the "Palomar VC-300 Voice Controller" mentioned in the October column, Palomar Engineers, Inc. of Escondido, CA advised us that they are "the owner of the Federal Trademark registration for the name Palomar in the radio equipment field, and conflicting uses of the name Palomar have been terminated."

This column always seeks your thoughts, comments, questions, news clippings, and other items relating to car phones. We also like to hear from cellular service suppliers, as well as manufacturers of all types of mobile telephone equipment and accessories.

Choosing Your First Rig

Choosing your first ham station might seem a bit confusing. Should you buy a new rig—with lots of push-buttons, digital frequency readout and fancy features, or an older, “barebones” rig that still offers good performance? Will a transceiver suit your needs, or can you manage a separate receiver and transmitter? Tubes or solid state? Tune or no-tune? Big, small or in between? Although the questions seem unending—choosing your first rig doesn't have to be a chore.

In times past, most Novices had a radio mentor—an Elmer—who first fired their interest in ham radio and was there at every turn to answer questions and provide assistance. With the help of such an Elmer, choosing a rig is a simple task! Most Elmers have operated many different rigs over the years, and they won't hesitate to recommend several alternatives appropriate for any budget.

If you are fortunate enough to have such an Elmer you probably have several possible rigs picked out. If you don't have a personal ham-radio helper—don't despair. Most hams love to talk about equipment, so it shouldn't be too difficult to find a few local hams who'll be more than happy to help you in your search for a first rig. If you're lucky, you'll be invited to stop by their shack and spin the dials on their equipment for yourself. (By the way, that's another thing hams like to do—show off their shacks!)

Your local radio club is a good place to meet other hams. If you can't find any in your area, send an SASE to the Educational Activities Coordinator here at ARRL, and we'll send you information on the clubs that meet in your area.

If you are fortunate enough to live near a ham radio showroom, you can get a first-hand look at many of the latest rigs. Many dealers also have a supply of used gear on hand as well. Don't let the high prices of today's new rigs scare you away. If your budget won't allow you to purchase a new rig, there are plenty of used rigs that will get the job done—at a price you can afford.

A good way to become familiar with the features (and drawbacks) of used and new rigs alike is the Product Review Column in *QST*. Nearly every rig manufactured since January of 1976 has been reviewed there. The reviews detail performance specifications, front- and back-panel controls, accessories, and provide comments about the rig's on-air performance. Look in the *QST* annual index, located at the end of each December issue, to see which rigs were reviewed that year. A cumulative Product Re-



Stephen Moore, an SWL from Massachusetts, recently sent in this photo and an interesting letter. Stephen is learning Morse code so he can get his Novice license. He tunes the bands with a Sangean '803 receiver, and is working on interfacing his computer equipment to receive RTTY on the ham and utility bands. With a little luck, Stephen will have his license by the time you read this. Good Luck!

view index going back to 1976 is available from the ARRL Technical Secretary (send \$3 and an SASE). Hams clubs and your local library often have back issues of *QST*.

Two ARRL publications address the question of choosing a first rig in greater detail. One is *Tune in the World With Ham Radio*; the other is *The ARRL Operating Manual*. Both books explore these subjects in detail: solid-state rigs and older tube-type rigs; transceivers and separate transmitters and receivers; digital and analog frequency displays; and features and accessories such as audio filters, and speech processors, among others.

When you've sorted out all of the alternatives and finally decided on which rig (or rigs) to buy, the question of where to buy still remains. Some possibilities include local hams, local dealers, flea markets, mail order, Ham Ads in *QST* and classified ads in other publications. Your local dealer will probably offer the best service, although the prices may be higher than at comparable mail-order outlets. Gear obtained through flea markets, local hams, and classified ads usually costs less than similar equipment purchased from an established dealer; but there's usually no guarantee as to the condition of the equipment. Caveat Emptor, let the buyer beware, still applies—even in ham radio. And you generally get what you pay for.

As you gain experience in Amateur Radio, the process of choosing a radio will become less mysterious—but no less intense. New models are introduced every year, and

their features are hotly debated, on the air and off. Because of this, most hams will trade their gear in several times throughout the course of their ham radio career. You probably will too.

Buying A Used Rig

The following rigs are readily available on the used market. They are inexpensive and can be expected to perform well on today's crowded ham bands, although they may lack some features (and WARC bands) found on modern radios. The list is far from comprehensive, so I may not have included your favorite. The listings are in alphabetical order by manufacturer.

ICOM: IC-701, IC-720, IC-730, IC-735, IC-740 and IC-745. These rigs range in price from about \$300 for the '701 to about \$600 for the '745. They have many built-in features and are all solid state.

Kenwood: Models with tube finals: TS-520, TS-530, TS-820 and TS-830. All-solid-state models: TS-120, TS-130, TS-180, TS-430. These radios are extremely plentiful and range in price from about \$300 for the '520 to about \$600 for the '830 and '430. If you come across a Kenwood rig with a “V” added to the model designator, it means the unit is the low-power version and puts out only about 10 to 15 watts.

Ten-Tec: 540, 544, Argosy, Argonaut (QRP, 5 watts output), Omni series, Century 21 and Century 22. Ten-Tec radios are made in the US and are all solid state. Ten-Tec rigs are noted for their smooth, full-break-in keying. The Century 21 and 22 models are code-only radios; the '21 has a direct-conversion receiver. Prices range from about \$100 for the Century 21 to \$500 for Omni series rigs.

Yaesu: Models with tube finals: FT-101 series. All-solid-state models: FT-102, FT-107, FT-301, FT-707, FT-901DM, FT-980. Prices range from about \$350 for the older FT-101 series radios to about \$550 for the '901, '980 and '107.

Miscellaneous: There are many older rigs, mostly tube-type, that offer good performance—if they're in excellent condition and you're willing to sacrifice some operating flexibility. These rigs include: Drake TR-3 and TR-4 transceivers, Drake T-4/R-4 transmitter/receiver separates, and Heathkit's HW and SB series transceivers and separates, among others.

Good luck and good shopping. Keep your photos and letters coming to me at ARRL, Department PCN, 225 Main Street, Newington, CT 06111. See you next month.

SCANNING VHF/UHF

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

While most of us are stuck at home watching snow fall and tuning in snowplowing operations, others of us are keeping quite warm listening to burgeoning amusement park activity where northerners flee the cold for warmth. Meanwhile, I'll dip into the mailbag once again and see who's checking in this month.

From Lake Oswego, Oregon, Chris Black writes in to say that he recently moved to the area of Portland, Oregon, and Vancouver, Washington. He's interested in forming a shortwave and scanner group in his area and says that interested monitoring enthusiasts can call him at (503) 697-3076.

Gary Hibberd of Kearn, Nebraska, checks in to say that he recently bought a mobile scanner and wanted to install a window mount antenna for the radio. While I haven't heard of any on-glass antennas for scanners, that's not to say that it can't be done. If your primary listening interests are say VHF high band, or UHF, you can certainly buy an amateur radio version of an on-glass antenna and trim it slightly for the portion of the band you like to listen to. It will work OK on other bands, but certainly not as well as a multiband scanner antenna. In fact, if concealing the fact that you have a mobile scanner is of any concern, you might even want to try using a disguise cellular antenna that would work on other bands. Several manufacturers are making amateur and commercial antennas these days that look like cellular antennas, but are designed to work on VHF and UHF frequencies. If your local radio stores don't understand what you're looking for, try the ham stores, especially those that advertise in the ham magazines, for on-glass monoband antennas.

Dr. Paul A. Pangallo of Indianapolis, Indiana, says he made the cellular modification to his Realistic PRO-2004 scanner and that he can monitor the 870-890 MHz band, but not the 825-845 MHz band. He wonders what might be wrong. First of all, if you are able to program in the 825-845 MHz band, I doubt you did anything wrong. However, if you can't program in this band, you've got me baffled. Going on the first assumption, there shouldn't be any need to monitor the 825-845 MHz portion of the cellular band because these are the mobile input frequencies. Even if it were legal to do so and you could tune in these channels, you'd only be hearing one side of the conversation. The 870-890 MHz part of the band is where you'll hear both sides of the conversation (mindful of the Electronic Communications Privacy Act of 1986, of course). In addition, one other thing should be kept in mind if you do try to monitor the



This is the listening post of Anthony A. Mirra of Roslindale, Massachusetts. Anthony is a ham, K1ZJV, as well as a registered monitor, KMA1EA. His scanners include a Realistic PRO-2004 and a Bearcat 100.

mobile input side of the conversation: Cellular phones run very low power output. Full-power car phones run only a whopping 3 watts output, while handheld cellular phones run only 600 milliwatts, or six-tenths of a watt. Unless you are very close to a cellular user, it's doubtful that you'll hear the car phone input side.

However, there is a trick that many in the news media use to help track down a cellular user at the scene of a news story. If one were to tune across the output frequencies in the 870-890 MHz band, they'd most likely come across dozens of conversations. However, by tuning across the mobile input frequencies in the 825-845 MHz portion, one would have a better chance of trying to locate a single user because the power output of the car phone is much less than the cellular tower's transmitter. There may be only one or two conversations that might be heard on the input frequencies, too, which makes it easier to locate an on-scene user. While only one side of the conversation would be heard, that's all that might be

needed to get the information for a breaking news story. I hope that answers your question, Paul.

Dean Barucci of Meriden, Connecticut, says the police department in his town was scheduled to move from 45.18 to an 800-MHz frequency a few months ago. He was unable to find out the frequency and wants to know if any Scanning VHF-UHF readers know of the new channel. If so, write to me and I'll let all POP'COMM readers know the new channel. If I were to hazard a guess, I'd say check in the range of 851-856 MHz for the new channel. In the meantime, stay tuned for an update on this new frequency. Dean, meanwhile, says that he enjoys reading POP'COMM each month and looks forward to the Scanning VHF-UHF column. His current equipment includes a Uniden Bearcat 800XLT, a Bearcat 100 XL for monitoring local frequencies and when not home, a Bearcat 4-6 Thinscan used for local frequencies and a Realistic PRO-2021 to monitor aircraft and major cities in Connecticut. Thanks for checking in with us, Dean.

U.S. Space Command

In 1977, President Carter established a permanent National Security Council Space Review Committee. As a result of their initial findings, President Carter issued Presidential Directive 37, outlining the nation's military goals in space. By the early 1980's, each branch of the service had established its own Space Command. Each pursued space related research and operational programs for their respective branches. In 1983, the Joint Chiefs-of-Staff proposed a single centralized military space command to eliminate duplication and insure inter-operability between the services and their various satellite systems. The Air Force, Navy and Army Space Commands were re-organized as the U.S. Space Command in 1985.

This new organization coordinates our military space operations in support of the joint American/Canadian organization, NORAD (North American Aerospace Defense Command). To further centralize and coordinate NORAD and the U.S. Space Command's mission, it was decided that both organizations would be headed by one Commander-in-Chief. General John L. Piotrowski, USAF, currently holds this position and is responsible for our overall military space program. Both NORAD and U.S. Space Command are headquartered at Cheyenne Mountain Air Station in Colorado. The Space Commands administrative headquarters are at Peterson AFB Colorado.

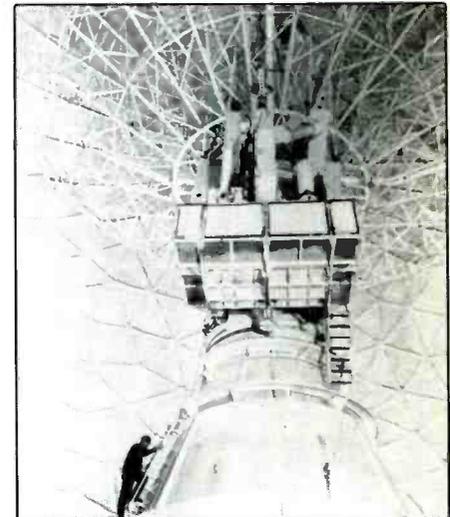
The Space Commands Space Surveillance Center is located deep inside Cheyenne Mountain. Its mission responsibilities



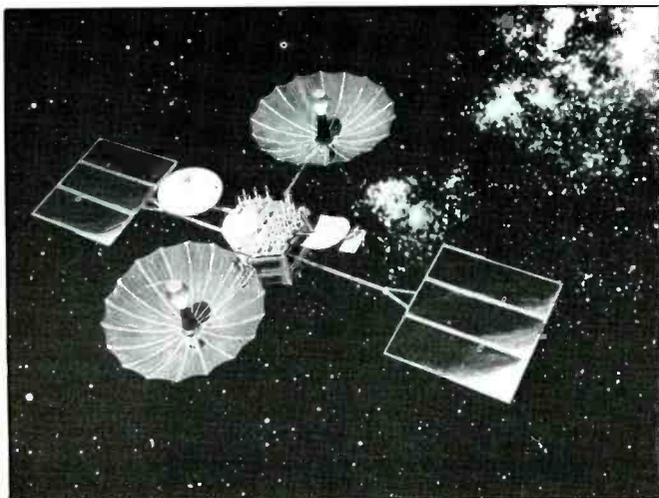
fall into three areas: Space Operation; Surveillance and Warning; Ballistic Missile Defense. Space Operations provide satellites, communications systems and control facilities to ensure National Command Authority (NCA) communications. In other words, Presidential, and or the Joint Chiefs-of State control our nuclear and space assets. Surveillance and Warning operations include tracking, identifying and projecting the orbits, and risks to the U.S. by foreign launched spacecraft. The Ballistic Missile Defense systems include conventional and over-the-horizon radar (BMEWS and Pave Paws sites), missile, ASAT and other SDI related defense systems.



Beale AFB, CA, Pave Paws (U.S. SPACECOM).



Clear, AL, inside BMEWS Dome (U.S. SPACECOM).



A full deployed TDRS measures 42 by 57 feet. (NASA Photo).



U.S. SPACECOM missile warning center.



U.S. SPACECOM Space Surveillance Center.

A DSCS-II and a DSCS-III are launched aboard a Titan 34D/IVS.

Space Operations are divided into two areas: Satellite Support and Terrestrial Support. Satellite Support includes the launch, orbit and maintenance of spacecraft. This includes routine command communications with each of our orbiting satellites to insure the spacecraft maintains its proper orbit and altitude. Each spacecraft require telemetry, ranging, tracking and control communications with ground stations to keep them operating. The Space Command operates a worldwide network of ground stations to support our space systems. The space operations group predicts over 60,000 orbits each day and tracks over 7,000 objects in

space. Each of our satellites require a minimum of 5 contacts with ground stations during the course of each day. Terrestrial support comes from other ground facilities which includes telescopes, cameras, and radar, as well as automated data relay links.

