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VOLUME 8, NUMBER 8

APRIL 1990



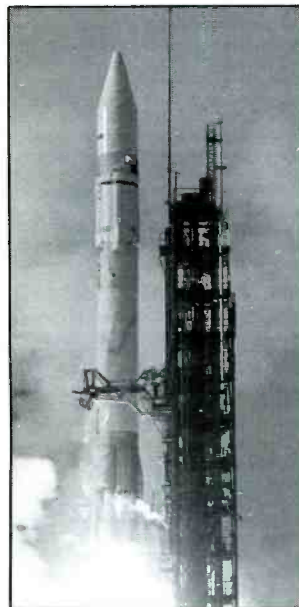
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This month's cover: Helicopter Pilot Harold Shamblin talks with offshore oil rig in the Gulf of Mexico. Photo by Larry Mulvehill.

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Chip Ahoy!

When I was a kid, almost every drugstore had a machine that tested vacuum tubes. That way, when your *Emerson* or *Majestic* radio conked out you wouldn't panic. You simply unscrewed the cardboard cover from the back of your radio, pulled out the tubes, and put them into a paper bag.

You then took the sack of tubes over to your favorite *Walgreen* or *Rexall* drugstore where you could plug them into the tester, one at a time, and see on the large meter dial which one was the culprit. When you found it, you just asked the man behind the counter to include a new 6AL5 (or whatever) in with the tube of *Ipana* toothpaste and bottle of *Vitalis*.

Most likely the problem with the defunct tube was a burned out filament. That was the most common disaster to befall vacuum tubes and, ultimately therefore, to cause the failure of the average AC/DC table model radio. The circuit design had the heaters of all of the tubes wired up in series like a string of Christmas tree lights. That way, there was no doubt about the radio having a problem—it seldom worked poorly. Either it worked fine, or when one of its tubes had a filament burn out, then the whole set suddenly went stone cold dead and dark and you couldn't hear *Mr. District Attorney* or *Charlie McCarthy* or anybody. That was your first clue that there was a problem, and you knew that if you had at least a half hour until your favorite program went on, you could probably rush over to the drugstore and get back in time to replace the tube and tune in. I suspect that, despite their impressive look, the drugstore tube testers probably did nothing more than check the continuity between the tube's two filament pins because that was what went wrong with tubes 80% of the time.

Otherwise, vacuum tubes were physically and electrically very rugged. From time to time my friends and I used to extract all of the tubes from our household radios and use them as miniature spaceships in fantastic battles between *Flash Gordon* and *Ming the Merciless*. The tubes survived many more crashes to the linoleum than did poor *Ming*.

This isn't to say that there weren't radio repair shops. That's where you brought the set for fixing when a transformer went, when the set had gotten so old that the capacitors were starting to dry up, or when the dial cord tore, and in the few instances when something went wrong with a vacuum tube that still checked out as OK at the drugstore. Maybe if you had a TV set, you brought it

there because you were afraid to grope around their innards for fear of getting zapped by the high voltage—which everyone knew could still sizzle you even with the set unplugged.

This was brought to mind very strongly not long ago when I came to feel that we have all made some very important trade-offs to indulge the big strides made in technological progress. It became particularly noticeable when I attempted to put back into use a scanner that I had on the shelf for about two years. It gave me a few days of temperamental service and then decided that it would turn on, but not actually operate. This unit was new in 1984 and six years later it was dead.

To be frank, there isn't a single component in a modern scanner that could be taken to the drugstore to test. Besides, the local drugstore now calls itself a pharmacy. That means they don't have a tube tester, nor a lunch counter that dispenses tuna on rye or malteds. Basically, what they've got there is a computerized prescription department, and people who sell plants, lawn furniture, video tapes, ceramic mugs, and many different perfumes sponsored by bored celebrities in the fading stages of their careers.

A cursory look at the insides of my scanner and some basic checking on my test bench led me to believe that whatever it was that the scanner was trying to tell me, it wasn't good. It was obviously a problem best diagnosed and repaired by the nearest factory authorized service center. There were numerous chips in this scanner, and each one of them contained more circuits than a truckload of old *Air King* or *Fada* vacuum tube radios, with a couple of *Stromberg-Carlson* consoles thrown in.

The technician welcomed me and my devastated scanner to his inner sanctum, and over to the workbench filled with the necessary scopes and exotic paraphernalia certain cognitive persons know how to use in order to locate the many things that can go awry in modern electronics equipment.

I wasn't at all thrilled when his first comment upon seeing my scanner was, "Well, let's have a look at this old timer." *Old timer?* When I got the set only six years ago they were using terms like "state of the art" to describe the unit. But now it was as if I had shown up with a 1940 *Studebaker*. There was a time when you could buy the cheapest off-brand AC/DC table radio and fully expect that, even though it might need a couple of \$1 tubes replaced along the way, it would make some sort of intelligible

sounds at you for fifteen or more years before you began thinking of it in terms of being an old timer.

He tinkered around inside the scanner and then solemnly announced that the problem was one of those chips. Unfortunately, he said, he didn't keep that chip in inventory—"too old to bother with." How could a technology from 1984 be "old" in 1990?

He offered to try to obtain the part and fix the scanner, or ship the set back to the company and let them check it over. Now that I knew which specific chip had quit, I decided to take the scanner back and simply get a new one from someone I knew at the company that made the scanner. I dropped him a note containing the part number and waited for its arrival.

Instead of a chip, I received a phone call that made me realize how technology had accelerated to the point where my 1984 super whizbang electronic marvel was left sitting in a cloud of dust on the far side of yesterday's rapidly departing horizon.

The chip my scanner needed was specially designed and custom produced overseas for this scanner manufacturer for use in only two specific models, a rather common practice in many areas of electronics. The manufacturer determined in advance how many scanners would be produced, then ordered that many chips plus a sufficient number of extras to compensate for ones found defective, and also to be set aside for later use as replacements in sets needing repairs. So here we are in 1990 and none of those spares remain in the manufacturer's inventory. Actually, he said that they thought they had made enough extras to last much longer than they did, but it just didn't work out that way. He figured that there were probably still a few sitting on shelves at scattered local service facilities. In the mean time, no substitute chip would work to solve my scanner's problem.

I love the progress that technology has made, but I think that maybe when you had an old *Arvin* or *Silvertone* radio you stood a better chance of happily surviving one of these equipment crashes. Practically every electronics component in these old sets was a standard off-the-shelf item. Every receiving tube ever devised was being produced by a dozen or more companies—*Sylvania*, *Raytheon*, *RCA*, *GE*, *Philco*, *Western Electric*, *Ken-Rad*, *Lafayette*, and others.

Moreover, if your 5Z4 rectifier tube went

(Continued on page 80)

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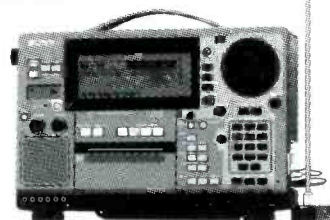
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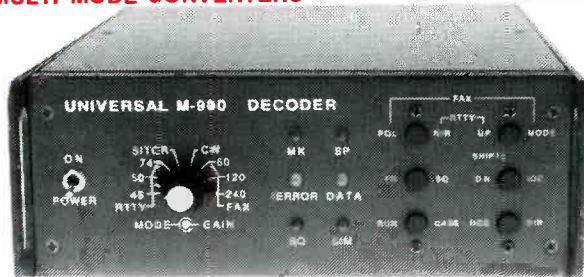
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MAILBAG

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 be letter be used in Mailbag.

New Look

After reading POP'COMM for about four years, I recently saw my first issue for the 1990's and that caused me to write this letter. The new look for the magazine's column headings is refreshing. I would like to see an article about satellite radio reception, particularly the reception of stereo FM broadcast stations that might add listening variety to the local fare. Living in Utah, I miss the jazz and black urban music formats heard in major metro areas.

Kevin P. Kubarycz, KB2ETD,
Salt Lake City, UT

The revised look is the result of the magazine talented Art Director, Liz Ryan, who felt the changing decade was an appropriate time for some changes of our own. We have received lots of good mail on the visual revisions, and also on the removable center-insert listings section that began in the February issue. These, and other plans now in the works, are part of the constant effort of our entire staff to give you the best possible magazine, in every respect. — Editor.

Hands Off 6 Meters

Your December editorial on the proposal by WRNJ-AM's owner to reallocate the 50 MHz band for FM'casting struck a chord in me that caused me to write my first letter to you in the several years I've been reading POP'COMM. WRNJ is (literally) for the birds, being perched on the Hackettstown (NJ) Hill (Route 46 West) with that tower (lots of guy wires), cows, horses, 6 satellite dishes, and a heliport for traffic reports. Best of all, it serves a deep valley where the locals have reception problems, so it has a quasi-captive audience. Two hills away and the WRNJ signal is history. Hard to believe that now the owner wants a 6 meter band, too! Why are some people always looking to stick it to someone? And, thanks for mentioning the plight of the "Ray Briem Show," formerly of the ABC TalkRadio Network. Someone should get a "Ray Briem Forum" going at the Dayton Hamvention.

Peter K. Murrucane, WB2SGT
New York, NY

Thank you for your editorial (December *Beaming In*) on my proposal to convert the 6 meter amateur band to broadcasting. Although the article lacked many of the salient facts important to the concept, it conveyed

the idea. I received all of eight cards against the concept, one very positive. And, considering the amount of space and effort put forth, I can only assume that the amateur community, as I surmised, is not in harmony with your thoughts. Your article, and the meager negative response, has been added to our petition for reconsideration at the FCC. They will go a long way for making our case.

Lawrence J. Tighe, Jr., Pres.,
Station WRNJ,
P.O. Box 1000,
Hackettstown, NJ 07840

My editorials are called the way I see things and aren't written because I think any individual or group has a harmonic relationship with my opinions. One of the few things I have in common with the FCC is that they also appear to be little interested in counting raised hands when formulating their own opinions. I am, however, appreciative of having my editorial against this scheme now having been made an official part of the record in this matter. Even if every amateur in the nation thought it would be wonderful to give the 6 meter ham band on a silver platter to some other service, I'd still think it was a bad idea. And I'd say so in my editorial.
— Editor

They Got Us Covered

What became of the Association of Clandestine Radio Enthusiasts (ACE)? Recent stories on undercover radio haven't mentioned the group. A letter I sent to the last address I had for them (in Louisiana) brought no reply. Does ACE still exist?

Fred Coombs,
Ojai, CA

A while back it seemed as though the group had lost its momentum and we hadn't heard much of value from or about them. Recently, however, new leadership moved in, refurbished the organization and its publication and it looks like it's back on track, but from a different address. You can now get in contact with ACE at P.O. Box 11201, Shawnee Mission, KS 66207-0201. Annual dues are \$16 in the U.S., \$17 in Canada. Those interested in another excellent monthly newsletter devoted to covert radio, underground communications, numbers stations, and related radio mysteries will want "Umbra et Lux," which is \$18 per year in the U.S., \$21 in Canada. The address is 10606-8 Camino Ruiz (suite 174), San Diego, CA 92126. — Editor

Radio On The Birds

Discovered your wonderful magazine the other day and enjoyed my first (December) issue very much. Found your editorial "Friends of Radio," about WRNJ (AM) ra-

dio most interesting, and really AM radio as a whole. I am a supporter of C-SAT International radio, operating on the Spacenet-3 satellite, Channel 9, which operates around the clock. WKEN (AM), Dover, DE began being uplinked by C-SAT a few months ago. The station had a talk program from 1 to 3 p.m. EST called "WKEN Talk Radio," but after going on the satellite they installed an "800" phone line and called the program "WKEN Talk America." WKEN seems to like having its listeners from around the U.S. and Canada call in to their program. The program even reaches into 33 overseas countries, although the transmission that accomplishes this is only 5-watts! It does look as though satellite radio is here to stay and offers a possible solution to the dilemma you noted for AM stand-alone daytime stations. Those interested in C-SAT can contact Richard Gamberg, C-SAT International Radio, P.O. Box 1789, Dover, DE 19903.

Charles F. Howard, Jr.,
A C-SAT Listener

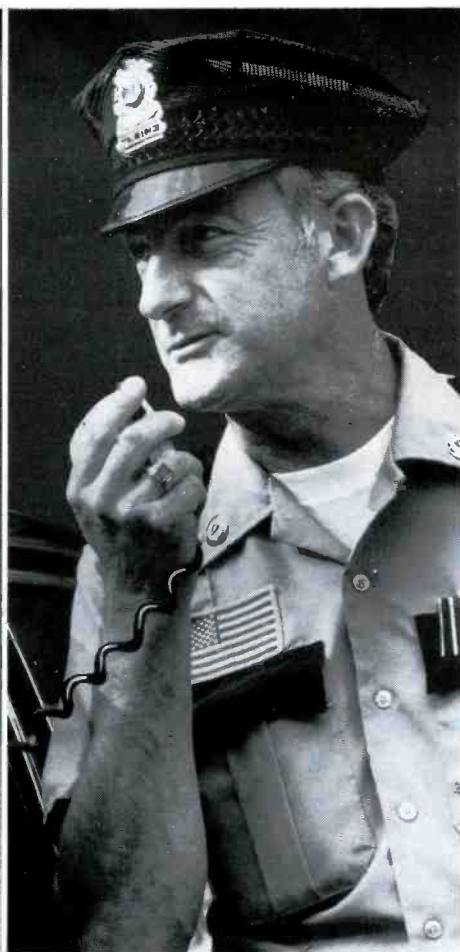
Still Seems Like a Good Idea

Many years ago, I saw an article in an electronics magazine about a massive antenna array that the Soviets built that absorbed RF energy and somehow converted it to electrical energy, which was used to supply a small community. I have never seen any further information on the later development of this process, although I seem to recall that it created a problem because of the disruption it caused to ham communications. Did anything more ever come of this? I have been an avid reader of electronics books since the 1950's, and held early CB license 9Q0402.

Wayne Blackburn,
Beaumont, TX

The story you saw was called "I.E.M., An Anti-Radio Device," that appeared in the April '63 issue of our sister publication, CQ Magazine. You have a good memory, but the scene of the action was Romania, not the USSR. The story described the experiments of Dr. Victor Vasilescu and his "Intreprinderea Electroreversis Magnetic," an invention that vampirized radio waves from the airwaves and put them to practical use as electric power. I wrote the article (under the byline "Howard U. Noe") strictly as an April Fool's joke — there was nothing whatsoever to the entire concept, and even the photos were not to be taken seriously. Nevertheless, it apparently sounded like it made sense because we have gotten letters for the past 27 years that ask for additional information and sometimes enumerate the problems encountered in attempting to contact "Dr. Vasilescu" and his lab, based upon the information in the account of his activities. — Editor.

PC



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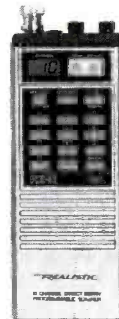


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CIRCLE 2 ON READER SERVICE CARD

I Love a Mystery

If You Love Mysteries, Too, Here Are Some Truly Baffling Shortwave Broadcasters To Ponder!

BY GERRY DEXTER



Bucharest, Romania. Could the so-called Gypsy Music Station be coming from this area?

Decades ago, when radio was still in its golden age and yours truly was still a schoolboy, the Mutual Radio Network aired a nighttime adventure serial called "I Love a Mystery." Our local Mutual station aired the show at 9:45 in the evening, just at bedtime on school nights. That was a bit of magic. Curled up under the covers, the dial light of the Hallicrafters S-38B receiver glowing in the darkness and heroes Jack, Doc and Reggie lighting up the imagination with their exploits in the dark jungles of Brazil or the human jungles of Hong Kong. A story was good for three or four weeks and much more fun than MacGyver and his like on TV today. "Tune in tomorrow" and all that.

Sad to say, Jack, Doc and Reggie long ago disappeared from the radio, along with all of their crime solving contemporaries. Except for old time radio reruns those who love both radio and a good mystery are hard pressed to find such drama on the air these days.

But if SWL's can no longer tune in on Sam Spade's latest caper, or follow Mr. Keene as he traces a lost person, we do have any number of opportunities to play radio detective on our own. The shortwave bands are full of mysteries waiting to be solved by intrepid Sherlock SWL's.

Every time you tune in a shortwave broadcaster and don't catch the ID, can't seem to fit what you are hearing with what is listed in the standard shortwave references, you're confronted with a mystery, even though a small one. The same holds true for all of those weird non-broadcast signals one finds up and down the shortwave dial. Even if you have the fancy equipment needed to decode complex radioteletype signals for example, the results—even when you are printing out exactly what's being sent—often create new puzzles about source and content. And, of course, there are any number of signals yet to be explained—those single letter beacons, warbling tones and other sounds which are, so far, little more than noises in the air.

Riddles, questions, puzzles, mysteries—call them what you will—are all over the dial, whether you prefer to hunt shortwave broadcast stations, the utilities or that never-never land of unidentified bleeps and blips.

Are you game to try solving a few? Great! Now it's late in the evening, the rain is slapping against your 3rd floor office window, your door is flung open and there *she* is—the "femme fatale". There are several cases she wants you to look into for her.

Here's one that doesn't involve some-

thing that's on the air and can't be figured out but something that isn't on the air! The government of El Salvador has been locked in a long-running guerrilla war against the Farabundo Marti National Liberation Front (FMLN). The FMLN may not yet have marched triumphant down San Salvador's Avenida Espana, but they have done a commendable job of setting up and running their own media machine, including print, video and radio. The FMLN's Radio Venceremos is on the air on a daily basis, telling much of the western hemisphere the FMLN's side of the story. So why isn't the government of El Salvador doing the same thing? Why do they let the opposition have a clear field in this area?

Radio Nacional El Salvador (YSS) was once a shortwave regular, with 5 kilowatts on 5980 and 9555 but, for all practical purposes, it hasn't been on the air in years. There have been one or two exceptions—brief appearances that lasted only a matter of days, if that long. Is the problem antiquated equipment? If so one would think that it would take only a phone call to the American Embassy and a whole new shortwave station would be in place and in operation in a matter of weeks, given the heavy US financial support for that country's ef-



Radio Noticias del Continente's leftward viewpoints are said to have caused its closure by the Costa Rican government.

forts against the FMLN. It is simply unfathomable why neither the El Salvador nor the US government have bothered to fill this media gap, assuming they were even aware of it! Oddly, the question is seldom, if ever, even raised in the shortwave press. Given the extremely important role which radio plays in war and crisis situations the failure of El Salvador to have its official Radio Nacional regularly active on shortwave is a real headscratcher!

Numbers stations are to be found on dozens of frequencies. A great deal has been written about them in *POP'COMM*, so we won't go into them here — at least not in their most commonly heard form—the English or Spanish four or five digit transmissions. There is, however, a numbers broadcast with a bit of a different twist to it. This one is in Chinese—and it identifies itself (more or less!)

The New Star Broadcasting Station first appeared on shortwave in 1977. Every now and then someone would log one of these things, usually in Asia. During 1989 shortwave columnist Bruce MacGibbon began publishing somewhat more frequent and detailed logging of this station in his *DX Spread* newsletter.

These broadcasts were first thought to be of a "spy" nature, aimed at mainland China from Taiwan (or vice versa). Sometime later, another theory from a source who seemed knowledgeable, said the broadcasts were test answers to correspondence courses being taken by Chinese sailors. Now, Japanese monitor, Tetsuya Kondo, tells MacGibbon that the New Star Broadcasting Station does, in fact, operate from Taiwan. From what Kondo reports "New Star" has nothing to do with schooling. Kondo says the station (Chinese ID: Zherlishi Xingxing guangbo diantai) has four services. The last available schedule provided by Kondo was as follows: First Service: 11430 at 2300, 0000, 0030, 0100, 0400, 0600, 0800, 0900, 1000, 1100, 1300, 1400, 1500, 1600 and

1630. The Second Service: One 15388 at 2200, 2230, 2300, 2330, 0000, 0030, 0100, 0200, 0230, 0300, 0700, 1000, 1100, 1200, 1300, 1400, 1700. Third Service. 9725 at 2200, 2300, 0000, 0030, 0100, 0130, 0200, 0230, 0400, 0500, 0600, 0800, 1100, 1300, 1400, and 1700. And the Fourth Service uses 8300 at 2200, 2300, 2330, 0000, 0030, 0130, 0200, 0230, 0400, 0430, 0500, 0600, 0630, 0700, 0800, 0900, 0930, 1000, 1030, 1200, 1230, 1300, 1330, 1400, 1500, 1600, 1630, 1700.

It should be noted that this is a rather old schedule but it is all we have to work with. For reception in North America the best opportunity seems 8300 in local early morning hours.

The broadcasts, according to Kondo, begin with a musical selection followed by a station identification and opening announcement. This is followed by four or five digit number groups in Chinese, usually read by one of several female announcers. Those for whom the transmissions are intended appear to have personal ID numbers which are listened for in the transmissions. When the recipient hears his ID number he copies the material which follows. One example given by Knodo was "... to 3678, the 9th telegram of February."

Is the New Star Broadcasting Station actually an intelligence communications operation of the Republic of China? We may never know, but with a little careful tuning you should be able to hear it for yourself and perhaps draw conclusions of your own.

Another station, perhaps numbers related, perhaps not, is tagged by those who've heard it as the "Gypsy music station" because of the music it plays. If loggings are any indication of station activity this one makes only very rare appearances. The most recent reports we could find were in a couple of old issues of the *DX South Florida* bulletin. It was heard in 1983 to 2313 sign off on 6877 (this was said to be a



But right wing Radio Impacto rolls on from Costa Rica.

move from the earlier used 6823). A later reception in 1986 was on 6834 to 0412 close. The broadcasts apparently close with the words "Terminat, terminat, terminat." Apparently, the same classical music selection is included in each transmission. It seems likely that this thing is on the air more often than the logging evidence indicates, though still perhaps not very regularly. If it is some kind of numbers operation it may be that the music is used on those occasions on which there are no messages to be sent. It seems likely that this one is based somewhere in East Europe. If this one catches your interest you might want to stake out 6800-6900 in the evenings. Maybe you'll catch something.

For the past two or three years a non-shortwave Mexican broadcaster has occasionally popped up on some weird shortwave frequencies, only to vanish after a day or two. Radio Consentida in Mexico City is just your average, everyday Mexican AM band station using 1 kilowatt on 1560 kHz, with call letters XEFAJ. So what's it doing on shortwave? It's been spotted on such frequencies as 4899 and 6754 USB (and others) during our evenings. Combination reception reports and query letters bring no answer (hardly unusual for a Latin American station). So we are left with questions. Is



The Voice of Tomorrow — a white supremacist shortwave pirate.

it some kind of studio-to-transmitter link? Or is some Mexican point-to-point station making occasional use of the Consentida programming as a “marker”? Perhaps one of our readers in Mexico could phone or visit Radio Consentida and dig up an answer to this one.

Every time we tune in on a pirate station we have a mystery on our hands — at least until the FCC makes a bust and we get answers to such questions as who was operating the station and from where. The past couple of years have seen what may well be record numbers of pirates on the air. Most of these are what a VOA employee once described a “kid playing radio” but one pirate in particular has a more mysterious, even ominous air about it.

The Voice of Tomorrow isn’t interested in playing underground rock or satirizing TV commercials. The voice of Tomorrow preaches nothing less than white supremacy! Tuning in this station late at night with the only illumination coming from the radio dials and hearing VOT’s drum and wolf howl interval signal is sure to raise the hair on the back of your neck!

The station came on the air in June, 1983 as a spin-off of Radio Vanguard International. Programs support a fascist political ideology and glorify the Nazi regime of Germany in the 1930’s and 40’s. The broadcasts are racist and anti-capitalist. Openings and closings often include “Deutschland, Deutschland Uber Alles” and/or “Tomorrow Belongs to Me.” Although the station claims its transmitters are in Baltimore, Maryland the signal was one “DF’d” by the FCC to a location in the Roanoke-Lynchburg area of northwestern Virginia. VOT says its studios are in Providence, Rhode Island. When it is active—which is only about half a dozen times a year—it uses 6239, 7410 or 1509 (announced frequencies are 1616, 6240, 7410, and 15040).

The station does QSL reports, the most recent address being P. O. Box 314, Clackamas, Oregon 97015. Oddly, this is the same address used by a monthly tabloid called “The Patriot Review” which has been described as a “hardcore right wing” publication. The Review is published by an organization called the Christian Patriot Association, formerly of Clackamas but now in Boring, Oregon. It seems unlikely that this group would operate a pirate station so openly as to use its own address, so who is

running this show (the broadcasts are quite calmly and professionally done). Where are the transmitters really located? Why has the FCC given this pirate so little of its attention?

Out next mystery is in Costa Rica and SWL’s who have put in much listening time at all can probably guess this one already: Radio Impacto! Ostensibly, Radio Impacto is just another Latin American commercial broadcaster—except that it is large enough to support two shortwave transmitters and another on medium wave and still run very few, if any commercials! The program schedule includes a lot of hours devoted to support for the Nicaraguan contras and against the current Nicaraguan government, as well as programs against the Noriega government in Panama. The political viewpoints on this station are a virtual carbon copy of U.S. views on Central America!

Impacto’s studios are in a residential area of San Jose (San Pedro de Montes de Oca). No sign marks the building as a radio station and visitors are discouraged. The few who do get in don’t get much in the way of answers. One hopeful visitor reported fences and armed guards. One source says he believes the real owners of the station are anti-Sandinistas with connections to the contra leadership. An engineer at the station told a contact of the author he thought the CIA was behind the operation.

Whether it’s the Washingtonians, the anti-Sandinistas, or someone else, there’s another odd point about this affair. Some years back a station called Radio Noticias del Continente operated on shortwave from San Jose. Its broadcasts took a decidedly



Chiang Kai-Shek Memorial Hall in Taipei. The New Star Broadcasting Station seems to be Taiwan-sourced.

left wing view of the world. the Costa Rican government reportedly pulled the station's license because of this and it had to leave the air. Radio Impacto—certainly taking the opposite political path—is allowed to operate. Because the Costa Rican government doesn't mind? Or because pressure to let things alone is being applied from other quarters? Radio Impacto can be heard every evening on 6160 (formerly 6150) and 5030 (sometimes 5044) with its all Spanish language programming.

Last comes what is perhaps the most mysterious of the lot, Radio Caiman. This station first went on the air in the spring of 1985, though it would be some six more months before the station would make any announcements at all. The first half year was an all music, no talk program, airing the same music tape. That included a song by a man who sounded like a Latin Nat King Cole, so the station was soon dubbed "Radio Nat King Cole" by SWL's. The test ran on 9920 and 7400 in mornings and evenings. Late in September, the music only broadcasts abruptly ended and the station began regular programming, identifying itself as Radio Caiman (Spanish for Alligator or clever man). Since that time, Radio Caiman has been the most consistent and professionally operated clandestine in recent memory. A far cry from the typical anti-Cuban station using a converted ham transmitter or jungle-based voice of a guerrilla army trying to overthrow the government of the Republic of Parador. Not a bit of that. Radio Caiman is downtown stuff. There is solid money behind the operation.

Caiman's Spanish language programming is anti-Castro and takes the island dictator to task not only for what goes on in Cuba but for Cuba's involvement in Africa and Central America. But there is never any mention of a sponsoring group for the station, unlike other anti-Cubans such as La Voz del CID or the now silent La Voz de Alpha 66. No addresses are announced. The anti-Castro groups we've contacted in the past and asked about this station claim no knowledge of it. Our Congressman thought we were talking about Radio Marti! Some in the Cuban exile community, however, are reported to believe Caiman is operated or fronted by some sort of anti-Castro group based in south Florida. However, through its nearly seven years of existence clandestine chasers have been completely frustrated in attempts to secure anything in the way of hard facts—or even solid hints on this one and have been left with nothing more than speculation. Radio Caiman can be tuned in any evening on 9965.

So now the lady crunches her cigarette out, adds a handful of twenties to the clutter on your desk, pulls on her gloves, says she will call you, and slips out your office door. She's left you with several puzzles worthy of Jack, Doc and Reggie. And just in case you have, or come across, any clues on any of them we'd appreciate it if you'd let us know as well as her—when she calls.

PC

Radiodifusora Nacional

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DEPENDENCIA DEL MINISTERIO DEL INTERIOR
SAN SALVADOR, EL SALVADOR, C. A.

OFICINAS Y ESTUDIOS
ALTOS TEATRO NACIONAL
TELÉFONO: 43-76
CABLE: ALMACUS

No. 111

San Salvador, 9 de junio de 1964.-

Señor
Gerry L. Dexter.

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que recibí el 29 de enero de este año. Esta fué remi-
tida a la dirección de su anterior carta: 3016 29th Ave.
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tamente.

Alfredo Parada (h.)
Director de YSS
Radio Nacional.

QSL letter from Radio Nacional, El Salvador—now inactive for many years.

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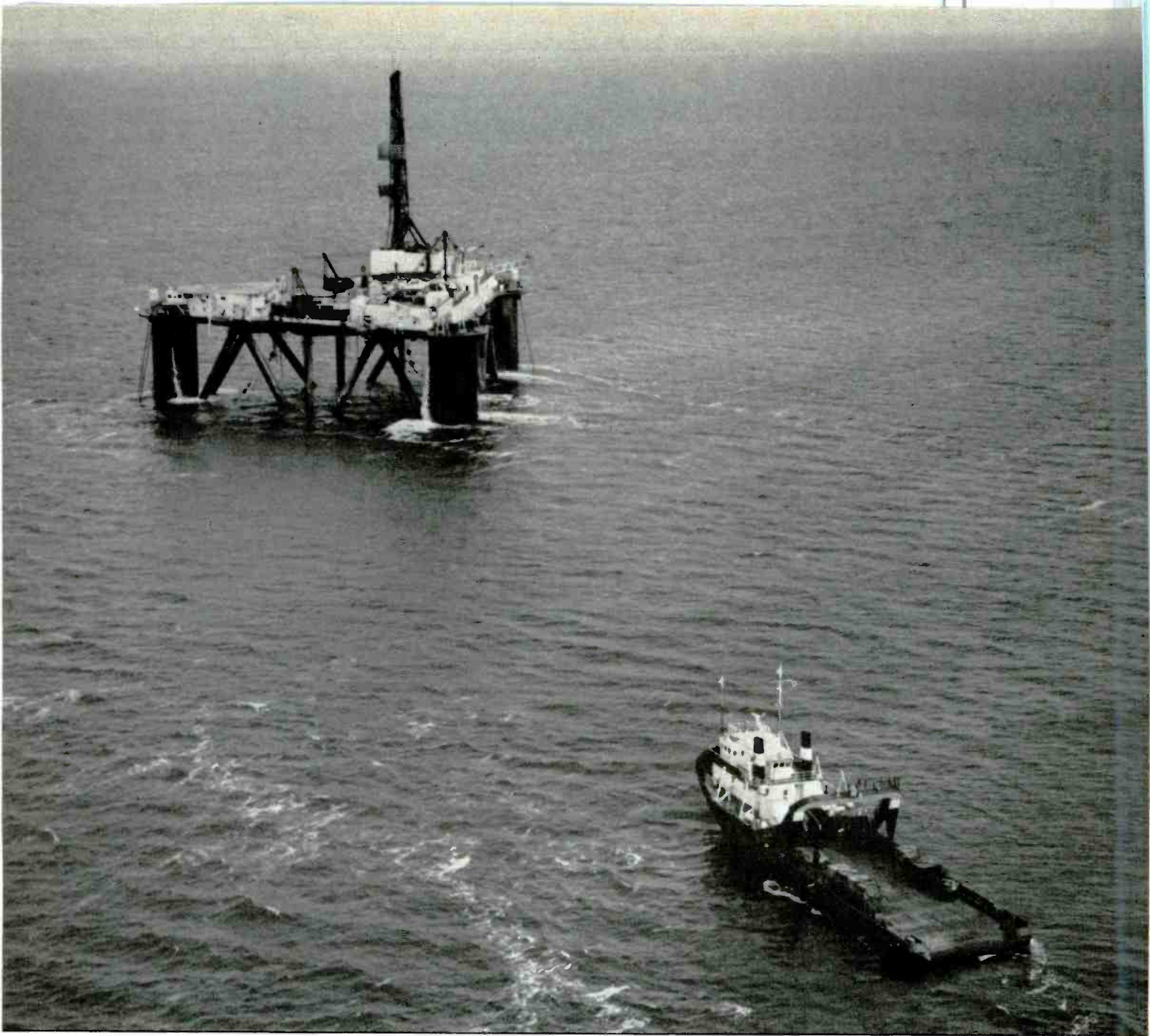
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CIRCLE 169 ON READER SERVICE CARD



Oil Rig DX

Tuning In On The Hunt For Engery In The Gulf Of Mexico

BY J.C. TUGWELL, KTX5SM

You may have heard that things have slacked off in the industries hunting and drilling for offshore oil and gas. You wouldn't think so if you witnessed the recent installation of Texaco's Green Canyon Block 6 deepwater oil and natural gas production platform that went into operation

last October. Far taller than the largest skyscraper in New Orleans, this massive rig can yield daily production rates of 60 million cubic feet of natural gas and 2,500 barrels of oil. The platform cost Texaco and Union Exploration Partners, Ltd. about \$32.5-million and represents part of an eventual

investment of roughly \$70-million the companies will spend to develop the lease on the drilling point.

Obviously, reports announcing the demise of the petroleum and natural gas industry have been in error. This is good news for lots of folks, not the least of which are

Table I

All Frequencies Listed in MHz

30.66	35.48	49.04
30.70	48.56	49.06
30.74	48.58	49.08
30.78	48.60	49.10
30.82	48.62	49.12
31.32	48.64	49.14
31.40	48.66	49.16
31.44	48.68	49.18
31.48	48.70	49.20
31.52	48.72	49.22
31.60	48.74	49.24
31.64	48.76	49.26
31.72	48.78	49.28
31.76	48.80	49.30
33.18	48.82	49.32
33.20	48.84	49.34
33.22	48.86	49.36
33.24	48.88	49.38
33.26	48.90	49.40
33.28	48.92	49.42
33.30	48.94	49.44
33.32	48.96	49.46
33.34	48.98	49.48
33.36	49.00	49.50
33.38	49.02	

Table I. Best bet skip frequencies in the Petroleum Radio Services.

monitoring enthusiasts since the hunt for energy in the Gulf of Mexico is a source of signals that can be tuned on HF and scanner bands. When skip conditions are working in the 30 to 50 MHz bands, scanner owners in far distant places can listen to the drilling and support operations.

Where to Tune

Almost every drilling rig has a helicopter landing pad. Also, the coasts of Louisiana and Texas are dotted with private helicopter landing bases operated by the oil/gas companies and also by private helo support service companies.

HF frequencies use SSB mode for air/ground communications and are 2878, 3019, 3434, 4672, 5463, and 5508 kHz. If you happen to be located within 50 to 100 miles of these coasts, it will pay you to set your scanner to 122.7, 122.725, 122.75, 122.85, 122.9, 123.025, 123.05, and 123.075 MHz for this activity in the VHF aero band.

General operations between the shore facilities of the exploration companies and the offshore rigs can be tuned, too. On your communications receiver, switch to SSB mode and listen on 2292, 2398, and 4637.5 kHz. Your best bet will probably be putting some of the 30 to 50 MHz band Petroleum Radio Service frequencies into your scanner, as these tend to skip great dis-

tances. Some of the best bet frequencies are shown in Table I. Be aware that many frequencies used by the oil/gas companies are shared with logging companies. Also, note that the FCC's rules permit many Petroleum Radio Service frequencies to be used by local fuel oil and gasoline delivery truck dispatchers and tankers.

