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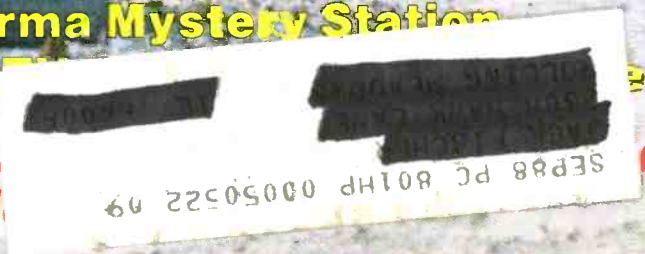
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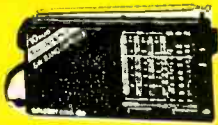
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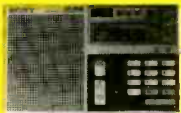
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SEPTEMBER 1988

VOL. 7, NO.1



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This month's cover: U.S. customs service drug interdiction helicopter (coke buster) sits on a street in Key Largo, FL while agents search a local house. Photo by Larry Mulvehill.

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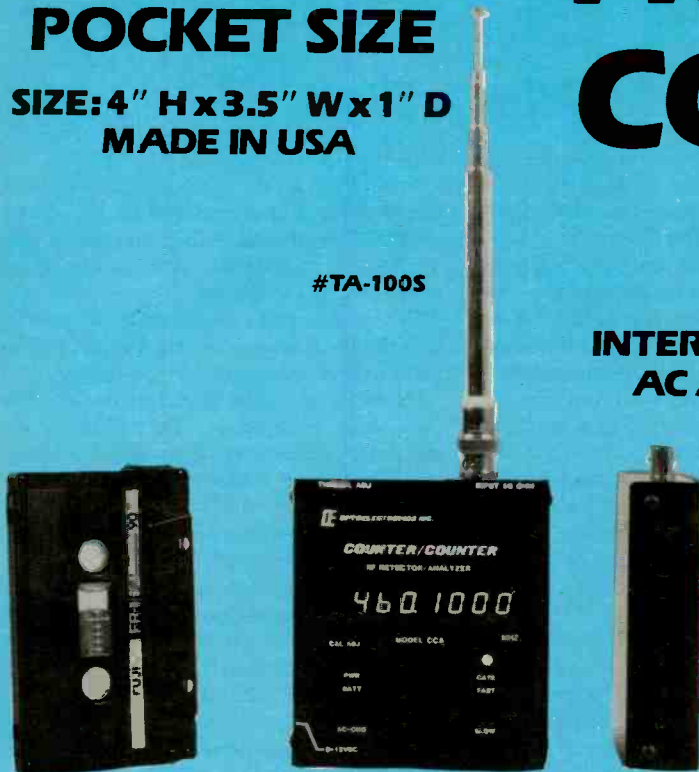
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Pg

BEAMING IN

BY TOM KNEITEL, K2AES

AN EDITORIAL

Using a Club

Last month I mentioned that Dr. Harold Cones, President of the *Great Circle Shortwave Society*, recently sent out an open letter to that club's general membership. The main thrust of that letter was to observe that the GCSS was in the doldrums and might have to seriously consider discontinuing operations unless member interest and the membership rolls increased to a significant extent. Although the GCSS has been around for a couple of years, it is nevertheless a relative newcomer to the national/regional SWL club scene. It seems to have never sufficiently evolved to the point where the word "thriving" would describe the group.

In his letter, Cones noted that two of the best known, well established, and long-lived monitoring clubs were in heap big trouble. One group was characterized as "all but dead," with the other organization "right behind it." Cones wrote that he has corresponded with these groups about their common problems and the general consensus is that "the biggies" (that includes *POP'COMM*) "fill all the needs that the average radio buff has."

I'm flattered to hear that *POP'COMM* is considered so comprehensive, moreover, I've had the impression that at least one Ohio club was unravelling. Neither was I too surprised to learn that the GCSS found out that running a club is harder than most folks think. The news that two better-known clubs are on the launching pad to eternity was sad, but not altogether a shock. That clubs themselves perceive the cause of their problems as being national publications as patently absurd as it is a simplistic copout.

Five years ago, most of the clubs that were experiencing problems were blaming their fate on poor DX conditions resulting from the cyclic low sunspot count. Now that DX conditions are improving again, I suppose that it would sound silly to continue to place the blame on the poor old Sun. Of course, even then there were a couple of clubs that were getting a little apprehensive about the wide acceptance of *POP'COMM* from within the communications hobby.

We have previously commented on this strange attitude, just as our publication has repeatedly given publicity to SWL groups despite a general apathy towards national publications on the part of most clubs. Even going back more than twenty-five years, Perry Ferrell (who was the Editor of *Popular Electronics* during the heyday of its SWL coverage) wrote editorials complaining

about the lack of enthusiasm for PE by DX clubs. Nevertheless, clubs somehow did manage to survive low sunspot counts as well as Perry's magazine.

It's easy, and convenient, to search around for a scapegoat, but I'm not willing to sit quietly by and take the rap for daring to produce a quality national magazine that has wide acceptance. Furthermore, it's been my experience that an ardent hobbyist is willing to join several worthy clubs. Whatever the reasons might be for some clubs that have waning membership and appeal, I'd suggest looking for a better excuse.

Even if one ignores that the communications hobby seems generally healthy and growing, the record clearly shows that there's no justification for clubs to attempt to blame national publications for their woes. SWL clubs thrived throughout the years when there were numerous national publications directed at the DX'ing community—*Radex*, *Shortwave Craft*, *Radio*, *Shortwave and Television*, *Popular Electronics*, *Electronics Illustrated*, *Communications World*, *Radio News*, *Radio Craft*, and many others. The old Newark News Radio Club, for one, survived for about fifty years, and the National Radio Club has probably equalled that age by now.

Based upon the DX club publications I've seen over the past year, I would certainly grant a *Club of The Year Award* to the Ontario DX Association for their general excellence, public relations, and enthusiasm. Most Improved Club Award would have to go to the *Association of Clandestine Enthusiasts*. And the Booby Prize: *All Ohio Scanner Club*.

We'll continue to publicize and support responsible and vital groups, and point out any clunkers, as we come across them. Readers are urged to seriously consider joining worthwhile groups such as the ASWLC, NASWA, ODXA, ACE, ASWLC, LWCA, SCAN, SPEEDX, and WTFDA, as well as the EMTJ. The EMTJ looks to be the only independent news publication left that's of any value at all. NESN is beginning to strongly look like it's going sour.

September Song

Many readers are aware that Septembers are special to us here at *POP'COMM*. That's because it was in September of 1982 that our first issue went on sale. Therefore, each year at this time we fuel up for another excit-

(Continued on page 75)

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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.

Birthday Cards

Popular Communications has a special place of honor in the Gilfer showroom. All of us are eager to read the honest and perceptive editorials, the interesting articles, and check the latest frequency listings. In fact, our customers have to wait in line to pick up their copy from the magazine rack! It is a pleasure working with your staff—the shortwave and scanning hobby have been enriched by the presence of POP'COMM. Congratulations on your anniversary!

Jeanne C. Ferrell, President,
Gilfer Shortwave,
Park Ridge, NJ

Happy Birthday to Popular Communications! Who knows how many thousands of people have been introduced to our wonderful monitoring hobby by POP'COMM? Surely, no other publication has publicized, promoted and elevated the listening hobby as yours. POP'COMM not only serves to introduce new faces to radio, but also stimulates veteran listeners each month with its informative, educational, and sometimes provocative features. Certainly a large part of the explosive growth in shortwave and scanner listening must be attributed to the efforts of all of the editors and staff of POP'COMM. We all hope that Popular Communications will continue to set the standard for the monitoring hobby in the years to come.

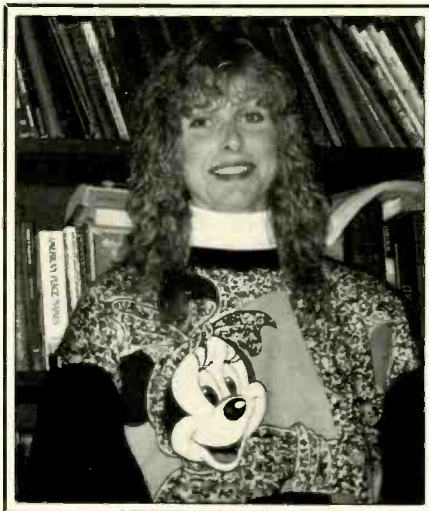
Fred Osterman, Manager,
Universal Shortwave Radio,
Reynoldsburg, OH

Am pleased to note that POP'COMM has started into its seventh year. I look forward each issue and read every page, including the classified ads. What a treat! The magazine is in the great tradition of *Short Wave Craft*, the pioneer SWL magazine of the mid-thirties. Though I've been a licensed amateur for over 55 years, I'm still an SWL at heart and I love to roam the airwaves, aided by POP'COMM magazine. Each issue is a delight. I don't know how you can attain such excellence, issue after issue; but you do it! And I'm glad. I'm looking forward to the years to come. I'm sure they'll be as exciting and instructive as those that have

passed. Best wishes for your continued success.

Bill Orr, W6SAI,
Menlo Park, CA

Minnie – Hit or Myth?



Mickey or Minnie? The secret's out!

On page 27 of the May issue there's a great photo of Alice Brannigan (let's have more such photos). The caption under the photo mentions Mickey Mouse, as depicted on Alice's clothing. Maybe my eyesight is dimming out with the years, but I'd guess it to be Minnie rather than Mickey in the photo.

Murray Wachtler,
Lexington, KY

For years it's been one of Tinseltown's closest guarded secrets. To save money, they throw some makeup, a bandana, and costume jewelry on Mickey and turn him into "Minnie." After 50 years of this deception we saw no point in perpetuating the strange myth of "Minnie." — Editor

Grandma, What Big Eyes You Have!

Don't know if you're aware of the fact that some monitor intercepts that first showed up in the POP'COMM Communications Confidential column have turned up (uncredited) in a shortwave directory of "ute" stations. In the same directory, I spotted a curious typographical error that proved, upon checking, to be identical to one in a previous reference list from another author.

Eliot Rubin,
Saint Paul, MN

Some who put directories, registries, and listings together are eclectic beyond the point of ethics. For instance, there's a current scanner registry that contains much un-

attributed data obviously pirated from a registry I had written at least a dozen years ago. I spotted the data easily because of "dummy" listings I had included as an aid in detecting where and when my directory would be raided by others. One specific example is that I had listed several vessels owned by a particular public safety agency. I didn't have the callsign for one vessel, so I dropped in (as one of the "dummy" listings) the maritime callsign WH3844. That callsign had been assigned to me in the 1950's, although it had long expired and never been re-assigned. I would have never guessed that this callsign and listing would turn up twelve years later (with other similarly ripped-off keyed listings) in someone's 1988 directory. On an even grander scale, one HF frequency guide contains a large section that looks to me suspiciously like it's mostly a compilation listing taken (without any credit whatsoever) from Ferrell's Confidential Frequency List and also a Klingenfuss "ute" guide. Sometimes such matters end up in court. I was called in as an "expert witness" in just such a trial held in the U.S. District Court at Nashville. So, the practice you discovered isn't as uncommon as you appear to think. — Editor

When Your Number's Up

Last week on television they announced that the police can inscribe a person's Social Security number on radios, CB's tape decks, CD players and other automotive electronics equipment. I think this is an excellent anti-crime project that should be considered by other public safety agencies in areas with high street crime. This way, if stolen property is recovered, the police can locate the owner by tracing the inscribed SSN. Please ask your readers to suggest this idea to their local authorities.

Pat DiNoto,
Brooklyn, NY

First of all, it will not prevent anything from being ripped off from a car since the SSN will probably not even be spotted by the crackhead removing the equipment. Even if it is, it won't make any difference to him. Secondly, the local authorities can't use the SSN to trace its owner since the Social Security Administration refuses to give out that type of information. The only value such a number would have would be to aid in describing your stolen hardware to the police, and proving that a particular piece of gear is yours in the event it's recovered at some point in the future. It may also act as a deterrent to certain "fences" from buying such equipment, but all that means is that the unit will be tossed in a garbage can or sewer by the thief, thus removing any hope of your ever seeing it again. — Editor **PC**

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Some Notes On Its Development

• Experience gained over the years in producing high power transmitting antennas led to the introduction of the DX-SWL—the first commercially available world band sloper combining AM broadcast, tropical bands and 60 thru 13 meters.

What does transmitting experience have to do with shortwave reception? Plenty! If a transmit antenna is not designed to precise parameters, it will not pass the RF "smoke test"—there will be burned connections, shorted components, high standing waves and generally lousy performance. On the other hand, a receive-only antenna of shoddy design can go unnoticed—except by your receiver and the weak DX signal you're trying to receive. DX-SWL antennas are used daily in 2 kw transmit service, as well as for world class reception.

• We recognized early on that a **Sloper** can outperform a dipole at the same height, for many incoming wave angles. The **Sloper** really shines on weak, low angle DX signals. A **Sloper** also requires only a single, elevated support—it's easier to install than a dipole.

• The model DX-SWL is designed with specially coated 12 ga. solid copper wire elements which are 25% greater in diameter than the more commonly used 14 ga. wire. Engineers know that a larger diameter yields less resistance, and thus less loss per unit length. Even though 14 ga. wire is cheaper, it is not acceptable for use in any Alpha Delta antenna.

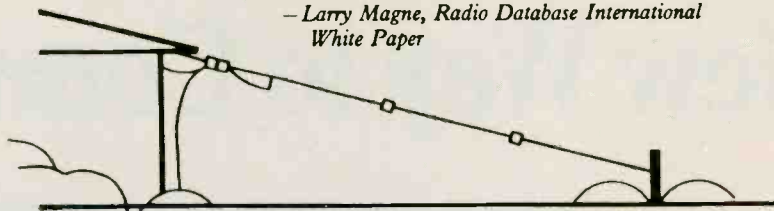
• Because DX-SWL antennas are used worldwide in less than ideal environments, only high quality stainless steel hardware is used. Even though it is more costly than plated hardware used in other cheaper brands, we know that you want to put an antenna up once, and forget it. Climbing great heights to replace rusted connections is no fun. Due to the direct sun, high heat environment of some DX-SWL installation sites, we use only specially selected white coil form material. Black forms used by other brands are not acceptable due to heat absorption and possible coil distortion.

• Before you buy any shortwave antenna, check out the design details and transmit capabilities thoroughly—even if you're not going to transmit. We don't want your investment to go up in smoke!

Model DX-SWL Sloper Antenna is available for **\$69.95 at your Alpha Delta Dealer**. For direct orders send \$69.95 plus \$4.00 shipping (USA only). Call for export order prices.

**"The Best Results throughout
the Shortwave Spectrum."**

—Larry Magne, Radio Database International
White Paper



**Get world-class, multi-band reception with
ALPHA DELTA DX-SWL SLOPER ANTENNA
Just \$69.95 plus shipping from your Alpha Delta dealer!**

- Fully assembled, ready to use and built for long life. So strong, it can even be used to transmit—up to 2 kW!
- Superior multi-band performance on 13, 16, 19, 21, 25, 31, 41, 49, 60, 90, 120 meters plus the AM broadcast band (.5-1.6 MHz). All in a single compact antenna. Alpha Delta first!
- Efficient multi-band frequency selection by means of special RF choke-resonators—instead of lossy, narrow band traps.
- Overall length just 60 feet. Requires only a single elevated support—easier to install than a dipole
- 50 ohm feedpoint at apex of antenna for maximum DX reception. A UHF connector is provided on the mounting bracket for easy connection to your coax.
- A top overall rating in Radio Database International's hard-hitting White Paper, "RDI Evaluates the Popular Outdoor Antennas."

ALPHA DELTA

P.O. Box 571 - Centerville, Ohio 45459

There's alot happening on the shortwave broadcast bands. Don't miss a thing by skipping on your antenna. Get world class, multi-band DX reception with the Alpha Delta model DX-SWL Sloper. Just \$69.95 plus shipping from your local Alpha Delta dealer.

**Get lightning
and static protection
for receivers,
transceivers,
amplifiers...**

with Transi-Trap™ Surge Protectors



Model R-T, HV
(also available with
N type connectors for
use through 1 GHz)

Model LT

Model R-T and LT EMP Series Arc-Plug® cartridges are designed to protect against nuclear electromagnetic pulse (EMP, as well as lightning surge voltages.

The EMP Series design is based on the National Communications System Technical Information Bulletin 85-10 covering EMP protection for communications equipment.

All Transi-Trap Protectors feature "isolated ground" to keep damaging arc energy from the chassis.

Don't hook up your coax without one!

The 200 W models are most sensi-

At your Alpha Delta dealer. Or order direct in U.S.; add \$3 for postage and handling. MasterCard and VISA accepted. Ohio residents add Sales Tax.

See Data Sheet for surge limitations.

tive, best for RCVRs and XCVRS. 2 kW models designed for amplifiers. For maximum protection use both, with 200 W model between XCVR and AMP. All models include replaceable Arc-Plug cartridge and are designed for 50 ohms.

UHF "T-type" Connectors, for use through 30 MHz:

MODEL LT, 200 W \$22.95

Super Ruggedized Super Low Loss Models (0.1 dB at 500 MHz), for use through VHF/UHF, with UHF connectors:

MODEL R-T, 200 W \$32.95

MODEL, HV, 2 kW \$35.95

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Now Your 2-Way Has a New Way to Communicate!



Actual Size: 4¾ w x 1½ h x 6" d

Introducing the first digital audio recorder for 2-way radio.

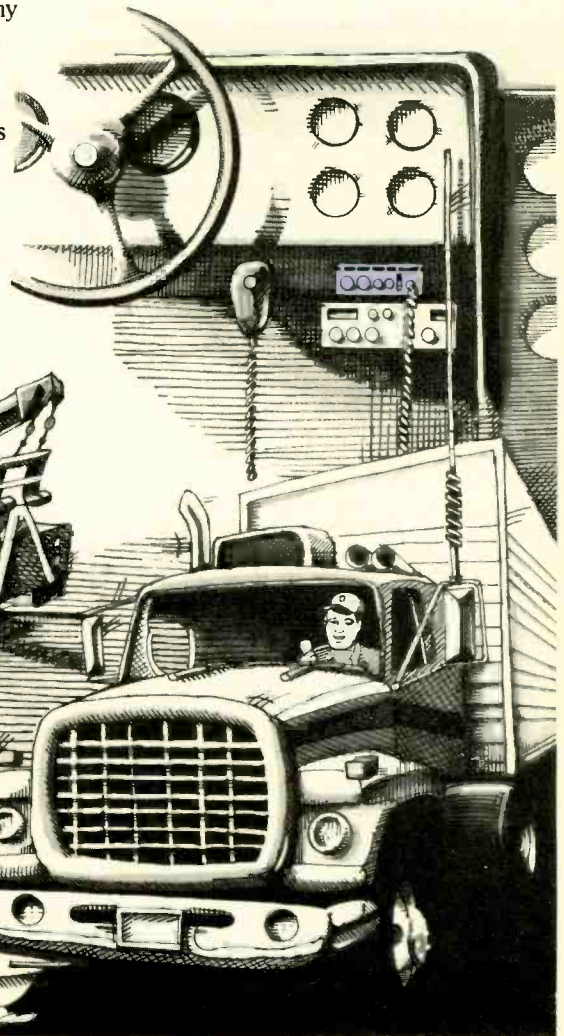
With the new Palomar VC-300, you can now record, broadcast and receive any type of message—up to 34 seconds—with any type of 2-way radio... amateur, marine, commercial or CB.

It's Like a Telephone Answering Machine for 2-Way Radio. And when used by both sender and receiver, the VC-300 is the ideal way to get messages to truckers having breakfast, wrecker operators hooking up a car, fishermen landing the big one, amateur ham operators away from the shack or RV club members out on the road.

Only With the VC-300. Perfected after two years of intensive development, the VC-300 is manufactured in Japan exclusively for Palomar, known worldwide for innovative 2-way radio products.

One D-Ram (256K) Memory or 8.5 Seconds Recording Time. For only \$9.50 each, we can supply you with up to 3 more D-Rams for a total of 34 seconds. Or purchase them at any electronics hobby store.

Call, Write, or Fax. And we'll send you a free VC-300 descriptive brochure, a Palomar product line catalog and the name of your nearest area distributor. Or visit your local 2-way radio retailer. Suggested retail is \$239.95.



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OFFICIAL NEWS COLUMN OF THE SCANNER ASSOCIATION OF NORTH AMERICA

FCC Proposes Advisory Labels on Scanners

The FCC has announced that it is proposing the labeling of radio communications receivers, including scanners, to "advise users that it may be unlawful to intercept protected radio communications." The news release from the FCC went on to say that, "The ECPA (Electronic Communications Privacy Act) was enacted expressly to extend the protections of the Omnibus Crime Control and Safe Streets Act to radio communications Although the ECPA prohibits interception of certain classes of communications, the frequencies on which these communications are transmitted can be used for unprotected communications as well." Therefore, the FCC said, ". . . an advisory label would be the simplest and least burdensome way of alerting the public that some uses of scanning devices are prohibited."

In reporting on the implementation of the proposal the FCC said that a label would be required on all scanning radio receivers intended for use by the general public. Excluded from this action would be radio receivers that are "marketed primarily for use in the licensed radio services and receivers used for the reception of broadcast transmissions, i.e., television, FM, AM receivers." The Commission also asked for comments on whether it should require both a label and accompanying instructive material describing more specifically the communications intended for protection under ECPA.

In general, we think that the FCC is taking the correct action. It is no secret that there are many within the Commission who felt that the ECPA, at least as it applied to open omnidirectional radio transmissions, was bad legislation and unenforceable. We agree with that assessment. There is no possible way of making ordinary non-encrypted FM transmissions, especially when transmitted in a broad omnidirectional pattern, anything approaching "private". That didn't stop those pushing for cellular to be included in ECPA and, unfortunately, they succeeded in having the ill-advised provisions added to the ECPA. Not satisfied with that, and flush with the ECPA victory, they began to push for the FCC to ban the manufacture of all-frequency receivers—even though these receivers are clearly permitted by the language in the ECPA. (Only equipment *primarily* designed to receive the cellular frequencies is banned by ECPA.) So what they couldn't get through Congress via the ECPA, they tried to get by forcing the FCC to take administrative action. The FCC is clearly not buying it!

In the FCC's discussion of the subject, as included in the Proposed Rule Making (RM-5836), they note that ". . . ECPA places no direct obligation upon the Commission. It does not, as some commenters appear to have suggested, seek to make the Commission a guarantor of the protections afforded by the Act. Although the ECPA prohibits interception of certain classes of communications, the frequencies on which these communications are transmitted can be used for unprotected transmissions as well. In Docket 87-390 we have proposed to permit cellular radio licenses to use a portion of their spectrum flexibly, for purposes other than traditional cellular radiotelephone communications, and quite possibly for communications not protected by the ECPA. The Commission has already allocated 2 MHz of spectrum to general flexible use, which may include both protected and unprotected communications. Thus, the suggestion that the Commission require that reception of certain frequencies be blocked or filtered is not a practical one."

In the discussion the FCC also comments that, "The ECPA does not require the labeling of receiving equipment." However, the FCC notes that the sense of the Senate seems to be that labeling of devices might be an acceptable method of fostering compliance with the law. They go on to comment that, "To be sure, as some commenters point out, a warning label is no guarantee that the law

will not be broken. Indeed we recognize that, in some instances, a warning label, by calling attention to a prohibited activity, might encourage it. Nevertheless, we agree with those who argue that people should be made aware of the law."

As the FCC points out in the Proposed Rule Making, the Scanner Association of North America is on record as generally supporting the labeling provision. Our primary reservation is the possible impact of the language used on the warning label. That is also the reason why we feel that some additional explanation may be needed

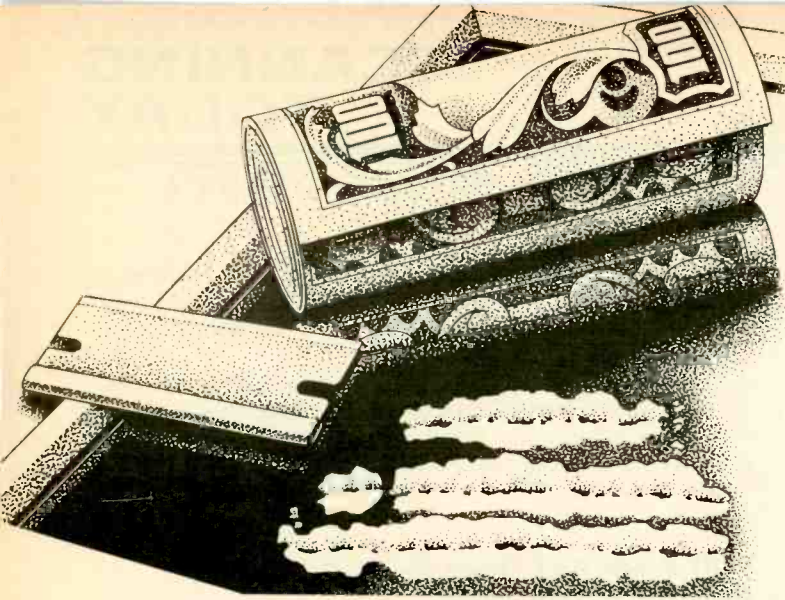
Will Warning Labels Scare Away New Scanner Enthusiasts?

We think they might, especially if the warning label language is ominous enough and there is not a clear explanation of what it means. For instance, if the warning label refers to federal penalties of fine and/or imprisonment for listening to some undefined transmissions, this would in our judgement be a disaster! After all, if you didn't know the rules of the game and brought home your first scanner, what would your reaction be? Most people want to be scrupulously honest citizens and this type of vague warning will send them back to the store saying that they changed their mind. They'll take a CD player instead—it's safer. Hopefully the label won't mention penalties that are highly unlikely to ever be imposed under these provisions of the ECPA law. But just the mention that it is illegal to listen to some transmissions is enough to give some new users second thoughts. That would be a real shame for us all, because drawing new people into scanning is vital to our future. The sheer numbers of people with scanners (nearly 8% of all U.S. households) helped protect us for much harsher treatment from the ECPA. New enthusiasts are also very important to us in keeping a healthy supply of innovative new scanners coming to market at competitive prices. Take away growth and you take away the manufacturers incentive to invest in costly new engineering and ultimately the result will be fewer suppliers, fewer model choices, and inevitably higher prices. In fact, growth is so important that you should make it your personal goal to get at least one neighbor, friend, relative, or co-worker into scanning this year!

Our advice to manufacturers is that whatever the warning label ultimately says, and whether or not accompanying instructive material is required, that some clear explanation be included in the instruction manual or as a separate pamphlet. Somehow, it must be communicated that this is an entirely legal product and not something to be afraid of, or secretive about. Do not let a warning label put a cloud over such a useful and beneficial product. Scanners help protect lives and property. Their use has been endorsed by the nation's law enforcement community. They also save countless hours and help conserve gasoline by informing urban motorists of major traffic mishaps. They help millions of railroad and aviation buffs enjoy their hobbies more fully. They help every major news gathering organization in this country report the news to us. They are used by professionals in the communications industry to help structure effective frequency utilization plans. And in critical emergency communications networks, they play a key role in coordinating activities.

What a shame it would be if the net result of labeling is to give the impression that scanners are a quasi-legal product. Actually, the FCC term "advisory" rather than "warning" label puts the correct tone and direction on what we feel the content of the label and any further explanatory message should be. We applaud them for the common sense of their approach.

(Continued on page 68)



Coke Busters – Searching Out The Drug Smugglers!

**Your Scanner or Communications Receiver
Puts You In On The Action**

BY HARRY CAUL, KIL9XL

The way the news media tells it, illicit drugs are flooding into the nation by boat and by aircraft. That means boats ranging from trawlers and freighters to luxury yachts and small cabin cruisers. It means aircraft ranging from commercial airliners to corporate jets and even single engine private planes.

From Central and South America they come, arriving at points in Florida, at locations all along the Gulf of Mexico and northward along the Atlantic coastline to metro areas. According to news reports, no matter how much effort the U.S. Customs Service puts into cutting off these supply routes, the smugglers still manage to sneak in with enough of their cargo to supply cocaine, heroin, marijuana, and other narcotics to meet whatever needs exist. To be sure,



Some drug smugglers are pursued by the Coke Busters beyond the limits of their fuel supplies. This small plane ran out of go-juice while attempting to avoid the patrol areas. The pilot and his cargo were taken into custody.

Tankers, container ships, cargo vessels, as well as passenger liners come under the watchful eye of federal agents as they approach American coastal waters. Some are actually boarded, although only a small percentage are found to be transporting contraband. Listen on HF and scanner frequencies for these anti-smuggler operations.





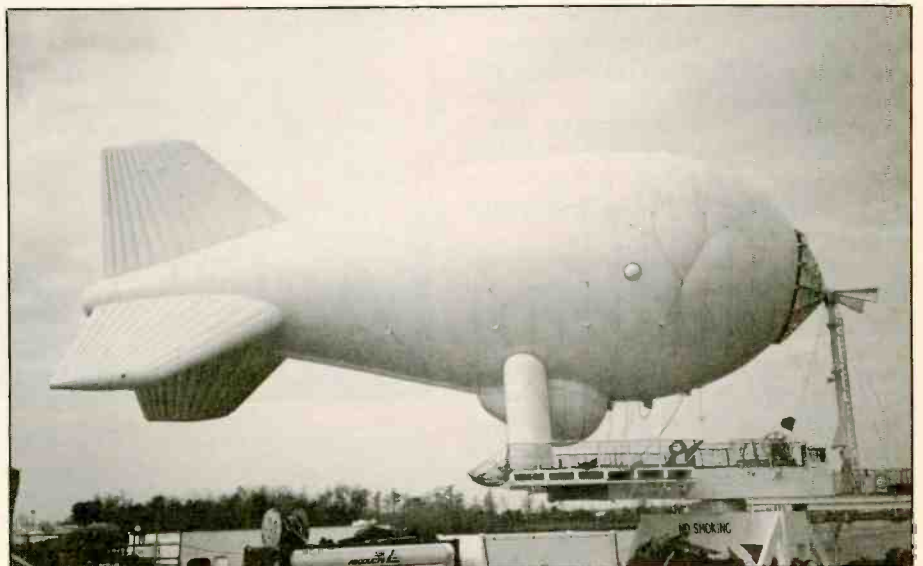
Fishing trawlers and pleasure craft are routinely boarded in the search for contraband. Under the "Zero Tolerance" Laws, even a minute quantity of drugs could result in confiscation of the entire vessel.



Coast Guard boarding parties work in close cooperation with U.S. Customs agents.



The search for drug smugglers requires considerable radio comms on HF as well as VHF frequencies. Much of it is "in the clear" (unscrambled). (U.S. Coast Guard photo.)



Seaborne radar searches out suspect ships and aircraft. Increased detection range is provided by mounting the antenna in aerostats that can be raised aloft. Vectors are then radioed to patrol aircraft and cutters. (Photo by Alice Brannigan.)

many shipments are detected and confiscated before they arrive at our borders, but it has never been able to substantially reduce the availability of illicit drugs on the streets.

Still, the search continues. The U.S. Customs Service, with the cooperation of the U.S. Coast Guard, and other enforcement arms of the U.S. Government constantly patrol the Caribbean, Gulf, and Atlantic coastal areas with surveillance of suspicious aircraft and vessels, often pursuing aircraft and boarding ships.

In ports and harbors, these agencies continue their efforts to detect illicit materials before they can be fed into the large underground distribution network that sends them around the nation. Many of these regional and local surveillance and patrol activities can be monitored by the average person having a scanner and/or communications receiver. The frequencies used lie

within the range of most equipment, and although some communications are scrambled, most of the chatter of the *Coke Busters* is sent in the clear.

On The HF Bands

For years, monitors have reported hearing SSB (upper sideband) communications between patrol cutters, spotter and chase aircraft, and ground units. The most often encountered, according to reports in various publications, include 11076, 12222, 14686, 14690, 18283, and 18666 kHz. There are some other frequencies that have also displayed activity, and sometimes, there are some changed. Nevertheless, the ones listed here appear to have been in use for a long time, especially 18666 kHz (days).

Stations heard use an array of tactical identifiers. Some noted include: Atlas (Headquarters in Washington, DC, with re-

mote controlled transmitters elsewhere); Flint and Omaha (followed by digits—these are aircraft); Marlin 350 (the El Paso Intelligence Center, TX); Shark (followed by digits—Coast Guard cutters); Swordfish followed by digits—Coast Guard aircraft); Rampart (Andros Island, Bahamas); Ulysses and Landshark (Coast Guard, Miami, FL); Sector (Customs, Miami, FL); Homeplate (Customs Service, Homestead, FL).

Local

Persons having scanners can also monitor U.S. Customs operations. Popularly reported frequencies include 165.2375, 165.2875, 165.5375, 165.7375, 166.4375, 166.4625, and 166.5875 MHz.

Check out these frequencies from time to time and you may well find yourself getting the advance scoop on tomorrow's TV or newspaper lead story.

It's Scanner DX Skip Season!

The return of "What's that on my scanner?"

BY CHUCK ROBERTSON

This spring's low-band skip was spectacular. Seasonal ionospheric conditions, plus the rising activity of Solar Cycle 22, produced some of the best F₂ band openings seen by VHF'ers in three or four years!

During March and April, and again in September and October, the ionosphere becomes relatively uniform at mid-latitudes. It's spring in the Northern Hemisphere and fall in the Southern Hemisphere, or vice versa. These uniformly temperate conditions allow VHF and HF signals to make one or more "hops" in a generally north/south direction, with skip distances extending from about 2000 to 9000 miles.

Seasonal inter-hemispheric conditions exist again right now, this September and October! Don't miss out on the action. Look for band openings to Africa in the morning and mid-day hours. Central and South America show up a couple hours before noon, and may stay all day. Australia and the South Pacific arrive around noon and remain till sundown. Yes, my friends, scanner skip is back—is it ever.

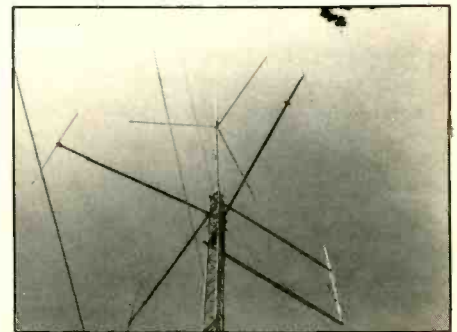
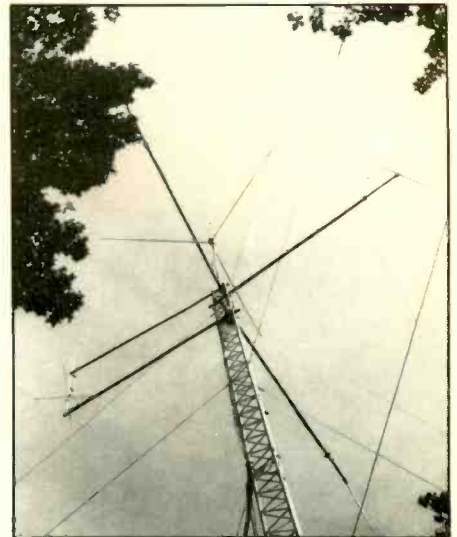
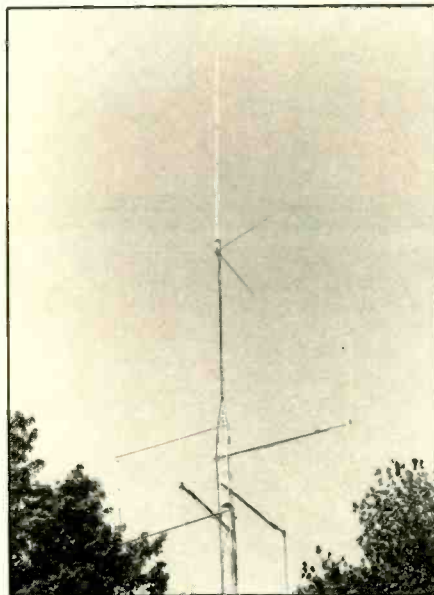
If you've given up on VHF skip because of the decline and fall of Solar Cycle 21, or if you've never tried DX'ing the 30-50 MHz band before, now is the time to program those scanners for low-band and discover what's happening over the horizon! That's getting the most from your scanner!

South Pacific Skip

This spring, US Navy communications were monitored repeatedly on the frequency 31.30 MHz. The main vessel ID'ed as Fort Sumter. Stallion, Blue Beach, Navy 5 Oscar, and Texas Jake were also heard. Week after week, these sea-tossed signals made their way inland. Could they be coming from the Gulf of Mexico, off the Texas coast? The answer came on Sunday, April 17, when the Ft. Sumter instructed one of the vessels to "go to Guadalcanal and pick up the pastor." That put the vessels in the Solomon Islands, about 1000 miles northeast of Australia, and over 8000 miles from my QTH. Now that's F₂ skip!

Sunray Skip

This spring also brought strange scram-



Some of the author's VHF low-band antennas: Three home-brew 1/2 wave dipoles are side mounted to the tower by ten foot sections of 1 1/2" TV mast. The dipoles are tuned to 31, 35, and 40 MHz, respectively. A Butternut SC3000 wide-band antenna is also side mounted with a top brace made from 1" PVC water pipe with wooden dowel insert. A five-eighths wave ground plane tuned to 31 MHz is on top.

bled skip, and even stranger clear-voice, on a number of 25 kHz "split" channels:

31.075	31.750
31.175	31.775
31.250	36.025

The scrambling was a form of Time Domain (TD). This variety of TD consisted of a preamble of four consecutive tones followed by the encrypted voice signal; sounded something like a tape recording that had been cut into small pieces and then spliced back together out of sequence. Rod Serling would have approved!

When the radio operators switched to clear-voice, the language was found to be an unbelievable mixture of Dutch, English, African, Portuguese and Hebrew, known as

Papiamento. If you've never heard Papiamento, you're in for a treat!

This rich language is used on the Leeward Netherlands Antilles, known collectively as the ABC's: Aruba, Bonair, Curacao. They're located 50 miles north of Venezuela.

The Netherlands controls the defense of the Antilles. I suspect these scrambled communications were National Guard, since no "pure" Dutch was heard. Here are some of the ID's: Willemstad Company; Aruba; Oranjestad (capital of Aruba); Sunray (radio transmitter); 007 Delta (vessel).

Das Skip

An exceptionally busy South American repeater has been re-discovered on the fre-



Scanners are mounted on shelves attached to a junked TV's swivel base. About 90° of rotation is possible before the coax in the "snake pit" behind the scanners becomes taut. The Regency HX 1500 hand-held does a great job of handling strong low-band signals, unlike some other portables. A room monitor (on top of the R7000) helps keep track of the action when work is done around the house.

quency 33.10 MHz. The language is Portuguese with noticeable German influence. Imagine my surprise when the Portuguese-speaking dispatcher suddenly exclaimed, "Ach due lieber!"

The base dispatches mobile units to various locations by use of numbers and phonetics: *Uno Cero Alpha Foxtrotsky*. I don't speak Portuguese, but from the place names (Curitiba, Santa Catarina) and the fast paced style of communications, I suspect this is a high security taxi service in Sao Paulo, Brazil. About 70% of the 14 million residents there are descendants of the original European immigrants, which accounts for the German influence on the language.

Here are a few more Brazilian repeaters to listen for:

31.02	40.58
31.58	40.64
32.02	40.72
33.02	40.90
36.34	40.92
40.38	41.22

Central America is a major source of military skip. The level of activity this spring was overwhelming (at least it was if you used six scanners as I did). Security patrols, war games, construction projects, and lots of scrambled communications were heard across the band, as high as the MUF would allow, usually around 40 MHz or less.

This was an exciting period in the history of Central America. Nicaragua "invaded" Honduras, in hot pursuit of the Contras,

and the US responded by sending in 1,100 troops for war games.

Hispanic security patrols were constantly on the prowl. These guys were *not* playing war games! On 40.00 MHz, a group leader instructed his patrol, "Remember, use your call sign if you see anything". And on 31.00 MHz, a soldier whispered to his buddy, "I can see you!"

The menacing sounds of Time Domain scrambling also filled the air. Hispanic militaries seem to be the only users of TD in

Central America. You can usually get a clear-voice ID if you wait long enough. See Table I.

There are several types, or configurations, of TD in use in Central America. The main type heard consists of a short, high-pitched chirp before and after the encrypted voice. Other types have noticeably different preambles and faster scrambling rates. Makes you wonder who's who.

Most of these secure net radios were undoubtedly provided by the US to its Central

Low Band Skip Log

Here are some spring F₂ catches from Latin America. Mil intercepts were WBFM, while civilian listings are for NBFM mode unless otherwise noted. SS= Spanish; DD= Dutch; PP= Portuguese; Mil= Military; BI= Business; R/T= Radio-telephone.

29.82: *La Voz del Cuba Independiente y Democrática*, AM-mode. This anti-Castro clandestine is apparently in the Cayman Islands, south of Cuba. Ten meter band hams may recall the interference R. Havana caused with broadcasts on 28.65 MHz. Where'll they turn up next?

29.84: Mexican petro ops, BI.