Each of the three space commands which make up the U.S. Space Command, make a unique contribution to our overall space operation. For example, the Navy has operated the Naval Space Surveillance System (NAVSPASUR) since 1961. NAVSPASUR is in charge of Space Watch: detecting, identifying and tracking satellites and missiles. This is accomplished in part by an elec-

tronic fence. This fence is 3,000 miles long and extends 1,000 miles off both the east and west coast of the U.S. This system is provided by three (3) transmitters which emit a radar signal which extends 15,000 miles, straight up. The transmitters are located at Gila River, AZ, Lake Kickapoo, TX, Jordon Lake, AL. The signal spreads out like a fan. Six (6) receivers listen for signals which will only appear when the transmitted signal bounces off a spacecraft which has crossed this narrow electronic fence. The receiving stations are located at San Diego, CA, Elephant Butte, NM, Silver Lake, MS, Red River, AR, Tatnall, GA and Hawkinsville, GA. When an object is spotted, the data is transmitted to NAVSPASUR headquarters at Dahlgren, VA, which in turn relays the data to the U.S. Space Commands Satellite Surveillance Center at Cheyenne Mountain, CO. NAVSPASUR HQ also serves as an alternative satellites control facility, should our main control station at Sunnyvale, CA be disabled.

The Navy also operates two over-the-horizon radar (OTHR) sites in the Alutian Islands and three on Guam. These systems can track in excess of 1,000 miles beyond the horizon.

The Navy is responsible for several satellite systems, including: Transit, Nova and Navstar. Each of these navigation satellite systems was developed to enable our fleet of nuclear submarines, bombers and missiles to accurately aim at targets. The older Transit and Nova systems are used by commercial shipping and airlines. Navstar is the name of the new satellite system being de-

Military Satellites

Satellite	Frequency	Altitude	Inclination	Orbit	Location	Type
FltSatCom	240 - 400 MHz 20/45 GHz	22,300 mi.		geo	23/75/93°W 100°W/172°E	communications
LeaSat	240 - 317 MHz	22,300 mi.		geo		communications
Marisat	248 - 312	"		"	15/73/176°W	"
DSCS II	225 - 265 MHz 7.4/8.4 GHz	"		"	60/67/140/175°W	"
DCSC III	225 - 265 MHz 7.2/7.7 GHz 36 GHz crosslink	"		"	13/132/138°W	"
NATO III	"	"		"	18/22 & 50°W	"
SKYNET 4	265 - 315 MHz 7/8 & 43/45 GHz	"		"	"	"
TDRS	2.1 - 2.3 GHz 20/36/45 GHz	"		"	41/70/171°W	"
NAVSTAR	1.22/1.57 GHz	12,500 mi.	63°	high		Navigation
NOVA	150/400 MHz	750 mi.	89.9 - 90.3°	Po.ar		Navigation
OSCAR	"	"	"	"		"

veloped by the military. Also known as the Global Positioning Satellites (GPS), the Navstar can provide 8 to 10 hours of continuous two dimensional positioning information and up to five hours of three dimensional information per satellite. An entire fleet of experimental satellites have been in orbit for several years. The first two operational Navstars were launched in February and June of 1989. Eighteen of these satellites are to be launched in all. Each spacecraft will transmit navigational signals on 1.23 and 1.58 GHz using Spread Spectrum techniques. To determine your location, the user simply samples signals from at least three satellites simultaneously. These signals arrive at slightly different times allowing you to determine your location quite accurately.

The Navy is rapidly developing a new satellite system called Spinsat, better known as microsat. The first three experimental satellites of this type will soon be launched on a Scout rocket. The Scout is our smallest

launch vehicle. A single Scout will be able to launch all three spacecraft due to their small size. In addition to scaling down our satellites to make use of launch vehicles we already have in operation, DARPA (Defense Advanced Research Programs Agency) is working on a new method of launching small to medium size satellites. The vehicle is called Pegasus. It is a 45-foot long missile which is carried aloft by a B-52. Its first stage has wings for control in the upper atmosphere. The first test flight took place October 1989. It carried a DARPA data relay microsat.

The Navy's communications satellites are known as Fltsatcom (Fleet Satellite Communications). A geo-stationary network of four satellites can provide world-wide communications for the fleet, NCA and other specialized government communications requirements. These spacecraft even carry Afsat transponders for the Air Force. Several sets of Fltsats and spare satellites have been launched since they were first put into

BMEWS SITES
 Fylingdales Moor, UK
 Thule, Greenland
 Clear, AL
 Hawaii
 Turkey
 Ascension Islands
 Antigua
 Phased Array Radar Sites
 Cape Cod, Mass
 Beale, AFB, CA
 Eldorado Air Station, TX

NAVSPASUR SITES
 3 Transmitter locations:
 Gila River, AZ
 Lake Kickapoo, TX
 Jordan Lake, GA
 6 Receiver locations:
 San Diego, CA
 Elephant Butte, NM
 Silver Lake, MS
 Red River, AR
 Tatnall, GA
 Hawkinsville, GA

operation in 1978. They operate on the UHF frequency bands between 240 and 400 MHz. They also carry experimental transponders which use EHF (20 and 44 GHz). This will lay the groundwork for the next generation of military communications satellites known as Milstar.

A second satellite system known as Leasat is a leased network of UHF satellites which carry 13 transponders (unlike the 23 transponders carried by Fltsat). The first was launched in 1984 from the shuttle. Though each branch of the military has satellite systems they consider their own, in practice, most of the satellites are used by all branches of the service. The CIA, NSA and military intelligence operations have also been known to use a wide range of satellites, including commercial satellites systems.

The Army is responsible for providing ground terminals and personnel to operate the stations in the Defense Satellite Communications System (DSCS) II & III satellite systems. This system is geo-stationary and requires a large antenna and powerful ground stations for access. Mobile units are mounted on trucks and trailers. Along with the standard ground stations spread around the world, several mobile control stations, which would be able to take over most of the preparations of critical U.S. and NATO satellite systems, are moved regularly and hidden throughout Europe.

In addition, the army will soon take over operation and supply ground terminals for the GPS system. The Kuajalein Atoll in the South Pacific, part of the Marshall Islands, is the location of an Army space surveillance radar.

We will conclude our tour of the U.S. Space Command next month. See you then.

PC




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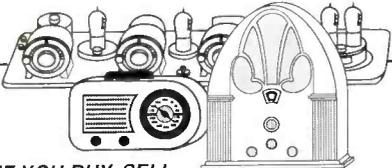
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WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Frequency Coordination In Private Land Mobile Radio Services

The Commission proposed modifying its rules governing frequency coordination in the Private Land Mobile Radio Services. Two proposals were put forth which would allow applicants to file applications directly with the FCC rather than using one of the certified frequency coordinators.

While the Commission is pleased with the current frequency coordination procedures from a processing standpoint, it remains concerned that oversight of the process effectively serve the public interest. The Commission has tentatively concluded, in this regard, that authorizing competitive regulations on the certified coordinators' rates and terms and conditions of service. Although the Commission anticipates that most applicants will continue to use the certified coordinators, the availability of alternatives should serve to allay concerns over the existing procedures.

The alternatives would allow an applicant to file an application directly with the FCC rather than through a frequency coordinator. Thus, a direct access applicant could select a frequency through monitoring, or through a database search to identify all co-channel licensees within 75 miles of the proposed transmitter location.

The Commission believes that the public interest would be served by initially authorizing direct access applications as a two year pilot program. This approach would allow the Commission to evaluate the success of this procedure and to assess its impact on FCC resources and procedures before committing to it permanently.

Illegal Video Transmitters Seized

Representatives from the FCC's Philadelphia office and U.S. Marshals Service executed a search warrant against IMPACT 2000, a company located at 895C Towbin Avenue, Lakewood, New Jersey. Over 700 pieces of an electronics device called the VIDEO WAVE were seized. The value of the seized goods is over \$40,000.

The seized items were manufactured in the Far East and imported into the United States for illegal sale. The VIDEO WAVE connects to a video recorder or other similar device and retransmits a television signal over a limited area. This permits viewing by multiple television without connecting wire hookups. These devices do not, however, have the Commission's required approval which would permit their marketing in the

United States. In addition, they are potential source of interference to authorized television signals, essential radio services, and home electronic entertainment equipment.

IMPACT 2000 had paid a \$2000 fine issued by the Commission in 1988, but continued to market the illegal equipment. The marketing or importation of such devices violates Section 302 of the Communications Act. Maximum penalties include fines of up to \$200,000 and imprisonment for a term not exceeding one year.

Denied Reconsideration of 17 Meter Band Decision

The Commission denied Dennis Murphy reconsideration of its action authorizing access to the 17 meter band to all General, Advanced and Amateur Extra Class operator licensees.

Murphy requested reconsideration of the FCC's action to allow access to the 17 meter band by Novice and Technician Class operators. Murphy argued that all amateur operator classes should have equal access to the band.

The FCC noted that it decided to exclude Novice and Technician Class operators from the band because they had recently received enhanced privileges and because of the band's small size. The FCC reiterated its belief that the potential for interference in the 17 meter band would be minimized if the skills associated with the General Class or higher operator license are required.

Alternative Uses of DBS Frequencies from Western Orbit Locations Proposed

The Commission proposed a number of alternatives for using Direct Broadcast Satellite (DBS) frequencies from western orbital locations. This action was necessary as a result of the Commission's authorization of full-CONUS (entire Continental United States) signals from those eastern orbital locations from which such service is capable of being provided, also adopted today in a companion item.

Because full-CONUS operations could render DBS service from assigned western orbital locations unnecessary, the Commission proposed authorizing DBS operators to use this capacity to provide other types of service. The additional uses would be authorized only in the event that full-CONUS signals already provide the same number of channels of national DBS service that would be provided in the absence of any such additional use. If valuable alternative uses of the western orbital locations are found to be



practical, authorization of such additional uses will provide the incentive for DBS operations to achieve a more intensive use of the orbit/spectrum resource, the benefits of which would flow directly to the public.

The Commission tentatively concluded that the public interest would be served by authorizing this expended use to existing DBS permittees and licensees with no provision for consideration of competing applications. Therefore, the Commission is proposing not to accept applications from new parties for the provision of service from the western DBS orbital locations. The Commission believes that this would best serve the public interest and that it is well within its authority to adopt these eligibility requirements. Moreover, granting such authority to existing operators would increase the likelihood that western DBS orbital locations would be used for their most productive purpose. In addition, permitting a DBS licensee to retain its western allocation despite full-CONUS signals would appropriately reward those entities whose endeavors have made the additional service possible. Granting such authority may further investor interest and enhance support for the DBS service, the Commission said. Comments are invited on these matters, as well as on licensing or other regulations and procedures that should be adopted to separately govern use of the western DBS orbital locations, if appropriate.

In making this proposal, however, the Commission expressed concern as to whether its actions could result in a meaningful reduction in service to Alaska and Hawaii. It therefore is requesting comment on the potential effect on DBS service to these two states of both its action allowing full-CONUS service and its proposal to permit alternative services from western orbital locations. **PC**

COMMUNICATIONS CONFIDENTIAL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Reporting on the US Navy scene, Andy Gordon, CT furnished some tips for recognizing the identity of various ports when ships call in with requests for port entry:

- Buoy 2 Charlie Charleston, SC
- Buoys 3 & 4 Cape Canaveral, FL
- Elizabeth River Buoy 3 Norfolk, VA
- Bretton Reef Light Newport, RI

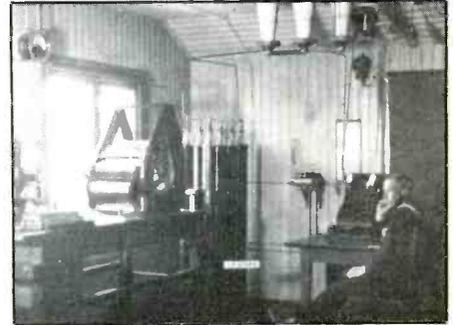
New MARS callsign NNNOCBT has been assigned to USNS Joshua Humphries T-AO-188, an MSC Oiler.

Andy described a mixup which took place on 2716 kHz when the USS Halyburton FFG-40 (NOH) called Canaveral Port Control but due to terrible propagation Norfolk Tug Control thought they were being called and responded to the Halyburton. The ship gave Norfolk Tug Control their ETA at "Buoy 3" as 0720 local and requested permission to enter port (meaning Port Canaveral). Norfolk assumed the ship was referring to ERB-3 (Elizabeth River Buoy 3). Canaveral finally cleared things up and responded to the Halyburton.

From England we heard from Simon Mason who offered a clarification of an item in the July 1989 loggings. George Osier, NY had asked about an unidentified station utilizing an unknown language on 3255 kHz. "This station has been reported quite a few times on various frequencies. My schedule shows it transmits every day at various times between 1600 and 0600 UTC on 2805/3225/4030/4883/5445 kHz and only once at 2200 on 7740 kHz. It has been reported as either Polish or Russian. The figure George heard was the number 1 which is 'Odná' in Russian or 'Jedno' in Polish. The YL operator pronounces it as 'Yoodina' which is similar to the 'Yibbidah' heard by George."

Our distinguished RTTY Editor, Bob Margolis, IL sent in some interesting details on an USB activity heard on 16120 kHz at 1330. A YL operator was heard with 5 L groups in phonetics but the phonetics were not the usually heard international ones. Instead, some of them were: Charlie, Dennis, Edward, Ivan, Jordan, King, Louis, Mary, Norman, Oscar, Robert, Susan, Thomas, Union, Victor, Whiskey, and Yankee. The message was completed at 1343 and "Robert Ivan, Robert Ivan" was sent. Back on at 1345 repeating the callup "2 Thomas Charlie" until 1348 then "Yankee Robert" (3x) plus a muffled name and then "Robert Charlie 2" (3x) plus a muffled name and then "Robert Charlie 2" (3x) and into another 5L message until 1400 at which time the signoff of "Robert Ivan" was sent. At 1401 on again with "Mary Susan Ivan" repeated numerous times as before and the

PFC returned to Patrick O'Connor, NH.



PFC returned to Steve McDonald, BC. Canada from the ship Iver Swan.



Here are "Then" and "Now" views of coast-station SAG. Pictures provided by Walter Treftz, FL.



Queen Elizabeth II.

An oldie (1975) from the collection of Vincent Reh, NY.

"Robert Ivan" signoff at 1415. Back on again at 1417 with "Mary Susan Ivan" as at 1401. At this point Bob said he had to QS4 to search out RTTY stations. Thanks Bob for the rundown on this interesting unidentified link.

Michael Willmer, MI wrote "I read with interest Dave Torres observations of a possible trunked system for the anti-smuggler frequencies in the June issue. I also have wondered what their purpose was. Here is what I have observed of these 'Burst' signals. While I have been able to follow these bursts from frequency to frequency, I have not noticed any communications moving in such manner. In fact, I have often monitored operations for a few hours that remained on

the same frequency even though a number of burst signals occurred during this time. Then there are the times when the burst signals would step all over the radio operators causing interference to the communications. At times, the bursts seem to be absent, and at other times two or three bursts will occur in a row often stepping on each other. I have also noticed the burst signals on frequencies unrelated to anti-smuggler operations such as 13630 kHz. 11288 kHz is still very active. A new anti-smuggler frequency may be 11408 kHz. I heard the callsign 'Panther' mentioned but noise prevented me from hearing much else."

First time contributor, Bryan Smith, PA said he has been SWL'ing and scanning for

M/T "IVER SWAN"/LAFK2
Port: Algeciras, Spain
15th November 1988

TO : HAM RADIO OPERATOR, VE7SL
ATTN : J.S. McDONALD

CANADA - V3B 4X8.

DEAR SIR:

SUBJECT: Re: "IVER SWAN" Communications w/Land Station.