As you might expect, there is a constant flow of supply and miscellaneous work boats operating between shore points and the drilling rigs. While many of these operate on frequencies found in Table I, virtually

all can also operate in the VHF-FM maritime band. If you're located near the coastlines of Louisiana or Texas, monitor: 156.05, 156.175, 156.35, 156.45, 156.50, 156.55, 156.90, 156.95, 156.975 and 157.025 MHz.

Then, next time the bill comes for your gasoline credit card, you'll have a much better idea of all the trouble that people are going to in order to extract energy from its hiding places beneath the ground. Not that it will make paying any more fun, but at least you'll understand!

PC

Feeling Left Out?

Have your favorite communications (Police, Fire, etc) moved to the 800MHz band? Are the scanners available which access this band too expensive? If you are like many scanning enthusiasts, this can be a real dilemma. For those of you who are still in a futile search for 800 MHz coverage on your hand held scanning radio, GRE America, Inc. has a product for you. Introducing the newly developed **Super Converter™ II** which has all of the features that you have come to enjoy in our

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CIRCLE 158 ON READER SERVICE CARD

Radio: The Early Days

Roaming Through History – and Taking Notes Along the Way

BY ALICE BRANNIGAN

In past columns, we have frequently commented that quite a number of early broadcast stations were primarily used as sales arms for their owners. A good example was KFKB, the station owned by Doc Brinkley, and run from his quack medical clinic in Kansas. Doc used the station to sell listeners remedies he claimed that could cure everything—headaches, neuritis, lumbago, and St. Vitus.

More commonly, many early broadcasters were owned by retailers who sold radio receivers. In small towns, especially, such stations gave local residents a reason to purchase a receiver because otherwise there was nothing to listen to during daylight hours when distant stations like KDKA, WLW, WEA, KFI, KOA, KGO and other DX regulars couldn't be copied. The usual scenarios for these small stations owned by radio set retailers was for them to operate on an extremely limited schedule and budget, with the owner of the shop spinning a few records and extolling the many benefits of his radio receivers, antennas, insulators, batteries, record players, piano rolls, sheet music, and other items he sold.

More than a few of these stations in the back rooms of radio shops soon ran out of steam and ostensibly turned into phantoms that existed in broadcast station rosters, but seldom actually operated. A wonderful anecdote concerning just such a station was related by broadcasting pioneer Russ Johnston in a recent issue of *FMC*, membership publication of the Family Motor Coach Association.

Johnston recalled that during the crystal set era, he worked for the National Radio Company, in Oklahoma City, OK. This little radio shop held a license for 50-watt broadcast station KFJF. It was a homebuilt station and didn't actually broadcast anything, being used only for test purposes. An example of its use that Johnston mentioned was a time they sold someone the cat's whisker, #22 double cotton covered wire, and other makings for a crystal set and sent the fellow home with instructions on how to wind the coil around an oatmeal container. The fellow went home, built the receiver, then phoned the shop to ask if they would put KFJF on the air so he could show his friend how it worked.

Johnston also noted that during the summer, static made it impossible to hear sta-

tions out of town, so they really didn't mind turning the station on for even one lone listener since they were in the business of selling radio parts and it would threaten the store's livelihood if people couldn't prove the sets worked!

Thanks to the several readers who sent this item.

Here's The FAX

The current explosion of facsimile (FAX) in the consumer market gives most people the impression that this is a relatively new technology. But no, it is more than sixty years old. About a year ago, I mentioned how efforts were being made in the late 1940's to popularize the concept of sending daily newspapers directly to people's homes by FAX signals sent out at night over AM broadcasting stations, I received about a half-dozen letters expressing serious doubts

that such could have ever been the case "because FAX is a new invention."

But, let's look at specifics. In late 1930, station W8XN (on 17143 kHz) in Oakland, CA successfully transmitted the front page of a San Francisco newspaper to the General Electric Company in Schenectady, NY. This transmission was conducted by G.E.'s engineers, C.J. Young and Dr. E.F.W. Alexanderson.

This was no more the same FAX technology that you are using today, any more than modern radio or TV technology resembles that used in 1930, but it was FAX, nevertheless. In the 1930 test, the reproduced newspaper page was made up on a roll of paper 8-inches wide. In the receiving system, a magnetic recorder tapped against a type of carbon paper that produced an impression on white paper. When the three strips of paper were placed side-by-side, they made



FAX by shortwaves, and in 1930. Photo shows Dr. E.F.W. Alexanderson and C.J. Young at the G.E. Labs receiving one of the strips that went into the final FAX printout.

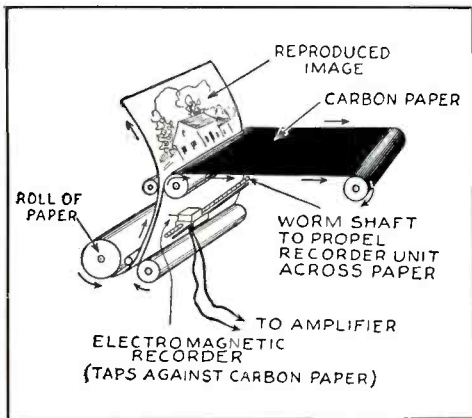


Diagram of the GE's 1930 FAX experiment.



The color FAX machine used in 1937 by Western Union. Still sounds like a pretty good idea, doesn't it?

up into a completed front page of the newspaper.

By 1937, FAX had become so highly sophisticated that in July, Western Union demonstrated that color FAX ("Colorgrams") could be sent by landlines between various cities.

This was accomplished by combining the recording photoelectric "spectrophotometer" developed by M.I.T. with WU's FAX system. The curves recorded by the spectrophotometer could then be sent over the wires and analyzed at a distant place for exact color matching. The service was suggested as being suited to the needs of advertising agencies, printers, designers, artists, cosmeticians, photographers, etc. Although this was 53 years ago, it is actually far more sophisticated than even the high-end office FAX machines of today.

During WWII, in the early 1940's, FAX was heavily used by the military for sending weather charts as well as tactical maps.

In all, it's quite a seasoned invention that's simply been hanging around in the wings for several decades just waiting to be discov-



The reproduced newspaper was made up of three FAX strips put side-by-side.

WTAR
Managed and Operated by
WTAR RADIO CORPORATION
MEMBERS OF THE COLUMBIA BROADCASTING SYSTEM

Office and Studios
SEABOARD AIR LINE RAILWAY GENERAL OFFICE BUILDING
NORFOLK, VIRGINIA May 6, 1932.

TELEPHONE NUMBERS
41828
25368

Mr. Joseph Leo Hueter,
1722 North 18th St.,
Philadelphia, Pa.

Dear Mr. Hueter:-

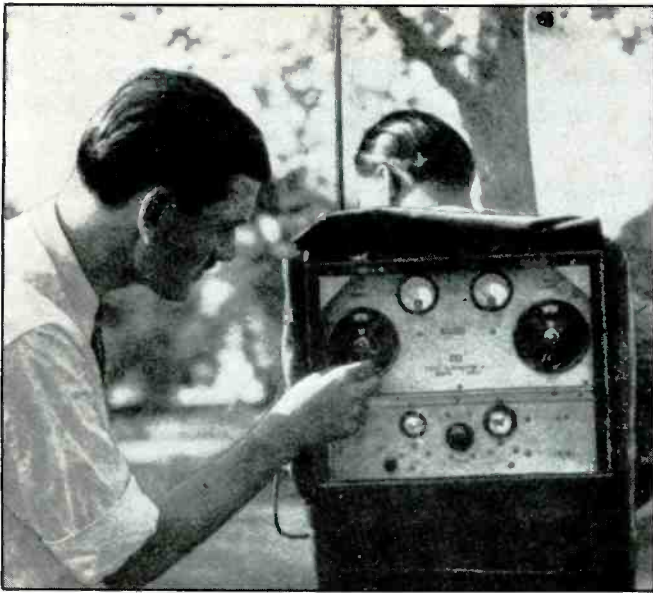
We are in receipt of your letter of April 29th requesting a verification of WPOR.

WPOR is an auxiliary call assigned this station when broadcasting from our sister city, Portsmouth, Virginia, and is used frequently on DX programs, but I could not verify your reception of WTAR as that of WPOR.

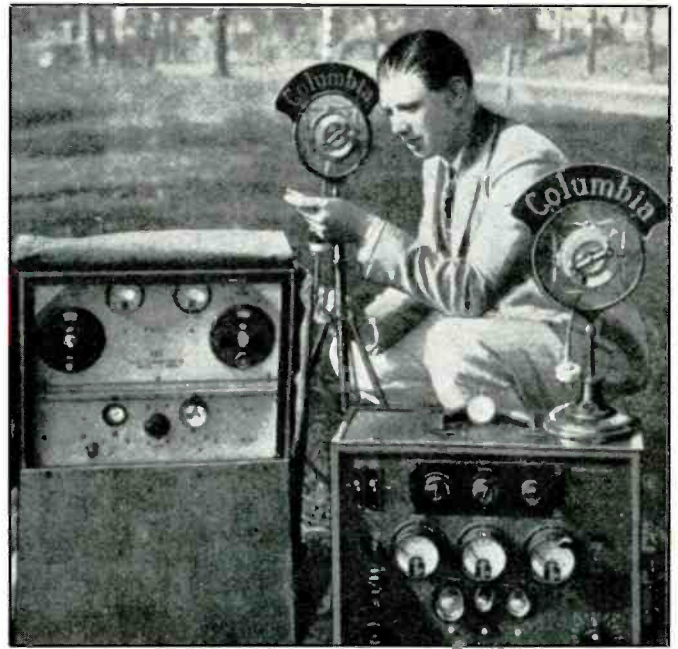
However, I will keep your letter on file, and if, at any time in the near future we use the call again, I will let you know.

Very truly yours,
WTAR RADIO CORPORATION
Grace Gatling
Grace Gatling,
Program Director.

In this 1931 veri letter to Joe Hueter, WTAR explained that WPOR was "an auxiliary call assigned this station when when broadcasting from . . . Portsmouth." The station declined Joe's request for a veri for the WPOR callsign.



An engineer was required to turn the W10XAC transmitter on and off, also retune the unit each time it was turned on.



The complete W10XAC installation consisted of the backpack transmitter, a receiver (right front in photo), and a 50-watt relay transmitter (left front in photo).

ered by the masses. Eventually, someone will probably create a sensation by "inventing" a machine that sends FAX'es in color! Wow!

Carry Me Back

A letter to POP'COMM from Joe Collins of Portsmouth, VA was forwarded to my desk. Joe wrote that he grew up listening to the great WGH, to WRVA, and to the legendary WTAR. Now, Joe has the privilege to work at WTAR in Norfolk and has become interested in learning as much as he can about its prehistoric past.

Thusfar, the WTAR lore seems to include that WTAR was the first broadcast station in

the state of Virginia, it is owned and operated by its original owners, the callsign has never been changed, and it still uses its original frequency of 790 kHz. Joe listed numerous other interesting bits and pieces of WTAR's lore, and certainly the station has racked up many "firsts," but those I noted above may not be too accurate.

WTAR began operating on September 21, 1923. This pegs it as a very early broadcaster, but it wasn't the first in Virginia. Listings for mid-1922 indicate the existence of broadcaster WSN in Norfolk on 833 kHz. It was owned by the Ship Owner's Radio Service, 519 Granby Street.

The original owner of WTAR was the Reliance Electric Co., 519 West 21 Street. The

station started its broadcasting career with 100 watts on 1070 kHz. In 1926, it had shifted to 1150 kHz, then it later went to 1270 kHz with 500 watts. In November of 1928, the station was ordered to move to 780 kHz in a major national frequency shakeup. It remained there until 1941, when the next frequency shuffle moved it to its present dial position of 790 kHz with 5 kW.

The station used to announce the slogan, "WTAR, Way Down In Old Virginia." While it has been WTAR right from the start, for several years in the late 1920's and early 1930's, the station was often known on the air with a dual callsign, WTAR/WPOQ. There is some possibility that the letters "TAR" in the callsign are a vague reference to the large U.S. Navy base in Norfolk; "tar" being an old colloquial word for a sailor.

WTAR runs an oldies format, and it's had the same owners since the early 1930's. This is quite a wonderful old station that I have had many occasions to hear and enjoy.

Backpack Radio

These days, network personnel covering conventions, sports events, and other special events are most likely using ultra-compact UHF remote transceivers with most of the works (including the antenna) right on the combination microphone-headset. It was not always thus, and in days of yore, it was not a job for the weak of back.

In 1931, CBS developed one of the earliest portable remote transmitters used for special events. It was somewhat less than compact, but it served its purpose within the limitations of the technology of the era.

The network person sent out to mix with the crowd was wearing a bulky radio (transmitter only) strapped to his back. It operated



Harry Von Zell shown with the backpack (left) and a 50-watt transmitter (right).

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List price \$499.95/CE price \$254.95/SPECIAL 12-Band, 100 Channel • Crystalless • AC/DC Frequency range: 29-54, 118-174, 406-512, 806-956 MHz. Excludes 823.9875-849.0125 and 868.9875-894.0125 MHz. The Bearcat 760XLT has 100 programmable channels organized as five channel banks for easy use, and 12 bands of coverage including the 800 MHz band. The Bearcat 760XLT mounts neatly under the dash and connects directly to fuse block or battery. The unit also has an AC adaptor, flip down stand and telescopic antenna for desk top use. 6-5/16" W x 1 1/8" H x 7 3/4" D. Model BC 590XLT-A is a similar version without the 800 MHz. band for only \$199.95. Order your scanner from CEI today.

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Bearcat® 800XLT-A

List price \$549.95/CE price \$239.95/SPECIAL 12-Band, 40 Channel • No-crystal scanner Priority control • Search/Scan • AC/DC Bands: 29-54, 118-174, 406-512, 806-912 MHz. Excludes 823.9875-849.0125 and 868.9875-894.0125 MHz. The Uniden 800XLT receives 40 channels in two banks. Scans 15 channels per second. Size 9 1/4" x 4 1/2" x 12 1/2". If you do not need the 800 MHz. band, a similar model called the BC 210XLT-A is available for \$178.95.

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on 2476 kHz with a power input of 7.5 watts. The low power and inefficient whip antenna gave it about a half-mile reliable distance, although under optimum conditions some spotty reception could be obtained a mile away. This backpack station had the callsign W10XAC.

Within range of W10XAC's signals, CBS would set up a manned 50-watt relay station to receive the feeble signals and then re-transmit them to the base location. The backpack ran on batteries. The relay station was powered by a dynamotor normally operated from power mains, but also operable from batteries in a pinch.

The backpack radio had no receiving facilities. It needed to be tuned up by an engineer after it was put into place on someone's back. It remained "on" until the engineer could shut it off, or until the batteries died. Those who wore this implement of torture for thirty minutes or more couldn't make up their minds as to which they hoped would die first, the battery or themselves.

Our 1931 photos of W10XAC show the unit being used by CBS announcer Harry Von Zell. He was a good sport about it all, and in later years became one of the best known announcers and personalities in radio and early TV. He worked on *The March of Time* and *Your All-Time Hit Parade*, and at various times was a regular on Burns and Allen, Eddie Cantor, Fred Allen, and Stoopnagle and Budd shows.

Another Approach

A different, but no less novel approach to remote broadcasting was tried by Battle Creek, MI broadcaster WELL (1400 kHz, 1 kW) in 1948. The WELL/WELL-FM announcers were assigned to cover sports



Who says broadcasting doesn't have its ups and downs? What about the time station WELL used a fork-lift for covering a sports event?



The Treasury agent at the left is using his BC-611 walkie-talkie to get recon information from a low flying aircraft during the moonshine wars of the late 1940's.

events at Gull Lake, MI. They decided to use an industrial fork-lift truck as a movable observation tower. A pallet-type platform was attached to the truck as the announcing booth, and the fork-lift was then driven from one location to another and could be raised for clear views of the field, or lowered for interviews.

The bus shown to the left on our photo belonged to Detroit station WJR.

The Moonshine Wars

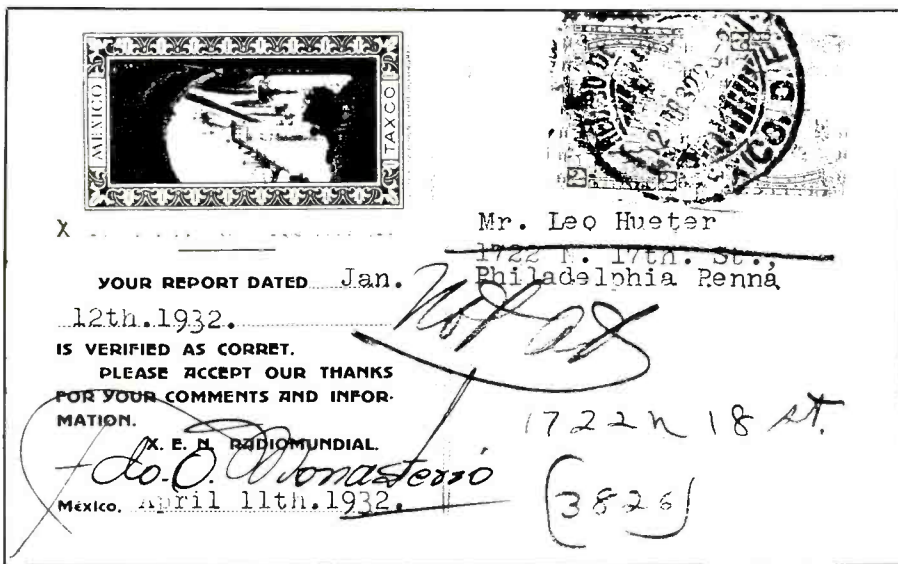
Although today's headlines and broadcast news lead items scream about efforts to catch members of the illegal drug trade, let's

turn back the clock to the 1940's and recall that the headlines were making much of the war on moonshiners being conducted, but it no longer makes the national media.

In the late 1940's, illegal liquor stills were being established in profusion throughout Virginia, North and South Carolina, Kentucky, Tennessee, Georgia, and Florida. In reaction to this, the Treasury's Alcohol Tax Unit, Bureau of Internal Revenue, declared war on the moonshiners. The agents used borrowed USCG amphibious aircraft to fly below 5,000 ft. altitude in order to spot the hidden locations of the stills. The aircraft would then send the locations of the stills to mobile strike forces on the ground who were



The scene at XEN, Mexico City, in 1931.



Here's the QSL that XEN sent to Joe Hueter.

listening on their WWII military surplus BC-611 walkie-talkies.

These radios flooded the surplus market after WWII, selling in used condition for less than \$50 each. These sets weighed 5 ½ lbs., and operated on a single crystal-controlled channel between 3500 and 6000 kHz. It was a 5-tube transceiver. Extending the antenna turned it on. Interestingly, in many instances when the revenueurs got to the site of a still, they found the moonshiners also had BC-611's for their own communications systems.

Soused on The Border

In earlier years, many Mexican "border blaster" stations were in operation. Often operated by Americans, these stations set up shop for the primary purposes of selling all sorts of quack medical and other prod-

ucts to American audiences. For the most part, the products offered could not be sold over American stations. Also, the border blaster stations had an uncanny knack of showing up on almost any frequency they found to their liking, and they often ran far more power than authorized. Some ran more than 250 kW!

Needless to say, these stations were an enormous nuisance to the American government, and to American broadcasters. Generally speaking, though, they built up large audiences and made lots of money. It was assumed that at least some of the money went into the pockets of Mexican officials who managed to find little reason to chastise them for violations. DX'ers loved these stations because they sent out tons of QSL's along with other literature and souvenirs.



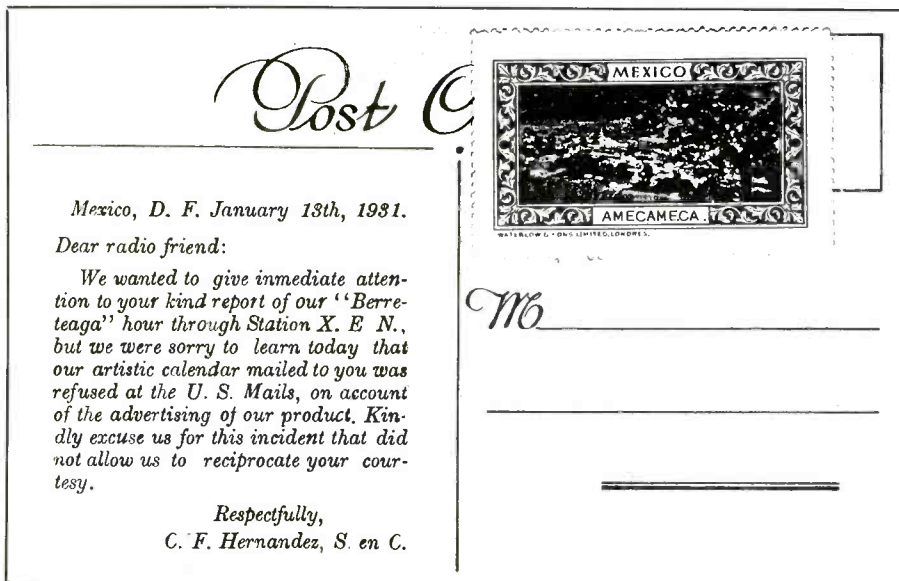
Here's the XEN calendar that caused all the ruckus. It features the station's own brand of sugar cane brandy. During the years of Prohibition, such advertising was banned from our mails.

Station XEN, "Radio Mundial, El Vocero del Mexico," wasn't a classic border blaster. Located in Mexico City, it wasn't very close to the border, and its 1 kW power wasn't too overbearing. But in 1931, it was on 710 kHz, and the only other stations in North America using that frequency then were 500 watt KMPC in Los Angeles, and 5 kW station WOR in Newark, NJ. That gave XEN a clear shot at a lot of American ears and wallets. In 1931, when the Prohibition law forbade liquor to be sold here, it inspired XEN to attempt to sell its product to its American listeners. That product happened to be a particularly potent libation called *Berreteaga*, a sugar cane brandy.

Those who sent XEN a reception report, got a QSL card. Under separate cover, they were also mailed an "artistic calendar," which was essentially an ad for their brandy. The U.S. Post Office, however, refused to accept these calendars and kept returning them to XEN. That caused XEN to send the listener a courteous postcard explaining that their "artistic calendar mailed to you was refused at the U.S. Mails, on account of the advertising of our product."

Joe Hueter, of Philadelphia, kindly furnished us with his XEN veri, also his apology card, and even an ad for the devil's own brew they were trying to sell him illegally.

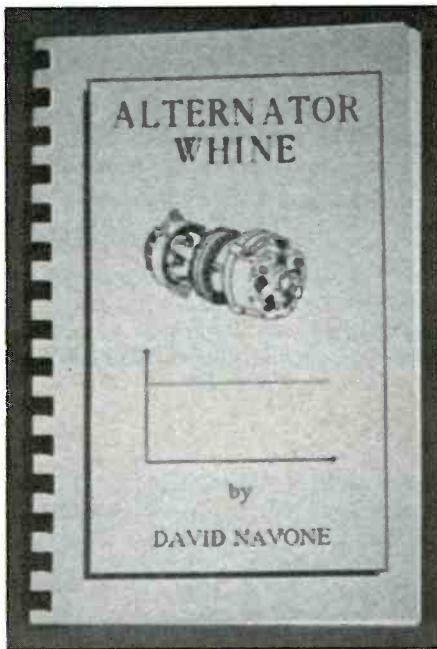
I see the clock on the wall that it's time to shut down the station here until the May issue. Thanks to those who generously supply our archives with old QSL's (good photocopies will do just fine), station photos and postcards, old station directories, comments, anecdotes, and good vibes.



XEN's American listeners got this apology card, although you'd have thought it would have been easier just to stop mailing out the advertising calendars that our mail service wouldn't accept!

Days of Whine and Noises

In the era when generators in vehicles kicked up such a noisy fuss in our auto-sound and communication gear, we all prayed that one day these beasts could be done away with. Then, one day they were ditched as the electrical systems in our vehicles began using alternators.



And we thought that generators produced a lot of noise! What we got with the alternator systems was a piercing whine that negatively impacted on the joy we might have otherwise had from listening to CB's, scanners, ham radios, two-way FM radios, car stereos, and anything else capable of producing sounds while the engine is running. The problem has been attacked, with varying degrees of success, by all manner of filters, chokes, capacitors, and other infernal gizmos and gadgets. Still, after all these years, many mobile electronics users have hearing their audio accompanied by this rally annoying whine given off by the alternator.

David Navone, N6SWX, who is an authority on getting rid of unwanted electrical noises, has addressed this problem in his book called simply, *Alternator Whine*. Drawing upon more than twenty years of experience, his 50-page spiral-bound book uses diagrams and non-technical terms to answer all of the most important questions about this vexing problem and how to clear it up. Yes, you can actually get rid of alternator whine without having to either waste a lot of money on gadgets that promise a lot but don't help, or that reduce the whine, but at the slight cost of screwing up the vehicle's entire electrical system. This is the book that tells you how.

Alternator Whine is \$14.95 per copy from Navone Engineering, 4119 Coronado #4, Stockton, CA 95204.

Proceedings

Fine Tuning is a DX hobby organization that publishes a newsletter relating primarily to rare and difficult SWBC monitoring, but sometimes also ventures into other areas. This information about the organizations was taken from the pages of their book entitled, *Fine Tuning's Proceedings 1989*. This reviewer has not seen any copies of the organization's regular bulletins, nor had ever before heard from the group prior to the arrival of a copy of *Proceedings*.

Proceedings, however, is rather an interesting and somewhat eclectic collection running to about 300 pages (spiral bound) of the writings of more than twenty advanced DX'ers who obviously know what they're talking about. These writings cover receiver and accessory reviews, antenna construction projects, plus features on DX'ing and SWBC stations, as well as tips and techniques for getting the most from the hobby.

While anybody interested in DX'ing should find *Proceedings* to contain an enormous amount of valuable information and very worthwhile insights, the seasoned and advanced DX'er interested in SWBC will still get a lot more out of this excellent material than the newcomer who still thinks the Auroral Zone is a glow that psychics see around people's heads.

Some features are done up on typewriters of varying sizes and styles, others are run out from computer printers. This gives *Proceedings* somewhat of a patchwork look, and the photo reproduction throughout is fair. However, this is isn't a commercial publication, it is the effort of a club that should be commended for assembling a collection of

material from DX'ers that know their specialties in such depth, and write about them so interestingly.

Fine Tuning, thusfar, has done a pretty good job of keeping itself so low profile that it was practically undetectable on even the most sensitive instruments. Let's hope that we hear more from and about *Fine Tuning* in the future. Seems to be a worthwhile group with something useful to contribute to the hobby. Their *Proceedings* book is a definite winner.

Fine Tuning's Proceedings 1989 is available at \$19.50, plus \$2 postage to addresses in North America. Make checks or money orders payable to *Fine Tuning Special Publications*, and mail orders to John Bryant, RRT #5 Box 14, Stillwater, OK 74074.

Hear Me, See Me

Anybody hoping to enter the world of broadcasting music recording, or video production will find the book *Audio/Video Production: Theory and Practice* to be a cornucopia of information. Written by Henry B. Aldridge and Lucy A. Liggett, this 336-page hardcover book is fully illustrated and treats these topics from virtually all aspects, including psychological, technological, economic, and organizational.

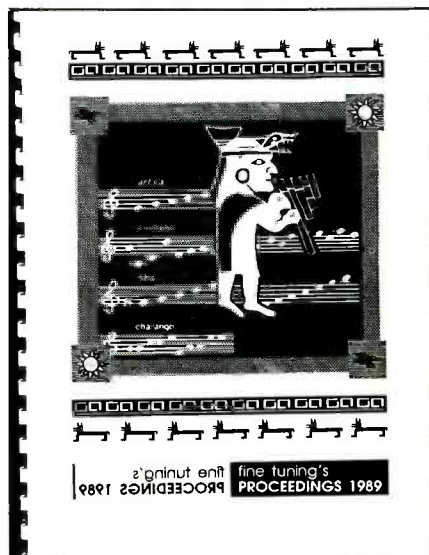
In the area of audio, there's information on production of radio talk shows and newscasts, also music recording. In the video area, you'll learn about doing interview shows, sports events, cable TV operations, corporate video, etc. You'll find out about studio and on-location operations, and read interviews with professionals who work in many fields of interest.

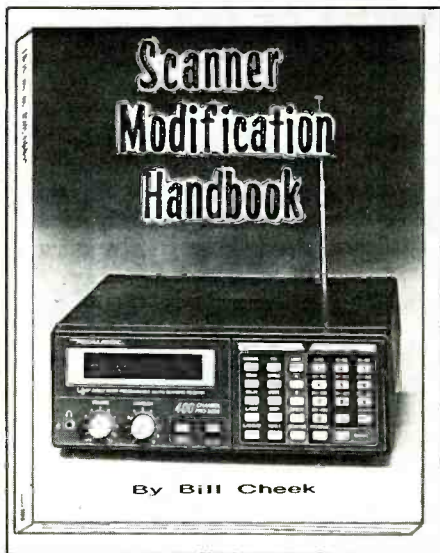
It's a good looking book crammed with facts. If you have a bit of the gift of gab, you might even be able to read this book and then bluff your way through an interview for one of those entry-level jobs you always hear about—the ones that start out at \$75K per year.

This book comes from Prentice Hall, Englewood Cliffs, NJ 07632. The publisher didn't tell us the price when they sent the review copy.

Getting The Most From A Scanner

Current scanner technology has opened the way for "scanner hackers" to devise absolutely ingenious methods of getting the receivers to do lots more than their original designers or manufacturers had in mind. Sometimes, all it takes is one snip of a wire cutter, or the simple soldering in of a single 25¢ diode in order cause major performance improvements, like adding 100





more channels, or restoring blocked out cellular (or other) frequency bands.

The scanner that started it all was the amazing Realistic PRO-2004, and its current successor, the PRO-2005. The design and popularity of these two scanners had caused them to be the focal point of most of the modifications that have been developed, although there are also some mods that can be done to the Realistic PRO-34 handheld, the Bearcat 200/205XLT, BC-750XLT, and the BC-950XLT. With some ingenuity, other scanners might also be modified using adaptations and variations of those already developed.

Bill Cheek, the communications technician known to many in the hobby under his nickname "Doctor Rigormortis," has rounded up, developed, refined, tested, and written about how to do these modifications (more than 20 of them) in his excellent new *Scanner Modification Handbook*. Filled with photos and step-by-step instructions, the book is prepared so that the average electronics hobbyist having basic circuit skills and readily available tools (soldering gun, wire cutters, etc.) should be able to perform the modifications.

Change one chip, add a dip switch, and you put 6,400 channels into a PRO-2004 or PRO-2005. Another chip-change turns the Realistic PRO-34 handheld into a 3,200 channel scanner. Other mods restore blocked out bands, add S-meters, improve the squelch action, speed up search/scan rates, improve tape record and headphone audio quality, disable the "beep," protect from voltage spikes and surges, and more. While most of the modifications are directed towards the Realistic PRO-2004 and PRO-2005, restoring factory-blocked cellular bands (plus other useful mods) are given for the PRO-34, and the Bearcats mentioned. There is frequency restoration information also given for the Realistic PRO-2021, along with a discussion of the mystery and controversy surrounding those modifications.

One mod I liked a lot, described in detail for the PRO-2004/2005 (but seemingly

readily adaptable to many other modern scanners), allows the interfacing of a scanner with any communications receiver. This adds many new performance improvements to the scanner, such as noise limiting, SSB reception, fine tuning, an S-meter, variable audio tone, etc. This was relatively simple and was accomplished in just over two hours without a hitch.

Also included in the *Scanner Modification Handbook* is other interesting and useful information. There's a chapter on scanning and the law; another chapter is devoted to scanner tips, hints, and kinks. One chapter explains how cellular phone systems operate and how the individual cells in each system are assigned specific frequencies according to a complex pattern (two full-page frequency charts reveal how it's done). He explains how electronic surveillance specialists might effectively follow a cellular call as it moves from one cell to another frequency in an adjacent cell.

The book then shows all different methods of getting emergency power for a scanner, and how to quickly construct emergency scanner antennas. He tells how to easily modify some discone antennas to improve their efficiency. He recommends specific coaxial cables (and warns about others), tells which scanner features are important and which are a waste. Throughout the book, there are photos, tables, diagrams, and schematics to make everything as easy to understand as possible, even for the hobbyist without technical expertise.

Cheek's big 160-page book is a unique and, I think, an important addition to the arsenal of information available to scanner owners and technicians. He writes with obvious experience and knowledge of his subject, plus a dash of dry wit. His instructions are accurate, clear, and concise; easily sufficient to permit the transformation of your

stock scanner into something far more versatile and valuable than it was when it first emerged from the carton. This, notwithstanding the fact that scanner manufacturers don't endorse or recommend modifications to their products.

The *Scanner Modification Handbook* contains the stuff from which fantasies come true. It is definitely one of the vital scanner books of the 1990's. Your favorite communications dealer may carry this new book, or it may be ordered by mail. The book is \$17.95, plus \$2 postage/handling to addresses in North America. Residents of NY State add \$1.35 sales tax. It's new from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725.

In Addition . . .

Are you one of the readers who has written to inquire why this column hasn't reviewed some particular book? Or have you asked us if we will be reviewing *this* or *that* book in the future? The way this generally works is that we do not write letters to sources of books and request that they send us copies for review here. If a book isn't submitted to this column for review, then most likely it won't appear. We do welcome all books, however, and try to select them based upon originality, usefulness, quality, value, interest, and our perception of the author's expertise. Books that appear to be too openly "inspired by" other books, or are thinly disguised duplications or blatant rip-offs attempting to cash in on the popularity of well-known authoritative books, are usually not bothered with in these pages. So, if a particular book hasn't appeared here, chances are that either it was never submitted for review (for whatever reason), or else we saw it and were less than totally impressed.