29.85: Whistler R/T, half-duplex. Channel seems to be used by the Hotel International, Mexico. The hotel op contacts the regional tel op & gives the guests' # request. After the call goes thru, the hotel op switches it to the guest. The Whistlers are easily the most prolific R/T systems on the band. I dub them Whistlers 'cause of the continuous high pitched guard tone noted during the conversations. The exact nature/location of each Whistler remains a mystery. See Table III.

30.00, 38.00: Red Catskill naval ops. "Switch to secure voice on Bravo Net."

30.025: Hispanic security patrol, maybe Peru.

30.15: 92nd US Army Corps of Engineers pouring cement in Honduras.

30.175: Full-duplex R/T, SS.

30.275: English & un-ID langs are used by this business. This skip heard in mornings before noon, so Africa is a possibility. "Come in 93 Radio," & "Conveyor Belt."

30.30: Bulldog Base, Bulldog I, Checkpoint 3, all US mil. Also digital scrambling-- continuous low tone w/beep at end. Used between US a/c. "Go on the secure net on the brief," "Switch to 362.2 MHz." Another US mil here is "Night Operations."

30.45: Hi-speed TD, SS mil. US range control ops, Honduras last March-- "Casualties at Range 19," "Deuce & a half back with casualties."

30.45, 30.90, 31.10, 32.15, 36.00: DES scrambling, US mil. Listen for short data burst preamble fall by what sounds like static. The apparent static is the audio rearranged in a near-random pattern.

30.50: Tick-tack clock sound broken occasionally by MUX, US mil. Also Headquarters 12, US mil.

30.515: Similar to 30.275 MHz.

30.60: "Alpha Base Camp, this is Bravo Deuce," US mil helo ops.

30.605: Full-duplex R/T, SS.

30.62, 33.48: Tone burst telemetry, certainly Mexican. Possible petro ops in Gulf of Campeche.

30.76: Business repeater, SS-- Planta Oro, Planta Norte, Planta Uno, in S. America.

30.80: Label 1-- US mil.

30.90: Airfield 6, US mil tower & a/c.

31.00: A Hispanic soldier sing Happy Birthday To You.

31.30, 32.00, 35.00: Blue Catskill naval ops. "Prisoner on board." Anybody got ideas on who these guys are? See 30.00 MHz.

31.35: SS pager, Madevideo, Usuguy. See Table IV.

31.475: Jamaica, active.

31.48: Gulf Fleet Marine Corp., "Gulf Eagle entering San Juan Harbor," Puerto Rico.

31.50: Sea Gull-- a USN station.

31.59: Whistler R/T in Acapulco, Mexico.

31.70: Hi-speed TD, SS mil.

31.75: 2 a/c NBFM, "I'm flying low & nasty." Wonder what they were up to.

31.775: Brandon Hill Security, Montego Bay, Jamaica.

31.80: US bombing range control.

31.85/32.20: Repeater output/input pair for the Mexican Federal/State Police. Also the Mellow Man Confection Company, Jamaica on 31.85 MHz.

31.95: Bookies in Jamaica-- Crossroads Base is the Kingston office; Spanish Town Base (a/k/a) Sales is in Spanish Town. Look for other Jamaican bookies on 32.10 Half Way Road, 32.30 Orange Street, 32.55

Kingston; 36.875R/33.875I Mandeville, Kingston, also check 45.575 MHz for these ops.

32.00: Mike Whiskey vessels, US mil. Mostly chit chat, "Have you caught our supper yet?" These sigs heard along w/other S. Amer. skip. Mike Whiskey Tac 1, Mike Whiskey Tac 2. Another US mil here was advising mobile to "Pull up your whips."

32.10: A business in the Netherlands Antilles, DD. Others on 32.05, 32.125, 32.175, 32.20, 32.25, 32.30, 32.315, 34.55, 36.025 MHz.

32.15: Digital scrambling, same as 30.40 MHz.

Also Battalion Command Net, US mil.

32.20, 32.80: SS soldiers rebroadcasting music from a local AM broadcast station over their mil comms radios.

32.225: Stepping Stone Base, Jamaica.

32.30: Patrol 23, Patrol 501, US mil.

32.60: A Honduran business, Juticalpa, San Antonio.

32.70, 34.70: USN vessels plotting underwater terrain-- Hopper Control, Hopper 8, Red Beet, Sunny Red 1, 5 Uniform Papa. Probably S. Pacific.

33.35: Cuban repeater output. Some business uses other repeaters on 35.15, 41.84, 43.20, & 49.00 MHz. "CMP" ID's used.

33.40: Venezuelan BI, Caracas, Santa Rosa.

33.425/39.425, 33.475/39.475, 33.525/39.525, 33.625/39.626, 33.825/39.825, 33.875/39.875: These Central Amer. BI repeaters (output/input) sometimes rebroadcast US police stas.

33.70: 2-tone pager open mike w/occasional voice anncs, ID's as Santa Rita.

33.90: Water line trenching, Kingston, Jamaica.

34.30: A hospital in Jamaica.

34.31: Brazilian BI, PP.

34.35: US mil helo & tower, "How many photos do you want?"

34.45: Law Man-- a US mil aircraft.

34.50: Striker 1, Striker 2-- US mil convoy.

34.61: Full-duplex, R/T, SS w/scrambler.

34.65: SS soldier having trouble with reception, "Loco el copia."

34.65, 34.70, 34.95: Full-duplex R/T, SS. Several others in the 34.60-35.00 MHz band, too.

35.02: 3 & 5 tone telemetry. Also on 33.02, 37.58, 38.02, 39.02, 39.66 MHz.

35.05: LZ Control, US mil helo ops.

35.26: KOS225 is CW id of a phone-in pager in Puerto Rico on this freq.

35.60, 35.72, 35.75, 35.81, 35.84: Full-duplex R/T, SS.

35.625: 3-tone telemetry & occasional voice paging, AM-mode, SS. This channel one of many used for ASCII & 3-tone signalling. See Table V.

35.85: Naval Gunfire-- A US mil station.

36.10: "3 casualties & 1 in the field," US mil last April 19th.

36.87/33.87, 36.90/33.90, 36.97/33.97: These 3 repeater output/input channel pairs are sometimes responsible for rebroadcasting US fire department comms taking place on/near their input freqs. The 33.90 freq is a perfect match, while other 2 inputs are off by 10 kHz & results in distortion. Locations of repeaters is unknown but since I've heard them late at nite via multi-hop E_s skip, they're probably within 2500 miles of my Illinois location.

36.90: Angel-- a US mil tower & aircraft.

36.94: Radio Uno, San Tablo-- SS BI sta.

36.95/33.90: Repeater out/in pair in Jamaica, a florist-- Peter Base.

37.19: Repeater out, mentions Caracas (Venezuela), in SS & German.

39.18: Repeater out of an SS BI sta sometimes rebroadcasts US police sigs that skip into its (unknown) input freq.

39.60, 39.65, 39.675, 39.80: Half-duplex R/T, loc may be Argentina around Euenos Aires-- ID as San Carlos, Ascension. Listen for more R/T's in 39.50-40.00 region.

40.68: Telemetry, industrial/scientific/medical.

42.125, 42.175, 42.875, 42.975, 43.40, 43.50,

44.825: BI repeaters, all SS.

43.65: Repeater out, Colon Fire Dept., Panama.

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30.10	30.95	32.10	33.05	34.40
30.15	31.25	32.15	33.15	34.65
30.20	31.30	32.25	33.35	34.90
30.25	31.40	32.30	33.65	35.00
30.35	31.65	32.35	33.80	35.05
40.40	31.70	32.40	34.00	36.00
30.45	31.75	32.50	34.05	41.10

Table I. Time Domain Scrambling from Hispanic Militaries in Central America.

29.80	32.02	36.29
29.95	32.40	38.00
31.30	36.00	42.00

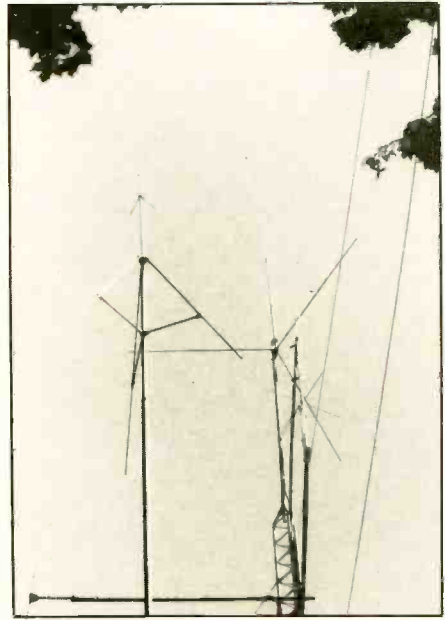
Table II. Soviet Radio Communications on Cuba. Time Domain scrambling and clear-voice Russian language.

American interests, notably El Salvador, Honduras and Panama. However, I think it's fair to say that some are Russian in origin and used by the Sandinistas in Nicaragua. See Table II.

A Voice Multiplexing (MUX) trunk operated by the US military was discovered on the frequencies:

- 34.500
- 34.525
- 34.550
- 34.575
- 34.600

When the system was not in use, "idle" tones were heard on all channels. Simplex (clear-voice) comms were conducted on 34.550 MHz. "I can't hear you on five", exclaimed one technician.



A drooping radial CB antenna tuned to 32 MHz.

Voice Multiplexing is a wideband technique utilizing sub-bands on either side of the carrier frequency, something like the SCA systems that accompany FM broadcast stations. Since the signals are not directly on the carrier frequency, they sound like single sideband. Quack!

Joint US/Hispanic military communications were common. On 33.40 MHz, Honduras 30 Base was trying to conduct range control operations in English. "I don't speak English," said one Honduran without an accent. After he repeated the statement several times, the base gave up in disgust!

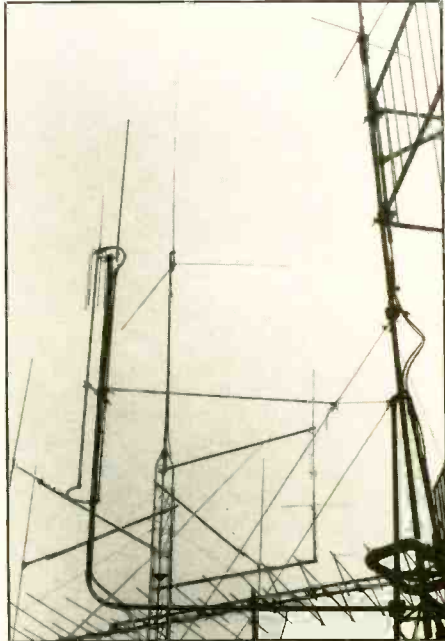
Channel congestion was another problem. An Army Corps of Engineers officer on 30.45 MHz had this to say: "You're on OUR frequency, the 92nd Engineers in Honduras." Wow, those pushy Yanks!

El Salvador del Mundo

One of the most frequently logged Central American stations has finally been identified! For years I've monitored this high-security taxi service on 30.475 MHz, Spanish language. San Benito was mentioned by mobiles and base, so Guatemala seemed the only possibility since it's the only Central American country with a town of this name. Sounds reasonable enough, no?

The big break came in early May when one of the mobiles made reference to "San Salvador del Mundo", the famous statue looking over downtown San Salvador, El Salvador!

As for San Benito, it's not a town, it's a ritzy suburb of San Salvador! Here are some more ID's: Avenida Jose Marti (Jose Marti Avenue); colonia (suburb, as in Colonia San Benito); Banco de Central (the Central Bank); Banco el Mundo Nacional (the World National Bank); Condominio (con-



An Avanti AV-801 wide band antennas.

29.615	29.745	29.865	31.44	31.56
29.625	29.76	29.88	31.455	31.575
29.655	29.775	29.895	31.47	31.59
29.67	29.79	31.365	31.485	31.605
29.685	29.805	31.38	31.50	31.62
29.70	29.82	31.395	31.515	31.635
29.715	29.835	31.41	31.53	31.65
29.73	29.85	31.425	31.545	31.705

Table III. Whistler Radio-Telephones use 15 kHz channel spacing, although some stations may be off a few kHz. The frequency 31.365 is used on the British Leeward island of Antigua, English language. Note that freqs in the 28.00 to 29.70 band are illegal intruders in the 10 meter ham band.

32.02	31.78	32.86	35.18*	36.02
30.02	31.78	32.96*	35.28*	36.06
30.24	32.68*	33.20	35.32*	37.12*
30.76	32.76	33.70	35.60	37.42*
31.35*	32.82*	35.08*	35.62	37.64*
				39.64*

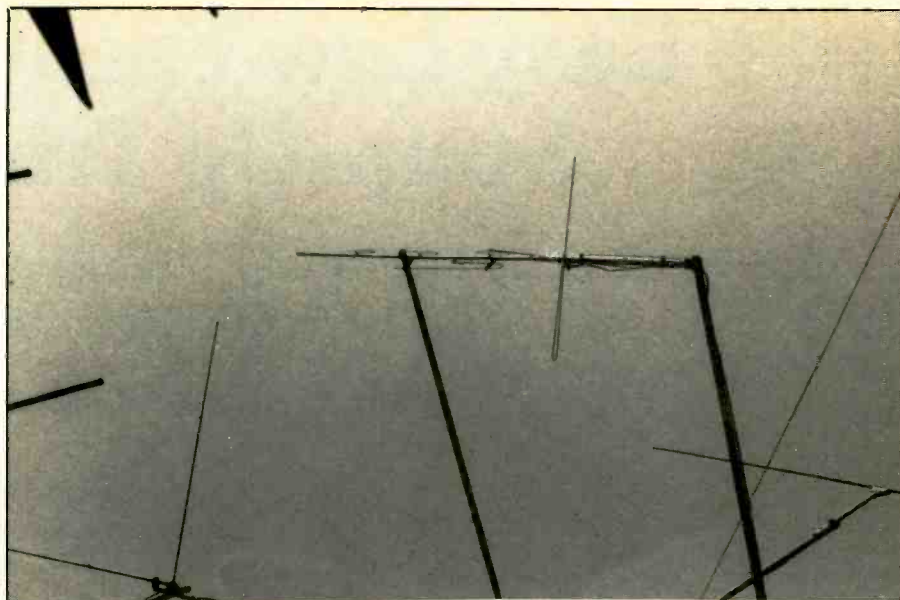
Table IV. South American Paging Stations make great band indicators. How high is the MUF? Just go down the list and locate the highest active frequency. Prime channels are marked with an asterisk (*).

35.55	35.625	35.70
35.575	35.65	35.725
35.60	35.675	35.75
		37.725

Table V. South American Telemetry Stations using ASCII and/or "3-tone" signaling in AM.



This Ringo is tuned to 33 MHz.



Here's a close-up of the SC3000.

dominium); seis y seis (sixty-six . . . typical mobile designator).

It's great when you finally get a rock-solid ID on a foreign station. Most governments don't allow free dissemination of their frequency allocations and useages. Unless you want to do a lot of traveling with your scanner, low-band skip is the best way to take a look at these foreign governments.

Has anyone else monitored these security service comms on 30.475 MHz? Because of the low frequency used, the skip signal should be heard regularly across most of the U.S. Give 30.475 MHz a try.

Operator's Guide

I'll leave you with a few guidelines for operating a VHF low-band skip station:

1. Allocate at least one scanner for full-time low-band monitoring. Let it run all the time you are at your monitoring station. When the bands open, you'll be there ready and waiting!

2. Use a log book. It's essential to log and review you'r catches. This will help "put a handle" on the skip you hear regularly. The hard-backed "Record" books sold at office supply and discount stores are ideal.

3. Use a tape recorder.

4. Make sure your antenna is capable of low-band reception. Some antenna systems are equipped with wide band preamps which may overload and desensitize the low-band section of the receiver. The scanner may still receive low-band signals, but not as well!

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CIRCLE 43 ON READER SERVICE CARD

Easy Low Frequency Soup-Up Tricks

Greatly Improving Your Reception In The 10 to 500 KHz Band

BY WALTER B. LOGAN III, KFL4LF

Maybe you've never bothered tuning below 500 kHz. There's a whole new world there for those with a taste for the unusual and a flair for adventure. There are radio-beacons (thousands of them), CW coastal stations and ships, RTTY and FEC communications, Loran-C and Omega navigational signals, time signal stations, military comms, and even broadcasters in Europe, Asia, Africa, the Middle and Near East.

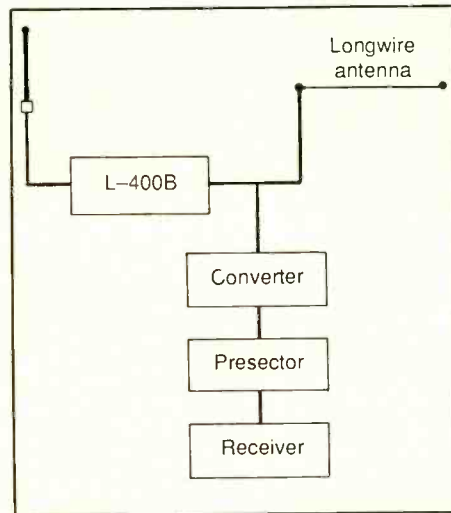
Frequencies below 500 kHz have considerably longer wavelengths than those used by AM broadcast band (530 to 1600 kHz) stations. Compared to the wavelengths employed above 1600 kHz, these are truly gargantuan. For instance, the wavelength of a CB signal is about 33 feet, at 1000 kHz a signal is 985 feet. But look what happens below 500 kHz; when you get to 207 kHz, you're dealing with waves about 4800 ft. in length. At 50 kHz, the wavelength is longer than 3½ miles! That's where "longwave" got its name.

The traditional quarter wave whip for CB frequencies need only be 8 ft. in length, or shorter, if it has a loading coil. On the shortwave frequencies, a 35 foot longwire will be reasonably effective (it's a quarter wavelength for frequencies around 7500 kHz). But for receiving frequencies below 500 kHz, the wavelengths are so long that most of us don't have the space to string up even a quarter wave hunk of wire that will be reasonably efficient. If you have the room to roll out a 100 ft. longwire, it will still come up short for truly effective reception in this band.

Facing this problem myself when I decided that I wanted to explore below 500 kHz, I tried several methods of improving reception. In the end, I found that, without too much hassle, I was able to vastly improve reception over the results provided by a 100 ft. longwire antenna.

Frequency Expansion

First, one thing I want to address was the little fact that, like many communications receivers, the lowest frequency to be tuned was 100 kHz. I found that converters are available that would permit tuning down as low as 2 or 3 kHz. These units are placed between the antenna lead and the antenna input of the receiver. They require no modi-



Here's how I hooked up all the goodies at my station.

fications to the receiver and can be hooked up in a few seconds without any special tools or expertise.

With the converter switched off, you experience the same reception you had before you connected the unit. When you want to use the converter, you switch it on, then tune to the shortwave frequency band for which the converter was designed, for instance the band starting at 3500 kHz. You'll find that the signals you used to hear around 3500 kHz are now gone, and your receiver

will now pick up only signals in the (approximately) 2 kHz to 500 kHz band when you tune your receiver from 3500 to 4000 kHz. When your receiver reads out 3702 kHz, you're actually tuned to 202 kHz.

Different low frequency converters for various shortwave bands are available from several manufacturers. I have had excellent results with units produced by:

MFJ Enterprises, Inc., Box 494, Mississippi State, MS 39762,
LF Engineering Co., Inc., 17 Jeffry Road, East Haven, CT 06512,
Palomar Engineers, Box 455, Escondido, CA 92025.

After acquiring the capability to tune down to frequencies as low as 2 or 3 kHz, the next step was to see what I could do to bring up the level of those signals, since they were a little feeble because of my (mere) 100 ft. longwire antenna.

At that point, I realized that my tunable shortwave (2 to 30 MHz) preselector could be easily pressed into service. Now that my converter was turning the low frequency signals into shortwave, I could simply connect the preselector between the converter and the receiver to give the signals a much needed boost—the same boost the preselector would give to any shortwave signals. This worked, and offered a noticeable improvement in terms of S-meter readings and stations received.

Still, I felt that I was hampered by an antenna system that was inherently inade-



The LF Engineering L-400B active gain antenna system does a fine job.

Table I

	A	B	C	D	E
51 kHz	—	S-8	S-9+20	—	S-9+40
135 kHz	S-4	S-7	S-9+20	S-9+10	S-9+40
195 kHz	S-3	S-2	S-9	S-9+10	S-9+30
316 kHz	S-3	S-2	S-9+10	S-9+10	S-9+40
540 kHz	S-9+20	S-9	S-9+20	S-9+30	S-9+40

A comparison of the receiver running barefoot vs. with various enhancements. See text for explanation.

Table II

The Low Frequency Spectrum	
1 to 9 kHz	Military ELF Communications
9 to 14 kHz	Navigational Aids (Omega)
14 to 19.9 kHz	Maritime
20 kHz	Standard Time/Frequency Stations
20.5 to 148 kHz	Maritime
90 to 110 kHz	Navigational Aids (Loran-C)
148 to 284 kHz	Broadcasting (Europe, etc.)
150 to 200 kHz	Military
160 to 190 kHz	Low Power Hobby ("Lowfers")
190 to 415 kHz	Radiobeacons (NDB's and others)
415 to 510 kHz	Maritime
510 to 525 kHz	Radiobeacons
518 kHz	Navtex Broadcasts (FEC mode)

The Low Frequency Spectrum at a glance, showing the major frequency divisions.



A typical low frequency radiobeacon. (Photo by George Osier, NY)

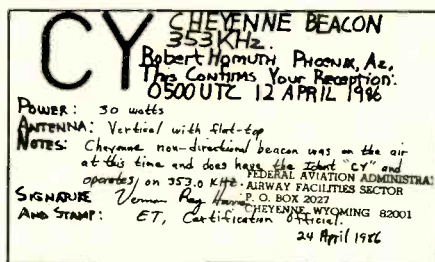
quate. I wondered what the results would be if I could hook my station to an antenna system intended for low frequency reception. I searched around and noticed that LF Engineering Co., (address given above) produced a product called the L-400B LF Active Gain Antenna.

Here was an antenna system that was designed to pick up signals between 3 kHz and 530 kHz and give them an 18 dB amplified improvement. The entire system consisted of a small control box with an on/off switch, 50 ft. of thin RG-174 coaxial cable, and a rather short (26-inches long) and stubby (1-inch thick) "probe" intended for outside mounting. This appeared to be just the type of thing I was seeking, and the whole thing cost less than \$90.

The question in my mind was whether a 2-ft. by 1-inch plastic-enclosed probe was going to do anything for me that 100 feet of wire wasn't already doing. I decided to give it a shot.

The L-400B Goes On Line

When the L-400B arrived, it was almost in ready-to-go condition. It required two 9-volt batteries for snug installation in the control box. The probe was placed outside the house, with the coaxial lead running to the control box. Then, a short patch cord



A PFC veri from Beacon CY running 30 watts on 353 kHz. (Courtesy Robert Hornum, AZ.)

was connected from the signal output of the control box, to the input of the low frequency converter. That's all there was to the hookup. This crazy thing did work, and when fed through the shortwave preselector it made things much better!

It produced no intermod from strong AM broadcast signals, and brought in signals that were buried in the mud when with the receiver "barefoot." I made up a comparison chart of some representative signals at various points between 50 kHz and 530 kHz, as received with various enhancing components switched in and out of the system. The receiver used was an ICOM R-71A.

You can see the comparative results in

Table I. In the measurements, shown in S-units, Column A represents the receiver using only the 100 ft. longwire; Column B indicates the same received signals when fed through the converter operating in the 3500 kHz to 4000 kHz band; Column C shows the converter fed from the LF-400B; Column D represents the receiver fed from the LF-400B; while Column E presents the combination of the converter, the preselector, and also the L-400B antenna system all in operation. There are dramatic differences when compared with the receiver operating directly from the longwire antenna.

After everything was hooked up, I realized that my 100-ft. longwire (which I used for general monitoring) had somehow gotten lost in the shuffle of improving low frequency reception. Although I had hooked it up for my measurements, when the L-400B was hooked up, the longwire was disconnected. The longwire is my main antenna for general reception. I solved the dilemma by putting a "Y" connection at the input of the converter and hooking up both antennas. Neither appeared to adversely affect the other with this arrangement, so that's the way I use them. A block diagram of the hookup is shown in Figure 1.

I now enjoy excellent low frequency reception, hearing stations I had never before

Table III

A Low Frequency Broadcast Sampler

153 kHz	Bechar, Algeria	2 Megawatts
	Brasov, Romania	1.2 Megawatts
	Khabarovsk, USSR	2 Megawatts
162 kHz	Allouis, France	2 Megawatts
173 kHz	Nador, Morocco	1.2 Megawatts
180 kHz	Europe 1, FRG	2 Megawatts
189 kHz	Blagoveschensk, USSR	1 Megawatt
234 kHz	Junglinster, USSR	2 Megawatts
245 kHz	Vladivostok, USSR	1 Megawatt
263 kHz	Moscow, USSR	2 Megawatts
	Chita, USSR	1 Megawatt

A few of the almost 100 high-powered broadcasters to be found operating in the 148 to 284 kHz portion of the band. Those above 195 kHz are usually buried 'neath radiobeacon signals.

Table IV

AP	Denver, CO	260 kHz
EZB	Oakland, CA	362 kHz
FIS	Key West, FL	332 kHz
GKQ	Newark, NJ	332 kHz
GLS	Galveston, TX	206 kHz
GNI	Grand Isle, LA	236 kHz
IGD	Los Angeles, CA	332 kHz
IN	Indianapolis, IN	266 kHz
ME	Chicago, IL	350 kHz
OW	Owensboro, KY	341 kHz
TUK	Nantucket, MA	194 kHz
XS	Prince George, BC	272 kHz
YQL	Lethbridge, AB	248 kHz
YSB	Sudbury, ON	218 kHz
YY	Rimouski, PQ	257 kHz

There are more than 1,000 NDB's, many with voice weather information broadcasts either continuously or at 15 and 45 minutes past each hour. These are a few of them.

RUGBY RADIO STATION

GBR

RUGBY, ENGLAND

THIS WILL CONFIRM YOUR RECEPTION OF
 RADIO STATION GBR ON 16 KCS. AT
0957 GMT ON 25th July 1959
 POWER: 50 Kw WATTS, ANTENNA L.W. Broadcast
 REMARKS:—

Signed: *[Signature]*
 ENGINEER-IN-CHARGE

How low can you get? A 1959 QSL from station GBR, Rugby, England was running 50 kW on 16 kHz when logged by Tom Kneitel, NY.

WSL

AMAGANSETT, N.Y.

THIS WILL CONFIRM YOUR RECEPTION OF
 RADIO STATION WSL ON 112.85 KCS. AT
0152 GMT ON 23 July 1959
 POWER: 22 Kw WATTS, ANTENNA Inverted L
 REMARKS:— 73

Signed: *[Signature]*

Station WSL, Amagansett, NY was running 22 kW on 112.85 kHz when QSL'd in 1959. The station went QRT a few years ago. (Courtesy Tom Kneitel, NY).

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By **Bob Grove**
 WA4PYQ

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been able to detect. Stations that had previously been weak, now come barreling in. If you haven't yet gotten into listening below 500 kHz, now's the time to consider making your move.

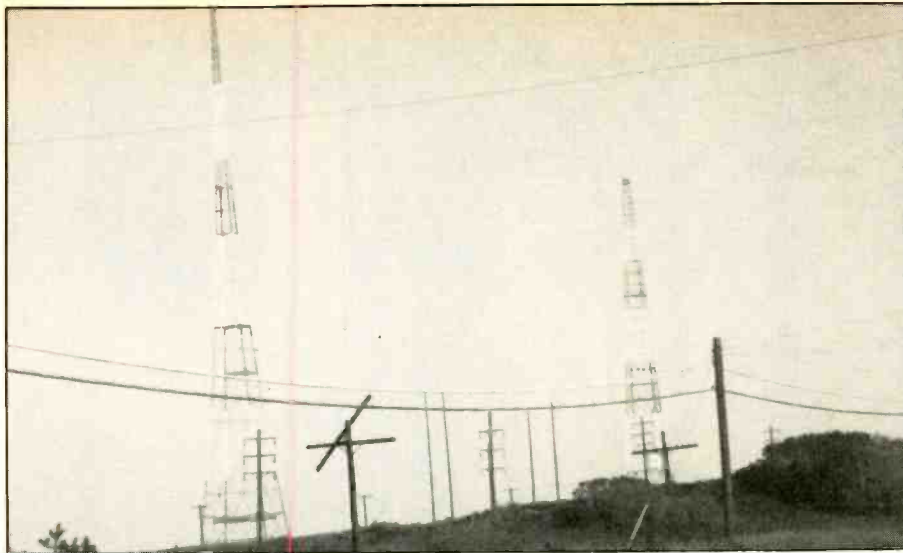
A 10 kHz to 500 kHz Crash Course

Allocations for stations below 500 kHz are shown in Table II. This should give you some general idea of what's where on these frequencies. Most of the traffic below 190 kHz is either CW or encrypted RTTY. Between 160 kHz and 190 kHz is the "Lower" unlicensed low-power hobby band. Low-fers engage in some (CW) two-way comms, but mostly they operate CW beacons to see how away other hobbyists can receive the signals.

Broadcasting stations in distant lands operate between 148 kHz and 284 kHz, and you may find that searching them out will add a whole new dimension to your DX'ing. A sampler listing of a few of these broadcasters is given in Table III, although there are many others.

Radiobeacons, both maritime and aviation, abound from 194 to 415 kHz. These

CIRCLE 52 ON READER SERVICE CARD



The two imposing towers of station WSL, Amagansett, NY. One tower was later torn down, but the other (to the left in the photo) still stands. WSL station operated 500 kHz and several others below that. (Photo by Tony Earl, KNY2AE.)

are essentially stations that send out a very slow, repeating CW identification signal. A number of these stations also have periodic or continuous AM-mode voice broadcasts of aviation weather information. Table IV lists several beacons having superimposed voice broadcasts.

From 415 kHz to 500 kHz there's a band that produces a considerable amount of maritime CW traffic. Don't forget that 500

kHz is the international maritime calling and distress frequency.

Probably the best starting point for the novice low frequency listener is the 195 to 415 kHz radiobeacon band. Because there are so many Non Directional Beacons (NDB's) in this band, and they operate continuously, you can't help but hear several without any great effort. Radiobeacons all have individual identifiers, usually consist-

ing of one to three letters. These identifiers are repeated about five times per minute. October to March are the best months for exploring this band, with the DX coming through at night. The time around sunset and sunrise seems to be especially productive.

A by-location listing of about 1,300 U.S. and Canadian NDB's, showing the identifiers and transmitting frequencies is included in the *ADF Manual*, by Skip Carden. This book (which also lists U.S. and Canadian AM broadcasting stations) is \$11.95 (plus \$2 postage/handling) from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725. (NYS residents please include \$.90 sales tax.)

The communications stations between 3 kHz and 500 kHz are listed in the *Shortwave Directory, 4th Edition*, by Grove; also the *Guide To Utility Stations, 6th Edition*, by Klingenfuss. These are available from a number of suppliers.

Broadcasters on these frequencies are all listed in the current *World Radio TV Handbook*, widely distributed.

You should now have enough information to embark upon a rewarding and exciting aspect of communications. If you're looking for something new, this may be just what you're seeking. More info on activities on these frequencies appears in the pages of *The Lowdown*, monthly publication of the Longwave Club of America, 45 Wildflower Rd., Levittown, PA 19057 (\$12 yearly membership). **PC**

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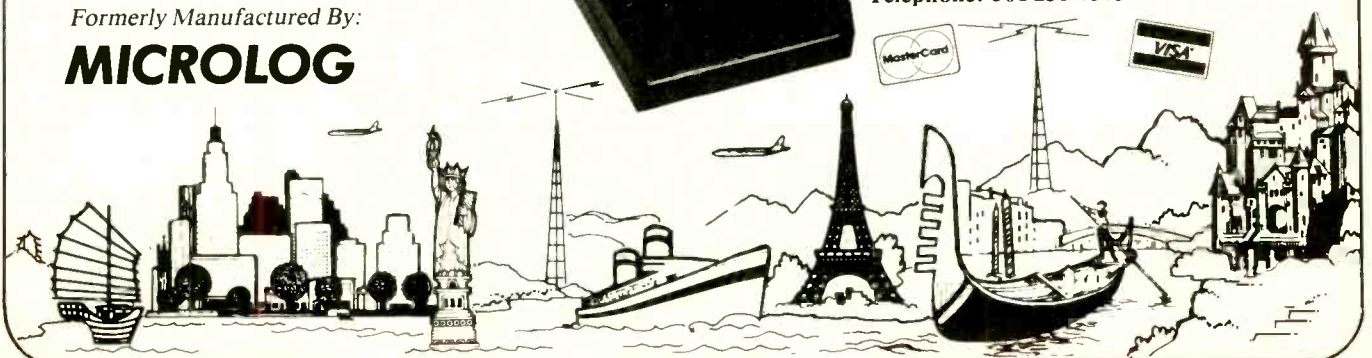
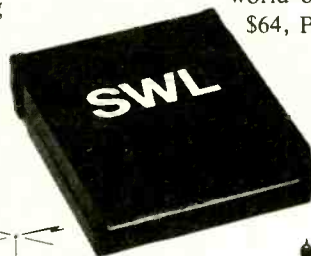
Formerly Manufactured By:

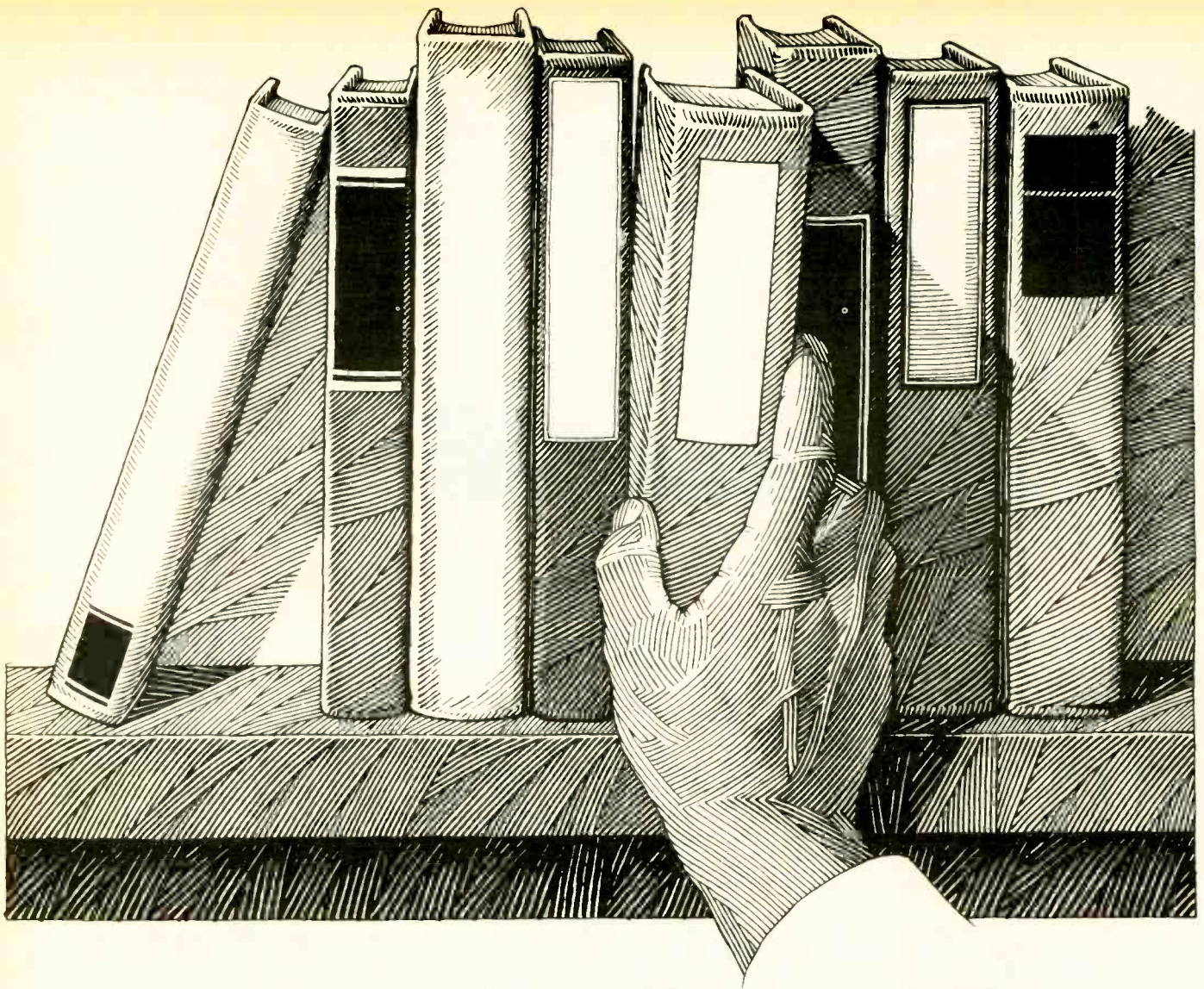
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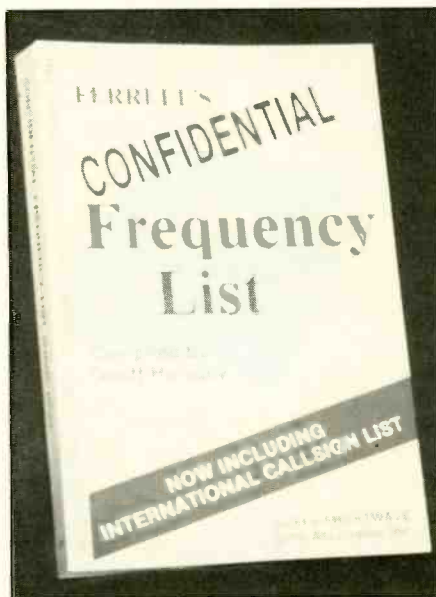
BY R. L. SLATTERY

The Original: A New Edition

Ferrell's *Confidential Frequency List* is the original utility station registry prepared for the hobby listener. For my money, all other such listings (be they good, bad, or indifferent) were inspired by the CFL. And now, the CFL is out in a newly revised and updated Seventh Edition.

This new edition covers the 4 to 28 MHz range, worldwide. It includes more than 30,000 listings in a hefty 376-page format including SSB/CW/RTTY/FAX station listings. Stations covered include military, aero, coastal, diplo, weather, time signals, press, feeders, telephone, federal, as well as assorted mystery and espionage comms. As always, the CFL contains a wealth of listings that don't show up anywhere else and that's one of the things that keeps it both unique and especially useful.

Listings are shown in ascending frequency order. This edition also provides an inter-



national callsign list, plus service allocations, maps, and introductory text.

Those who are interested in non-broadcast and non-ham shortwave monitoring will certainly want to have the Seventh Edition of *Ferrell's Confidential Frequency List* conveniently located where it can be used for quick reference. It's the "must have" directory for utility station monitoring.

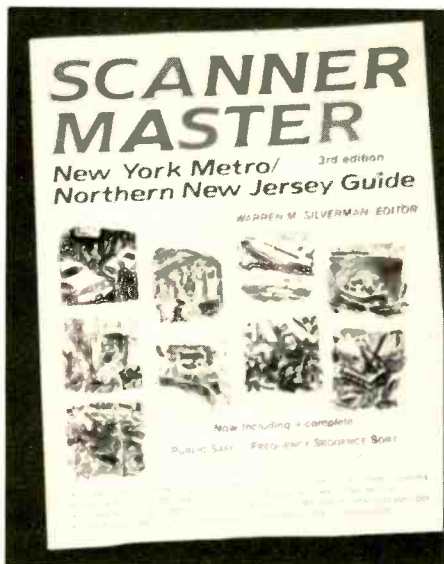
The Seventh Edition of *Ferrell's Confidential Frequency List* is available from leading shortwave book and equipment suppliers. It can also be ordered directly from its publisher Gilfer Associates, Inc., 52 Park Avenue, Park Ridge, NJ 07656 for \$19.95 (plus \$2 shipping to USA addresses, \$4 outside USA).

Metro New York Area Scanner Guide

A gigantic new scanner frequency direc-

tory covering New York City and other areas within 100 miles of the Big Apple has recently been issued. It's the Third Edition of the *Scanner Master New York Metro/Northern New Jersey Guide*, a 470-page large 8½" x 11" format volume weighing in at more than 2¼ lbs.

The areas covered encompass New York City, as well as the New York counties of Dutchess, Nassau, Orange, Putnam, Rockland, Suffolk, Ulster, and Westchester; Fairfield County in Connecticut; and the New Jersey Counties of Bergen, Essex, Hudson, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, and Warren. Listings are for state, county, town, and municipal agencies—police, fire, and other all communications services. In addition, there are numerous maps, code signals, agency addresses, call signs, channel designator numbers and usage information, call signs, agency descriptions, etc. There are in-depth reports on all New York City services, including the Police and Fire Departments.



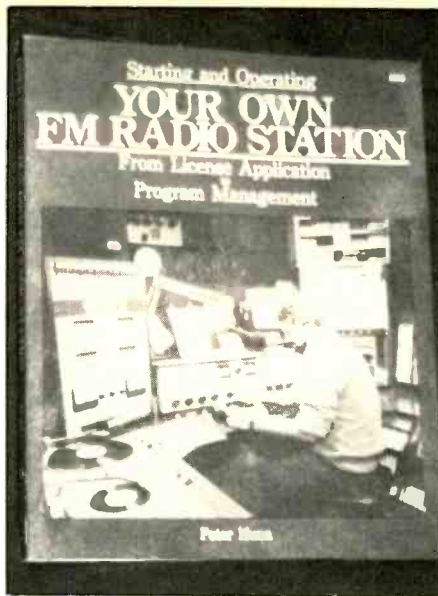
Further, there are listings for news media communications, transportation, ham repeaters, maritime, and other services. At the back of the book there is a comprehensive by-frequency listing of all public safety licensees in the New York Metro and surrounding areas.