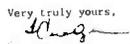
This to acknowledge receipt of your letter of the 26th February, in connection with the above subject matter.

IVER SWAN was in communications with Land Station WLO located in Mobile, Alabama dated January 26, 1988 at 0253UTC calling station WLO 8363.6kHz at fixed Satellite position 24°00'North 112°19.4'West. Course 143 degrees using type of apparatus IIT MARINE RADIO TRANSMITTER MODEL ST140DA, main aerials antenna system long wire "L" type about 26 metres height above deepest load water line.

Furthermore, Ship's CallSign ELCP2 were nulled and now using new call-sign LAFK2, flying Norwegian flag.

Moreover, I have enclosed herewith a return "prepared reply card" filled in necessary information as per your request and some additional information regarding the vessel "IVER SWAN".

Trusting that the unmentioned matters are in proper order, meanwhile, My best and cordial regards.

Very truly yours,

ANTONIO T. GOLLAYAN
RADIO OFFICER



QUEEN ELIZABETH 2

R.C. Watts Esq.,

KY 402203016

1st July 1989

Dear Sir,

Thankyou for your DX report of Q&Z working WOM on 16MHz on June 25th. This has been passed to me by the Chief Radio Officer to deal with because I was the Officer on the patch and am also a U.K. Radio Amateur (G4EQA).

As you are probably aware, we work all of the following bands for ship to shore Radio Telephone calls these being chosen for the propagation conditions prevailing at the time: 4, 8, 16, and 22MHz.

Increasingly, we are placing R/T traffic on satellite links which are not interceptable by d-xers like yourself. They have the advantage of direct dial into the international telephone network but the disadvantage of a cost of fifteen dollars per minute.

The transmitter I was using at the time you heard us was an IPT 'Senator' with an output power of approx 700Watts. This is quite adequate although when conditions are very poor we can bring on line for R/T our main W/T transmitter which has an output power of 1.5kw.

The aerials Q&Z is fitted with are all long wire. There are no directional beams - other than the satellite dishes. This generally surprises d-xers/hams but with adequate matching you cannot beat a long wire for all band use (especially in bad weather).

When Steve McDonald, BC, Canada received his returned PFC, he also received this informative letter from the ship.

Radio Officer, Tim Strickland, of the Queen Elizabeth 2, sent this letter plus a postcard photo of the ship to R.C. Watts, KY for his QSL.

4 years. For his HF monitoring he uses a Radio Shack DX440 and several external longwires.

Richard McLaughlin, MI indicated he is interested in the USAF GWEN system. "I am just getting into HF monitoring (using a TS440S), but I have been very active in VHF/UHF and Public Safety monitoring for many years."

New reader Fred Snyder, NY enjoys monitoring aircraft communications on HF and also in the AM Air band. "At the moment I am using a Bearcat BC300 to monitor the tower from JFK, LaGuardia and White Plains and a Sony ICF-2010 for the HF transmissions. As antenna for the Bearcat, I have constructed a 3-element Yagi centered at about 120 Mhz. Although I can hear all of the aircraft sides of the VHF transmissions, it is impossible to receive the tower sides of any airport but the very close one at White Plains."

Chris Campbell, WA described himself as a long time SWL and MW DX'er who has just recently discovered utility monitoring. "My receivers are a Yaesu FRG-7 and a Realistic DX440 (Sangean AT 803A). My antennas are a 65 foot outdoor longwire and an indoor 16 foot dipole. I've sort of become a SAC freak, albeit a neophyte one. It's a fascinating guessing game. Listening to USAF GCCS channels is interesting too.

"SAC seems to be changing their channel designators. I've heard some new designators along with the old ones. 6761 kHz is

'Sierra 391' as well as 'Quebec.' I've noticed their Primary Air to Ground channels are no longer ID'd as 'Sierra' channels: 11243 is 'Sierra 393', 13241 is 'Sierra 394' and 17975 is 'Sierra 395.' I'd guess 9027 kHz is 'Sierra 392' but I haven't heard it called that yet.

I've heard mentions of other channel designators like Whiskey 101, Whiskey 109, Papa 381, Xray 902 and Xray 903. I have not as yet been able to match up frequencies with these channel designators."

Thanks to all who have written. And now let's take a look at the monitoring items for this month.

200: Beacon UAB, Anaheim Lake, BC, Canada at 0932. (Campbell, WA)

335: Beacon YXO, Carmi, BC, Canada at 1010. (Campbell, WA)

359: Beacon BO, Boise, ID at 1044. (Campbell, WA)

2094: XCG and KFF, both unid, w/radar tracking ops in USB mode at 0411. (Sabo, CA)

2182: VAF, Alert Bay, NWT, Canada CG at 0440 w/unanswered calls to vessel VG2914, the Friday Princess; USCG North Bend, OR at 0615 w/advisory of flare sighting. All in USB. (Sabo, CA)

2670: Marine information bcsts: NMC, USCG CAMSPAC San Francisco from 0206-0211 and 0436-0442; NMQ, USCG Long Beach, CA Group from 0505-0508; NMW, USCG Astoria, OR Group at 0536; USCG North Bend, OR Group from 0608-0611; USCG Port Angeles, WA Group from 0616-0620; and NOJ, USCG Kodiak COMMSTA from 0705-0706. All USB mode. (Sabo, CA)

2714: NTLW, USS O'Bannon DD-987 (off frequency) asking for "radio check, any station this net." at 1005. No joy; NDQV, USS Spruance DD-963 off freq

clg any stn this net at 0940. All above should have been on 2716 kHz. (Gordon, CT)

2716: HMCS Huron DDH-281 wkg Esquimalt Control at 0850. Huron gave ETA into port; HMCS Forte Steele PB-140 wkg QHM Halifax re rendezvous w/Canadian Naval Reserve Tender HMCS Rapid; NRGB, USS Robert G. Bradley FFG-49 wkg Charleston Navy Tug Control w/ETA at Buoy 2-Charlie; USN Research Vessel Deer Island YAG-62 wkg Autec Operations at 0040; NPGU, USS Gemini PHM-6 making "Short Count" tests at 0900. (This Pegasus class missile Hydrofoil was on its way to Newport, RI for port visit); NTOR, USS Henry L. Stimson SSBN-655 using callsign Xray-0-Romeo clg Papa-O-Yankee (Canaveral Control) at 0930. (Gordon, CT)

3130: 6DI clg A3S, both unid, in USB mode at 0710. This channel used by USN FACS FAC Jacksonville. (Sabo, CA)

3445: YL/SS rptng 984, 8992 (?) - QRM, at 0230 to 0306 in LSB. (Smith, PA)

3485: OM/EE opr wk/wx in LSB for Bermuda, Miami areas at 0253. (Smith, PA)

3659: 5F CW stn between 2000-2040. Msgs ended w/QRU AR and began w/3F x2 and GR#. In between had VVV VVV de P8K. Ended w/AR AR. (Mason, England)

3910: YL/EE in AM at 1942 w/5F grps. (Charret, FRG)

4028: YL/SS in AM w/6 digit callup, preceded by Atencion, then 5F text starting at 0603. (Fernandez, MA)

4067.4: NAET, USS Holland AS-32 (off WOM ship calling freq #403) at 0055 clg WOM. Because the Holland was off freq, WOM didn't respond. (Gordon, CT)

4093: OM/EE at 0306 in USB apparently on board a boat as talking about "All are full or 3/4 full and were taking on water and the pumps are broken." Some talk of oil. (Smith, PA)

4420: KNG, Seattle, WA wkg several ships in USB at 1002, 1222. Ships included the Bachelor Creek, Ocean Clipper, Mercer Street, Georgia Strait, and Freecloud. Ships were giving positions, itinerary, speed, engine RPM's, etc. (Campbell, WA)

4373: OM/EE, unid, QSO re switching freqs, then said go to "Robin" at 0317 in LSB. One opr wanted ex-

Abbreviations Used For Intercepts

AM	Amplitude Modulation mode
BC	Broadcast
CW	Morse Code mode
EE	English
GG	German
ID	Identifier/led/location
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)

act freq. it was poss 6144 kHz, then said Foxtrot 6 Whiskey Oscar Xray Kilo, then Charlie M-5 (Smith, PA)

4746: CUW, USAF at Lajes Field, Azores, wkg MAC 50231 w/pp in USB at 0554. (Sabo, CA)

4780: Unid CW stn sending encrypted msgs in what appeared to be 3L grps, rptd ten times, with at least three msgs during the hour I listened, from 0831 to 0904. FEMA? (Campbell, WA)

4900: Unid CW stn sending EEE, 9CX, TET, TET, ETT, ET9, CTE, TQT, EQT, E9T, TEE, E at 2245. (Parish, PA) Ed. Note: In the absence of info re how this was copied. I suspect this is another example of hand sent Morse code copied with an electronic device.

5088: YL/GG in AM at 2106 clg 484 and 1-0 count. (Charret, FRG)

5178: Unid CW stn w/NNN at 1900-05, then YL/FF w/Group 23 x2 then into 5F grps. This is repeat of two days earlier on same freq. Has Tue/Thu schedule. (Mason, England)

5182: YL/GG in AM at 2308 with 3/2F text. (Fernandez, MA)

5228: YL/GG in AM at 1902 w/callup 824 and 1-0 count. (Charret, FRG)

5316: YL/GG ub AN at 2104 wk/3-2F grps. (Charret, FRG)

5320: USCGC Slavia WLB-400 in contact with COMSTAS New Orleans. Went to 7574 kHz w/RTTY tlc. Group Point Arena WPB-82347 in clear and scrambled comms w/unknown stn at 0200. (Willmer, MI)

5340: Music box with 'Swedish Rhapsody' every Sat at 2000. At 5 past hour, msgs for 3 addres. On this occasion 68793, 40583, 80689. After rptng these for one min, soft-voiced YI/GG went into 5F grps. (Mason, England)

5413: YL/EE in SSB at 1912 clg 550 and 1-0 count. (Charret, FRG)

5440: YL/GG in AM at 1806 clg 669 and 1-0 count. (Charret, FRG)

5571: Hammer in USB at 0116 in comms w/17 (unid) re loss of radar contact in area containing ranch and many landing strips. (Willmer, MI)

5574: Pawn 25 wkg San Francisco in USB w/position report over N. California at 0253. Gave their destination as Castle AFB. At 0356 Pawn 25 asked for a left turn at the end of the track at AR5, a refuelling track off Ft. Bragg. My guess is that it is a tanker. Castle is a SAC base, and at 0400 they were heading back inland. (Campbell, WA)

5688: Presscar to Macdill in USB at 0133 sending encrypted data. (Symington, OH)

5696: CG rescue 1475, 1485 and 1481 in USB at 2300 in contact w/Cape Cod air during clean-up of oil spill by Greek Tanker World Prodigy off of Newport, RI. 1475 to get as many pictures as possible of vessel. 1481 was dropping off clean-up equipment. Talk of contacting FAA re setting up new tower to handle all the news helicopter tlc. (Willmer, MI)

6518: VCS, halifax CG w/marine info bcst from 0208-0211, foll by VAI, Vancouver, w/same from 0214-0223: SIU at 0536 w/patch to Miami Ops via Commsta Miami re unid flare sighting; and USCGC Firebush at 0601 wkg Commsta Kodiak. All USB. (Sabo, CA)

6756: SAM 1683 enroute Howard AFB in USB at 1856 w/Gen Woerner head of US Southern Command

aboard in p/p w/Adm. Ustic, Chief of State, Commander-in-Chief, US Southern Command re Honduran military construction. (Willmer, MI)

6761: Yard Bird via Bass Boat in USB at 0010 re transmission of Flash precedence msg of 5-3L grps. (Willmer, MI)

7457: AGA6TR, Travis AFB, CA and others. USAF MARS net in USB at 2340. (Sabo, CA)

7535: Equipment testing noted with Norfolk SESEF by foll ships: NKIA, USS Moinester FF-1097 at 1830; NHOV, USS Saipan LHA-2 at 1830; NGTA, USS Farragut DDG-37 at 1835; NSBJ, USS Ponce LPD-15 at 1750; NOGB, USS Mount Whitney LCC-20. Vessel was testing for hours because of large amount of equipment on board. Hrd at 1840 NXXG, USS Iwo Jima LPH-2 broke in and requested schedule for foll day at 0700 local. SESEF agreed. COMSPRON-1 wkg Norfolk SESEF at 1830 for radio checks "in the green." COMSPRON-1 is Commander Maritime Prepositioning Ship Squadron; After SESEF relinquished the net, Sierra-7 Whiskey was wkg Bony passing tlc from 2 stns believed to be US Navy Aircraft. Herc 14 and Eagle 14. 7 Whiskey, as he eventually called himself, was giving Range Briefs for the "Hot Ranges." another ship Papa-5-Lima also helped but suggested they go to a "Tac freq." NOTE: On another day prior to SESEF coming up on the circuit, I noted Atlas wkg Warhead at 1045. (Gordon, CT) This latter activity is DEA. (Ed.)

7655: Thunder One, unid plane wkg unid stn giving report on thunderstorm conditions over central eastern Colorado. Gave location as Limon, CO and mentioned a radar report. All in USB at 0658. At 0702, plane reported they were 2 mi. N of Lima Alpha Alpha, & mentioned FUB, AUB, or PUB phonetically. Poss VOR's in Colorado, LAA is the Lamar VOR, PUB is Pueblo. Seems to be some sort of wx plane. Freq is listed for Rockwell-Collins. (Campbell, WA)

7700: Stns 202 and 204 in phone patch in USB at 0019. Talk of Blue Jay baseball and Elliot Lake (poss Manitoba province, Canada). (Willmer, MI) Prob Canadian Forces Freq. (Ed.)