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Selected English Language Broadcasts

Spring 1990

BY GERRY L. DEXTER

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

Time	Country/Station	Frequencies
0000	R. Moscow	6000, 6045, 7115, 7150, 9685, 12050, 17605
	R. New Zealand	15485, 17705
	Spanish National Radio	9630, 11880
	R. Berlin Int'l, GDR (45)	6080, 11890, 13690
	V of Israel	9435, 11630
	R. Sofia, Bulgaria	9700, 11680
	R. Finland	9645, 11745
	R. Pyongyang, N. Korea	15115, 15160
	KVOH, California	17775
	R. Canada Int'l	5960, 9755
	R. Havana Cuba	11820
	WRNO, Louisiana	6185
	BRT, Belgium (30)	9925
	R. Budapest, Hungary (30)	6110, 9520, 9585, 9835, 11910, 15160
	HCJB, Ecuador	15230
	R. Kiev, Ukraine (30)	7400, 9765, 15180, 17665, 17690
	R. Beijing, China	15130, 17715, 17855
	Vatican Radio (50)	9605, 11780, 15180
0100	RAI, Italy	9575, 11800
	R. Japan	17775
	R. Yugoslavia	11735
	V of Germany	6040, 6085, 6145, 9565, 9735, 11865
	Radio Prague, Czech.	5930, 7345, 9540, 11685, 11990, 13715, 15540
	RAE, Argentina	11710
	V of Greece (30)	7430, 9420
	V of Israel	9435, 9930, 11605
	R. Austria Int'l (30)	9870, 9875, 13730
	KUSW, Utah	11695
	WHRI, Indiana	7315, 9495
	CBC, Canada	9695
0200	SRI, Switzerland	6135, 9735, 9885, 12035
	Radiobras, Brazil	11745



Time	Country/Station	Frequencies
	R. Bucharest, Romania	5990, 9510, 9570, 11830, 11940, 15380
	V of Free China, Taiwan	5950, 9680, 11740
	R. Cairo, Egypt	9475, 9675
	R. Havana Cuba	9710, 11820
	TIFC, Costa Rica	5055, 9645
	R. Korea (45)	9640, 15575
	R. Portugal (30)	9600, 9680, 9705, 11840
	R. Berlin Int'l, GDR (45)	6080, 11785, 11890, 15125
	R. Baghdad, Iraq (30)	9515
	R. Tirana, Albania	9500, 9760, 11825
	R. Sweden (30)	9695, 11705
	R. RSA, South Africa	9580, 9615, 11935, 15120
0300	R. France Int'l (15)	9790, 9800, 11705, 11995
	R. Netherlands (30)	9590, 11720
	R. Tirana, Albania	9500, 9760, 11825
	R. Cultural, Guatemala	3300, 5955
	R. Prague, Czech.	5930, 7345, 9540, 11685, 11990, 13715, 15540
	R. Beijing, China	9690, 11715, 15130, 17855
	R. Kiev, Ukraine	7400, 9765, 15180, 17655, 17690
	R. Yerevan, Armenian SSR (55)	9610, 11675, 15180, 17690
	R. Five, South Africa	4880
	HRVC, Honduras	4820
	R. Canada Int'l	9645
	BBC, England	6005, 6050, 6190, 7325, 9600, 11750, 11845, 15260, 15420
	TWR, Bonaire (30)	9535, 11930

Time	Country/Station	Frequencies	Time	Country/Station	Frequencies
0400	R. Bucharest, Romania Swiss R. Int'l R. Botswana R. Havana Cuba R. Berlin Int'l, GDR (45) V of Turkey R. Beijing HCJB, Ecuador R. New Zealand KUSW	5990, 9510, 9570, 11830, 11990, 15380 6135, 9725, 9885, 12035, 15125 4830, 7255 5965, 9710, 11760, 11820 11785, 15125 9445 11685, 11840, 15195 11775, 15155 15485, 17705 9815	1100	R. Pyongyang, N. Korea R. Beijing R. Japan TWR, Bonaire V of Asia, Taiwan R. Austria Int'l (30) HCJB, Ecuador Vatican Radio (45) R. Pakistan R. Korea	9600, 9977 9655, 17855 6120 11815, 15345 7445 13730, 21475 11740 9645 17565, 21575 15575
0500	V of Germany V of Nigeria R. Jordan (30) R. Austria Int'l Spanish National Radio R. Japan R. Moscow	5960, 6120, 9670, 9700 7255 13655 6015 9630 15195, 17825 7130, 7150, 7310, 9765, 9795, 11765, 11800, 12055, 13715, 15320	1200	VOPC, Cambodia R. Finland R. Norway (Sun) R. Tashkent, Uzbek R. France Int'l (45) V of Greece (35) R. Bangladesh (30) All India Radio (30) R. Jordan TWR, Bonaire R. Ulan Bator, Mongolia WSHB R. Beijing	11938 15400, 21550 15165 7325, 9540, 9600, 9715, 11785, 15470 9805, 11670, 17650 11645, 15630 15195 11620 9560 11815, 15345 9615, 12015 6150, 11930 11660, 17855
0600	HCJB, Ecuador V of Mediterranean, Malta GBC, Ghana R. Cook Islands ELWA, Liberia CBC, Canada R. Norway (Sun) WMLK, Pennsylvania R. Havana Cuba SLBC, Sierra Leone	6230, 9745, 11775 9765 4915 11760 4760 9625 5980, 15165 9465 11835 3316	1300	R. Finland Int'l R. Yugoslavia R. Pyongyang, N. Korea R. Beijing RCI, Canada FEBC, Philippines BRT, Belgium V of Vietnam R. Tashkent, Uzbek SSR (30) UAE Radio, UAE R. Norway Int'l (Sun) CBC, Canada	15400, 21550 11795, 15165, 15325 9600, 11735 11600, 11660, 11855, 15400 9635, 11855, 17820 11850 21810, 21815 9840, 12020 7325, 9540, 9600, 9715, 11785, 15470 15320, 15435, 17775, 21605 9590 9625
0700	TWR, Monaco (40) R. Netherlands (30) V of Free China KNLS, Alaska Swiss R. Int'l (30) KUSW	9485 9630, 15560 5950 9785 6135, 9535 6135	1400	R. Finland Int'l R. Norway Int'l (Sun) R. Beijing R. Japan R. Netherlands (30) HCJB, Ecuador R. RSA, South Africa R. Austria Int'l (30) R. Australia	15400, 21550 21710 11795, 11855 11815, 11865 13770, 17605 11740, 15115, 17890 21535, 21670 13730, 21490 5995, 6060, 9715, 11785, 15460
0800	BRT, Belgium R. Australia R. Norway (Sun) KTWR, Guam (05) HCJB, Ecuador R. Pacific Ocean, USSR (40) SIBC, Solomon Is	11695 9580, 9655, 11720, 15395 15165 15210 6130, 9745, 11925 12030, 12040, 12050 9545	1500	KNLS, Alaska KTWR, Guam RTM Morocco (30) R. Sweden (30) All India Radio (30) FEBA, Seychelles V of Greece (40) RFPI, Costa Rica KUSW, Utah R. Japan	7355 11650 17595 17880, 21610 9565 11865 11645, 15630, 17535 21565, 25945 15650 9505
0900	KTWR, Guam (30) FEBC, Philippines AWR, Portugal (Sun) R. New Zealand R. Afghanistan	11805 11850 9670 6100, 9850, 11780 6085, 9635, 15435	1600	R. Norway (Sun) BSKSA, Saudi Arabia BRT, Belgium (30) R. Pakistan	17765, 17840, 21705 9705, 9720 17580, 21810 13665, 15605, 17565
1000	R. Berlin Int'l, GDR R. Singapore KTWR, Guam R. Australia R. Netherlands (30) V of Greece (40) AWR, Guam V of Vietnam	11890, 15240 5052, 11940 11805 9580, 9655, 15415 6020, 9505 11645, 15625 13720 9755, 12020			

Time	Country/Station	Frequencies	Time	Country/Station	Frequencies
	V of Vietnam	12020		RCI, Canada	13670, 15260, 17820
	UAE Radio	11790, 15320, 15435, 21605		Spanish National Radio	15375, 15395
	R. Beijing	11715, 15110		R. Havana Cuba	15340
	R. France Int'l	11705, 12015, 17620, 17795, 17850		R. Austria Int'l (30)	12010, 13730
	R. Portugal	21530		VOIRI, Iran (30)	9022
	RAE, Argentina (30)	15345		R. Norway (Sun)	15220
				RFPI, Costa Rica	13660, 21565, 25945
1700	RCI, Canada (15)	15325, 17820, 21545	2000	R. Portugal	11740
	R. Moscow	11840, 15135, 15545, 17595, 17700, 17810		R. Netherlands (30)	9860, 13700, 15560
	R. Norway (Sun)	15305, 21705		R. Damascus, Syria (05)	9940, 12085
	WHRI, Indiana	15105, 13760		R. Havana Cuba	11920, 15180
	R. Nacional, Angola	11955		V of Israel	11605, 13750, 15485, 15640
	R. Japan	11865		BBC, England	9410, 11715, 11750, 12095, 15260, 15400, 17760, 17880
	R. Surinam Int'l	17755 (part/hour)		KUSW	15650
	R. Austria Int'l (30)	12010, 13730		Vatican Radio (45)	9625, 11700, 11760, 15120
1800	V of Greece (40)	11645, 15630	2100	R. Bucharest	9690, 9750, 11940, 15250
	R. Netherlands (30)	15560, 17605, 21685		RAE, Argentina	15345
	V of Israel	11585, 11685		R. Damascus, Syria (10)	9950, 12085
	RCI, Canada	13670, 15260, 17820		HCJB, Ecuador (30)	17790, 21470
	Radiobras, Brazil	15265		RCI, Canada	11880, 13670, 15150, 17820
	WRNO, Louisiana	13720		R. Baghdad, Iraq	13660
	KUSW, Utah	15580		WRNO, Louisiana	15420
	R. Jordan	9560		R. Sweden	9655, 11705
	R. Kuwait	13610		R. Cairo, Egypt (15)	9900
	Swiss R. Int'l	9885, 11955		R. Moscow	7370, 7380, 9865, 11695, 11840
1900	R. Afghanistan	9635, 9665, 11755		Swiss R. Int'l	9885, 13635, 15225, 21705
	HCJB, Ecuador	15270, 17790, 21470			

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	RCI, Canada	13670, 15260, 17820
	Spanish National Radio	15375, 15395
	R. Havana Cuba	15340
	R. Austria Int'l (30)	12010, 13730
	VOIRI, Iran (30)	9022
	R. Norway (Sun)	15220
	RFPI, Costa Rica	13660, 21565, 25945
2000	R. Portugal	11740
	R. Netherlands (30)	9860, 13700, 15560
	R. Damascus, Syria (05)	9940, 12085
	R. Havana Cuba	11920, 15180
	V of Israel	11605, 13750, 15485, 15640
	BBC, England	9410, 11715, 11750, 12095, 15260, 15400, 17760, 17880
	KUSW	15650
	Vatican Radio (45)	9625, 11700, 11760, 15120
2100	R. Bucharest	9690, 9750, 11940, 15250
	RAE, Argentina	15345
	R. Damascus, Syria (10)	9950, 12085
	HCJB, Ecuador (30)	17790, 21470
	RCI, Canada	11880, 13670, 15150, 17820
	R. Baghdad, Iraq	13660
	WRNO, Louisiana	15420
	R. Sweden	9655, 11705
	R. Cairo, Egypt (15)	9900
	R. Moscow	7370, 7380, 9865, 11695, 11840
	Swiss R. Int'l	9885, 13635, 15225, 21705
2200	R. Berlin Int'l, GDR (45)	9730, 13690
	R. Jamahairya, Libya	11815
	RCI, Canada	11945, 15325
	BRT, Belgium	9925
	R. Norway (Sun)	15225, 15265
	R. Mediterranean, Malta (30)	6110
	R. Havana Cuba	9865
	V of Free China, Taiwan	9852.5, 11805, 15345, 17612.5
	R. Yugoslavia	9660
	CBC, Canada	9625
	RAE, Argentina	9690, 11710
	V of Israel (30)	9435, 11605
	V of UAE	9595, 11985, 13605
	AWR Costa Rica	11870v
2300	R. Norway (Sun)	9605, 11785
	V of Greece (35)	11645
	R. Vilnius, Lithuania	9610, 11675, 15180, 17665, 17690
	R. Pyongyang, N. Korea	11735, 13650
	V of Turkey	9445
	R. Prague, Czech.	13715
	R. Korea, S. Korea	15575
	R. Tirana, Albania (30)	9500, 9760
	R. Moscow	7135, 9510, 9790, 11800, 12045, 15420, 17610, 17655
	R. New Zealand	15485, 177905
	WCSN	15300
	V of America	9640, 11880, 15225

NEW PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS

Miniature Speaker/ Microphones

MFJ Enterprises, Inc. announces the release of several new miniature speaker/microphones. They fit most handheld radios, are available with regular or "L" connectors and measure just 2" x 1 1/4" x 1/4".

In this tidy package you get a first-rate electret mic element and wide range speaker for superb audio on both transmit and receive.



These feature-packed speaker/mics also give you an earphone jack for private listening, push to talk button, swiveling lapel/pocket clip and a lightweight retractable cord.

MFJ-285 and MFJ-285L (with "L" connector) for ICOM, Yaesu, and Santec HT's; MFJ-287 and MFJ-287L fit Kenwood. All four models come with MFJ's one year guarantee.

For more information contact any MFJ dealer or MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762, or circle 103 on our Readers' Service.

New Transceiver

Japan Radio Company, Ltd. announces the introduction of the JST-135 HF ham transceiver. The JST-135 is designed for high-performance DX communications and built to professional standards with many advanced features and options.

- All-modular construction to facilitate option installation and servicing.
- Modes of operation include USB, LSB, AM, FM and AFSK.
- General coverage receiver with microprocessor controlled variable front-end tuning to enhance selectivity and dynamic range. Includes IF notch switchable AGC and 20 dB attenuator.
- The transmitter features a low distortion power amplifier which employs Class-A driver with same transistor as that of final



stage in order to reduce power: 150 W, continuous.

- Standard bandwidths are 2 kHz (SSB/CW Wide/AFSK), 6 kHz (AM), and 12 kHz (FM). Maximum two optional IF filters can be added internally. Optional bandwidths available are 300 Hz, 500 Hz, 1 kHz, 1.8 kHz and 2.4 kHz.
- Optional Bandwidth Control (CFL-243) narrows overall bandwidth in 10 Hz steps.
- Optional Notch Follow unit (CDD-366) automatically locks onto and tracks annoying beat interference, and rejects it.
- Optional ECSS unit (CMF-78) performs synchronous AM detection, and allows user to select the upper or lower sideband of any AM signal for optimum reception of broadcast signals.

Other options include: High Stability Crystal Oscillator (CGD-135); Tone Squelch Unit (CCL-212); RS-232C Interface (CMH-741); DC Power Supply (NBD-520); Antenna Tuner/SWR Bridge (NFG-230); External Speaker (NVA-88); Desk Microphone (NVT-56); Hand Microphone (NVT-57); Deluxe Hand Microphone with Up/Down Switches (NVT-58); Morse Key (KY-3A); Headphones (ST-3).

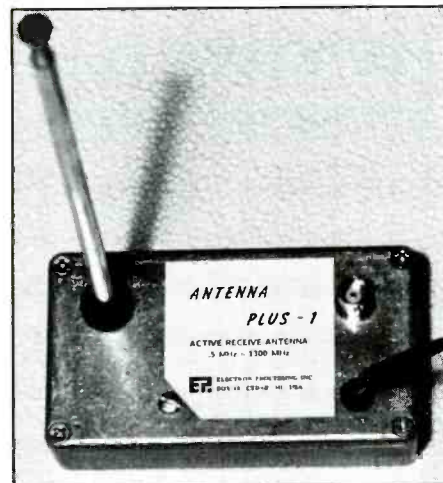
For free color brochure, price information and authorized dealer list, please write to Japan Radio Company, Ltd., 430 Park Ave, 2nd Floor, New York, NY, or circle 101 on our Readers' Service.

Desktop Active Antenna

Electron Processing, Inc., announced a new wideband receiving antenna that eliminates the need for huge outdoor antennas. The *Antenna Plus-1* provides ideal reception from shortwave through scanner frequencies including FM and TV.

Designed to sit on any convenient surface near your receiver, the *Antenna Plus-1* utilizes a proprietary coupling network and state-of-the-art MMIC chips to allow its 36" telescoping whip to perform like antennas hundreds of feet long. Compact size, rugged construction, and unobtrusive styling allow this antenna to bring in the most distant stations without creating an eyesore. The internal amplifier guarantees peak performance from 500 kHz to 1300 MHz.

The *Antenna Plus-1* is available with choices of BNC, F, SO239 (UHF), and N



connectors for connection to virtually any type of receiver. The antenna is powered by standard 115VAC with 12 volt DC and 220 volt Europower also available. A version with a built-in antenna splitter and second output jack are also available.

Pricing starts at \$89.95 for the standard model and \$109.95 for the dual output model with quantity discounts available. For a limited time, they are offering a special introductory price of \$79.95 for the standard model. To order or for additional information, contact Electron Processing, Inc., at P.O. Box 68, Cedar, MI 49621, or for info only, circle 102 on our Readers' Service.

Cushcraft R5 No-Ground Radial Vertical Antenna

The new R5 antenna is a third generation development of the highly successful 1/2 wavelength no-ground radial vertical antenna for 10, 12, 15, 17, and 20 meters.

The R5 has optimum current distribution for low angle radiation and excellent DX. The antenna is only 17 feet total height. It can be utilized for either portable or fixed operation and weighs only 9 pounds.

Automatic frequency selection of all 5 bands is accomplished through high Q traps and a broadband solid state impedance matching network that accepts 50 ohm input through a PL259 connector.

By incorporating a unique counterpoise ground system, utilizing four 48" long stainless steel rods, the antenna offers excellent RF decoupling for mounting in any location from ground level to roof top.

The R5 is ideal for limited space applications like apartments, condominiums and small lots. Weighing only 9 pounds it is easily transported for portable or motor home operation.

For more information, contact Cushcraft Corp., P.O. Box 4680, Manchester, NH 03108, or circle 104 on our Readers' Service.

Philippine Fed Foto File

POP'COMM Correspondent Snaps American Embassy Photos – is Checked out by Guards!

BY POP'COMM STAFF

Not long ago, Dave Torres, a *POP'COMM* reader, was in the Philippines. Always on the look for interesting communications-oriented sights to share with his fellow communications hobbyists, he brings his camera along wherever he goes. Manila proved to be worth the trouble.

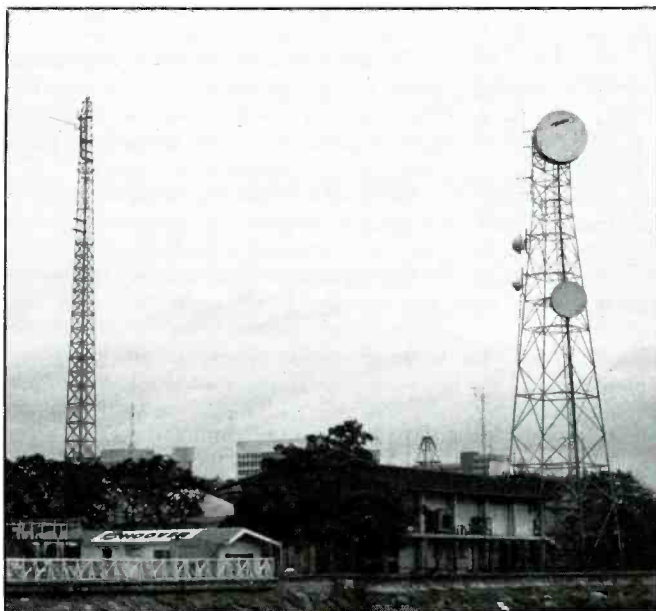
One of the most imposing antenna arrays in Manila sat atop the American Embassy there. Many towers and masts supported a vast assortment of antennas covering a wide range of frequencies, including microwaves. Inasmuch as the embassy overlooks Manila Bay, the facility has an unobstructed view of everything worth seeing—and hearing.

Dave began snapping photos for us when the front gate of the embassy compound quickly swung open and a car came speeding out. It stopped directly in front of him and two large men got out to ask him what he was doing there. Dave displayed his press ID and told them that he was taking a photo of our embassy.

What especially caught Dave's attention during the incident was that the ID cards



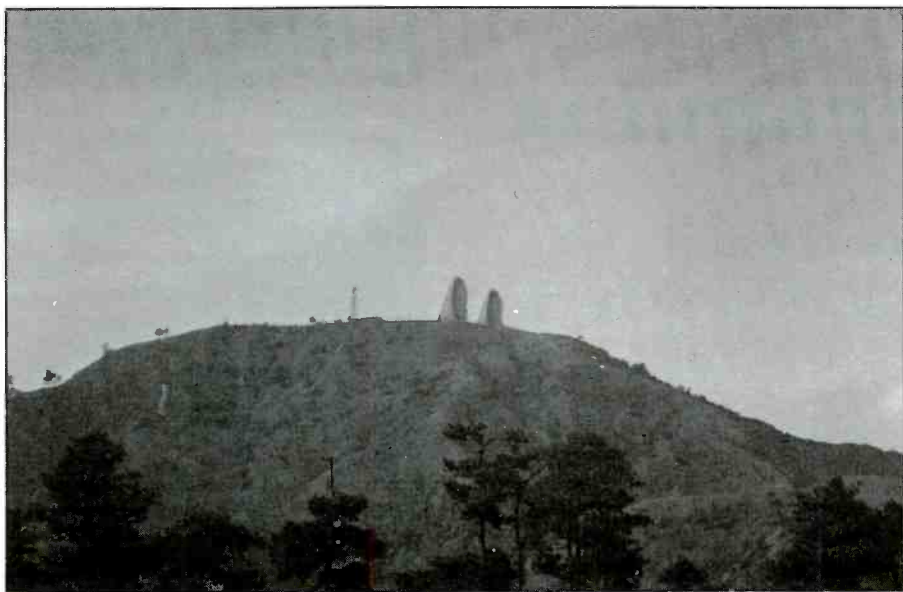
Dave says that the security people arrived as he was snapping this photo of the antennas at the American Embassy in Manila.



Around the back of the embassy, from the bay side, you can see everything from HF to VHF and microwave antennas.



Another view of the embassy compound as seen from Manila Bay.



The first view of the U.S. Air Force OTH radar facility at Baguio.

these fellows were wearing one their chests said "NSA," which is generally understood to signify the National Security Agency. After looking over Dave's ID, they returned it to him and said to him there wasn't any problem, then they left as suddenly as they had arrived.

The incident made Dave wonder all the more about the antenna farm on the embassy, and what it was used for. Our guess is that while some of the antennas may well be used for two-way HF Department of State comms, and perhaps for local VHF comms in Manila, the other antennas are most likely used for heavy duty monitoring operations as part of the NSA's worldwide intercept network. What with the Philippines being one of the world's crossroads of political intrigue, its no wonder that persons showing

extra interest in the embassy compound and its antennas brought out the security patrols!

While in Manila, Dave reports that he found lots of activity on the frequency used by the National Police. This frequency (which has never before been published) is 150.36 MHz. The ID is "Thunder Base." They do not appreciate people monitoring (or even knowing about) the frequency.

North of Manila, Dave visited Baguio to get a look at the Voice of America relay station located there. This location is about 5,000 feet above sea level and Dave couldn't help but notice the enormous radar antennas installed there by the U.S. Air Force. Local residents said it was used for detecting low altitude aircraft, which Dave interpreted as meaning it was an over-the-horizon "woodpecker" type of arrangement.



The two large OTH radar antennas present an awesome sight perched atop the mountain.

MFJ SHORTWAVE ACCESSORIES REMOTE ACTIVE ANTENNA

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

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

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

Covers 50 KHz to 30 MHz. High dynamic range eliminates intermodulation. Control unit has 20 dB attenuator, gain control. Lets you switch 2 receivers and auxiliary or active antenna. 'On' LED. 6x2x5 inches. Remote has 50 ft. coax and connector. 3x2x4 in. 12 VDC or 110 VAC with MFJ-1312, \$9.95.



INDOOR ACTIVE ANTENNA

MFJ-1020A Now you'll rival or exceed the reception of outside long wires with this tuned indoor active antenna. "World Radio TV Handbook" says MFJ-1020 is a "fine value ... fair price ... best offering to date ... performs very well indeed."

Its unique tuned circuitry minimizes intermod, improves selectivity, reduces noise outside tuned band. Functions as a preselector with external antenna. 0.3-30 MHz. Telescoping antenna. Controls are Tune, Band, Gain, On-Off/By-pass. 6x2x6 in. Use 9 Volt battery 9-18 VDC or 110 VAC with MFJ-1312, \$9.95.



ANTENNA TUNER/PREAMP



MFJ-959B Don't miss rare DX because of signal power loss between your antenna and receiver.

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

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

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Disaster Scanning

Earthquakes! Hurricanes! Wars! The Safest Way to Witness Them is via Low Band Skip!

BY CHUCK ROBERTSON

If only one thing could be said about the monitoring hobby, it would be that when disaster strikes, you can still be one of the first on the scene without having to leave the safety of your own home—even from a thousand miles away. And, while HF bands produce their own share of exciting comms, my personal preference is for the action in the 30 to 50 MHz “VHF Low Band” which can produce loads of excitement.

Favorable propagation conditions can turn your scanner into a news-gathering center, bringing in distant base and mobile comms from hundreds or thousands of miles away. Program in the right 30 to 50 MHz frequencies and you’ll have the inside scoop on all of the behind-the-scene drama and action.

Shake, Rattle, and Roll

When the earthquake struck the Bay Area of California, there were no quick estimates as to the extent of the damage. Initial estimates from the broadcast media were only guesses, and the morning light revealed how wrong they were. It was the worst earthquake to strike the area since 1906.

The morning after the quake, I turned on my scanner and looked around—not quite sure of what I would hear. I didn’t know if there would be two-way activity left in operation. Only a few Business Radio Service mobile units were up and active at the early hour I was monitoring. A businessman on 35.06 MHz was saying, “It’s bad over here. Cracks in the street, and up the walls of the house. It’s worse than the newspeople said. I shut down my electrical appliances. My gas meter was running on and on.”

Meanwhile, on 35.96 MHz, someone was heard to say, “It’s a mess up here. Don’t try to follow me.”

Helicopters assessing the damage seemed to be everywhere. On 34.50 MHz the military comms were non-stop. “Army 801 to Hamilton Advisory—We have cracks in the Crystal Springs Dam, I can see a wet spot. Ask the Army Engineers for an inspection. The dam north of Crystal Springs is OK.”

Other helos on 40.10 MHz checked out the highways and reported traffic jams while the base station passed on to them messages that they were picking up from the UHF aero band. Emergency supply deliveries were also being coordinated here, “Idaho 76, take your load to Watsonville.”

Monitoring 32.10 MHz produced California National Guard personnel involved with the removal of fallen concrete slabs from the devastated Nimitz Freeway in Oakland, “EOC says that when you get through moving those three poles, return the jackhammer and shut down operations.”

Stranded and injured motorists rescued from the Nimitz Freeway were put up at the Marine Support Station on Treasure Island; you could hear the comms relating to this taking place on 36.60 MHz. Other bases on this frequency were at Alameda and Oakland, “We’re waiting for the FEMA driver.”

Santa Clara County was especially active on the air, and estimates of injuries were being tallied on 37.08 MHz: “Apparently we have fifty injured at Hillcrest.” The dispatcher requested each reporting base to give their ID “for the record.”

See Table I for more quake comm frequencies. Of course, the scary thing is that as severe as the recent quake was in the Bay Area, it’s probably neither the last of the area’s quakes, nor the worst Bay Area residents can expect to face. My own local area, in Illinois, sits atop the New Madrid fault. In 1811, it produced the worst quake ever reported in North America. Who knows what might happen to the heartland of the nation if this baby slips again. That made more than casually interested in following the California quake.

Blowin’ in The Wind

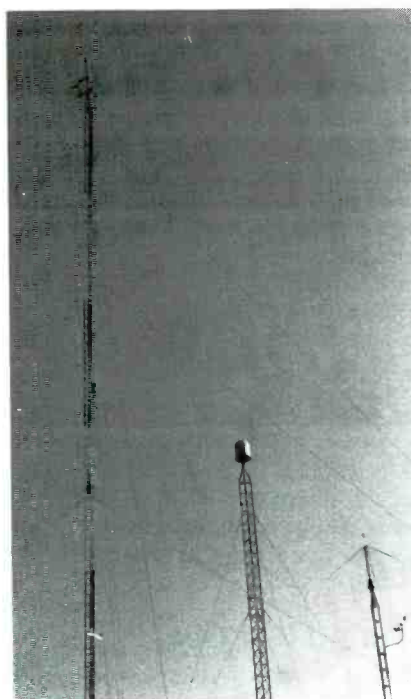
Hurricane Hugo, for whatever reason, was one of the most powerful hurricanes of the Twentieth Century. When it came roaring into the U.S. Virgin Islands, it damaged or totally destroyed virtually all structures and utilities on St. Croix.

In the immediate aftermath of Hugo, it seemed as if the entire governmental struc-

ture of St. Croix had been given a knockout punch. Law enforcement operations were disrupted, with reports of widespread looting by police and national guard personnel, as well as by the general population.

Washington had to dispatch more than one thousand MP’s to help restore order to the island. Two MP battalions (of three companies each) and a headquarters unit, plus one hundred US Marshals and FBI agents





A trio of Civil Defense agency towers that include low band antennas.



Many Civil Defense agencies rely heavily on low band comms.

were airlifted to the island.

Near-anarchy awaited them. The first group to arrive moved quickly to establish a mobile control tower at the wrecked airport. It wasn't long before all sorts of comm frequencies were put in action to serve many purposes. Suddenly, my scanner lit up with roving security patrols, stakeouts, food and water distribution, delivery of generators and heavy equipment, plus much other

emergency traffic. I had a front row seat for the law enforcement and clean-up operations on St. Croix.

Security patrols and other missions were coordinated on the battalion channel 37.05 MHz: "The refrigeration company has received a shipment of ice. We need security for an unruly crowd here at the warehouse. Have soldiers stand by with helmets and riot shields."

"Foxtrot 98, we have a report of a large crowd at Sunny Isle Shopping Center at the taco stand."

"Subject arrested. He had the key to the stolen vehicle in his possession."

"Send joint patrol to the office of the Governor at Christianstad, meet FBI agents there."

Two of the "best MP's" were sent to "brief ABC correspondents for Nightline." Three

days saw F2 layer DX openings well above 50 MHz. New and exciting comms were logged weekly, including exotic foreign traffic as well as disaster comms within the U.S.

This month (April) will see more great band openings, especially to the Caribbean. Openings to Europe, Asia, and Africa should also occur. It's not too late to hear great DX in the 30 to 50 MHz scanner band, but don't wait much longer. As Spring digs in, those wonderful F2 openings will fade away and be replaced for a while by short-hop Sporadic-E skip. Now is the time to search 30 to 50 MHz, or even as high as 88 MHz, for the drama of the world to unfold before you, arriving via your scanner as-it-takes-place.

The information in this report, plus the additional listings tables provided, should help you log all those distant stations.

1989-90 Low Band DX Loggings

SS= Spanish; PP= Portuguese; EE= English; BI= Business; MUX= Voice Multiplexing; BWI British West Indies English.

29.70: EE, a ham who works for US Dept. of State in Caracas, Venezuela working USA hams.
 29.815: Mid-East lang.; a beep after each xmsn.
 29.8175: Duplex phone circuit in SS.
 29.875: PP BI (Brazil).
 29.895, 29.905: SS duplex phones.
 29.90: Me. can BI in SS.
 29.965: SS outbender, Santa Rita.
 30.00, 31.24, 36.30, 37.475: USSR mil clear voice number counts: Adin, Dva, Tri, Chitiri...
 30.055, 30.135, 30.145, 30.335, 30.515, 30.835, 49.80: Duplex phone circuits, BWI.
 30.125: British duplex phone; either UK or West Indies.
 30.30: US mil range control is southwest: Renegade; "Tornado 5 miles east."
 30.335, 45.45: Cuban duplex phones, Havana.
 30.45: MUX net, US mil. Constant tone.
 30.5075, 36.50: French duplex phones.
 30.875: Repeater-out. A foreign station that regularly repeats US BI skip.
 31.15, 32.725, 33.3625, 33.3925, 33.45, 33.525, 33.775, 34.325, 36.50, 38.05, 40.18: USSR mil, clear voice & time domain scrambling.
 31.30, 32.05, 38.05: Afrikaans, RSA.
 31.375: Non-voice pager, maybe Europe.
 31.50, 49.11: EE duplex phone, maybe US pirate.
 31.70: US/SS mil exercises: Tango 15; Bod Guy says, "We have two casualties."
 31.83: SS pager. 2-tone voice msg.
 32.075: US mil ops in UK, NBFM.
 32.10: Dutch from Netherlands Antilles. Also Cal. National Guard looking for missing personnel at Big Bear.
 32.25: US mil exercises in Central America, "Troops are going down for escortment."
 32.315: PP BI, maybe northern Brazil.
 32.425, 33.125: Hebrew Comms.
 32.45: Jamaica: "Meet the Governor this afternoon. It's a question and answer thing."
 32.80: SS pager, Argentina.
 33.225, 33.375: Arabic.
 33.25: Middle East.
 33.25, 33.35, 33.375: MUS mil MUX. Constant tone.
 33.54: PP Brazil, police or ambulance.
 33.60: Repeater out (37.125 in). Cuban BI station repeats US police skip from 37.12. Also see 37.125. French repeater out, CCIR tone access.
 33.65: US mil exercises in Central America: Packman, Team 11.
 33.775: Dutch mil, Netherlands Antilles.
 33.8075: Continuous data flow, Europe or Middle East.
 34.25, 34.30, 34.35, 34.40, 34.50, 34.55, 34.60, 34.70, 34.75: Turkish repeaters.
 34.29: Oriental.
 34.35: Afrikaans, RSA, mil or police.
 34.40, 36.075, 36.225, 36.425, 36.575, 36.825, 36.925, 37.00, 37.225, 37.275, 37.725, 38.125, 38.275: USSR ops, ministries & projects.
 34.40: US mil war games, Europe, maybe W. Germany. "Tank battalion has engaged Spetznaz."
 34.70: S. Korean mil.; also SS mil, "Uno, Venezuela."
 35.0875, 35.1875, 35.2625, 35.2875, 35.60, 35.9125, 44.55, 41.00: France, repeaters with CCIR tone bursts, probably police use.

35.60, 35.63, 35.72, 35.75, 35.78, 35.81, 35.84, 35.87, 35.89: Colombian duplex phones. Those on 35.75 & 35.81 often aboard boats.
 35.78: MUX half-duplex phone, comes in with skip from Europe.
 35.85: Repeater out, France, maybe police.
 36.00: German mil, some EE, position report.
 36.025, 36.10: Oriental.
 36.025: Repeater out, France, police.
 36.05: Repeater out, US Dept. Energy at Nevada Test Site, "ATZ on ground zero."
 36.125, 36.975, 37.775: USSR repeaters with tone burst access.
 36.485: BWI, power utility maintenance with comms + pager, "Skyway to 20."
 36.525, 36.625, 36.875, 37.175: USSR ops, alerting tones used.
 36.60: Repeater out. Foreign sta repeats US skip from 33.60 such as Canton Twp. FD in OH, also Winchester, CT. See 37.125 MHz info. Also RSA in Afrikaans & EE, "Plaza National."
 36.65: SS & EE mil, Control Alpha. Also voice & tone paging, maybe Hawaii.
 36.70: US mil, ID as Apache.
 36.775: USSR ops, ID as Platform. Tone bursts used. Possibly a repeater.
 36.85: US mil in Puerto Rico, Ramey AFB: Angel 8, "Drop bombs at 1000 feet."
 36.985: BWI, like 36.485 MHz.
 36.95: USAF exercises, maybe Europe, "Aircraft in Siberia on Screen." ID as Eagle 2.
 37.00: RSA police, Afrikaans & EE.
 37.05: RSA police, Soweto, EE, Afrikaans & a Bantu language.
 37.125: Repeater out (33.60 in). This SS BI repeater often plays out US FD skip.
 37.20: Repeater out, rebroadcasts distorted SS skip.
 37.55, 37.72: Repeater out, PI, Brazil.
 37.85: US tracking ops keeping tabs on suspect dragging around a tailing transmitter: "Update Track 73. Now at Kennel heading southwest; Now at Licorice heading south. Update Track 73. Now at Jello 79 heading southwest." In fed agent slang, the term Kennel means a police station.
 38.075: Oriental mil.
 38.15: Repeater out, even keys up on noise.
 38.26: Repeater out, PP Brazil.
 38.425: SS duplex phone, repeats US PD's.
 39.65: Venezuelan duplex phone. Other Venezuelan phones found 39.50 to 40.00 MHz in 25 kHz steps. Other S. American phones between 34.50 and 35 MHz, also 45 and 46.50 MHz in 25 kHz increments.
 39.75: US MP's in Seoul, S. Korea. ID as Protector Foxtrot.
 40.16, 40.18, 40.22: Repeater out, PP but rebroadcasts US & Canadian skip.
 40.50: Non-voice pager, maybe Europe.
 40.53: Telemetry, switching tones.
 40.55: Repeater out, France, CCIR tone bursts.
 41.00: Palmerola AFB, Honduras with US & hispanic mil ops, ID as Palmerole Range. Also heard here was a Turkish phone circuit, plus a repeater out with US BI skip.
 41.09: Non-voice paging.
 41.455: SS messages to people in San Jose, Costa Rica. The 41 MHz band has many of these.