This Third Edition is, by far, the most extensive scanner listing ever compiled for this area. It's good looking, useful, and generally prepared very nicely. It's an excellent reference directory; well worth having if you are a scanner user in its coverage area.

The *Scanner Master New York Metro* directory is available from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725 for \$24.95 per copy, plus \$2 postage/handling to addresses in the USA/Canada/APO/FPO. New York State residents add \$1.88 sales tax.

On The Air!

POP'COMM readers will recognize the



name Peter Hunn, as it has appeared on the byline on several features in recent issues. Hunn's a broadcaster, having founded a successful small FM commercial broadcast station in New York State. Currently, he is reactivating an AM station that its previous owners had neglected to the point where it went silent.

Hunn has written a perceptive new book entitled *Starting and Operating Your Own FM Radio Station (From License Application to Program Management)*. The 155-page illustrated book, written in non-technical language, provides sufficient information to enable the average person to license and operate a commercial FM broadcast station.

He explains obtaining a frequency, selecting a call sign, getting a good location, obtaining an FCC construction permit and license, how much to spend, the staff you'll need, the equipment required, programming, news, obtaining revenue through selling air time, publicity, buying an existing station or starting from scratch, etc. Hunn even tells you how to eventually sell your station for a substantial profit (as he did with his own station, WHRC-FM).

Hunn's book offers a well-rounded look at broadcasting's backstage, and whether that dream you've always had can really come true. Brings up many points you've probably never thought of, based upon Hunn's own experiences with WHRC-FM. Good information on how to size-up your audience and provide the most appealing programming for their tastes.

Your Own FM Radio Station is a TAB Book (#2933) that sells for \$12.95 from most of TAB's many nationwide dealers.

PC

YOU
AIN'T HEARD
NOTHIN...YET!

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Radio Ramblings

Broadcasting and Wireless – As It Was In Days Of Yore

BY ALICE BRANNIGAN

Some “local” broadcasters merge with other stations and the combination of those stations may emerge as a major 50 kW outlet. Other small stations either remain small, or perhaps grow along with the community they serve, finding that a noble aspiration. It isn't always easy being a local broadcaster, fighting the bigger stations for a reasonable share of the listening audience. While many local broadcasters have managed to be quite successful over the decades, others haven't been quite so fortunate. But, regardless of whether they are survivors or have become history, they comprise the groundwork upon which broadcasting was built. As such, they are worthy of attention, for indeed, many receive relatively scant attention outside of their respective local communities.

For instance, let's look at WDBC, Escanaba, MI. In 1941, WDBC was put on the air (1490 kHz, 250 watts) by the Delta Broadcasting Co., with studios and transmitter at

First and Ludington. As WDBC approaches its 50th year on the air serving Escanaba, it has grown with the town. Today WDBC is on 680 kHz running 10 kW (1 kW nights).

Our view of WDBC isn't dated but is probably from the station's early years. Nothing fancy, just a plain building distinguished by the callsign over the door. In the background is a small peek at Lake Michigan's Little Bay de Noc, the local lighthouse, and (off in the distance) Michigan's rugged northern peninsula.

WJMJ, Lewisburg, TN arrived on the scene in the late 1940's, running 250 watts (also) on 1490 kHz. Today, the station remains on 1490 kHz, but has increased its power to 1 kW (250 watts at night). We have a photo of WJMJ that shows the station as it appeared when it began broadcasting. In fact, the photo reveals what looks much the same as many of the well-kept two-story stone homes that abound in the area, complete with a car in the driveway

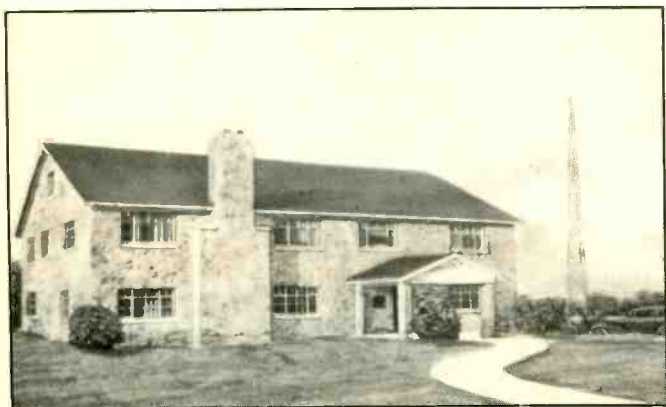
and a winding front walk. The only clue that lets you know it's a broadcasting station is the rather small (for a broadcasting station) tower off to the side of the house. We'd guess the tower at about 30 ft. tall.

Well, we couldn't rush off without paying tribute to some of the local broadcasters who fell in the battle to stay on the air, like KFQU, *Pioneer Station of The World to Broadcast Testproof Wisdom Understanding*, also known as *The Voice of The Santa Cruz Mountains*. It's about as obscure a broadcast station as ever sent out a signal.

KFQU started its brief career in Alma (also known as Holy City), CA in 1925. This is about ten miles south of San Jose, near Los Gatos. KFQU was put in operation by W. E. Riker, running 100 watts on 1350 kHz, although it soon shifted to 1380 kHz, then 1300 kHz, and 1360 kHz. Ultimately, KFQU settled down with its 100 watts on 1420 kHz, where it shared time with KGTT, San Francisco's 100 watt station operated



WDBC has been on the air from Escanaba, MI since 1941.



WJMJ, Lewisburg, TN had a rather short tower in the early days.

W. E. RIKER, General Manager

100% MODULATION 100% Efficiency


BROADCASTING STATION

K F Q U

"THE VOICE of the SANTA CRUZ MOUNTAINS"

PHONE LOS GATOS 48-J

HOLY CITY, CALIF. March 12, 1931.



Mr. Joseph Hueter,
1610 No. 18th St.,
Philadelphia, Pa.

Dear Sir:

We received your letter with the good report on the reception of KFQU, which we appreciate very much. We are enclosing one of our private station stamps verifying program heard.

Regarding Holy City - it is located in the heart of the Santa Cruz Mountains about 60 miles south of San Francisco. We are also enclosing a leaflet regarding the principles of Holy City, and should you be further interested, drop us a line and we shall be glad to send you more particulars.

For your convenience we give below our night hours:

Monday: 11:00 P.M. to 1:00 A.M.
Tuesday 10:00 P.M. to 1:00 A.M.
Wednesday Midnight to 2 A.M.
Thursday " " "
Friday 10:00 P.M. to 1:00 A.M.
Saturday 11:00 P.M. to 1:00 A.M.


Trusting you may pick us up again and enjoy our programs, we are

Yours truly,
K F Q U

Encl.

WFQU wasn't on very long before the FRC revoked its license for "poor service." (Courtesy Joe Hueter.)

W O Q



OWNED AND OPERATED
BY
UNITY SCHOOL OF CHRISTIANITY
917 TRACY AVENUE
KANSAS CITY, MO.

CENTRAL STANDARD TIME

1300 KILOCYCLES 1000 WATTS

During the 1931 purge, WOQ (a religious station) was yanked from the airwaves without being accused of doing anything wrong. (Courtesy Rich Berkowitz.)

by the Glad Tidings Temple and Bible Institute.

Whatever KFQU's value might have been to its audience area is a matter of conjecture. In late 1931, the Federal Radio Commission ordered the station off the air for "poor service." The station appealed to the courts to reverse the order, but to no avail. By February of 1932, it had entered the pages of history, never again to be heard. As you might imagine, the station was rather forgettable on all accounts, although Joe Hueber, of Philadelphia, PA did manage to hear KFQU in 1931 and obtain a veri letter, complete with its official station stamp.

1931, A Poor Year For Broadcasters

Notwithstanding the Great Depression, 1931 was a poor year for many broadcasters. By then, broadcasting was ten years old and the first flush of novelty had worn thin. KFQU wasn't the only station ordered off the air that year by the FRC. During a rather major housecleaning of the airwaves the agency was conducting, it cancelled the licenses of 125 stations thought to be inactive, unnecessary, undesirable, or otherwise better off deleted.

Led by FRC Chairman Maj. Gen. Charles Saltzman, the agency acted against many stations, although by early 1932, some were still operating pending the outcome of court appeals.

Los Angeles station KGEF, formerly op-

Broadcasting Station W. M. A. K.
Lockport, N. Y. 3/7 1925

We wish to thank you for your kind report of our program of 3/2 and assure you of our deep appreciation.

Our operating schedule is as follows:
Weather and Farm Report—11 A. M., E. S. T. daily except Sundays.
Musical Program Tuesday, 8:15 P. M., Thursday, Midnight.
Church Services: Sunday, 10:25 A. M.
Feature Programs: Monday (to be announced).
Remarks:

Wave length 265.5 meters.
We do not publish programs for distribution except to Newspapers.
NORTON LABORATORIES, INC.

Station WMAK was removed from the air in 1931 because of failure to meet FRC technical standards. (Courtesy Larry Flegle, KC4AXQ.)

erated by Rev. Robert P. Shuler, militant pastor, appealed to the U.S. Supreme Court on the issue of free speech, but was silent during the process, having failed to obtain relief from the lower courts.

WOQ, of the Unity School of Christianity, Kansas City, MO (1300 kHz, 1 kW) was ordered to relinquish its air time to its time-share station, KFH, Wichita, KS (100 watts). This was demanded because the FRC felt that Kansas City already had sufficient coverage from other stations, while the State of Kansas required more coverage.

WMAK, Buffalo, NY (1040, 1 kW) was ordered off because of failure to meet technical standards. Same problem for Leon Tenny's station KZM in Hayward, CA (1370 kHz, 100 watts); even worse was LeRoy J. Beebe's station in WMBA in Newport, RI (1500 kHz, 100 watts). Not only did WMBA get bounced for poor technical showing, but also for poor programs.

WMBJ, owned by Rev. John W. Sproul of Wilkesburg (Pittsburgh) PA (1500 kHz, 100 watts) lost its license when the FRC decided to let a new 100 watter (WWSW) in Pittsburgh use the frequency. The Zenith Radio Corporation station in Chicago (WJAZ, 1490 kHz, 5 kW) was bounced when its air time on the frequency was allocated to Cincinnati's 5 kW station WCKY.

Killed, too, was WMAY (1200 kHz, 100/250 watts) of the Kings highway Presbyterian Church in St. Louis, MO. The FRC claimed that WMAY wasn't actually a radio station (they described it as a "phantom") since it did no more than use the transmitter of station WIL.

The FRC then refused to issue a license to planned high power educational station KPFW in Los Angeles when its promoters confessed that they couldn't raise the funds for its authorized construction. Two stations that voluntarily gave up the ghost were WSSH (1410 kHz, 500 watts) of Boston's Tremont Temple Baptist Church; also KFIU (1310 kHz, 10 watts) of the Alaska Electric Light and Power Co., in Juneau. WSSH said that another local station had promised its owners specified periods of air time in exchange for shutting down their own station. KFIU simply stated that it "could not stand the strain of continued operation."

Ordered off the air, but still operating by early 1932, were WIBO (560 kHz, 1 kW) of

the Nelson Bros. Bond and Mortgage Co., and WPCC (560 kHz, 500 watts) of the North Shore Congregational Church, both of Chicago. They were appealing the FRC's decision to turn over their air time to Gary, IN station WJKS (Johnson Kennedy Radio Corp.) because Illinois had more than its quota of radio stations, while Indiana was below quota. Chicago's WCHI (Radio-phone Broadcasting Corporation, 1490 kHz, 5 kW) was also ordered closed down because it broadcast questionable medical advice.

WNJ (1450 kHz, 250 watts) of the Radio Investment Co., Inc., at Newark, NJ and WKBO (1450 kHz, 500 watts) of the Camith Corp., Jersey City, NJ were told to step aside for WHOM (1450 kHz, 250 watts) of the New Jersey Broadcasting Corp., Jersey City, NJ because of WHOM's "superior service."

WLBX (1500 kHz, 100 watts), operated by John N. Brahy in Long Island City, NY was kicked off the air for "failure to provide public service."

One of the few newspaper-owned stations bumped in 1931 was KPSN (1360 kHz, 1 kW), of the Pasadena Star News in California. It didn't bother to appeal the FRC decision which cited "inadequate technical equipment" at the station.

There were also a number of consolidations in 1931 that went towards reducing the number of stations from 733 to 608. WGBC (1430 kHz, 500 watts) of Memphis Broadcasting Co., in TN merged with its owner's other local station, WNBR (also on 1430 kHz). Minneapolis stations WHDI (William Hood Dunwoody Industrial Inst., 1180 kHz, 500 watts) merged with its 1 kW local timeshare station, WDGW owned by

Broadcast by WLBX
The Radio Voice of Long Island
30-22 CHASE STREET
LONG BEACH, N. Y.

APRIL 9th, 1932

The Radio Voice
at the
Gateway
of Long Island
brings
Enjoyable
Programs
to the
People of
Suffolk
Every Day

Mr. Joseph Leo Bester,
1728 North 13th St.,
Philadelphia, Pa.

Dear Sir:-

This letter will verify your reception of our program as noted on your recent card to us. Late programs are broadcast by this station on Tuesday and Thursday nights, when we are on the air until about two A. M. the following morning.

We shall be pleased to hear from you again regarding the reception of these broadcasts.

Yours very truly,
STATION WLBX
Barbara Simon

WLBX AIR ADS
Bring Results


WLBX was cited for "failure to provide public service." Note that this veri letter is dated after the FRC ordered the station silent. Probably was operating during a court appeal.

DEAR FRIEND:
 With pleasure we confirm your reception of
 Test program of records
 given at one A.M. o'clock Pacific Standard Time, on our
March 20th 1931
 Your interest in this Station is appreciated, and we hope you will continue to both hear and enjoy our radio programs. It is the aim to have these programs of high merit.

With cordial acknowledgments,

KPSN
 THE PASADENA STAR-NEWS
 PASADENA, CALIFORNIA

1000 WATTS
 1360 KILOCYCLES



One of the few newspaper stations silenced in 1931 by the FRC was KPSN. They didn't bother to refute the charges. (Courtesy Joe Hueter.)

We have received your report of reception on
Nov 23, 1931
 and are glad to send you this verification. It is a pleasure to include you among those who have heard our broadcasting. If it is convenient we would like to have you advise us the next time you pick up our programs.

MEMPHIS BROADCASTING COMPANY
WGBB
 ELK'S HOTEL
 MEMPHIS, TENNESSEE
Thomas J. Chamberlain
 Program Director

WGBB and WNBR were licensed to the same owner, and they operated on the same frequency. There wasn't any reason for the two stations to coexist, so WGBB was merged into WNBR in 1931. This WGBB/WNBR QSL is from just before WGBB was killed off. (Courtesy W.L. Hanff.)

Dr. George W. Young. WISJ (560 kHz, 500 watts) of the Wisconsin State Journal Co.) in Masison, WI joined forces with local station WIBA (1210 kHz, 100 watts) of the Capital Times Co. Also authorized was the merger of WCSO (1450 kHz, 500 watts) of Wittenberg College, Springfield, OH and station WFJC (1450 kHz, 500 watts) of W.F. Jones Broadcasting, Inc., Akron, OH. These stations blended to become 1 kW WGAR (1450 kHz) in Cleveland, OH.

The most notable station to leave the air by request in 1931 was Norman T. Baker's controversial KTNT (1170 kHz, 5 kW/1 kW) in Muscatine, IA. Baker's station was cited as being a "personal mouthpiece," and for promoting quack medical advice and products. Baker eventually moved his broadcasting station to just over the Mexican border. His story was told in detail in the September, '85 issue of POP'COMM.

The year 1931 was definitely the most memorable one in early broadcasting. If it accomplished nothing else, the harsh FRC policy placed all broadcasters on alert to guard against inefficient operation and insufficiencies in their service to the public.

From Haiti via Shortwave

What became of Haiti on the shortwaves? In the 1950's, there were more than fifteen shortwave broadcasters there, now there are only two. From the old days we have a

memory of Haiti's *Radio Commerce*, in Port-au-Prince. This station operated as 4VA with 1 kW on 1080 kHz, as 4VB with 7.5 kW on 6091 kHz, and 4VC with 7.5 kHz on 9485 kHz. Listeners in North America were very familiar with the French, Creole, and English programming of *Radio Commerce*, which was run under the direction of Guy Douyon.

The distinctive interval signal consisted of four chimes, followed by the French an-

nouncement: "Au service du Progres national dans l'ordre et le Travail, Ici Radio Commerce, emettant de Port-au-Prince."

By 1966 there were changes, and *Radio Commerce* had become known as *Voix de la Revolutgion Dualieriste*. The new version operated on 1080 (1.5 kW), 5985 kHz (7.5 kW) and 9485 kHz (7.5 kW), with programs in English, French, Creole, and Arabic. The new station honcho was S. Lassegue, and his *Voice of the Republic of Haiti*

W. F. JONES
 President & Treasurer

WFJC
 W. F. JONES BROADCASTING, INC.
 Beacon Journal Building
 AKRON, OHIO
 Oct. 22nd. 1930

Joe. Hueter,
 1610 N. 18th. St.
 Philadelphia, Pa.

Dear Sir:

Thank you for your communication regarding reception of our station. This is a verification of your report.

Hope you are able to tune us in again.

Yours very truly,
W.F. Jones
 Program Director
 W.F. Jones Broadcasting, Inc.

LB:RN

Akron station WFJC joined up with another station to become WGAR in Cleveland. (Courtesy Joe Hueter.)

Madison, Wis.

W I B A

DEAR LISTENER:

Thank you for your report of reception from The Capital Times Station WIBA at Madison, Wis. Your comments provide our only means of knowing how our programs are received, and just what the range of our transmission amounts to. Hope that you will listen often to WIBA at Madison, Wis.

Sincerely yours
W I B A
 WIBA, The Capital Times Station.

Station WIBA was the benefactor when it absorbed stations WHDI and WDGW during 1931. (Courtesy Joe Hueter.)



Norman Baker, owner of KTNT. His station was as infamous as it was popular. After the FRC pulled it from the airwaves in 1931, Baker opened up a new station across the Mexican border.



The FRC objected to KTNT's selling of a myriad of quack medical remedies. The station had an enthusiastic audience that made its owner rather wealthy.

program was (required to be) rebroadcast by all other stations in Port-au-Prince.

All of this is gone now, with the old 1080 kHz MW frequency presently occupied by 20 kW station 4VDN, *Radio Telediffusion Nationale*. Of course, "Baby Doc" Duvalier is also gone from the scene in Haiti.

Radio Training, The Hard Way

We're always on the lookout for unusual and bizarre radio uses and installations and this one was a natural for these pages. It was an experimental broadcast station aboard a speeding train. That was station W2XDY, 1542 kHz, which was on the right track aboard a Baltimore and Ohio Railroad train speeding at more than 60 m.p.h. between Washington, DC and Baltimore, MD. In 1932 this was no easy accomplishment.

More than just an announcer describing the trip for a few brief moments, this was a whole production that included Jack Denny's twelve-piece orchestra, Belle Baker, and the Ever-Ready Radio Gaities. A dining car (#1055) was chosen to be the rolling broadcast studio, with the kitchen area housing the 50 watt transmitter and other technical hardware, including receivers for picking up instructions and cues.

There were two wayside receiving stations established, one at Beltsville, MD (ten miles north of Washington) and the other at Laurel, MD (twenty miles south of Baltimore). These stations picked up the W2XDY signals and fed them out over the entire CBS network, also to foreign countries via the CBS shortwave stations W2XE and W3XAU. At the Laurel location there was also a transmitter (W2XDZ) for sending program cues to the moving train.



Radio Commerce, of Haiti, as it looked in 1955. (Courtesy Tom Kneitel, K2AES.)

The W2XDY transmitter located aboard the train operated with 50 watts on 1542 kHz.

The power supply for the portable transmitter consisted of dry cell batteries. The train carried two separate antennas mounted on the roof of the dining car. One was used for transmitting, the other for receiving. Care had to be taken to mount these dipoles so that they would clear bridges, tunnels, signals, and other potential obstructions along the right of way.

The wayside receiving antenna included thirty-miles of copper telegraph wire running parallel with the tracks. A carrier system was made available by terminating this wire at both receiving stations. Thus, if the small receiving antennas set up at Beltsville and Laurel failed to work well, the carrier system could be used. The signals from all receivers were fed into a master control point where the best signal source could be selected for the network feed.

The March 27th, 1932 broadcast used newly designed electro-dynamic microphones which were intended to function well under changes in temperature, humidity, and barometric pressure such as would be encountered with this installation. Several microphones were used, including those used for backups. The dining car was selected as a studio because it was air cooled, equipped with ball bearings, rubber shock absorbers, sealed windows, and was carpeted. Additional acoustic protection, such as velour drapes, were added to shut off some of the track and (steam) locomotive noises.

The experimental broadcast was a success!

That'll be a wrap for this month. Your comments, old QSL's, photos, and memories are appreciated.

PC



The dining car that was converted into a rolling radio station. Note the antenna on the roof and the two lead-in wires at the center window.

We Visit: The Burma Mystery Station

A Rebel Broadcaster – Or What?

BY DR. A.M. PETERSON, N9GWY

Burma is a fascinating land, forgotten by both time and by progress. For many years, Burma deliberately turned its back on inventive development from other countries in an attempt to maintain its own unique culture. Only in recent years has Burma begun to open its doors, quite cautiously, to imported mechanical and electronic achievement. It is a country I have visited often. I have seen its cities and countryside, its ancient history and recent achievements. To us, the country is known as Burma, but in their language, it is called, Pyi Daung Su Shay Lis Tha Ma Da Myan Ma Naing Ngan Daw.

I have seen the introduction of television into this quiet Asian nation. In the evenings, on many occasions, I have watched the sign-on routine of the TV station, located in the capital city of Rangoon. This is the only TV station in the whole country, and it is on the air for a few hours daily with educational programs in the afternoon, and entertainment in the evening. The station was set up in 1982 by the Japanese NEC company and transmission quality is excellent.

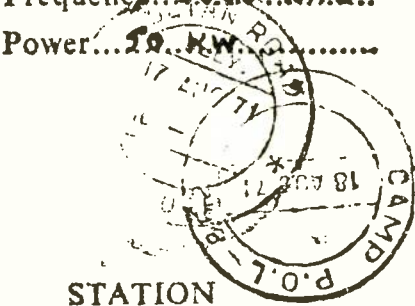
The evening TV program begins with traditional Burmese folk dancing, followed by the news in Burmese, and then syndicated programs from overseas. The main transmitter emits 10 kW video and 1 kW audio on channel 6, and the very colorful programs are relayed by five nearby translators.

Burmese Army Station

In recent time, the army-operated regional shortwave station at Taunggyi has been heard here in North America. It has been on the air now for a quarter century, and for the first decade of its exotic existence, it was unknown outside its primary target area. For the next 10 years, it was listed in international DX magazines as a mystery station, and only three years ago was it positively identified.

This is the story.

Back in 1962, this regional shortwave station was established at Taunggyi, in Shan state, Burma, for the purpose of broadcasting official government programs to the Karen insurgent areas of Burma. The station was built in the eastern edge of the small hill town and a contingent of the Burmese army was given the task of protecting the station and keeping it on the air.

VERIFICATION CARD	
QSL	QSL
Station... XZ.K.42	Location.. RANNAAN
Frequency.. 5060 ..K.H.Z..	Wavelength.. 59.62 ..M.....
Power... 10 ..K.W.....	Date.. MAY 2 ..1971.....
	Time.. 1517:1533 ..(G.M.T.)
	Your reception report has been examined and found correct.
	<i>Am Yeiin</i> Station Manager's Signature

Here's a 1971 QSL card from BBS Rangoon.

Most of the programming was produced locally though recorded tapes from the Burmese Broadcasting Service (BBS) in Rangoon were also used regularly. The original transmitter was probably a 1 kW unit, suppressed to about 500 watts. The first, and only, shortwave channel for this station was the tropical band outlet of 5060 kHz. It was on the air three hours daily in the local early evening.

The program content was information and music, mainly for the Karen tribal people who live in the border areas between Burma and Thailand. Even though Burma is officially a Buddhist nation, regular programming included several Christian-oriented programs. The Karens have a long history of Christianity, introduced by early British and American missionaries.

In the early 1970's, references to this unknown mystery station appeared in Australian DX magazines. It was noted that a Chinese station on the tropical band channel 5060 kHz, was receiving heterodyne interference from another station, slightly off channel, carrying Burmese programming. It was observed that this unidentified Bur-

mese language station had a similar format to the official BBS programs from Rangoon, but never in parallel. Radio monitors in Southern Asia picked up on the story, checked the channel, and confirmed the information.

Conjecture suggested that this unidentified mystery station was a rebel transmitter somewhere in Burma, or perhaps a clandestine station broadcasting from an unknown location somewhere within China. Yet, the programming seemed to be too regular and consistent, without the vigor and enthusiasm of a true clandestine station, to fit the above suggestions. No one knew for sure.

In early 1985, I went into Burma for my last nostalgic visit before leaving Asia. Part of my purpose was to track down the mystery Burma station. I made discreet inquiries in Rangoon, and nobody knew. I asked a friend in northern Mandalay, and he gave me the first clue. He said to me quietly, "Yes, I know this station. It is located at Taunggyi, in Shan state. I heard and saw it, during a recent visit."

That was the answer I needed!

VERIFICATION CARD

QSL.



Location.....INDIA.....
 Wavelength.....5985, KHZ.....
 Date.....8-10-81.....
 Time.....14:30 To 14:56.... (GMT)

Your reception report has been examined and found correct/~~incorrect~~.

(Signature)
 Director (Broadcasting)
 Information and Broadcasting Department,
 Rangoon, Burma.

Ten years after, a 1981 QSL from the BBS.

B B S

Thursday 19th Jan, 1978
 Trans I: 7185 khz, 41.75m
 and 955 khz, 314.14m

0830 News
 0840 Music Now To Nine
 0900 Close Down

Trans II: 9725 khz, 30.85m
 and 955 khz, 314.14m

1330 News
 1340 Lunchtime Music
 1400 Close Down

Trans III: 5985 khz, 50.13m
 and 955 khz, 314.14m

2100 Rhythmics
 2115 News
 2130 The World of Health:
 "Drug Dependence"
 (A programme on
 drug addiction pro-
 duced by the World
 Health Organization
 Radio Station in
 Geneva)
 2145 Music For Your
 Listening Pleasure
 2200 Portfolio For Easy
 Listening
 2230 Close Down

This is a sampling of what the BBS English shortwave schedule looked like in 1978.

I flew up on an ancient commercial airliner to the small airstrip at Heho and then boarded a jeep "bus" for the Shan state capital, Taunggyi. That afternoon, I casually walked around the area, sighted the station, and recorded its sign-on routine on a borrowed cassette radio. The signal was strong and clear, well, almost clear, in spite of modulation distortion.

Next morning, a Burmese doctor drove me into the army encampment where I was able to observe at least part of the Zyyi transmitting station. The equipment was obviously old and antiquated, and from my observations, I would suggest that the transmitter was a 1 kW unit operating on a fixed channel at reduced power. The radiation system seemed to be a center fed T type antenna, 1/4 wavelength in height with a North-South orientation.

Last year, a new 10 kW transmitter was installed at this regional facility and the station, on the new channel of 6570 kHz, has been heard in North America, as well as in Australia and New Zealand.

On my return to India, following this fascinating visit to Burma, I produced a special edition of the DX program, "Radio Monitors International", which, for the first time, told the full story of the Burma mystery station.

The station calls itself "Thazien", the name of a pretty flower, and identifies on air as the Maymo Defence Forces Broadcasting Unit. Thus far, no QSL's have ever been issued by this station, though many people have tried. The schedule seems to be 1030-1430 UTC, on 6570 kHz. Programming is in half hour segments with identification announcements in between.

Karen Rebel Station

At the same time as the official army sta-

tion was broadcasting to the Karen tribespeople, the Karens themselves were actively involved in establishing their own radio station. On the other side of the battle zones, attempts were being made to establish a radio station in the rebel areas held by the Karen insurgents. This area is open on the Thai side, but not on the Burmese side, and to the Karens, it is known as the state of Kawthulei.

Back in the 1970's, the Karens established their own radio station which was heard in Asia and beyond on 4880 kHz. It was on the air for only a year, or two. Little else is known about this shortlived station.

Then, in 1981, two Japanese amateur operators took their radio equipment to the Karen Kawthulei, and made several QSO's under the callsigns XZ5A and XZ9A. These calls were officially issued by the "government" of Kawthulei though they were not recognized internationally.

In February 1983, a friend of mine assisted in re-establishing Kawthulei Radio, and this revived station was heard daily 0330-0500 UTC on 9775 kHz, with programming in the two Karen languages, as well as in Burmese and English. Four months later, the Burmese army attacked the area, put the station off the air, and my friend received a transfer. Kawthulei Radio has never re-appeared.

Burma Broadcasting Service

The story of the official government station in Burma goes way back to the pioneer days of radio broadcasting. The first station, 2HZ, came onto the air in 1926 with 40 watts on 450 m, 667 kHz. It was owned and operated by the Radio Club of Burma. This callsign was amended in 1930, to the internationally accepted VUR; VU signifying In-

dia, and R signifying Rangoon. This station was silenced in the early 1930's, along with all other privately-owned radio stations in British India by an imperial edict from the British Raj in Delhi.

Radio broadcasting was resumed in Burma in the late 1930's, when two shortwave transmitters were installed in suburban Rangoon. These units emitted about 1 kW each and were licensed with the international callsigns XYZ and XZZ. These transmitters were on the air for a few hours per week.

A few years later, when the Japanese took over Burma during World War II, the occupation government operated the station and installed three additional transmitters. These were two shortwave units of 7 1/2 kW each, and an AM medium wave outlet at 5 kW.

Towards the end of the war, when allied forces again recaptured Burma in 1944, the Rangoon station operated for a short while as SEAC Radio (South East Asia Command).

The current facilities of the Burma Broadcasting Service were erected in 1958 in a new location. The studios and offices of the BBS are all located in a functional building



Hidden deep inside this army camp at Taunggyi is the now infamous BBS radio station.

on Prom Road, the main thoroughfare running out towards the airport. The transmitter building is at another location on the edge of Rangoon and it currently contains two shortwave transmitters at 50 kW, and the AM unit which is also rated at 50 kW. The antenna farm consists of a single vertical mast for AM, a tropical band radiator for local shortwave coverage, and curtain antennas for international coverage.

The TV and FM service also originates in the main studio complex on Prom Road. Interestingly, the test pattern for the TV service incorporates the old medium wave call-sign, XZK. This colorful logo has been copied from the ornamentation on the glass panel on the front door.

Occasionally BBS Rangoon does issue QSL cards, and the address is Box 1432, dismantled and re-established in the northern city Mandalay, where it was used for the programs of "Radio Mandalay". This sta-

Rangoon. The current shortwave schedule is as follows:

0030-0230 UTC	7185 kHz	Burmese languages
0330-0730	9730	and
0930-1600	5985	English
1030-1445	4725	Minority languages

Radio Mandalay

For a short time, there was another shortwave station in Burma. It was erected with the purpose of bringing radio programs to the northern area of the country. At present, the entire population of the main areas of Burma has to rely on radio programs available only on shortwave from the Rangoon transmitters. There are no regional relay stations anywhere in the country.

In an effort to alleviate this problem and to bring radio programs to the northern part of the country, a shortwave station was established in Mandalay nearly 40 years ago. The

old 1 kW transmitter in Rangoon, XZZ, was on the air daily for 3½ hours in English and Burmese for a while during the year 1951. The channel was an irregular out-of-band spot on the edge of the 40 metre band.

AFRS Stations

For approximately a year, around the end of World War II, the American Armed Forces Radio Service operated three stations in Burma. These were all low powered AM units serving United States and allied forces in the area. The first of these stations went on the air in August 1944 and the last one left the air in November 1945.

These old nostalgic radio stations in Burma are now no more than an interesting phase of electronic history. The regional shortwave station at Mandalay, the temporary stations in the rebel stronghold at Kawthulei, the Rangoon station used by the Japanese during the war, and the AFRS units around Rangoon, are all gone and almost forgotten. Nothing remains now of these stations, except for a few happy reminiscences on the part of the people who remember, and for the news items and features that are listed in old issues of the international DX magazines. All that is left now are the official government operated stations in Rangoon and Taunggyi. However, with good propagation conditions, a suitable antenna, a quality radio, and perhaps a touch of DXing skill, you might also be able to hear these stations in this fascinating Asian country.

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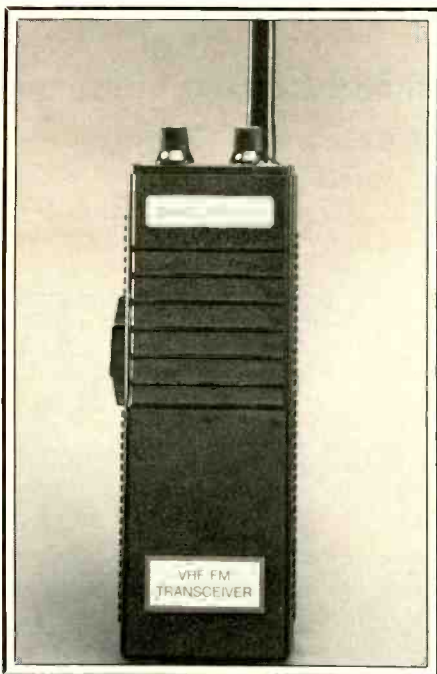
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CIRCLE 44 ON READER SERVICE CARD

PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS



New VHF Handheld Transceiver

Fanon Courier Announced Its Entry Into The Land Mobile Market With The Introduction Of A New Professional Handheld VHF FM Transceiver, The COURIER PROCOM.

The one watt-single channel COURIER PROCOM, with its range of up to 2 miles, is ideal for use by the professional - on construction sites, in factories, on fire or disaster sites and by security personnel.

The COURIER PROCOM design specifications assures reliable performance with superior voice reproduction. PROCOM operates on business band frequencies and is available in three frequencies.

Frequency A 151.625 MHz

Frequency B 154.570 MHz

Frequency C 154.600 MHz

Each PROCOM comes with one set of installed crystals of one of the above frequencies. Also included is a rechargeable nickel cadmium battery pack, A.C. battery charger, flexible antenna and F.C.C. license application.

COURIER PROCOM features include an adjustable squelch control with tone squelch ON-OFF switch, volume control with power ON-OFF switch, jacks for A.C. charger and external antenna.

COURIER PROCOM is housed in a sturdy, high impact, plastic textured case and weighs about 1 lb. Its dimensions are 7" H x 2 1/2" W x 1 3/4" deep. Suggested retail price \$189.95.

Optional accessories available are:

- PRIVA-COM-1 Plug-in adjustable

CTCSS tone module to exclude unwanted conversation.

- CAT-12 All leather carry case with belt loop and plastic rain shield.
- AUC-12 Auto cigarette lighter charge adaptor.

The COURIER PROCOM will be marketed through Communications Equipment Specialists and Electronics Distributors. For more information, circle number 102 on our Readers Service card.



New 1200 MHz Pocket Transceiver

An all-new 1200 MHz handheld transceiver is here now—the Kenwood TH-55AT. Now you can explore the microwave world with a pocket-portable package! The new TH-55AT uses the same accessories as the TH-25AT Series HTs, with the exception, of course, of frequency-related accessories such as antennas.

• One watt power, with optional PB-8; with standard PB-6 battery pack, 800 mW high. Low power is 100 mW.

• Frequency coverage 1258-1300 MHz.

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• Designed-in, front panel DTMF pad—not an "option" or an "after thought"!

• Automatic Power Control (APC) circuit for reliable RF output and final protection.

• 14 memories; two for "odd split."

• Large multi-function LCD display.

• Rotary dial selects memory, frequency, CTCSS and scan direction.

• T-ALERT for quiet monitoring. Tone Alert beeps when squelch is opened.

• Band scan and memory scan.

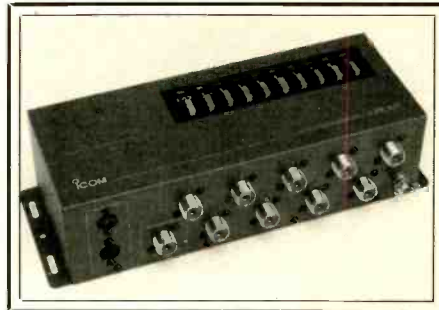
• Automatic "power off" circuit.

• Water resistant.

• Supplied accessories: StubbyDuk, bat-

tery pack, wall charger, belt hook, wrist strap, water resistant dust caps.

A wide range of exciting accessories is available, from battery packs to headset/bloom microphones, and everything in between. See your nearest Authorized Kenwood Amateur Radio Dealer for more details! Suggested retail price: \$499.95.



HF Automatic Antenna Selector

ICOM announces the EX-627 HF automatic antenna tuner which will automatically select the correct antenna for a transceiver's operating frequency. Up to seven antennas can be accessed by simply pushing one button on the EX-627.

Additional features:

• Can be used with any transceiver to manually select up to nine antennas

• Includes connectors for a linear amplifier or antenna tuner

• Power is supplied from the transceiver through a provided accessory cable

• Hardware is included to mount the EX-627 on the wall, the side of a desk, etc.

The suggested retail price for the EX-627 is \$315.00. For more information, contact ICOM America, Inc., P.O. Box C-90029, Bellevue, WA 98009-9029; or circle 101 on our Readers' Service card.

HF Radio High Pass Filter

A new filter from Microwave Filter Company, model 6252, prevents interfering frequencies from overloading the broadband amp and causing interference to HF radios.

The filter is installed before the pre-amp, filtering out the interference before it saturates the receiver. Passband is 2-20 MHz and loss is 3 dB maximum. Stopband is .5-1.5 MHz with rejection of 40 dB minimum. Impedance is 50 ohms and connectors are UHF PL-259. The case is 1.62 x 2 x 4.25 inches and comes with four 6-32 tapped .25 holes for mounting.

Price is \$225 and delivery is three weeks. For more information contact Jean Dickinson at Microwave Filter Company, Inc., 6743 Kinne St., East Syracuse, N.Y. 13057, or circle 103 on our Readers' Service card.

Using CATV Components To Enhance Your Scanner

Readily Available Scanner Accessories From Hitherto Untapped Sources

BY A. BARBARA WOODRUFF, WB3ELN

Scanners typically operate in the 25 to 500 MHz band. Some include the new mobile and cellular-telephone bands in the 800 MHz range, although this is not yet the norm. Cable television systems utilize the same basic frequency range. Today more than half of the households in the country are served by cable. Because millions of components are needed for these systems, the individual connectors, amplifiers, splitters and so on are quite inexpensive. And, they are available from many local outlets, including Radio Shack.

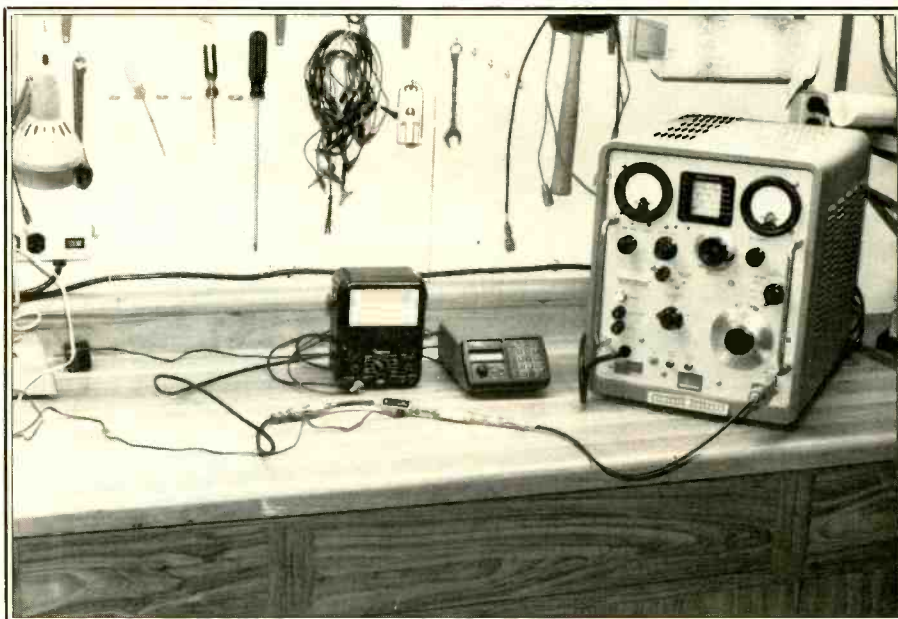
In theory, the components designed for CATV should work to improve scanner installations. But reality often differs from theory, so the only way to prove a theory is with practical experiments. This article will review my personal tests, experiments and some sample installations.

Do They Work?

Some ways in which cable-television components can be employed to improve scanner reception include reducing losses in connecting cables, improving the sensitivity of the scanner, and providing a way to use more than one receiver with a single antenna. In the process of experimenting with the CATV components, a low cost antenna was developed that is easy to build.