7905.5: SLHFB "K" in CW, sent every 5 secs. Hrd at 2355. (Fernandez, MA)

8132: Two OM/EE in USB at 0001 w/QSO re injury to one of men. Another OM/EE clg Tony w/2 and 3 short whistles, foll by comments about "red-eyed frogs." (Fernandez, MA)

8247.7: USS Bagley FF-1069 w/unanswered calls to San Diego Command Switchboard 2 in USB between 0130-0138. Moved up here after equally unsuccessful calls on 4066.1 kHz. (Sabo, CA)

8293: YL/EE ID'ing as Naval Submarine Base w/rptd calls to TWR771 in USB at 0303. No answer, was still clg at 0323. (Sabo, CA)

8718.9: NNAS, USCGC Escanaba, WMEC-907 at 2100 making several p/p through ComSta Portsmouth to Norfolk Rescue. They were searching for capsized vessel which located by one of Escanaba's Helos. No evidence of survivors in the water. Escanaba would not reach scene for 4 more hours. Norfolk Rescue reported they had dispatched a USN P3 Orion a/c, tail # WD887 which would ETA scene in 35 mins. Also, a C-130 a/c made a fly-by and dropped dye markers and strobe to show position of wreck. (Gordon, CT)

8760: CG New Orleans wkg ship Wadi Alfa, call SUCE in USB at 1108. Wadi Alfa reqstng pilot for SW passage Mississippi River, notifying of arrival time. Couldn't hear ship. (Campbell, WA)

8855: Oprs in SSB speaking in Spanish & Portuguese. Aerolineas Argentinas flight 1287 from Maquetta (airport for Caracas, Venezuela) to Ezeiza (airport near Buenos Aires, Arg.) giving flight data to Campo Grande Center when over Corumbá and Arpat reporting points. Address for Campo Grande center is Ministerio de Aeronautica, Servicio Regional de Protecao ao Voo de Campo Grande, 79100 Campo Grande, MS, Brazil. (Benevolo, Brazil)

8860: SSB voice in Portuguese language. Italian airliner Alitalia flight 611 tried wrk w/Recife, Brazil without success. Salvador, Brazil replied and asked to pass to 3452 kHz. (Benevolo, Brazil)

8912: Reno, Slingshot, Omaha-59, C-42 and K-1661 hrd w/massive anti-smuggling ops in USB starting around 0500 and continuing throughout the night. (Sabo, CA)

8968: YL/GG in AM at 1100-1105 rptng 463 x3, 92353. 35. After five tones into 5F grps. Ended w/Ende. (Mason, England)

8980: DT-730 wkg ION in USB at 1007. ION requested DT-730 "go green." Soon sounded like aliens took over the channel. FAX like sounds and more scrambling. Earlier, U8S wkg X7L. Latter said they'd soon be in "alligator." X7L then said they had U8S in "alligator." This is a Navy air-ground channel in the Pacific. (Campbell, WA)

8984: CG Rescue 2132 in USB at 0300 checking on two ELTs. First was false and second one later identified as coming from a USN ship transiting the area. Earlier hrd Miami requesting U7LI to respond to a ELT that SARSAT had picked up. U7LI to refuel at Daytona Beach. Hrd at 2356. (Willmer, MI)

8993: Macdill hrd in USB wkg foll. Otis 17 at 0118 w/pp to VMFA-312; SAC 693 at 0135 for HF rdo check; AirEvac 218 at 0042 w/pp to Det 5 at Kelly AFB; Army 23136 at 0054 w/pp to phone nbr, Navy AA601 at 0100 w/pp to Norfolk NAS. (Symington, OH)

9023: Band Saw Gulf to Huntress in USB at 1745 requesting Battle staff format training CONUS NORAD region medium scenario. (Willmer, MI)

9023: AF wkg Bigfoot, McChord AFB, WA, D, J, and W re trying locate source of ELT (emergency locator transmitter). Hrd in USB between 0459-0506, then on-and-off again throughout rest of evening. (Sabo, CA)

9130: Gordo clg Spike "in the red". Spike answers, then both went into the "green" (scrambled mode). USB at 0027. (Fernandez, MA)

9309: SLHFB "T" in CW, sent every 2 secs. Hrd at 0455. (Fernandez, MA)

9325: YL rptng Whisky Papa in USB at 0100 w/elec. tones. At 0105 YL/GG w/msgs for 989 and 716. (Mason, England)

10024: SS Oprs in SSB at 2123 w/comms to La Paz, Bolivia, Lima, Peru, and Resistencia, Argentina fm Bolivian airliner Lloyd Boliviano flight 930, exchanging flight info. (Benevolo, Brazil)

10075: LDCC. Houston, TX in USB at 0122 wkg N56L flying Seattle to LA. ETA 0321. (Margolis, IL)

10125: Unid stn in AM at 2045-2049 w/YL rptng CIO X2. (Benevolo, Brazil) This is Mossad transmission. (Ed.)

10523.6: NRT, CG Yokota, Japan LORAN monitoring stn wkg NRV7, Yap Island LORAN stn in USB at 0659. Moved up to 13608.6 kHz but inaudible due nearby Radio Moscow channel. (Sabo, CA)

10740: YL rptng Delta Foxtrot w/elec. tones 0500-0505, then YL/GG w/5F grps for addres 281 and 718. USB mode. (Mason, England)

11055: AF1 returning from Europe via Andrews to Washington Center arranging for SAM 26000 & Clipper 8221 (press plane) to arrive Andrews ahead of AF1 for press coverage at WH. SAM 26000 w/pp on 13247 kHz. Hrd at 1424. (Willmer, MI)

11176: MAC 7 Victor 7 in USB at 0441 wkg Ascension for pp to Siganelia, Italy: SPAR 73 in USB at 0517 wkg Croughton w/pp request. (Symington, OH)

11179: MAC 195801 in USB at 1845 wkg unid gnd stn via pp through Andrews AFB re need for medical personnel, fork lifts to move cargo, and having 8 ambulatory and 2 litter patients to be transported to hospital upon landing. Also need Customs Agent present at landing. (Fernandez, MA)

11214: Back Burner to Chalice Bravo in USB at 2019; Chalice Charlie via Edmonton Military to Huntress requesting VHF for battle staff training. Huntress said weapons sections all tied up and Tinker had not drawn up formats. Hrd at 1231; Black Fly and Bastille via Trenton Military wkg on RTTY problem at 2318. (Willmer, MI) This is a NA Aerospace Defense Command channel. Command is manned by Joint American/Canadian Forces. (Ed.)

11226: Press Car and Sole Fate in USB at 0230 in net on Xray 109. (Willmer, MI)

11237: OM/SS in USB at 1158 rattling off a bunch of nbrs. Not a "numbers" style recording. Live transmissions w/nbrs like 14, 23, 58, 45; etc. Every now and then other OM would answer, after he said "final." (Campbell, WA)

11239: MAC 50302 wkg McClellan AFB in USB at 1240 requesting two pp to McChord AFB. First patch concerned ETA and problem w/semi-operational radar and an inoperative heater at the co-pilot's window. (Campbell, WA)

11246: Century 52/Raymond 24 (552nd AWACS, Tinker AFB, OK in USB at 1830 w/pp through McDill AFB. (Fernandez, MA)

11273: YL/GG in AM at 1901 w/callup, count 1-0,

then 3F x3, then 3 tones at 1909 foll by 4F grps. (Fernandez, MA)

11342: Honolulu wkg Continental flight 38 in USB at 1123. Flight request pp to Houston Dispatch concerning hydraulic leak in #4 engine. Requested Seattle be advised. Honolulu QSY'd back to 6655 kHz but left phone link on the air on 11342 kHz. Hrd maintenance tell dispatch it was good that pilot didn't shut pump completely down so it didn't burn up. Then they hung up. (Campbell, WA)

11420: FJY5, Base Alfred-Faure, Crozet I., in USB at 1140. OM/FF in comm w/FJY2, Port-aux-Francais, Kerguelen I (Margolis, IL)

11491: YL/SS in RCS w/4F grps at 1830. Before the half-hour, recognized carrier of SS/4F and EE 3/2F t/c. Carrier went off air for few secs then came back w/10 tones associated w/this type of t/c, then into numbers. Hrd no callup sequence. Poss machine malfunction?? (Willmer, MI)

12313: 1855-1900 series of pips until 1900 when CW callup as follows: VVV 14789/05 47859/08 99437/18. At 1905 thirty Ts were sent then into 5F grps. Only zero was cut, all others were full numbers. (Mason, England)

12342.4: WTEA, NOAA vessel Discoverer at 1950 wkg CAMSPAC San Francisco; W90 at 0628 wkg Comsta Honolulu. Both were USB. QX 13113.2 indicated. (Sabo, CA)

12392: Castillo de Levarro (ship) in USB at 0207 clg Mexico Radio. (Margolis, IL)

12747: MIW2 rptd by YL in AM at 0318, ended at 0319. (Fernandez, MA)

13104/12333: KMI, Dixon, CA running pp for MF Nieuw Amsterdam which apparently located somewhere in the Pacific, mentioned having left Alaska. USB duplex 0127 and 0620. (Campbell, WA)

13144: High Seas telephone calls in USB, ship to shore at 0214 w/QRM. (Smith, PA)

13201: Navy HW960 clg McClellan AFB in USB at 2156. McClellan attempted pp but said line busy. Told HW-960 to try again in 5 mins. Didn't hear HW-960 return. Believe plane may be based out of Moffett NAS, CA.; Canadian Forces 6681, a C-130, wkg Hickam AFB in USB at 2150. They asked Hickam for wx for Hickam, Hilo, and Honolulu, then gave position report. They enroute Edmonton to Hawaii and were in the middle of Gulf of Alaska about 400 miles west of Queen Charlotte Is. Hickam gave them a warning of a tropical cyclone that was well south of Hawaii. (Campbell, WA)

13214: YL/EE in USB at 1951 sending strings of mixed ltrs/figs. Poss USAF GCCS (Global Command & Control System) freq. (Ed.)

13247: Snow Plow, Head Gate, Race Card, Night Owl, Avalanche, and Everglade in net on whiskey 109. Race Card passed a 369 msg consisting of a 12 fig/ltr grp. USB at 1352. (Willmer, MI) This is a SAM/GCCS freq.

13490: Telcomm International running pp from Miue Island (South Pacific/Micronesia) in USB mode at 0526. All parties had Aussie accents. (Sabo, CA)

13574.5: OM/EE in USB at 2007 clg 279 x3, counts 1-0, 10 tones at 2010 then nil mas. (Ed.)

14405: AF MARS AFA3JM wkg AFA3KN and AFAORM. Talking about ham radios & ran one pp. AFA3JM was in Panama. USB at 2325. (Campbell, WA)

14477: NNN0AIO and NNN0NZN (USS Mount Vernon, LSD-39) trying unsuccessfully to find empty channel for pp. USB at 2345. (Sabo, CA)

14608: CUW, USAF MARS at Lajes Field, Azores, to unid stateside MARS stn for patches. USB at 2347. (Sabo, CA)

14657: Unid CW stn sends 52 grps at 1809 then BT AR K K T and down. (Ed.)

14818: Y7A60, MFA, Berlin, GDR in CW at 1254 w/VVV-QRA marker and t/c. (Margolis, IL)

15688: RMP, Kaliningrad Navrad, USSR in CW at 1741 w/4F grps zero cut as T; 1742 sends AR; at 1800 VVV marker. (Margolis, IL)

16126.1: Uniden stn in CW at 1259 w/2.3,4L grps. Poss Vietnamese Dipl link. (Ed.)

16220: YL rptng Golf Charlie in AM mode at 1130 w/slow electronic tones. At 1135 YL/GG w/5F grps for addee 082 and 334. Rare appearance on this freq. (Mason, England)

16470: Brazilian tanker Barao de Maua, call sign PPMO, (owned by Petroleo Brasileiro S.A.) enroute to Yanbu (Red Sea, Saudi Arabia) wkg Coastal stn Rio de

Janeiro, call sign PPR, on 20720 kHz, operated by EM-BRATEL in Rio de Janeiro, Brazil, in SSB from 1622-1646, Portuguese language. (Benevolo, Brazil)

17105: XSG clg CQ, QX, 9, 12, 16 and 22 in CW. XSG is located in Shanghai, PRC. (Campbell, WA)

17198: GKE6, Portishead, England in CW & RTTY at 0412. (Fernandez, MA)

18027: Rock, Rapier 1, AWACS 1, and Edmonton Military in net. Passed msgs from Elmendorf. Talk of voice and chirp comm msgs, data dumps, errors in msg. USB at 1842. (Willmer, MI)

18169.8: SLHFB "U" in CW w/U sent every 5 secs, then into RTTY text at 0345. (Fernandez, MA)

18755: Interpol, Taipei, Taiwan(?) in CW at 0245 w/Police bulletins in EE. Guessing t/c from Taipei. (Margolis, IL)

19110: Unid Indonesian Dipl in USB at 1208 w/comms in Indonesian after RTTY xmsn. (Margolis, IL)

20065: One side of conversation w/OM/British accent giving instructions to unhrd party re troubleshooting fire detection control equipment. Afterwards, a diff OM/British op came on, ID'd as 399 and thanked someone for the patch. USB mode from 1752-1754. (Sabo, CA)

20720: Rio de Janeiro coastal stn, PPR, in SSB. Portuguese language w/nx mainly for Brazilian ship crews around the world. This program is aired daily, except Sat, Sun & local holidays, starting at 1530 on 20720 and 22710 kHz. (Benevolo, Brazil)

21876: KNY23, Czech Emb, Wash, DC in CW at 1447, sign-off to MFA Prague after RTTY xmsn. (Margolis, IL)

22748: YL/SS w/1-0 counts and 179 x3 in AM at 2302. (Sabo, CA)

24860/65: Station 83, unid, in SSB, 2115-2200 sends very long msg in SS to Bravo Stn (Buenos Aires, Argentina) concerning meeting on meteorological subject to be held in Santiago, Chile, sponsored by Chilean AF. Msg signed by USAF Colonel, acting as Secretary of the organization. These stns are members of the SICOFAA network (System of Cooperation among the American Air Forces (US & Latin American). The network also uses 13220 and 20600 kHz in SSB mode.

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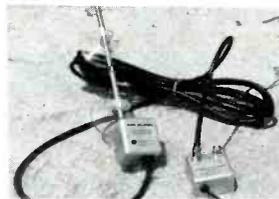
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LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Let's start by checking out things in the "Countries Hardly Anybody's Heard" department!

The Andaman and Nicobar Islands are a part of India, but many radio lists consider them a separate country. All India Radio at Port Blair apparently tested the new shortwave facility for only a day or so. Government bureaucracy is holding back the start of regular broadcasts. When activity does begin, it's likely to be on a schedule of 0025-0215 on 4760, 7180 from 0230-0400, 9600 from 0630-1000 and 3330 from 1130-1730. The 1130 period probably offers the best hope here, though 3330 is a bad spot. Logging this one is going to be a difficult prospect for most of us.

Tonga is reported by some to be active again, while others say it's still off the air. Reports of a frequency change to 5025 are wrong—5030 remains the frequency. Best time for us is around 0700 after Impacto goes off.

Bhutan—Radio Netherlands' Media Network program says the 50 kW transmitter India gave to Bhutan has been installed and will be on 9615 daytime, 6035 evenings. The old 5 kW used just 6035 at 11-15 and 0600-1000.

Panama? Yup, Panama. It seems, that after two decades of shortwave silence, Panama may return. If so, that's good news. The bad news is that it's still a couple of years off. And the "how," of the return, tempers the anticipation, too. Panama's Radio Nacional will use 50 to 100 kW transmitters given to them by Fidel Castro!

In other news, Radio West Sepik (3205) at Vanimo, Papua New Guinea has been renamed Radio Sanduan (after the province in which it's located). Wonder why these occasional station name changes never sound as "neat" as the originals! Incidentally, Radio Enga (2410) is currently off the air.

Awhile back, we reported that Deutsche Welle was pulling its financial support of the Radio Antilles organization in Montserrat. Now the other shoe has dropped. Deutsche Welle relays via the Radio Antilles-run Montserrat relay base have been discontinued.

High Adventures Ministries' new shortwave station on Guam (it will be the third international religious broadcaster on that island) will use the call KHBN and a reconditioned 100 kW transmitter to beam mostly into China. The station may well be on the air by the time you read this, however, no schedule has been released yet. KHBN is a sister station of KVOH in California and the Voice of Hope in Lebanon/Israel.

Africa Number One in Gabon should have its fifth 500 kW transmitter in opera-



Kevin Story of Texas received this QSL from All India Radio. The photo is of the Laxmi Narayan Temple in Delhi.



Brazilian DX'er Helio Soares of San Paulo sends us this photo of the towers of Radio Cultura do Sao Paulo which operates on 6170, 9615 and 17815.