41.975: Repeater out, SS BI but repeats US PD's.
 42.15: French: "Controle de Paris."
 42.80: Repeater out, SS BI.
 43.28: Repeater out plays US BI skip.
 43.9175, 44.835, 44.985: SS duplex phones.
 46.10: SS BI repeater out has US skip.
 46.11, 46.20, 47.13: Hebrew (some EE) duplex phones.
 46.25: New Zealand video.
 46.375, 46.55, 46.55, 46.85: French repeaters with unusual fast, fluttering tone-burst access.
 46.38: Brazilian duplex phone.
 46.50, 46.56, 46.725, 46.80, 46.83, 46.90, 46.975, 47.70: Duplex phones. When calls are finished, open carriers remain with occasional tone bursts. Very odd format. Un-ID language with some German & EE phrases tossed in.
 46.54: Repeater out with US skip.
 48.25, 48.75: European TV video.
 48.975: Repeater out, SS BI has distorted comms of US school buses & other BI's.
 50.00: US mil range control.
 50.10: Police, Mexico City.
 50.74-50.76: New Zealand TV audio.
 67.40: US mil: Patrol 1, Cowboy, Rat Rig.

California Quake Comms Log

29.55: Hams in Bay Area.
 29.80: Bay area outbenders.
 30.96: School buses.
 31.14: San Francisco metro buses.
 31.16: Business, "Water line broken and it's flooding."
 31.35: US mil clean-up crews.
 32.50: Convoy enroute from Edwards AFB, "Get the 40-ton roller kit up to San Francisco tomorrow." Trail 1, Trail 3.
 33.06: Santa Clara ambulances.
 33.08: Search & rescue, "Send Medic 12 to Alameda."
 34.00: US mil, but mostly chit chat.
 34.50: Hamilton Advisory, Crisroy Advisory, 6th Army EOC, Rescue 621. Jolly 87, Idaho 338-- all helos in Bay Area. Mentioned UHF 228.65 & 232.2 MHz.
 34.60: Bay Area helos, Idaho 336.
 34.70: Mil: "Planes out of Oakland haven't taken off yet."
 35.00: Mil patrols, "Sign out manpacks tonight."
 35.75: Mil personnel discussing network TV coverage of quake.
 35.98: Business, "Power down...can't even get across bridge. You'll have to walk this side of the bay."
 36.60: Alameda Fleet Landing, CI Fleet Landing, Treasure Island, Oakland, (vessel) Kansas City, NBGI, Orffish 895, Cord 40.
 37.90: Electric power utility ops.
 40.10: Mil helos, base ID was AAA.
 41.05, 42.00: Radio checks.
 42.08: Base ops for 42.28 mobiles-- CHP comms in Bay Area. Also simplex ops 42.08 MHz.
 42.42: CHP bases (mobiles 42.84) around Oakland.
 42.50: CHP in San Jose area to mobiles on 42.82.
 45.52: Clean-up ops, Alameda.

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WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Contrary to what we were led to believe in their newsletter, High Adventures Ministries' new Guam station, KHBN, is still a good distance from being on the air. In fact, as of late last year, construction had not yet even started due to some legal problems involving the land on which the station will be built. Nonetheless, High Adventures is on the air from Guam, via the facilities of the Adventist World Radio's KSDA. KHBN can be heard between 0400-0800 over KSDA's 15225 frequency.

Meantime, KSDA is adding a third transmitter (of at least 100 kW) to their complex. Four curtain antenna systems aimed at Asia already exist at the station, so a fourth transmitter can be accommodated eventually.

The KYOI call letters are no longer in use. After being purchased by Herald Broadcast-


ing, the station was refurbished, and a second 100 kW transmitter added. The new call letters, KHBI, stand for Herald Broadcasting International. The current schedule runs from 0400-0800 on 17780, 0800-1200 on 9530, 1200-1400 on 9465, 1400-1800 on 9530 and 1800-2200 on 9455. Transmitter #2 is scheduled at 0600-1000 on 17855, 1000-1200 on 15155, 1200-1500 on 15285, 1400-1800 on 15385, 1800-2000 on 17770, 2000-2200 on 17770, 2200-0000 on 15275 and 0000-0200 on 15445, all beaming to various Asian and Pacific target areas.

There are reports that the Bhutan Broadcasting Service is now using 5025, apparently as a replacement for 6030. Few of us had any luck hearing them on 6030, so perhaps 5025 will increase our chances.

The sad state of government broadcasting facilities in Nigeria has claimed nearly all the services of the Voice of Nigeria. The only remaining portion is the service to West Africa, which many in North America hear on 7255 at 0500 sign on. The regional shortwave stations are largely off the air, as well. FRCN, in Kaduna, is one which remains active and frequently hearable on 4770 from 0400.

Many years ago, when "they" decided we were to use "hertz" instead of "cycles," an evil force was let loose upon the world. Every now and then it rises up from the dark places to do more ill—witness the change from GMT to UTC, "freshening up" of traditional audio appointments on the BBC, the synthesizing of what were once warm and friendly interval signals on Radio Nether-

TONGA BROADCASTING COMMISSION



NUKU'ALOFA


T5

Nuku'alofa
6 10 1989

This confirms your reception report of MW/SW/FM operating on 1017 KHZ/ 3030 KHZ97.2 MHZ.

Note. MW - 10 KW
SW - 1000 W ✓
FM - 100 W

S. J. Davis
General Manager
Tonga Broadcasting Service



T. J. DAVIS
7 TERRACE STREET,
SYDNEY, NOVA SCOTIA,
CANADA B1P-2L2.

◆ Terry J. Davis' treasured Tonga Broadcasting Commission QSL.

One of Spanish National Radio's new commemorative QSL cards.
(Thanks Bill Walbesser.)



RADIO EXTERIOR DE ESPAÑA

1992 _____

MADRID: Capital europea de la cultura
SEVILLA: Exposición Universal.
BARCELONA: XXV Olimpiada.

Una fecha importante en los programas de
RADIO NACIONAL DE ESPAÑA
RADIO EXTERIOR





↑ This neatly arranged shack belongs to Roland Davis in Franklin, PA and includes a Sony ICF 7600D, Magnavox D-2935/17, Zenith Trans Oceanic 3000-1 and a Realistic PRO-2021 scanner.

◀ This card from SRI, Switzerland shows a view of Lausanne.

lands and others. Now Radio Malaysia's various networks have been changed from the "Red Network," "Blue Network," etc; to "Radio 1," "Radio 2" and so on. This sinister "thing" that is loose in the shortwave world is slowly eating away at the romance of shortwave. If you spot this creature anywhere, drive a stake through it's heart—if it proves to have one. I suspect it's something like a computer virus.

The Mail: A letter from Terry Davis, Jr., of Sydney, Nova Scotia who is still walking on air after he not only logged, but QSL'd A3Z, the Tonga Broadcasting Commission. Terry's next big "do" will be entrance into the Canadian military, and training as a communications research operator.

Anthony Pannone of East Haven, CT finally bagged a QSL from Radio Baghdad, not an easy achievement these days. *Congrats!*

An apparent time station found interfering with La Voz del Rio Arauca, Columbia, on 4895 has Tim Johnson of Galesburg, Illinois puzzled. He heard it from 0105-0113 before it left abruptly. No ideas on that one, nor on your unidentified Spanish speaking stations on 5125 in sideband.

How to list broadcasts from relay stations—as the originating country, or under the country in which the relay is located, queries Gary K. Hamlin of Utica, NY. As far as listings in this column are concerned, when the reporter lists the relay country, that's how we list it. If that's not done, we usually won't examine the item until it comes up in the normal order, which is

sometimes too late. For logging and counting purposes, almost all DX'ers go by the actual transmitter site in deciding what to put into their logbooks.

Mike Yohnicki, of London, Ontario, says he's been mostly inactive of late, but did get a reply from Radio Damascus—which took two years! Mike hopes to get back into listening soon. And, he promises a shack photo. Looking forward to that, Mike—either color or black or white will do.

James Higgins (79 Shore Road, Saugus, MA 01906-4016) is interested in contacting SWL's in his area so, if that's you, drop Jim a line.

John S. Carson, Jr., of Norman, Oklahoma, has been listening to Radio Berlin International a lot recently and wonders if anyone else has noticed the subtle changes in their approach. For one thing, James says the phrase "... busily engaged in building a state devoted to lasting peace ..." has been tactfully changed—the word "building" had been replaced by "redesigning."

Loy W. Lee and the gang from Eastern Kentucky University have been out on another DX'pedition to Maywoods. The group included Ed Shaw, Dr. Joe Roitman, Jim McClure, Eric Petty, Wayne Gregory and Ken Tuttle, in addition to Loy. The Maywoods trips also include some time behind a telescope.

From Athens, Greece, Aris Giannarelis says he uses an R-5000. Aris is 22 years old and has been listening for six years. He sends along a current Radio New Zealand schedule but, as the schedule notes, there

will have been some changes by now, what with the introduction of the new 100 kW transmitter. The information includes the advisory that letters should include three IRC's for an airmail reply. Cassette tapes are still welcome at Radio New Zealand, but can no longer be returned.

Mike Perry of Corpus Christi, TX tells another of those stories that demonstrate how shortwave can change things in one's life. He was listening to HCJB and heard mention made that KNBJ in Corpus Christi was affiliated with HCJB. Mike called KNBJ seeking a tour, ended up speaking with the manager and two weeks later was working there part time!

More QSL problems this month. This time from David R. Brockman of Arlington, TX who reports problems with the BBC, Radio Australia and Radio Finland. The BBC should reply, if only with a no-data acknowledgment card; Radio Australia has always been a good QSL'er. Radio Finland has recently switched to a no-QSL policy. Try a follow-up, or a fresh report on the other two.

Bill Walbesser of Revena, NY sends some Radio Finland literature, including the news of the QSL policy change. They cite the extensive nature of their broadcasts as the reason. We'd agree with Bill's suspicion that the real reason is probably budgetary, though we've never understood how dropping QSL'ing saves any real money?

On the plus side, Bill has a reply from Spanish National Radio apologizing for recent delays in answering correspondence.

They were restructuring things in their DX department and are now issuing a new series of cards commemorating different events scheduled to take place in Spain up through the 1992 Olympic Games in Barcelona.

Remember to send in your reports, comments, questions, shack photos, station schedules, news clippings, spare QSL's you don't need returned and, of course, those all-important loggings! Logs should be organized by country with space between each and your last name and state abbreviation after each item.

Here are this month's logs. Language is English, unless otherwise noted. All times are UTC.

Albania: Radio Tirana, 7215//9480 at 2230 with news. (Johnson, IL) 9480 at 0428. (Davis, NS) 2350. (Perry, TX) 2330-2355 on 11825 (Brockman, TX)

Antigua: Deutsche Welle relay on 6160 at 0943. (Walbesser, NY)

Australia: ABC/Camma Radio from Alice Springs in 1210. (Loran, CA)

ABC/Camma Radio at Tennant Creek at 1227. (Loran, CA)

ABC/Camma Radio at Katherine at 1212. (Loran, CA)
Radio Australia, 7215 at 1109, 9655 at 0853 and 9710 at 0838. (Carson, OK) 9580 at 1342. (Perry, TX) Here and 11720 at 0803. (Walbesser, NY) 9760 at 0915. (Higgins, MA) 11910//15160//15240//17795 at 0545. (Johnson, IL) 17795 at 0120. (Pannone, CT) 21525 at 0224. (Reese, Thailand)

Austria: Radio Austria International, 6015 (via Sackville, Canada) at 0538. (Carson, OK) 0600 with news. (Johnson, IL) 9875 at 0154. (Loran, CA) 15430 at 1330 with ID. (Heine, S. Korea)

Bangladesh: Radio Bangladesh, 17800 at 1830. (Mitchell, HI)

Belgium: BRT on 9925 at 2205 and 0030. (Walbesser, NY) 21810 at 1630. (Mitchell, HI) 21815 at 1330, into FF at 1400. (Higgins, MA)

Bolivia: Radio Viloco, 3340 in SS with ID at 1020. (Johnson, IL)

Botswana: Radio Botswana, 4830 and 7255 at 0355 with IS, frequency schedule and ID at 0402. (Loran, CA)

Brazil: Radiobras, 11745, 0200 sign on with EE by woman. (Johnson, IL)

Radio Nacional Amazonia, 6180 in PP at 0833 with ID. (Brockman, TX)

Unknown, 17815 at 1620. (McDonald, MO) (Radio Cultura, Sao Paulo, editor)

Radio Bandeirantes, 60898 at 2320, music and announcements in PP. (Hamlin, NY)

Bulgaria: Radio Sofia, 7115 at 0411 and 0417. (Walbesser, NY; Perry, TX) 11660 at 2224. (Maywoods, KY) 2340-0000 (Loran, CA) 11765 at 0730. (Giannarelis, Greece) 11950 at 2140. (Perry, TX) 15330 at 2358. (Carson, OK) Announced schedule: 0000-0100 on 9700 and 11680, 0400-0500 on 7115 and 9700, 0730-0800 on 11680, 15160, 17825; 1930-2000 on 6070, 7155, 9700, 2130-2200 on 6070 7155 and 9700 and 2230-2300, 9700 and 11680, all in EE. (Brockman, TX)

Burkina Faso: RTV Burkina, 0530 sign on in FF. (Johnson, IL) 0620-0630. (McDonald, MO) 2220-2245. Tuchscherer, WI)

Canada: Radio Canada International, 6150 at 0623. (Carson, OK) 9755 at 2333 and 0030. (Carson, OK and Perry, TX) Here and 11730 at 0230. (Greenwood, VA)
CRFX relaying CFRB, Toronto, 6070 at 2251 and 0601. (Hamlin, NY; Loran, CA)

Chad: Rdf. National Tchadienne, 4904.5 at 0505 with Central African type music and announcements in FF. (Johnson, IL)

Chile: Radio Nacional, 2333 with ID in SS, music. (Johnson, IL)

China: Radio Beijing, 5145//5850 at 1153 close with IS and frequency announcements in presumed Mongolian. (Johnson, IL) 7405 at 1408 with news.

(Perry, TX) 9690 (via Spain, Editor) at 0317. (Hamlin, NY) 0357 off. (Zamora, ND) Here and 11715 (via Mali, Editor) at 0300. (Greenwood, VA) 11685 at 0400. (Loran, CA) Here and 11840 at 0445. Also 17715 and 17855 at 0025. Also 15195 in SS at 2345. (Walbesser, NY)

Fujian PBS, 2340//4975 (better) at 1310 in CC. (Loran, CA)

CPBS, 7504 at 1154 in CC. (Mierzwinski, PA) 11375 at 2345-2358. (McDonald, MO)

Colombia: La Voz del Rio Arauca, 0305 in SS, mentions of Colombia. (Mierzwinski, PA)

Caracol Bogota, 5075 at 0605 in SS. (Johnson, IL) (As Tim reports, 5075 (sometimes 5095) in now a Caracol station in Bogota. Radio Sutatenza no longer exists. Editor)

Costa Rica: Radio Impacto, 5030 in SS at 2255 and 0500. (Davis, NS; Carson, OK)

Radio For Peace International, 7374.85 USB and // 13660 at 0210. (Johnson, IL) 0617 in USB. (Carson, OK) 21560 at 1430. (Pannone, CT) 21565 at 2315. (Watts, KY)

Cote D'Ivoire: Rdf. TV Ivoirienne, 4940 at 2330 with African music, FF announcements. (Johnson, IL) 2240. (Maywoods, KY)

Cuba: Radio Havana Cuba, 5965 at 0405, 11820 at 0123, 11835 at 0633 and 11760 (in SS) at 0123. (Walbesser, NY) 9685 at 2200. (Giannarelis, Greece) 11820 at 0230. (Greenwood, VA) 11835 at 0601. (Carson, OK)

Cyprus: Cyprus Broadcasting Corp, 6180 at 2215 in Greek, is only on Fridays, Saturdays and Sundays. (Giannarelis, Greece) (and is via BBC Cyprus transmitters, editor)

Czechoslovakia: Radio Prague, 5930//7345//9540//11680//11990//13715 at 0100. Best on 7345. (Walbesser, NY) 5930//7345 at 0300. (Loran, CA) 15110 at 1430. (Giannarelis, Greece) 15540 at 0305. (Johnson, IL) Announced schedule: 0100-0157-0300-0357 in EE on 5930//7345//9540//1168//11990//13715. IS from at least 4 minutes before sign on. (Brockman, TX)

East Germany: Radio Berlin International, 6080 at 0255. (Hamlin, NY) 9730 at 2205. (Perry, TX) 11785 at 0430. (Davis, NS) 11890 at 1015, into GG at 1030. (Higgins, MA) 15240 at 1350. (Carson, OK) 15350 at 2041. (Walbesser, NY)

Egypt: Radio Cairo, 9475 at 0215 and 0240. (Perry, TX; Hamlin, NY) Here and 9675 at 0220. (Johnson, IL) 9900 at 2115. (Giannarelis, Greece)

Ecuador: HCJB, 6230//9745 to Pacific at 0737. 9610 at 0807. (Walbesser, NY) 11755 at 0102. 0401. (Perry, TX; Hamlin, NY) 15115//17890 at 1430. (Pannone, CT) 15155 at 0200. (Davis, NS) 15270 at 2130 and 17790 also at 2130. (Giannarelis, Greece)

Radio Nacional del Ecuador, via HCJB on 15270 at 1730 in SS. (Watts, KY)

Radio Jesus del Gran Poder, Quito, 5050 at 1000-1020 in SS with soft music and birds chirping, ID with sign on, prayer. (Mierzwinski, PA)

England: BBC, 5975, 6175, 9410, 9590 and 9915 and 0215. (Greenwood, VA) 9640 via Antigua at 0453. 17885 at 0520. (Carson, OK) 12095 at 0215. (Higgins, MA) 15310//17640//17705 at 1410. (Pannone, CT) 15360 at 1100. (Heine, S. Korea) 17740 at 0525. (Davis, NS) 21715 at 0310. (Reese, Thailand)

Equatorial Guinea: Radio Africa with religious programs in EE 2132, into FF at 2200 on 7190.3. (Watts, KY)

Finland: Radio Finland International, 21550 at 1425. (Johnson, IL)

French Guiana: RFI relay at Montsinery, 9800 at 0332. (Carson, OK) 21645 at 1639-1657. (Tuchscherer, WI)

France: Radio France International, 17620 at 1603. (Hamlin, NY) 21770 at 1407 to Africa in EE/FF. (Carson, OK) 25820 in FF at 1454. (Walbesser, NY)

Gabon: RFI relay via Mayabi, 4890 at 0400 with FF ID. (Johnson, IL)

Africa No. One, 9580//15475 at 2000 with music and phone conversations in FF. (Johnson, IL) 17605, tentative, in FF at 1503. (Carson, OK) 17630 in FF at 1450-1556. (Tuchscherer, WI)

Ghana: GBC-2, 3366 at 0535-0605 which choir-like vocal to 0559 and into sign on procedure, ID "This is the Ghana Broadcasting Corporation" and into news. (Mierzwinski, PA) 4915 at 2245. (Johnson, IL) 0530 "we begin today's transmission with music..." (Loran, CA)

Greece: Voice of Greece, 0135 with news on 9395//

Abbreviation Used in Listening Post

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

9420//11645. (Johnson, IL) 9395 at 2340 with news. (Perry, TX) 9420 at 0340. (Hamlin, NY) Here and 11645 at 0130. (Loran, CA) 11595 at 2220. (Maywoods, KY)

Guam: KSDA, Adventist World Radio 11980 at 1600 with religious talk. (Giannarelis, Greece)

Guatemala: Radio Tezulutlan, Coban, 4835 at 0240 in SS with choral singing, ID 0300. (Salzman, PA) 0018. (Maywoods, KY)

Radio Chortis, Jocotan, 3380 at 0046 in SS. (Maywoods, KY)

Radio Cultural, 3300 in SS at 0042. (Maywoods, KY) 0315 in EE with religious program. (Loran, CA)

Honduras: Radio Luz y Vida, 3250 at 0310 in EE with religious program. (Loran, CA)

La Voz Evangelica, 4820 at 1050-1105 in SS with on tone bip and ID at 1100. (Mierzwinski, PA) 0330 with EE ID, into religious program in EE. (Loran, CA)

Hungary: Radio Budapest, 6110//9520//9585//9835//11910//15160 at 0230 with DX show on Wednesdays. (Johnson, IL) 9835 at 1130 with DX show. (Giannarelis, Greece) 0030. (Hamlin, NY)

Iceland: ISBS on 15768 at 2305 in Icelandic with financial and economic report. Not in SSB as scheduled. (Davis, NS)

India: All India Radio, 9565 at 1333 with news, commentary. (Zamora, ND) 9910//11745 at 0115 ending EE. (Loran, CA) 9910//11620 at 2245. (Johnson, IL) 11620 at 1323 and 1952. (Maywoods, KY, Pannone, CT) 15360 at 1820. (Mitchell, HI)

Iran: VOIRI, 9022 at 1930 with Holy Quran reading and news. (Giannarelis, Greece) 9022//15084 at 0437 in unidentified language. (Johnson, IL)

Iraq: Radio Baghdad, 13660 at 2105 with news, music. (Johnson, IL)

Israel: Kol Israel, 9435 at 2259 sign off. (Walbesser, NY) 11605 at 0115. (Higgins, MA) 11610 at 0230. (Greenwood, VA) 12080 at 0005. (Watts, KY) 15615 at 0001. (Loran, CA)

Italy: Italian Radio Relay Service (IRRS) 9865 at 1003 with "War of the Worlds" (Giannarelis, Greece)

AWR Europe. Forli, 7125 at 0640. (Watts, KY)

RAI, 9575 at 0100 with news. (Hamlin, NY) 11800 at 0140 going from II to SS. (Perry, TX) 15330 at 0405-0410 in EE. (Loran, CA)

Japan: Radio Japan, 5960 (via Canada) at 0100. (Pannone, CT) 9505 at 1510 with news, ID. (Zamora, ND) 11765 (via Gabon) at 2100. (Giannarelis, Greece) 11815 and 11840 at 1120. (Heine, S. Korea) 15195//17765//17810 at 0538. (Loran, CA) 15325 (via French Guiana) at 0300. (Davis, NS, Greenwood, VA) 21610 at 0300. (Zamora, ND)

Jordan: Radio Jordan, 9560 at 1835 with 80's pop, news 1900. (Zamora, ND) 2020 non-stop country-western. (Johnson, IL)

Kuwait: Radio Kuwait, 11665 at 2038 with rock, off 2059. (Johnson, IL) (R. Cairo also reported on this frequency now. Editor) 21675 at 1451 in AA. (Carson, OK) 1838 to 2101 close. (Zamora, ND)

Lesotho: BBC Lesotho (presumed) on 3255 at 0335

in EE with sports roundup, faded by 0400 (Loran, CA)

Liberia: Voice of America relay, 3990 at 0515. (Johnson, IL)

Lithuanian SSR: Radio Vilnius, 9610 and 11675 at 2258, 2259, talks of independence. (Carson, OK)

Luxembourg: Radio Luxembourg, 6090 at 0032-0120 in EE with pops, ID, mentions of other frequencies, including longwave. (Loran, CA) 0140 with pops. (Johnson, IL)

Madagascar: Radio Netherlands relay, 15560 at 1830 with news. (Giannarelis, Greece) 0812. (Walbesser, NY)

Malaysia: RTM 4950 with "Radio 4" ID at 1400. (Loran, CA) RTM via Sarawak listed here, Editor
Voice of Malaysia, 15295 at 0820. (Mitchell, HI)

Mali: RTV Malienne, 4835 at 2235. (Maywoods, KY) (Presume FF, Editor)

Radio Beijing relay, 15130 at 0025 and 0253. (Walbesser, NY)

Malta: Voice of the Mediterranean, 9765 at 0600 with religious program. (Johnson, IL) 11925 at 1400. (Giannarelis, Greece)

Radio Mediterranean, 6110 at 2303 with music, ID. (Hamlin, NY)

OBRA Radio, 7225 at 2045 with music, religious program, (Giannarelis, Greece)

Deutsche Welle relay, 17720 at 2130, sign on in PP to South America. (Walbesser, NY)

Mauritania: ORT de Mauritaine, 4845 at 2232. (Maywoods, KY) (Presume FF, editor)

Mexico: Radio Huayacocotla, 2390 at 1215 in SS with campesino music. Fade by 1235. (Loran, CA)

Monaco: TWR on 9480 at 0600 with religious program. (Johnson, IL) 9485 at 0645, religious programming. (Carson, OK)

Namibia: Southwest Africa Broadcasting Corp. 3270 at 0411 in Afrikaans and 3290 at 0400 in German. (Mierzwinski, PA)

Netherlands: Radio Netherlands, 9860 at 2030, 15560 at 2030 and 21615 at 1130. (Giannarelis, Greece) 11930 at 0324. (Carson, OK) 13700 at 0435. (Johnson, IL)

Netherlands Antilles: Radio Netherlands, Bonaire relay, 6165 at 0230. (Greenwood, VA) 9630 at 0801 and 9770 at 0841. (Carson, OK) 17605 at 1830 and 21680 at 1830. (Giannarelis, Greece)

Trans World Radio, 11815 at 1145 and 1228. (Johnson, IL; Carson, OK)

New Zealand: Radio New Zealand, 15485//17705 at 0350. (Tuchscherer, WI) 15435//17705 at 0519. (Loran, CA) 17705 at 0421. (Carson, OK)

Niger: ORTN: La Voix du Sahel, 5020 in FF at 0545-0605 with ID 0600. (Mierzwinski, PA)

Nigeria: FRCN, Kaduna, 4770 in EE with news 0527. (Loran, CA, Johnson, IL)

Voice of Nigeria, 7255 in EE after 0500. (several reporters)

Northern Marianas: KHBI (ex KYOI, Editor) 15385 at 1400 with Christian Science Monitor World Service. (Watts, KY)

KFBS, 9495 at 1500 in Chinese. (Giannarelis, Greece)

North Korea: Radio Pyongyang, 4770 at 1030 in KK. (Heine, S. Korea) 6560 at 1220 in JJ. (Mierzwinski, PA) 9977 at 1144, 1110 in EE. (Maywoods, KY; Loran, CA) 11829.6 at 0823. (Mitchell, HI) 15115 at 0006. (Perry, TX)

Norway: Radio Norway, 15165 at 0600 in EE. Also 15265 at 2200. (Johnson, IL) 15325 at 1900 in EE. (Giannarelis, Greece) 15305 at 1700-1730, Norwegian to 1845 close. (Vaage, CA) 21705 at 1600. (Carson, OK)

Pakistan: Radio Pakistan, 17565 at 1605, news and ID. (Tuchscherer, WI) 21740 at 1600 with news. (Giannarelis, Greece)

Papua New Guinea: NBC Port Moresby, 4890 at 0845. (Mitchell, HI)

Peru: Radio Atlantida, Iquitos, 0945 in SS with ID, talk, music. (Johnson, IL)

Radio Tropical, Tarapoto, 4935 at 1015, commercials, music, ID in SS. (Johnson, IL)

Philippines: Radio Veritas Asia, 9525 at 1332 in EE to Sri Lanka. (Loran, CA) 15445 at 1500 with "Tomorrow's People." (Giannarelis, Greece)

Poland: Radio Polonia, 7125//7270 at 2230 with news. (Johnson, IL)

Portugal: Radio Portugal, 9705 at 0247. (Hamlin,

NY) 15250 at 1900. (Giannarelis, Greece)

AWR Europe, via Sines on 9605 in RR at 0630. (Watts, KY)

Romania: Radio Bucharest, 9510//9570 at 0249 with DX program. Also 15335 with Pacific service at 0643. (Walbesser, NY) 11940 at 0236. (Hamlin, NY) 0425 sign off to North America. (Johnson, IL) 15340 at 1730. (Mitchell, HI)

Seychelles: Far East Bcsting Assn., 11865 at 1500 with "Back to God Hour" and news. (Giannarelis, Greece) 15325 at 1237. (Mitchell, HI)

Singapore: Radio Singapore, 5010//5052 at 1250-1320 with country-western. (Loran, CA)

Solomon Islands: SIBC, 9545 at 0835-0842 in EE. (McDonald, MO) 0658, commercials and ID. (Johnson, IL)

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South Africa: Radio RSA, 9580//9615//11935 at 0200. (Walbesser, NY) 11745 at 0429 in FF, 11900 at 0457 in Ovambo language. 21590 at 1355 in EE. (Carson, OK) 25790 at 1400 with news and rugby match. (Giannarelis, Greece)

Radio Five, 4880 at 0326 with music contest details. (Perry, TX) 0325-0400. (Mierzwinski, PA) 2300, rock, 0350 pops. (Johnson, IL)

SABC 3215 at 0319 with pops. (Loran, CA) 4810 at 0255 with IS. (Johnson, IL)

South Korea: Radio Korea, 7550 at 0800-0900. (Heine, S. Korea) 9570//15575 with listeners letters at 1445. (Zamora, ND) 9750 at 1435 (Carson, OK) 15575 at 1415, 2333. (Pannone, CT; Hamlin, NY)

Spain: Spanish National Radio, 9630 at 0548 with music. (Walbesser, NY) 15110 at 2358 with IS, sign on. (Hamlin, NY) 21595 at 1600 in SS. (Johnson, IL)

Sri Lanka: VOA relay, 7115 at 0100 with news. (Giannarelis, Greece)

Deutsche Welle relay, 17810 at 1913-1940. Switch to Antigua with GG at 2000. (Tuchscherer, WI)

Swaziland: Trans World Radio, 15210 at 1800 with religious program. (Giannarelis, Greece)

Sweden: Radio Sweden, 9655//11705 at 2100. (Giannarelis, Greece) 9695 in Swedish at 0320. (Vaage, CA) 11705 at 0234. (Perry, TX; Carson, OK) 21610 at 1530. (Carson, OK)

Switzerland: Swiss Radio International, 6190 at 2251 with sports. (Hamlin, NY) 9535 at 0753. (Walbesser, NY) Into FF at 0800. (Higgins, MA) 9725 at 0425 and 21630 at 1511. (Carson, OK) 9885//12035 at 0408. (Loran, CA) 9885 at 2102. (Zamora, ND) 0230. (Greenwood, VA) 21695 at 0830, 1335. (Giannarelis, Greece; Zamora, ND)

Tahiti: Radio Tahiti, 15171, island music at 0437, 0438. (Mitchell, HI; Johnson, IL)

Thailand: Radio Thailand, 9655 at 1225-1235 in EE talks, old US pops. (Loran, CA)

Taiwan: Voice of Free China, 9680 at 0350. (Carson, OK) 15345 at 2202 with ID, anthem, news. VOFC 40th anniversary special. (Zamora, ND) 17612.5 at 2200. (Giannarelis, Greece) (All via WYFR, Editor)

Tonga: Tonga Broadcasting Commission, 5030 at

0800. Very weak with music and announcements. Tentative logging, later QSL'd. (Davis, NS) (Excellent! Editor)

Turkey: Voice of Turkey, 9445, EE 2300 and on. (Several reporters) 0435. (Loran, CA) 9795 at 2145, off with IS at 2150. (Zamora, ND)

United Arab Emirates: UAE Radio, Dubai, 13605 at 2225, (Johnson, IL) 0000-0005. (Loran, CA) 15435//21605 at 1620, easy listening music. (Tuchscherer, WI)

Voice of the UAE, Abu Dhabi, 13605 between 2200-2330 plus. (Several reporters) (Let's be careful of station names and IDs here. Editor)

Ukraine States: VOA Bethany, 9585 at 0500. Last transmission with old Crosley transmitters from Bethany. (Giannarelis, Greece)

VINB, Red Lion, PA 15145 at 2308. (Giannarelis, Greece)

KGEI "La Voz de Amistad" in SS on 9615 at 0351 with religion. (Carson, OK)

VOA feeders - 6874 at 0608. (Walbesser, NY) 18780 at 1640. (Carson, OK)

USSR: Radio Moscow, North American services: 7150 at 0350; 7290 at 0512; 7390 at 0521; 9765 at 2300; 11710 at 0431 (Carson, OK) 9720, 9865 at 0230. (Greenwood, VA)

Radio Moscow World Service: 7310 at 0408. 9600//12010//15425 at 0416; 15315 at 1803; 15320 at 1345. (Carson, OK) 9655 at 1405; 9895 at 1420. (Heine, S. Korea) 9865 at 2019. (Higgins, MA)

Radio Magallanes, SS to Chile, 15475 via R. Moscow. (Watts, KY)

Radio Peace and Progress, 11670//15445 at 1630. (Giannarelis, Greece) 1180 at 2245. (Carson, OK)

Uzbek SSR: Radio Tashkent, 9540 at 1330 sign on, news. (Zamora, ND)

Vanuatu: Radio Tashkent, 9540 at 1330 sign on, news. (Zamora, ND)

Vatican City: Vatican Radio, 9645//9755//11715//15120 at 0650 with Latin mass. (Johnson, IL) 17730 at 0615. (Mitchell, HI) 21515 at 1215, IS and off 1219. (Zamora, ND)

Venezuela: Radio Rumbos, Caracas, 4970 in SS at

1600. (Mitchell, HI)

Vietnam: Voice of Vietnam, 12020 at 1622 with mail order offer for alligator skin products. (Heine, S. Korea) 15010 at 2350 in EE. (Loran, CA)

West Germany: Fuetsche Welle, 5960 at 0545, off 0550; 6085 at 0313; 11965 (Rwanda, list, Editor) 1456. (Carson, OK) 6040 (Antigua, Editor) at 2358 IS and sign on. (Hamlin, NY) 6085//9545 (Brasilia list, Editor) and 11810 (Antigua, Editor) at 0230. (Greenwood, VA)

Yemen Arab Republic: R. San's at 0400 in AA on 9780. (Davis, NS)

Yugoslavia: Radio Yugoslavia, 9660 at 2200 with news, comment, mailbag show (PO Box 400) (Carson, OK) 15345 at 1315 with news. (Perry, TX) 15380 at 1330 news and commentary. (Higgins, MA)

A hearty thank you to the following reporters this month: William Walbesser, Ravena, NY; Bjorn Vaage, Granada Hills, CA; David R. Brockman, Arlington, TX; Mike Perry, Corpus Christi, TX; Larry R. Zamora, Grand Forks, ND; Aris Giannarelis, Athens, Greece; William Mitchell, Kula, HI; Frank Mierzwinski, Mt. Penn, PA; R.C. Watts, Louisville, KY; William D. Heine, Jr., South Korea; Loy W. Lee and the Maywoods DX Team, KY; John S. Carson, Norman, OK; Mark A. Northrup, Danbury, CT; Randall Resse, Bangkok, Thailand; John D. Tuchscherer, Neenah, WI; Tim Johnson, Galesburg, IL; Robert E. Salzman, Penn Hills, PA; Anthony Pannone, E. Haven, CT; Gerry Greenwood, Arlington, VA; Michael Loran, Murietta, CA; T.J. Davis, Sydney, Nova Scotia and Jim McDonald, Plato, MO.

Til next month, good listening!

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CIRCLE 159 ON READER SERVICE CARD

SGC

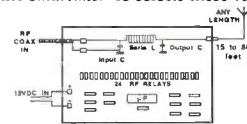


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'WET STRING'*

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*salt water please!