As I had no data on the "real" performance of the parts made for CATV use, the first task was to evaluate some typical components. The test setup shown in Fig. 1 was used. It consists of a signal generator, a receiver and an audio-output meter. The signal generator was capable of frequency (fm) and amplitude (am) modulation. The test receiver employed was the Regency MX-5000 because it has both FM and AM capabilities, and a wide frequency range. In the process of the tests a Bearcat 220 and a Regency HX-1200 handheld were also utilized to test the sensitivity of different units.

Modern radio receivers are all designed for 50-ohm transmission lines from antennas. CATV is based on a 72-ohm system. This means that, at a minimum, the types of coaxial cable utilized are different. So, a first and a major question was how would the



This test set-up was employed to evaluate CATV components for scanner use.

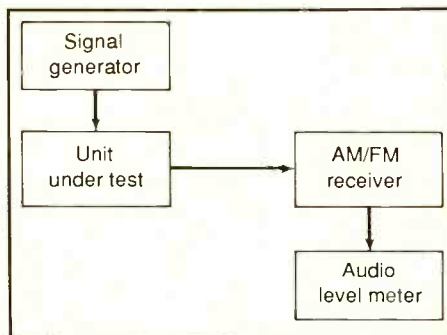


Fig. 1 — Test setup used to evaluate CATV components.

CATV parts function with antennas and receivers designed for 50 ohms?

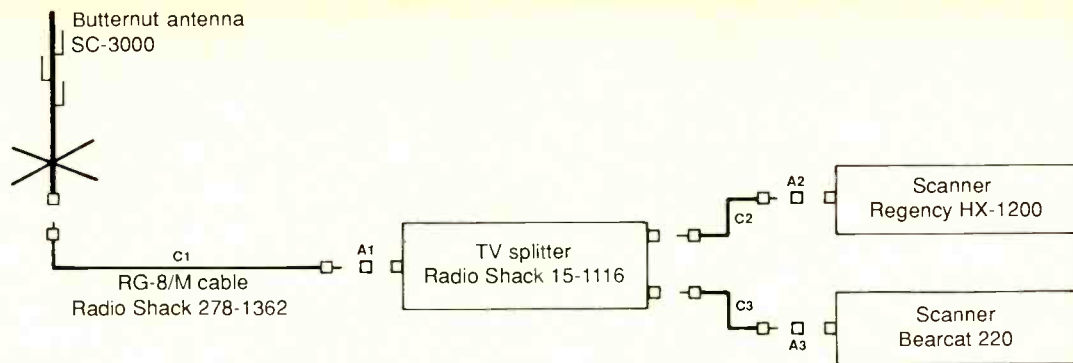
The answer proved to be that in most cases, the mismatch in impedance between 50 and 72 ohms didn't mean much in receiving applications. However, this wasn't always true, as related below. (When transmitters and power output are involved, the mismatch question will be much more seri-

ous. So, these techniques should not be applied to CB transmitters, for example.) CATV components are designed to work over a wide frequency range and, with a wide range of impedance loading, as it is impossible to have a "perfect" load at all frequencies of interest. By going from 72 to 52 ohms, the lower impedance tends to provide an extra measure of stability.

Amplifiers, splitters, and amplified splitters were all tested. The results will be described below. There is a general problem with compatibility of connectors. The solutions that I worked out are shown in the accompanying diagrams.

One Too Many Scanners

This whole investigation started because I had one antenna and wanted it to use it with two scanners. For this application, the standard two-set amplified coupler seemed appropriate. Tests showed that a standard coupler, the Radio Shack 15-1116 provided output to the two receivers with some amplification of signal in the entire 25 to 500 MHz frequency range. At lower frequencies



A1—Coaxial adaptor, UHF female to F male, made from a BNC female to F male adaptor (Radio Shack 278-256) and a BNC male to UHF female (Radio Shack 278-120).

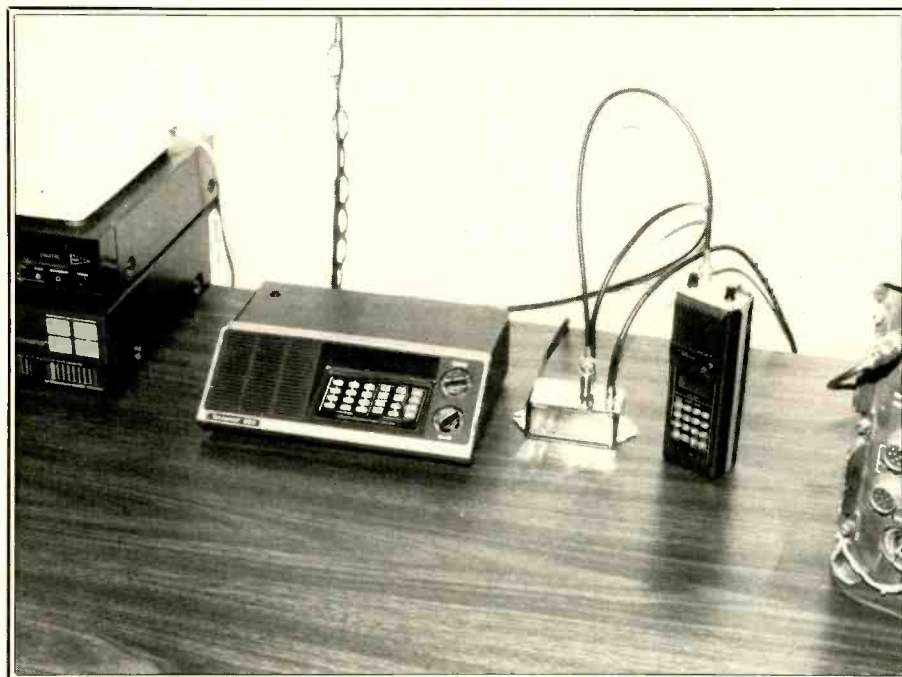
A2—Coaxial adaptor, F female to BNC (Radio Shack 278-251).

A3—Coaxial adaptor, F female to Motorola (car radio) plug, made from an F female to UHF male (Radio Shack 278-258) and a UHF female to Motorola male (Radio Shack 278-208). Adaptor A3 and cable C3 can be replaced by Radio Shack 15-152B assembly, although this part is not widely stocked. It can be obtained via special order and will save money over the alternative.

C1—Cable, cut to length as needed, made from RG-8/M coax (Radio Shack 278-1326) with UHF male connectors on both ends (Radio Shack 278-205 with reducer 278-204).

C2, C3—4-foot cable with F male connectors at each end (Radio Shack 15-1529).

Fig. 2—Arrangement to utilize two scanners with a single antenna.



The connection of two scanners to a single antenna is accomplished via an amplified, 2-set CATV coupler.

there was minor improvement in sensitivity. The extra gain improved limiting on FM signals over the entire frequency range. No instability was noted in any of three trial hookups and in two different final installations.

When impedances are mismatched, or when odd cable arrangements are made, the amplifiers in the circuits can become unstable. This usually results in self-oscillation, where new, unwanted signals are generated. No such effects were noted in any of the trials with the splitters.

The diagram of the final installation is

shown in Fig. 2. Here a Butternut scanner antenna is connected to a Regency handheld and to a Bearcat scanner. At the price of modern scanner antennas, you don't want to purchase more than one. In Fig. 2 and the other diagrams I have shown pre-assembled cables wherever possible. Those handy with a soldering iron may choose to make their own.

Sensitivity

The sensitivity of a receiver is a measure of its ability to hear very weak signals. The

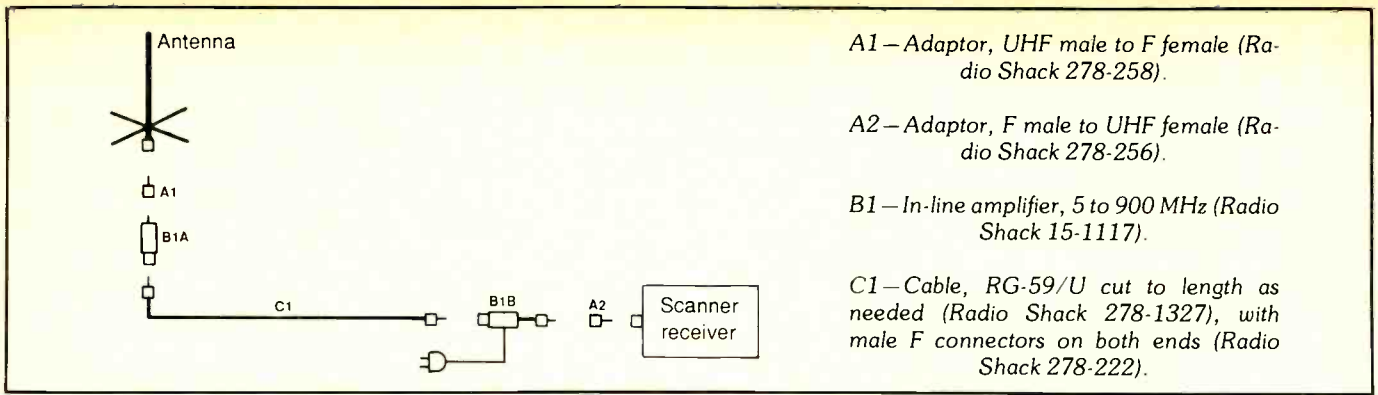
CATV amplifiers were seen as a possible help to hear the weak ones. But, tests on the receivers that I had available showed little or no improvement. This isn't because the CATV amplifiers and splitters don't employ transistors with excellent sensitivity—they do. But so do the current crop of receivers. Older models may show some improvement in hearing weak signals when using a CATV amplifier, but don't expect a difference that you can hear with today's models.

As noted above, the extra gain of the CATV amplifier does improve quieting on FM reception—that is the noise level drops some more when receiving weak signals. However, this is a result of extra amplification which can also cause an overload in your receiver by strong signals. The idea is to keep amplification to a minimum to overcome cable and splitter losses so that your receiver can perform at a maximum dynamic range (i.e. from weak signals to strong without overloading).

Cable Losses

Coaxial cable is used to provide interconnection between antennas and receivers. The cable have losses which attenuate the signal intercepted by the antenna. The amount of loss depends on the type of cable, its length and the frequency. The smaller-diameter cables, RG-58 and RG-59 have high loss at almost all frequencies of interest if any appreciable length (more than 10 or 20 feet) is used. The larger diameter cables, RG-8 and RG-11, provide good performance to 100 MHz, but above this frequency they also have high loss. Also, the larger cables are quite expensive.

Every scanner owner is confronted with the paradox that for best performance, his antenna should be located as high as possible. Yet, antenna height usually means a



- A1 – Adaptor, UHF male to F female (Radio Shack 278-258).
- A2 – Adaptor, F male to UHF female (Radio Shack 278-256).
- B1 – In-line amplifier, 5 to 900 MHz (Radio Shack 15-1117).
- C1 – Cable, RG-59/U cut to length as needed (Radio Shack 278-1327), with male F connectors on both ends (Radio Shack 278-222).

Fig. 3 – Schematic diagram of how an in-line amplifier is used to reduce or eliminate attenuation in a coaxial cable.

longer feedline with its inherent losses. The more that you are interested in the 150- and 450- MHz bands, the greater the problem. More than one scanner user has found that his set works better at 450 MHz with the whip antenna supplied with the radio, than with his big antenna on the roof. The coaxial cable is the culprit.

CATV components include remote amplifiers. Such an installation is shown in Fig. 3. An amplifier is located at, or near, the antenna. The amplification is sufficient such that it overcomes the losses in the connecting cable. In effect, it seems to the receiver that the cable does not exist. If lengths under 100 feet are used, the smaller diameter cable can be employed, saving cost and boosting signal strengths, because feedline loss is virtually eliminated. For example, at the current prices from Radio Shack, 100 feet of RG-58 costs \$16 while the same length of RG-8 is priced at \$36. With an amplifier at

the antenna, it makes no sense to purchase the more expensive cable and suffer its signal loss.

Make Your Own Scanner Antenna

While experimenting with the CATV components, I decided to try building my own scanner antenna for a weekend camp. The antenna is a simple multiple dipole design for 30 to 470 MHz. It will not be as broadband as the discone types nor does it have the gain at 450 MHz of the "trombone" designs such as the Butternut. But at 40 MHz it has good performance. If it lacks a bit at the highest frequencies, well, it cost under three dollars.

This simple antenna is shown in Fig. 4. It is constructed from Radio Shack rotator cable, which is three leads. The center and

end insulators are small pieces of plastic with holes drilled in either end. (They are made from small chunks available from the scrap bin at most plastics suppliers at no cost.) The antenna can be fed with RG-58 or RG-59 cable. If the length is short, no amplifier is needed. If you need a long feed line, consult the scheme of Fig. 3.

When the antenna was first tried with a remote amplifier, some oscillation was noted, no doubt because the multidipole configuration did not provide an appropriate load impedance. (The oscillation was noted as strong signals received by the scanner which disappeared when the power feed to the amplifier was unplugged. You can make the same test.) Resistor R1 was added at the center of the antenna to provide a constant load. It will slightly degrade the antenna but not by an amount that can be heard. This technique is useful whenever you encounter stability problems with remote amplifiers.

The antenna was mounted in a tree using a two-foot-long wooden arm to hold the antenna out from the tree. To prevent detuning of the antenna by the sap in the tree, the antenna was angled approximately 25 degrees from the tree. Performance has been excellent. In the wilds of central Pennsylvania there isn't much to hear on a handheld scanner. With the little antenna in the tree, coverage of 12 counties for police and fire activity became possible.

Please note that these ideas can be used in combination as needed. For example, a friend of mine wanted an antenna for his scanner that also that would be useful for his FM radio. As this was for his summer camp, which was far from any city, the 450-MHz portion of the antenna was replaced with a length cut for the FM broadcast band. As the cap was atop a hill, the feedline length was short so the splitter arrangement of Fig. 2. was employed. Results were excellent. A small TV was tried in place of FM radio, and the simple antenna worked well in this application, also.

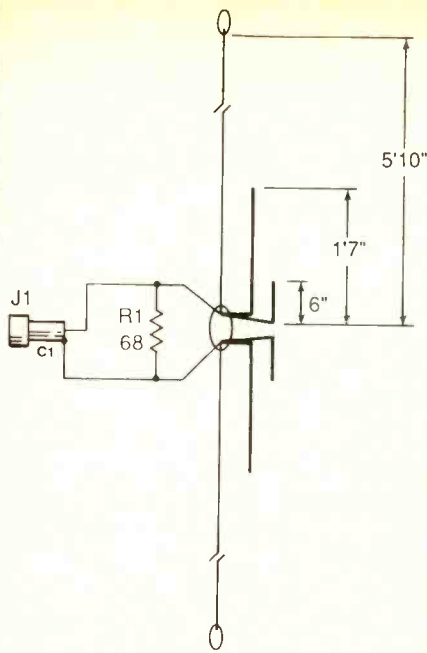
Summary

My own experiments and installations show that the components manufactured for use in cable TV systems can be used to advantage to enhance scanner installations.



A simple wire antenna in a tree provides performance that is close to the expensive commercial designs.

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C1—Connecting cable. If no amplifier is used at the antenna, it can be RG-58 or RG-59 cut to length (Radio Shack 278-1326 or 278-1327, respectively) or any other type of suitable coaxial cable. At the antenna end, the cable is directly connected to the antenna and soldered. Then it is sealed with a silicone compound (Radio Shack 64-2314) so that moisture cannot get into the cable. If an amplifier is employed, C1 should be approx. 1 foot of RG-59 with an F connector (Radio Shack 278-222) as J1.

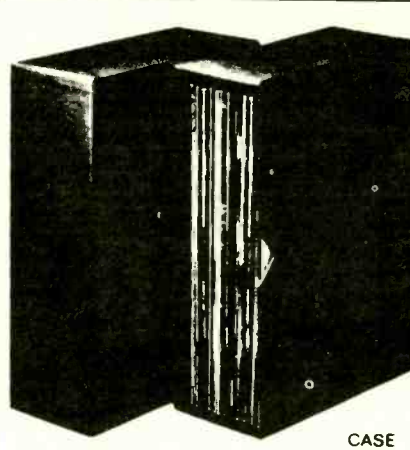
J1—Any suitable connector for your scanner if direct feed is used. If an in-line amplifier is utilized, use the F connector described above and add a double F female (Radio Shack 278-213) and follow the diagram of Fig. 3.

R1—Resistor, 68 ohms, carbon composition type (Radio Shack 271-010); use only if an amplifier is used and oscillation occurs (see text).

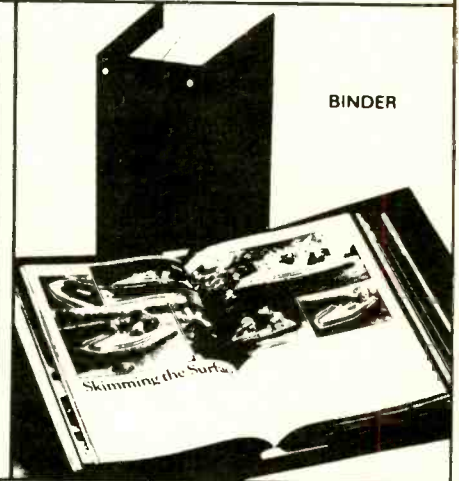
Fig. 4—Diagram of a multiple dipole antenna with antennas for 40, 155, and 465 MHz. The antenna is constructed from 3-wire rotator cable (Radio Shack 15-1149). The cable is cut to provide the two long lengths. Then, then the other two conductors are stripped back and cut to the other two lengths shown.

However, the components from different suppliers can vary in quality. When you use parts designed for 72-ohm terminations at 52 ohms, components from various suppliers other than those tested may provide a different level of performance. In general, most should work well. Some experimentation, such as the resistor to cure instability, may be required to assure excellent performance.

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SATISFACTION GUARANTEED

Helicopter Pilot Helps End High Speed Police Chase

A helicopter pilot risked his life to help police stop a crazed criminal who had robbed a credit union, ran over and killed a Denver Police detective, shot at a young woman and her baby, and abducted an elderly man and made him drive his pickup to try to elude police.

Mike Silva, helicopter pilot for KCNC-TV in Denver, saw much of the chase unfold



SCAN PUBLIC SERVICE AWARD

below him as an observer, then became an active and heroic participant in a scene that was replayed many times on television stations around the country.

According to an account of the incident in the *Rocky Mountain News*, the chase began when a man entered the Rio Grande Operating Credit Union in Denver and said that he wanted to cash a check. He then showed a clerk a gun sticking from his waistband and demanded all of the cash. The robber ran into the credit union parking lot and drove away in a Chevrolet Blazer (which later turned out to be stolen).

A description of the vehicle was sent out over the police radio, and the Blazer was soon spotted by detectives Richard Rollins and Gary Baldwin. A high speed chase ensued into neighboring Arvada and then back into Denver.

Denver Detective Robert Wallis and Sgt. Russell Parisi were in the area on another assignment when they heard of the chase on their police radio and realized that it was coming straight toward them.

Silva and cameraman Jim Stair were aboard the KCNC-TV helicopter shooting

pictures of freeway construction when they were diverted to the chase by their news desk. At first, they kept their distance, only watching the chase.

Meanwhile, Wallis and Parisi believed the Blazer would crash head-on into their vehicle and their only escape would be to jump from the car and run. Wallis, a 20-year police department veteran, jumped into the street just as the Blazer struck the left side of the car and then hit him. The policeman was thrown into the air and then carried 50 feet before he fell to the pavement. He died at the scene.

When Silva saw Detective Wallis being struck by the vehicle, he became an active participant in the chase. "I said, 'Jim, this (expletive) is mine, and if I have to, I'm going to crash this helicopter right on him,'" Silva said. "I didn't care anymore, it was such blatant disregard for human life."

As Silva and Stair watched, the suspect lost control of the Blazer and drove it into a tree. The man then got out and started running. He tried to commandeer two cars in a nearby apartment complex parking lot, but the drivers sped away. He then fired two

shots at the driver of the second car, Mary Ann Barbre, who was with her 14-month-old baby.

The man then walked to a nearby trailer park and forced John Laurienti into his pickup truck. He then made Laurienti drive past police cars in the area.

Silva then swooped in with his Bell Jet-Ranger helicopter, hoping to attract attention from nearby police. While Stair was filming, the man pointed a gun at the helicopter.

"I thought he was going to shoot me," Stair told the *Rocky Mountain News*. "I expected to see a cracked windshield and a bullet hole."

The man didn't fire at the helicopter, because a Denver police officer rammed the pickup truck with his police car.

"The cop who rammed the right side of the pickup took his attention away from Mike, and that's the only damn reason he didn't shoot," Stair said.

After Silva landed the helicopter, Stair kept his camera rolling as police surrounded the truck, firing at least 16 shots at the gunman, including a final shotgun blast. The suspect was killed, and a plainclothes officer pulled Laurienti from the truck.

Although some might consider Silva a hero, he had other thoughts. "I'm empty," he said. "I feel disheartened, I'm sad. After all of this, two people died."

At least one person felt that Silva definitely wasn't a hero. A rival television station filed a complaint with the Federal Aviation Administration against him for erratic flying.

For his heroic actions, Silva will receive the SCAN Public Service Award, which consists of a special commendation plaque and a cash prize. For making the nomination, Patrick W. Griffith of Denver will also receive a plaque. Congratulations to both of you.

Best Equipped

Andy Smith of Tucson, Arizona, is quick to point out that he is 17 years old, but has still managed to assemble an impressive array of radio gear.

Andy started shortwave listening when he was 12, and purchased his first scanner at age 13. His current equipment list in-



SCAN PHOTO CONTEST WINNERS

cludes Bearcat IV, 100, 210XL and 300 scanners, a Regency HX-1000 scanner, modified Cobra 148 GTL, Yaesu FRG-8800 shortwave receiver and an Astatic D-104 desk top microphone. He also has SWR meters, high amp power supplied, pre-amplifiers and antenna tuners.

We hope you'll continue to enjoy scanning and shortwave listening in the future!

Best Appearing

Jack Suske of Cicero, Illinois, owns this well-appointed shack that combines his in-



terests in scanning, computers and amateur radio. Jack used a Bearcat 220 for aircraft and marine monitoring, Bearcat 250 for Chicago fire and Illinois state police and news media, Regency MX-4000 for local police and fire, and a Regency TS-2 Turbo scanner for 800 MHz listening.

(Continued on page 65)

FOCUS ON FREE RADIO BROADCASTING

In the past, these pages have contained some mention of a station which called itself **Q-92 (WLIQ)** operating on 91.5 FM. Now I've heard from "F.H." in Islip, NY who says that the owner and disc jockey of **Q-92**—Frank S.—has allowed the details of his station to be known. **Q-92** operated from the Brentwood, Long Island, NY area since it was put on the air back in 1983. It ran 250 watts and played mostly Top 40 oldies.

F.H. says Frank started the station after he was turned down for employment by several area broadcasters due to lack of experience. (That's one way to get experience, though I don't know if I would put on a resume!) Anyway, the transmitter was located in the basement of the home of Frank's parents with the studio upstairs. The station no longer operates from Brentwood, but has moved "down south" according to F.H. He didn't say whether it was currently active and, if so, under what name.

"Lazslo Toth" who is publicity director for **Radio Free Willy** comments on the tentative logging of "Radio Free Wave" Paul Johnson had in the April column. This was really Radio Free Willy, says Lazslo, and their usual ID when on the 41 meter band is the "International Service of Radio Free Willy". The station has used 7425 only once and one of the programs aired the night Johnson heard them was a rock opera in three parts entitled "Young Oliver North". One song played was "Send Lawyers, Guns and Money" by Warren Zevon.

Toth says the station has been around for three years, but is on the air only about five times a year. He notes "the regulatory atmosphere in our area has been chillingly tough." The station is equipped to operate on medium wave, FM and shortwave and has used such frequencies as 1520, 1610, 1620, 7415 (currently), 7425 and 91.5. They will QSL accurate reports but they don't have a remailing service. They respond to loggings mentioned in this column or the bulletin board service of the Association of Clandestine Enthusiasts.

Radio Alternative Gainesville (WRAG) at P.O. Box 12443, Gainesville, FL 32604-0443 is having some problems. They need to locate a low power (10 to 20 watt) amplifier that can serve the campus area of the University of Florida (the operators are students there though the station is not connected with the university). I assume you've been in touch with the source of your original equipment guys and that has not solved your problem. Maybe one of our readers who is up on the technical necessities, or has equipment contacts, can write and offer some advice. I should think, though, that you have all the expert sources you need right there on campus!

The Voice of Free Long Island sent

some additional info in a QSL reply to Bradley C. Lucken of Cincinnati. The station has been active only since August of last year and averages about two air dates a month. Normal frequency is 7415 but during bad weather situations operates on 1620 medium wave. **VFLI** has a conservative political ideology and supports the "freedom fighters in Nicaragua, Angola, Afghanistan and such groups as Solidarity in Poland and the rights of Soviet Jews and Armenians." As noted in past columns, the address for **VFLI** is TAGAR, Union Building, Room 258, Stony Brook, NY 11794. Don't mention the station's name on the envelope!

Brad Lucken also wonders whether QSL'ing the **Voice of Tomorrow** is like a baseball game—three strikes and you're out! His latest attempt to Box 314, Clackamas (Portland), Oregon was returned by the post office. Does anyone know how this station can be reached? Still active?

Here's some updated information on the pirate tapes and related information available from Ary Boender at DX-Soft Productions, Lobeliastraat 33B, 3202 HR Spykenisse, The Netherlands: Some 90 tapes of offshore pirate stations as well as some of local FM pirates are available in the DX-Soft catalog which can be had for \$1 from the above address.

Ary also says that **Radio Caroline** (6210) is now being programmed separately from its medium wave outlet.

Radio Danny, who is a person and not a pirate station, I think, reports reception of **Radio Delmare** at 0155 on 6210 with poor signal strength. Danny doesn't say where he's located, although the envelope is postmarked in Rhode Island where a Delmare logging is a lot more likely to occur than in, say, Texas. It's a good catch any-



Frank S. operating Q-92 from Brentwood, Long Island.

where outside of Europe. Danny also hears **Radio Caroline** on 6210 with the 558 medium wave service (since discontinued). Robert Ross of Ontario hears Caroline on this frequency, too, running from 2309 to 0300 with the medium wave relay and various commercials.

WTPS, the Milwaukee, Wisconsin pirate station run by Commander Todd on an FM frequency, may, or may not still be active. Michael Zahn, the Milwaukee Journal radio-TV reporter who exposed the station's operator and location reports that his action stirred up a lot of negative reaction from readers of his column, the alternative press in Milwaukee and a local record company which was getting a lot of airplay on **WTPS**. Perhaps Zahn will let us know if his expose did, in fact, cause a visit from the FCC.

That'll do it for this time. Remember, though, I need your pirate station loggings, QSL info and addresses, station data, news clippings and whatever else of interest you might lay your hands on. I hope you'll check in here often!

See you next month!

PC



Radio Free Willy sends this QSL card.

ANTENNAS AND SIGNAL IMPROVING ACCESSORIES

Two Phased Verticals

The high frequency (HF) vertical antenna is recognized as a space-saving installation with that good low angle sensitivity that's so important for long range DX reception and transmission despite its low height. Depending upon distance and propagation conditions, a low vertical does even better than a horizontal of the same height, or even higher. Sometimes, the maximum received signal level changes back and forth as you switch quickly between the horizontal and the vertical. The time of day can also make a difference in the relative performance. A vertical antenna is omnidirectional and is not troubled with the irregular directional pattern of a horizontal antenna. The latter is related to its length and frequency of the received signal. This characteristic can be brought out by switching quickly between the two antennas as you compare signals arriving from differing directions.

A vertical antenna system can be made to have gain, and a chosen geographical directivity, by using two vertical antenna elements. Additional verticals can be connected in various manners to obtain even higher gains and more complicated patterns, just as they do for the multi-towered AM broadcast stations. A simple two-vertical pair can be used to describe the phasing technique, and to experiment with the reception capability of a two-element vertical. Let's take a look at the make-up of a simple two-element vertical appropriate for HF application as dimensioned for the 19 meter shortwave broadcast band.

Each vertical is a quarterwave in length, and are separated a half-wavelength from each other, Fig. 1A. The main coaxial line to the receiver connects mid-way between the two vertical using two short equal lengths of coax. This manner of connection causes the individual signal components picked up by the verticals to be additive at the junction when the two components arrive in phase as indicated by the \oplus sign at the top of each vertical. This condition occurs when the plane of the two verticals is broadside (perpendicular) to the angle of arrival of the signal.

For example, if the verticals are mounted due west/east of each other, this in-phase occurs when the signal arrives from the north or the south. In this case, the signal components are of the same phase when they strike each vertical. Since each antenna's signal travels the same distance over

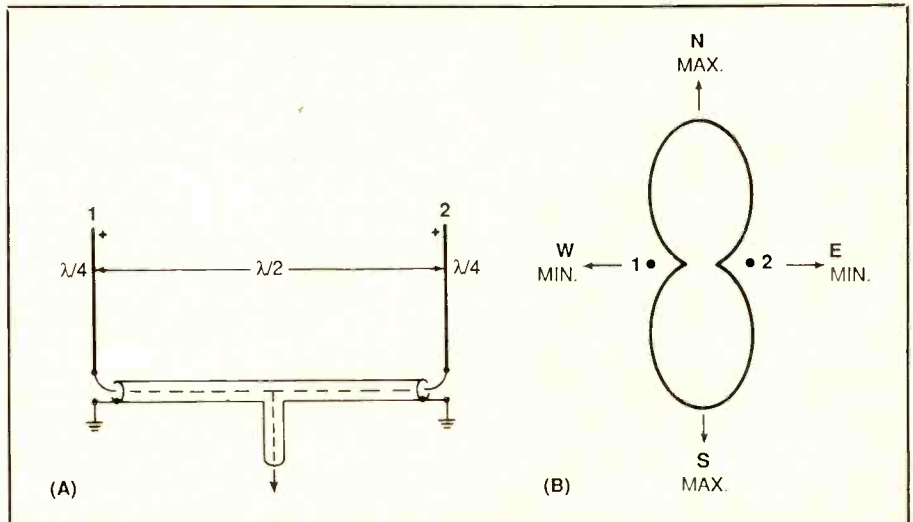


Fig. 1: Two verticals in phase (broadside) and its elongated figure-eight pattern

the short lengths of the coax to the junction, they are in phase and additive at the input of the main coaxial line to the receiver. The result is demonstrated in the pattern seen in Fig. 1B. The elongated figure-eight pattern indicates gain and directivity broadside to the plane of the two verticals.

Why is the pick-up poor both eastward and westward? A signal arriving from due west strikes vertical one first, then, one-half wavelength later, it strikes vertical two. However, in its travel over the half-wavelength distance to vertical two, its phase has

reversed. Thus, the two verticals are excited out of phase. The top of vertical two would be minus, when the top of vertical one is plus. The signal components travel the same distance along the short sections of coaxial feed line. However, this time they arrive at the main coax line out-of-phase and become subtractive. Not as much net signal is then present on the line to the receiver. The same applies for a signal arriving from the east. This, too, is indicated by the pattern in Fig. 1B and its minimum points that correspond to the east west directions.

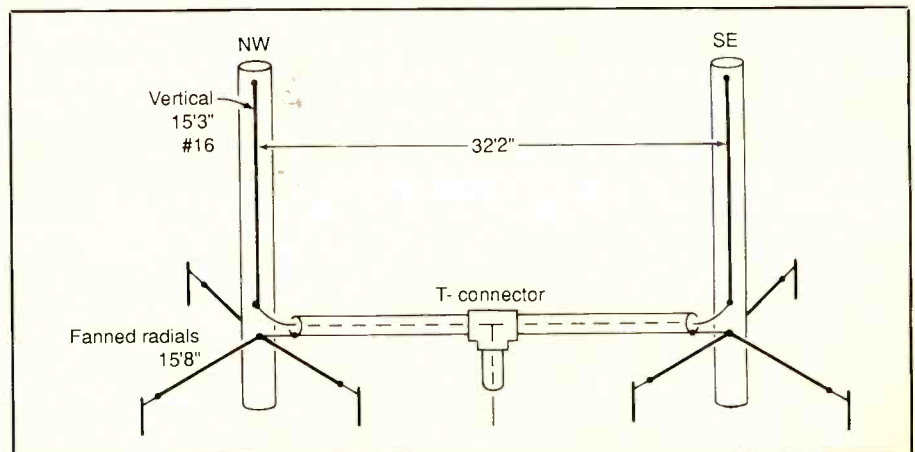


Fig. 2: 19M example of two verticals connected broadside.

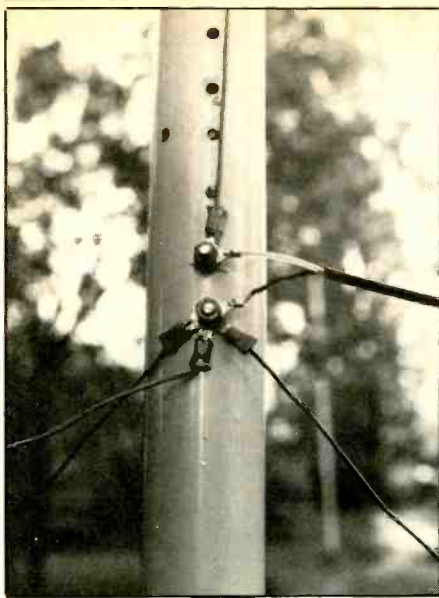


Fig. 3: Vertical radiator, radials and phasing line connection.

A practical example for a 19M version is shown in Fig. 2. In this case the verticals were mounted in a NW-SE line to favor reception from the NE-SW. Each vertical consisted of a 15'3" length of #16 vinyl covered wire mounted on a plastic mast, along with three wire radials. Spacing was 32'2" corresponding to a free-space half wavelength on 19M.

The attachment of vertical wire, radials and phasing line connections at the base of the verticals is shown in Fig. 3. Note that the inner conductor of the phasing line connects to the vertical wire, and braid to the radials. The key connection to the main coaxial line is shown in Fig. 4.

Another manner of connecting two verticals spaced one-half wavelength apart is shown in Fig. 5. Note that the arrangement is identical to Fig. 1, except for the manner in which vertical two is connected to its phasing line. In this case, the braid is connected to the vertical wire, while the inner conductor attaches to the radials. This method connects the two verticals out-of-phase, which is referred to as 180 degrees end-fire feed that favors, to a limited extent, the signals

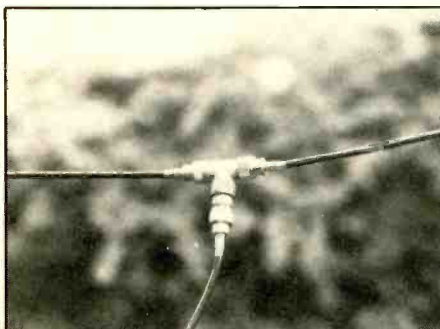


Fig. 4: T-Junction at center of phased verticals.

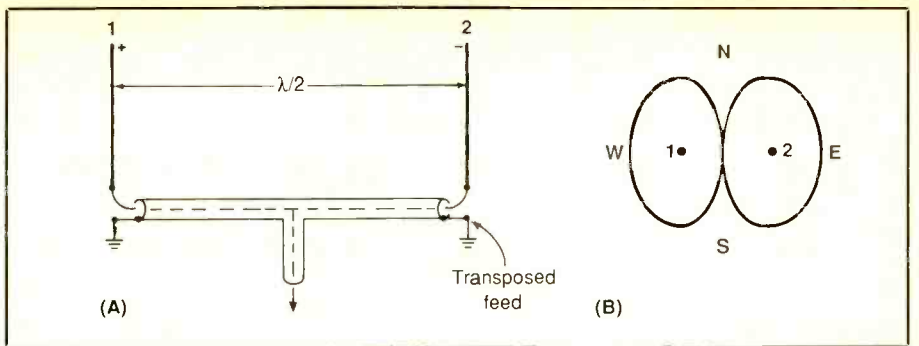


Fig. 5: Two verticals out-of-phase (end-fire) with broad figure-eight pattern.

arriving in line with the vertical plane instead of broadside. Actually, for this simple configuration, a broad figure-eight pattern results, and performance is essentially omnidirectional, with only some limited drop off in the north and south direction.

The antenna of Fig. 2 requires little mounting space and provides gain and directivity on some favorite band. However, it does not mean that it is useless on other bands. Other high frequency bands on each side of 19M come in well, and antennas have a more omnidirectional pattern. Reception drops off on the lower frequency bands—41M, and up into the tropical bands. This drop off is compensated by nighttime's strong signal levels on these bands.

You can plan a phased vertical for other bands using three simple equations as follows:

$$\begin{aligned} \text{Length of vertical in feet} &= \frac{234}{\text{Band center frequency in MHz}} \\ \text{Length of each radial in feet} &= \frac{240}{\text{Band center frequency in MHz}} \\ \text{Half wavelength spacing in feet} &= \frac{492}{\text{Band center frequency in MHz}} \end{aligned}$$

In our 19M test antenna, we used a frequency of 15.3 MHz in making our calculations. Give a phased vertical a try sometime. They do well on the higher-frequency ham bands, too. I worked well with one on 20M a number of years ago. PC

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CIRCLE 57 ON READER SERVICE CARD

INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

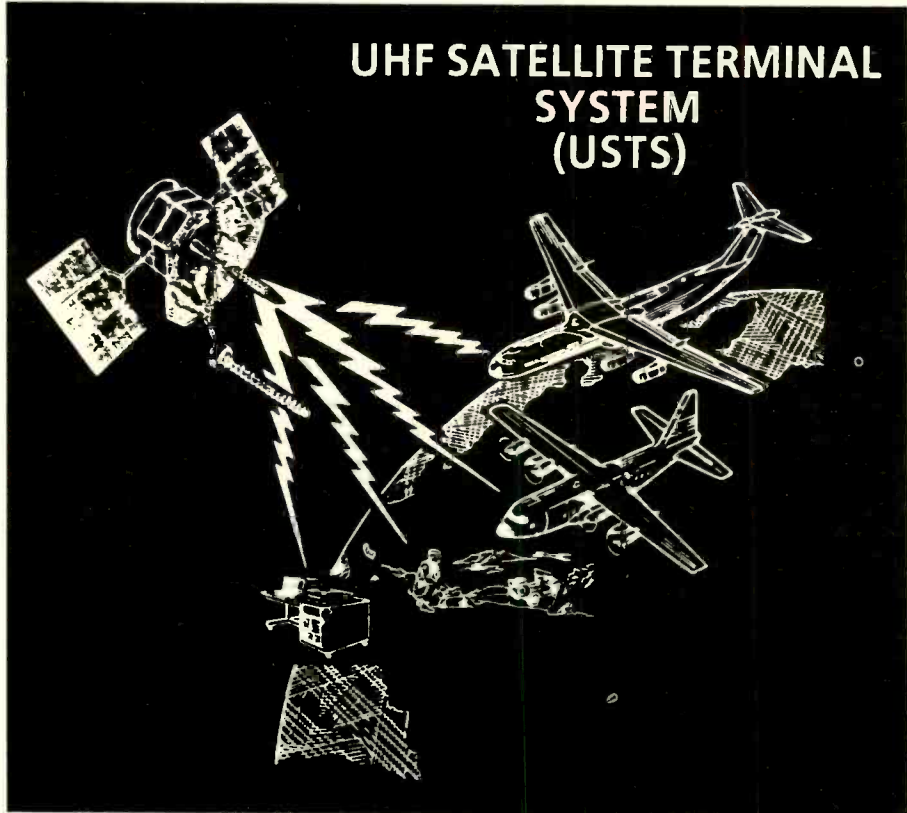
UHF Satellite Terminal System

The Air Force is upgrading its UHF Satellite Terminal System, (USTS). This upgrade will consist of new UHF transceivers, encryption units, keyboards and antenna. The new equipment will make the Air Force communications system compatible with present Navy systems and future Army satellite systems. A common format and encryption will be used by all branches of the military in the future.

The proposed changes will affect two satellite systems in the near future, Fltsatcom and Syncom. Syncom is not an adult entertainment TV satellite, or a part of SDI. Syncom is the Department of Defense designation for leased military communications satellites. It will supplement the older Fltsatcom system. (Fltsatcom, a Navy system also carry AF transponders). Eight Fltsatcoms have been launched during the last ten years. The last satellite in the series was launched just last year. They are scheduled to be replaced by a new class of standardized military satellite known as Milstar. It will be deployed in the 1990's. Syncom will be used during the transition period along with the remaining Fltsatcom spacecraft. The first Syncom was launched from the shuttle in 1984. Four have been launched and the fifth is scheduled for launch from STS-37 in 1990. These two systems, Fltsatcom and Syncom, carry a wide range of communications for such groups as SAC, MAC, NAC, SOSUS tactical and intelligence operations.

According to Captain Milford Gutridge of the Air Force Airlift Communications Division of MAC, the proposed changes in the satellite system will greatly reduce the present crunch of traffic now on the satellites. The AF systems Command and the Military Airlift command have reviewed the present satellite system and made the following recommendations. First it suggested that, as much as possible, all voice communications be switched to data mode to conserve frequency space on the transponders. These transponders run from 243 to 319 MHz. Voice communications are not an efficient use of frequency space.