Radio K'ekchi in Guatemala sends this paper pennant, plus a QSL card and a letter in answer to correct reception reports.

tion by now, or very soon. In addition to its own programs, the station provides relay service to Radio France International, Swiss Radio International and Radio Japan. We've heard a rumor that Radio Moscow would like to make that a foursome!

A few US DX'ers were taking logs on Radio Tanzania-Zanzibar recently—at 0158 sign on—on 6015. The signal is pretty weak at our listening post, and badly battered by QRM.

Iran is buying another ten high power transmitters, plus a whopping 50 antennas and a computerized system to control it all. It'll be a couple of years before this giant facility goes into operation!

The Mailbag: Dennis Lee in Sacramento, CA, says he just recently returned to short-wave listening, using a DX440. One of his monitoring interests is keeping tabs on the increasing use of the 22 meter band. Same here! Dennis wonders about how to get a set of those "Registered Monitor" identifications he sees around so often. Those are a service of CRB Research, P.O. Box 56, Commack, NY 11725. You can get an ap-

plication and more information by writing to that address.

Kevin Story in Midland, TX, says he goofed when he reported Radio Pakistan at 1330 on 9715. The station was Radio Tashkent. But Kevin has since heard Pakistan (on 11640 at 1330). Thanks for correcting your log, Kevin. We all make our share of boo-boos. In answer to your other question, the RFI French Guyana and Gabon relays don't date back anywhere close to 1976, so your 11930 QSL for RFI was direct from France.

Bill Prather of Tryon, NC, tells us he's been an avid SWL for over 20 years and that he uses a Kenwood TS-430S transceiver. Thanks for the note, Bill. How about some log reports?

AFRTS transmissions are being heard on shortwave by Irvin K. Hohenstein in Torremolinos, Spain. He's caught them on 13650 SSB as early as 0800 and as late as 2050. This is one of those AFRTS feeders, said to be transmitted from Croughton Air Base at Barford, England. We've tried sending reception reports out on this, but letters to three different addresses have all come back. If anyone has a correct address, we would sure appreciate your sending it to us.

N7MYW (Mighty Young Whippersnapper) is regular *Listening Post* reporter Jim Ross of Vancouver, WA. Jim says he is hoping to add a new Yaesu 8800 to the shack soon and promises a shack photo. Very good, Jim. We'd like to get shack photos from many more readers and reporters—how about sending yours in and let us "make you a star!"

Don't forget—we need your log reports, too—organized by country, double-spaced between each item and tagged with your last name and state abbreviation. Spare QSL cards, which you don't need returned, program and frequency schedules, station news, clippings, questions, comments are all very welcome!

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

AFGHANISTAN: Radio Afghanistan, 15510 at 1829 music, ID in GG "Hier ist Afghanistan" f/by man and woman in RR. (Tuchscherer, WI) (via USSR transmitters, editor)

ALASKA: KNLS at 1803 on 11945 music, religious reading, jazz. (Tuchscherer, WI)

ALBANIA: Radio Tiarana, at 0230 with news. (Koechig, MI; Moser, PA)

ALGERIA: Radio Algerienne, 17745 at 1855 in AA. Inaudible after 1900. (Gilbert, CA)

ANTIGUA: Deutsche Welle relay, 6040 at 0105. (Hutchison, ONT) 15205 at 0348 closing broadcast to North America. (Johnson, IL)

ARGENTINA: RAE, 11710 at 0405 with news. (Moser, PA)

ARMENIAN SSR: Radio Yerevan, 0255 with news on 13645. (Ross, WA) (via Radio Moscow transmitters, editor)

ASCENSION ISLAND: BBC relay at 0122 on 15260. (Moser, PA)

AUSTRALIA: Radio Australia, 6020 at 0815 and 9580 at 0811. (Wittmann, WA) 15240 at 0330. (Giannarelis, Greece) 15245 in unidentified language at 1450. IS 1458, ID, news in EE. (Tuchscherer, WI) 17795 at 0340. (Johnson, IL) 21740 at 0205. (Koechig, MI)

Abbreviation Used In Listening Post

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

ABC Perth, 6140 at 0921. (Wittmann, WA) 15425 at 0902. (Bradford, NE)

ABC Brisbane, 9660 at 0845. (Wittmann, WA)
AUSTRIA: Radio Austria International, 6015 (via Canada, editor) at 0521. (Ross, WA) 9875 at 0046. (Moser, PA) at 0130 here and 13730 (Wittmann, WA) 1430 (Giannarelis, Greece) 0350. (Hutchinson, ONT) 17490 at 1430. (Johnson, IL)

BANGLADESH: Radio Bangladesh at 1231 with ID and sign on on 15195. (Moser, PA)

BENIN: ORTB, 4870 at 0553 with music and talk in FF. (Gilbert, CA)

BOTSWANA: Radio Botswana, 7255 at 0400 sign on in EE and unidentified language. The usual IS not heard. (Moser, PA)

BRAZIL: Radiobras, 11745 at 0203, 0220, 0225. (Moser, PA; Johnson, IL; Hutchison, ONT)

BULGARIA: Radio Sofia, 15290 at 0350 with DX program in progress. (Johnson, IL)

BURKINO FASO: Radio Burkina, 4815 in FF at 0600, 0610 (Johnson, IL; Gilbert, CA) 7230 at 2238. (Moser, PA)

CAMEROON: Radio Cameroon, Yaounde, 4850 at 1800, FF. (Giannarelis, Greece) 2240 in FF. (Moser, PA)

CANADA: Radio Canada International, 9535 at 0145, 0226. (Hutchison, ONT; Moser, PA) 11855 at 1300 close. (Haire, MS) 11940 at 0136. (Ross, WA) 15260 at 1705 and 1740. (Hutchison, ONT) 15325 at 1640 in GG. (Koechig, MI) 21545 at 1620. (Johnson, IL)

CFRX/CRFB 6070 at 0835, 1256. (Wittmann, WA; Moser, PA)

CKZU/CBU Vancouver, 6160 at 0740. (Wittmann, WA)

CFVP/CFCN Calgary, 6030 at 0840. (Wittmann, WA)

CBC 11720 at 2225. (Moser, CA)

CHAD: RNT 4904.5 at 2128 with music, news (FF? editor) and national anthem. (Giannarelis, Greece) 0430 sign on in FF. (Gilbert, CA)

CHINA: Radio Beijing, 11600 at 1520 in CC. (Ross, WA) 17855 at 0355. (Johnson, IL)

CPBS on 15030 at 1444 in CC. (Ross, WA)

COLOMBIA: La Voz del Cincarcu, 4865 at 0545 with music and SS talks. (Gilbert, CA)

COTE D'IVOIRIENNE: RT Ivoirienne, 11920 at 1900 with time beeps, anthem. Heavy QRM from a station in SS. (Moser, PA)

COSTA RICA: Radio For Peace International heard from about 2039 to 2305 on 25945. Program of mostly speeches from symposiums at various locations. Sign off sometime between 2305 and 2313. (Davis, GA)

TIFC, 5055 at 0211 with music. (Moser, PA) 0325 with religion program. (Johnson, IL)

Radio Impacto, in SS on 5030 at 0436, 0505. (Moser, PA; Ross, WA) 5045 at 0340. (Hutchison, ONT)

CUBA: Radio Havana Cuba, 0400 on 5965. (Wittmann, WA) 9550 at 0200 in SS and 11820 at 0245 in EE. (Hutchison, ONT) 9710 at 0250. (Johnson, IL) 11820 at 0444. (Ross, WA) 0000 here and 2000 via USSR on 11850. (Giannarelis, Greece)

CZECHOSLAVAKIA: Radio Prague, 7345 at 0230. (Moser, PA) 11990 at 0335. (Gilbert, CA) 13715 at 1540, 0347. (Lee, CA; Hutchison, ONT) 21450 at 1530. (Johnson, IL)

DENMARK: Radio Denmark, 15165 in Danish at 2255 with IS. ID. (Koechig, MI)

DOMINICAN REPUBLIC: Radio Clarin, 11700 at 0121 in SS. (Gilbert, CA)

EAST GERMANY: Radio Berlin International, 9730 at 2223 with announcements and sign off. (Moser, PA) 11785 at 0304. (Gilbert, CA) Here and 15240 at 0245. (Johnson, IL) 11875 in GG at 0240. EE 0300. (Koechig, MI) 17880 at 1508 in FF. (Ross, WA) 21465 lat 1330. (Haire, MS)

ECUADOR: Radio Rio Amazonas, 4870 at 0223-0304 sign off with LA songs, SS (Tuchscherer, WI)

HCJB, 6230 at 0625, 11775 at 0300, 11835 at 0800. (Wittmann, WA) 11775 at 0300. (Johnson, IL) 11835 at 0821. (Moser, PA) 17790 at 2130, "Musica del Ecuador." (Giannarelis, Greece)

EGYPT: Radio Cairo, 9475 at 0200, 0217. (Koechig, MI; Moser, PA) 15375 at 2054 with opera arias. (Ross, WA)

ENGLAND: BBC on 5975 at 0430, 6005 at 0445. (Wittmann, WA) 7325 at 0222. (Moser, PA) 12095 at 0335. (Hutchison, ONT) 15310 at 1101. (Ross, WA)

EQUATORIAL GUINEA: Radio Nacional, Bata, 5004 at 1955 in SS. (Giannarelis, Greece) 0500 with anthem, sign on, talk in SS and African music. (Gilbert, CA)

FINLAND: Radio Finland International, 11755 at 0235. (Hutchison, ONT) 15185 at 1900 in GG. (Koechig, MI) 15400 at 1318. (Moser, PA) 21550 at 1315. (Haire, MS)

FRANCE: Radio France International, 7135 at 0330. (Tuchscherer, WI) 9550 at 0317. (Moser, PA)

FRENCH GUIANA: RFI relay on 11670 at 0315 sign on. (Moser, PA)

GHANA: GBC-1, 4915 at 2236 in AA (?) and national anthem. (Giannarelis, Greece) 0532, 0540 in vernaculars. (Gilbert, CA; Johnson, IL)

GREECE: Voice of Greece, 9395 at 2345 in Greek, then news in EE. (Moser, PA) 9420 at 0144 with music. (Gilbert, CA) Here and 11645 at 0133 with EE news. (Hutchison, ONT)

VOA Kavala relay, 7205 at 0118 with news. (Moser, PA)

GUAN: KTWR, 11805 at 0958 with announcements, ID at 1000. (Moser, PA)

KSDA: Adventist World Radio, 11980 at 1600 with news, mailbox, DX program, religious talk. (Giannarelis, Greece)

GUATEMALA: TGNA, 3300 at 0314, 0320. (Moser, PA; Johnson, IL)

HONDURAS: HRVC, 4820 at 0300 with songs in EE. (Moser, PA)

HUNGARY: Radio Budapest, 9835 at 0047. (Moser, PA) in Hungarian at 0128. EE at 0130. (Gilbert, CA)

INDIA: All India Radio, 9525//9565 at 1410 in the General Overseas Service. (Gilbert, CA)

IRAN: VOIRI, 15084 at 2350 in Farsi. (Gilbert, CA)

IRAQ: 11945 at 0310. (Hutchinson, ONT) 13660 at 2100. (Bradford, NE)

ISRAEL: Kol Israel, 11605 at 0001, 00015. (Ross, WA; Koechig, MI) 15615//15640 at 0230 in either Hebrew or Yiddish. 17545 at 0452 in HH. 17585 in EE at 1925. (Johnson, IL)

ITALY: RAI, 9575 at 0101 with news. (Moser, PA) Here and 11800 at 0105. (Johnson, IL) 15245 at 0045-0100 in II. Heavy QRM. (Tuchscherer, WI)

Adventist World Radio, Forli, 7257 at 1100 in II. (Giannarelis, Greece)

JAPAN: Radio Japan, via Sackville, 6120 at 1109. (Moser, PA) 11685 at 1705 (Lee, CA) 11800 at 2315. (Koechig, MI) 11815 at 1508, 1525. (Gilbert, CA; Ross, WA) 17825 via Canada at 0315. (Johnson, IL) 21700 via Gabon at 1500. (Giannarelis, Greece)

JORDAN: Radio Jordan, 9560 at 1355. (Giannarelis, Greece) 13655 alt 0540. (Johnson, IL)

KENYA: Voice of Kenya, 4934 at 1744 with request program. (Giannarelis, Greece)

LESOTHO: Radio Lesotho, 4800 at 0422 in presumed SeSotho. (Gilbert, CA)

LIBERIA: VOA Relay, 6035 at 0408. (Moser, PA)

LIBYA: Radio Jamahiriya, 15235 at 2200 in AA. (Gilbert, CA) 15415 at 0104 in AA. (Bradford, NE)

LUXEMBOURG: Radio Luxembourg, 6090 with rock and IDs at 0150, 0154. (Johnson, IL; Moser, PA) 15350 at 0015 in FF. (Bradford, NE) 0507 in FF. (Gilbert, CA)

MADAGASCAR: Radio Netherlands relay, 15560 at 1830 to Africa. (Johnson, IL) Here at 1830, 15570 at 1630. (Giannarelis, Greece)

MALAYSIA: Radio Malaysia, Sarawak, 7160 at 1130 with news, commentary, light music. (Story, TX)

MALI: Radiodiffusion TV Malienne, 4783//4835//5995 at 0605 with African music. (Johnson, IL) (Presume FF, editor) 4783//4835 at 0600 sign on in FF. (Gilbert, CA)

Radio Beijing relay, 9690 at 0317. (Moser, PA)

MALTA: Deutsche Welle relay, 6085 at 0105. (Moser, PA) 9690 at 0400 (Koechig, MI) 9735 and 11865 at 0105. (Hutchison, ONT)

MEXICO: Radio Educacion, 6185 at 0513 with music. (Gilbert, CA) (Presume SS, editor)

MONTSERRAT: Deutsche Welle relay, 9545 at 0314. (Moser, PA) 9565 at 0105. (Hutchison, ONT) (DW no longer using this facility. Editor)

MOROCCO: RTV Moroccan, 15105//15335 from 2355-0000 music and talk in AA (Gilbert, CA)

Radio Mediterranee International, 9575 in FF and AA QRM. (Giannarelis, Greece)

NETHERLANDS: Radio Netherlands, 6020 at 0048. (Moser, PA) 13770 at 1430, 21615 at 1130 (Giannarelis, Greece) 13700 at 2102. (Ross, WA)

NETHERLANDS ANTILLES: Radio Netherlands Bonaire relay, 6165 at 0049. (Moser, PA) 15315 at 0030. (Giannarelis, Greece) 17605 in AA at 1805. (Johnson, IL)

Trans World Radio, Bonaire, 11815 at 1130. (Northrup, CT) 11930 at 0447. (Ross, WA)

NEW ZEALAND: Radio New Zealand, 9850 at 1000. (Moser, PA) 17705 at 0341 with rugby. (Bradford, NE)

NIGER: La Voix du Sahel, 5020 at 0530 with anthem, FF sign on, news. (Gilbert, CA) 0535 west African music. Tentative log. (Johnson, IL)