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CIRCLE 160 ON READER SERVICE CARD

Harmonics And The Single-Wire Antenna

The quarter wavelength resonant single-wire antenna is a common configuration for shortwave radio listening. A quarter wave wire has a high impedance at its far end (maximum voltage and minimum current) and a low impedance (high current and low voltage) where it connects to the receiver antenna terminal, Fig. 1. The latter connection matches the low impedance of the receiver input and there is efficient transfer of signal current to the receiver input.

A length of wire can present a low impedance to the receiver on other frequencies too, when odd harmonically related to the wire's quarter wave resonant length. To obtain a maximum current at the receiver end, the length of the wire must be an odd number of wavelengths, Figs. 2A and 2C. An even harmonic length, Fig. 2B, is not practical for matching a low impedance receiver input because a wire of this length has a high impedance at both wire ends. In the example of Fig. 3, the wire has an overall length of 32' 6" which corresponds to a one quarter wavelength resonant length on the 41 meter SWB band. This same length of 32' 6" corresponds to a three-quarter wavelength resonant length on a frequency near 13 meters. Refer to the Dimension Table.

It is a very practical antenna for today's propagation conditions with strong signals coming through on the 13, 16, and 19 meter bands as a result of the current high level of solar activity. It does well on 11 meters too, but there is not much broadcast activity on this band as yet.

At the same time, it does well on the middle-frequency SWB bands, where all the strong signal nighttime action occurs. This

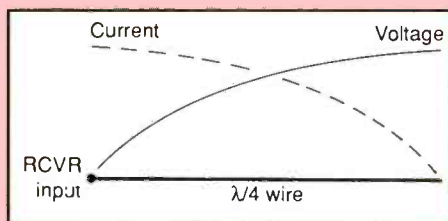


Fig. 1. Voltage and current on a $\lambda/4$ wire antenna. $Z = E/I$ and Z is low because of high I and low E at receiver input.

single-wire antenna does well indoors and doesn't take up very much space. Usually you can run it in a straight line, or erect it as an L configuration.

Outdoors, you can use it on a small lot, Fig. 4, running it to a tree or other nearby support. Tape it to a plastic pipe positioned near the exit window. Use insulated wire and remember its overall length is only 32 foot, 6 inches from the far end of the wire to the antenna terminal of your receiver. You can do some excellent DX'ing on all of these bands despite the limited mounting space required. It is also a good antenna for listening in on the 12, 15, and 17 meter ham bands as well as 40 meters.

The table gives you dimension lengths for one-quarter, three-quarters and five-quarter wavelength single wire antennas for the various SWB and ham bands. All the three basic equations used to make the calculations are included. The constants given for these calculations also include the correction needed for end-effect to make certain that a resonant length of line is obtained. The resonant length is always shorter than

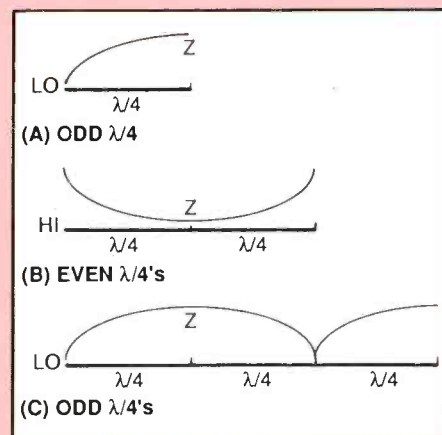


Fig. 2. Receiver end impedances for $\lambda/4$, $\lambda/2$ and $3/4\lambda$ wires.

that which you calculate with the basic free-space wavelength constants.

The antenna, Fig. 3, functions also as a favorite 15M/40M combination that is popular for ham radio operation. For listening only, it is fine when cut to 32 foot, 6 inches. The antenna acts as a quarter wavelength wire on 40 meters and a three-quarter wavelength element on 15 meters. However, the wire must be more carefully matched to a transmitter to insure that efficient transfer of power from the transmitter to the antenna. Preferably one should use a random-wire antenna tuner to insure a correct match to the transmitter. It is important that a transmitter not be improperly loaded, or loss of efficiency and even damage can

(Continued on page 42)

TABLE: Single-Wire Resonant Lengths

SWB	MHz	$\lambda/4'$	$3/4\lambda$	$5/4\lambda'$	HAM				
11M	25.8	9' 1"	28' 2"	66' 3"	10M	28.5	8' 2"	25' 6"	42' 9"
13	21.6	10' 10"	33' 7"	79' 2"	12	24.93	9' 3"	29' 2"	48' 10"
16	17.7	13' 3"	41'	96' 7"	15	21.3	11'	34' 1"	57' 2"
19	15.3	15' 3"	47' 6"	111' 9"	17	16.6	12' 11"	40' 1"	85' 9"
21	13.7	17'	53'	124' 10"	20	14.24	16' 5"	50' 11"	120' 3"
25	11.8	19' 10"	61' 5"	144' 11"	30	29.6	23' 1"	71' 8"	—
31	9.7	24' 1"	75'	—	40	7.2	32' 6"	100' 10"	—
41	7.2	32' 6"	101'	—	80	3.8	60' 4"	—	—
49	6.0	39'	121'	—	160	1.85	129'	—	—
60	4.9	48'	148'	—					
75	3.95	59'	—	—					
90	3.3	71'	—	—					
120	2.4	98'	—	—					

$\lambda/4' = 234/F \text{ MHz}$
 $3/4\lambda' = 726/F \text{ MHz}$
 $5/4\lambda' = 1218/F \text{ MHz}$

Lengths Over 150' are not given

POP'COMM's World Band Tuning Tips

April, 1990

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

Note that the languages used will not always be English and that broadcasts may not necessarily be beamed to North America. Keep in mind that stations frequently make changes in broadcast times and frequencies. Changes in propagation conditions may also make certain broadcasts difficult or impossible to receive at times.

All times given are in UTC.

Freq.	Station/Country	UTC	Notes	Freq.	Station/Country	UTC	Notes
2390	R. huayacocotla, Mexico	000G	SS 0100 close	6160	CKZN, Canada	1230	relay CBN, St. John's
3200	Trans World Radio, Swaziland	0400	sign on	6165	R. Netherlands	0100	via Bonaire
3220	HCJB, Ecuador	eves	SS, Quechua	6175	RFI, France	0500	FF
3260	R. Madang, PNG	1200	Pidgin	6180	LV de Guatemala	2330	SS, sporadic
3370	R. Tezulutlan, Guatemala	0030	SS	6185	R. Educacion, Mexico	0430	SS
3985	SRI, Switzerland	0600	sign on	6214	R. 15 de Septiembre	0200	SS contra clandestine
4000	R. Bafoussam, Cameroon	0430	sign on, FF	6230	HCJB, Ecuador	0600	
4535	Tadzhik Radio, Dushambe USSR	0045	RR	6248	Vatican Radio	0630	
4580	R. Nacional Espejo, Ecuador	eves	SS	6305	LV del CID	0400	SS clandestine to Cuba
4760	Yuman PBS, China	1200	CC	6400	V of the Strait, China	1130	CC to Taiwan
4780	RTV Jibouti	0300	sign on, heavy FEMA	6540	R. Pyongyang, N. Korea	1200	JJ
		QRM		6550	V of Lebanon	0530	
4780	LV de Carabobo, Venezuela	eves	SS	6712	R. Farabundo Marti	0215	SS, FMLN
4815	RTV Bourkina, Burkina-Faso	0700	sign on, FF	6763v	R. Patria Libre	0035	SS Colombian rebels
4830	R. Tachira, Venezuela	eves	SS	6873	Voice of America	eves	SSB feeder
4845	R. K'ekchi', Guatemala	0200	sign off, SS & indian	6900	V of Meterology, Turkey	0400	sign on, Turkish
4875	V of Jinling, China	1230	CC	7105	Trans World Radio, Monaco	0700	
4940	RTV Ivoirienne, Ivory Coast	0600	sign on, FF	7110	V of Ethiopia	0330	sign on, local languages
4985	R. Brazil Central, Brazil	eves	PP	7115	R. Moscow	eves	EE, via Bulgaria
5040	LV de Nahuala, Guatemala	eves	SS	7145	R. Polonia	0130	Polish
5045	R. Clube do Para, Brazil	eves	PP	7145	R. Liberty	0200	RR to USSR
5075	Caracol Bogota, Colombia	eves	SS (occ on 5095)	7170	RFO, New Caledonia	0700	FF
5905	R. Moscow	0100	SS	7200	R. mogadishu, Somalia	0300	sign on, Somali
5930	R. Prague, Czechoslovakia	eves	EE and various	7205	R. Australia	1200	
5954	R. Casino, Costa Rica	0200	SS	7230	RCI, Canada	0230	RR, via Portugal
5960	RCI, Canada	0000	EE to NA	7230	R. Suld Africa, S. Africa	0400	sign on
5975	BBC	eves	via Antigua	7240	CRTV Garoua, Cameroon	0700	sign on, FF
5980	R. Guaruja, Brazil	0100	PP	7270	R. Polonia	0100	Polish
5982	Union Radio, Guatemala	0300	SS (Adventist World R)	7300	R. Tirana, Albania	eves	EE/SS
6000	R. Guaiba, Brazil	0130	PP	7310	R. Moscow	eves	
6000	R. Moscow	eves	EE to NA	7325	BBC, England	eves	
6010	R. RSA, South Africa	0200	sign on, EE to NA	7345	R. Prague, Czechoslovakia	eves	
6015	R. Austria Int'l	0500	sign on, GG/EE to NA	7355	KNLS, Alaska	1300	
6020	R. Netherlands	0130		7365	WHRI, Indiana	0100	
6025	R. Amanecer, Dominican Rep	eves	SS	7375	R. For Peace Intl, Costa Rica	0030	
6050	HCJB, Ecuador	eves	SS	7430	V of Greece	eves	Greek/EE
6060	RAE, Argentina	0000	SS	7440	CPBS, China	1200	CC
6065	R. Super, Colombia	eves	SS	7475	RTT Tunisia	0500	AA
6070	CFRX, Canada	eves	relay CFRB Toronto	8515	R. Amistad, Peru	0130	SS
6085	Deutsche Welle, W. Germany	0400		9022	VOIRI, Iran	2330	Farsi, etc
6090	R. Luxembourg	2300	GG	9115	R. Rivadavia, Argentina	0230	SS, feeder
6105	XEQM, Mexico	1200	SS, occasional	9360	Spanish National Radio	0300	SS
6115	R. Union, Peru	0430	SS freq. varies slightly	9410	BBC	2200	
6120	R. Japan	1100	via Canada	9425	V of Greece	0400	Greek
6135	R. Universidad, Chile	1000	sign on, SS	9435	V of Israel	0000	
6140	ABC, Australia	1130		9445	V of Turkey	0000	Turkish
6140	Radio Havana Cuba	0300		9455	Voice of America	0100	
6150	Vatican Radio	0100		9475	Radio Cairo, Egypt	0200	EE
6150	Caracol Neiva, Colombia	eves	SS	9485	TWR, Monaco	0630	sign on
6160	R. Impacto, Costa Rica	eves	SS	9500	R. Tirana, Albania	0100	EE

Freq.	Station/Country	UTC Notes	Freq.	Station/Country	UTC Notes
9505	R. Japan	1300	11990	R. Prague, Czechoslovakia	0100 EE
9510	R. Bucharest, Romania	0200 EE	12000	R. Moscow	0100
9515	R. Novas de Paz, Brazil	2030 PP	12035	SRI, Switzerland	0130
9525	R. Havana Cuba	0600	12045	V of Greece	1800
9525	R. Marti, United States	0100 SS to Cuba via VOA	12050	R. Cairo, Egypt	2100
9530	KHBI Saipan	1400 ex KYOI	12085	R. Damascus, Syria	1830
9535	Trans World R., Bonaire	0300	12120	CPBS, China	1200 CC
9545	Deutsche Welle, W. Germany	0300	12200	CPBS, China	0030
9545	So. Is. Bcsting	0700	12230	V of Unity	1530 anti-afghanistan
9550	National RTV, Sudan	1400 AA	13610	R. Berlin Int'l, E. Germany	2300 SS
9555	La Hora Exacta, Mexico	1345 SS	13645	R. Kiev, Ukraine	0030 EE
9575	RAI, Italy	0100 EE/NA	13675	R. Pakistan	1330
9580	R. Australia	mornings	13680	R. Baghdad, Iraq	2230 AA
9585	R. Excelsior, Brazil	0100 PP	13695	WYFR, Florida	0100
9590	R. Netherlands	0230	13715	R. Prague, Czechoslovakia	0100 EE
9600	Radio MEC, Brazil	2300 PP	13720	Adventist World R., Guam	1200
9600	R. Portugal	0130	13730	R. Austria Int'l	0000
9615	R. Norway Int'l	0000 NN	13770	R. Netherlands	1430 EE
9630	Spanish National Radio	0000	13775	Voice of America	1200
9640	Ecos del Torbes, Venezuela	0100 SS	13785	R. Moscow	0200
9645	R. Veritas, Philippines	1200	15010	V of Vietnam	1130
9650	R. Norway Int'l	0300	15055	TRT, Turkey	2230 occasional use
9650	Vatican Radio	0130	15060	BSKSA, Saudi Arabia	1800
9660	ABC, Australia	1130	15070	BBC	1600
9675	R. Cancao Nova, Brazil	0100 PP	15095	R. Damascus, Syria	2100
9675	R. Cairo	0200 EE to NA	15100	R. Beijing, China	0100 SS
9690	RAE, Argentina	0030 SS	15110	R. Sofia, Bulgaria	0100 SS
9695	R. Sweden	0000	15110	Spanish National Radio	0000
9705	R. Nacional, Brazil	0100 PP	15115	HCJB, Ecuador	1200
9715	HCJB, Ecuador	1130	15125	R. Beijing	1200
9715	R. Netherlands	1200	15130	V of Free China, Taiwan	0030 CC via WYFR
9720	R. Yugoslavia	2100 (ex 9620)	15140	R. Nacional, Chile	1930
9735	R. Oman	0400 AA	15145	WINB, Pennsylvania	0200
9735	R. Nacional, Paraguay	0200 SS	15150	RCI, Canada	2130
9750	R. Korea, S. Korea	1200	15150	R. New Zealand	0530
9750	R. Minería, Chile	1000 SS	15155	HCJB, Ecuador	0100
9790	R. France Int'l	0100 FF	15160	LV America Latina, Mexico	2200 occasional, SS
9805	R. Cairo, Egypt	0300 AA	15170	R. Tahiti	0400 FF
9820	TWR, Guam	1200 Asian languages	15175	R. Denmark	2030
9835	R. Budapest, Hungary	0100	15195	R. Bangladesh	1230
9850	R. New Zealand	0900	15215	V of Free China, Taiwan	0100 CC, via WYFR
9875	R. Austria Int'l	0200	15235	R. Jamahiriya, Libya	0300 AA
9910	All India Radio	0030	15240	R. Berlin Int'l, E. Germany	0230 EE
9925	BRT, Belgium	0000	15260	RCI, Canada	1800
9950	LV de Fundacion	2100 anti-Cuba, via R. Clarin	15260	BBC	2000 via Ascension Is
11550	RTT Tunisia	0245 AA	15280	KGEI, California	0100 SS
11605	V of Israel	0000	15290	R. Sofia, Bulgaria	0300
11645	V of Greece	2300	15295	V of Malaysia	1230
11660	R. Sofia, Bulgaria	0300	15300	RFI, France	1900 FF
11670	R. France Int'l	2245 via Fr. Guiana	15300	R. Japan	1200
11685	R. Prague, Czechoslovakia	0000	15300	UAE Radio, UAE	2000 AA
11695	KUSW, Utah	0200	15310	R. Norway Int'l	1500
11705	R. Sweden	0000	15330	RTV Marocaine, Morocco	2000 AA
11710	RAE, Argentina	0200 EE to NA	15335	All India Radio	1400
11715	R. Beijing	0300 via Mali	15345	RAE, Argentina	2200
11720	CBC Canada	1400 Northern service	15345	V of Free China, Taiwan	2200 via WYFR
11725	R. Havana Cuba	0100 SS	15360	R. Moscow	1200 Asian languages
11740	V of Free China, Taiwan	0200 via WYFR	15375	R. Cairo, Egypt	2030
11745	Radiobras, Brazil	0200 EE to NA	15400	R. Finland Int'l	1200
11760	R. Havana Cuba	0100 SS	15495	R. Kuwait	days AA
11760	R. Cook Islands	0600	15500	CPBS China	0945 CC
11780	Vatican Radio	0030	15505	R. Kuwait	days
11785	R. Guaiba, Brazil	2230 PP	15510	R. Afghanistan	1730 via USSR
11790	VOIRI, Iran	1330 local	15560	R. Netherlands	1830
11800	RAI, Italy	0100 EE to NA	15566	WYFR, Florida	eves FF, SS, EE
11815	Trans World Radio, Bonaire	1100 EE to NA	15575	R. Korea, S. Korea	1400
11835	SLBC, Sri Lanka	1100	15630	V of Greece	1800
11835	R. Havana Cuba	0600 EE to NA	15650	R. Iran	0230 anti-Iran clandestine
11845	RCI, Canada	0100	17540	V of Unity	1530 anti-Afghanistan dandestine
11850	FEBC, Philippines	1500 EE	17560	BRT, Belgium	1300
11865	Deutsche Welle, W. Germany	0000 SS	17605	R. Netherlands	1330
11870	R. Lira, Costa Rica	0100 SS	17610	R. Damascus, Syria	1900
11880	R. Nacional Espana	0100	17640	R. Pakistan	1200
11890	R. Oman	0400 sign on, AA	17685	R. Moscow	eves
11905	Deutsche Welle, W. Germany	0300	17715	R. Beijing, China	0000 via Mali
11920	RTV Ivoirienne, Ivory Coast	2100 FF	17720	R. Baghdad, Iraq	2100 AA
11925	R. Bandeirantes, Brazil	2300	17745	R. Algiers, Algeria	2000
11930	R. Havana Cuba	0100 SS	17770	R. Oman	0300 AA
11935	R. RSA, South Africa	0200 EE to NA	17815	R. Cultura, Brazil	2230 PP
11940	R. Bucharest, Romania	0200 EE to NA	17820	RCI, Canada	1430
11945	RCI, Canada	2200	17855	R. Beijing, China	0000
11955	R. Nacional, Angola	2130	17875	QBS, Qatar	1630 AA
11970	R. Berlin Int'l, E. Germany	0230 EE	21450	R. Prague, Czechoslovakia	1600
11980	KTWR, Guam	1400			



(from page 39)

occur. Usually with a modern transmitter, its own power output drops automatically when there is a mismatch to avoid any damage in the output stage. However, the drop in power output can be quite drastic.

Such a tuner can also be used to peak the received signal when you listen in on the ham and SWB bands. A tuner is often of benefit in reducing interference and noise components, too. On the SWB and ham bands above 40 meters, a tuner can be especially convenient in delivering a stronger signal to the receiver input and often minimizing the influence of intermodulation distortion components and TV hash.

My testing of outdoor single-wire antennas 73 foot long wire always displayed a good average performance over the SWB bands. Results may stem from the location of the odd harmonics. From the table, the length is a quarter wavelength at low frequency ends of the band (71 foot on 90 meters), a three-quarter wavelength in the mid-frequency range (75 foot on 31 meters) and five-quarter wavelength in the high-frequency range (somewhere between 11 and 13 meters).

A wire cut for a quarter wavelength on 75 meters has a third harmonic resonance between 21 and 25 meters, while one cut for 60 meters would locate a third harmonic position among the 16, 19 and 21 meter

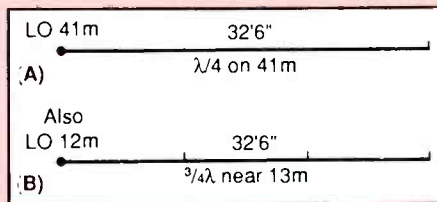


Fig. 3. 32' 6" wire resonates as a $\lambda/4$ on 41M and a $3/4\lambda$ near 13M.

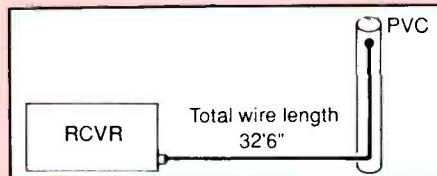


Fig. 4. Simple but effective high-frequency SWB antenna.

bands. All of this indicates why a single long wire antenna is an acceptable shortwave performer and why its results do vary up and down from band to band. Also, its pick-up pattern changes because the receiving pattern changes with frequency. As a result, in some specific direction things do not always work out according to theory, but it is great to experiment with antennas and be both surprised and, sometimes, disappointed, too. Have fun!

PC

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Mobile Satellite Service

Our High-Tech, off the shelf, consumer oriented electronic technology has not yet brought us to the point of having access to satellites for world-wide communications with our combination calculator, spelling dictionary, AM/FM alarm clock radio, satellite transceiver (Dick Tracy style) wrist watches. We have, however, come one step closer to making this a reality. Within the next five years you will be able to equip your car (boat, truck, aircraft or ship) with a communication system that you will gladly trade your cellular telephone for. In fact, the new Mobile Satellite Service (MSat), which is now being developed, is a long distance version of cellular telephone service with several important advantages. MSat offers you standard, full duplex voice, data (Packet format) paging, two-way messaging, one-way broadcast, vehicle and cargo monitoring and radio determination services (finding or locating a vehicle's position to within a few yards).

This two satellite communication network is being developed by two groups in North America; Telesat Canada and American Mobile Satellites, (AMSC). The satellites are scheduled for launch in 1994. They will be located at 106 W and 113 W longitude. One will be a Canadian Satellite, the other, American. Each will be able to provide back-up services for the other should a transponder or other onboard system fail. Telesat and AMSC are working on a system operations agreement, common system design and specifications for mobile equipment.

A third party in the development of MSat is NASA's Jet Propulsion Laboratory (JPL). They are actually developing all the technology and equipment specifications for the system. In exchange for all this research and development, and for launching the first satellite free, NASA will have use of the satellite for two years without cost.

JPL successfully tested the first scanning mobile satellite antenna for MSat in August of '87. It is a roof mounted antenna which automatically scans the horizon for the satellite signal than locks on to it. The antenna is designed to track between 20 and 60 degrees elevation. This test was conducted through one of the Inmarsat spacecraft.

The next segment of the system to be tested was the airborne equipment. In March of '89, JPL tested a two-way digital voice terminal. This narrow band voice mode will be used on all versions of the system, land, sea and air. Due to the limited frequency space, narrow band voice and low-bit rate data communications will be used.



This Atlas Centaur launch carries a commercial communication satellite (NASA)

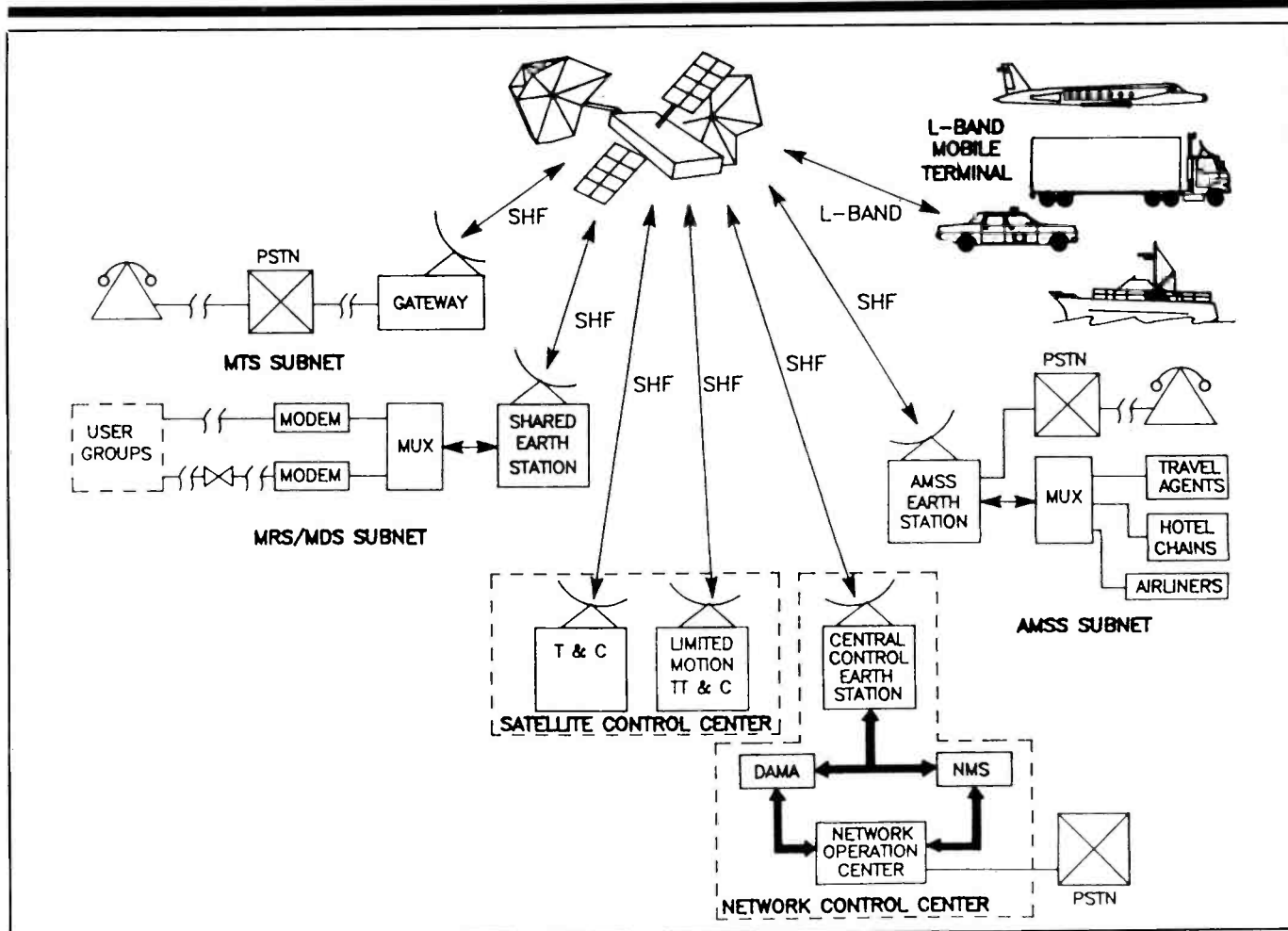
Each channel will occupy only 5 kHz instead of the usual 30 kHz used by narrow band FM stations in the fixed service. Exceptions will, of course, be made for special customers with higher data rate requirements.

During the test, researchers used a voice terminal on the Boeing 707 to communicate with a ground station in Southbury, Connecticut. The jet was flying over the Eastern seaboard during the test. Signals were relayed through one of the Inmarsat spacecraft. Besides testing the equipment, this test proved that aeronautical radio communications for the mid-Atlantic can be greatly improved by use of satellite. At times, planes flying across the Atlantic must relay

their traffic through other aircraft to reach coast stations using the present HF radio systems.

JPL designed the digital voice terminal used during the test. Its advanced digital modulation and coding techniques allowed a signal, consisting of 4.8 kilobit-per-second, to maintain the narrow bandwidth requirements of 5 kHz.

In August of '89, JPL completed the first full scale field test of the land mobile segment of the MSat system. The test was conducted in Australia with the assistance of AUSSAT Pty. Ltd, the Australian National Satellite System. They provided the use for their ground stations and personnel. Japan



MSAT system configuration (courtesy Telesat CANADA).

was also offered an opportunity to take part in this experiment. They offered the use of their Experimental Technology Satellite (ETS-5). All communications during the test were routed through ETS-5.

A mobile unit mounted in a van was sent on a 450 mile drive between Brisbane and Sidney for this test. The van, while maintaining highway speeds, made calls of up to two hours in duration, under a variety of conditions, terrain and natural sources of interference; buildings, trees, etc. The equipment performed as expected.

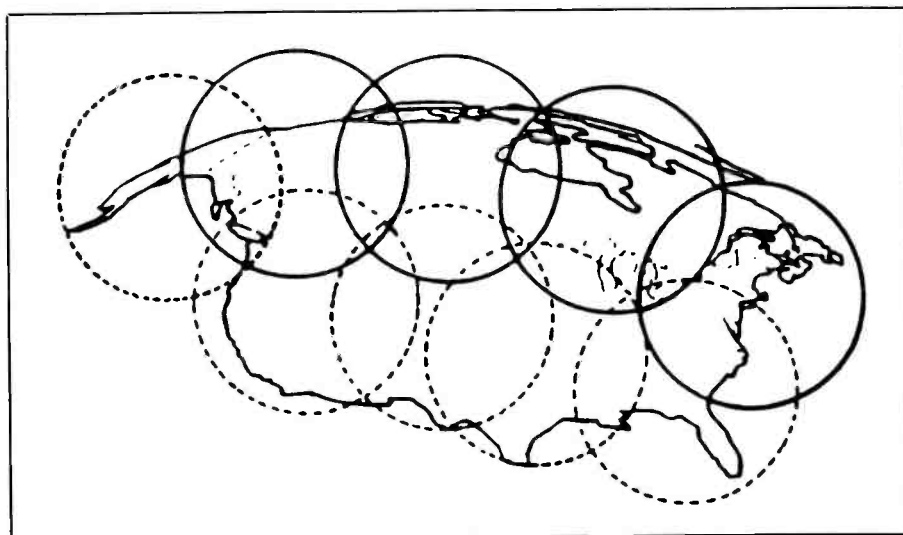
A new digital encryption technique was also tested. This form of voice encryption would meet FBI, DEA and other National Communication System (NSC) security standards.

Security, National Security in fact, is one of the reasons the government is so interested and helpful in developing a mobile satellite system (MSat). A recent study on National Security Telecommunications conducted by the board on Telecommunications & Computer Applications of the National Academy of Sciences, pointed to the need for a mobile satellite system to ensure communications could be maintained during a natural or manmade disaster. The vast majority of government communications, including military and intelligence, is carried

by cable. As these telephone cables are being replaced with fiber-optic cables, it takes fewer cables to handle a higher volume of calls. It also requires fewer system failures to disrupt larger portions of the system. This makes us more vulnerable to acts of terrorism. MSat, or a system of this type, would

provide the needed back-up communications circuits.

The MSat system has been allocated frequencies in the L and Ku bands. L-band frequencies (1.559 GHz downlink and 1.626 to 1.660 GHz uplink) will be used for the communications link between mobile units,



9-beam L-band coverage of Canada and V.5. (courtesy Telesat CANADA)

(land, air and sea), and the satellites. The satellite will downlink this traffic to ground stations, known as Gateways, using frequencies in the Ku-band (13/11 & 14/12 GHz). These Gateway stations access the proper telephone system or computer network to route your calls to their proper destination.

Because of the limited frequency space and expected high number of users, Demand Assigned Multiple Access (DAMA) will be used. This allows the maximum use of both time and frequency space on the satellites. The signals are then transmitted back to the satellite from the ground system using Ku channels. The satellite then downlinks the return signal to the user on L-band.

Narrow channel techniques and DAMA will allow a minimum of 500 voice channels and 32 data channels to be used at once. The data format is Packet. The same mode used by Amateur Radio Operators and others. The data channels will handle up to 2.4 kilobits per second. The two satellite system will be able to support 26,000 subscribers on the voice circuits and 80,000 on data circuits.

Though services will be tailored to customer needs, two basic services to be offered are Interconnected Mobile Radio Service (IMRS) and Mobile Data Services (MDS). IMRS is a voice (telephone types) service

Typical MSAT Service Applications

(COURTESY TELESAT CANADA)

PUBLIC SAFETY	Police, Ambulance, Search and Rescue, Fire Fighting and Emergency Relief Operations
AERONAUTICAL	Operational Communications to Commercial Aircraft, Public Correspondence, Air Traffic Control and Safety
MARINE	Operational Communications to Domestic Coastal Fishing Vessels, Coast Guard Operations, Research Vessels, Oceanography Data Acquisition and Electronic Data Broadcast to Marine Vessels
LAND APPLICATIONS	Construction Projects in Remote Areas, Resource Development: Forestry and Oil and Mineral Explorations, Environmental Monitoring, Pipeline and Oil Well Operations and Hydro Electric Generation; Transportation: Shipment of Hazardous Cargo, Just-In-Time Operations, Wide-Area Vehicle Monitoring and Vehicle Positioning

with all the expected convenience. These include call forwarding, call alert, call queuing, priority calls, etc. The MDS is just that. Non-voice services like data and FAX. Voice capability can be added to the MDS system. So can the radio determination services. This will allow transportation ser-

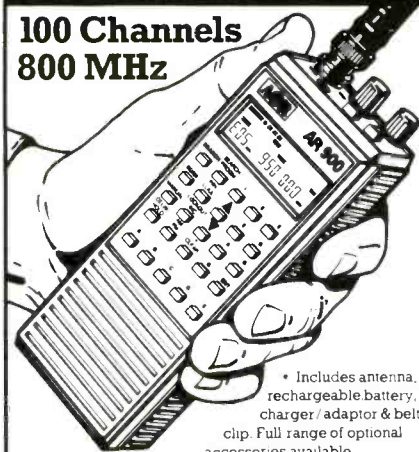
vices, company sales reps and law-enforcement agencies to locate their vehicles within seconds, or keep a continual watch on their movement.

Remember, your comments, questions and suggestions are always welcome See you next month.

PC

New Scanner by AOR

100 Channels
800 MHz



* Includes antenna, rechargeable battery, charger/adaptor & belt clip. Full range of optional accessories available.

- Covers 27-54 MHz, 108-174 MHz, 406-512 MHz, and 830-950 MHz.
- 5 Scan Banks and 5 Search Banks.
- 25 Day Satisfaction Guarantee. Full Refund if not Satisfied.
- No Frequencies cut out.
- Size: 2" x 5 3/4" x 1 1/2" wt: 12 oz.

AR900

Total Price, Freight Prepaid
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CIRCLE 156 ON READER SERVICE CARD

CIRCLE 154 ON READER SERVICE CARD

It's good to hear from the many readers who write to this column to tell us that as soon as their issue of POP'COMM arrives each month, they go right to work using the information here to constantly update their AM and/or FM broadcast station data in reference directories such as *The M Street Radio Directory* and the *FM Atlas*.

We do receive some questions, too, about the monthly new station and callsign listings we present here, and it will probably be of use in better understanding our data to address those inquiries. For instance, it has been pointed out that sometimes the same city and frequency shows up in more than one issue to indicate an application being filed for a new AM or FM station. The question is, why would an applicant for a new station present more than a single application for the same broadcasting facility?

Many readers are probably not aware that, over a period of several months, there may be as many as several dozen different and competing applications filed for a particular frequency in a given community. The FCC will have to evaluate each of those applicants and select only one which, in the agency's opinion, is best suited or qualified to operate the proposed facility. All other competing applicants are dismissed or otherwise returned. Sometimes a losing applicant may pursue the matter by protesting the denial and demanding a hearing for reconsideration. Other applications may have been returned because the forms weren't completed, or filed properly, and are sent back for no other reason than that. However, as the applications for the one possible assignment are sent in over a span of months, our listings will reflect these different applications in more than one issue.

Another question asks what are listings mean by stating that "permits" are issued. This means that the FCC has selected one of the applicants for a frequency in a community and granted them permission to go ahead and build their station to the specifications outlined in their approved application. This isn't a green light for the station to commence actual operation, but a broadcasting license is usually issued in due course if the station's construction is properly completed. There are occasions when an application is approved, a construction permit is issued, and (for whatever reasons—usually financial) it is never built. The "new" station may even have been issued a callsign and even show up in station directories, even though it might never go into operation.