The proposed changes will require new data transceivers and accompanying equipment. The new terminals will be able to operate on the Navy's 25 kHz wide channels on Fltsatcom or the 5 kHz wide channels on the AFsat transponders. The data rate will be between 75 to 2,400 bytes per second. This system will allow up to 500 messages to be sent simultaneously through burst communication techniques. A communications



operator on a plane, or field station, can simply type his message into his new USTS transceiver and then dump it onto one of the satellite uplink frequencies.

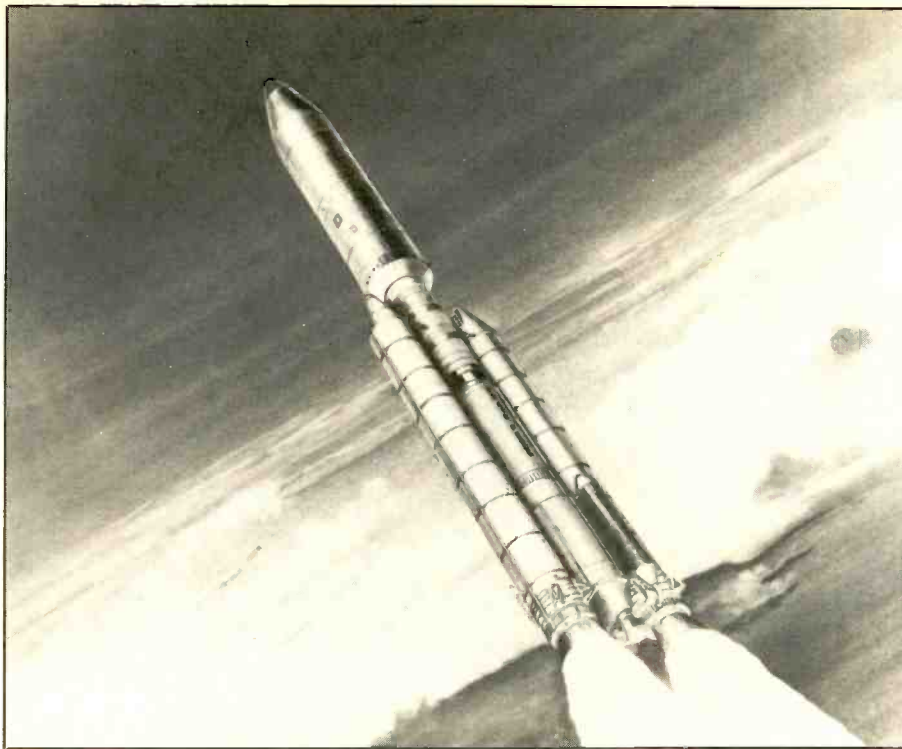
The messages will be prioritized by classification by one of four Network Control Stations (NCS) located around the world before the message is sent to the target station. The Network Control stations are located at Travis AFB in Arizona, McGuire AFB in New Jersey, Ramstein AFB in Germany and Kadena Air Base in Japan. Once the operator is ready to access the satellite, he makes a request for time on the transponder by simply hitting the send key on the keyboard. This sends an automatic request to a NCS for access to the system. The NCS then confirms that the station for whom the message is addressed is open to receive traffic. The sending station then receives an "OK" from NCS and the message is sent. All this is accomplished in a very few seconds. This type of operation is known as Demand-Assigned Multiple Access or DAMA. Point to point operations can also be accomplished by direct access to the satellite.

DAMA has been used by the Navy for some years. After the Air Force upgrade, the Army will also get new equipment.

The new USTS transceivers will not only work as a desktop unit, but can be used in the field, as a mobile or as an aircraft terminal, its original design. This unit is designed to be easily removed from one aircraft and put into another as the need arises. USTS terminals will offer encryption that is compatible with present Air Force, Navy and future Army systems. Not all aircraft will be equipped with these units. The Air Force will purchase 300 units initially, but all MAC aircraft will be capable of using the system. A11, C-5's, C-130's and C-141's will be equipped with permanently mounted satellite antenna. The 300 USTS transceivers will be deployed in aircraft assigned to special operations or priority missions.

These new data terminals are only one of several types used by the military. For example, the Army has at least three type satellite terminals in use. Some are large truck mounted systems, others are backpack size.

The US military now has approximately



Titan 34D7 will carry DSCS III, Fltsatcom and Milstar into orbit (DOD).

2,500 satellite stations in its communications arsenal. This number is expected to double by 1995.

During this same time frame, the Air Force is going to update its worldwide hard-line computer network. These are connected by telephone lines. Standardized terminals and software is being developed which will connect all levels of the military which has need for access to computer information, to a standard data base regardless of their location. This strong centralization will simplify command and control as well as MAC airlift operation scheduling. This same system will link operations, logistics, intelligence and air transport sections.

This move toward standardized computer and satellite systems coincide with the military plans to deploy Milstar, a complex system of satellites using EHF. Transponders for this system are now being tested on Fltsatcom satellites. Fltsatcom 7, launched in December of 86, was the first spacecraft to carry the experimental 35 to 45 GHz transponder.

Mail Call

Bobby Wheeler of Housatonic, Maine wrote me an interesting letter. Bob, a retired Navy radioman, feels that the military is heading for a High-Tech trap. Though the Navy has virtually discontinued use of CW, and switched to VHF networks and satellites, this makes our communication more vulnerable to attack. Satellites will be a high priority target in a major conflict with the Soviets. Though I think High-Tech should

be pursued, becoming dependent on it can be a mistake, especially if there is no backup system.

This reminds me of how the Indianapolis Public Library system switched to computer terminals from the "old fashioned" 3 x 5 in-

dex cards. For the first two years, the computer system would go down and be out for up to two weeks at a time. This would not have been much of a problem if the index cards had been kept for backup. They were not. Now, even when the computers are up, you must stand in line to use them. The High-Tech trap is a good argument Bob.

Bob was a shipboard radio operator who handled satellite communications on a regular basis. He reports that there are now six Fltsatcom and four Leasat (Syncom) satellites in orbit, spaced 5 degrees apart. Bob also reports that the Gapsat (Gapfiller satellites more accurately) are still operational, but used only for backup. The Marisat, leased transponders, are used by the Coast Guard.

Bob also sent along some information on the Navy satellite equipment. The transceivers, the WSC-3 and WSC-5, require only 50 watts uplink to access Fltsatcom. The data mode can be either narrow or wideband with a baud rate of up to 2,400. Virtually all Navy satellites use data mode only. Bob says that from his own experience the Fltsatcom spacecraft are superior to Leasats (leased satellites). Thanks for that interesting update, Bob.

Jim Pook of British Columbia, Canada wants to know the location of the satellites mentioned in the February issue. Here is some of the information you requested Jim.

This information comes from Larry Van Horn's *Communication Satellites*, Aviation Week and NASA publications.

That is all for this time around. See you next month.

PC

Marisat	15°W	73°W	176°E		
Fltsatcom	93°W	172°E	23°W	75°W	100°W
DSCS II	66°E	140°E	175°E	13°W	135°W
DSCS III	60°E	175°E	13°W	135°W	
NATO III	18°W	22°W	50°Q		

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Please send all reader inquiries directly.

LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

A couple of months ago, we noted that High Adventure Ministries, operators of KVOH in California, and the Voice of Hope in Lebanon, were looking at either the Philippines, or the Pacific island of Palau, as a site for their newest shortwave station. On behalf of shortwave DX'ers everywhere, we expressed the hope that High Adventures would choose the island, since it would then provide a new country for us to shoot for. Unfortunately, this time, our hopes were not answered.

The new station will be located in the Philippines, and it will aim its programming specifically at mainland China. High Adventures are hoping to begin broadcasting this month. But, it was not that long ago, they were still appealing for funds to purchase antennas and other equipment. Our guess is that it might be awhile before this station goes on the air.

In *DX Ontario*, the bulletin of the Ontario DX Association, Chairman Harold Sellers reports that another new Shortwave station is trying to spring up. Globe Radio International sent out flyers requesting feedback on its plan to put a five kilowatt station on the air, located near Milan, for broadcasts aimed at Europe. If this one gets on, and you hear them, send reports to IRRS-GRM, Via Teodosio 27, 20131 Milano MI, Italy.

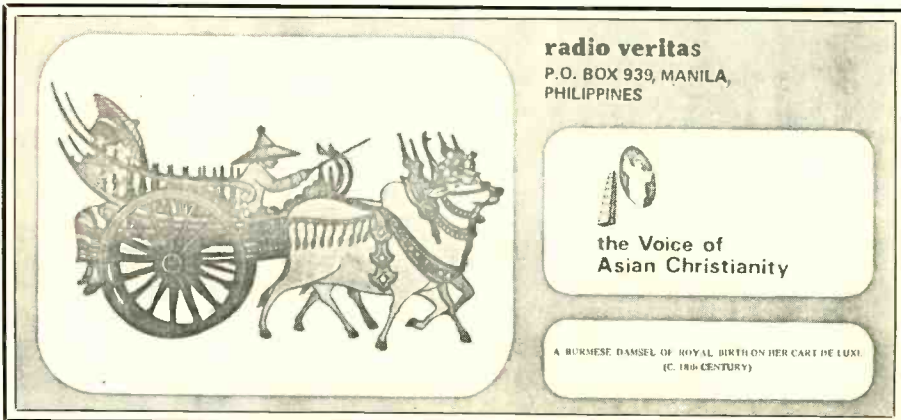
There is a new station on the air in Colombia. La Voz del Rio Arauca, from within the town of Arauca, is operating in Spanish on 4895. Sign on is around 1000 UTC. Evening reception of this one is difficult due to interference from the very strong Brazilian, Radio Bare, which is also on 4895. There is no special address available on them other than the one above in Arauca.

Radio Budapest has announced a cut of one-third in the time it devotes to shortwave programs. The cutback is in effect due to the need to save money. This savings will, in turn, help put a computer system in place at the station. This now brings Radio Budapest's English schedule down to: daily at 1830-1900, and Monday-Saturday 2000-2030 on 6100, 7225, 9585, 9835 and 11910. Also, Monday-Saturday at 2330-000 and daily 0030-0030 on 6025, 6110, 9520, 9585, 9835 and 11910.

Radio Sweden has dropped the home service broadcasts which were transmitted in a single sideband mode for the past several years from a transmitter site at Varberg.

By late summer, Jordan was supposed to bring a trio of 500 kW transmitters into play in order to provide better service to North America. Just about anything would improve audibility of the station here. Let's hope all that new power will do the job.

The Christian Science Monitor's WCSN



Radio Veritas in the Philippines is being heard by more US listeners lately, thanks to their new high power transmitters. Here's one of there QSL's.

(it is WCSN, not WCSM as some continue to report) has drastically reduced the size and scope of its "International Shortwave Radio Guide". What was once a multi-page magazine, is now just a single large sheet of paper folded into a four-pager. The inside spread shows a world map with broadcast times and frequencies for various areas. The schedule indicates the network's newest station, at Cypress Creek, SC will be on the air in 1989.

Lawrence Magne is now heard on Radio Japan's "DX Corner" program. His reports are aired monthly. Check Sunday's at 1525 on 9505, 9695, 11815 and 21700 or Monday's on 5960, 15195, 17810 or 17854 at 0125.

The Cascade Mountain DX Club, which we inquired about recently, no longer exists. Out of that organization has sprouted "DX Northwest" which is also a local chapter for the national club, Speedx. The club publishes a monthly newsletter called the *Grayline Report*. For more information about the club, and a sample copy of the newsletter, send a SASE, or an IRC to Guy Atkins, 205 SW Clark, -C-4, Issaquah, WA 98027-7332.

The mailman arriveth: Rich Hammond (1295 Betty La., Eugene, OR 97407) is a returnee to the bands after five years away and is trying to decide whether he should buy an R-500, R71A or FRG8800. He'd like, ideally, to try them out side by side, or at least on a separate basis, but cannot find a store in his area which sells them all. If you live in Rick's area, he'd appreciate hearing from you if you could help. He's also looking for local contacts, too. You could start by contacting DX Northwest, Rick

Andy Johns in Tyler, TX asks if we remember English over the Voice of Chile back in the 1970's and over Radio Mexico,



Here's the monitoring post of Fernando Garcia in Baltimore, MD. Fluent in Spanish, he can get much info from stations which broadcast in that language.



Here's the staff of the new Costa Rican station Radio Peace International, operated in conjunction with the University for Peace.

as well. You bet. The Chilean station, run by the government if memory serves me correctly, had to leave the air for financial reasons. Radio Mexico comes and goes. Currently its on, but apparently without English. The Voice of The Philippines, who Andy also mentions, may be gone. Haven't seen any log reports on this one in a long while, and there is no listing for it, as such, in the 1988 WRTH. Any Philippine experts out there who can fill us in?

Bob Zirkelbach in California needs a source of crystals. He also wonders if Botswana is still QSL'ing. Yes, but not as consistently as they were earlier. Bob says that Australia is coming in regularly on the 11 meter CB band—that's how good conditions have been lately. Just check the log reports and note the number of higher frequency logs being reported late into the evening.

Joe Bauman in Salt Lake City notes that Indonesia seems to have a powerful new transmitter on 11865, as he hears it very well, as early as 1215. They've been planning to add a 250 watt transmitter for some time, and it sounds as though they have.

Opher Frohlich in Israel says his country can be considered a "SWL's paradise" since it's "trapped" among Asia, Europe and Africa. He has offered to become a regular reporter to the column and we cheer that idea! Just send your reports to the POP'COMM address and follow the format used in the column.

Apologies to Ronald Van Campen from Curacao in the Netherlands Antilles. His logs, which he included in the middle of his letters text, wound up in the letters pile instead of the log pile, so they were not included. Try us again, Ron.

Robert Davidson (3369 Thom Blvd., Las Vegas, NV) is trying to make contact with some area listeners in hopes of putting a local club together. Robert says he began listening at the age of eight, but strayed when he became a ham. Now, at 32, he's back to SWL'ing. He's using a Hammarlund HQ-180 and a Sony 2010

So lets hear from you next month! We always need your loggings, QSL's you don't need returned, shack photos, schedules, clippings, questions, comments and other related shortwave broadcast items you may care to present. We look forward to hearing from you each month, even though time constraints prevent replying most of the time.

Here are the loggings.

SWBC Loggings
(English, Except Where Noted)
(All Times UTC)

Albania: R. Tirana, 9760 at 0234 w/nx (Gilbert, CA).
Algeria: R. Algiers, 9510 at 1930 w/pops (Buckley, GA).
Argentina: RAE, 9690 at 0400 w/multi-lingual ID (Messinger, NY).
Armenian SSR: R. Yerevan, 13645 at 0350 (Johns, TX). Via R. Moscow xmits-- Ed.
Australia: R. Australia, 6080 at 1520 w/nx & features (Hammond, OR); 9580 at 0846, 9655 at 0700 (Buckley, GA); 7215 at 1051 w/IS (Jacques, NE); 15240 at 0145, 17175 (??-- Ed.)/17175/1775C at 0200 w/International Report (Zirkelbach, CA); 17795 at 0100 (Benoit, MA).

ABC Brisbane, 4920 at 0807 w/local nx (Davidson, NV); 0905 w/nx (Gilbert, CA).
VLBK, Darwin, 2485 at 1200 (Johns, TX).
Austria: R. Austria Int'l., 11780 is possible GG at 2357, 55 at 0300, EE 0146. On 15410 in GG at 0515 (Johnson, AZ).
Bangladesh: R. Bangladesh, 21630 at 1209-1230 w/nx. Alt. freq for 15525 (Mierzwinski, PA).
Belgium: BRT, 5910 at 0031 w/Brussels Calling, 9675 at 2201 (Benoit, MA); 9925 at 0025, 11985 at 0458 (Johnson, AZ).
RTBF, Radio 4 Int'l., 11660 at 0430 in FF (Johns, TX).
Benin: ORTB (tentative), 4870 at 0520 w/ID in FF (Messinger, NY); 0616 th FF (Gilbert, CA).
Bolivia: R. Illimani, 4945 at 0130 w/mx & talk in SS, mentions of LaPaz (Gilbert, CA).
Botswana: R. Botswana, 4820 at 0423 w/mx (Gilbert, CA).
Brazil: Radiobras, 11745 at 0215 w/YL anncr & singing pgm (Zirkelbach, CA); 0210 Brazilian pops (Benoit, MA).
R. Globo, 11805 in PP w/pops, 'phone calls (Johnson, AZ). Time?-- Ed.
Bulgaria: R. Sofia, 7115 at 0300 (Jacques, NE); s/off 0458 (Gilbert, CA); 11720 at 0558, IS, ID, into FF, 11880 at 0100 w/IS, ID, into SS (Johnson).
Burkina Faso: R. Burkina, 4815 at 0706 w/mx & talk in FF (Gilbert, CA).
Cameroon: R. Bertoua, 4750 at 0640, nx 0700 (Davidson, NV).
Canada: RCI, 11845 at 0109 w/mailbag pgm, same at 2012 to Europe on 17875 (Johnson, AZ).
CBC N. Quebec Svc, 11720 at 1410 w/ID, features (Neff, FL).
Chad: R. Nat'l. Tchadienne, 4904 at 0425 w/mx, ID, anthem (Messinger, NY).
China (PR): R. Beijing (var. relay sites), 9770 at 0305 w/nx, 11715 at 0006 w/nx (Benoit, MA); 15455 at 1120 w/In The Third World (Neff, FL); 17650 in SS at 0210 (Johnson, AZ).
Colombia: R. Sutatenza, 5095 in SS at 1140 (Gilbert, CA).
Costa Rica: R. for Peace Int'l., 15494 at 2101 w/talk on world passports (London, MN); 7375 at 0010-0120 (Jacques, NE).
R. Relej, 4832 at 0300 in SS (Mierzwinski, PA); 6006 in SS w/soccer game at 0130 (Garcia, MD).
R. Impacto, 5030 at 0213 w/Impacto Noticioso (Garcia, MD); 0436 in SS on 6150 (Gilbert, CA).
Cuba: R. Havana Cuba, 6090 at 0036 (Benoit, MA); 6140 at 0200 (Zirkelbach, CA); 9525 at 0612 (Cofferty, MA); 15115 to Europe at 1929 (Garcia, MD); 15230 at 1800 w/SS s/on, 15340 at 0130 in SS (Johnson, AZ).
R. Rebelde, 5025 at 0034 in SS, full ID at 0050 (Garcia, MD).
Czechoslovakia: R. Prague, 5930//9540//9630-//11900 at 0145 (Zirkelbach, CA); 6055 at 2208, 7345 at 0138 (Benoit, MA); 9740 at 0310 (Hammond, OR); 15155 at 1428 thru QRM from Indonesia (Johnson, AZ).
Denmark: R. Denmark, 11845 at 1726 w/IS & ID (London, MN).
E. Germany: R. Berlin, 9560 at 0430 (Messinger, NY); 9730 at 0130 (Zirkelbach, CA); 6080 at 0001, 9730 at 0037, 21540 at 1406 (Benoit, MA); 15240 at 1338 in GG (Johnson, AZ); 17880 at 1415 (Messinger, NY).
Ecuador: HCJB, 6230 at 0233 w/DX Party Line (Neff, FL); 11835 at 0307 in un-ID lang (Johnson, AZ); 15160 at 1913 in SS (Garcia, MD).
R. Nac. Espejo, 4680 in SS at 0405 w/talks (Mierzwinski, NY).
R. Quito, at 0327 w/mx, commercials, nx in SS (Garcia, MD).
R. Jesus del Gran Pader, 5050 at 1123 in SS (Gilbert, CA).
R. Bahai, 4990 at 0120 in SS w/ID & QSL address (Benoit, MA).
Egypt: R. Cairo, 9475 at 0208 (Benoit, MA); at 0308 (Neff, FL); 9675 at 0315 w/nx when 9475 had AA (Buckley, GA).
England: BBC, 3955 at 0630 w/pgm on Turkish dancers (Messinger, NY); 5975 at 0509 (Gilbert, CA); 6005 at 0250 (Jacques, NE); 11750 at 0346, 11820 at 0010 w/IS & into SS; 12095//15070 at 2155, 15420 at 0408, 17705 at 1347, 17885 at 0505, 21470 at 1406 (Johnson, AZ). Includes var relays-- Ed.
Finland: R. Finland Int'l., 9670 at 2204 w/nx (Benoit, MA); 11755 at 0125 in Finnish, into EE 0230 (Johnson, AZ); 11945 at 1410 (Messinger at 1530 s/on (Gilbert, CA); 15400 at 1200 (Neff, FL).
France: RFI, 17620 at 1633 (Garcia, MD); 17795 at 1650 mx, ID, address for skeds, into FF 1653 (Benoit, MA).
French Guiana: RFI relay 11800 at 0629 in FF, 21645 at 1246 (Johnson, AZ).
RFO Cayennem 5055 at 0015 in FF (Davidson, NV).
Gabon: R. Japan (via Africa #1), 11800 at 2300 (Buckley, GA); R. France Int'l. (via Africa #1), 4890 at 0445 (Messinger, NY).
Ghana: GBC, 3366 at 2245 w/nx (Benoit, MA); 4915 at 0601 w/local nx & ending EE 0607 (Davidson, NV).
Greece: V. of Greece, 7430 in Greek at 0124 (Jacques, NE); 9395 at 0140 w/nx, ID, Greek mx

Abbreviations Used in Listening Post

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

(Neff, FL); 11645 at 2349 in Greek, off 2350 (Johnson, AZ); 15630 at 1541 w/nx (Benoit, MA).
Guatemala: R. Cultural, 3300 w/SS tx pgm at 0040 (Garcia, MD); 0723 in SS (Gilbert, CA).
La V. de Nahuala, 3360 at 0230 in SS (Mierzwinski, PA).
Honduras: Sani R., 4755 at 0148 in SS (Gilbert) La V. Evangelico, 55 rx pgm by Pastor Nicolas on 4820 at 0102 (Garcia, MD).
Hungary: R. Budapest, 9835 at 0217 (Gilbert, CA); 11910 at 0303 w/freq change anncr, DX pgm (Johnson, AZ); at 1538 (Benoit, MA).
India: AIR, Delhi, 11620 at early as 2030. Also on 9910 w/nx at 2100 (Buckley, GA).
Indonesia: V. of Indonesia, 11788 at 1530 w/nx, ID (Messinger, NY); 1517 w/mx, 1555 nx in brief (Hammond, OR); 11790 at 1509 w/nx (Gilbert, CA); 15153 at 1445 in AA, IS/ID & off 1549 (Johnson).
Iran: VOIRI, 15084 at 0522 in Farsi (Johnson, AZ).
Iraq: R. Baghdad, 6110 at 0110 w/YL talk, ID 0157 (Benoit, MA); 9770 pops mixed w/national mx but QRM from WHRI (Buckley, GA).
Israel: Kol Israel, 9435 at 0100 w/Israel News Magazine (Zirkelbach, CA); 0210 w/Spectrum (Benoit, MA); 1195 in SS at 2241 (Garcia, MD); Un-ID lang on 11605 at 1943, also un-ID lang on 1505 at 0434, as well as on 17620 at 0407, & on 17555 at 1205 w/home svc (Johnson, AZ).
Italy: RAL, 9575 at 0100 w/nx (Gilbert, CA, & Beboit, MA); IS on 11905 at 0140, 15245 at 0211 in possible II, 15330 at 0401 IS, 11780 ID & gone 1907 (Johnson, AZ); 21560 at 1415 in II, off 1425 (Mierzwinski, PA).
Ivory Coast: RTV Ivorienne on 7215 at 2030 in FF (Messinger, NY); 11920 at 2248 w/African & EE pops, in FF. Off 0004 (Johnson, AZ).
Japan: R. Japan (var relays), 5960 at 0325, 17810 at 0104 (Benoit, MA); 5990 at 1130 (Buckley, GA); 11800 at 2325 (Messinger, NY); 21610 at 0250 in JJ (Johnson, AZ).
Kuwait: R. Kuwait, 11665 at 2015 w/YL DJ (Buckley, GA); 1806 w/pgm about Kuwait (Benoit, MA); 15495 at 0145 w/ID, ID 0157, anthem, into AA (Johnson, AZ); 0300 w/rx pgm for N. Africa (Mierzwinski, PA); 15505 at 2123 in AA (Johnson).
Lesotho: R. Lesotho, 4800 at 0432 w/nx (Gilbert) Liberia: VOA relay, 15315 in FF w/ID 2025, on 15445//17870 at 2004 w/nx & ID (Johnson, AZ).
Libya: R. Jamahitiya, 15235//15415//15450 at 2306 in AA (Johnson, AZ).
Luxembourg: R. Luxembourg, 15350 at 1950 in FF pgm pop/rock & commercials in GG/FF (Johnson) Magagascor: R. Netherlands relay, 11735 at 1430 (Gilbert, CA).
Malaysia: R. Malaysia, Kuching (Sarawak), 4950 at 1501 w/stock mkt report (Gilbert, CA).
Mali: RTM, 4783 at 0641 in FF (Gilbert, CA).
Malta: R. Mediterranean, 6110 at 2305 w/mx, sports, nx headlines to 2328 s/off anncr, anthem, & bye-bye (Benoit, MA); C&W mx at 2300 (Buckley) DW relay, 11865 at 0149 s/off in EE, but back in SS in 10 minutes (Johnson, AZ).
Mauritania: ORTM, 4845 at 0656 w/chants & talks in AA (Gilbert, CA).
Mexico: R. Mexico Int'l., 17765 at 0030 in SS (Johnson, AZ).
R. Universidad de Sonora, 6115 at 0635 w/mx & talks in SS (Gilbert, CA).
Netherlands: R. Netherlands, 9895 at 0258 w/mailbag (Benoit, MA); 17575 at 1432 w/nx to Asia (Johnson, AZ).
Netherlands Antilles: R. Netherlands Bonaire relay, 9715 at 0546-0624 w/Images, address for

comments (Cafferky, MA); 9590 at 0235 (Neff, FL); 15315 at 0223 just before close (Johnson, AZ).
 TWR, Bonaire, 6180 in SS at 0103 (Garcia, MD); 11845 at 1215 (Neff, FL); 15385 at 0143 in SS (Johnson, AZ).
New Zealand: R. New Zealand, 11780 at 0435 w/big band mx (Buckley, GA); 15150 at 0606 reg'n l nx, shore forecast (Johnson, AZ); 0603 (London).
Nicaragua: V. of Nicaragua, 6120 at 0400 (Hammond, OR). VoN nominally 6015 or 6100 & runs later than 1408 close. R. Zinico in Bluefields is listed on 6120--Ed.
Nigeria: V. of Nigeria, 7255 at 0520 w/local commentary (Davidson, NV); 0449 s/on w/nx (Messinger, NY); 0545-0600 (Jacques, NE).
N. Korea: R. Pyongyang, 15115 at 0001 w/ID, s/on, anthem, sked & nx (Benoit, MA).
Northern Marianas: KYOI Saipan, 11900 at 1150 w/rock, jingle (Benoit, MA); 1450 (London, MN); 17780 at 0525 w/ID, pops (Zirkelbach, CA); 0201 (Johnson, AZ).
Norway: RNI, 9605 at 0012 (Benoit, MA); 11860 at 2208 (Garcia, MD); 15310 at 1704 (Jacques, NE); 9695 at 0156 w/IS, ID; 9615 at 0106 w/nx in NN; 9655 at 0410 in NN, ID in EE at 0411; 11865 at 0041 in NN; 15165 at 0559 w/IS & ID (Johnson).
Pakistan: R. Pakistan, 11615 at 1602 w/nx to 1615 when ID (Benoit, MA).
Papua New Guinea: NBC Pt. Moresby, 4890 at 0909 w/national nx (Gilbert, CA); 1130 w/mx & commentary (Davidson, NV).
Paraguay: R. Nacional, 9735 at 0000 w/soccer results in SS, full ID on hour (Garcia, MD).
Peru: R. Atlantida, 4790 at 0224 w/full ID in SS (Garcia, MD); 0430 in SS (Johns, TX).
 La V. de Selva, 4825 at 1022 in SS (Gilbert, CA).
 La V. de la Selva, 4825 at 1022 in SS (Gilbert).

R. Ancash, 4990 at 0500 in SS (Johns, TX); 0351 (Gilbert, CA).
 R. Tropical, 4935 at 1130 in SS (Johns, TX).
 R. San Martin, 4810 in SS w/talk, many ID's 1000 (Gilbert, CA); 0430 in SS (Johns, TX).
Philippines: R. Veritas Asia, 9770 at 1525 w/nx (Zirkelbach, CA); 1500 (Hammond, OR); 15330 at 0129 w/mx & un-ID lang, 0130 EE ID (Johnson, AZ).
 FEBC (tentative), 9670 at 1430 w/nx & ix (Hammond, OR); 11850 at 1300 (Johns, TX).
 VOA relay, 17735 at 0210 w/pgm highlights (Johnson, AZ).
Poland: R. Polonia, 6135 at 2254 w/features, ID & s/off (Benoit, MA).
Portugal: R. Portugal, 9608/9705 at 0230 15285 in PP at 1814, ID 1830 (Garcia, MD).
Romania: R. Bucharest, 9570 at 0202 w/nx (Gilbert, CA); 11810 at 0158 w/IS, ID, nx. Low audio level. Also 17720 at 1259 w/IS, ID, nx at 1300 (Johnson, AZ).
Saudi Arabia: BSKSA in AA on 15245 at 1836, some EE noted (Garcia, MD).
 Seychelles: FEBA is presumed AA, s/off on 11870 at 0330 (Messinger, NY).
Singapore: SBC Radio 1, 5052//11940 at 1527 w/pops (Gilbert, CA); 11940 at 1550, nx at 1600 (Hammond, OR); 1545 w/EZL mx (Zirkelbach, CA).
Solomon Islands: SIBC on 5020//9545 at 3755 w/time, tide info (Zirkelbach, CA); 9545 at 0721 in Pidgin (Gilbert, CA); 0630 w/local shipping & wx info (Davidson, NV).
South Africa (Rep. of): Radio RSA, 9615 at 0200 (Neff, FL); 15125 at 1358 w/IS, ID, into nx, 15225 at 0444 in FF with EE intervals (Johnson, AZ); 21590 at 1403 (Benoit, MA).
 Radio 5 svc, 4880 at 0345 w/pops (Messinger).
South Korea: R. Korea, 9570 at 0620 (Davidson,

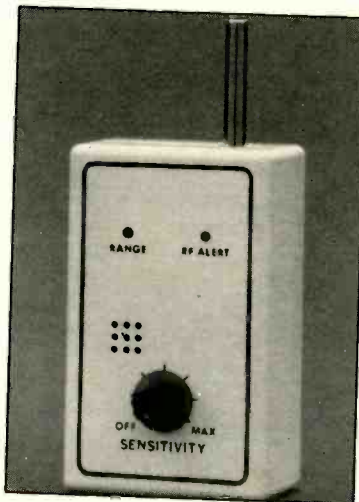
NV); 9750 at 1400 w/pgm lineup for week (Buckley, GA); 15575 at 1445 w/mailbag (Messinger, NY); 0050 w/nx, off 0059 (Benoit, MA).
Spain: Spanish Foreign R., 6125 at 0102, & 9630 at 0001 (Benoit, MA); 11775 at 0006 in SS (Johnson, AZ); 21575 in SS at 1445 (Garcia, MD).
Sweden: R. Sweden, 9695 at 0015 in SS (Garcia, MD); 0230 (Hammond, OR); 11705 at 0228 w/IS, ID, into SS (Johnson, AZ); 21555 via Varberg at 1225 in Swedish (Mierzwinski, PA). Presume that was in SSB, Frank. Those test xmsns have now ceased--Ed.
Switzerland: Swiss R. Int'l., 3985 in FF at 0600 (Messinger, NY); 9885 at 0215 (Neff, FL); 11695 at 1311 w/ID into Esperanto; 12035 at 0407 w/Dateline & into GG 0430; 15420 at 1856 under WRNO w/IS, IDIS & into possible GG; 15570 at 2055 in un-ID lang; 17830 at 1713, IS & Esperanto at 1715 (Johnson, AZ); 21695 at 1330 w/ID, freqs, Dateline (Benoit, MA).
Syria: R. Damascus, 9950//17710 at 0516 in AA (Johnson, AZ).
Tahiti: R. Tahiti, 6135 at 0645 w/island mx (Johnson, AZ). Presume was in FF--Ed.; 15170 at 0550 in Tahitian; 11826 at 0600 (London, MN).
Turkey: V. of Turkey, 9445 at 0400 w/nx, mx. Off 0449 (Davidson, WV); 9445//9640 from 2300 (Buckley, GA); 15120 at 0353 w/IS, ID moving from 15200 at this time, into Turkish mx; 15405 at 0353 w/IS, ID, anthem, into Turkish mx; 17760 at 0304; 17800 at 1427 (Johnson, AZ).
Ukraine SSR: R. Kiev, 7165 at 0030 s/on, 11790 at 0324 (Benoit, MA); 2165//7400 from 0300 (Buckley, GA).
Unidentifieds: 7125 at 0708 in FF w/African pops; 15110//15205 w/tone at 0450, s/on in AA 0500; 15265 in RR at 0320; 15300 at 0400 in some Indian dialect, off 0429 w/IS; 15330 in possible AA at 0120; 17645 at 0415 in AA; 21565 at 0422 in FF (Johnson, AZ); 13776 at 1240 mentioning Reykjavik, so possible Iceland (London, MN). Very likely--Ed.
United Arab Emirates: V. of the UAE, Abu Dhabi, 11865 at 0255 w/ex pgm, mx ID, freqs, possible nx 0300 (Johnson, AZ).
 UAE R., Dubai, 15320 at 0500 in AA, 17865 at 1600 w/nx (Messinger, NY); 21605 at 1335 w/ID, nx (Benoit, MA); 17775 at 0329; 21700 at 0534 (Johnson, AZ).
United States: KVOH in SS on 17775 at 1603 (Garcia, MD).
 KUSW, 15580 at 2348 w/rock, ID (Benoit, MA).
 VOA, 15205 at 0446 (Johnson, AZ); 11850 at 0115 (Neff, FL).
 WHRI, 9770 at 2105 (Jacques, NE); 11790 or 1226 (Neff, FL).
 WINB, 15145 at 2245; 15295 from 1745 (Jacques, NE).
 V. of The OAS (via VOA), 9565 at 0030 in SS w/EE ID (London, MN).
 WRNO, 7355 at 0300 (Jacques, NE).
USSR: R. Moscow World Svc., 6020 at 1317 (Gilbert, CA); 13790 at 1155 (Neff, FL); 15460 at 0503; 15350 at 0446; 15530 at 0510; 17590 at 0150; 17600 at 0225; 17620 at 0320; 17655 at 1410; 17835 at 0459; 17880 at 0310 (Johnson, AZ).
 Radiostansiya Rodina, 17685 at 0100 in RR (Johnson, AZ).
 R. Peace & Progress, 12030 at 1630 towards Africa (London, MN); 11890 at 1418; 17645 at 1416' (Johnson, AZ).
 R. Moscow (via Amavir), 15175 at 1130 in Vietnamese (Mierzwinski, PA).
 Ufa R., 4485 at 0740 in RR (Davidson, WV).
Vatican: Vatican R., 9605 at 0045 (Messinger, NY); 15090 at 1510 s/off (Gilbert, CA); 15120 at 1545 w/nx (Benoit, MA); 11750 w/bells IS, into SS; 11780 at 0109 s/off; 15190 at 0504 nx, into African lang then into EE, off 0515 (Johnson, AZ); 17870 at 1502 (Garcia, MD).
Vietnam: V. of Vietnam, 9840 at 1615 w/talks (Zirkelbach, CA); 15010 at 1605 w/local nx (Hammond, OR); 9840 at 1347 (London, MN).
Venezuela: Ecos del Tarbes, 4980 full ID 0057, joltery #'s (Garcia, MD); 0105 mx, SS ID, jingle (Benoit, MA); 0304 (Neff, FL).
 R. Mundial Bolivar, 4770 SS w/mx, ID, time, asking for mx requests at 0209 (Garcia, MD); 0945 in SS (Gilbert, CA).
 R. Rumbos, 4970 at 0445 w/SS mx, ID's (Messinger, NY).
 R. Tachira, 4830 at 0315 w/Latin American mx, SS talk (Mierzwinski, PA); 0131 Only For Lovers mx pgm (Garcia, MD).
 La V. de Caraboba, 4780 at 0225, SS, mx, full ID, time, ads (Garcia, MD).
West Germany: DW (var relay sites), 6010 at 0253 w/ID (Jacques, NE); 6100 at 0200 in GG (Zirkelbach, CA); 13780 at 1630 w/nx (Messinger, NY); 9700 at 0502; 15135 at 1954 in GG; 15185 at 0618; 15150 at 1520 in un-ID lang; 17715 at 1900; 17860 at 1945 in GG (Johnson, AZ).
 RFE, 15115 at 1918 in possible Bulgarian, ID at 2000 (Johnson, AZ).
Yugoslavia: R. Yugoslavia, 7240 at 2115 w/nx (Messinger, NY); 15240 at 1530 (Johns, TX); 1600 in FF (Gilbert, CA).
Zaire: R. Bukavu, 4838 at 0532 in FF. Very weak, & took weeks of checking (Davidson, NV). Nice catch, it's seldom reported--Ed.

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NEW AND EXCITING TELEPHONE TECHNOLOGY

Fiber Optics Looking Better, Going Further

The telephone has been with us for over a hundred years, but some of the most important parts of today's network are relatively recent: Communications Satellites and Fiber Optics. These two items are a major part of the reason that the cost of long distance service has been tumbling so fast. In fact, because of their easy installation, and huge potential profits, we are currently suffering from a glut of long distance capacity.

It is, in fact, less than twenty years since Corning Glass Works first produced a usable fiber optic cable. Fiber optic cable is now produced and used in most western countries and Japan. The major consumers of fiber optic cable are: The U.S.A., Canada, Japan and Great Britain. Britain and the US have been engaged in a race throughout the last decade to see who can send signals further with more data. The result of this has been a massive reduction in the operating cost of fiber optics. This means cheaper calls with better quality.

So what is so great about fiber optic cables? First, a skinny little fiber optic cable carries more phone calls, or TV pictures, than a coaxial cable, or bundle of phone wires can. The capacity of a fiber optic cable is quite staggering. The capacity seems to increase weekly, but to give you some idea, picture this: A single fiber optic cable carrying 10,000 phone calls is about 5 mm in diameter. A bundle of coaxial cables to do the same job are 3 cm in diameter. This is before we consider the energy costs of sending signals down each type of cable or how often you need repeaters (booster amplifiers). In all these respects, fiber optics win. As the world becomes more digital, fiber optics find themselves in a good position. Digital signals require bandwidth and special modulation techniques, fiber optic technology has progressed along with digital signal processing advancements, the two are closely related. A fiber optic cable will also handle many kinds of signals.

Besides telephone signals, TV and computer signals travel well down fiber optics. As all these signals are in digital form when transmitted, the network doesn't discriminate and they can all happily pass down the same fiber optic cable and be sorted out at the other end.

All this fiber optic cable is currently only used for long distance use. Besides cable installed by AT&T, other phone companies, oil companies and railroads have installed hundreds of thousands of miles of it. Most of the cable has been laid along railroad tracks and a fair proportion has been laid inside old

oil pipelines. After an oil pipeline has been in use for twenty years, it has to be decommissioned. This leaves an ideal conduit for fiber optic cable. Because fiber optic is light and skinny, it is easy to install in pipes and conduit, you blow it down with compressed air. In conduits the phone companies used for old fashioned cable, they pull that out, blow in fiber optics, and drastically increase capacity.

One big advantage with fiber optics is that the signals are light, not AC current, or radio frequencies. Cross talk, clicks, hum and the "normal" background to signals can be a thing of the past.

Things are not all roses, there are some snags, hurdles to overcome and things we will have to learn to live with. Regular radio and DC signals can be easily switched and mixed. The ability to do this is the basis of the telephone network. Currently, we can't switch fiber optic signals. To switch, we have to get back to AC digital signals. This is both cumbersome and inefficient. Don't worry, great minds and massive amounts of cash are working on the problem. In the next decade, someone will have a full fiber optic telephone exchange. It will be everything current long distance telephone exchanges would like to be: Fast, cheap, small and robust.

Splicing fiber optic cable is still a problem. The loss of signal per connector is still way above the loss per connector experienced with any other signal transmission system. It is getting better, but there is still some way to go. On the plus side of this, the loss of signal per mile traveled is pretty good with fiber optic cable. In the early days it was pretty terrible and splices were just about impossible.

One area where fiber optic cable really pays is in undersea cable. It is strong and light, whereas the standard undersea cable is heavy and rather delicate. There are some fiber optic undersea cables in use now with some major trans Pacific and trans Atlantic runs planned in the near future. All those people that hate satellite links will rejoice at short delay, echo free, clear links that the intercontinental fiber optic networks will provide. Currently, there is little international cable capacity, of any type, relative to satellite paths. With the space program in the doldrums, and the fiber optic explosion, that balance will tip shortly.

No discussion of undersea fiber optic cables is complete without mention of the "Shark problem". A couple of years ago, AT&T noticed they were having a problem with shark attacks on some undersea fiber



optic cable they had off the Canary Islands. The cable was being broken and there were shark's teeth embedded in the cable. The attacks were taking place on lengths of cable that were "suspended" between "hills" on the sea floor. There were two possible reasons for this undersea phone vandalism. It could have been that the sharks could not see the skinny cable, bumped into it, got annoyed and attacked it. The other scenario was that the DC current in the copper wire attached to the cable was creating an annoying magnetic field. It seems that the problem was sharks getting annoyed at obstacles left in their territory. A simple solution to this problem is to make sure there is enough slack in the cable so it lays flat on the sea bed.