NIGERIA: Voice of Nigeria, 7255 at 2121 in FF, drums IS, more talks. (Tuchscherer, WI) 0458 with sign on announcements. (Moser, PA) 2135 in EE. (Koechig, MI) 15120 at 1552. (Ross, WA)

NORTH KOREA: Radio Pyongyang, 9600 at 1139. (Moser, PA) 11735 sat 1150 sign off. (Johnson, IL) 15115 at 09815. (Wittmann, WA)

NORWAY: Radio Norway International, 15310 at 0315 in Norwegian. (Koechig, MI) 0543 in Norwegian. (Gilbert, CA) 15360 at 0135-0143 close. (Tuchscherer, WI)

OMAN: Radio Oman, 17735 in AA at 1912. (Gilbert, WA)

PHILIPPINES: VOA relay, 15425 at 1013. (Moser, PA)

POLAND: Radio Polonia at 2306 on 7270. (Moser, PA) 15120 at 1230. (Giannarelis, Greece)

PORTUGAL: Radio Portugal, 9600 at 0252 in PP. (Bradford, NE) 9705 at 2228, 0245. (Moser, PA; Johnson, IL)

Deutsche Welle Sines relay, 6085 at 0315. (Moser, PA)

ROMANIA: Radio Budapest, 9570 at 0204. (Moser, PA) 11940 at 0540. (Ross, WA) 15380 at 0224. (Johnson, IL)

RWANDA: Deutsche Welle Kigali relay, 15410 at 1059 IS. (Moser, PA)

SEYCHELLES: BBC Relay, 11750 at 0300 with sign on, site ID, news. (Johnson, IL)

FEBA, 11810 at 1755 with religious music. (Bradford, NE) 15325 at 1357 with IS. EE ID, into presumed Hindi. (Gilbert, CA)

SINGAPORE: BBC Relay, 11750 at 1610. (Moser, PA)

SBC Radio One, 11940 at 0918 with pops. (Gilbert, CA)

SIBC, 5020 at 1050 with Radio Australia news at 1100, local at 1116, 9545 at 0730 with ID, news. (Johnson, IL) 9545 at 0633 in Pidgin. (Gilbert, CA)

SOUTH AFRICA: Radio RSA, 9580 at 0205, 0210. (Hutchison, ONT; Moser, PA) 1400 on 11925//21590//25790, also 21535 at 1545 and 21590 at 1850. (Johnson, IL) 1904-1955 closing on 17745. (Tuchscherer, WI)

Radio Five, 4880 at 0431 in ? (Ross, WA) (Probably Afrikaans. Editor) 1185 at 0600. (Johnson, IL)

SOUTH KOREA: Radio Korea, 15575 at 0002. (Ross, WA) 1400 and 1405. (Johnson, IL; Moser, PA)

SPAIN: Spanish National Radio, 9630 at 0006. (Moser, PA) 15110 at 0007. (Ross, WA)

(Continued on page 76)

SCANNING TODAY (from page 9)

ver." The current air phone service has been switching frequencies a couple of times as the FCC shuffles to find available spectrum for which it can use. Currently, if you tune in the 894-896 MHz band in the AM (not FM) mode, you can hear some of these conversations from on board planes. Take note, however, that channel spacing is on 6-kHz wide channels, unlike the normal 5, 10, 12.5 and 25 kHz channels that normal two-way communications use. Thus, some channels may be skipped over as your scanner tunes through the band, unless you have a receiver such as the ICOM R-7000 that allows searching in 1-kHz steps. If you live near a ground station, you can hear both sides of the conversation on the 849-851 MHz band. The tones you hear on the band is data being sent down from the plane, including data for credit-card billing for the calls placed, etc.

The 1990's should prove to be an exciting time for radio communications as new yet-unheard-of technologies are developed and placed into service. When the year 2000 comes along, it will be a whole new ball game for communications as more data replaces traditional voice communications and satellites are employed more and more for filling in the voids left by traditional dispatch methods. The scanner you have at the start of the 90's may prove to be quite obsolete by the end of the decade if you want to stay on top of the developing technologies. Scanners at the end of the decade might have the capability to decode data messages. Stay tuned, you might be surprised. It should prove to be an exciting decade of development.

SCAN wants to hear from SCAN members. If you have a question you'd like answered in this column, know of new frequencies being used in your city, or know of how scanners or scanner hobbyists may have helped public servants, let us know here at SCAN. Write to: Chuck Gysi, N2DUP, SCAN Editor, P.O. Box 414, Western Springs, IL 60558-0414.

USE
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FOCUS ON FREE RADIO BROADCASTING

Radio **Caroline**, the shipboard European pirate, was raided by the Dutch Coast Guard on August 19th. The station was put off the air and much of its equipment was confiscated. The Dutch claimed the station's mediumwave transmitters were interfering with licensed broadcasters and the shortwave interfering with communications. So that's the end of **Radio Caroline** and the service of **World Mission Radio** which it also carried. At least for now.

On this side of the water, pirate activity continues hot and heavy!

Radio Clandestine continues to be very active. Mike Decerbo heard it on 7415 at 0205 announcing a new address of UPO Box 3114, Kingston, NY 12401 and promising an "electric blue QSL." Host R.F. Burns claims to be on a ship called the Chitauqua off the North American Coast and says the station is a member of the Pirate Radio Network which includes **Radio Morania**, **The Voice of Communism**, **Radio No** and **WART**. Mike heard them another time on 7420. William Briggs in Michigan had them to 0330 close and Mike Spinelli in New York tunes them 0335. Nick Grace in Massachusetts found them on 7415 and at another occasion on 7335 (what times?) and notes he had five receptions of the station over a two week period. John Barnard in Ontario had them on 7415 at 0326-0450 and Robert Ross, also of Ontario, found them at 0205.

Radio USA was spotted by Decerbo at 0211 on 7420 with weak signals. Claimed to be "on a ship without a name, flying the flag of a country without a name . . ."

Decerbo also tuned **Radio Jam** on 7415 from about 0230, just after a **Radio Clandestine** broadcast. Jam called R.F. Burns, who eventually replied, when Jam did not respond, Burns came back on. Instead of running a program, he MC'd the frequency, "MC'ing 7415, declaring it on the air and open for pirate activity. Free radio stations of the world, unite! Here is your forum, now present your programming to the world . . ." Radio Jam did return, but it was interfered with by a pirate giving a Ft. Lauderdale location. Conrad Dalton in Virginia heard Radio Jam at 0215 and Willard Dermeyer in Michigan noted them including upper sideband tests.

Robert Ross had **Radio Comedy Club International** at 0143-0201 sign off; with fake commercials, comedy skits, joke records and some rock. Address given as 3007R 4th Ave., Beaver Falls, PA 15010. Also noted by Nick Grace (time?) under WSHB.



Free Radio One is sending out this nice certificate QSL. (Thanks to Pat Murphy and others who sent copies.)

Decerbo reports **KBFA** (Broadcasters of Free America) on 7415 at 0305. Also heard at 0300 sign on by Briggs (on 7416) announcing it as a special test using new audio processing equipment. Also heard by Grace to 0458 close, announcing 200 watts. Barnard had them at 0138 on 7418. There's no known home address for this one—"The Archer" should arrange a maildrop.

Zodiac Radio was heard by Brian Raleigh in Nevada on 7422.5 at 0529-0746, with announcer Frank Marauder. Gave P.O. Box 5074, Hilo, HI 96720 for reports and requested three stamps.

Robert Ross caught **WKND** on both 161.3 and 6240 around 0400, announcing both frequencies (though 1620, not 1621.3). had the Dr. Who theme and religious talk by "Brother Jim."

Weekend Music Radio from Scotland went into the Dermeyer log. Willard caught one of this station's occasional tests to North America on 15043 at 0046-0400. Gave address as 42 Arran Close, Cambridge, England.

Radio Chaos, via Radio Clandestine, was noted by Dalton on 7420 at 0430 and announcing the same maildrop as Clandestine uses.

Decerbo heard **Radio Angeline** on 7418 at 0315 with an interval signal of "Send in the Clowns," apparently played on a music box. Also played was the theme from Peter Gunn. Mike notes that this sta-

tion seems to play only short segments of each song before switching to another. Gives an address of P.O. Box 40554, Washington, DC 20016.

WBRI was noted by Briggs its "North American Service" on 7491 at around 0335, with reggae music to 0400 sign off.

Decerbo heard **KRUD Radio** on 7415 several times. The DJ calls himself "Omega Man" and plays rock and roll. Announces the Beaver Falls, PA address. Grace heard this station at 0336, in conversation with radio Clandestine.

Willard Dermeyer, Jr., found **Radio Garbano** on 7412 with 60's and 70's rock and "Brother Irving" selling miracle fruit juice. Announced as transmitting from somewhere in the northeast. Also heard by Nick Grace on 0430.

Grace also had **WFTF** on 7415 at 0108-0140 announcing as WFTF-98 FM and giving a Manhattan phone number. A relay, perhaps.

There are three different readings on the call letters of the station coming up. Joseph Sabat in New York heard it as **WARP-Clandestine Radio** at 0500 on 7420. Announced as the "water vessel Chataqua" and featuring Leonard Burns as the DJ. Joseph says there were a number of stations coming and going while this one was on, some of them in direct contact with the station, some on sideband. Spinelli heard it as

(Continued on page 76)

CLANDESTINE COMMUNIQUE

WHAT'S NEW WITH THE CLANDESTINES

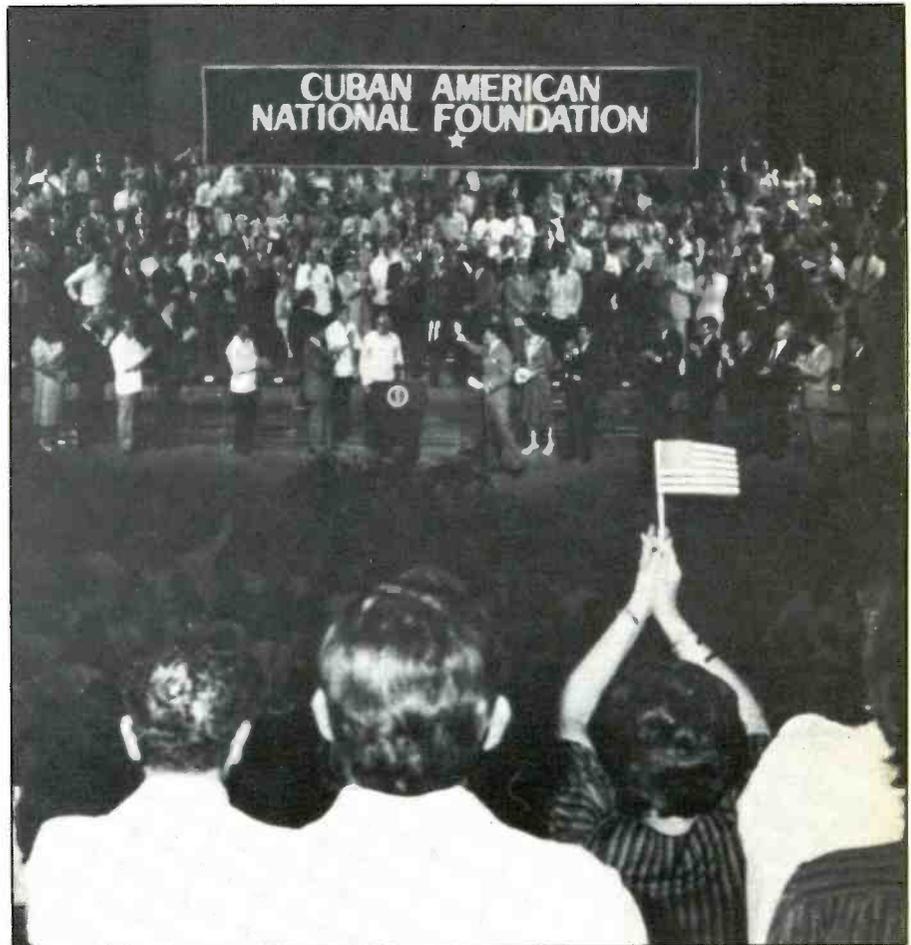
We begin this month with some clandestine news that - as of this writing - hasn't yet taken place! A Miami source, who wishes his name to be kept confidential, indicates that *Radio Clarin*, a legitimate Dominican Republic shortwave station on 11700, is supposed to make a frequency change to 9950 and may well have done so as you read this. By itself, this is hardly clandestine news, but the reasons behind the intended frequency change is. It seems that a Cuban opposition group wants to buy time on *Radio Clarin*, but was not about to do so as long as *Clarin* remained on the heavily QRM'd frequency.

If and when *Radio Clarin* does show up on 9950, you can expect to hear programs produced by the Cuban American National Foundation. The Cuban American National Foundation is probably the most visible of all the anti-Castro groups. Its meetings and conventions have drawn such speakers as former President Reagan, ex-UN Ambassador Jeanne Kirkpatrick and other Reagan administration officials. The groups had a fairly significant role in convincing Congress of the need for *Radio Marti* service into Cuba - which begs the question are they unhappy with the way *Radio Marti* turned out since they now want to do their own radio programming to Cuba? The group issues research reports on Cuba and Castro (on such subjects as Cuba and the PLO, Cuba's role in the international drug trade, etc) and also supports other anti-communist groups around the world, such as Jonas Savimbi's UNITA force in Angola.

Our contact also noted that the *Alpha 66* group is also interested in buying time on *Radio Clarin*, but that the station may not sell to *Alpha 66*; fearing that the group's history of more "active" anti-Castro efforts might get the station into trouble with the Dominican government. *Alpha 66*'s own station - *La Voz de Alpha 66* - was busted by the FCC earlier this year.

If you do hear programming by the Cuban American National Foundation, you can try a reception report to the group's office at 1000 Thomas Jefferson Ave. NW, Suite 601, Washington, DC 20007, though we do not know what their reply will be.

Clandestine monitor, Donna Holter in Houston, says she is continuing to monitor the mysterious *Radio Caiman* and sends along an excerpt from a recent broadcast. The announcer said he represented the "new generation" and talked about Cuba's role in Angola: "Other countries are trying to control many different things, such as France vying for control of oil, Brazil is pushing their manufactured goods." Cuba wants control of the political policies - "they are



The Cuban-American National Foundation hosted President Reagan at one of its conventions and, by now, may be on the air with broadcasts via *Radio Clarin*.

now trying to control Angola by using military force" and installing "puppets," African "puppets" to head the government. The announcer said that if they accomplish this, they will then have a "foothold of control" over the other countries surrounding Angola. "They are all grabbing what they can, much like the whites took the American Indians' land." Thanks, Donna. Clandestine station listeners who can understand Spanish have lots of fascinating listening available to them on clandestine stations!

One good example is the nightly reports of Mrs. Mayin Carrera, the Panamanian senator now in exile in Miami. She can be heard on *Radio Impacto*. We're not sure if this is only Monday-Friday, or seven nights per week. The broadcast is in Spanish and sometimes features reports on speeches or other events, phoned in from Panama. The broadcast begins around 0407, but seems to end at various times. A recent one we monitored ran to past 1430. Check *Radio Impacto* on 5030 (or 5044v) and 6160 (or 6150).

We'd be grateful if any of our Spanish-speaking readers could do some monitoring of *Radio Impacto* and perhaps come up with some program names and a note or two about content.