We are asked about facility changes and why some AM stations seek permission to reduce their transmitting power. Those who ask us about this go by the theory that "more



Michelle Shute, Pensacola, FL snapped this photo of KSKQ/1540 in Los Angeles, CA during a recent visit. Michelle promises to also give us a look at some of her FM DX QSL's.

is better," and are puzzled why a station would want to reduce their coverage by cutting back on their transmitter power. It's probably not generally known that, unlike hams and CB'ers, broadcasters aren't exactly free to utilize the biggest, hairy-chested, gain antenna they can build or buy. Instead, depending upon many factors (class of station, frequency used, transmitter power, nearby co-channel stations, antenna location, hours of operation, etc.) they are most likely restricted to a rather limited selection of allowable antenna types.

Some stations must use directional antennas day and night, perhaps changing the signal patterns for day and night operation. Other stations can use omnidirectional antennas during certain hours, but are required to switch to directional signal patterns during other hours. These requirements are all spelled out in considerable de-



An eye-catching QSL from Trans World Radio, Bonaire, Netherlands Antilles. This was sent to us by Chuck Roswell, TWR's Frequency Coordinator, who suggests listening for the station on 800 kHz on Sundays and Mondays from 0215 to 0530; Tuesdays through Saturdays from 0215 to 0430 for English programming beamed towards North America.

Application Filed For New AM Station

CA San Martin 1120 kHz

Applications For New FM Stations

AL	Dothan	101.3 MHz
AL	Opelika	96.7 MHz
AR	Clarendon	107.3 MHz
CO	Fountain	96.1 MHz
CO	Pueblo	90.7 MHz
FL	Crystal River	90.1 MHz
FL	Live Oak	106.1 MHz
FL	Port St. Lucie	101.3 MHz
FL	White City	104.7 MHz
IN	Battle Ground	98.7 MHz
IN	Clarksville	93.1 MHz
IN	Crown Point	90.5 MHz
IN	Nashville	95.1 MHz
KY	Horse Cave	100.7 MHz
MI	Crystal Falls	100.7 MHz
NC	Winston-Salem	91.3 MHz
NM	Central	95.3 MHz
NV	Indian Springs	99.3 MHz
NV	Laughlin	93.5 MHz
NY	Montauk	94.9 MHz
OH	Chillicothe	91.9 MHz
OH	Englewood	94.5 MHz
OH	So. Webster	94.9 MHz
PA	Hawley	105.5 MHz
PR	Esabel Segunda	89.3 MHz
TX	Haltom City	93.3 MHz
TX	Santa Fe	89.7 MHz
WV	White Sulphur Springs	93.3 MHz
WY	Fort Bridger	99.3 MHz

Permit Issued For New AM Station

MI Sault Ste. Marie 1400 kHz

Permits Issued For New FM Stations

AL	Huntsville	90.9 MHz
AR	Marianna	106.9 MHz
AZ	Ajo	98.3 MHz
AZ	Tuba City	91.5 MHz
CA	Palm Desert	91.7 MHz
CT	Enfield	97.9 MHz
ID	Caldwell	89.5 MHz
KS	Burlington	95.3 MHz
KY	Elizabethtown	90.9 MHz
MI	Allegan	92.3 MHz
MN	Springfield	105.7 MHz
MN	Wabasha	102.5 MHz
MO	Chaffee	104.7 MHz
NM	Angel Fire	99.1 MHz
NY	Cape Vincent	94.7 MHz
NY	Catskill	98.5 MHz
OR	North Bend	107.3 MHz
PA	Tobyhanna	107.9 MHz
SC	Pamplico	102.1 MHz
TX	Harlingen	88.9 MHz
TX	Lufkin	88.9 MHz
TX	Victoria	92.3 MHz
WI	Blocmer	95.1 MHz

Requesting AM Callsign Changes Changed FM Callsigns

Current	Seeking	
KACY	KIOV	Payette, ID
KZZP	KXAM	Mesa, AZ
WAME	WCNT	Charlotte, NC
WCHB	WMKM	Inkster, MI
WGNG	WTIN	Indian Rocks Beach, FL
WVOI	WDRS	Toledo, OH

New	Former	
KAGG	KIXF	Madisonville, TX
KCWM	KSMN	Barstow, CA
KDOE	KHSB	Brigham City, UT
KFRG	KQLH	San Bernardino, CA
KHLT	KHLT-FM	Little Rock, AR
KIOB	KJYE	Grand Junction, CO
KJOY	KJAX	Stockton, CA
KJUG-FM	KJUG	Tulare, CA
KJYE-FM	KVEE-FM	Grand Junction, CO
KKLD	KJYK	Tucson, AZ
KKUR	KMYX	Encino, CA
KLIT	KLIT-FM	Glendale, CA
KLRS	KLRS-FM	San Jose, CA
KMJC-FM	KLIO	Clinton, IA
KMRK	KQTX	Odessa, TX
KPUR-FM	KHWK	Amarillo, TX
KRCY	KAWA	Kingman, AZ
KRSU	KNOW-FM	Appleton, MN
KRVK-FM	KCWV-FM	Leavenworth, KS
KSJN	KSJN-FM	Minneapolis-St. Paul, MN

Requesting FM Callsign Changes

Current	Seeking	
KNNS	KMFY	Grand Rapids, MN
KQPD	KQXR	Payette, ID
WBLM	WTHT	Lewiston, ME
WJMY	WXNL	Baraga, MI
WNQQ	WLCY	Blairsville, PA
WNWY	WZNL	Norway, MI
WTHT	WBLM	Portland, ME
WYRS	WRKK	Jersey Shore, PA
WZMX	WKQL	Russellville, AL

Changed AM Callsigns

New	Former	
KBIS	KHLT	Little Rock, AR
KCWW	KNIX	Tempe, AZ
KIXA	KKIS	Pittsburg, CA
KJAX	KJOY	Stockton, CA
KJUG	KFIY	Tulare, CA
KJYE	KVEE	Grand Junction, CO
KJYK	KAIR	Tucson, AZ
KMJI	KRMD	Shreveport, LA
KSCO	KLRS	Santa Cruz, CA
KTEO	KOJO	San Angelo, TX
KTYZ	KVCK	Wolf Point, MT
KVOZ	KWNW	Santa Fe, NM
WBEE	WMNP	Harvey, IL
WBSK	WRAP	Portsmouth, VA
WCEO	WKLL	Wood River, IL
WDIX	WYDK	Yadkinville, NC
WDRZ	WCPH	Etowah, TN
WFBL	WLLF	Syracuse, NY
WGZB	WJDW	Corydon, IN
WJGC	WJGR	Jacksonville, FL
WKNN	WPMO	Pascagoula, MS
WKZN	WJBQ	Gorham, ME
WMEQ	WMNE	Menomonie, WI
WNBR	WAKS	Fuquay-Varina, NC
WNLT	WBZE	Indian Head, MD
WNWZ	WEZI	Germantown, TN
WOJY	WMGZ	Sharon, PA
WPDJ	WVEN	Fort Wayne, IN
WRCA	WDLW	Waltham, MA
WRKT	WFXO	Northeast, PA
WSNQ	WMJZ	Gaylord, MI
WSTK	WPVA	Colonial Hts., VA
WTYR	WCHU	Soddy-Daisy, TN
WWOK	WGBF	Evansville, IN
WXGI	WJDK	Richmond, VA
WXLS	WMTX	Biloxi, MS
WXTZ	WIRE	Indianapolis, IN
WYSY	WMRO	Aurora, IL
WZGO	WWML	Portage, PA

KWBG-FM	KZBA	
KXLT	KMJI	
KYAY	KATD	
KYBG-FM	KZRZ	
WBT-FM	WBCY	
WBZW	WLMA	
WDRZ-FM	WDRZ	
WEJT	WSHY-FM	
WENL	WCLS	
WFRA-FM	WVEN	
WGQR	WSAD	
WGZB-FM	WJDW-FM	
WHLP-FM	WCQT	
WKNN-FM	WKNN	
WKXK	WWEG	
WKZN	WJBQ	
WLCY	WNQQ	
WMEQ-FM	WMEQ	
WMJC	WXTZ	
WMSH	WSTR-FM	
WMXD	WVAE	
WNFB	WQPD	
WNPT-FM	WBAN	
WNUY	WBGT	
WODJ	WPLB-FM	
WOJY-FM	WMGZ-FM	
WOLL	WMXQ	
WQXJ	WLFA	
WRCQ-FM	WDKS	
WRKE	WOVU	
WRKT-FM	WRKT	
WSTR-FM	WQXI-FM	
WTBI-FM	WHBS	
WWKC	WNQV	
WWRB	WTLQ	
WXKO-FM	WKXK	
WXLS-FM	WXLS	
WXVK	WZTX	
WYFO	WWOL	

tail in the station's license grant and can't be modified on a whim. Still, they might be modified to produce more beneficial coverage by obtaining FCC approval to vary the technical parameters. For instance in order to protect the signal of a co-channel station in Connecticut, 5 kW station WGLI in Babylon, NY was required to use a directional

antenna on 1290 kHz. The result was that most of its signal was being sent hundreds of miles out over the Atlantic Ocean, with only a very small signal lobe left to reach the WGLI target audience.

Station engineers, however, realized that if the station were to cut its power from 5 kW to only 250 watts, an omnidirectional an-

Radio Teleis Eireann
Ireland's national radio and television service

Radio Teleis Eireann, Donnybrook, Dublin 4, Ireland

We are glad to verify your reception report of
4-10-1988
of our transmission on 567.6 kHz
Radio 1

Our reference
RI Jullarao

Best wishes to your future listening
Yours faithfully
RTE

PLEASE COUNTRY: Radio 1 is the only national radio station in Ireland. It is the only station in the world which has been granted a licence to broadcast on the 567.6 kHz frequency in the United States. It is the only station in the world which has been granted a licence to broadcast on the 567.6 kHz frequency in the United States. It is the only station in the world which has been granted a licence to broadcast on the 567.6 kHz frequency in the United States.

Printed and Published by John Joseph Lynch, Cork, Ireland, Dublin 18, Ireland

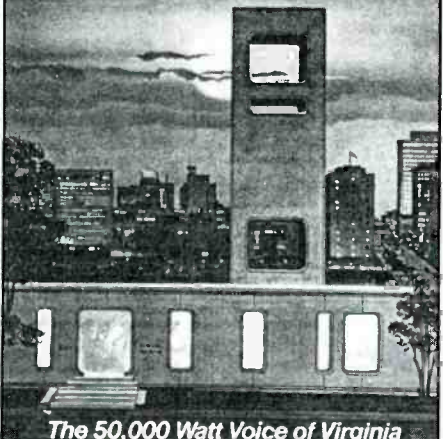
An attractive veri from Ireland's "Radio 1" on 567 kHz, submitted to the column by W. Mewes, Oakville, the Ontario.

tenna might be used with the result that local coverage would actually be increased. At 250 watts, a directional antenna would no longer be required to protect the station in Connecticut from the WGLI signal. This is a typical example of why a station might seek FCC approval to reduce power, although our brief listings don't go into additional details relating to antenna directivity that may be tied to the change requested or approved.

We are also asked why stations seek to change their frequency. This is most especially noted with FM casters. These changes may be to escape interference from a co-channel, or adjacent channel station in another community, or they may be necessary if the station is to increase its coverage by means of a higher power transmitter, higher antenna, or the use of an antenna design

WRVA

**RICHMOND, VIRGINIA
1140 KHZ
On Your AM Dial**



The 50,000 Watt Voice of Virginia

The QSL from 50 kW WRVA/1140, Richmond, VA. This was sent in by Randy Bradford, Belleville, NE.



This Is To Confirm
Your Reception On

SEPT. 22, 1989

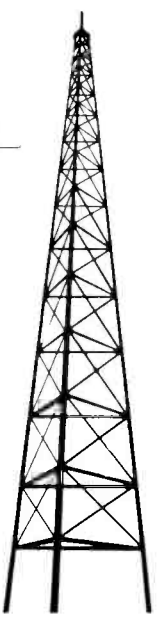
of **KFI 640** RADIO
California

Los Angeles, California

Power: 50 Kw
640 KHz
C-Quam AM Stereo
Transmitter: La Mirada
California

Antenna: 750 feet
KFI Radio operates
24 hours daily
Non-Directional
Since 1922

73's
Marvin Collins
Chief Engineer



Los Angeles' KFI/640 sent this QSL to Randy Bradford, Belleville, NE.

The FCC doesn't always approve these requests, and may dismiss them for various reasons.

Sometimes a station applies to the FCC to grant a change in its existing callsign. This may reflect a change in ownership, program format, or to tie in with a newly-adopted slogan. In several cases we know of, it has been used to shed a worn-out image from which the station wished to distance itself. There are probably at least a dozen more reasons why a station might seek to get a new set of call letters. Assuming that the call letters



This bold KNAC bumper sticker was submitted by K. Stanley, West Hills, CA.

producing more gain or a different signal pattern. In some instances, the frequency change might be only part of the story, and connected with a completely revamped image including a new callsign, program format, and roster of air personalities.

Broadcasters, of course, must seek FCC approval for facilities changes, including modifications in frequency. A station needs

approval to change the location of its transmitter, modify its hours of operation beyond certain limits, to relocate the main studio, to change its "city of license," to replace or modify its transmitter, to increase or decrease power, to make changes in its antenna system (height, signal pattern or polarization, gain), even the way certain technical measurements are made, plus other things.

Applications For AM Facilities Changes

KAGE	Winona, NM	1380 kHz Increase to 4 kW days.
KBXG	Denver, CO	710 kHz Increase to 9 kW days.
KKGO	Hesperia, CA	540 kHz Move to Costa Mesa
KMVP	Commerce City, CO	670 kHz Drop to 2.5 kHz days.
KOGT	Orange, TX	1600 kHz Drop to 250 watts.
KSDP	Sand Point, AK	840 kHz Move to 830 kHz.
KSEV	Tomball, TX	700 kHz Increase to 25 kW.
WAEC	Atlanta, GA	860 kHz Add 500 watts nites.
WAMY	Amory, MS	1580 kHz Drop to 1 kW days.
WCQL	Portsmouth, NH	1380 kHz Increase to 5 kW.
WNDZ	Portage, IN	750 kHz Increase to 17 kW.
WTLN	Apopka, FL	1520 kHz Move to 700 kHz, 10 kW.

Applications For FM Frequency & Facilities Changes

KGMN	Kingman, AZ	100.1 MHz Move to 99.9 MHz
KKTC	Brownfield, TX	103.9 MHz Move to 104.3 MHz
KXRA	Alexandria, MN	92.7 MHz Move to 92.3 MHz
KZBK	Brookfield, MO	97.7 MHz Move to 96.7 MHz
WKDO	Liberty, KY	105.5 MHz Move to 98.7 MHz
WOBN	Westerville, OH	105.7 MHz Move to 101.5 MHz
WPAR-FM	Claremont, NC	88.1 MHz Move to Hickory
WRMH	Picayune, MS	106.3 MHz Move to 106.7 MHz
WWBA	Madison, FL	104.1 MHz Move to 102.7 MHz

AM Facilities Changes Approved

KCIS	Edmonds, WA	630 kHz Drop to 4 kW days.
KEBE	Jacksonville, TX	1400 kHz Drop to 450 watts.
KGTN	Georgetown, TX	1530 kHz Increase to 10 kW days.
KKDA	Grand Prairie, TX	730 kHz Add 500 watts nites.
KPBC	Dallas, TX	1040 kHz Increase to 10 kW days.
KRVE	Santa Rosa, CA	1150 kHz Increase to 5 kW nites.
KSSA	Plano, TX	1600 kHz Move to Cockrell.
WAMW	Washington, IN	1580 kHz Increase to 500 watts.
WBUD	Trenton, NJ	1260 kHz Increase to 2.5 kW nites.
WBZK	York, SC	980 kHz Drop to 3 kW.
WILC	Laurel, MD	900 kHz 500 watts nites.
WJBQ	Gorham, ME	1590 kHz Run 10 kW days, 1 kW nites.

FM Facilities Changes Approved

KBBU	Los Lunas, NM	102.3 MHz Move to 102.5 MHz
KSKI-FM	Sun Valley, ID	93.5 MHz Move to 103.7 MHz
KWSP	Santa Margarita, CA	106.3 MHz Move to 106.1 MHz
KWYX	Jasper, TX	102.3 MHz Move to 102.7 MHz
WDKS	Dunn, NC	103.1 MHz Move to 103.5 MHz
WQIC	Marion, MS	103.1 MHz Move to 95.1 MHz

New FM CallSigns

KADI Republic, MO
 KBSM McCall, ID
 KCCN-FM Honolulu, HI
 KFXJ Abilene, TX
 KHNE-FM Hastings, NE
 KLNE-FM Lexington, NE
 KLUK Laughlin, NV
 KOKN Bibbs, NM
 KQHK Hutchinson, KS
 KRAA Perryville, MO
 KRAC Morgan Hill, CA
 KRAO Colfax, WA
 KRAQ Jackson, MN
 KRBG Bunkie, LA
 KRBH Hondo, TX
 KRBJ Taos, NM
 KRBO Las Vegas, NV
 KRGA Kemmerer, WY
 KRGF Greenfield, NV
 KRGS W. Yellowstone, MT
 KSBH Coushatta, LA

KTBP Kilgore, TX
 KTTZ Ajo, AZ
 KUAA Custer, SD
 KVPA Port Isabel, TX
 KVPC Joaquin, CA
 KVPH Bismarck, ND
 KVQB Cabot, AR
 KWSK Daingerfield, TX
 KWFN Fredonia, KS
 KXNE-FM Norfolk, NE
 WAAW Williston, NC
 WBDX Trenton, GA
 WCFE-FM Plattsburg, NY
 WCLS Oscoda, MI
 WEAJ Lynnville, IL
 WEIF Utica, NY
 WEMR-FM Tunkhannock, PA
 WEOA Beverly Hills, FL
 WFNP New Paltz, NY
 WFOT Huntingdon, TN
 WFOU Margate City, NJ
 WFOV Pittsfield, ME

WFOV Union City, OH
 WHAA Madison, ME
 WHAY Whitley City, KY
 WHFD Lawrenceville, VA
 WHFE Lakeland, Ga
 WHFI Lindside, WV
 WHKR Rockledge, FL
 WHYB Peshtigo, WI
 WKXJ So. Pittsburg, TN
 WJED Dogwood Lakes Estate, FL
 WJFX New Haven, IN
 WMHX-FM Poughkeepsie, NY
 WMVW Maryville, WI
 WNNR-FM Sodus, NY
 WPMR Tobyhanna, PA
 WQLC Watertown, FL
 WRED Clyde, NY
 WRIJ Masontown, PA
 WSBY-FM Salisbury, MD
 WTUA Stephen, SC
 WTUB Georgetown, SC
 WTUK Harlan, KY

WTUN Pocastalico, WV
 WTUS-FM Mannington, WV
 WUAW Erwin, NC
 WVEH Easthampton, NY
 WXRI Windsor, VA
 WZJM Harrisonburg, VA
 WZRI Cleveland, MS

Deleted Callsigns

KBSN-FM Moses Lake, WA
 KFRC Rosenberg, TX
 KLUK Georgetown, TX
 KOUC Opelousas, LA
 KSCO Santa Cruz, CA
 KTCM Washington, MO
 WHTA Brantley, AL
 WKDL Oxford, AL
 WKLS Beverly Hills, FL
 WMEY Seymour, TN
 WQMC Sumter, SC
 WRBT Mt. Carmel, IL
 WTUC Aiken, SC

they want are available (not already assigned to another station), don't spell out anything bad, can't be confused with the call sign of another station in the applicant's local area, and fit into the FCC's "W" and "K" prefix format, the chances are that the request will be granted. Believe it or not, there are firms that furnish broadcasters with computer printouts of unassigned call letters from which they can consider for new sta-

tions, or for use by existing stations wishing to make a change.

On occasion, a call sign that one station really wants badly may be in use by another broadcaster or even be assigned to a ship. It isn't unknown for the parties involved to come to some sort of private agreement whereby the "owner" of the call sign agrees to relinquish it, pending FCC approval.

If a new station has no specific request for

a particular call sign, then the FCC simply assigns one from their list of available call signs for the broadcast service.

I hope this gives some general overview of what the information given in our data represents. We are always seeking your input in the form of station photos, bumper stickers, QSL's, decals, news clippings, and your comments relating to AM and FM
PC

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KENWOOD: TS-940, 440, 140, R-5000, 680, 711, 811
YAESU: FT-767, 757 GXII, 757 GX, 747, 9600, 736, 212, 712
JRC: NRD 525
COLLINS: 651 S1

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CURRENT MENU	MAIN MENU	VERSION 9.1																		
MEM 394 K STACK 1 K		LOCAL 16:54:00																		
DATE: 10-24-1989	SELECT FUNCTION	MODE= USB U.T.C.: 20:54:00																		
<table border="1"> <tr> <td>1. READ MEMORY CHANNELS</td> <td>7. MEMORY CHANNEL</td> <td>DIAL</td> </tr> <tr> <td>2. INPUT DESIRED FREQUENCY</td> <td>8. WRITE MEMORY TO VFO</td> <td>VFO A</td> </tr> <tr> <td>3. 500 KHZ UP</td> <td>9. UTILITY MENU</td> <td></td> </tr> <tr> <td>4. 500 KHZ DOWN</td> <td>ALT-P. CHANGE MENU PAGE</td> <td></td> </tr> <tr> <td>5. ACTIVATE/DEACTIVATE CLARIFIER</td> <td>ALT-Z. DISPLAY OR PRINT LOG</td> <td></td> </tr> <tr> <td>6. SWEEP BETWEEN 2 LIMITS</td> <td>ALT-Q. END</td> <td></td> </tr> </table>			1. READ MEMORY CHANNELS	7. MEMORY CHANNEL	DIAL	2. INPUT DESIRED FREQUENCY	8. WRITE MEMORY TO VFO	VFO A	3. 500 KHZ UP	9. UTILITY MENU		4. 500 KHZ DOWN	ALT-P. CHANGE MENU PAGE		5. ACTIVATE/DEACTIVATE CLARIFIER	ALT-Z. DISPLAY OR PRINT LOG		6. SWEEP BETWEEN 2 LIMITS	ALT-Q. END	
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<table border="1"> <tr> <td>30.000 MHz</td> <td>0.100 MHz</td> <td>17.44300 MHz</td> <td>USB</td> <td>WIDE</td> <td>38</td> </tr> </table>			30.000 MHz	0.100 MHz	17.44300 MHz	USB	WIDE	38												
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TELEPHONES ENROUTE

BY TOM KNEITEL, K2AES

WHAT'S HAPPENING WITH CELLULAR, MARINE & MOBILE PHONES

Put Another Nickel In . . .

A frequently asked question about cellular service centers around, is why the mobile subscriber must pay for *incoming* calls. Most people don't have any problem with understanding that they're going to be expected to shell out for all of the calls they make, but don't seem to be able to see a clear logic in why they're also expected to pay for calls they receive. Certainly, this isn't the way it's done in the maritime, or non-cellular car phone services.

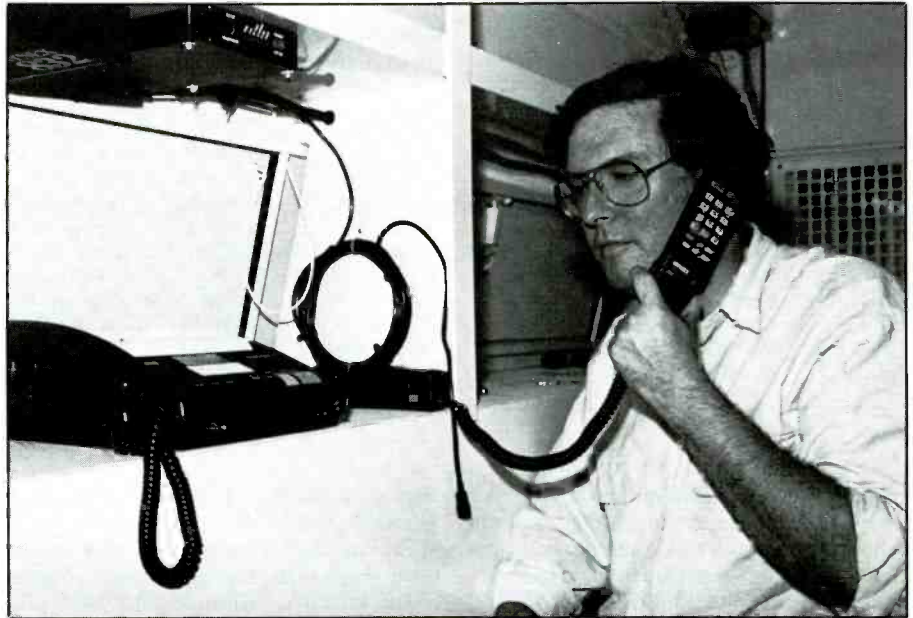
I've posed this question to representatives of several cellular service suppliers and received such a curious assortment of widely varied answers that I've rather come to believe that there really isn't any single pat response that the industry has thusfar agreed upon to cause subscribers to stop wondering about this seemingly odd policy. Probably the most candid reason I was presented was from the rep who said he really didn't know, except to say that this is the way the cellular service was set up and all service suppliers have no choice but to tow the line with the practice. Sounds about right to me.

If you stop to think about it, however, you might assume that cellular air-time rates can run rather high, and if a mobile unit is out of its primary operating area, there are also roaming charges and (in many cases) daily "start up" fees to add to the costs. My guess is that the policy of having the car phone subscriber pay for all calls was put into effect because very few people would ever place calls to cellular car phones once they learned what the cost might run. Perhaps the logic was that those who could afford and wanted the luxury of a cellular phone should be willing and able to ante up for all costs and fees. Just a guess, plus my suggestion to be careful about which of your gabby friends and relatives you give your car phone number to.

Note, though, that a number of cellular service suppliers are cutting their rates to a significant degree. Southern California is one area where this could be happening soon, especially in regard to roaming charges. Cellular Services, Inc. (CSI), which operates in the Southern California area, could possibly even offer a flat call rate to its subscribers, regardless of where they may originate the call.

The Convenience Doesn't Cost — It Pays!

You might take the mindset that, even if you've got to pick up the tab for all of the chatter, the convenience, peace of mind, and enjoyment of being able to send and re-



Mark Holland, of Mark Robinson Holland Associates, uses one of the firm's two cellular phones in their emergency response vehicle. The phones are used for voice and non-voice information exchange at sites of potential environmental disasters.

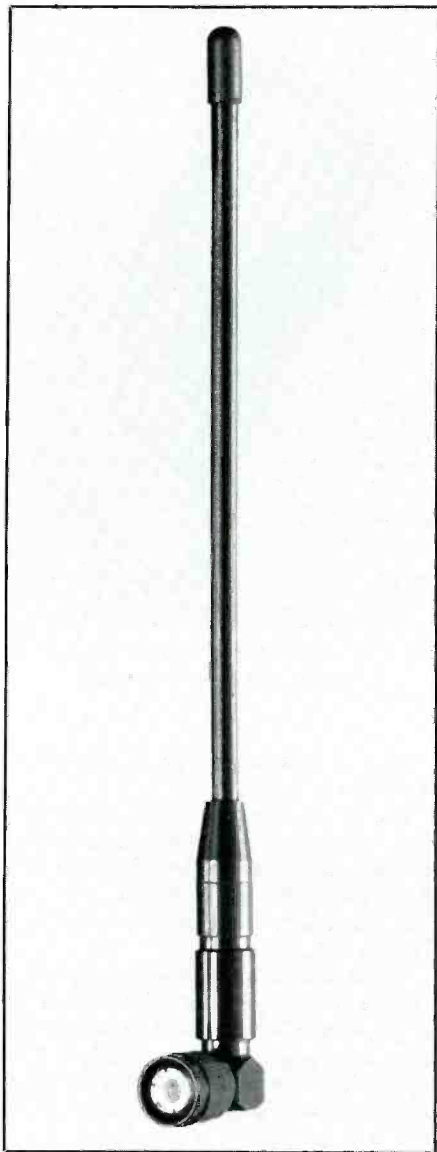
ceive business, personal, and emergency calls from your vehicle or boat is well worth any cost within your means. Every day we hear of new things you can do with your cellular.

Subscribers of Bell Atlantic Mobile Systems in the Delaware Valley can, while driving in Mercer, Bucks, Burlington, and Cam-

den counties, or in metro Philadelphia can place free calls to the station WHWH (1350 kHz) news department to report accidents, construction, flooding, or any newsworthy events. This system is called the "Bell *1350 Network" and is accessed by dialing *1350 from a Bell Atlantic subscriber phone within the area noted.



Two cellular phones are now in use by the Waterfront Emergency Services of Piermont, NY. This search and rescue team uses the phones to contact emergency medical personnel.



This Angle Spike antenna is ideal for trans-portable cellu-lars.

Metro One, the non-wireline cellular network in the New York and New Jersey metro areas, has joined forces with New York City all news station WINS (1010 kHz) to form the "Metro One-WINS Phone Force." The idea is for Metro One subscribers to call in traffic jams, road hazards, and highway accidents. This is done by dialing 1010 SEND, which will be answered by an operator who will take the information and pass it along to the Metro One 22/Shadow Traffic Network. Anyone else can report a traffic problem to the Metro One-WINS Phone Force by dialing (201) 314-1010.

Metro One subscribers can also use their cellu-lars to dial 911 for emergencies. Such calls are automatically switched to the nearest source of emergency services, typically a local, county, or state police station, a fire department, or rescue squad, as required by the caller. Metro One points out that this is far quicker and more efficient than attempting to summon help via a CB.

Wilcon/Cellular One, of Youngstown, OH instituted a new emergency calling number that makes it easy and fast to summon help while on the road. The new service is called Star One One (*11), which is what the company's subscribers must dial to access the service. Incoming calls are automatically connected (via one of 36 incoming lines) with the Advanced Gold Cross dispatch Center in Struthers which will make immediate contact with police, fire, or medical services. This service covers Mahoning and Trumbull Counties in OH, also Mercer County, PA. Gold Cross dispatches for several area public safety agencies and its dispatchers are all certified EMT's. The Star One program has the support of area public service agencies as well as Mothers Against Drunk Driving (MADD).

Cellular On Duty

Mark Robinson Holland Associates, headquartered in Methuen, MA is a firm that specializes in analyzing and responding to potentially hazardous environmental situations. They recently installed two NYNEX Mobile cellular phones in their emergency response vehicle, which is on call 24 hours a day, every day of the year. The cellu-lars are used provide a vital communications link during emergencies and to transmit crucial data back and forth from a disaster site. Typical disasters to which the vehicle responds include radioactive spills in laboratories, hazardous waste and oil spills, and chemical fires.

A computer, modem, and FAX machine are hooked to the cellular phones so that important data can be exchanged and analyzed as rapidly as possible. These non-voice transmissions, in addition to providing a printed record of information that needs to be retained and passed along, also provide an added degree of confidentiality to the exchange of data.

NYNEX Mobile Communications donated two cellular phones to the Waterfront Emergency Services of Piermont, NY. This is a volunteer group that conducts search and rescue operations along the Hudson River between Nyack, NY and Alpine, NJ. The cellular will permit rescue crews to have instant access to doctors and other emergency medical personnel.

Cellular One donated transportable cellular phones to the Nashville (TN) Airport Authority for use by the Authority's staff and the news media during times of emergency. At least ten such phones will be available for this purpose and will be available at the Authority's portable command post.

Hardware Department

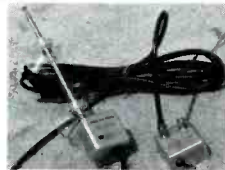
The Angle Spike is a new cellular antenna for use with portable and transportable units. This is a rubberized antenna offering 3 dB gain that mounts right on a bag phone via the antenna's right angle TNC type connector. It will meet (or exceed) the perfor-

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The M-11 Series from Nokia-Mobira can be installed just about anywhere.

mance of most factory supplied "built-in" antennas.

For more information on the Angle Spike and other innovative cellular antennas, contact Rosemary Maher, The Antenna Company, 5401 Dansher Rd., Countryside, IL 60525, or circle 106 on our Reader's Service.

Nokia-Mobira announced a new line of cellular phones featuring unlimited installation options. Known as the M-11 Series, the new line consists of two units, the LX-11 and MTX. The overall design of the handsets mark the major differences between the two units.

The M-11 Series is ideal for persons wishing to move their phone from one installation to another (car/van/boat/truck) with very little fuss. The M-11 has an (optional) noise cancelling, hands free mike system that eliminates echo, feedback, and unwanted background noise pickup often associated with hands free conversation. These units measure less than 5" wide by less than 8" wide, and weigh just over 2 lbs., which is a small package for full powered (3 watt) phones. Full standard features are included are: separate security and lock codes, user programmable unlock code, call timer, and an indicator to show that a call was attempted while you weren't around.

For more information, contact Nokia-Mobira Inc., 2300 Tall Pines Dr., Suite 100, Largo, FL 34641, or circle 107 on our Reader's Service.

This column would like to hear from you with cellular information and questions, newspaper clippings, and whatever. We'd also like to hear from cellular service suppliers, and from equipment manufacturers with information about new cellular products.

PC

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THE EXCITING WORLD OF RADIOTELETYPE MONITORING

It appears that there will be less RTTY traffic to be monitored from Egyptian embassies to the government offices in Cairo. No, they're not abandoning HF Radio for satellite transmissions. It's because of a quirk in the way Egyptians observe their weekends.

The weekend in Egypt begins on Friday, the Islamic Sabbath, and is supposed to end on Saturday. But banks and some businesses extend the weekend to Sunday morning, while other businesses begin to empty out for the weekend on Thursdays. All this leads to confusion as to what is the actual weekend.

An article in The New York Times says that a recent government edict has defined the weekend as being on Thursday and Friday, but not Saturday or Sunday. Many Egyptians are not happy with the decision to be sure, and it's this decision that'll also affect your RTTY monitoring of Egyptian embassies.

Now the Egyptian Foreign Ministry offices will be closed on Thursdays and Fridays. But their embassies observe the Western weekend and are closed on Saturdays and Sundays. This leaves just three days, Mondays through Wednesdays, for Egyptian embassies to contact Cairo over HF Radio.

In last July's RTTY column, I talked about the many RTTY stations that I found between 29,700 kHz and 30,000 kHz. By the time the column was ready to appear all the stations that were monitored had taken a vacation. No sounds of RTTY signals could be heard there by me, and part of the blame had to be put upon the solar storms that were occurring at the time.

Then the July issue came out when none of the RTTY activity that I mentioned seemed to be happening. Such is the life of a columnist. Anyway, I was not able to monitor anything above 29,700 kHz for a long time afterward although I had tried many times to find something.

It wasn't until November rolled around that I was able to find RTTY traffic up there again. Reports of that activity appear in this month's column. So, when April comes around, and you can't seem to find similar activity to mine, I hope you'll understand the situation. Keep trying. The stuff is there, but some effort has to be made to find it.

Now to the RTTY logbook, showing some of the activity I monitored in a month's time.