Today, fiber optic technology is one area that is drastically reducing communications costs and improving quality. It is a young technology. Not only will the technology improve, but more and more applications are going to be found for it. For the local subscriber, fiber optic cable is just too expensive as compared to copper wire in connecting phone service to a house or small businesses. If other services are sent down that cable, and other distribution systems are used, the cost begins to look attractive at current prices. When the technology matures, look for its costs to slide. Then, fiber optics will begin to look very seductive indeed. As we begin life in the twenty-first century, you can expect all new construction to feature fiber optic cables installed as standard. What will be traveling backwards and forwards along those cables is more than just phone calls.

PC

SCANNER SCENE

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

If you're like many scanner owners these days, you probably have a radio in your shack that is capable of monitoring 50, 75, 100, 200, 300 or even 400 channels. While scanners for many years could be crystallized, or programmed, for only 8, 10, or 16 channels, some manufacturers started offering 50-channel models that quickly became popular. And now, not too many scanner hobbyists want to be caught with their discones down by not having a high-capacity scanner. The trick is being able to program all those channels with active frequencies in your area.

The first high-capacity scanners offered 100 channels and were quickly bought by radio listeners with a need to scan many channels. Many of those who bought the first 100-channel radios either lived in urban or metropolitan areas, or were in the news media and had a need to be in the know. The 100-channel versions quickly led to radios offering literally hundreds of channels. While the Uniden Bearcat 100XLT and Cobra SR-15 pocket scanners offer 100 channels, the Radio Shack Realistic PRO-30 and Uniden Bearcat 200XLT/205XLT pocket scanners can scan 200 channels. On the mobile/base radio front, the Uniden Bearcat 580/600 and 760/950 scan 100 channels, the Regency TurboScan 2 scans 75 channels, the Radio Shack Realistic PRO-2021 has 200 channels and the Realistic PRO-2004 has 300 channels, but can be modified to scan 400 channels.

If you live in a rural area, finding up to 400 channels may be close to impossible, but can be accomplished. If you live in a metropolitan area, it won't be too difficult to fill up a high-capacity radio. Most scanner listeners keep tuned to certain channels that are used in their neighborhood or town just so they know what's going on in the area. These usually are police, fire and ambulance channels. However, if you live in a larger area, a small-capacity scanner with only 10 or 16 channels would fill up fast with local channels. However, if you want to know what's going on in adjacent towns and all around your county, and maybe even surrounding counties, a high-capacity scanner should be put into service.

In my shack, a 10-channel scanner is programmed with the county police, fire and ambulance channels. If something is going on locally, I turn that radio on and don't have to listen to all the channels that are programmed in other radios. A 20-channel scanner is programmed with channels used by state police, which provides coverage in the community in which I live. Then, a 100-channel scanner in my shack is pro-



Here's the listening post of Greg Grace of Sun Valley, California. Actually, it takes three photos to show the entire shack, but this is where most of the radios and scanners are located. His scanners include a Regency TurboScan 2, a Regency ACT-T-16K and a Regency D810.

grammed with all police, fire and ambulance channels in my county and all surrounding counties. That radio allows me to know what is going on in the area. A 200-channel scanner allows me to monitor channels that become active in winter and summer storms. This radio is programmed with frequencies used by municipal, county and state road departments; power companies, utility companies, garages that offer plowing in addition to towing; and other frequencies that might become active in a storm.

Finally, a 400-channel radio is programmed with frequencies that I want to monitor on a regular basis and don't mind hearing all the chatter. This radio is programmed with frequencies used by federal agencies, not only routine communications channels, but also frequencies that might be used for surveillance or special operations; aircraft, especially all frequencies for civilian and military airports throughout the area; all fire dispatch channels within a 100-mile radius; state agencies and institutions; state police operations; some satellite channels I want to keep an ear out for; and other channels I just want to keep an ear on occasionally. A certain channel that I don't want to

miss anything on is programmed into the 400-channel radio several times so that it will stop on it several times during its pass through the 400 channels; this way you don't have to wait for the radio to scan all 400 channels before it returns to that particular frequency.

Because I live between two large cities, it wasn't very difficult filling up hundreds of channels in my scanners, even though I live in a rural area. Quite frankly, if I turn on all the scanners at the same time, it makes for a lot of noise in the shack. Thus, I often turn on only one or two, in accordance with my listening mood. If I just care about what's going on locally, one or two of the radios will be turned on in accordance with what is programmed in them. If I want to know what's going on in a wider area, one or more of the high-capacity scanners is switched on.

However, finding all the frequencies you may want to listen to isn't all that easy. I still haven't filled up all the channels in my 400-channel scanner, but once I give it some more thought, I should be able to. First of all, you need to make a list of any frequencies that you may consider monitoring. Most likely you will be able to get many of these frequencies from regional scanner di-

rectories. You might even want to reserve a bank or several banks in a high-capacity scanner for new frequencies you come across while searching the VHF and UHF bands. If you aren't sure of the station you are listening to, by programming it into your scanner you might be able to eventually identify it by constant monitoring of the frequency.

There are some channels that may not have constant activity on them, but would be worth programming into a high-capacity scanner. In the emergency services, 155.475 is designated as the nationwide police emergency frequency and is used in many states on an infrequent basis. On business band, 27.49, 35.04, 151.625, 464.500, 464.550 and 469.550 are reserved for itinerant licensees and might become active if an event such as a circus, show or parade come into your town. Low-power business band channels also are worth programming in because they might be used by a licensee operating within a given radius. Some low-power channels include 27.51, 27.53, 30.84, 33.14, 33.40, 35.02, 42.98, 154.570, 154.600, 457.525, 457.550, 457.575, 457.600, 467.750, 467.775, 467.800, 467.825, 467.850, 467.875, 467.900 and 467.925. In addition, there are hundreds of low-power channels for business users that can be found between regular 25-kHz spaced channels in the 460-465 and 466-470 MHz bands. However, it would be impossible to scan all of them. Most low-power channels are restricted to 2 watts.

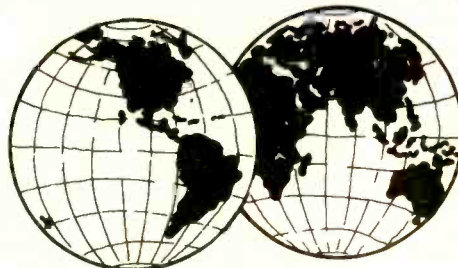
If you live in a rural area, you might want to program in channels used by public service agencies in your own county as well as surrounding counties. You might also want to monitor utilities such as electric co-ops and telephone companies. If there are factories or plants nearby, you may want to program in their channels. Check out marine and aircraft channels, too. Many rural areas are host to remote transmitters used to communicate to airplanes en route to major airports. In addition, you'll be able to hear planes in the air for a hundred miles if not more, depending on the elevation of the plane. If your local or regional scanner frequency directory doesn't list a lot of these channels, do some searching with the search feature on your radio. Sooner or later you'll have an impressive list of channels on which you heard some type of communications. Program them all into your radio and try to identify some of the frequencies by paying attention to the conversations. For instance, if you hear constant references to "converter boxes" on one channel, that probably is your local cable TV company's service fleet.

If you live in a suburban or urban area, you won't have too much trouble filling up a high-capacity scanner. For instance, if there is a large city, or several large cities nearby, you may want to monitor various public safety communications there. If you hear something hot, you can bet it will be on the

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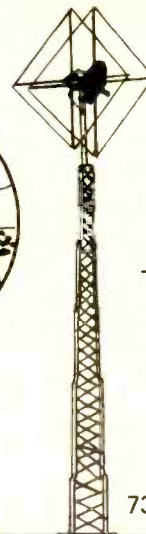
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If there are large buildings or businesses, military installations, or sports complexes nearby, be sure to program in their security and operations frequencies. If you live near a nuclear power plant, you'll be interested in monitoring its communications as well.

There's just so much out there that can be monitored, but it takes an effort on your part to find all the channels. The high-capacity scanners allow you to monitor as many of these channels as you wish. Before you start programming in frequencies, however, you may want to draw up a list of channels you plan to program in. If the scanner has banks, a list will allow you to sort out the frequen-

cies, allowing you to program in any of the banks. For instance, one bank may be for fire dispatch channels, another for news media, another for marine channels, and yet another for aircraft. If the scanner has 10 banks, that allows you to sort your listening into 10 groups. Sometimes you may not want to listen to the fire dispatch channels, and by programming in banks, you can lock out all those channels by locking out the bank. You also might want to program in banks by community or county.

If you come up with an easy way to program hundreds of channels into your scanners, let us know. We also like to receive frequency lists and radio photos. Send in a photo of your shack, a dispatch installation or a tower site. If you have questions, feel free to jot us a line. Write: Chuck Gysi, N2DUP, Scanner Scene, c/o Popular Communications, 76 North Broadway, Hicksville, NY 11801.

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CLANDESTINE COMMUNIQUE

WHAT'S NEW WITH THE CLANDESTINES

BY GERRY L. DEXTER

A possible Panamanian clandestine station? Someone sent in a clipping from *Newsday*, in which reporter Jim Mulvaney describes a plan for U.S. intelligence to operate a clandestine station aimed at the government of Panamanian leader General Manuel Antonio Noriega.

Although the U.S. would operate such a station, the programming and editorial control would, under this plan, be in the hands of the Civic Crusade, the umbrella organization which opposes the current government. Apparently, opposition leaders would have been in regular contact with the State Department, and have been asking for the U.S. to supply them with a station since last summer.

At the time this article was being written, there were still a number of unanswered questions about the station. The most elemental of which was: Would it ever go on the air?

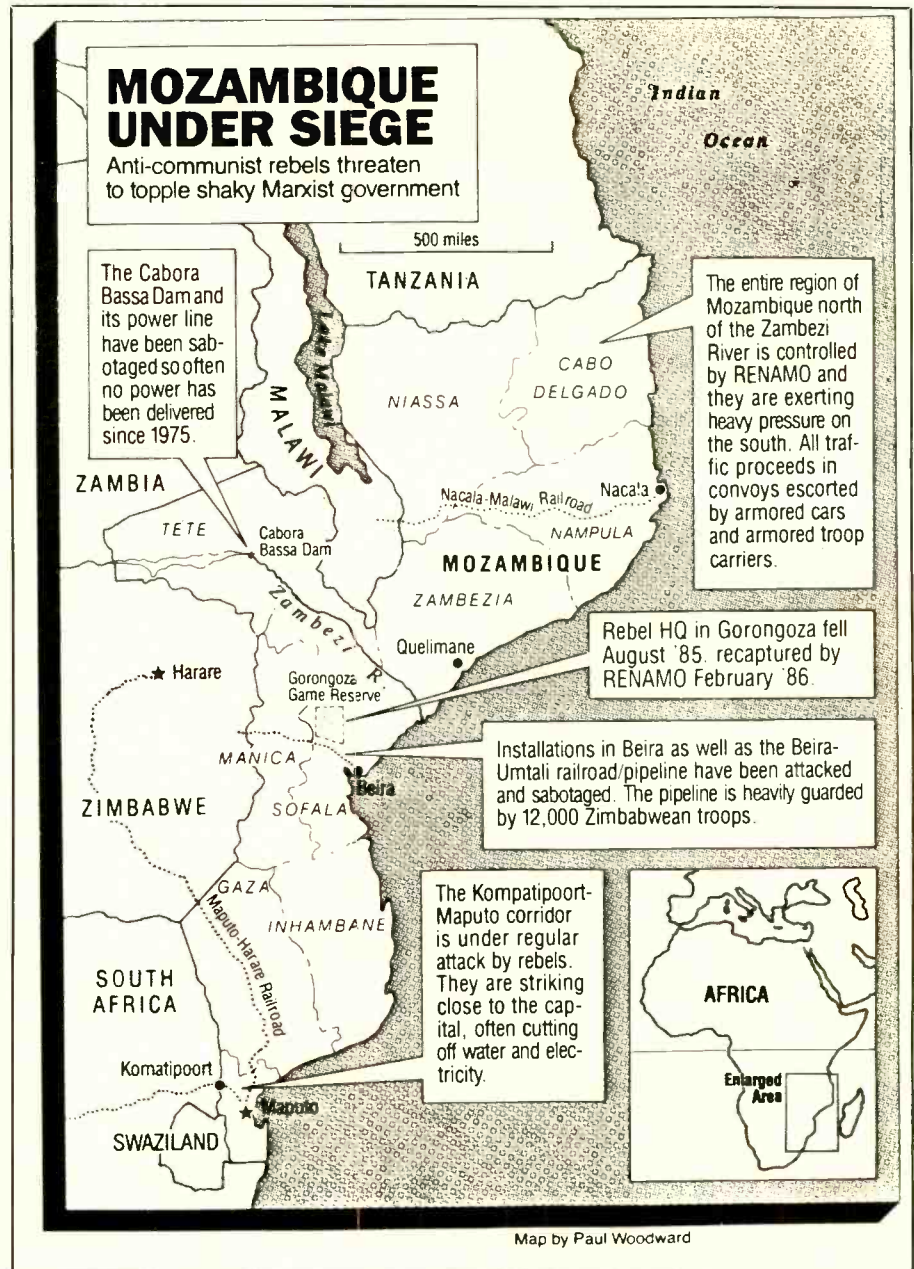
It wasn't known (or no one was saying) where such a facility would be placed. Perhaps, inside one of the U.S. military zones in Panama, maybe in Costa Rica, or possibly a ship off the coast of Panama?

One source, reports Mulvaney, said the station would be "on a channel available to the general public" which would seem to imply an AM or FM frequency rather than shortwave. That choice would, of course, prevent most of our readers from hearing it. Nonetheless, the prospect of a Panamanian clandestine is certainly an interesting development, even if the whole matter becomes settled by the time you read this.

Another troubled nation in the news is Mozambique. There is a civil war in progress, with reports of incredible savagery being carried out against the civilian population. Most reports and observers say that Renamo (The Mozambique National Resistance) are the ones responsible. Renamo, in turn, is accusing the government of committing the atrocities, then, putting the blame on them. At one time, the resistance had a shortwave clandestine (*Voice of the Mozambique National Resistance* which operated on the 60 meter band) but has been off the air now for several years.

Recently, though, a representative of the Mozambique Research Center in Washington, DC has informed this column that we can expect some developments in the area of Mozambique opposition broadcasting soon. The Mozambique Research Center includes the Mozambique Information Office, Free Mozambique Business Council, Mozambique Relief Fund, plus, serving the Renamo representatives in the U.S.

We noted recently the return of *Radio*



The U.S. representatives of Renamo provided this map showing "Mozambique Under Siege". We may see a return of clandestine broadcasting here in the coming months.

Bardai, the Libyan-operated clandestine which seeks the overthrow of the government of Chad. It's long been believed that there was, indeed, some connection between the station and ex-leader Goukouni Waddaye's GUNT (Transitional Government of National Unity). But the March/April issue of the newsletter of the National Front for the Salvation of Libya indicates

that GUNT, is now defunct. Apparently, there are other Chadian groups in Libya which also oppose the current government. Even so, there's probably little control of *Radio Bardai* exercised by any of these groups, and most likely, none at all. Libyan radio will not admit to any knowledge of *Radio Bardai* so we've been seeking an end-around path.

Someone in Omaha sent a news clipping about the Afrikaner Resistance Movement, a right-wing paramilitary group in South Africa. He wants to know what frequencies both them, and the outlawed opposition group, the ANC, might use. The fact is, that any two-way communications used by either groups military is probably conducted on short range VHF frequencies, which would be impossible to hear this far away. The ANC does air its *Radio Freedom* broadcast over several government stations in Africa and this can be heard in the U.S., though its not an easy catch. Best bet would be over the *Voice of Ethiopia* at 1930 daily on 9595 and over *Radio Nacional Angola* at 1730 daily (1830 Sunday) on 9535 or 11955.

The two Nicaraguan contra stations, *Radio Liberacion Onda Corta* and *Radio Liberacion/Quince de Septiembre* seem to be evolving into a single entity. George Zeller's column in the ACE bulletin notes a reception by Ullis Fleming to the effect that joint ID's are being carried, but that mentions of "Quince", seems to be in the process of being phased out. We have to wonder just how much longer these two will be with us. If you haven't logged them yet, try evenings on 5889, 5924, 6214 all slightly variable.

Robert S. Ross of London, Ontario has enjoyed a lot of action on the clandestine hunt of late. Here are the details: On 6970.5 he's heard the anti-Guatamalan station *Voz Popular* at his is Saturday's only (UTC) with 0015 sign on and some jamming evident.

La Voix du Sahara Libre (Voice of the Free Sahara) the program of the Polisario front was noted via *Radio Algiers* at 2203 on 15215 in Arabic with a mention of "Arabiyah Sahara Democratiya".

Iran's *Flag of Freedom Radio* noted on both 9045 and 15555 at 0320 in Farsi, but with English ID "This is Iran's Flag of Freedom Radio".

The anti-Afghan *Voice of Unity*, heard tentatively on 15685 with flute interval signal at 0226-0227, open carrier and off without ID. Heard also at 0145 on 17540 with local string and vocal music, parallel to 12230 and at 0200 on 12230 parallel 11490.

The anti-Nicaraguan *Radio Liberacion* noted on 5889 at 0225 in Spanish with talks, ID and mention of frequency.

Robert also reports a QSL in from *Radio Halgan*, the anti-Somali government station which sent a full data personal letter from the Somali Democratic Front, Box 838, Addis Ababa, Ethiopia. Nice work on all fronts (forgive the pun!) Robert. Keep up the excellent work.

Remember, we welcome logs from everyone, as well as news clippings, newsletters or any other literature from resistance and freedom groups and anything else to this fascinating subject. Your help is always much appreciated.

Till next month, good hunting!

PC

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BROADCAST TOPIX

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

How many of us have a friend or relative who thinks of us as kind of crazy, or at least a bit eccentric, because of our hobby which, as it appears to others, is quite different from the norm? I've said this before, but every few months a new reader to POP'COMM write to say how he is "nearly incoherent with joy" to find others who are as avid about BCL'ing as he. Why people find us different because we enjoy DX'ing is beyond my comprehension. I think people who spend an equal amount of time working on a super type of auto engine are no more "weird" than I. Cars are a natural way of life in that everyone wants to have one, but where would we be without a radio? Every car has one! There are several around each home and most folks have one to carry with them. Now a days, many even wear headphones, if that isn't the silliest thing! Why is it so unnatural to want to listen to a radio if one owns one? Other folk watch television for four to eight hours a day . . . I don't listen to the radio that much. I think they are the ones who should be labeled . . . not me! Anyway, those also happen to be the thoughts of Andrew Costa, a new reader of POP'COMM. Andy also asked about FM DX and how it functioned. We've covered that in previous columns and think maybe if you check with your library or friends for back copies you'll find an explanation.

Randy King was asking about the validity of the stations changing their calls back and forth, seemingly month after month. Well, it is true, some do change back to their original call after only a few days or weeks. Sometimes, it happens so quickly, that I don't even print it in the column. I have seen stations apply for a new call, receive it, and then decide not to use it after all. The stories go on and on about call letters. In the past few months, I've been talking about WWRC in Washington, which used to be WRC before NBC sold it to Greater Media. A tape from James Snyder, who has put quite a bit of research into his "favorite" station, reveals they had quite a discussion about "new" call letters before settling on WWRC.

James says some of the discussion revolved around WRRC. I had heard WRCN was also considered. That would allow them to use the ID "This is WRC N Washington." This would be pronounced "WRC in Washington." By the way, WRC stands for "Washington Radio Center". WTOP in DC stands for the "TOP" of the dial (1500). WASH in the first four letters in Washington. WGMS is Washington's Good Music Station, WNTR is Washington's News Talk Radio. WPGC is in Prince Georges County, a suburb of Washington. We could do sev-



A look inside at WFHS, Franklin High School, Franklin, PA. The Voice of the Black Knights.

eral columns on this type of "fun". Most people know WSB is Welcome South Brother, but how many know that WDBO is Way Down By Orlando! Two other great calls just recently bit the dust . . . WAKY, wacky radio in Louisville has become WVEZ. The other is in Orlando, where WKIS has changed to WWNZ. We'll see where they pop up again! Thanks to R.C. Watts. WWNZ's partner is WSSP which is called whisper 104. I thought it stood for the Sunshine State Parkway! One never knows! There is one other crazy combination in Orlando I think you'll enjoy . . . WPRD and WJOY are an AM/FM combo. Joy 108 and AM 1440 are The Pride and Joy of Orlando!

On to a more sane subject; Antennas. I hear from many who have very long "sky hooks" which will pick up Tim-buc-too" and then some. I also hear from some chaps with only a 30 foot wire on the floor of the shack wanting to know how to improve the reception of their AM rig. Don't give up on your "skimpy" antennas folks . . . sometimes less is more. A three hundred foot long wire may be pulling in so much signal that the adjacent channels may be overloading the frequency you are trying to hear. A long outside antenna cannot be moved to enable certain directions to be favored over others such as you can with a loop. It's certainly helpful to have several different types of antennas, but before I'd string a single long wire out the window, I'd be sure I had a loop available.

There are times when a long wire can be

used to advantage, but there has to be other receiving gear to go along with the large antenna systems. Many of the modern receivers cannot use the amount of signal provided by a long wire without creating other problems, such as intermod, and lack of selectivity will only make matters worse. An antenna tuner of top selectivity should be used with the long wire so that the unwanted signals may be rejected. It wouldn't hurt to have a tuner that had a selectivity of ten kilohertz, although that is asking a bit much, so that the adjacent channels could be "detuned" slightly. Lacking this, then a good notch filter in the receiver would be used along with a narrow bandpass to reduced the adjacent channel interference. Without this amount of capacity in the receiving system then the long wire antenna is held without reason. The antenna's job is to intercept the weak signal which the smaller antenna does not have the strength to do. However, at the same time the stronger signals being received by the large antenna are also given a boost.

If one cannot reduce these stronger signals, and still be able to hear the weaker ones, then what have we accomplished? That is our goal! The only other way is to wait on propagation to provide the necessary boost, not only boosting the weak signal, but also by attenuating the adjacent channel signal sufficiently for the weaker one to be heard. What are the odds on this happening? Well, I think it is one of the reasons DX'ers spend many nights with their

Station Update

Call	Location	Freq	Pwr	Ant
AM STATIONS				
KZMX	Hot Springs, SD	580	2.3/0	NDA
New	Columbia, SC	840	50/0	DA-D
KROL	East Las Vegas, NV	870	5.0D	SYN
WBYG	Sandwich, IL	930	2.5/0	NDA
KRAD	Perry, OK	1040	.4/.25	DA-2
WRYT	Edwardsville, IL	1080	.5/.25	DA-1
WTCN	Stillwater, MN	1210	10/.79	DA-N
KOKK	Huron, SD	1210	10/1	DA-2
New	Klamath Falls, OR	1340	1.0/1.0	NDA
New	Gainesville, FL	1430	2.5/0	DA-D
FM STATIONS				
New	Bristol, RI	88.3	.1	75'
WEDW-FM	Stamford, CN	88.5	2.0	312'
WDCU	Washington, DC	90.1	50	500'
New	Utica, NY	91.9	.212	-82'
WCTQ	Venice, FL	92.1	2.5	361'
New	Karnes, TN	93.1	3.0	328'
WMZK	Merrill, WI	93.5	1.74	438'
New	Brenham, TX	94.1	3.0	328'
KNEN	Norfolk, NE	94.7	100	1010'
KLLT	Grants, NM	95.3	47	2690'
WALV	Cleveland, TN	95.3	1.5	436'
New	Clarksdale, MS	96.5	3.0	328'
New	Baltimore, MD	96.7	.187	76'
New	Moab, UT	96.7	3.0	-528'
KDLY	Lander, WY	97.5	100	522'
New	Salisbury, CT	98.1	1.27	505'
New	Stephenville, TX	98.3	3.0	328'
New	Burkesville, KY	98.5	3.0	328'
WFTW-FM	Fort Walton Beach, FL	99.5	50	492'
WFXM-FM	Forsyth, GA	100.1	1.35	476'
New	Mount Morris, IL	100.5	3.0	328'
WEEC	Springfield, OH	100.7	50	469'
New	Hatch, NM	101.1	97.6	960'
New	McKinnon, TN	101.5	.79	608'
WKKG	Columbus, IN	101.5	50	492'
WSJL	Cape May, NJ	102.3	3.0	305'
New	Linden, AL	102.9	3.0	328'
WMOU	Berlin, NH	103.7	23	3828'
KBIU	Lake Charles, LA	103.7	100	985'
WKTC	Tarboro, NC	104.3	100	981'
KTYX	Healdton, OK	105.5	33	600'
WSGO-FM	Oswego, NY	105.5	3.0	328'
KSKU	Lyons, KS	106.1	100	629'
New	Smethport, PA	106.3	1.0	477'
WDRK	Greenville, OH	106.5	50	479'
New	Aberdeen, SD	106.7	100	708'
WSFM	Southport, NC	107.1	50	479'
New	Lake Arthur, LA	107.3	3.0	328'
New	Grand Junction, CO	107.9	100	994'

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

ears glued to the radio! The antenna can't do it alone, but, without a good one, then the length of time required to get that good DX will be increased a tremendous amount.

A certain amount of propagation is required to enable us to hear any signal as evidenced by the many letters I receive. For example, CJFT, on 530 kHz, some 1700

miles away with all kinds of antennas only to receive it one night on a short wire on the floor hooked up to a radio one was working on "for a friend", can really cause one to wonder what's going on! But then, that's part of the excitement of our hobby holding our interest and that others don't understand (see paragraph one!)



WFHS RADIO

**88.5 FM - COAXIAL CABLE
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THE RADIO VOICE OF THE BLACK KNIGHT

My mailbox has been overflowing lately due to two reasons. One is, I have been out of town quite a bit, and haven't been by as frequently. The other reason seems to be a renewed interest in BCB DX'ing by previous DX'ers and a discovery of the hobby by younger folk.

A special thanks to all those writing in the past few weeks including Steve Andrews, Paul Courson, Jack Linouis, Jason Chudy, Gus Mancusc, Randy King, Michael Yohnicki, Warren Brandt, Eric Bueneman, Ed Mauger and others. This column has been in the magazine for over four years now and is different each month, so there is always some new information for your consideration.

The project I've been most recently involved with has been the moving of the Florida Radio Network from its former studios with WKIS on West Colonial Drive in Orlando, to the new Galaxy 6000 building at 6000 South Rio Grande Avenue. The whole project with WKIS and the Florida Net was complicated by several station transfers and the selling of the network. KIS and the network were owned by Susquehanna Broadcasting of York, Pa., who sold the network to a Maryland based company called Profit Group. Then Guy Gannet Broadcasting, who owned WPLP in Pineallas Park, swapped Susquehanna for WKIS. Gannett also owned WRKT/WSSP in Cocoa Beach. WSSP studios were already in Orlando, but Gannett wanted to consolidate them with WKIS.

The network had to move because there was not enough room in the building for all three facilities. Gannett and Susquehanna were willing to swap AM stations because each had an FM in the others market. Now Gannett has an AM/FM in Orlando, and Susquehanna has an AM/FM in the Tampa Bay market. Gannett sold the Cocoa Beach AM separately.

The WKIS studios are being totally rebuilt to accommodate the new WSSP move. The Florida Net facilities were also completely rebuilt at their new location. All this took place simultaneously which put a big strain on engineering talent, but I think for the most part everything went pretty smoothly. The WKIS/WSSP planners were Rick Edwards, Dave Murray and John Loving. The Network moved was planned by yours truly with a lot of help from Dwight Weller, Brian Williston and John Loving. Anyway, it has

Call Letter Changes

Location	Old	New			
AM Stations					
Desert Hot Springs, CA	KDSK	KUTE	Wailuku, HI	KMRT	KKUA
Yucaipa, CA	New	KHPY	Aurora, IL	WAUR	WYSY-FM
Granby, CO	KTLD	KPKY	Pratt, KS	KGLS	KLLS
Vail, CO	KRVV	KSPN	Gulliver, MI	New	WAPJ
Starke, FL	WPXE	WEAG	Norway, MI	WJAU	WNWY
Edwardsville, IL	WHRC	WRYT	Collegeville, MN	KNJR	KNSR
Sterling Heights, MI	WUGM	WUFL	Worthington, MN	New	KNRJ
New Albany, MS	WKXC	WNAU	Las Vegas, NV	New	KLNM
Aberdeen, NC	WSCT	WQNX	Utica, NY	New	WRVN
Canton, OH	WTOF	WBXT	Banner Elk, NC	New	WZJS
Lockhart, TX	KHJK	KFIT	Xenia, OH	New	WDJK
Enumclaw, WA	KENU	KQZQ	Lindsay, OK	New	KBLP
			Bend, OR	New	KIDD-FM
			Kane, PA	WIFI	WLMI
			Newberry, SC	New	WNMX
FM Stations			Harriman, TN	WRGZ	WWBR-FM
Citronelle, AL	New	WSYE	Dallas, TX	KNON	KCBI-FM
Hot Springs, AR	New	KALR	Dallas, TX	KCBI-FM	KNON-FM
Delta, CO	KLDR	KKLY	Odem, TX	KXTO	KKHQ
Aspen, CO	KSPN	KSPN-FM	Amarillo, TX	KGNC	KMLT
Kremmling, CO	KTLD-FM	KRKM	Rockdale, TX	New	KRXT
Starke, FL	WPXE-FM	WEAG-FM	Franklin, VA	New	WLQM
Americus, GA	WADZ	WDEC-FM	Harrisonburg, VA	WJSY	WKCY-FM
Atlanta, GA	WARM-FM	WAPW	Moundsville, WV	New	WRKP



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CIRCLE 51 ON READER SERVICE CARD

been a month of rush, rush, push, push for all of the above named, tireless workers. We will see their efforts in print next month. A real interesting project which has moved Orlando broadcasting ahead a good bit... film at 11!

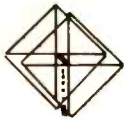
According to a letter received from Eric Bueneman, he has submitted a proposal requesting allocation of additional space for AM broadcasting in the 90 and 120 meter bands for the U.S. and Canada. The 120 meter band avoids the 2500 kHz frequency of WWV. The AM2 regional channels would be on 2300, 2320, 2330, 2350, 2360, 2370, 2380, 2390, 2410, 2420, 2440, 2470, 2480 and 2490. Local channels on 2340 and 2450. U.S. Clear on 2310 and 2400. Canadian clear on 2460. The 90 meter AM3 proposes regional channels for 3220, 3250 through 3320 and from 3340 through 3390 kHz. Clear channels for the U.S. are 3200 and 3400 and 3210 for Canada. Local channels would be 3230 and 3240. CHU on 3330 is protected. Eric also proposes a new FM service in the 1 1/4 meter band similar to one mentioned by a New Jersey group some months back so I won't spell that out here. What do you think? Drop Eric a note at 836 Lamplight Lane, Hazelwood, MO 63042. I'd be interested in your thoughts as well.

Those DX'ers up near the Canadian border might be interested in trying to catch the only Canadian on 1600 according to Mike Yohnicki. CHNR is on 1600 with 10 KW but signs off at midnight. They are in Simcoe, Ont. I've heard them in Baltimore and yes, I would like a tee shirt! Well, the boss says I run to long so let's quit while I'm ahead this month and look forward to sharing with you again next month. Keep the headphones warm!

PC

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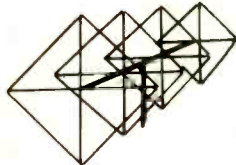
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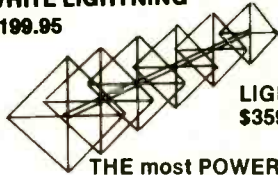
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ATT: AS-OPS-CM
Fort Huachuca, AZ 85613-5000
- Navy MARS - Write to:
Chief, Navy
MARS Corp.
4401 Massachusetts Ave., N.W.
Washington, DC 20390-5290
- Air Force MARS - Write to:
Chief, Air Force
MARS H.Q.
AFCC/SIMO
Scott AFB, IL 62226-6001

After you write, expect an immediate, very formal, military response within 30 days. Read the brochure. If you decide to join, complete the application for membership in MARS (DD form 630) and the questionnaire, and return it to the State MARS director in the letter. Be sure to sign and date the DD Form 630, and also sign and date

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PRIVACY ACT STATEMENT		
AUTHORITY: 5 USC 301 and 10 USC 133	PRINCIPAL PURPOSES: Application for membership in the Military Affiliate Radio System (MARS). The form is also for the renewal or modification of current MARS membership.	DISCLOSURE: Voluntary, however, failure to provide this requested information may result in refusal of membership or inordinate delays resulting from additional research required to establish satisfactory eligibility.
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In consideration of the permission extended to me by the United States through its officers and agents to engage in activities of the Military Affiliate Radio System, I do hereby, for myself, my heirs, executors and administrators, remise, release, and forever discharge the government of the United States, its officers, agents and employees, acting officially or otherwise, from any claims, demands, actions or cause of action, on account of all damage to property and personal injuries, or death, suffered by me directly or indirectly resulting from my participation in the activities of the Military Affiliated Radio System. I certify that I will abide by all the governing rules and regulations now and herein after prescribed by the Department of Defense for the Military Affiliated Radio System. (This release is not intended to apply and shall not be construed to apply to statutory rights of personnel in the military service, nor to any other rights of individuals under policies of life insurance (E.G. NSI) or other forms of contracts with the United States.)		
22. DATE OF BIRTH (Applicant)	23. SIGNATURE OF APPLICANT (Individual, Custodian or Trustee)	24. DATE SIGNED
25. SIGNATURE OF PARENT OR GUARDIAN (If applicant is under 18 years of age)		

the MARS questionnaire. It's also a good idea to send a copy of your current amateur radio license.

Based on the information you submit, you will most probably be accepted immediately, and then assigned to a local MARS net. Here are some of the frequencies just outside the normal ham band limits that you may wish to start listening to, so to get an idea of how well the nets are run:

ARMY: 3348.5 KHz
6697.5 KHz
14403.5 KHz
40.95 MHz
143.99 MHz

NAVY: 3190.5 KHz
4042.5 KHz
7382.5 KHz
13975.5 KHz
14385.0 KHz
20998.5 KHz
148.375 MHz
148.975 MHz

AIR FORCE: 3292.0 KHz
4590.0 KHz
4832.0 KHz
7313.5 KHz
49.98 MHz
143.45 MHz

You will need a general high frequency transceiver to work those high frequency MARS channels. Most manufacturers will gladly send you details on how to modify your present ham equipment for out-of-band coverage if you submit to them your MARS identification.

Eligibility requirements are easy—you must be at least 14 years old, a U.S. citizen or resident alien, a ham license, and have the equipment to get on the air on MARS frequencies.

To stay an active member of MARS, you need only to participate a minimum of twelve hours per calendar quarter year. That's just one quick net a week, and if you miss a week or two, there are ways to make up your on-the-air time with training time. Listen to the nets now, and you will see that they pass a lot of traffic for servicemen all over the world. What the MARS directors are looking for, are active MARS members, not just someone who wants to join, but participate.

Is MARS for you? It's easy to join, but requires weekly participation. The benefits are many; from free equipment to free correspondence courses, and use of one of the largest libraries of technical books. You just can't beat it!

You will be serving your country and providing a valuable service to the military. You will be assigned a distinctive call sign. You will be issued an official identification card. You will be joining thousands of other amateur operators who enjoy the discipline of military communications and the good feeling of passing military traffic from those overseas, to their loved ones at home. And, when the big disaster strikes, our job with MARS will be even more important. **PC**

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CIRCLE 41 ON READER SERVICE CARD

27 MHz COMMUNICATIONS ACTIVITIES

The General Electric *Weather Alert* is a 40-channel AM mobile rig offering, as a primary function, a front-panel switch that provides instant access to three NOAA 162 MHz weather channels.

Another feature is the unit's external appearance. GE tells us that they felt it was time for mobile CB rigs to undergo a major design change in order to reflect changes in automotive styling that have taken place in recent years. They came to the conclusion that too many current CB rigs match up with the interior decor of vehicles manufactured in between 1975 and 1980. Therefore, the *Weather Alert* was designed to have maximum appearance compatibility with most late-model cars. Enhancements include edge-lit controls, electronic up/down toggle scan, and an 8-mm green LED channel display to reduce washout in bright light.

There's an instant access button to Channel 9, as well as push-button controls: a PA system, an automatic noise limiter, a noise blander. The RF gain is variable (slide switch), and there are also visual indicators for the relative strength of received signals and transmitter power.

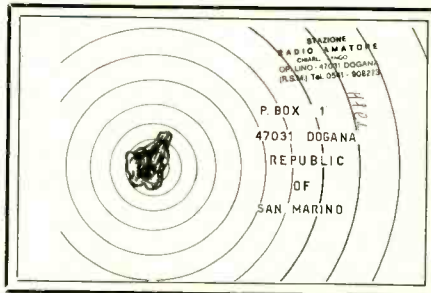
The unit is housed in an attractive and rugged plastic case, and offers a microphone that may be removed from the rig. The whole deal sells for slightly less than \$100 and is available from GE's many dealers.

Beacon?

Frank C. Lindsey, Joliet, IL writes to ask about an odd beacon-type signal he hears on CB Channel 23 during daylight hours, especially when skip conditions are in effect. Frank doesn't offer enough of a description of the signal or beacon for any real attempt at an identification. It is worth observing, however, that Channel 23 has always been a favorite for radio control circuits. If the signals being copied consist of a series of different tones in succession, then it's probably a radio control signal.

Joseph Sterling Lebron, of the REACT Council of Puerto Rico, offers several useful tips for REACT and other Channel 9 teams and groups:

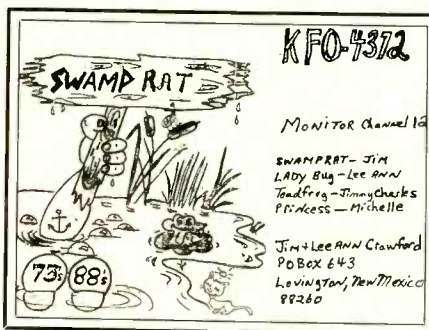
1. Always adequately identify the name of your group in your transmissions.
2. Be aware that other emergency groups within range of your signals may also be attempting to handle emergency traffic on Channel 9. Be careful not to cause interference on the frequency.
3. Be patient and show consideration. The operator of the mobile unit seeking your help may be difficult to deal with because of inexperience over a microphone and because of the emergency situation in which he/she is involved.



GE's nifty-looking "Weather Alert" mobile AM rig.



You don't see very many CB QSL's from the Republic of San Marino.



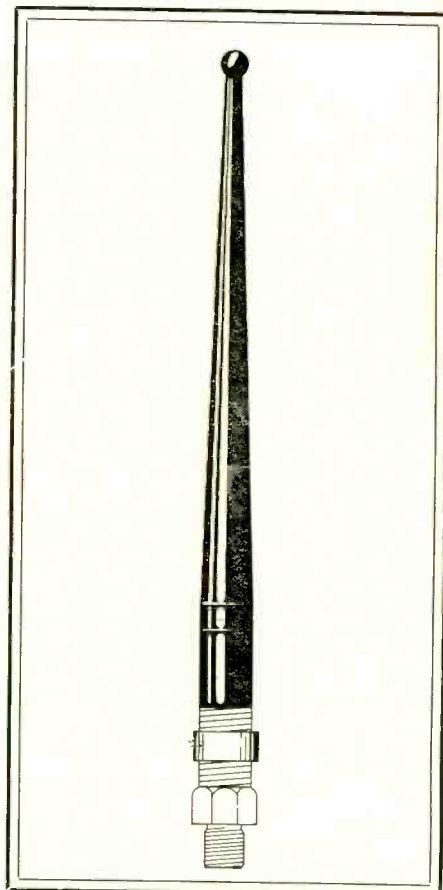
Jim and LeeAnn Crawford send out this QSL.

4. Channel 9 should be reserved for emergency and motorist assistance uses only.

5. If you're going out on a road call, wear your seat belt and drive safely.

If you find that your mirror-mounted rubberized antenna picks up too much hash from the vehicle's engine, try engine noise suppression techniques. Or else, relocate the whip to a spot further away from the motor. One possible spot is the roof luggage rack. The shortie rubberized antenna will be good there too, since it can't be easily damaged should it bang into tree branches and other low overhanging obstacles.

A card from DeWayne of Medicine Hat, Alberta, advises all that the Rose County Sidebanders Club has a roll call and check-in on the lower side of Channel 16 at 9:30 p.m. local time on Thursdays. DeWayne has been into CB'ing for twelve years, on SSB for the past seven years. T. and D. Sumlak are a married couple also from Medicine Hat. They say that they recently discovered POP'COMM and really enjoy the entire magazine, especially the CB, scanner, and shortwave coverage. In fact, they say that POP'COMM is the best we've found for communications coverage: we look forward to receiving our subscription copy each month."