A reader in Thailand writes to say he's been monitoring the *Voice of the Khmer* (6325) a great deal lately. As we've noted before, this station is a joint effort of the Khmer People's National Liberation Front and the National United Front for an Independent, Neutral, Peaceful and Cooperative Cambodia. The station has received U.S. aid in the past and may still be getting some. Our reporter says that, based upon his monitoring, he believes the station to be in, or near, Bangkok. He also notes that, at times, there's a "high-pitched howl in the background" and he wonders if the station is being jammed.

The Miami offices of the contras closed at the end of August. A skeleton operation was expected to continue, using volunteers working out of their homes. The closure was

the result of less funds coming from the government. Some of the programs aired on the contra stations were produced in the Miami offices. As "Havana Moon" would say, "maintain a close watch" on the frequencies used by the contra's Radio Liberation and Radio Quince de Septiembre (5929 and 6214v). It's anyone's guess how much longer these stations will continue on the air!

Robert Ross in Canada forwards news of his reception of the anti-Zimbabwe station *Radio Truth*, which he monitored on 5015 from 0433 to 0500 close. The sign off used a trumpet fanfare, a woman gave the broadcast schedule and said "goodbye now from the staff of Radio Truth," followed by the station's bird call interval signal and close.

Rev. Jim Hutchinson in Canada tentatively hears Radio Iran at 0305 on 15650, in Farsi.

We understand that *Radio Damascus* still has an anti-Iraq service known as "Sawt al-Iraq" which airs at 0400-0500 on 9470, all in Arabic. Can anyone confirm this? Is it aired on any of the other Radio Damascus frequencies?

Remember to forward your reports on your clandestine station monitoring activity, copies of QSL's or other literature you may receive, as well as press clippings about clandestine broadcasting or the groups involved. We can keep your identity confidential if you wish.

Thanks and good hunting!

PC

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THE EXCITING WORLD OF RADIOTELETYPE MONITORING

Because we received so many top-notch intercepts this month, we'll forego our usual text and jump right into them.

Keep up the good work!

**RTTY Intercept
All Times Are UTC
Settings = Hz/Baud/Polarity**

2070.5: WXQ4511, the Great Lakes iron ore carrier M/V Edwin H. Gott, w/a pos rpt, ARQ at 1027 (Ed.).

2137.5: WLC, Rogers City R., MI, w/kg Great Lakes ships in ARQ at 0937 (Ed.).

3229.5: KAWN, USAF Air Wx Svc., Offutt AFB, NE, w/coded wx at 0244, 850/75N (Ed.).

4354: VAI, Canadian Coast Guard, Vancouver, BC, w/wx forecast in FEC at 0213 (Ed.).

4355: WLO, Mobile R., AL, w/kg XCTA, the Mexican cargo ship Tabasco, ARQ at 0206 (Ed.).

6493.5: URB2, Klaipeda R., USSR, w/circulars in RR at 0212, 170/50N. S/off w/ID in CW at 0240 (Ed.).

6620.3: CCG, Un-ID Chilean Navy, w/ARQ t/c to CCI at 0342 (Ed.).

6795: LZM7, Sofia Meteo, Bulgaria, w/coded wx, 425/50R at 0341 (Ed.).

6835: GFL22, Bracknell Meteo, England, w/coded wx at 0343, 425/50R (Ed.).

7303.4: USAF MARS sta. AFA40N logs onto MARSCOM 4 computer system. run by AFA4FM-1. Was 170/45R at 2120 (Ed.).

7336: Un-ID (U.S. mil. ?) w/encryption, 850/75, at 0230. Was smack dab atop CHU's time sigs (Ed.).

7535: USN "SESEF." Norfolk, VA, w/kg all modes w/"Opportune" at 1249. Rcvd foxes on same freq. at 850/75R (Ed.).

7555.3: CCG of the Chilean Navy, w/circulars to CCI, ARQ at 0347 (Ed.).

7690: TUH, ASECNA, Abidjan, Ivory Coast, w/RURY, 425/50R at 0325 (Ed.).

7890: ROQ3, Novosibirsk Meteo, USSR, w/coded wx at 1614, 500/50N (Ed.).

7933: KNF2234, Florida State E.O.C., West Palm Beach, FL. w/foxes, counting, & RURY, 170/45R at 1511 (Ed.).

9341: FDY, French Air Force, Orleans, France, w/le bricks & RURY at 0803, 425/50R (Ed.).

9395: HMF84, KCNA, Pyongyang, North Korea, w/nx in FF, 1819-1830, 425/50N (Ed.).

9402.5: OST, Oostende R., Belgium, w/ARQ phase sig + CW ID at 0813 (Ed.).

11096.3-11097.7: MKD, RAF, Akrotiri, Cyprus, w/VFT xmsn of RYI's & foxes on 5 channels at 0219, 170/50N&R (Ed.).

11168: Telexes in Turk (musterek role telex) at 1434, 900/75R. May be from the Turkish Embassy, Washington, DC, because of clean, strong (S7) sig during time of major solar storms. S/off w/BYBY at 1446 (Ed.).

11300.5: Un-ID w/5L grps. Xmsn badly garbled due to a major solar storm. Was 425/50N at 1525 (Ed.).

11430: HMF55, KCNA, Pyongyang, North Korea, w/nx in FF, 250/50N at 2144 (Ed.).

11440: Shannon Aero, Ireland, w/RURY + "DE EIAAYHYX" at 1147, 850/50N. W/coded wx at 1213 (Ed.).

11443: 9JZ, Lusaka Aero, Zambia, w/coded wx at 0249, 425/50R (Ed.).

11476: HMF52, KCNA, Pyongyang, North Korea, w/nx in EE at 2154, 425/50R (Ed.).

11492.5: Un-ID w/plaintext wx in EE, 1310-1317, 300/50R (Ed.).

11502: LZH4, BTA, Sofia, Bulgaria, w/nx xmsn badly gbl'd by QRM from a loud ARQ sta. idling on 11501.7. LZH4 was at 425/50N at 0700 (Ed.).

11516.3: The Mexican Navy's "Marina Tres" w/telexes in ARQ at 0555 (Ed.).

11546: 5YD, Nairobi Meteo, Kenya, w/RURY at 1415 & 2202, 425/50R (Ed.).

11570: NBA, USN, Balboa, Panama, w/RURY & SGSG at 1420, 850/75R (Ed.).

11600: CLN327, RCC, Havana, Cuba, w/telegrams to USA addresses, 425/50R at 2208 (Ed.).

11638: DDK8, Hamburg Meteo, FRG, w/coded wx, 425/50R at 1427 (Ed.).

12498.5: XCHH, the Mexican floating crane ship Huasteco, w/a construction report in ARQ at 0022 (Ed.).

12509: SQMO, M/T Aquarius, w/telexes in Polish, ARQ at 0245 (Ed.).

12511.5: URRN, the Soviet ship Leonid Brezhnev, w/telegrams to UAT in ARQ at 2355 (Ed.).

12512: YSOV, the GDR cargo ship Koethen, w/telegrams to Y5M, ARQ at 2235 (Ed.).

12512.5: UMTJ, the Soviet barge carrier Tibor Samueli, w/telegrams in RR at 0554, 170/50R (Ed.).

12680: HJNL, M/V Amirante Jose Padilla, a Colombian cargo ship, w/a telex in SS, sent via HJN2 in ARQ at 1309 (Ed.).

13071.5: 9VVG80, Singapore R., Singapore, w/ARQ phase sig & CW ID at 1045 (Ed.).

13072: URD, Leningrad R., USSR, w/kg ships in ARQ at 0927. Then GKE5, Portishead R., England, w/wx forecast from Bracknell Meteo in FEC at 1039 (Ed.).

13074: VIP34, Perth R., Australia, ending telex xmsn in ARQ at 0956, then to CW w/ID (Ed.).

13075: HPP, Panama R., Panama, w/ARQ phase sig & CW ID at 1048, then to standby (Ed.).

13076: VIS, Sydney R., Australia, w/ARQ phase sig & CW ID at 1055. All refs say this is VIP40, Perth, but it the CW ID of VIS is reality (Ed.).

13077: PCH55, Scheveningen R., Holland, w/ARQ phase sig & CW ID at 1057 (Ed.).

13077.5: VPS63, Victoria Island R., Hong Kong, w/ARQ phase sig & CW ID at 1126 (Ed.).

13078: VIS67, Sydney R., Australia, w/ARQ phase sig & CW ID at 0904 (Ed.).

13079: OST57, Oostende R., Belgium, wkg an un-ID ship in ARQ at 0936 (Ed.).

13080: UFL, Vladivostok R., USSR, w/telegrams in RR, 170/50N at 0938. New freq for UFL (Ed.).

13082: EDK5, Pozuelo Del Rey R., Spain, w/FEC t/c list at 0900 & saying next t/c list would come at 1100 UTC. Calls itself Pozuelo Del Rey R., not Aranjuez R., as is sometimes believed (Ed.).

13083: VPS64, Victoria Island R., Hong Kong, w/ARQ phase sig & CW ID at 0945 (Ed.).

13084.5: NMN, USCG, Portsmouth, VA, w/ARQ phase sig & CW ID at 0947 (Ed.).

13086: UKA, Vladivostok R., USSR, w/telegrams in RR, 170/50N at 1006 (Ed.).

13088: UKX, Nakhodka R., USSR, w/telegrams in RR, 170/50N at 0916 (Ed.).

13095: URB2, Klaipeda R., Lithuanian SSR, w/ARQ phase sig & CW ID at 0922 (Ed.).

13524: YIO72, INA, Baghdad, Iraq, w/nx in EE at 1505, 350/50R (Ed.).

13563: 3MA22, CNA, Taipei, Taiwan, w/QRA & RURY at 1428, 850/50N (Ed.).

13732: RFLIA, French Navrad, Fort de France, Martinique, relaying msgs from Paris to RFLID & RFLIG. Was ARQ E/72 at 1345 (Ed.).

13803: RCR78, Khabarovsk Meteo, USSR, w/coded wx at 1355, 1000/50R (Ed.).

14498: CSY, Santa Maria Aero, Azores, w/a NOTAMN at 1553, 850/50N (Ed.).

14577: RFFXL, French military, Beirut, Lebanon, w/controle de voie, RURY, le brick & counting, ARQ-E/72 at 1931. Similar test tape found on 16291 at 0200 (Ed.).

14597.2: SPW, Warsaw R., Poland, w/freqs/xmsn sked & t/c list. Was in FEC at 1152 (Ed.).

14609.5: "Gaimu," Tokyo, Japan, w/RURY & foxes, 425/50R at 0931. Bad garbling at 0954, but looked somewhat like nx in EE (Ed.).

14625: RFLI, French Navrad, Fort de France, Martinique, w/DE RFTJ + controle de voie, 96/TDM at

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
RURY	"RURY ... "test tape
SS	Spanish
t/c	Traffic
w/	With
wx	Weather

1724. Circuit I D of LIJ affirms this was RFLI and not RFTJ as the sender (Ed.).

14634: RFLI, this time in ARQ-E/48 mode, w/controle de voie at 1751 (Ed.).

14875: RFLI, using still another mode, ARQ-E3/48, in msg relays at 1555 (Ed.).

15705: YZJ6, TANJUG, Belgrade, Yugoslavia, w/nx in FF, 500/50R at 1356 (Ed.).

15860: RFFX, French mil., Versailles, France, w/t/c at 2002, ARQ E/72 (Ed.).

15935: MENA, Cairo, Egypt, w/nx in EE, 350/50R at 1943 (Ed.).

15988: Y2V57, ADN, Berlin, GDR, w/QRC & RURY, 425/50N at 1400. Was occupying freq along w/US mil. sta. sending 850/75 encryption (Ed.).

16000: CNM69, MAP, Rabat, Morocco, w/nx in FF, 425/50R at 1734 (Ed.).

16015: MFA, Sofia, Bulgaria, w/test tape ID of FIM w/RURY, 425/50N at 1132, into a cypto msg w/ZA ALJIR (Algiers) ... EKSTRENA in the header. Crypto came after DDDDD. FIM may be the tact c/s for the Algerian embassy and used in callups w/RY's (Ed.).

16028: Un-ID w/RURY and TTY op chatter at 1601, 75N (Ed.).

16048: MFA, Sofia, Bulgaria, w/5F grps headed by "ekstrena," sent to the Bulgarian Embassy, Managua, Nicaragua, which QSL'd on 19933. Was 75N, 2126-2155 (Ed.).

16066.5: IRO30, ANSA, Rome, Italy, w/nx in EE at 1708, 425/50N (Ed.).

16130: Un-ID w/RURY, 0903-0904, 50 baud (Ed.).

16145: RWM77, APN, Moscow, USSR, w/nx in EE, 425/100R at 1333 (Ed.).

16240: CLP1, MFA, Havana, Cuba, w/RURY & ID, 425/50N at 1855. At 1858, sends QSA4 NIL AMIGO 7373 and remains on the air w/carrier only (Ed.).

16260: REM57, TASS, Nikolayev, USSR, w/nx in FF at 1339, 425/50R (Ed.).

16291: RFFXL, French military, Beirut, Lebanon, w/controle de voie, RURY, le brick, & counting, ARQ-E/72 at 0200. Also w/nonprotege msgs in FF at 1429 (Ed.).

16302: DFZG, MFA, Belgrade, Yugoslavia, w/nx in SC, 425/75N at 1513 (Ed.).

16305: MFA, Sofia, Bulgaria, w/crypto after DDDDD, 350/75N at 1236 (Ed.).

16308: Y7A66, MFA, Berlin, GDR, w/5L grps at 1231, then nx in GG at 1235, 350/50N (Ed.).

16334: TAD, MFA, Ankara, Turkey, w/telexes in Turk at 1413, 850/75R (Ed.).

16361.6: MFA, Cairo, Egypt, w/an ARQ msg in AA at 1153 (Ed.).

16372: 8WB4, Indian Embassy, Teheran, Iran, w/a telex at 1219, 425/50N (Ed.).

16384: VNA, Hanoi, Vietnam, w/nx in FF, 425/50R at 1215 (Ed.).

16921.5: UDK2, Murmansk R., USSR, w/telegrams in RR, 170/50R at 1520 (Ed.).

17181: UDH, Riga R., Latvian SSR, w/telegrams in RR, 170/50N at 1137 (Ed.).

17197.5: 9VG82, Singapore R., Singapore, w/ARQ phase sig & CW ID at 1140 (Ed.).

17200: EDJ6, Pozuelo Del Rey R., Spain, w/ARQ phase sig & "EAD" CW ID at 1141. But EDJ6 is the correct c/s (Ed.).

17201: FFT81, St. Lys R., France, w/FEC t/c list at 2102 (Ed.).

17201.5: CBV, DGTMM, Valparaiso R., Chile, w/ARQ phase sig & CW ID at 1145 (Ed.).

17202: A9M, Hamala R., Bahrain, in CW only w/DE/TLX marker at 1147. At the same time, VIS, Sydney R., Australia, was on this freq w/an ARQ phase sig & CW ID (Ed.).

17203: OST67, Oostende R., Belgium, w/ARQ phase sig & CW ID at 1156 (Ed.).