**RTTY Intercept
All Times Are UTC
Settings = Hz/Baud/Polarity**

4785.5: DHJ51, Grenchel Meteo, FRG, w/coded wx & plaintext wx in GG, 425/100N at 0428.
4813: LZA8, Sofia Meteo, Bulgaria, w/coded wx,

425/50N at 0421.
5107: EPD, Teheran Aero, Iran, w/coded wx at 2335, 425/50R.
5140: RWW73, Moscow Meteo, USSR, w/coded wx at 2320, 1000/50OR.
5887.5.5: IMB2, Rome Meteo, Italy, w/coded wx, 850/50N at 0313.
7625: HZN47, Jeddah Meteo, Saudi Arabia, w/coded wx at 0310, 170/100N.
9265: ZRH, Cape Town Navrad, RSA, w/RURY, foxes & counting to NMN, 850/75R at 0018.
10630: Possibly Turkish Embassy, Washington, DC, w/telexes in Turk & 5L msgs at 1616, 850/75R. Most t/c says fr "disisleri" (MFA, Ankara), but near S20 sig tells me sta. has to be much closer, and that it might be Washington, DC, acting as a relay to other embassies, such as to Canberra, Australia, and Ottawa, PQ. Also, one telex was from "Londra" (London) to "Disisleri" et al. BYBY at 1712.
10800: RFLI, French Navy, Fort de France, Martinique, w/a service msg at 0456, ARQ-E3/48.
10805: NA, Buenos Aires, Argentina, w/nx in SS, 850/75R at 2135.
10830: Possibly CLP1, MFA, Havana, Cuba, w/crypto after ZZZZ, 425k/50N at 1535.
10899.5: Un-ID, possibly Philippines, w RYRY & "QRA de DTW," 600/50N, 1313-1327. Back on w/same tape 1353-1412. Then telexes and msgs in un-ID language (Tagalog?), 1425-1555.
10891-10892.3: GXQ, British Army, London, England, w/RYL's & foxes on 6 FDM channels, 170/50N&R at 2345.
10960: 3MA28, CNA, Taipei, Taiwan, w/nx in EE, 750/50N at 1508.
10983.5: Telam, Buenos Aires, Argentina, w/nx in SS, 850/50R at 2323.
11000.9: AFRTS, Los Angeles, CA, w AP/UPI nx, FDM 85/50N at 0523.
11035: UKS, Soviet Arctic Meteo, Barentsburg, Norway, w/crypto after ZZZZ (Driptogramma Moskwa Delxta) to Moscow, 425/50R at 1247.
11063: LZU2, Sofia Meteo, Bulgaria, w/coded wx at 1305, 425/50R.
11096-11097.7: MKD, RAF, Akrotiri, Cyprus, w/RYL's & foxes + 10 count, on 6 channels, FDM 170/50N&R at 2340.
11098.3: Un-ID w/a telex in SS, ARQ, 2341-2356 (Ed.).
11109: RFLI, French military, Fort de France, Martinique, w/"controle de voie," TDM-B/96 at 0348.
12223.5: VOA, Tangier, Morocco, w/nx in EE, 425/75N at 2330.
13770: VOA, Tangier, Morocco, w/nx in FF, 425/75N at 1102.
13803: RCR78, Khabarovsk Meteo, USSR, w/coded wx, 1000/50R at 1654.
13845: RFVI, French military, Le Port, Reunion, w/"controle de voie," TDM-A/96 at 2252, and TDM-B/96 at 2303.
13903.7: Bulgarian Embassy, Havana, Cuba, w/crypto after DDDDD, 2112-2126, 425/75N, then to CW.
14002.6: Un-ID passing encryption to sta. on 14002.9 and receiving same. Was 85/75 at 1911. Certainly not amateur radio.
14367: BZP54, Xinhua, Beijing, China, w/nx in EE, 425/75R at 1115.
14960: RFFX, French military, Versailles, France, w/t/c in FF at 1357, ARQ-E/72.
15667: FDY, French Air Force, Orleans, France, w/RURY, FDYFDYFDY...., le bricks, & 10 count, 425/50R at 1156.
15705: YZJ6, Tanjung, Belgrade, Yugoslavia, w/nx in FF, 425/50R at 1203.
15752.7: CNM66X2, MAP, Rabat, Morocco, w/nx in FF at 1205, 425/50R.
15845: SUA289, MENA, Cairo, Egypt, w/nx in AA, 425/50R at 1903.
15860: RFFX, French military, Versailles, France, w/a service msg at 1840, ARQ-E/72.

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
t/c	Traffic
w/	With
wx	Weather

16015: LZG7, MFA, Sofia, Bulgaria, w a 5F msg & nx in Cyrillic at 1117, 75/425N.
16050: TASS, Moscow, USSR, w/RURY, 425/50R at 1050.
16066.7: JAQ46, Kyodo, Tokyo, Japan, w s/off at 1900, 425/50N.
16076: RFFI, Defense Ministry, Paris, France, w/"controle de voie" at 1105, ARQ-E3/48.
16106: FPQ, DIPLO, Paris, France, w/nx in FF at 1045, 425/50N. Monitored last Nov., so may be off the air now (see RTTY col., Oct. '89, for article on this topic).
16107.5: HBD20, MFA, Berne, Switzerland, w/ARQ t/c in AA at 1134 & 1157, signing at 1139 as "HBD 20/3."
16117: 6VK317, PANA, Dakar, Senegal, w/nx in FF, 425/50R at 1535.
16136: BZR66, Xinhua, Beijing, China, w "weather forecast for 22 major Chinese cities for the next 24 hours ... Was 425/75R at 1041. Wx was compiled at Tokyo and was in effect from 2000 hours to 2000 hours.
16140: RGW28, TASS, Moscow, w/nx in EE, 425/50R at 1241.
16224: 3MA35, CNA, Taipei, Taiwan, w/nx in EE, 850/50N at 1612.
16241: LOL, Buenos Aires Navrad, Argentina, w/RURY & SGSG to HDN at 2343, 425/75N.
16302: DFZG, MFA, Belgrade, Yugoslavia, w/RYRY into encryption "for all" at 1502, 425/75N; and crypto after XPPXP, 1622-1636, a day earlier.
16308: Un-ID w "HR BC FR DICP ... PSE QVV HR BN FR DICR-HR QAP QRI." Was 425/50N at 1414, then to crypto, 425/110 afterward, sometimes using CW. Off at 1445.
17411.5: Un-ID w a 5L msg, 1000/100N at 1925, then CW t/c in ARQ at 1926, foll by 5L msg at 1927, 500/50N. To CW at, 1952-1955.
17427.5: OFD47, Helsinki R., Finland, w/a telex to a ship in ARQ at 1627.
17470: BZS28, Xinhua, Beijing, China, w/nx in EE, 425/50R at 0946.
17477.4: GPB6, Portishead R., England, w/ARQ phasing sig & CW ID at 1920.
17489.9: NRV, USCG, Barrigada, Guam, w/badly garbled t/c in ARQ at 2128, but a clear ID. Off at 2154.
17531.5: ZPK, Asuncion Navrad, Paraguay, w/RURY & SGSG to YMW1, 850/75R at 1905, & service msgs at 1908.
18036: Un-ID w RYRY w/o ID, then "Om rpt rpt rpt" foll by 16 AS's. Was 650/75N, 1609-1610.
18050: RQV70, TASS, Moscow, w/nx in FF, 425/50R at 0627.
18125: RND70, TASS, Moscow, USSR, w/nx in EE, 425/50R at 1500.
18164.5: STK, Khartoum Aero, Sudan, w/aero wx, 425/50R at 1504.
18230: GFL25, Bracknell Meteo, England, w/coded wx, 425/50R at 0630.
18242: ZRO4, Pretoria Meteo, RSA, w/coded wx, 425/75N at 0645.

SCANNING VHF/UHF

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

The mailbag has been pretty full lately for Scanning UHF/VHF. We're glad so many readers are sending in their questions, lists and tips. Without stalling, let's get on with the show.

Ed Evins of Brentwood, TN said he was interested in recent comments in this column about the versatility of handheld scanners and was wondering whether there was any reason not to buy a handheld over a base scanner. Actually, Ed, there are several reasons, but it all depends on the individual. If you're a person on the go and expect to take the scanner from your house to your car, your office, and wherever else you go, then a handheld scanner is definitely the answer for you. If you're a person who rarely ventures outside the house, then a base scanner might be best for you. If you're on the road a lot, you might want to consider a mobile radio. The main drawback on the handheld scanner is its power source: ni-cd batteries. When the juice runs out, you generally have to wait for them to recharge, unless you have a spare, or the handheld will operate off AC power through a converter. Another drawback of handheld scanners is that the audio output sometimes isn't as good as mobile or base scanners, thus, it may be hard to hear things in noisy environments. The main reason handheld scanners usually have lower audio output is to help save on the batteries during use.

In some cases, the sensitivity and selectivity of base or mobile scanners (which in some cases these days are one in the same) may be a little better than a comparable handheld radio. The best thing about handhelds is that you can take them wherever you go: your backyard, the living room, the friends house, etc. It's not so easy with a radio that needs external power. Think about your needs before you buy that first scanner.

From San Diego, CA, Kelly McIntosh checks in with some frequencies for the Budweiser Unlimited Thunder Boat races held in San Diego last fall. Here's a few of the channels Kelly stumbled across in the search mode: 464.550, race committee officials, judges, medical personnel and some race boat drivers; 469.550, alternate to 464.550; 156.300, control channel to coordinate rescue and fire crews and tow boats; 156.325, alternate to 156.300; 156.275, control channel used by escort boats and shuttle boats; 151.625 and 154.600, beach security; 463.5125, television coverage. The two itinerant business radio channels of 464.500 and 464.550 are popular at special events. If something is going on in your area, be sure to tune in these two channels or their VHF counterpart, 151.625, to check for event communications.

Leon Kelln, Jr., of Amarillo, TX, writes to



This is the tidy listening (and transmitting) post of Robert C. Gerard of Madison, CT.

say that he has a Regency MX-7000 scanner and was wondering how to change the mode from AM to wide or narrow FM. It's a pretty easy trick, Leon. First, push manual to put the radio on the frequency you want to change. Then, if the signal you want to listen to is a mode different from what already is programmed into the channel, change it by pushing "7" for narrow FM, "8" for wide FM and "9" for AM. Push "enter" to lock in the new mode. Then enter the new frequency and the proper channel number. That's all it takes to change the mode on the MX-7000. Leon also asks whether the 20

channels can be expanded, or whether we've heard any other modifications to this radio that can be made. Sorry, Leon, we haven't heard of anything that can be changed inside this radio. But I wouldn't be surprised to hear from someone who has made some mods to their MX-7000.

Theodore J. Cohen, N4XX, of Alexandria, VA, writes in with some helpful information for those who have cellular phones. While scanner and other radio enthusiasts may be eager to call 911 to help stranded fellow motorists, it may cost. While some cellular providers offer free 911 calls from

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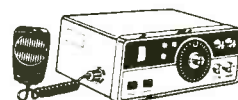
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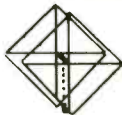
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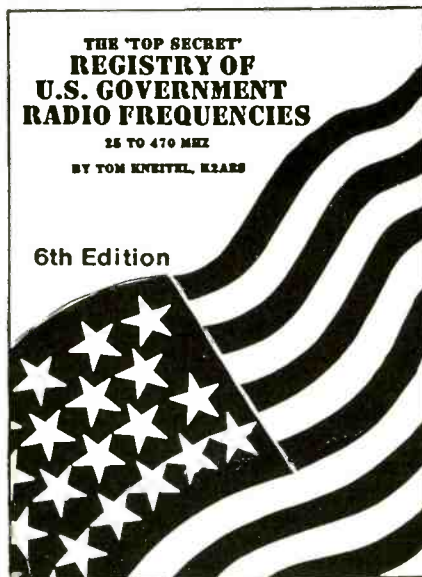
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CIRCLE 167 ON READER SERVICE CARD

their cellular phones, others apparently charge when roaming outside your normal service area. Theodore says that he was visiting New York City and made two 911 calls for the purpose of reporting two separate incidents of stalled cars. However, both calls showed up on his cellular phone bills as regular 10-digit phone numbers. Both the calls carried day-use charges for the cellular systems accessed (\$3 per system) and four to five minutes of air time. In all, he was charged a whopping \$11 for two 911 calls! His cellular provider was willing to issue him a credit for the two calls after they agreed that there was a clarification needed regarding the use of 911 outside the caller's normal cellular service area. Theodore wants cellular phone users to be forewarned that being a good Samaritan may cost—at more than \$5 a crack. It's a good idea to check with the provider of the system that you are roaming in before making that 911 call to help a fellow motorist.

Robert C. Gerard, KCT6DB, of Madison, CT, sends along a listing of active frequencies in his area: 462.975, New Haven, Med-10; 46.18, Valley Shore fire dispatch, Middlesex County; 46.06, Madison Guilford, Branford and Fairfield fire; 42.48, Troop F, Connecticut State Police; 453.475, Madison police; 453.700, Guilford police; 39.42, Clinton police; 46.04, Valley Shore EMS; 46.46, Central Dispatch, Suffolk County, NY; 47.50, New Haven Ambulance Service; 44.76 and 44.68, Hammonasset Beach State Park, Madison; 161.640, WTNH-TV, Channel 8, New Haven; 450.550, WFSB-TV, Channel 3, Hartford; 145.290, Shoreline Amateur Radio Club repeater at Killingworth firehouse.

Steve Hillman of Honey Brook, PA, writes to say that he has a Regency crystal scanner that is at least 15 years old that needs to be repaired. He says he doesn't have an address for Regency. Actually, Regency's scanner product line was bought out by Uniden. Thusly, Uniden now is responsible for handling repairs on Regency products. However, Steve, your scanner may be so old that Uniden no longer stocks parts to repair your unit. You may do better finding a local scanner shop that may be willing to make the repairs (that is, if they have the parts). If you still would like Uniden to make the repairs, we'd recommend you write to them first, explaining the problem and the radio model number. Write to: Uniden Customer Service Center, 9340 Castlegate Drive, Indianapolis, IN 46256. Don't be surprised to find that Uniden can't fix the radio. You may just have to give up this unit for a newer one! Read this month's *Beaming In* for more thoughts on this prickly problem.

We welcome your letters, frequency updates and lists, and questions here at POP'COMM. We'd like to see more photographs of your monitoring posts, too. Write to: Chuck Gysi, N2DUP, Scanning VHF/UHF, Popular Communications, 76 North Broadway, Hicksville, NY 11801. **PC**

THE MONITORING MAGAZINE

COMMUNICATIONS CONFIDENTIAL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

From "The Staff at Intercept Station Kilo" (??), we received a note saying, "If there are any doubts about the US Woodpecker, here are some AN/FPS-118 (Over-The-Horizon Backscatter Radar) spec sheets." The system description indicated "The East Coast Radar System (ECRS) was developed for the Electronic Systems Division of the USAF, and is an early warning radar providing all altitude surveillance of aircraft approaching North America at ranges out to 1800 nautical miles. The radar operates in the HF band where its radar energy is reflected back to earth by the ionosphere into regions that were previously inaccessible by conventional line-of-sight microwave radars.

Total OTH-B coverage for the East Coast is accomplished by the simultaneous operation of multiple 60° radar sectors. Each sector has a transmit and receive subsystem which provides radar coverage for over 1.5 million square miles of airspace. The ECRS is composed of three such sectors which are controlled from an operations center located in Bangor, Maine, with transmit sites (located near Moscow/Caratunk, Maine) being separated from the receive sites (located near Columbia Falls, Maine) by over 100 miles.

Communication between the sites is provided by both wideband and narrow-band troposcatter radios and a fiber optic communications link.

Each receive antenna is a 246-element array, 4980 feet in length with a 65-foot-high backscreen. A groundscreen extends out 1,000 feet along the entire array length. The received signal is processed on-site and then analyzed at the operations center.

Each transmit antenna is 3630 feet long and 35 to 135 feet high, with a groundscreen along the entire antenna length extending out 750 feet. Twelve transmitters operate simultaneously to provide up to 100 MW of effective radiated power across the 5-28 MHz frequency band."

Our thanks to the "Kilo Staff" for the information. See Figs 1 and 2 for a look at the US Woodpecker system.

Randall Reese, Thailand, provided a possible explanation for the unidentified "Key Largo" station heard by Patrick O'Connor, NH on 8241.5 kHz and listed in the October loggings. Randall wrote "If there is not a USCGC vessel by this name, it might be the following: Key Largo (Jack-Up drilling platform) owned by Santa Fe International Corp., 1000 South Fremont Avenue, PO Box 4000, Alhambra, CA 91802-4000. Formerly owned by Keye's Offshore. The vessel was built in Brownsville, TX in 1975. Maximum water depth for drilling is

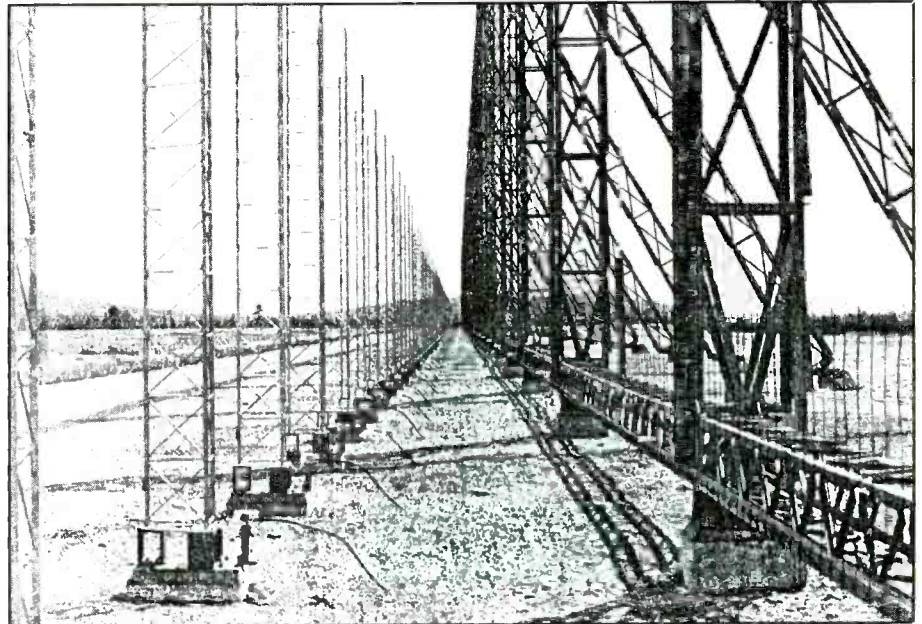


Fig. 1 - Receive Substation.

300 feet, maximum drilling depth is 25,000 feet. It has quarters for 95 persons. The area of work in 1988 was West Africa but this rig could be in the States at present." See Figure 3 for a platform similar to the "Key Largo." Many thanks to Randall for the above details.

I have been asked why I use so many loggings from certain individuals. It is true that there are several regular contributors who by virtue of submitting a large volume of

very good items, tend to have more chosen in the selection process. This is not to discourage single-item contributors because very possibly the item you have sent in is unique.

While on the subject of column preparation, it is appropriate to again ask that items forwarded be separated from each other by several spaces, use only one side of the paper, and please place your name and state after EACH item. With hundreds of items

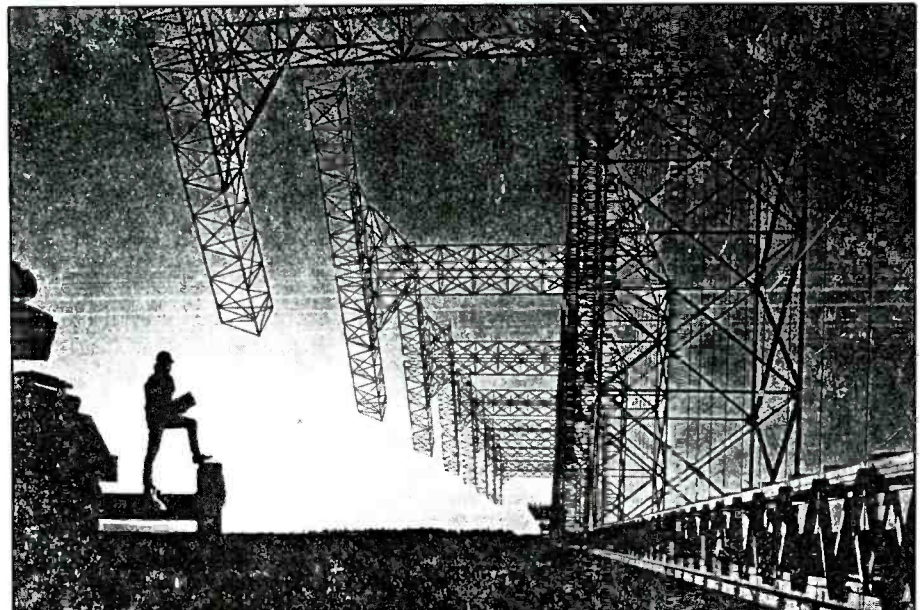


Fig. 2 - Transmit Substation.



Fig. 3 - Drilling platform "Key Largo" is similar to the one shown in this picture.

The Venezuelan time-signal station provided this QSL to Chris Merchant, NH.

selected each month, you can appreciate how time consuming it can be if I have to print the contributor name and state on each logging before cutting them apart for processing. Thanks.

Reader Clay Gibbs, GA indicated he is 15 years old and he enjoys Utility monitoring very much. He sent in a batch of SAC frequencies to share with other readers.

WHISKEY Designators

W101 5800 kHz
 W-103 6797
 W-104 7475
 W-105 7831
 W-108 11179
 W-109 13247

XRAY Designators

X-904 9017 kHz
 X-905 11226

PAPA Designator

P-383 15044

SIERRA Designators

S-390 4725 (also call VICTOR)
 S-391 6761 (also QUEBEC)
 S-392 9027 (also JULIETT)
 S-393 11243 (also ALFA)
 S-394 13241 (also SIERRA)
 S-395 17975 (also TANGO)

NOTE: These SIERRA Designators were described as "Air to Ground" freqs.

S-302 3295 kHz
 S-304 4495
 S-311 13211
 S-312 11494

NOTE: These SIERRA Designators were described as "Airborne Command Posts."

Arthur Heely, CT said "I've been a reader of POP'COMM for about two years and I've been an active SWL and scanner monitor for about 25 years. My main interest in HF listening is the Coast Guard, Customs and DEA. My HF equipment consists of an ICOM R71A with several dipole antennas. I recently purchased a computer and am interested in learning to copy RTTY and other digital modes. I also do a lot of VHF/UHF monitoring with an ICOM R7000."

Larry McMahan, GA indicates he is an amateur radio operator, but spends most of his time listening, usually to CW utility.

David Grubbs is an Eye Doctor at an Air Force hospital and he uses a Kenwood TS440's transceiver for his SWL'ing and hamming.

Jim Moeller, NY sent in some LF/VLF items he logged with his Heath SW7800 fed to a homebrew helical whip. He also covers VHF with a Bearcat BC-170. He has been a ham for 22 years and recently switched over to strictly SWL'ing. He writes a SWL column for the Salt City DX Association.

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 6.100 K c/s

William Heine states he is currently stationed at Camp Ames (Taejon), S. Korea and monitors with a Realistic DX302. He has an indoor longwire antenna.

In the monthly rundown of US Navy activity, Andy Gordon, CT indicated he received a QSL from Navy Research Vessel Athena-I and learned the ship had just returned to the states after a long deployment that took them into both Pacific and Atlantic Oceans. The vessel had been "tailing" a Soviet AGI (Intelligence Gathering Ship). The Athena I & II were formerly Ashville class coastal gunboats. They are managed by the David Taylor Naval Ship Research & Development Center, Towed Systems Branch.

Andy mentioned that one evening he encountered lots of MARS activity and his coverage gave him the opportunity to log 25 different USN units. Then one day during a six hour period he monitored a MARS Emergency Communications Training Exercise (ECOM. TRA. EX. II). He logged over 40 ships and over 30 shore stations during the exercise. "Ships around the globe checked in with shore stations on all frequencies from 7 MHz to 27 MHz. Propagation was good, as virtually all ships in the Mediterranean and even ships crossing the Atlantic Ocean were able to raise NNNONPN (NAVCAMSWESTPAC - Guam) on 14 MHz. From the WESTPAC/Indian Ocean

CAN YOU CRACK THE CODE?

While scanning through the shortwave bands I've come across some strange broadcasts. Sometimes they're in Spanish, other times they're in English. I was really curious about them.

Then, in the August 25, 1989 Los Angeles Reader, I stumbled upon an article that explained what they might be.

It seems that foreign spies, CIA operatives and even drug smugglers often use shortwave bands to send what are commonly called 'number stations.'

They send secret cryptographic messages back and forth. And, because of atmospheric reflection it's impossible to tell exactly where the signal originates.

No government agency (U.S. or foreign) acknowledges using the bands to transmit 'intelligence.' Nevertheless, they do exist. If you can crack the code on any of these stations you may want to contact the State Department and lend them a hand.

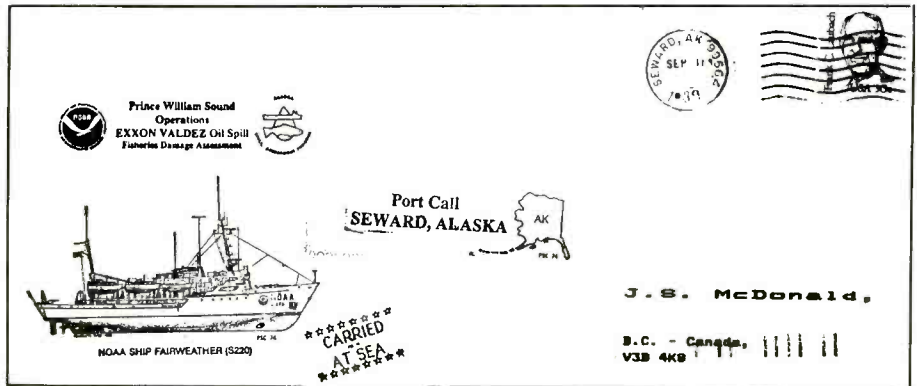
Michael Willmer, MI sent in an excerpt from the catalog of a California Company that offers various electronic equipment items. This excerpt appeared in their ad for a SW Receiver. Michael commented "I find it interesting that the idea of listening to numbers transmissions is being used to sell SW Radios. I wonder what the response of a certain individual in Germany would be? I guess we already know!"

areas however, only 7 out of 52 vessels responded."

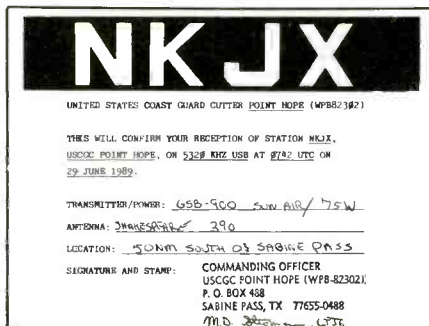
With his report, Andy supplied three new MARS callsigns: NNN0CBV - USS Conopus, AS-34; NNN0CIU - USS Safeguard, ARS-50; NNN0CCY - USS Chancellorsville, CG-62. He closed with a remark that his move to a new location has proved to be ideal and he has his 'eavesdropper' antenna outside about 20' high and he is hearing ships on 14 MHz from Japan.

A big thanks to all those readers who forwarded information regarding the identification of the photos in the December 1989 column. The installation has been identified as an emergency warning siren which is radio-signal activated. The equipment is manufactured by Whelen Engineering Co., Inc., located in Chester, CT. According to the information provided by various readers who were familiar with such equipment, the installation is probably only one of many, surrounding the nuclear power plant, within the "EPZ" (Emergency Planning Zone) as mandated by the NRC.

Other applications vary from rural volunteer fire stations, to chemical plants, to areas prone to natural disasters (tornados, floods, etc.). Figure 1 showed the speaker cluster, which rotates and can be indexed at fixed positions. It consists of 16 high efficiency siren drivers and produces 124 dB at 100 feet. Figure 2 showed the control cabinet, which consists of 2 sections. The upper section contains the radio receiver, tone decod-



From Steve McDonald, Canada: "Evidently this ship had been reassigned to the Alaskan oil spill when it received my reception report; the envelope that it came in is just as interesting as the card."



Here is a PFC returned to Dave Sabo, CA.

Abbreviations Used For Intercepts	
AM	Amplitude Modulation mode
BC	Broadcast
CW	Morse Code mode
EE	English
GG	German
ID	Identifier/led/lication
LSB	Lower Sideband mode
OM	Male operator
PP	Portuguese
SS	Spanish
tic	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)

er, tone generator, and the power amplifiers. The battery conditioner is also housed in this compartment.

The lower compartment is vented and sealed from the upper, and holds 2 - 12v deep cycle batteries connected in series. This provides 100% operation for up to 30 minutes over a 2 week period in case of an interruption of AC for the battery conditioner.

Two readers who responded to the above, Lee, MI and Hirsch, GA supplied some VHF/UHF power company frequencies and this data has been passed to Chuck Gysi, the Scanner Column Editor.

72: Tone pack sig (KW-32), mod strong. LSB. At 0314. (Moeller, NY)

100: Very strong AM sig-sounds like FAX. Very wide (83-128 kHz). LSB at 0310. (Moeller, NY)

133: Unid TTY signal, weak. 100 wpm-encrypted? LSB at 0308. (Moeller, NY)

167: Unid signal-similar to an encrypted FAX. Poss KW-7. Occas. bursts of tones over above signal. LSB at 0305. (Moeller, NY)

242: Beacon SY, Syracuse, NY at 0304. (Moeller, NY)

303: Beacon SM, Shiono Misaki, Japan at 1314. (Hall, Japan)

305: Beacon UN, Unoo Saki, Japan at 1315. (Hall, Japan)

325: Beacon XM, Kowa, Japan at 1256. (Hall, Japan)

342: Beacon KF, Kuzumi (New Yokyo International) at 1254. (Hall, Japan)

360: Beacon KC, Nagoya (Komaki AB), Japan at 1248. (Hall, Japan)

373: Beacon PQ, Tateyama, Japan at 1200. (Hall, Japan)

396: Beacon ZBB, South Bimini, Bahamas. LSB at 0300. (Moeller, NY)

436: CLJ, Caibarien, Cuba w/CW mkr at 0305. (McMahan, GA)

2713: NTSG, USS Thomas S. Gates, CG51 (off freq) clg Norfolk Harbor Tug Control at 1035. (Gordon, CT)

2714: NJLK, USS Kauffman, FFG59 (off freq) clg Montauk Point NY Harbor Control at 0930. (Gordon, CT)

2716: NJEC, USS Trippe, FF1075 clg Mayport Port Control at 1040. Mayport doesn't monitor HF ch. 16, only VHF ch. 13; NFUG, USS Alexander Hamilton, SSBN617 using classified callsign One Oscar Zulu clg Oscar Nine Tango (Canaveral Control) at 1115 to request permission to get underway; NVFP, USS Valley Forge, CG50 clg San Diego Harbor Control at 1040.

Another case of cross continent early AM DX. Valley Forge is homeported at San Diego; CZDW, HMCS Bluethroat, AGOR114 clg Warship Margaree, DDH230, CZNJ at 0915. Bluethroat is a research vessel and Margaree is a regular navy ship of the line; NAET, USS Holland, AS32 using classified callsign Mike Eight Sierra clg Canaveral Control (Nine India Mike) at 1130. (Gordon, CT)

2718.5: NMOM, USS Engage, MSO433 (way off freq) clg Little Creek tower at 0950. Then returned to 2714.5 kHz, still off freq. (Gordon, CT)

2985.2: OM/EE in USB at 0146 w/casual chit-chat + salty language by fishing boat skippers. (Grubbs, NY)

3100: Noise burst signal at 0151. Similar xmsn on 4803 kHz and other freqs. This one sounds like Morse "C". (Grubbs, NY)

3190/3880: YL/GG w/1-0 count and 356 x3. After ten tones 'Gruppen 99' and into 3/2F grps. (Mason, England)

4030: Musical tones, into YL/Slavic language w/5F grps in AM mode at 0330 and 0400. (Hamlin, NY)

4030: YL w/nbrs in Bulgarian lang. AM 0540-0551. Suddenly off at 0551. (Mierzwinski, PA)

4040: NDIK, USS Miller, FF1091 clg Norfolk SESEF after negative contact on 7535 kHz at 1630. (Gordon, CT)

4066.1: NKID, USS Kidd, DDG993 using rarely

time I have hrd callup for 4F tfc. (Willmer, MI)

11483: Series of high pitch tones in USB greatly speeded up at end. Multiple rpts of high tone then 3 lower tones, rpt then high low high low low. At end the pattern seemed to change but was too fast to be certain. Ended at 0345. (Willmer, MI)

11685: YL/EE w/count, 888 in USB at 0507. (Balogh, ON, Canada)

12303: USN exercise w/Alpha Fox, Golf, Hotel, India and Mike. AF said many duels going on. Not the way Alligator should look. Trying get picture in line. Talk of valid tracks and positions. Track 1270 was id'd as a friendly auxiliary. USB at 0240. (Willmer, MI)

12422: YUO2 clg (58)433 Split, Yugoslavia w/pp in YY at 0610 on USB. (Heine, S. Korea)

13001.9: KPH, San Francisco, CA in CW at 0055 w/telegram in German. (Rome, NY)

13247: SAM 203 in USB in comms w/ground stn via pp through Andrews AFB re flight data. Also Rearrange/Top Shed re frequency authentications. Rearrange & WAR 46 w/rdo check. (This is Whiskey 109 freq). Hrd at 1415. (Fernandez, MA)

13265: French Navy ship Mytho (Call FATB) in CW at 1047 sends 8 grp msg (4F grps) to unknown stn. Heading was merely NR 11 GR 8 BT and into text. When stn gave rpts he cut some of the nbrs. (Ed.)

13490: YL/SS in AM mode at 0914 w/5F grps. (Walbesser, NY)

13520.7: Unid LA Naval unit sending PT Spanish msgs in CW at 1521. Later shifted to voice but they very weak, appeared to be having problems with last portion of msg. (Ed.)

13549.8: New Zealand Meteorological Service in auto CW at 1816 sending 5F grps (coded wx). (Ed.)

14361.7: Unid CW stn at 1425 sending Polish PT msgs. (Ed.)

14441.5: NHOS, USNS Pawcatuck, T-AO-108 (NNNOCMZ) clg any stateside MARS Station at 0130. Rawcatuck receive side not working so they never heard the short stns answering them; NOKL, USS Missouri, BB63 (NNNOCKK) at 1500 wkg NNNOUSN during E. COMM. TRA. EX. 2 (Emerg Tng Exercise) for propagation testing; SS PFC Eugene A. Obregon, T-AK-3006 using MARS callsign NNNOCML (Maritime Positioning Ships—Squadron one) at 2215, Obregon was the former SS Thomas Heyward of the Waterman Lines. CML was wkg NNNOKRQ. (Gordon, CT)

14468.5: Navy MARS net. NNNOAEL wkg pp from NNNOCZL, USS Sylvania and NNNOCVN, USS Brisco. USB at 0120. (Mead, FL)

14487: Repeated calliope melody, count and 5F grp by YL/EE w/British accent in USB w/5F grps at 2100 and 2330. (Hamlin, NY)

14754.5: Unid CW stn at 1948 sending V's and NO QSA NO QSA IMIK. Then BK BK BK BK and back into V's. Stayed on freq for over an hour and stn continued to send V's and finally told other end QSA3 but I did not hear the out station. (Ed.)