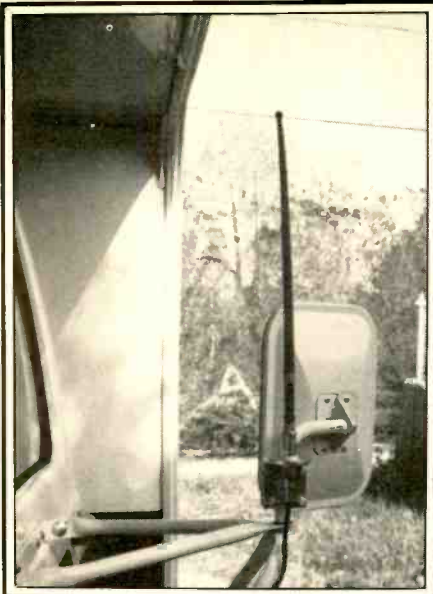


This Valor 300 rubberized CB antenna comes in handy for specialized installations.

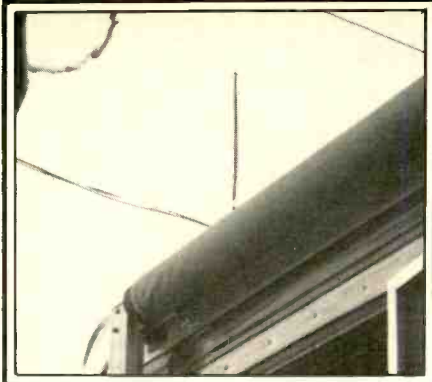
Next month we'll be back here on channel, hoping to hear from you by mail in the interim. How about sending in your QSL, or a photo of your radio room?

Joe is with Meteo REACT Team #3461 in San Juan, PR.

A QSL and some kind words have been received from Jim (*Swamp Rat*) Crawford (ham NY5Y) of Lovington, NM. Jim reports using SSB to keep in touch with home



A shortie antenna on a mirror mount avoids the negative influence of the metal over-cab part of the mini-motorhome.



If the vehicle's engine generates too much interference, the antenna and mount can be relocated to the deck rails on the roof of the coach.

base while he's roaming around the countryside working.

Marshall (Marshall Dillon) Cubitt, of Smiths Falls, Ontario sent along a stack of some very exotic CB QSL's that he'd like to share with other readers of our column. That's the spirit, Marshall! We'll be running

these, as space permits, in forthcoming columns. For starters, he provides a peek at what is probably the first CB QSL you've ever seen from the tiny Republic of San Marino. The nation is only 23 sq. miles in size and is located on the slopes of Mt. Titano (which is surrounded by Italy). It's rare DX on any band, but on CB it's beyond rare.

Antenna Problem

What with CB so popular in trailers, motorhomes, mini-motorhomes and other RV's, we have been receiving quite a tidy number of letters from persons having ques-

tions on such installations. The most often asked question seems to be, "Is there a channel where RV owners congregate?" We've found plenty of them on CB Channel 13, AM mode. It's probably as good a channel as any!

Next, a problem that has been called to our attention several times. Mini-motorhomes, which are usually built on Ford or Chevy van frames, are designed with an "upstairs" bunk that is located above the driving compartment. If the coach portion of the mini-motorhome has a metal skin, this makes for CB installation problems.

The antenna mounting location of choice on a mini is by attaching it to the side-view mirror brackets. Unfortunately, an average-size fiberglass CB whip placed in this spot (as many have sadly learned) just won't load up properly. If you check the SWR of such an installation, you'll see that the needle pins all the way over to the far right (in the red) and can't be adjusted down regardless of how much tweaking, pruning, or tuning is attempted. This is because the upper portion of the whip is only two or three inches away from the mini's metal "skin."

One way to beat this is to replace the existing whip with a short (15 inch) rubberized whip (such as the Valor 300, or similar). This size whip will load up beautifully since it isn't as close to the metal "skin" of the mini, although the trade-off is reduced efficiency when compared with a properly tuned and loaded longer whip.

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Kathy Sez: "These products are A-OK!"

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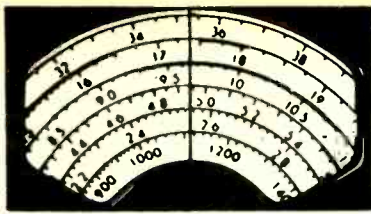
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CIRCLE 45 ON READER SERVICE CARD

CIRCLE 46 ON READER SERVICE CARD



COMMUNICATIONS CONFIDENTIAL

BY DON SCHIMMEL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Most Morse Code copying devices do a very good job when copying automatic sent code. However, when copying hand sent characters, if the transmitting operator has a swing to his fist, the device will interpret exactly what it hears and print it that way. For example, if the operator sends the letter "A" (dit dah) with a slight pause between the dot and the dash, the device will print-out "E" SPACE "T". If you use such a device, bear in mind the above when your copy appears to be a jumbled string of characters. It may have been caused by operator first characteristics.

From Dave Sabo, CA we learn he has added a Kenwood R-5000 to go along with his Panasonic RFB-300 receiver and the results with the Kenwood have been "spectacular."

A note accompanied the loggings from Jeff Hall, who indicated he had relocated from the state of Washington to California and found reception somewhat better at the new site, but he also noted more local QRM. "I find that living less than five miles from two Air Force Bases has produced some periodic sweeping noises up and down the HF Spectrum and some other utterly indescribable electronic noises reportedly caused by


FREQUENCY	CALLS	DAY	SCHEDULES(UTC)	TYPE OF TRAFFIC
16457.7	PSN	MON	2250	5F
16473	ROL	TUE	1400	5F
16457.5	BPA	TUE	1530, 2300	5F & Svc Msg
16457.7	BPA	WED	1530, 1630, 2300	5F
16447.4	SPK	THU	1615	5F
	WNY		1900	Svc Msg
	PSN		2250	5F
16447	?	FRI	1525	5F
	SPK		1630	5F
	PSN		2255	5F
16457.4	BPA	SAT	1530	5F


NOTE: Most 5F traffic sent at very high speed.

the high level of RF coming from the AF Radar tracking stations."

Phil Roddey, IN described a strange transmission he heard on 13378 kHz at 2145 UTC. A male operator was sending Morse Code characters by voice. Phil wanted to know "Is this unusual?" Yes Phil, you don't run across this type of transmission too often. I have also observed this activity and in addition to 5L groups there has

been some English language texts intermixed with a language I have not been able to identify. The plain text messages related to Sudanese and Ethiopian matters. Call-signs noted were FTK DE ADL, NDL DE ADL and KNY44 DE ADL. My references do not list KNY44, so I am unable to positively identify that particular Embassy. Having copied this activity over quite a period, I can state that the operator who sends Morse

Station 9MG sent this verification to Patrick O'Connor, NH. 

QSL from Greece received by Paul Buescher, Ohio. 

ΟΡΓΑΝΙΣΜΟΣ ΤΗΛΕΠΙΚΟΙΝΩΣΙΩΝ ΤΗΣ ΕΛΛΑΔΟΣ

OTE

HELLENIC TELECOMMUNICATIONS ORGANISATION S. A.

NETWORK DEPARTMENT
RADIO DIVISION

TO: MR PAUL G. BUESCHER

THIS IS TO CERTIFY YOUR RECEPTION OF OUR SVA ATHINAI RADIO COASTAL STATION
ATHENS INTERNATIONAL RADIOTELEPHONE LINK.

FREQUENCY : 8687. KHZ
CALL SIGN : SVA4
PERIOD : 00.00 - 24.00
DATE : JAN. 26, 1987
TRANSMITTER : PHILIPS BRZ-506
POWER : 10 KW
AERIAN : DOUBLE CONE

ATHENS SEPTEMBER 14, 1987

VERIFIED BY
G. HATZPOULOS
HEAD OF RADIO DIVISION


SYARIKAT TELEKOM MALAYSIA BERHAD
SHORE TO SHIP RADIO MARITIME SERVICES
-- PENANG RADIO


VERIFICATION OF RECEPTION (QSL)

It is verified that Mr. Patrick O'Connor of Plain Road, Hinsdale, NH, USA has received a transmission, that was transmitted from our SHORE TO SHIP MARITIME RADIOCOMMUNICATIONS STATION (OEBAG RADIO/9MG)

(LOCATION: 100° 18' 30" East 5° 22' 33" North)

DATE: 12th April 1987 TIME: 1520 UTC
FREQUENCY: 17172.4 khz TX POWER OUTPUT: 5 kW
MODE: A1A ANTENNA DIRECTION: Omnidirectional

STATION STAMP  STATION ADDRESS
Stesen Pantai (Penerimaan)
Penang Radio
Syarikat Telekom Malaysia Berhad
Kuala Muda, 13110 Penaga, Seberang Perai
west Malaysia


(KANDA KUMAR)
Radio Telegraph Master
Penang Radio
for Managing Director
Syarikat Telekom Malaysia Berhad



PO Box 8550
Winnipeg, MB
R3C 0P6

Your file / Votre référence
6802-C626 (RANFDE-WR)
6802-C879 (RANFDE-WR)

29 June, 1987

J. S. McDonald

Dear Sir:

On behalf of Transport Canada - Central Region, we would like to acknowledge your reception reports of the Pikangikum and Sandy Lake beacons. These beacons are operated by our department as aeronautical navigation aids. They operate in the low frequency band and radiate vertically polarized omni-directional radiation patterns.

The local topography at the two sites is relatively flat, low lying swampy terrain with mostly coniferous trees. This area is a part of the Pre-Cambrian shield and as such has very poor ground conductivity. This severely limits the radio coverage area of these beacons.

Both stations utilize amplitude-modulated compatible single-sideband transmitters. Pikangikum utilizes a 25 watt transmitter, while Sandy Lake utilizes a 500 watt transmitter. Identical 45.7 meter, vertical top-loaded antenna systems are utilized at both stations. The attached exert from the "Canada Flight Supplement" summarizes the beacon geographic locations and approximate elevations above sea level.

If further information is required, please contact wolf Riesterer at (204) 983-5583 or write to the above noted address.

R. B. LeBleu
R. B. LeBleu, P. Eng.
Regional Superintendent
Engineering Services

Steven McDonald received this letter verifying his reception of radiobeacons YPM on 274 kHz and ZSJ on 258 kHz.

Code by voice is much more readable that way than when he sends with a key!

Andy Gordon, CT reports that the MARS callsign for CINCLANTFLT, Norfolk, VA is NNNØ HA. Andy also mentioned he had received a nice packet of material from the USS America CV-66 along with his QSL. Included was an invitation to visit the ship during Fleet Week in NYC. Andy later advised he had visited the CV-66 as well as the USS Kidd DDG-993.

We heard from Simon Mason, England who offered some comments regarding a logging in the March 1988 column. His letter said in part "Mr. Fernandez, MA described a YL/GG on 3217 kHz reading out 8F groups at 0334 which was then followed by the 5F message. The 8F group is in fact a 5F group followed by the word "Trennung" and then the 2F number denoting the num-

ber of groups in the message. "Trennung" is German for the stoke symbol (slant sign/). At the start of the message the format is 5F/2F. The 2F purpose changes like this:

At the beginning this might happen—31145/05-30477/07-60111/12. As previously pointed out in the column, the 2F is the number of minutes after the hour the message is sent. At 05 mins after the hour 31145/28 might be setn, the 2F now is the number of 5F groups in message 31145. At 07 mins, 30477/35 may follow etc. So the 2F portion has a dual purpose." Thanks so much Simon for sending your observations.

Some corrections for MARS callsigns were received from Daryll Symington, OH. "NNOCHL is Preposition Squadron 2, according to the USN Master List dated 9-14-87. NNØ is Preposition Squadron 1. However that list has the USS San Ber-

nadino as NNNØ CLR instead of the previous (QSL confirmed) NNNØ CWR."

One of the most frequent questions I receive pertains to requests for references for ship identification. To provide readers with the very best guidance I wrote to four frequent contributors who all provide excellent maritime identifications in their loggings. Although each of the references is rather costly, most are available in public libraries. Here is the consolidated list of Titles/Publishers:

- Maritime Guide/Lloyds Register of Shipping
- Register of Ships (3 Vols)/Lloyds Register of Shipping
- Lloyds Maritime Directory/Lloyds of London Press, Inc.
- List of Ship Stations ITU
- Alphabetical List of Callsigns/ITU
- Marine Radio Station Master File (US Ships only and is on microfiche)/National Technical Information Service

Many thanks to Patrick O'Connor, NH; Jeff Hall, CA; Steve McDonald, Canada; and Daryll Symington, OH for furnishing the above information for all the maritime monitors.

The so-called "Numbers Transmissions" are not the only signals of intrigue to be found on the SW Bands. Take for example the coverage of the following activity which Dave White, ME and your editor collaborated on.

These communications featured both CW and RTTY operation with 5F and 5L groups being passed. Some service messages concerning previous transmissions were also copied. Although Sunday monitoring was performed, there were no Sunday schedules detected. All schedule times continued at the same UTC time when the change to Daylight Savings Time took place.

In addition to the frequencies shown in Tables 1 and 2, the same types of traffic were previously intercepted in 14432.6 kHz RTTY 50/425 at 2100, 10595 kHz RTTY 50/425 at 2115, 14389 kHz at 1355 and 16296 kHz at 1537. Both frequencies 16446.4 and 16456.3 kHz have been heard in operation at the same time so while they may possibly be co-located, they are certainly not the same transmitter.

Since it was possible to copy the RTTY traffic with less effort than copying the high speed Morse traffic, the coverage emphasis was on the RTTY messages and some 160 messages were collected for study. Message headings consist of five-5F groups and analysis of the headings revealed some very interesting points. For identification purposes here are a few sample headings:

- Traffic to YBU—11177 07386 21290 08636 01979 (5L group text)
- 11199 07386 00000 08637 00049 (5F group text)
- Traffic to JMS—11177 00484 19117 07079 01909 (5L group text)
- 11177 00484 34133 06078 01199 (5L group text)

TABLE 2

RTTY (75/425) TRANSMISSIONS

FREQUENCY	CALLS	DAYS	SCHEDULES(UTC)	TYPE OF TRAFFIC
16456.3	YBU	MTWTFS	2200	Mostly 5L, some 5F msg
16446.4	JMS	MTWTFS	2230	Mostly 5L, some 5F msg

Following are some comments on the individual heading-groups:

1st—Have only seen 11177, 11199 & 11100.

2nd—First digit is 0. With one exception have only seen 6446, 0484 & 7386 as the other digits in this group in the 1988 traffic.

3rd—Is either 00000 or 5 random appearing digits.

4th—First two digits show the date. The remaining three digits represent some type of serial number.

5th—Digits 1-4 give the quantity of text groups in the message plus one. The last digit is always 9. For example: A three group message would show 00049 as the 5th group while a two hundred group message would show as 02019, etc.

The last group of the 5L texts is sometimes just digits but often combines the letters A and/or Z with the digits such as 9A9A2, 9A528, 9A8AZ, etc. Perhaps this is a message indicator or possibly a verification group?

The only semblance of chatter was when "ALL TXT CFM" was sent twice following the transmission of several messages. Otherwise this commo operation is very clean with just a callup, some RY's (for the RTTY t/c) an indication of the number of messages and total groups to be sent, the texts followed by QRU QRU SK SK and down. This procedure is the same (except for the RY's) for the CW traffic.

Many thanks to Dave White for his contribution of some coverage of the CW portion of this unidentified activity.

Utility Station Intercepts (All Times Are UTC)

203: Beacon VS, Samrus, BC (Arens, Canada).
 209: Beacon IKB, Wilkesboro, NC (J.M., KY).
 221: Beacon BJT, Athens, GA (Williams, SC).
 224: Beacon BH, B'ham, AL (J.M., KY).
 230: Beacon CCD, Concordia, Brazil (Arens, Canada). What a catch!-- Ed.
 249: Beacon LYD, Houston, TX at 0406 (Blaise, TX).
 257: Beacon FWC, Fairfield, IL at 1413 (J.M.).
 267: Beacon HET, Heniyetta, OK at 1124 (Pearce, TX).
 269: Beacon AAP, Houston, TX at 0407 (Blaise).
 276: Beacon TWT, Sturgis, KY at 1650 (J.M.).
 287: Beacon GS, Greer, SC (Williams, SC).
 290: Beacon AOP, Rock Spgs, WY at 1145 (Pearce, TX).
 323: Beacon BSD, St. Davids Head, Bermuda at 0417 (O'Connor, NH).
 326: Beacon UOT, Union, SC (Williams, SC).
 332: Beacon VVV, Ortonville, MN (Arens, Canada); Beacon PHN, Pt. Huron, MI at 0439 (Pat O'Connor, NH).
 353: Beacon FOA, Flora, IL at 1739 (J.M.).
 356: Beacon OPZ, Lopez I., WA (Arens, Canada).
 359: Beacon BO, Boise, ID at 1131 (Pearce, TX).
 362: Beacon CUU, Chihuahua, Mexico at 1120 (Pearce, TX).
 365: Beacon CKK, Miami, FL at 0602 (J.M.).
 388: Beacon SGR, Houston, TX at 0425 (Blaise).
 400: Beacon G, Chattotetown, PEI at 0452 (O'Connor, NH).
 407: Beacon PRZ, Portales, MN at 1100 (Pearce).
 413: Beacon CBC, Anahuac, TX at 0434 (Blaise).
 426: Beacon IZS, Montezuma, GA at 0857 (O'Laughlin, WI).
 429: Beacon JNM, Monroe, GA at 0845 (O'Laughlin, WI).
 468: KEHS, tanker Texaco Florida in CW at 0501 contacting VAE (McDonald, BC).
 500: EAF, Finisterre, Spain in CW at 0449 clg CQ; also VCS, Halifax, NS clg CQ at 0500 (O'Connor, NH).
 515: Beacon PKV, Ft. Lavaca, TX at 0436 (Blaise, TX).
 521: Beacon INE, Missoula, MT (Arens, Canada).
 2054: VAE, CG Tofino, BC w/maritime info bc at 0648; VAG CG Bull Harbour, BC 0650; VAK, CG Victoria at 0725. All USB kode (Sabo, CA).

2345: NBE, USN Dallas, TX in CW at 1210 w/callsign marker (Bob Margolis, IL).

2598: VFZ, CG Goose Bay, NF w/USB wx bc at 0052 (Margolis, IL).

2607: FUU, Taulan Noviad, France in CW w/VVV marker at 0250 (Tom Kneitel, NY).

2607: NOY, USCG Galveston, TX w/missing vessel (1 POB) advisory at 0449; USCG North Bend, OR w/marine info bc 0607; NOJ, USCG Kodiak, AK re missing 33-ft vessel (2 POB) at 0634, all USB (Sabo, CA).

2714: NRLP, USS Richard L. Page (FFG-5) in USB clg Sandy Hook (NJ) Pilot Boat at 1000 requesting assistance in navigating a river; NWUO, USS Butte (AE-27) clg Navy Bermuda Port Control at 1005 re permission to enter port (Gordon, CT).

2714: HMCS Annapolis (DDH-165) wkg CZDW, HMCS Bluethroat (AGOR-114) at 2245; NJJC, USS Clark (FFG-11) wkg Newport Harbor Control asking for berth assignment 0930-1015; NKID, USS Kidd (DDG-993) clg Tug Control at 1030 re permission to enter Naval Weapons Station, Yorktown, VA; NOTC, USS Caron (DD-970) clg Norfolk Tug Control at 1100 w/req for tugs & permission to enter port; NYKN, USS Yorktown (CG-48) req tugs & entrance permission at 1045. Note: The Caron & Yorktown both intentionally bumped by Soviet naval vessels in the Black Sea earlier this year; NOKI, USS Okinawa (LPH-3), back from its world cruise (including Persian Gulf) clg Norfolk Tug Control at 1015 (Gordon, CT).

2841: EBA, Madrid Noviad, Spain in CW w/bulletins in SS at 0224 (Kneitel, NY).

3018.5: An active bootleg network of fishing boat skippers chatting about this-n-that, USB at 0135 (Kneitel, NY).

3367: YL/RR in AM-mode repeating 555 (X3) & 620 (X3) followed by 000, from 1800-1810. Signal nearly obscured by YL/GG w/DFC37 on 3370 kHz (Mason, England).

3880: YL/GG in AM-mode at 1900 w/1.0 count fall by 268 (X3). At 1910 announced "Giuppen 193" (meaning a message consisting of 193 groups was to follow), then 5F grps. This is 1st time in 2 years of monitoring this type of bc that the same 3F identifier has been used twice w/different messages- 1.0 268 hid on same freq w/Giuppen 52 in 1987 (Mason, England).

4066.1: NAOB, USS New Orleans (LPH-11) wkg San Diego CSS1 at 0355 w/phone interphase, DO at Supply Depot, NWS, USS W.S. Sims (FF-1059) wkg NAVCAMSLANT via Norfolk ICSB at 0500 re confirmation of Sims visit to Port Everglades (FL) next day. Patch made to that Port Control by COM-DESRON-36 aboard Sims, NAWR, USS Arthur W. Radford (DD-968) at 0045 clg Norfolk ICSB for phone interphase to COMDESRON-10. Army unit had been aboard for a mil exercise. That op was finished & Radford wanted to return to Norfolk a day early (Gordon, CT).

4067: NJAC, USS San Jacinto (CG-56) clg WOM for phone patches at 0230, USB (Gordon, CT).

4069.2: NNTR, USS Theodore Roosevelt (CVN-71) wkg WOM w/patch at 0400 (Gordon, CT).

4125: KDS, Bludworth Construction, Houston, TX wkg vessel The Texan in USB at 2332 (Margolis, IL); Lots of USB t/c at 0605 w/fishing vessels including WQZ5162, Northwest Enterprise, W19251, Natoma, WTW9255, Spartan, all wkg one another. Natoma & Spartan spotted elephant seals off Oregon coast enroute Coos Bay. Also WS6703, F/V Juncuou wkg WQB534, Bellingham, WA; KC194, Noma, AK wkg WTEP, the NOAA vessel Oceanographer w/forecast for Bering Sea. Good freq to monitor to catch the scuttlebutt about Alaskan flets (Hall, CA).

4118.7: VRQE, M/V Fort Yale, a UK bulk carrier, in CW at 0550 wkg VAI (McDonald, BC).

4189: UBRV, USSR general cargo ship M/V Olo, in CW at 0621 wkg KPH w/wx obsv (McDonald, BC).

4276: WGY912, FEMAs VIP Relocation Site, Mt. Weather, VA w/slow 5L t/c in CW at 1112 (Smith, MD).

4402: Un-ID CW sta at 0951 w/auto sent 5L grps (Ed.).

4422: Stas in USB at 0503 w/comms re yacht race in Vancouver channel w/Beachband as NCS wkg vessels & getting their ETA's to marker buoys. Bad QRM from USN channel on 4419 (Hall, CA).

4585: CAP Region 8 net w/White Bear (WA), Eagle (CA), Nat'l-wind (NV), & Beaver Fox (OR) stas. Called this freq Channel 5, & several stas QSY'd to Channel 4 (4504.5) at 0436, USB (Sabo).

4590: AF MARS stateside USB net at 0634. Interesting discussion re how MARS msgs can be worked into the RTTY electronic mailbox scheme when ops are absent (Hall, CA).

4880: Msg in CW at 2000 rptng "Downwind message 151600XV 172070AE" etc. having 6F/IL format. Off at 2020 (Mason, England).

5000: YVTO, Caracas, Venezuela time sta in AM mixing w/VVV at 0430. Have heard the same mixing for 3 consecutive nites (Fernandez, MA).

5526: Belem Aeradio, Brazil, wkg TWA-8823, USB at 0801 (Sabo, CA).

5718: A number of Canadian 'copters & other SAR units searching for downed helo near Timmins (Canada) at 2344, USB. Trenton Military in charge of the ops & called for ambulances (Margolis, IL).

Abbreviations Used For Intercepts

AM	Amplitude Modulation mode
BC	Broadcast
CW	Morse Code mode
EE	English
GG	German
ID	Identifier/location
LSB	Lower Sideband mode
OM	Male operator
PP	Portuguese
SS	Spanish
t/c	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)

5758: SS lang CW net at 0430 using IDs RER, F2F & F2NS, lots of crypto t/c (Hall, CA).

6344: HLF, Seoul, S. Korea clg CQ in CW at 1237 (Ross, Ont.).

6386: Whiplash in USB at 1529 w/radar target reports for DeSoto (J.M., KY).

6553: Nandi Aeradio, Fiji, to Honiara w/t/c advisories at 0802, then wkg a/c at 0812 (Sabo, CA).

6570: KCHA, ex-tanker now bulk carrier M/V Inger in CW at 0522 (Hall, WA).

6595: Poss outborders in USB at 0005. Very raw language, XXX all the way & definitely not for tender ears or sensitivities!! (Erwin, OH).

6705: Lightning Strike 1125 to Trenton Mil Radio w/PIREP & advisory of hazardous cargo (naptha & gasoline), foll by Bison 10 to Edmonton w/pos report. All USB around 0614 (Sabo, CA).

6746: Halifax Military, NS at 0825 w/wx bc (Fernandez, MA).

6753: UFAP Ascension Island GCCS sta in USB at 0522 w/wx forecasts (Fernandez, MA).

6840: YL/EE in USB at 0008 w/545 (X3) & 1-0 count, another day at 2311 had 3/2F t/c (Kneitel).

6960/6875: YL/EE in AM-mode at 0206 running 3/2F grps (Osier, NY).

7380: Pathfinder 6 reporting troop & OH-58 helo positions to Cougar base at 1813, USB (J.M., KY).

7535: 2 musical notes rptd X3 at 1802 followed by 4 long dashes & FSB in CW. Interpol HQ in Paris, France (Mason, England).

7726: WWJ70, Fed Highway Admin, un-ID loc, relaying test msg from WWJ67, FHA Frankfurt, KY to WWJ65, FHA Raleigh, NC, 1256 in USB (J.M.).

7827: TacCom 01 w/patch thru Hickam Radio (HI) to Hickam CP w/list of a/c maintenance writeups, USB at 0810 (Sabo, CA).

8055: YL/SS w/5F grps in AM-mode at 0908. A different YL than the simultaneous xmsn on 8873 (Sabo, CA).

8063: YL/GG in USB at 0340 w/5F grps, each rptd X2 (Fernandez, MA).

8125: Un-ID CW sta at 1100 rptd XXXXX (X10) in a short msg. Sta was on for 20 mins w/very slow & sloppy sending. Even my computer had a problem copying the op's fist (Smith, MD).

8160: 5L t/c in CW at 1133 (Kneitel, NY).

8233: C6BE9, bulk carrier Nassau Pride in USB at 2034 wkg GKU49. Had to move here from 8250.8 because of QRM (O'Connor, NH).

8291.4: KPBS49, Long Beach, CA in simplex wkg un-ID vessel w/wx. Vessel seemed to be towing a disabled vessel & commented, "If he doesn't like where we're going, he can drift!" Was USB at 1848 (Sabo, CA).

8389: 3EWO2, Panamanian tanker Aurora Sky in CW at 0249 wkg IAR (McDonald, BC).

8405: 7KBY, MV Baltic Star wkg SAG w/telexes at 0457 (Hall, WA).

8418: 9WPI, Malaysian general cargo ship Dang Raihana in CW at 0627 wkg JDU (McDonald, BC).

8420: YL/EE at 2300 passing 3/2F grps. Also hrd on 5090/6840. On another 2300 sked the sta began sending SS #'s then realized the goof, shut down & came back w/EE #'s (Smith, MD).

8645.5: D beacon in CW at 2326 (Kneitel, NY).

8771: Spartan (NBGV), USS Lexington (AVT-16) clg Raspberry Pensacola & Raspberry Corpus Christi at 0400 & attempted phone patch (Gordon, CT).

8825: Avianca 010 (Colombian airline) w/calls to San Juan Aeradio but answered by New York, USB at 0515 (Sabo, CA).

8861: Recife Aeradio, in USB at 0515 wkg Lufthansa 520 (O'Connor, NH).

8903: Un-ID airliner clg Beijing ATC several times but getting no reply. Also Beijing hrd in contact w/other a/c, they just couldn't copy this one, USB at 0504 (Fernandez, MA).

8933: Johannesburg Aeradio to a/c Springbok 259 w/wx info, USB at 0315. S. African Airways Company freq (Sabo, CA).

8972: 35Z commencing "Bird Dog" (a test count

from 1-60 & back to 1) at 1704, USB mode. This is a USN ASW freq (J.M., KY).

8789: Gold Eagle (NCVV), USS Carl M. Vinson (CVN-70) w/numerous patches via McClellan AFB, CA to var USN facilities in preparation for visit to San Diego, USB from 2050-2200 (Sabo, CA).

9023: A/c Sheba 34 w/calls to any Dragnet, Challenge, or Sentry-- jammed by Tango 14. Much talk of radar & jamming, speaks of picking up Sentry's airborne radar freq but unable to contact him. This is a NORAD freq. Dragnet & Sentry are both AWACS tactical ID's, & Tango 14 was Air Defense Coordination Section at Ft. Hood, TX. USB at 2243-2306 (Sabo, CA).

9040: YL in USB at 2333 repeating Fartolo Fino (X4) fall by apparent control tones, then at 2335 5F grps (X2) in GG (Kneitel, NY).

9373: YL/SS in AM-mode at 0610 w/5F grps & Finale Finale at end of text (Fernandez, MA).

10215.2: U beacon in CW at 2010 (Kneitel, NY).

10380: FGB55, Biscarrosse, France w/patches in FF to Flores, Azores, LSB at 2034 (Margolis, IL).

10588: KGD34 (reported previously as KGE34) clg Fed Highway Admin sta WWJ82 at Lincoln, NE, USB at 1637. No reply (J.M., KY).

10780: USAF a/c MAC-50271 wk Eastern Test Range Facility, Antigua in USB at 2005 w/request for box lunches (Symington, OH).

11095: Un-ID CW sta at 1944 w/car horn sounding sig passing 5S frc. Same sloppy fist for the past year. Sends fuel/oil reports. Anybody know who/what this one is? (Hall, CA).

11114: CMU967, Soviet Navrad, Santiago, Cuba in CW w/frc at 1201 (Kneitel, NY).

11155.5: K beacon in CW at 1207 (Kneitel, NY).

11239: MAC-60182 w/patch via McClellan AFB to Travis Meteo at 0354 asking for wx at Altus AFB; MAC-60159 at 0643 w/patch also asking for Altus (OK) wx. Both were C-141's, & 60159 was over the Gulf of Mexico (Sabo, CA).

11300: Camair (Cameron Airlines) 620 at 2300 in USB w/kg Khartoum (O'Connor, NH).

12158: WWJ82, Fed Hwy Admin, Lincoln, NE w/test msg re toxic spill for WWJ40 (un-ID), USB at 1907. This is freq #F6. Try getting a QSL (PFC's only) from: Federal Highway Administration, Dept. of Roads - Electronics, P.O. Box 94759, Lincoln, NE 68509 (J.M., KY).

12370: XSH9, Basuo, PRC calling a ship w/the callign BHOQ, CW at 0301 (Hall, CA).

12429.2: WHV580, Seward Services Inc., Miami Beach, FL w/kg Seward Explorer, USB at 1525 (Margolis, IL).

12576: 3FWJ2, cargo ship Buga in CW at 1948 w/kg WNU54 (O'Connor, NH).

12582: 3EE04, M/V Pacific Banner in CW at 2230 w/kg VAI w/AMVER pos rpt; DUXL, Philippine reg vessel M/V Silver Hawk III w/kg VAI (Hall, CA).

12592: D5YE, bulk carrier M/V Chrismir in CW w/kg VAI at 0301 (McDonald, BC).

12636: 4XIL, Israeli container ship M/V Zim Savannah in CW at 1548 w/kg KFS (O'Connor, NH).

12675: A4M, Muscat, Oman in CW at 1248 w/call marker (Ross, Ont.).

12710: XSZ, Dalian, PRC in CW at 2338 clg CQ (Ross, Ont.).

13010.8: AQP, Karaom, Pakistan in CW w/VVV market (Ross, Ont.).

13294.7: OM/CC in USB at 1128 seems to be repeating short phrase X2. Other end not heard (Ed.).

13300: OM/RR in AM-mode at 1100 repeating 196 until 1105, then 429 31 & into 5F grps (Mason).

13387: KKN39, US State Dept. in CW at 2215 w/marker (Smith, MD).

13551.5: LKT & RPK (both un-ID) in CW at 1821 (Margolis, IL).

13560: OM/SS in USB at 0300 clg Cinco Charlie, then started clg Foxfire Hotel, other un-ID stas respond. Meanwhile YL/SS in b/g clf OLA continually (Hall, CA). A interesting freq to check from time to time-- Ed.

13636: P beacon in CW at 2032 (Kneitel, NY).

13913.6: CLP1, MFA Havana, Cuba in CW at 1957 w/SS t/c to CLP3, Embocuba, Addis Ababa, Ethiopia (Margolis, IL).

13974: NNNOCWC, USN MARS abd USS Samuel Gompers w/kg NNNOSWP & attempting 'phone patch, USB at 0020 (Symington, OH).

14384.5: VXV9, Canadian Forces Amateur Service (CFARS), Galan Heights in USB at 1815 w/patches thru CWC301 (O'Connor, NH).

14441.5: NNNOCY1, USN MARS abd USS Fulton (AS-11) w/kg NNNOPPE; NNNOCYG, USS Gary (FFG-51) w/kg NNNOZLI at 2350; NNNOCUL, USS Semmes (DDG-18) w/kg NNNOQGR (Gordon, CT).

14477: NNNOCXF, USS Luce w/kg NNNOWHT in USB at 2210 for patches (Symington, OH).

14607: JPA23, Interpol Tokyo, Japan in CW at 0133. Hrd several times over 2-week period. Sent Interpol BOLO (Be On the LookOut) bulletins re wide range of swindlers, con artists, forgers, passport thieves, crooked tour operators. Some xmsns in EE, FF, & SS (Hall, CA).

14620: Un-ID CW sta at 2025' w/2/3/4L grps (Hall, CA). Prob Viet diplo-- Ed.

14685: CW xmsn at 2005 consisting of repeated

counts 1-0, no ID (Kneitel, NY).

14686: Ambush wkg Atlas, anti-smuggler camms in USB, 1340 (Symington, OH).

14775: Brickette w/patches thru Ginnick on PACAF's Mike channel. Made comms checks to Firebug, Stonewall, & a YL who gave ID as PACAF Intelligence Watch, USB, 2004-2017 (Sabo, CA).

14838.5: NNNOC00, USS Tatnall (DDG-19) wkg NNNOXQ in USB at 2035 re patches (Gordon, CT).

15370: KV jammer (presumed Soviet) at 1844 (Kneitel, NY).

16451.7: BDA (un-ID sta) in CW at 1407 w/kg unhrd sta, sending ..21R00 YOU CY BDA ON... (QRM) then into CC plaintext (Ed.).

16738.4: DNKB, LPG carrier Kurt Illies in CW at 1511 clg Y5M (O'Connor, NH).

16795: BLEM, PRC bulk carrier M/V Beateous in CW at 0037 w/kg VPS (McDonald).

17160: CLA, Havana (Cajimar), Cuba in CW at 2140 w/hi speed t/c consisting of personal notes to another (unhrd) sta (Smith, MD).

17463: 5F (X2) CW grps at 0055. Was using cut 0's (Kneitel, NY).

17496: DGB80, PTT Moroni, Comoros w/patches in LSB at 1753 (Margolis, IL).

17501.2: FIN clg ECH (both un-ID) in w/CW marker at 1755-1831 (Margolis, IL).

18238.9: 615 (X3) 340 (X2) 999 KKK in CW at 1943. On another day at 1748 hrd 5F grps, hand sent, same freq. On still another date at 2100, sta sent 5F grps & when completed, another sta sent 5F grps in 5S, LSB mode (Ed.).

18283: Shark 05 on USB at 1523. Anti-smuggler ops. Also hrd Shark 06, etc. (Margolis, IL).

19685: YL/EE sent 3/2F grps in AM-mode at 2042. Sigs had QSB & slight flutter (Ed.).

19907.5: Un-ID CW sta at 1326 w/hand sent copy. 5L grps sent very sloppily. QSB & QRM (Ed.).

20030: CLP1, MFA Havana, Cuba in CW w/cut # t/c using ADGIMRNUW letters. Was in CW at 1626 wk CLP23, Embocuba Lagos, Nigeria (Margolis, IL).

20185: The fall 4 freqs w/USB activity were copied between 1830-2000 & involved in some sort of NASA pre-launch sequence. This freq seemed to be autopatch for launch techs going over parts lists w/un-ID persons reached by Autovan (Hall, CA).

20191: Freq appears to be main net & had ID's of One (Patrick AFB, FL); Three (Grand Bahamas Tracking Sta); Seven (Grand Turk Tracking Sta); & Twelve (Ascension Tracking Sta). All w/kg a countdown (Hall, CA).

20198: AFE70, Patrick AFB, FL in USB at 1850 w/kg Ascension Isl w/patches to var mil & aerospace engineers re whether Autovan circuits would carry "7LB" traffic (Hall, CA).

20278: This USB freq hrd 1927. Dedicated freq to Ascension Isl. USAF & NASA ID's sent as Mike Kilo, Twelve, Ascension. Wkd sta "19" w/ether FAX or computer net being established. Talk of modems & their reliability (Hall, CA).

20350: YL/GG sent 5F msg, USB at 1614. This freq usually occupied by NBA, USN/Balboa w/RTTY (Margolis, IL).

22254: 3EAX3, Panamanian tanker Isla Grande w/kg JCS in CW at 0032 (McDonald, Canada).

22270: PPHT, Brazilian chem tanker Quixoda in CW at 1824 w/kg PPR (O'Connor, NH).

22578: GKPT, Portishead R., England w/CW marker at 1639 (J.M., KY).

22590: GKY7, Portishead R., England w/CW marker at 1753 (J.M., KY).

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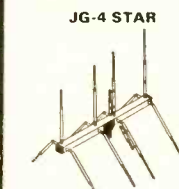
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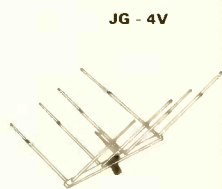
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FCC ACTIONS AFFECTING COMMUNICATIONS

Amend Rules In The Special Emergency Radio Service

The Commission amended its rules to allow commercial entities to be licensed directly into the Special Emergency Radio Service (SERS), thus permitting entrepreneurs to offer private carrier services to all present classes of SERS eligibles. The FCC also eliminated the secondary uses of MED channels 1 through 8.

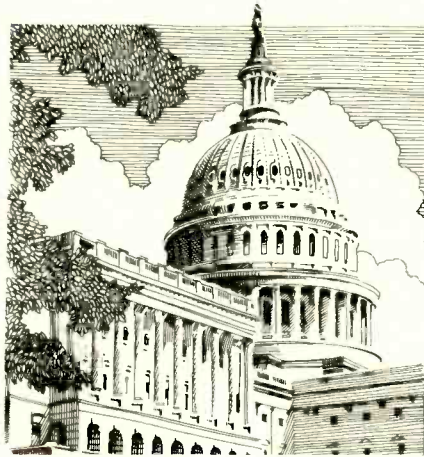
The Commission said that eliminating the secondary uses of these MED channels assures their continued availability for life saving situations. Medical organizations currently licensed on MED channels 1 through 8 will have a two-year grace period in which to cease secondary communications on these channels. However, the Commission will entertain waiver requests from existing and new licensees to permit secondary use in their areas if there is sufficient local support for a waiver.

The SERS is a Private Land Mobile Service consisting of 10 categories of eligible users. Persons or organizations engaged in emergency medical and rescue service, health care, or similar activity are eligible to hold licenses in the SERS.

Under previous rules, commercial entities could offer communications management services to medical eligibles but could not be licensed directly into the SERS. With this action, commercial entities can now offer private carrier service to all present classes of SERS eligibles, including medical service eligibles. Only those types of users currently eligible to communicate on SERS frequencies can use the services of a private carrier.

The Commission said that permitting private carriers to obtain licenses will not change the existing use restrictions on the SERS channels. Private carriers must adhere to all restrictions concerning the use of SERS frequencies, especially with respect to paging and restricted uses of those channels reserved for the medical services category.

In this regard, the FCC noted that some commenters appeared to have incorrectly interpreted the *Notice Of Proposed Rule-making*. For example, some emergency medical service providers believed that the proposal would permit private carriers to offer MED channel service to persons, such as veterinarians, who are not eligible in the medical service category. This, however, is not the case. The intent of this proposal is to provide the special emergency community with an additional option for obtaining communications services on the SERS frequencies. Private carriers will not be able to offer



service on their systems to general business users or any other party not eligible in SERS.

With respect to the ten UHF MED channels and five VHF medical frequencies, private carriers will be permitted to offer service only to eligible users in the medical services category.

Although the FCC eliminated the secondary uses for MED Channels 1 through 8, it retained the secondary uses for MED channels 9 and 10 which are restricted to the paging of ambulance and rescue services.

New Experimental Licenses

The Commission took the following actions:

KA2XUE, ALASKA-FAIRBANKS, UNIVER. OF., Northstar County, Alaska, to operate on 219.0 MHz to conduct research on the structure and motions of the atmosphere between the surface and about 15 km. looking at wave turbulence processes at remote location.

KA2XUG, GEOPHYSICAL SERVICE, INC., Mobile: In the Gulf of Mexico and Continental US, to operate on 7.0-72.98 and 75.42-77.0 MHz bands to test and operate a new system of seismic data recovery, known as DIGISEIS.

KA2XUH, MIDWEST COMMUNICATIONS CORP., Mobile Within Continental United States, to operate on in accordance with Parts 74, 94, 78 and 21 for equipment demonstrations.

KA2XUI, MOTOROLA, INC., Mobile within 20 mile radius and at Schaumburg, IL, to operate fixed on 955-960 MHz and mobile 45 MHz below 910-915 MHz bands for development for export with potential for next generation cellular.