17204: VIS69, Sydney R., Australia, w/ARQ phase sig & CW ID at 1158 (Ed.).

17206: OXZ, Lyngby R., Denmark, w/ARQ phase sig & CW ID at 1202 (Ed.).

17209.5: 9VG96, Singapore R., Singapore, w/ARQ phase sig & CW ID at 1206 (Ed.).

17210: Y5M, Ruegen R., GDR, on standby in ARQ mode at 1207. To FEC at 1201, telling ship w/c/s Y5CD that there was wideband QRM on the channel. Went to CW at 1211 giving ID along w/ARQ phase sig. New freq for Y5M (Ed.).

17210.5: NMN, USCG, Portsmouth, VA, w/ARQ phase sig & CW ID at 1214 (Ed.).

17211: IAR, Rome R., Italy, in CW only at 1215 w/DE/TLX marker (Ed.).

17212: VPS82, Victoria Island R., Hong Kong, w/ARQ phase sig & CW ID at 1139 (Ed.).

17212.5: OXZ, Lyngby R., Denmark, wkg ships in ARQ at 2038 (Ed.).

17213.5: HPP, Panama R., Panama, w/telex t/c, ARQ at 1225 (Ed.).

17214: Un-ID w/encryption, 425/40.5 at 1141 (Ed.).

17218: GKY6, Portishead R., England, w/ARQ phase sig & CW ID at 2100 (Ed.).

17220.5: UXN, Arkhangelsk R., USSR, w/CW "DE UXN" marker only, at 1156 (Ed.).

17221: HEC27, Berne R., Switzerland, w/ARQ phase sig & CW ID at 1236 (Ed.).

17228: UAT, Moscow R., USSR, w/telegrams in ARQ at 1449 (Ed.).

18496.2: CNM80, MAP, Rabat, Morocco, w/nx in EE, 425/50R at 1229 (Ed.).

18602.8 & 18604.1: VOA, Greenville, NC, w/RYY to VOA, Monrovia, Liberia, 85/75R at 1232 (Ed.).

18655: CLP1, MFA, Havana, Cuba, w/a "val-jaminrex" and circulars to African embassies, 425/50N at 1236 (Ed.).

19171: CNM85, MAP, Rabat, Morocco, w/nx in EE at 1331 & 1654, 350/50R (Ed.).

19417: RFFA, Ministry of Defense, Paris, France, w/controle de voie at 1740, ARQ-E3/48 (Ed.).

19529: JMG5, Tokyo Meteo, Japan, w/coded wx at 1353, 850/50R (Ed.).

19756.5: MFA, Jakarta, Indonesia, w/nx in Indonesian at 1805; in EE at 1811. S/off at 1820. Was 170/50R (Ed.).

19860: GYA, Royal Navy, London, England, w/a test tape at 1201, 850/75R (Ed.).

19933: Bulgarian Embassy, Managua, Nicaragua, w/nx in Cyrillic re "Nikaragua," sent to MFA, Sofia, on 16048, 75N, 2137-2155 (Ed.).

20420: Y2V20B, ADN, Berlin, GDR, w/nx in AA at 1330, 50N (Ed.).

23697.6: DFX69H6, MFA, Bonn, FRG, w/nx in GG to "mittelamerika," 1720-1802, FEC-A/96. Was // 20022.4 (Ed.).

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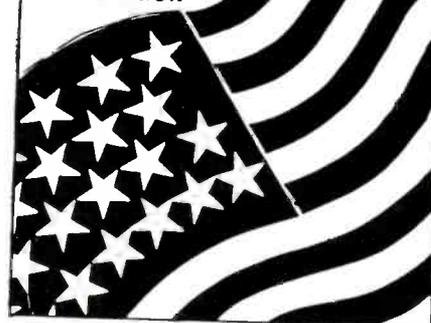
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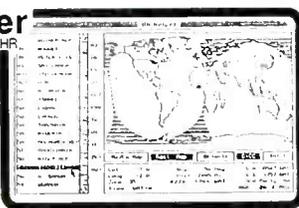
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Pirates Den (from page 69)

WARD from 0316-0529 and Decerbo copied it as **WART**, announcing a power of 125 watts and claiming it was operating aeronautical mobile.

John Bernard has several logs of the very active **Free Radio One**, mostly on 7415, but also as low as 7400 and as high as 7420, all in the 0100-0300 time period. Incidentally, Free Radio One is now responding to reports with a nice certificate/QSL!

Barnard also logged **WNRP** on 7415 at 0338-0415 with heavy rock, occasional station ID's, but no address announced.

He had **WYMN** with its format of all female artists on 7418 at 0125-0138, announcing the Hilo, HI address.

Also heard by John was the **Voice of Bob** on 7418 at 0222-0245 with country-western music, a televangelist parody and the Hilo address. (Attention **Voice of Bob**: please send me info on your station. Editor).

And John heard the current incarnation of **The Voice of the Purple Pumpkin** on 7418 at 0138-0149. This broadcast was mostly a station ID/test announcement.

Keep prowling the pirate bands and keep those cards and letters coming to the column. Station operators: your station news, info and photos are wanted!

Till next month—happy pirate hunting!

Listening Post (from page 66)

SRI LANKA: SLBC, 11835 at 1030. (Moser, PA) 15425 at 0112. (Giannarelis, Greece)

SWEDEN: Radio Sweden, 9655 at 2100, 17740 at 1400. (Giannarelis, Greece) 9695 at 0003 with IS, sign on in SS. (Moser, PA) 0300. (Koechig, MI) 21610 at 1535. (Haire, MS)

SWITZERLAND: SRI 9885 at 0503 in FF. (Gilbert, CA) Italian, into EE at 0200. (Moser, PA) 12035 at 0320. (Hutchison, ONT) 13695 at 1530. (Lee, CA) 21630 at 1541. (Ross, WA)

Red Cross Broadcasting Service, 17670 at 0740 with roundup of ICRC activities in Asia. (Giannarelis, Greece)

SYRIA: Radio Damascus, 15095 at 1835 in GG. (Gilbert, CA) 2005 and 2033. (Wittmann, WA, Ross, WA) 17710 at 2025. (Johnson, IL)

TAHITI: Radio Tahiti, 15170-15171, FF and TT, island music. 0407, 0427, 0450. (Moser, PA, Bradford, NE; Johnson, IL)

TAIWAN: VOFC via WYFR 5950 at 0513. 0725. (Ross, WA; Wittman, WA)

TUNISIA: RTT Tunisienne, 11550 at 0306 in AA. (Bradford, NE) 12005 at 1918 in AA. (Moser, PA)

TURKEY: Voice of Turkey, 9445 at 2320 in Turkish. (Moser, PA) 17760 at 0347. (Ross, WA)

UKRAINE SSR: Radio Kiev, 11675 at 0200. (Hutchison, ONT) 12000 at 0215. (Johnson, IL) via Radio Moscow, editor)

UNITED ARAB EMIRATES: UAE Radio, Dubai, 15320 at 1030. (Giannarelis, Greece) 15435//15555 at 0305 and 21515 at 1400 in AA, 21605 at 1345. (Johnson, IL)

UNITED STATES: Radio Marti, 6075 via VOA transmitters at 1007, all SS. (Moser, PA)

WWCR, Nashville, 15690 with religious programming at 1730, 1809. (Hutchison, ONT; Olson, ND)

WMLK, 9645 at 1135 with religious music, no ID. (Northrup, CT)

WINB, 15145 at 2301. (Olson, ND)

KGEI, 15215 at 1130 in SS. (Northrup, CT)

VOA, 6875 at 0300 in Bulgarian. (Hutchison, ONT) (A feeder. Editor)

USSR: Radio Moscow, 9765 at 0200. (Moser, PA)

11710 and 11730 at 0215, 11850 at 0250, 15135 at 1700. (Hutchison, ONT) 12050 at 1709. (Ross, WA) 15475 at 1630. (Olson, ND)

Radio Peace and Progress, 12070 at 0330 in SS. (Hutchison, ONT)

UZBEK SSR: Radio Tashkent, 9540 at 1200. (Bradford, NE) 9715 at 1330. (Story, TX)

VATICAN: Vatican Radio, 6248 at 0240. Albanian? (Hutchison, ONT) 9605 at 0058 with news. (Moser, PA) 9645 at 0213, IS, into SS. (Johnson, IL) 15090 at 1500. (Ross, WA)

VENEZUELA: YVTO time station, 6100 at 0615 in SS. (Wittmann, WA) (Reported to be using 5000 now. Editor)

Radio Rumbos, 4970 in SS at 0225, 0321. (Moser, PA; Gilbert, CA)

VIETNAM: Voice of Vietnam, 10010 in Cantonese at 1441. (Gilbert, CA) 15010 at 1011. (Moser, PA) VV at 1442. (Ross, WA) 1600. (Giannarelis, Greece)

WEST GERMANY: Deutsche Welle, 6145 at 0105. (Hutchison, ONT) 7285 at 0223. (Moser, PA) 11865 at 0148. (Ross, WA) 13780 at 1700 in GG. (Lee, CA)

YUGOSLAVIA: Radio Yugoslavia, 7215 at 0000 with IS, sign on, ID. (Moser, PA) 11735//15105 at 0025. (Bradford, NE) 15105 at 2100 to Europe, 2125, 0015 (Ross, WA; Koechig, MI; Wittmann, WA) *

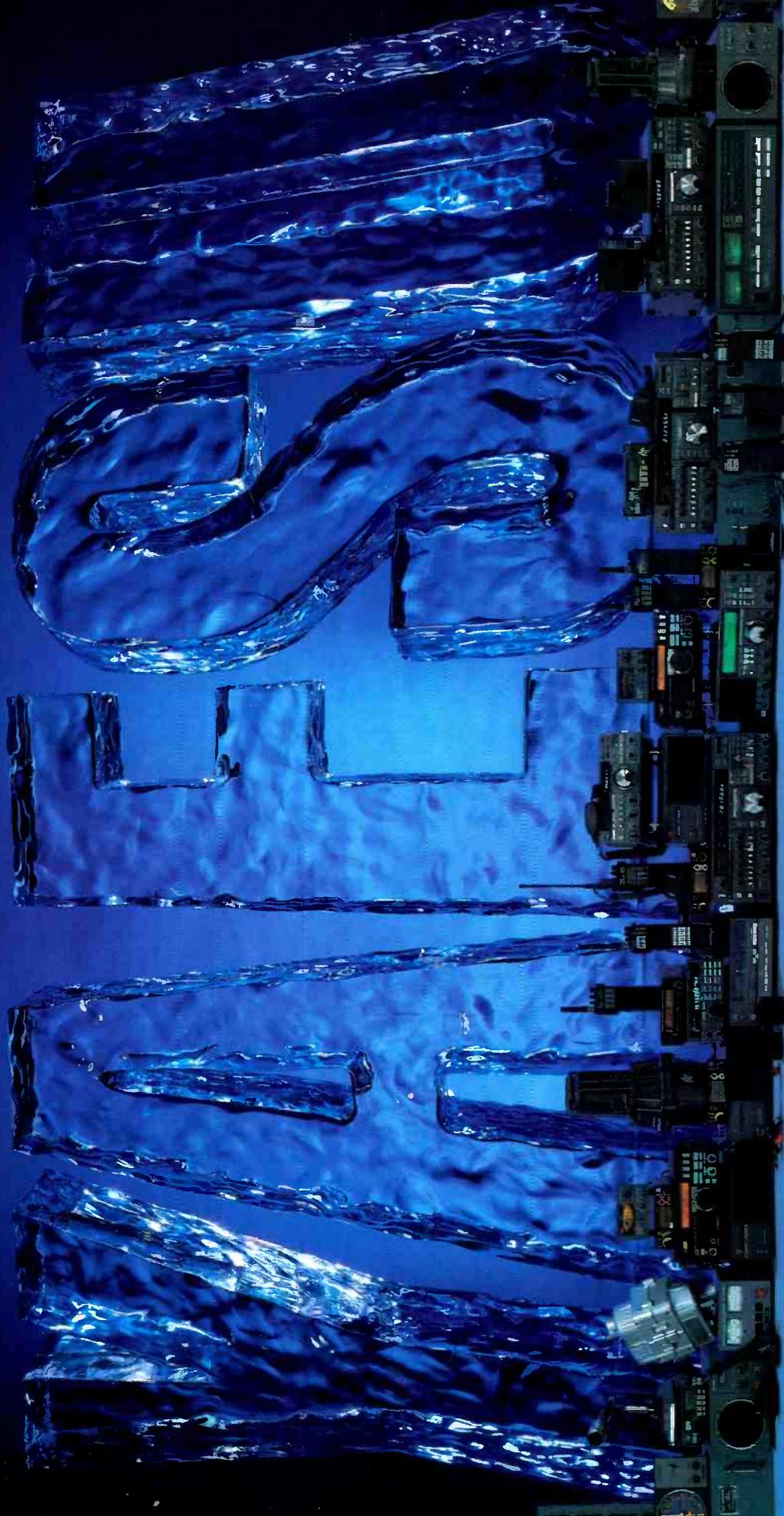
ZAMBIA: Radio Zambia, 4910 at 0436 with music. (Gilbert, CA)

And our thanks to the following reporters: Jim Ross, Vancouver, WA; Mark A. Northrup, Danbury, CT; ??, Haire, MS; Warren L. Gilbert, Sherman Oaks, CA; David Olson, Watford City, ND; Buford W. Koechig, Jr., Pontiac, MI; John H. Davis, Warm Springs, GA; Jeremy Wittmann, Tacoma, WA; Anthony Giannarelis, Athens, Greece; Dennis Lee, Sacramento, CA; Rev. Jim Hutchinson, Bellville, Ontario; William Moser, New Cumberland, PA; John Tuchscherer, Neenah, WI; Randy Bradford, Bellevue, NE; Kevin Story, Midland, TX and Tim Johnson, Galesburg, IL.

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• VC-20 VHF converter • VS-1 Voice module • DCK-2 for 12 volt DC operation • YK-88A-1 AM filter • YK-88SN SSB filter • YK-88C CW filter • MB-430 Mounting bracket.

Other Accessories:

• SP-430 External speaker • SP-41 Compact mobile speaker • SP-50B Mobile speaker • HS-5 Deluxe headphones • HS-6 Lightweight headphones • HS-7 Mini-headphones.

super easy! Other useful features include programmable scanning, large, built-in speaker, 110 volt AC or 12 volt DC operation (with optional DCK-2 cable), VHF capability (108-174 MHz) with the VC-20 option, dual 24-hour clocks with timer, and even voice frequency readout with the VS-1 option.

RZ-1

Wide-band scanning receiver



The RZ-1 wide-band, scanning receiver covers 500 kHz-905 MHz, in AM, and narrow or wideband FM. The automatic mode selection function makes listening

easier. One hundred memory channels with message and band marker, direct keyboard or VFO frequency entry, and versatile scanning functions, such as memory channel and band scan, with four types of scan stop. The RZ-1 is a 12 volt DC operated, compact unit, with built-in speaker, front-mounted phones jack, switchable AGC, squelch for narrow FM, illuminated keys, and a "beeper" to confirm keyboard operation.

Optional Accessory

• PG-2N Extra DC cable

KENWOOD

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