KA2XUJ, PHILIP E. GALASSO, Iselin, NJ, to operate on 160-190 MHz and 18.068-18.168 MHz bands for research

and data collection for possible use in frequencies when service is available.

KA2XUK, PHILIP E. GALASSO, Lakewood, NJ, to operate on 160-190 MHz and 18.068-18.168 MHz bands for research and data collection for possible use in frequencies when service is available.

KA2XUL, SLOPE INDICATOR COMPANY, 2 mile radius Seattle, Wash., to operate on 150-174 and 450-470 MHz bands for testing to verify system design and reliability of a telemetry system being developed.

KA2XUM, SOUTHERN MARINE ELECTRONICS., Cape Coral, Fla., to operate on frequencies under Part 80 of FCC Rules to demonstrate equipment.

KA2XUN, UNISYS CORP., Chicopee, Mass., to operate on 2.7-2.9 GHz band and on 1.03, 1.09 GHz for testing as required by US Government contract.

KAXUO, WOODS HOLE OCEANOGRAPHIC INSTITUTE, Mobile: 5 mile off shore near Black Point, The Sea Ranch, California, to operate on 148.075, 148.450, 148.275 MHz for transmission for data via telemetry under US Government contract.

KA2XUR, NEVADA-RENO, UNIV. OF, Sober Peak, Nev., to operate on 161.430 MHz to collect earthquake data for research project using telemetry.

KA2XUS, NEVADA-RENO, UNIV. OF, TV Hill, Corey Park, Nev., to operate on 161.430 MHz to collect earthquake data for research project using telemetry.

KA2XUT, NEVADA-RENO, UNIV. OF, Mobile in Nevada, California, to operate on 161.430 MHz to collect earthquake data for research project using telemetry.

KA2XUU, NEVADA-RENO, UNIV. OF, Apex Peak, Nevada, to operate on 160.875 MHz to collect earthquake data for research project using telemetry.

KA2XUV, NEVADA-RENO, UNIV. OF, Echo Peak, Nevada, to operate on 160.905 MHz to collect earthquake data for research project using telemetry.

KA2XUW, NEVADA-RENO, UNIV. OF, Shoeshone Peak, Nevada, to operate on 160.905, 160.935, 160.965 MHz to collect earthquake data for research project using telemetry.

KA2XUX, NEVADA-RENO, UNIV. OF, Little Skull Mountain, Nevada, to operate on 160.875 MHz to collect earthquake data for research project using telemetry.

KA2XUY, NEVADA-RENO, UNIV. OF, Nye County, Nevada, to operate on 161.490 MHz to collect earthquake data for research project using telemetry.

KA2XUZ, NEVADA-RENO, UNIV. OF

Opal Mountain, Nevada, to operate on 161.490 MHz to collect earthquake data for research project using telemetry.

KA2XVA, NEVADA-RENO, UNIV. OF Yucca Mountain, Nevada, to operate on 160.305 and 160.365 MHz to collect earthquake data for research project using telemetry.

KA2XVB, AUTOMATIC POWER, INC., Santa Barbara, Calif, to operate on 2900-3100 and 9300-9500 MHz bands to test Racon APR1500 marine X and S band radar.

KE2XDD MACKKEY COMMUNICATIONS, INC., Harahan, Louisiana, to operate on 1635.5-1645.0 MHz band to test INMARSAT equipment after repair and to train users in the operation of the equipment.

KE2XDE, CALIFORNIA, STATE OF, Hume, Calif., to operate on 401.7895 MHz to collect data for use in fire weather prediction and water run off via GOES Satellite.

Granted License for various new experimental stations to City of Aurora to operate on 401.7925 MHz for collection of data and monitoring river basin water supply using the GOES Satellite.

KE2XDF Jefferson Lake, Colorado

KE2XDG, South Platte, Colorado

KE2XDH, Trout Creek, Colorado

KE2XDI, Ohler Gulch, Colorado

KE2XDJ, Middle Fork, Colorado

KE2XDK, Tarryall Creek, Colorado

KE2XDL, South Fork, Colorado

KE2XDM, Fourmile Creek, Colorado

KE2XDN, Middle Fork, Colorado

KE2XDO, Fourmile Creek, Colorado

KE2XDP, Jefferson Creek, Colorado

KE2XDQ, Michigan Creek, Colorado

KE2XDR, STEVEN & PATTI RAYNIS, Soncita, Arizona, to operation on 149.220 MHz to attempt to fully participate in the objectives of the Pan-Pacific Education and Communication Experiment by Satellite Project using ATS Satellite.

Amend Rules For Station ID For Amateur Stations Operated Under Reciprocal Permit

The Commission granted The American Radio Relay League, Inc.'s request and amended the rules reversing the order of station identification procedures for amateur stations operated by aliens under reciprocal permits. Therefore, the letter-numeral designating the station location will be given first and the alien country's call sign second.

ARRL stated that its request is based on an International Amateur Radio Union (IARU) resolution to standardize call sign identification for stations operating under reciprocal agreements. Additionally, ARRL noted that the United Kingdom, France, the Federal Republic of Germany and Switzerland have already implemented the IARU recommended standard.

PC

SCAN Photo Winners

(from page 36)

On the amateur side, Jack is known as N9GKO and uses a Yaesu FT-727, Yaesu FT-2700RH and Yaesu FT-109 for communications on 220 MHz, two meters and the 70 cm band. An Alinco 203T two-meter amateur handheld is also used, as well as a Kenwood TS-440S with antenna tuner for low band communications and shortwave monitoring.

The computer pictured is an Amiga 1000 which is used with an AEA Pakratt 232 for packet/RTTY operation. The antennas for the scanners and receivers are all outside and are split by splitters rated for up to 950 MHz. There are two Radio Shack tri-band monitors, an Austin VHF/UHF tri-band aerial and a longwire for low band amateur operation.

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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/led
MFA	Ministry of Foreign Affairs
nx	news
PP	Portuguese
RYRY	"RYRY..." test tape
SS	Spanish
tfc	traffic
w/	with
wx	weather



A FAX test chart from NAM, the US Navy station at Norfolk, VA. This was received on a Universal M-7000 and sent to the video monitor from which the photo was taken. (Photo by Tom Kneitel.)

5413.7: AP/UPI nx in EE at 1112, FDM 85/75R (Kneitel, NY).

5803: 9GC, Accra Air, Ghana w/RYRY at 2355, 425/50N (Kneitel, NY).

5915.6: AP/UPI nx/sports in EE at 0015, FDM 85/75R (Kneitel, NY).

6749: AEMUSA, US Army MARS, Pirmasens, FRG w/tfc at 1915, 170/75R (J.M., KY).

6992.6: Coded wx from un-ID sta using "KAWN" headers on TFC, several mentions of rainfall amounts at Nebraska locations. Noted at 0057 in FDM 85/75R (Kneitel, NY).

7537: NNQN, USS Independence (CV-62) w/foxes to NAM at 1950, 850/75R (J.M., KY). This is an aircraft carrier commissioned in 1/59-- Ed.

7552: Un-ID w/"This is a test message on the NSEP Radio Network. This unit is a TW 5500 message terminal with TW 100 TRCVR." Was 170/50R at 1848. Two OM's on 7553.4 USB were hrd discussing the use of their RTTY decoders and how they sometimes used ID's consisting of 3L.3F that I can't trace down in my listings. Their 3 initials were used to ID the RTTY xmsns (Ed.).

77752.5/7756.2: WFA57/WFB37, ITT New York at 0404 w/foxes & count, 850/50N (Kneitel, NY).

7819.2: 5NK, Kano Air, Ngerio w/RYRY at 0035, 425/50R (Kneitel, NY).

7823: WWJ71, FHWA, location unknown w/R, Y, callsign at 1656, in ASCII 565/300R (J.M., KY). A really good catch!-- Ed.

7825.6: VMA, RAAF Diggerrest, Australia, w/foxes test to Iirirangi Navrad, New Zealand (Time not reported), FDM 85/75R (Fred Hetherington, FL). Congrats, Fred-- so ya finally nabbed VMA in the clear!-- Ed.

7840: CLN86, PL Havana, Cuba w/RYRY & foxes at 0648, 425/50N (J.M., KY).

7906-7911: About 7 channels of a tape consisting of foxes, count & "test" w/o ID. At 1134 in FDM 85/75N (Kneitel, NY).

7936-7941: Same as 7906-7911 kHz intercept, and at same time (Kneitel, NY).

7995.6: API/UPI nx/wx in EE at 0223, FDM 85/75R (Kneitel, NY).

8012: CLP1, MFA Havana, Cuba w/crypto ZZZZZ to Embacuba Nicaragua at 0355 (J.M., KY). No RTTY setting reported but usually 500/50N-- Ed.

8151.7: HMF86, Pyongyang, N. Korea w/nx in EE at 1020-1050, 520/50N (Hetherington, FL).

8355: KVH, NOAA in Norfolk, VA w/RYRY to WTEG, NOAA vessel Mt. Mitchell, 170/75R at 1810 (J.M., KY).

8454: UJY, Kaliningrad, USSR at 2308 w/RYRY, 170/50N (Kneitel, NY).

8514: WLO, Mobile R., LA at 1152 w/plaintext wx, FEC (Kneitel, NY).

9043.5: AAP, Sydney, Australia w/nx in EE to the Antarctic, 2130-2207, TDM 320/96 (Hetherington, FL).

9098.3: RPFN, Monsanto Navrad, Portugal at 0312 w/foxes, count & RYRY, 850/75R (Kneitel, NY).

9117.4: GPA4 w/ID in CW + ARQ phos sig at 0135. Suspect it's Interpol in England (Harold Manthey, NY). GMP is Interpol's callsign in England; can't find any listing for GPA4-- Ed.

9272-9274.8: Same xmsns as noted on 7906 & 7936, 1204 in FDM 85/75R (Kneitel, NY).

9305: BCW30, PTT Shanghai, PRC w/RYRY, QRA's, & ZHC till 1200, 425/50R (Hetherington, FL); Same at 1144 (Kneitel, NY).

10224.7: KNY29, Egyptian embassy, Washington, DC w/tfc to MFA Cairo at 2331, ARQ (Ed.).

10270: RKA25, TASS Moscow, USSR w/nx in EE at 1348, 425/50R (J.M., KY).

10298: NMG, USCG New Orleans, LA w/tfc for NODW, USCGC Sundew at 1625, 170/75R (J.M., KY).

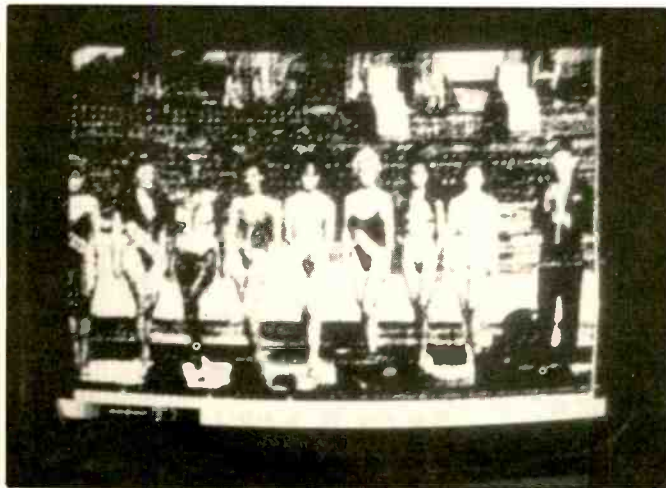
10465: RCF w/RYRY at 0637 & 5L tfc at 0643, 425/75N. RCF also lagged on 14690 at 1440 w/5L tfc, 425/75N (J.M., KY). This is MFA Moscow, also monitored on 16230 by another contributor-- Ed.

10475: CNM34X2, MAP Rabat, Morocco w/nx in

Nice FAX pic of tennis star John McEnroe as it looked on a video monitor fed from a Universal M-7000 communications terminal. This was sent from Buenos Aires, Argentina. (photo by Tom Kneitel.)



A beauty pageant pic sent via FAX from Buenos Aires, snapped from a video monitor hooked to a Universal M-7000. (Photo by Tom Kneitel.)



AA at 1843, 425/50R (J.M., KY).
 10638: Un-ID w/5F t/c at 1945, 425/75N (J.M.)
 10675: REM51, TASS Moscow, USSR w/nx in FF at 1604, 425/50R (J.M., KY).
 10859.2: YAD4, PTT Kabul, Afghanistan w/msgs in EE to New Delhi at 1230, 340/50R (Hetherington, FL).
 11157.7: Un-ID w/coded wx at 0028, ARQ w/925 Hz shift. Wz began ZCZC MSAW, which would place this sta in El Salvador. A msg in SS a short time later offered no further help for an ID (Ed.).
 11175: SHD, Dar es Salaam Aero, Tasmania w/coded wx at 0100-0300, 200/100N (Hetherington).
 11423: SOL42B, PAP Warsaw, Poland at 1218, w/nx in Polish, FEC (Kneitel, NY).
 11443.2: 9J29, Lusaka Meteo, Angola, Zambia w/msg to Kinshasa at 1942, 425/50R (Hetherington).
 11453.3: IMB2, Rome Meteo, Italy w/wx condx in Norway 850/50N at 0021 (Manthey, NY).
 11484.6: TUH, ASECNA Abidjan, Ivory Coast w/RURY, 425/50R at 0056 (Don Schimmel, VA); Same on 11486 at 2110, 425/50N (J.M., KY).
 11494: DE XJK249 + RURY at 1538, 50 baud (Wraith, England). This is SOL249, PAP Warsaw, Poland running a test tape in Cyrillic. SOL in Cyrillic comes out as XJK unless you've got a Universal M-7000 terminal that can put Cyrillic on your video monitor-- Ed.
 11502: LZH4, BTA Sofia, Bulgaria w/RURY at 1427, 425/50N (J.M., KY).
 12512: Y4BG, the GDR fish factory ship F.C. Weiskopf w/telex in GG at 1542, ARQ (Ed.).
 12517: Soviet ship Samarkand w/RURY & t/c to Leningrad at 1808, 170/100N (J.M., KY). It's a cargo ship, call sign UNGX-- Ed.
 13366.5: 5YD9, Nairobi Meteo, Kenya w/coded wx at 2330, 425/50R (Kneitel, NY).
 13400: Un-ID w/RURY at 1247, & 5F msg at 1248, 425/50N (J.M., KY). CLPI has been hrd here in the past-- Ed.
 13436: YNY921, GDR embassy, Managua, Nicaragua w/RURY/QRA & 5L grps at 1923, 425/100N (J.M., KY). Call sign usually found here is Y7A53 of MFA Berlin, GDR. Also, Kneitel's authoritative Guide to Embassy & Espionage Communications lists H6A21 as the call for the GDR embassy in Managua-- Ed.
 13437: RPFN testing & foxes at 1211, 850/50R. Is this a Soviet station? (Manthey, NY). No, RPFN is Monsanto Navrad, Portugal-- Ed.
 13460: DMP80, a FRG diplo post somewhere w/RURY at 1500, 425/100N (Hetherington, FL).
 13499//13604: Un-ID w/ARQ phasing sig & CW ID of SPW at 1627. Who? (Wraith, England). SPW is Warsaw R., Poland-- Ed.
 13450: LRO81, Telam Buenos Aires, Argentina w/nx in SS at 2341, 750/50R (Kneitel, NY).
 13777: ZRO3, Pretoria Meteo, RSA w/coded wx at 1245, 425/75N (J.M., KY).
 13996.5: STK, Khartoum Air, Sudan w/RURY at 0007, 425/50N. Error in tape alternately gave call sign as STK & STKK (Kneitel, NY).

14452//11536: HMF57//HMF49, ATCC (KCNA) Pyongyang, N. Korea w/RURY at 1140, 170/50N (Kneitel, NY).
 14536.5: IPG20, MFA Rome, Italy w/5L msg at 1400, ARQ. The op broke in afterwat w msg in II saying that the previous msg was sent by the computer & he hadn't touched the keyboard at all (Ed.).
 15705: YZJ6, Tanjug/Belgrade, Yugoslavia w/nx in FF at 1140, 425/50R. QRM from "U" beacon from Murmansk on 15705.5 kHz (Ed.).
 15890: RBI79, TASS Moscow, USSR w/nx in PP at 1335, 425/50R (Hetherington, FL).
 16131.3: T/c in AA & EE either to or from the Egyptian embassy, Guatemala City, ARQ at 1439 (Ed.).
 16136: BZR66, Xinhua, PRC at 1322 w/nx in EE, 425/50R (Kneitel, NY).
 16149.6: 9VF205, Jiji/Singapore w/nx in EE at 1359, 425/50N (Ed.).
 16198: RGW26, TASS Moscow, USSR w/nx in FF at 1258, 425/50R (Kneitel, NY).
 16199: Y7A63, MFA Berlin, GDR w/5L grps at 1757, & RURY at 1500, 425/50R (J.M., KY).
 16230: RCF w/RURY at 1440, then 5F msg, 75 baud. Is this the Soviet MFA? (Wraith, England). Yup!-- Ed.
 16302: DFZG, MFA Belgrade, Yugoslavia w/RURY & a 3: msg to the Yugo embassy in Algeria, 425/75N at 1433 (Ed.).
 16357: Y7L36, GDR embassy, Havana, Cuba w/telexes for Mexico at 1819, 425/50N (J.M., KY).
 16382.7: RURY w/o any ID. Occasional holts then resumed. At 0027, 425/50N (Kneitel, NY).
 16451: HGX47 calling HGX21, then RURY at 1310, 425/50N. An un-ID Hungarian embassy calling the MFA in Budapest (Schimmel, VA).
 16684: TCEY, thurkish cargo ship *Obo Engin* w/telex in Turkish to Istanbul at 1613, ARQ; then TCDY, the Turkish cargo ship *Anadolu* w/t/c at 1735, ARQ (Ed.).
 17015: UJQ, Kiev R., USSR relaying t/c in RR from Odessa at 1345, 170/75R. UJQ usually reported in CW mode, seldom in RTTY here. At 1400 reverted to CW (Hetherington, FL).
 17198: GKE6, Partisheed R., England w/t/c tp ships in ARQ at 1924 (J.M., KY).
 17363: 5YE, Nairobi Meteo, Kenya w/coded wx at 0038, 850/75R (Kneitel, NY).
 17500: Un-ID w/t/c in II at 1402, ARQ. Who dat? (Wraith, England). A sample of the text would have helped in making a guess. Can't find info on any ARQ or II stations close to this freq. Maybe our readers can help-- Ed.
 17522.2: YWM1, Maracaibo Navrad, Venezuela w/RURY & SGSG to PWZ33 at 2233, 850/75N (Manthey, NY).
 17623: 9KT344, KUNA Safot, Kuwait w/nx in EE at 1232, 425/50R (Kneitel, NY).
 18052.4: HDN, Quito Navrad, Ecuador w/RURY & SGSG at 1528, 850/75N (Ed.).

18143.8: CCM, Magallanes Navrad, Chile w/5L t/c to ZRH at 1415, 850/50R (Ed.).
 18190: OEQ, Interpol/Vienna, Austria w/police t/c in EE at 1519, ARQ (Ed.).
 18193.6: CLN603, PL/Havana, Cuba w/nx in EE at 2237, 425/50R (Ed.).
 18242: ZRO4, Pretoria Meteo, RSA w/coded wx at 1902, 425/75N (J.M., KY).
 18249: Embacuba/Lima, Peru w/msg to CLPI req visos for the Peruvian Tennis Federation delegation. Was 425/50N at 1422 (Ed.).
 18270.4: HBD20, MFA/Berne, Switzerland w/official news in FF/GG, ARQ at 1709 (Ed.).
 18410.7: GXQ, British Army, London, England w/RURY & foxes, 170/50N at 1633 (Manthey, NY).
 18543.7: STK, Khartoum Aero, Sudan w/RURY & foxes at 1633, 425/50R (Ed.).
 18755.8: JPA24, Interpol/Tokyo, Japan at s/off in ARQ, 0024. Went to CW where it relayed t/c fm Paris to Bangkok offices (Ed.).
 19014: OST, Ostende R., Belgium w/t/c list in FEC at 1814; also noted w/similar at 1920 on 14719. Is this correct? Can't find it listed on these freqs (J.M., KY). OST now on these freqs w/its computer-operated "mailbox." Don't be surprised to find it on many HF freqs-- Ed.
 19313.5: 4UF, UN/Addis Ababa, Ethiopia w/RURY & foxes at 1410, 425/75N (Ed.).
 19227.1: MFA Belgrade, Yugoslavia w/nx in Serbo-Croat at 1521, 425/75N (Ed.).
 19240: Y7A75, MFA Berlin, GDR w/nx in GG at 1528, 425/100N (Ed.).
 19277.7: 4UF, UN Addis Ababa, Ethiopia w/notices in EE/FF to UN offices. Was 425/75R at 1420 (Ed.).
 19282.3: 4UZ, UN Geneva, Switzerland w/RURY & QRA at 1415, 425/75R (Ed.).
 19301.3: MFA Ankara, Turkey w/t/c & nx in Turkish to embassies in Islamabad, Beijing, & Tokyo. Was 850/100R at 1509 (Ed.).
 19390.1: Y7A76, MFA Berlin, GDR w/5L t/c to Conakry, Dar es Salaam, Brazzaville, & Luanda, 425/50R at 1354. Then msg in GG that included Aden along w/the above named cities as destinations (Ed.).
 19391.1: Un-ID w/5L t/c at 1342, 170/100R. S/off w/SDFJ0-2. The GDR embassy in Damascus (Y7F44) has been reported here (Ed.).
 19393: The GDR embassy at Accra, Ghana w/msg in GG at 1340, 425/100R (Hetherington, FL).
 19412.6: Un-ID w/RURY & foxes, 250/100N at 1503, then 5L msg (Ed.).
 19432: Polish embassy, Managua, Nicaragua w/telexes in Polish at 1308, 275/75N (Ed.).
 19505: RCD36, PL Moscow, USSR w/nx in SS at 1314, 425/50N (Ed.).
 19516.5: IPG20, MFA Rome, Italy w/5L t/c to the Italian embassies in Khartoum & Addis Ababa, ARQ at 1447 (Ed.).
 19553.7: The Egyptian embassy, Conakry, Guinea w/t/c in AA to MFA Cairo at 1402, ARQ (Ed.).
 19755: 6VU79, Dakar Meteo, Senegal w/coded wx at 0244, 425/50N (Ed.).
 19821.4: 4UN, UN/Jerusalem, Israel w/t/c at 1800, 120 Hz shift ARQ (Ed.).
 20132.1: DFZG, MFA Belgrade, Yugoslavia w/crypto t/c at 1625, 425/75N (Hetherington, FL).
 20523: CLP55, Embacuba, Georgetown, Guyana w/5L t/c to CLPI at 1330, 520/50N (Hetherington).
 20560: 5AQ88, JANA Tripoli, Libya w/nx in EE at 1631, 425/50R (Ed.).
 20682: NBA, Balban, Panama w/RURY & SGSG at 1932, 850/75R (J.M., KY).
 20825: CLPI, MFA Havana, Cuba w/5F t/c for CLP5, Embacuba, Algiers (J.M., KY).
 22220.6: DASO, the FRG container ship CCNI Antartico, wkg DCF at 1435, ARQ (Ed.).
 22950: Y7A86, MFA Berlin, GDR w/RURY at 1335, & ADN nx in GG at 1338, 425/50N (Ed.).
 22975.5: HBD20, MFA Berne, Switzerland relaying a mas gram Immigration, Hong Kong to Buenos Aires, ARQ at 1356 (Ed.).
 23715.3: RFL1, French Navrad, Fort de France, Martinique says it controls the circuit at 1648, TDM 850/96B (Ed.).
 25083.2: STR 8240, a Soviet ship w/RR t/c to Klaipeda R., 170/50N at 1553 (Ed.).
 25084.2: Soviet ship *BMRT 0594* w/telegrams to Klaipeda R., USSR at 1618, 170/50N (Ed.).
 25087.2: UJLF, Soviet ship *MB 0025* wkg Murmansk R., USSR at 1624, 170/50N (Ed.).

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FAX Intercepts (All loggings by Tom Kneitel, NY)

3357: NAM, USN Norfolk, VA w/wx chart at 0220, 120/576.
 5100: AXM32, Canberra Meteo, Australia at 1043 w/wx chart, 120/576.
 6330: CFH, Halifax, NS w/wx chart at 0025, 120/576.
 9157.5: WLO, New Orleans R., LA w/wx chart at 0251, 120/576.
 15950: RBI77, Moscow Meteo, USSR at 0225 w/wx chart, 120/576.
 17366.9: 5YE3, Nairobi Meteo, Kenya w/wx chart at 0045, 120/576.
 18261: GFE24, Bracknell Meteo, England, wx chart at 1240, 120/576.

GETTING STARTED AS A RADIO AMATEUR

Why The Morse Code, Anyway?

This month's column leads off with a letter from Jack E. McMahon, KNY2TZ, of Buffalo, New York:

"The FCC rules say you must know the code ("CW") to get a ham ticket—but what if you want to be a Ham and don't intend to use CW after you become one? The answer seems to be 'Well, you have two choices—either (1) don't learn the code and don't become a Ham, or (2) learn the code, and after you pass the test, don't bother with the code anymore and stick to voice (phone).' I've heard quite a few hams say things like 'I haven't worked code for years.' Isn't it a little crazy for them to have to learn code at 13 or 20 words per minute if they're not even going to use it? Isn't having to learn something that we won't use an infraction of our rights as US citizens?"

"I'm not saying 'Just open up the Ham bands to anyone with no testing requirements.' Keep the tests, but give people a choice. You might even have a poll to see how people feel about the whole Morse-code issue."

"When you get right down to it, the main reason 10 meters has been opened up to Novice/Technician SSB operation is to attract more newcomers into Amateur Radio. Well, from what I've heard from the Hams around here, volunteer ham instructors are having a hard time putting classes together because of the requirement that people must learn the code to get a ticket. I say: Amateur Radio is a great thing, but open it up some—don't force people to learn the code when they don't really wish to."

Ever since hams could send code and voice, there've been Hams who preferred one mode over the other. Put into words, this polarization has ranged from the terse ("CW? Bah!") to the humorously insulting ("You are welcome in my ham shack, be you radio amateur or phone man.") No matter which camp they ended up belonging to, however, all hams—at least in the US and Canada—had one thing in common aside from their interest in radio: They all had to learn the Morse code to get their ham licenses in the first place.

The Morse-code requirement is still with us in 1988—and so is the controversy over whether or not there should be some sort of "no-code" license for people who intend to work only (or mainly) phone. (Happily, though, hams—including Novices—aren't limited to "just" voice and code nowadays.) Jack McMahon's letter suggests important questions: *Why* is there a Morse-code requirement in the US Ham rules, anyway? Is



Scouting + ham radio = a blast! Every year, Scouts and Hams get together in person and on the air for a Jamboree on the Air (JOTA), sponsored by the World Bureau of the World Organization of the Scout Movement. During the JOTA, thousands of hams worldwide invite local Scouts to visit in their ham "shacks" to contact other scouts on the air. Here, Cub Scouts from Springfield, New Jersey, Pack 73, Den 4, take time out from talking with the world during last October's JOTA to say "cheese" for POP'COMM. Presiding Hams: Scott Seidel, WA2WUX (standing), Eric Deutchman, WB2MLW (peeking), and Ron Scull, WA2QNZ (photographer). Going to go out for Radio Merit Badges, guys?

the Morse-code requirement a violation of our rights as US citizens? Is the code-requirement situation likely to change any time soon? Here's the story.

Where the Code Requirement Comes From

Back in the February 1988 Ham Column, we discussed how world telecommunication, including radio, is regulated at the international level by the International Telecommunication Union (ITU). The United States, as a member-nation of the ITU, agrees to abide by the ITU's Radio Regulations. The ITU's enormous scope includes the two radio services dear to all Hams and would-be Hams: The Amateur Service and the Amateur-Satellite Service. Among the ITU's Ham regulations is this passage:

"Any person seeking a license to operate the apparatus of an amateur station shall prove that he is able to send correctly by hand and to receive correctly by ear texts in Morse code signals. The administrations concerned may, however, waive this re-

quirement in the case of stations making use exclusively of frequencies above 30 MHz."

That's the reason for the Morse-code requirement for US Hams. The ITU Radio Regulations require the code; the US agrees to be bound by the ITU Radio Regulations; and the Federal Communications Commission (FCC) is the US-government agency charged with enforcing those regulations for non-governmental radio users (including Hams) in the US. As a result, Part 97 of the FCC rules—the US Ham radio rules—require that Hams learn the code to qualify for their licenses.

This rule exists in the ITU Radio Regulations for a very good reason: Under poor conditions, CW telegraphy—turning a transmitter carrier on and off with a mike button, a code key or just by shorting and unshorting a couple of wires—is sometimes the only means of getting a critical emergency message through. In an emergency, a radio operator in any radio service may use any means available—including calling for help on CW in a Ham band—to get help. In such situations, the presence of hams who

know the code can mean the difference between life and death. Even if having the skill to transmit a distress message in code were to be considered a matter of personal choice, don't we need people "out there" who can receive one? How you answer this question may depend on how far you are from land—and whether or not your boat is sinking!

Is the Morse-Code Requirements a Violation of Our Civil Rights?

This is an excellent question, and anyone who thinks it's a silly question probably doesn't know the answer! The answer is: No, the government's right to require candi-

dates for Ham-radio licenses to learn the Morse code is guaranteed by the US Constitution. It's right there in Article I, Section 8, "Powers of Congress." Section 8 states that the Congress shall have power to (among other things) "regulate commerce with foreign nations, and among the several States, and among the Indian tribes." The regulation of radio falls under this provision.

What's the Outlook for a No-Code License in the US?

On paper, a US no-code license is a possibility, but only above 30 MHz. (Remember, the US agrees to abide by the ITU Radio Regulations, and those regulations—as shown in the excerpt above—allow the code requirement to be waived only for operation above 30 MHz.) But is a no-code license really desirable? Jack McMahon has a good idea about how to find out: "Have a poll to see how people feel about the whole Morse-code issue." In effect, that's what happened in 1983 after the FCC issued a Notice of Proposed Rulemaking (NPRM) that proposed to create a no-code Ham license. (The NPRM, in PR Docket 83-28, put forth two alternatives. One would have dropped the code requirement for the Technician license; the other would have created a new no-code entity, the Experimenter license.)

The results constituted quite an opinion poll on "no-code"! The Commission received 5000 comments from hams, would-be hams, ham clubs and organizations (including the ARRL) and other interested parties. Comments opposing the no-code proposal outnumbered those supporting it by 20 to 1. "The will of the people" was clear: A no-code license wasn't a desirable way to make ham radio grow and prosper. On December 14, 1983, the FCC announced that it had abandoned its proposal in response to widespread opposition to the no-code concept. Ham radio would have to find another way to grow.

Novice Enhancement—the expansion of Novice and Technician privileges to include voice and digital communication on 10 meters, and new multimode privileges for Novices at 222 MHz and 1.2 GHz—is ham radio's current best answer to the need for increased Amateur Radio growth in the US. Like all solutions arrived at by democratic means, however, Novice Enhancement probably won't please everyone. This suggests the grand-prize question: Is Novice Enhancement a sufficient draw to keep Ham radio growing and strong in the US? We don't know—yet. Your response to Novice Enhancement will be part of the answer.

What's your comment on this topic? How about your suggestions for topics in Ham Columns to come? Exercise your Constitutionally-guaranteed right to free speech by writing me at ARRL, Dept. N, 225 Main St., Newington, CT 06111!



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CIRCLE 64 ON READER SERVICE CARD

RADAR REFLECTIONS

RADAR DETECTORS AND THEIR USE

BY JANICE LEE

Maryland Insurance Decision Upholds the Rights of Radar Detector Owners

By ruling that insurers cannot refuse coverage to drivers who use radar detectors, the Maryland insurance commissioner has struck a significant blow for the rights of detector owners.

The ruling by Associate Deputy Commissioner Thomas Raimondi prohibited the Government Employees Insurance Company's (Geico) policy of refusing to insure radar detector owners, despite the devices being legal in Maryland.

Geico's anti-detector policy, in effect, amounted to an insurance company writing its own laws. Fortunately, the insurance commissioner saw through Geico's rhetoric and told the company that it's up to the legislature to establish policy.

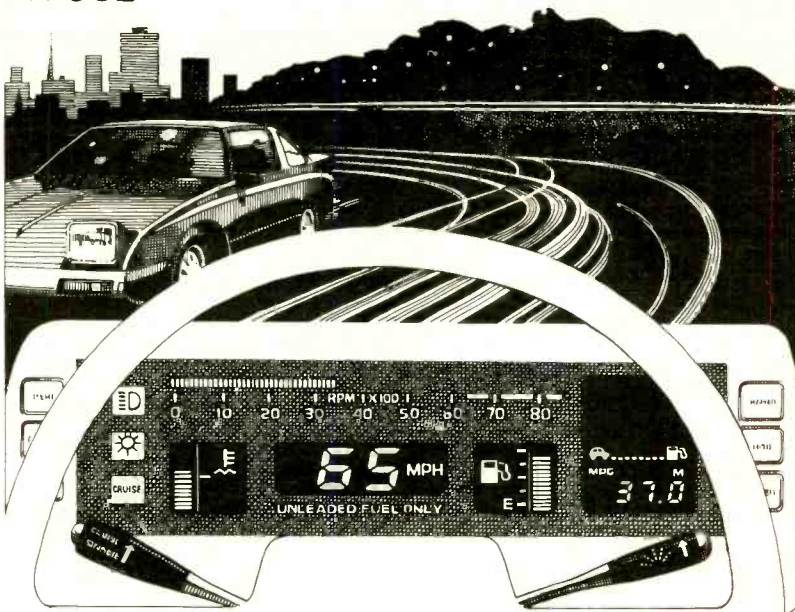
RADAR, a national nonprofit organization dedicated to preserving the rights of radar detector owners, persuaded the state Insurance Division to force insurers to show why they should be allowed to refuse coverage only on the basis of owning a perfectly legal device.

The issue stemmed from a case involving Ronald James of Temple Hills, whose policy Geico refused to renew after he admitted to owning a radar detector. Neither James nor his wife had any accidents or moving violations while a Geico customer. The company even declined to reinstate James' policy after he sold the detector and presented Geico with a bill of sale. After RADAR became involved in the case late in 1987, Geico finally reinstated his insurance.

Rejecting Geico's contention that radar detector owners are a bad risk, the insurance official wrote, "The supposition which underlies this anti-radar-detector policy is that the mere purchase of a radar detector makes the motorist a greater risk because motorists who own radar detectors are careless drivers who have more accidents than the average and use radar detectors to avoid speeding convictions. No direct statistical evidence was produced to support these assertions".

RADAR provided the commissioner with results of a study showing that radar detector owners actually are safer-than-average drivers who, in addition to using their seatbelts more often than the average driver, travel more than 59,000 miles farther than nonusers before being in an accident.

Radar detector opponents have been turned away time and time again by state legislators who just don't buy the specious arguments against detectors. The Maryland decision is significant in that it tells Geico



and others that they have to play by the same rules as everyone else.

Claiming that insurance officials are promoting unfair trade practices and "coming down on the side of speeders," Geico is seeking an injunction from the Baltimore Circuit Court against enforcing the order. The company is urging the legislature to enact a bill banning radar detectors.

The fight is far from over. Hometown Gives Photo Radar the Boot

Friendswood, TX, Constable Paul Bess said the last straw for photo radar was when one of his deputies served an arrest warrant on a woman who was listed as the driver of a speeding car, but she wasn't the woman who appeared in the photograph.

"I was thoroughly embarrassed," Bess said. "That really triggered me to say we've got to stop this stuff. We're having to arrest people that aren't committing any crimes."

As a result of the decision to quit using photo radar, law-enforcement officials were left with hundreds of speeding notices and arrest warrants that had already been generated by the system's vendor, Traffic Monitoring Technologies, also of Friendswood.

"My advice to people who got these letters is to scrap 'em and understand that they have no validity," Bess said, adding that he doesn't know what to do with the two stacks of warrants he says are invalid. "I don't know what to do with them. I have some concerns that if they're still around here when I leave office (after December 31), they me be executed."

Meanwhile, though, Traffic Monitoring Technologies continues to send out the speeding violation notices on Bess' letterhead and without his knowledge or signa-

ture. Company officials, who receive a share of every paid violation for the service, maintain they had the constable's permission to distribute the letters.

"One of the last things I want to do is wind up before a grand jury because there are letters floating around with my name on them," Bess lamented.

The controversial system combines a radar gun, camera and computer to photograph vehicles traveling above a predetermined speed. Violators, who aren't stopped at the scene, receive a computer-generated notice in the mail demanding they pay a speeding fine. Critics such as RADAR have contended that due to a lack of traffic stop and because the system is geared to process large volumes of notices, its use is illegal and unethical.

Galveston County Commissioner Ron Crowder, whose district includes Friendswood, said he still has faith in photo radar, but placed its blame for its failure on the constable.

"Bess fumbled the ball a couple of times and brought some legal problems on himself," Crowder said.

Friendswood was the second community in Galveston County to drop photo radar after receiving considerable criticism about its legality. Earlier in 1987, La Margue officials declared photo radar unmanageable and ended use of the system.

Despite aggressive marketing by the Friendswood company, Traffic Monitoring Technologies, only two municipalities are using photo radar on a routine or experimental basis - Paradise Valley, Arizona and Pasadena, California. It also has been tested in Connecticut.

PC

Janice Lee is Editor of RADAR Reporter, a monthly newsletter about radar, radar detectors, and transportation issues.

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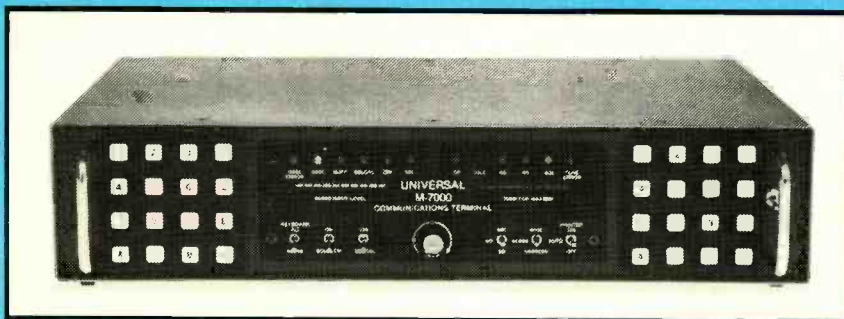
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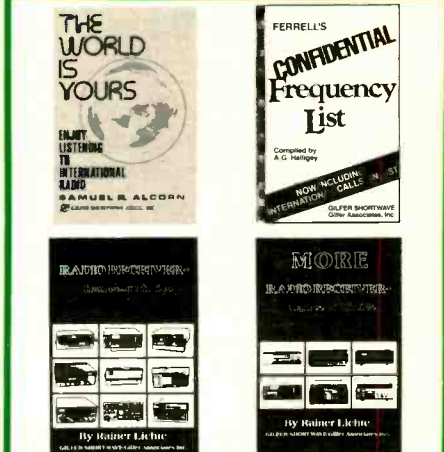
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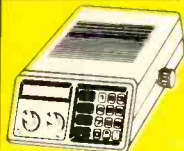
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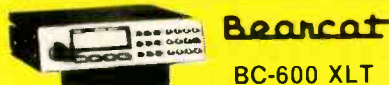


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- Superior dynamic range. Exclusive Kenwood DynaMix™ system ensures an honest 102 dB dynamic range. (14 MHz, 500 Hz bandwidth, 50 kHz spacing.)



- 100 memory channels. Store mode, frequency, antenna selection.
- Voice synthesizer option.
- Computer control option.
- Extremely stable, dual digital VFOs. Accurate to ± 10 ppm over a wide temperature range.
- Kenwood's superb interference reduction. Optional filters further enhance selectivity. Dual noise blankers built-in.
- Direct keyboard frequency entry.

- Versatile programmable scanning, with center-stop tuning.
- Choice of either high or low impedance antenna connections.
- Kenwood non-volatile operating system. Lithium battery backs up memories; all functions remain intact even after lithium cell expires.
- Power supply built-in. Optional DCK-2 allows DC operation.
- Selectable AGC, RF attenuator, record and headphone jacks, dual 24-hour clocks with timer, muting terminals.

Optional Accessories:

- VC-20 VHF converter for 108-174 MHz operation
- YK-88A-1 6 kHz AM filter
- YK-88S 2.4 kHz SSB filter
- YK-88SN 1.8 kHz narrow SSB filter
- YK-88C 500 Hz CW filter
- YK-88CN 270 Hz narrow filter
- DCK-2 DC power cable
- HS-5, HS-6, HS-7 headphones
- MB-430 mobile bracket
- SP-430 external speaker
- VS-1 voice synthesizer
- IF-232C/IC-10 computer interface.

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R-2000

150 kHz-30 MHz in 30 bands

- All modes
- Digital VFOs tune in 50 Hz, 500 Hz, or 5 kHz steps
- 10 memory channels
- Programmable scanning
- Dual 24-hour digital clocks, with timer
- 3 built-in IF filters (CW filter optional)
- All mode squelch, noise blanker, RF attenuator, AGC switch, S meter
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- Record, phone jacks
- Muting terminals
- VC-10 optional VHF converter (118-174 MHz)



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