14818: Y7A60, MFA, Berlin, GDR w/VVW QRA Y7A60 mkr in CW from 1653 to 1720. (Margolis, IL)

15610: YL rptng Tango Papa in USB w/tones between 1400-1405. Msgs for 738 and 69 in 5F/GG. (Mason, England)

16095: OMZ, MFA, Prague, Czechoslovakia w/CW tfc 1528-1532. (Margolis, IL)

16584: WLO, Mobile, AL w/pp for vessel Sovereign of America. USB at 2127. (Rome, NY)

17251.5: WLO, Mobile, AL w/High Seas wx in USB at 1802. (Watts, KY)

17460: OM/SS in AM at 1300 w/5F grps. (McDonald, MO)

17975: Poker Table wkg Rainman Control w/request to contact Ranchman Control. Raiman responds "This is the Agency you are looking for but that individual is unavailable." Poker Table trys relay msgs for Porta Control. Rainman requests Porta contact via Hardline but Porta advises they unable do so. Bowlegged tells Poker Table to shut down. This is USAF SAC Tango channel. USB at 1738. (Mead, FL)

19131: Graham wkg Tropic w/admin tfc incl transportation requirements for "The Sierra Papas" due Sunday. Various other logistical and personnel matters discussed. All individuals mentioned were referred to by two letter designators. DEA anti-drug smuggler tfc has been reported on this freq. This net is noted daily at around 1330 and 1900. USB at 0355. (Mead, FL)

20185.7: Shuttle Launch Control (Cape Canaveral) broadcasting liftoff countdown in USB at 0010. A "sys-

tem failure" took place at 5-minute mark and count-down was halted. Count restarted at 0019 w/liftoff at 0024. Launch was a "secret" mission. (McAtee, WV)

20198.3: Houston Control w/status reports on Space Shuttle Atlantis in LSB between 1700 and 1708. (Hamlin, NY)

20936: NANT, USS Antietam, CG54 (NNN0CAI) at 2000 wkg NNN0NPN (NAV CAMSWESTPAC) during E. COMM. TRA. EX. 2. (Gordon, CT)

20969.8: CFARS Golan Heights (VXV9) w/CFB Lahr (CIW91), and CIW667, CIW603, CIW824, CIW801 and CIW202 in Armstrong BC in USB at 2007. They QSY'd to Golf (20962 kHz). CHA and VXV9 along w/CIW301 QSY'd to Golf channel at 2048. (Bate, ON, Canada)

21865: Public Health Service St. Croix wkg PHS

Rockville, MD w/skeds at 1600, 1900, 2300 daily. Tfc relates to various relief matters in aftermath of hurricane Hugo damages. (Mead, FL)

22465.3: 9MG2, Penang, Malaysia in CW at 0044 w/lengthy mkr. (McMahan, GA)

22587: 3BM, Mauritius, in CW at 0437 w/wx in EE foll by station best sked. (McMahan, GA)

22695.5: WWD, San Diego, CA FAX wx stn at 1852 wkg unid stn. OM/EE in USB stating that the 22 MHz RTTY signal should be readable. (Grubbs, NY)

22832: YL/EE on USB at 1603 w/721 3x and count 1-0. At 1610 10 beeps, count 162 2x and then 3 + 2F grps. (Margolis, IL)

23402.5: Eagle 79 wkg Slingshot, USB at 2016. Slingshot says he busy on another freq, will call back later. Eagle 79 didn't wait around. (Grubbs, NY)

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GETTING STARTED AS A RADIO AMATEUR

Amateur Radio: A Family Affair

Although ham radio can and certainly is enjoyed as a solo pursuit, there's another aspect of our hobby that deserves a moment in the spotlight—Amateur Radio as a family affair. Can the couple (or family) that "hams" together stay together? Quite possibly, it can.

This month's Ham Column features the story of a Florida newlywed who discovered Amateur Radio through the institution of marriage. She tells a story that many of us can relate to—especially as ham radio moves into the '90s.

What's a Neat Lady Like Me Doing in a Shack Like This?

I'm a neat, organized person who shares a shack with a pack rat. I waded through empty boxes, tools, wires, coils of cable, papers, maps, and lots of things I can't identify just so I can turn on, tune up, and—occasionally—make a contact.

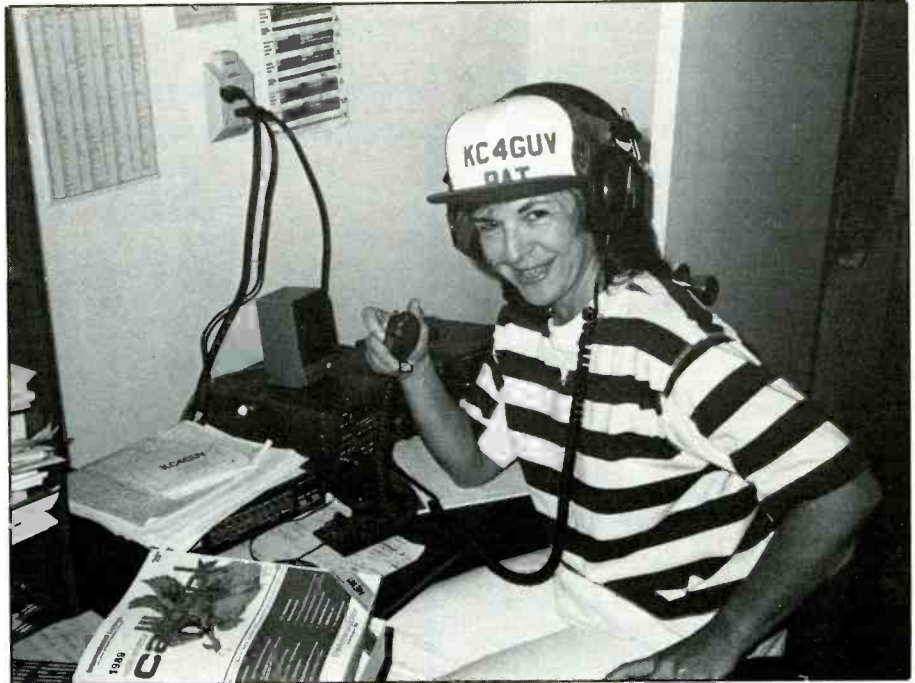
I suppose I shouldn't complain. My injuries have all been minor and I could have escaped any damage at all if I'd been willing to wear shoes. But the biggest problem my marriage has had to overcome has been my compulsive need to clean up the shack!

In the first place, my husband, Bill, KF4WB, and I haven't been married all that long—four years as of January 1990. Being in our mid-forties and being newlyweds gives us a different perspective on a lot of things, especially things like sharing interests and spending quality time together. I define quality time as time spent together when no one is angry. I was usually angry about the messy shack.

I was not yet a ham, even though I had agreed prior to our marriage that I would take the necessary steps to at least earn a Technician license so I could use a 2-meter hand-held, both for possible emergency use and for talking to the OM when a telephone was not easily available.

Irritated at the time this would take, and fearful that the subject matter would be too hard, or the code too intimidating, I grouched a bit, but did attend a weekly ham radio instruction course. There was also that threat from the OM . . .

What can I say? I studied, I complained, I practiced my code daily, and I whined—but I passed the Novice exam with flying colors. By the time my license arrived I had listened to the radio at least an hour almost every day (when I could find it in all the mess), and I knew what I wanted to try first: SSB on 10 meters. I sat for days with the microphone in



Patricia Stoltey, N4UNE, of Boca Raton, Florida, likes to operate 10-meter SSB. Although she claims her shack tends to be on the messy side, we've seen worse! Patricia and her husband Bill, KF4WB, make ham radio an integral part of their marriage. She tells the story in this month's Ham Column.

my hand and my mouth open, ready to speak, unable to coordinate my thumb (poised to push the PTT button) and my brain!

Finally, all the parts came together and I had my first QSO. Unfortunately, my hand (and probably the rest of my body) was shaking, sweat was trickling down uncomfortable places, my left eye was twitching—you know, all the usual stuff hams suffer before and after their first contact. It was 10 minutes before I'd calmed enough to make my log entry. But that log entry was sure satisfying. First SSB contact in the Novice portion of 10 meters. Not bad! You would have thought I was the only person who'd ever contacted Vermont: you can imagine my mood the day I made my first DX contact—Czechoslovakia!

Getting my Novice license caused a few changes in me that made my OM pretty happy. Voices on the radio no longer sounded like unpleasant background static, and I could hardly complain if he enjoyed

his hobby after a hard day at work.

Being an honorable person has its drawbacks.

That's not the end of the story, of course, because there was still that matter of passing the Technician exam. But what Bill wanted—my ability to operate the hand-held—was not what interested me the most. I'd been twiddling that dial like crazy and I knew there was a great, glorious radio world outside the Novice portion of 10 meters. I needed to be a General class ham.

I studied harder and faster. And I did it. I'm now operating as N4UNE and trying to learn all the new ways I can use my new privileges. I know the windows need washing, but right now 10 meters is wide open, and I still need to practice sending code. You know how it is.

And the OM? He's still nagging me about learning to use that 2-meter radio, and he checks my log each day to see what I've been up to. And just the other day he came home from work to find I'd been trying for

two hours to contact an Alaska station that seemed to hear everyone in Florida except me. I think from time to time the OM wonders if he's created a monster.

I must admit there have been one or two tense moments as a result of my new hobby—like the evening I was learning RTTY and almost contacted a Japanese station—something the OM hasn't done yet. And weekends and holidays can cause some problems when I sneak in to get a little radio time and the OM catches me and chases me out. And I still don't understand why the digital cricket has to be *that* loud. Overall, however, I think Bill is pleased to have his XYL share his passion for Amateur Radio. Especially since I'm so busy learning and listening and talking that I've stopped worrying about the clutter. The truth is I don't care—as long as I can find the radio, my log, and a pen.

So what's a neat lady like me doing in a shack like this? Well, right now I'm looking for my QSL cards. I know I put them in here somewhere—*Patricia S. Stoltey, N4UNE, 2578 NW 36th St, Boca Raton, FL 33434.*

Last year's Ham Columns on certificate hunting and QRP operation generated a lot of mail. Many of you requested information and passed along topics you'd like to see covered here—so keep up the good work! Write me at ARRL, Department PCN, 225 Main Street, Newington, CT 06111. Send along a photo too, okay?

HOW I GOT STARTED

Popular Communications invites readers to submit, in not more than 125 words, how they got started in the communications hobby. Each month, we'll select one and run it, and award its sender with a one year's subscription or subscription extension. We'll accept them (preferable) typewritten, or otherwise easily legible. If you have a photo of yourself taken recently, or when you got started, please include it with your story. We can't return or acknowledge material whether we use it or not. You need submit your story only once, we'll keep it on file and consider it for future issues. All submissions become the property of Popular Communications.

Entries will be judged taking into consideration if they tell a story that is especially interesting, amusing, or otherwise unusual. We reserve the right to make any necessary syntax, spelling, or grammatical corrections, or minor wording changes to improve style.

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

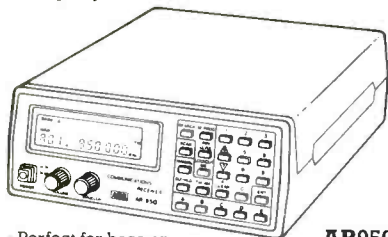
Winner for April

This account comes from William E. Lauterbach, Jr., of Horton, MI. "I was 12, in bed with the flu, listening to my birthday present. It was a 1969 AM radio. After becoming bored with a talk station, I put the radio on the electric cord of my night-stand lamp. That made strange things happen; I heard the VOA! Then, tuned around and heard Radio Nederland. I excitedly yelled for my dad, who explained that I was probably hearing harmonics of *short wave* stations. He then went on to explain a wonderful world of stations from all parts of the world that could be heard right in our own home. I had to have one of those radios, and was promptly given and *Allied Knight Star Roamer.*"

"When it arrived, my dad stayed up two nights building it for me. I'll never forget how I felt when I saw it completed on the kitchen counter they second morning. When I turned it on, there were stations beyond my hopes and imagination. That's when my mom came in and announced that it was only 5 o'clock in the morning and I should get back to bed. I did, but that triggered an interest that has remained ever since. Now I hold ham license WD8DWM."

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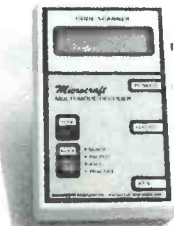
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CIRCLE 152 ON READER SERVICE CARD

Should You Get Your Commercial License?

If your emergency communications position entails the installation and operation of high frequency, single sideband equipment, you may need more than just your ham license—you may need the FCC general radiotelephone commercial ticket. This is the “new” commercial license that replaces the commercial first class, or second class, radiotelephone license.

You don't need this commercial license if you simply talk over radio equipment. You may only need the restricted radiotelephone operator permit. Use FCC Form 753 to apply for this permit. There is no test. The restricted radiotelephone operator permit authorizes the holder to operate most aircraft radiotelephone transmitter, marine radiotelephone transmitters on pleasure boats, and AM, FM, TV, international, and auxiliary broadcast stations.

Effective November 11, 1984, no operator license is required to install, maintain, or service land mobile 2-way radio equipment licensed under Parts 90, 94, and 95 of the FCC Rules. This would include emergency medical, fire, police, and ambulance radios, too.

If you plan to operate marine radio on-board certain cargo and passenger vessels serving the Great Lakes, any tidewater, or the open sea, you may also need a third class radiotelephone operator permit. To obtain this permit, you must pass an examination covering basic operating practices and FCC rules, elements 1 & 2. It's a simple test to prepare for.

However, if you are responsible for servicing or maintaining radio equipment on rescue or lifeguard boats, aeronautical radios for aviation and Civil Air Patrol use, and certain other coast stations, you must possess the FCC general radiotelephone operator license. Also, if you work on ship radio sets, you must also possess a ship radar endorsement, too, to this license.

Many telephone companies throughout the country also require applicants to pass the commercial FCC license before they step into a higher pay schedule. Some police departments also require the FCC commercial license to work on their equipment—even though the license is not an actual requirement. You may also be able to increase your pay scale if you are employed by a land mobile radio company that maintains and repairs emergency radios, including marine radios. In other words, if you have the capability to pass the test, it's a nice license to have.

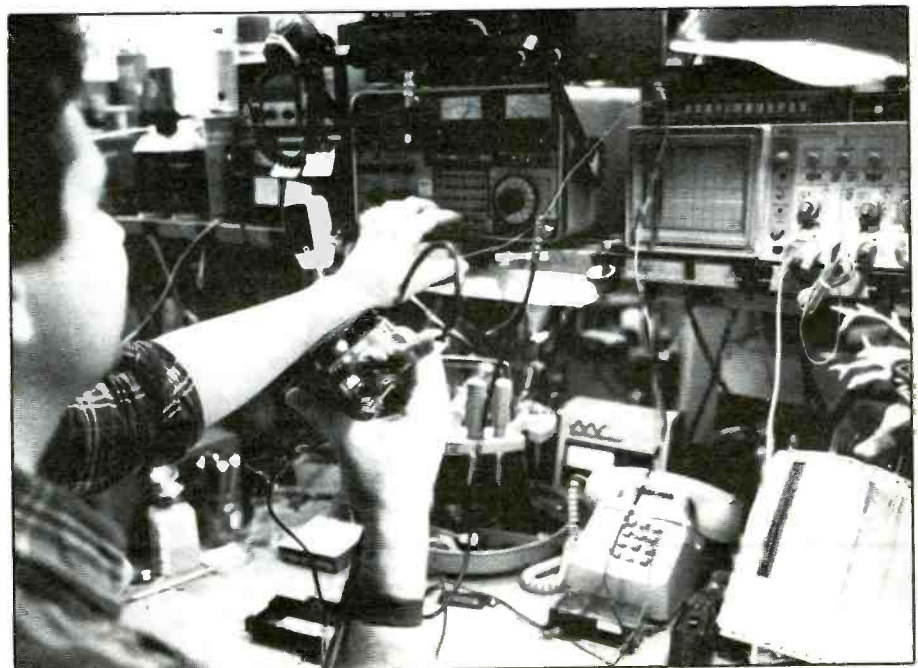
The FCC commercial radiotelephone examination will consist of 2 elements—Element



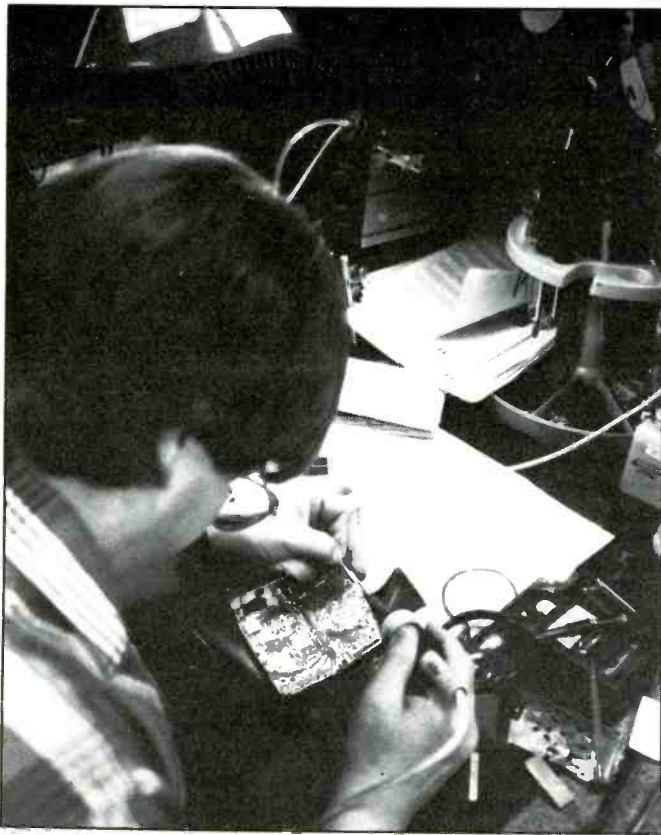
Working on a marine single sideband requires a commercial license.

3, 100 technical and rule questions, and Element 8, 50 questions on radar fundamentals. Element 8, the radar endorsement, is much easier to pass than Element 3, the technical and legal question set. All questions are multiple choice, with 5 possi-

ble answers. A passing score of 75 percent is required. The tests are administered at local FCC field offices, just twice a year. Contact your local FCC field office to find out when they are going to next give the commercial radiotelephone examination.



A commercial license is a requirement to work on marine and airband equipment.



◆ No commercial license required to fix or modify ham radio equipment.

The commercial ticket is required to reprogram a marine VHF set for the Harbor Patrol.



If you are a ham radio operator, you may also wish to try the second radiotelephone examination, too. Besides some additional written questions in addition to the things you have prepared for on the radiotelephone exam, the second radiotelephone exam also includes a 20 wpm plain text code test, with a 16 wpm/5 letter group CW test, too. And if you've had some experience at sea with a commercial rating, you could also try your first class radiotelephone license that requires 20 wpm text, and 25 wpm/5 letter text.

Ray Echols, W7FFF, Director of Recruitment and Training, American Radio Association, 57 Hammonds Ferry Road, Linthicum Heights, Maryland 21090; 301/859-5700, indicates the U.S. Merchant Marines are paying between \$7,000 to \$8,000 per month for radiotelephone operators, and they are desperate for candidates holding FCC second class radiotelephone licenses. In addition to the code test, the telegraph exam also includes telegraph rules and regulations, Elements 1 and 2, plus Elements 5 and 6 covering radiotelephone transmitter basics.

The commercial radiotelephone license may be on its way out. The Global Maritime Distress and Safety System (GMDSS) will soon take over, and eliminate the radio officer standing by on the big CW transmitter, listening to the 500 kHz distress channel. Everything may soon be handled entirely by orbiting and geo-stationary satellites.

But there's no change planned for the need of the FCC commercial radiotele-

phone license for those of you that work in emergency radio, and those sets that will go into boats or aircraft. Any marine or aviation radio requires a licensed technician to install it, and sign it off. The only exception is the VHF marine radio, and the small radio that may be installed without a license. All other equipment requires a licensed technician to sign it off.

So if you are looking for some additional income at your emergency communications post, do consider preparing for the commercial FCC licenses.

For a complete detailed sheet on license preparation material, updated to the new tests, write WPT Publications, 979 Young Street, Suite A, Woodburn, OR 97071; 503/981-5159; ATT: Tom LeBlanc. NX7P.



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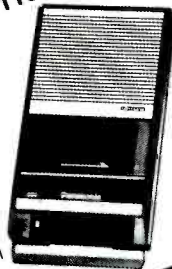
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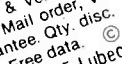
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FCC ACTIONS AFFECTING COMMUNICATIONS

Uphold \$1,200 Forfeiture Against Amateur Operator

The Commission upheld the Private Radio Bureau's action which imposed a \$1,200 forfeiture against amateur radio operator David B. Hodges for malicious interference (jamming) and for failure to identify, in violation of FCC rules.

The FCC had received a number of complaints of interference to the Baltimore Radio Amateur Television Society (BRATS) amateur repeater. (A repeater receives a signal on its input frequency and retransmits the same signal on its output frequency to increase the range of transmitted communications. Repeaters are generally established at high elevations so that amateurs using them may use low power, hand-held walkie-talkies or transmitters installed in their cars and operated from a lower elevation.) Subsequently, the FCC's engineers observed interference which they determined came from Hodges amateur station N3DTH. The unidentified transmissions were retransmitted on the repeater's output frequency, causing harmful interference to the communications of the users of the repeater.

Although Hodges said that he did not recall whether he made transmissions on any specific date, he admitted that on occasion he made such transmissions to cause interference when provoked by others. In his defense, Hodges noted his public service activities and that he has not previously been cited for any violation. He also promised he would not commit violations in the future.

The FCC noted that such transmissions can serve no legitimate purpose and were clearly intended to cause harmful interference. Hodges' failure to identify his transmissions was obviously intended to make detection difficult and unlikely. Therefore, the Commission concluded that none of his arguments excused or mitigated the violations.

Arizona Operator Pays Fine For Causing Malicious Interference

Donald R. Lehto (WA7WOC), of Carefree, Arizona, paid a \$750 fine for willfully and maliciously interfering with amateur communications.

The FCC had received numerous complaints about an amateur who followed other amateur operators from one frequency to another and jammed various networks and amateur repeaters with offensive sound effects. In May 1989, staff from the FCC's

Douglas, Arizona office monitored deliberate interference on 3992 and 3983 kHz and traced the interfering signals to Mr. Lehto's home using direction-finding techniques.

Willful or malicious interference is a violation of FCC Rule 97.125 and is punishable by a maximum administrative fine of \$2,000 per day per violation, up to a total of \$5,000. Such rule violations are also prosecutable criminally, and, if an individual is convicted, could result in a fine of up to \$5,000.

Uphold \$1,000 Forfeiture

The Commission upheld the imposition of a \$1,000 forfeiture levied against Texidor Security Equipment, Inc., for its willful violation of the Commission's rules by failing to take reasonable precautions to avoid causing interference on the frequency 452.900 MHz.

Texidor, licensee of KNDE-363, uses the station to operate a security system for banks in Puerto Rico. A base station automatically interrogates each remote station by radio and determines its status in each protected bank. When all of the remote stations have been polled, the cycle begins again. This is a fixed, point-to-multipoint type of operation.

The Part 90 radio services are not intended for fixed operations, but are instead allocated for land mobile operations. That is what the Commission limited Texidor's operation by granting its license with a condition which authorizes operation only on a secondary non-interference basis to regular base/mobile operations on 452.900 MHz.

Estereotempo, Inc., operates Business Radio station WNHU-467 on the 452.900 MHz frequency. It complained of co-channel interference caused by transmissions from Texidor's station. Subsequently, the FCC's San Juan field office issued a Notice of Forfeiture to Texidor for failing to monitor the transmitting frequency 452.900 MHz prior to using it and thus causing harmful interference to co-channel users.

Texidor responded by insisting that as a central station operation its only duty to prevent harmful interference was to be coordinated and to obtain a Commission license. Once licensed, Texidor maintained it was the FCC's duty to account for its presence and not license any conflicting operations. It also argued that the rules do not require, but only suggest, that reasonable precautions to avoid causing harmful interference would include monitoring the frequency prior to transmitting.

The Commission pointed out that FCC rules require that licensees take reasonable

precautions to avoid causing harmful interference. Texidor, the Commission said, has to avail itself of some means of minimizing the potential for causing interference. In the absence of any other precautions, monitoring the transmitting frequency for communications in progress was the minimum precaution Texidor had to take in order to avoid harmful interference.

The fact that Texidor wished to engage in continuous uninterrupted polling as a central station protection operation does not absolve it of its responsibilities as a Commission licensee. Moreover, the Commission stated that licensing a central station protection operation on a shared frequency does not convert that frequency to one of exclusive use by the licensee.

The Commission also noted because of KNDE-363's secondary, non-interference status, station WNHU-467 has absolute priority over KNDE-363 to use the frequency 452.900 MHz in that area. Texidor must therefore take whatever steps are necessary to assure that WNHU-467 can transmit without interference. Moreover, the Commission pointed out that KNDE-363 must accept interference from WNHU-467.

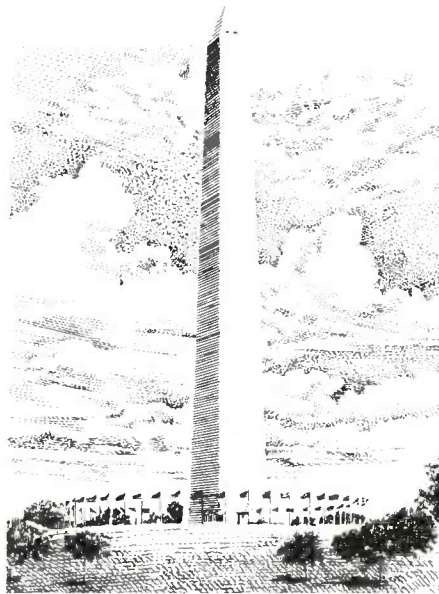
The Commission said that Texidor may continue its operations on 452.900 MHz only if it can do so in accord with the terms and conditions of its license and the Commission's rules. If it cannot, it must terminate its operations. Continued operation by station KNDE-363 without taking reasonable precautions to avoid harmful interference will result in further administrative action.

Propose New Personal Emergency Locator Transmitter Service

The Commission proposed the establishment of a Personal Emergency Locator Transmitter Service (PELTS), that would provide individuals in remote areas with a means of altering others of an emergency situation and to help search and rescue personnel locate those in distress.

The Commission pointed out that a growing number of persons are participating in outdoor activities resulting in an increased number of situations requiring immediate emergency assistance. For example, nine teenage climbers were caught in a severe unexpected storm on Oregon's Mt. Hood, and lost their lives; and, in Breckenridge, CO, four skiers lost their lives after being buried by an avalanche. These examples illustrate the need for a compact and reliable means of emergency communications in remote areas because these individuals might have been saved if rescuers had been able to quickly locate them.

The Commission has two objectives in establishing PELTS. The first objective is to provide for an area wide, centrally-coordinated radio communications system for use by the general public in remote areas there-



by reducing response time in emergency situations. The second objective is to reduce the illegal use of Emergency Locator Transmitters (ELT's) and Emergency Position Indicating Radio Beacons (EPIRB's) as personal locating beacons. ELT's and EPIRB's are emergency radiobeacons used to assist search and rescue units in locating downed aircraft and vessels in distress.

PELTS would consist of a base station and associated portable (mobile) units. Eligibility would be limited for a base station license but not limited for mobile operations. Base station operations would be restricted to government agencies and private organizations whose primary function is search and rescue, or those recognized by governmental entities to perform search and rescue. This will ensure that base station use will be limited to distress and assistance communications.

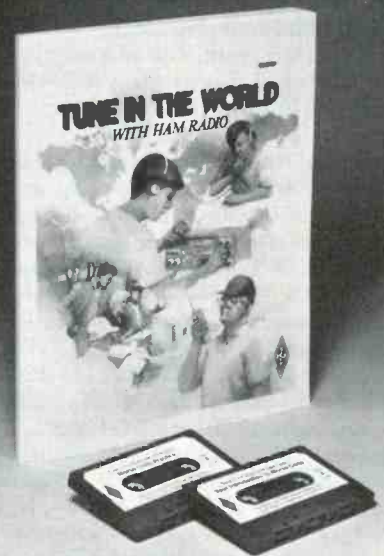
The Commission proposed to use the newly allocated 220-222 MHz band for the PELTS. Specifically, it proposed to allocate five frequency pairs (50 kHz) to PELTS. The Commission believes that should provide sufficient spectrum to develop a personal emergency communications service that would permit two-way voice communications between individuals, base stations and search and rescue units, as well as emergency alerting and homing capabilities. Moreover, a new radio service in the 220-222 MHz band will have a limited impact on existing users.

Finally, in order to increase the utility of the equipment and to improve the efficiency of the search and rescue operations, the Commission proposed technical standards and design specifications for PELTS equipment. These parameters will offer the public some assurance that the equipment is safe and likely to perform its intended function regardless of the user's location or the equipment's manufacturer.

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FOCUS ON FREE RADIO BROADCASTING

Another month, another column and another flood of reports, as pirate activity continues very heavy. Before getting on with a summary of this month's reports we have a couple of items from stations: **Outlaw X** writes to correct the address given in the November issue—it's P.O. Box 24324, Richmond, VA 23224.

WTNU (The Nation's Underground Radio) has a new mailing address: Richard Cranniume, Suite 196, 4431 Lehigh Road, College Park, MD 20740. WTNU says to listen for it on Fridays and Saturdays between 7.4 and 7.5 MHz and on 25, 29.71 and 30 MHz at 1245-1315 and 2220-2320.

Voice of the Purple Pumpkin noted on 15045 and 7376 at 2104, claiming to be a 20th anniversary broadcast and promising a special QSL card. The address given was P.O. Box 628, Slanesville, VA 23444 . . . Also at 2116-2141 on 7375.4. (Joe Frieder, CT; Terry Provance, OH)

Hope Radio 16 America—7415 at 2330-0050 with rock, comedy and ID, pointing out it is a non-profit, non-corporate broadcast station with approximately 100 watts . . . 7406 at 2103-2118 with Bill Cosby comedy . . . 7401 at 0320-0338, very good quality, reading November Pirate's Den column, . . . 7403.3 at 1356-1509, strong and clear . . . 7355 at 1145-1200 . . . 7403.3 at 0304-0350 sign off . . . 2300 on 7355, later on 7401 at 0300-0355 . . . 7405 between 0300-0420. (Tim McSemek, NC; John Barnard, ONT; Walter J. Karcheski, JA, MA; Kris W. Field, PA; Steve Naylor, NH; Terry Provance, OH; Joe Frieder, CT)

Please don't send reception reports to us on this or any other station. We certainly can't forward them and cannot guarantee to print them in any detail nor even to run them at all. Pirate stations please note! There are many maildrops available you can use—editor)

Radio Free Willy—7405 from 0500 tune in with "depression era" folk music and satire . . . 7405.2 at 0528-0542 sign off, reports requested to the A*C*E* computer bulletin board. (Frank Aden, Jr., ID; Provance, OH)

East Coast Pirate Radio—7442.2 (SSB?) at 2257-2259 sign off. Gave Baltimore, MD maildrop . . . approx 7420 between 0540-0555 with unreleased Beatles tunes, gave address at P.O. Box 6527, Baltimore, MD 21219 . . . 7415 at 2348-0003 with a test broadcast to sign off. (Provance, OH; Naylor, NH; Ross, ONT)

United World Radio—7415 between 0315-0350 including a DX report from "Harrison Bergeron," fake commercials including one for "Soldier of Misfortune"

ZODIAC

RADIO



Zodiac Radio's QSL card is gray with gold printing. Reports go to P.O. Box 452, Wellsville NY 14895.

magazine. Address as c/o Tagar, Union Building, Room 258, Stony Brook, NY 11794. (Naylor, NH)

Voice of Abnormal—7412 at 2300, hosted by "Yukon Jack" who sounded like Wolfman Jack. Interval signal is Rolling Stones' "You Can't Always Get What You Want." Signed off at 2340 "until next year." . . . 7410 at 2310-2343 . . . 411.4 at 2301-2343, excellent quality, no address given. (Frieder, CT; Barnard, ONT; Provance, OH)

WBBH (or WHHH) Hillbilly Heaven—7399 variable at 0220-0320 at 0316-0340 with non-stop Appalachian folk music, twangy-voice announcer with ID "This here's Hillbilly Heaven" and mention of "Virginia's only sideband broadcaster." No address noted . . . 7401 SSB at 0332-0350, DJ with strong Ozard accent . . . 7402 at 0323 to around 0420 sign off. (Provance, OH; Barnard, ONT; Frieder, CT)

WKND—6240 at 0539-0600 with "the radio animal" as host, mentioning 1620 kHz. (Barnard, ONT)

WYMN—7412 at 0232-0253 with women telling fairy tales, songs by female artists . . . 7410 at 0250 . . . 7412.2 at 0233-0308 sign off . . . giving Hilo maildrop . . . 7410 to 0307 sign off with folk tales and songs by women. (Barnard, ONT; Ben Fuller, Jr., MA; Provance, OH; Frieder, CT)

Radio Garbanzo—7435 at 0105-0148 sign off, comedy skits. Wellesville, NY address. (Provance, OH)

RFM—7415.5 at 0209-0253. Mellow music with announcer "H.V. Short" plus phony commercials, "licensed by the Directory of Cosmic Forces." May be an old time pirate operator making a comeback . . . 7415 at 0209 . . . 7415 at 0223 with other personnel "Freddy Kruger" and "Michael Meyers" Gave Zansville address. (Provance, OH; Fuller, MA; Frieder, CT)

Jolly Roger International—7445 at 0510-0555. Professional sound, rock and roll hosted by Blackbeard the DJ, reports requested via electronic mail to the ANARC BBS. (Frank Aden, Jr., ID)

Radio Freewave—7405 at 0516-0532, commercial spoofs, rock. Reports to the A*C*E* club bulletin (that's P.O. Box 11201, Shawnee Mission, KS 66207—Ed). (Barnard, ONT)

WBST—7488 at 0303-0424. Laughter sound effects at sign on and sign off . . . 0400-0500 on 7488 with host "Mr. Nasty" playing songs like "Devil Woman" intermixed with horror sound effects. Claimed to be in Salem, MA. Back the next day at 0310-0420. (Barnard, ONT; Frieder, CT)

Secret Mountain Laboratory—7435 at 0409 with Edgar Allen Poe stories. Hilo address and off at 0434. (Frieder, CT)

WRNR—Approximately 6280 from 0100-0118 sign off. "America the Beautiful" played at closing. Address: P.O. Box 32, Hudson, NY 12520. (McSemek, NC)

Radio USA—7410 at 0304 . . . 7408 at 0200-0215 claiming to be from off the coast of North America. Mailbag, sound of police car siren as they signed off . . . 7415 at 0300, off 0325 with Hilo address . . . 7411.4 at 0302-0308 sign off . . . 7407.2 from 2200 sign on to 2208 sign off. Also 0200 to 0213 sign off on 7407.3 with host "Mr. Blue Sky." (Fuller, MA; Frieder, CT; F. Butt, IN; Provance, OH)

Radio EXP—possibly "ESP", 7375 at 1355, address of P.O. Box 452, Wellsville, NY 14895. (Fuller, MA)

WTNU—7410 SSB from 0350-0400 when the signal was lost or left the air. Weak. (Butt, IN)

CHBO—heard several times between 0400-0630 in the 7400-7410 range claiming to be from the Lake Ontario area and using 25 watts. Talks about the environment and plays "spacey" music. (Frieder, CT)

Finally, Frieder in Connecticut reminds us that the Kingston, NY drop from the Pirate Radio Network (including Radio Clandestine, Radio Morainia, Radio No, Official Radio and The Voice of Communism) has been closed down.

Out of space. Keep those reports, station news items, QSL's, photos and so on coming my way!

See you all next month!

PC

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27 MHz COMMUNICATIONS ACTIVITIES

Just in time for the arrival of the good weather, when millions of us are taking to the highways, Midland International has added a deluxe "Ready Rescue" portable CB with VHF weather monitor to its line of gear. The Model 77-913 is a full 40-channel AM transceiver that can also receive the 162 MHz NOAA channels.

The transceiver comes in a rugged carrying case and provides complete portability with a cigarette lighter plug-in. Emergency backup power, in case of vehicle electrical system failure, is available via an easy-load snap-on battery pack which is included.

The transmitter can switch between full 4-watt output and reduced 1-watt output when maximum range isn't required. The antenna is a rubberized type with a mag mount. It has an "instant" Channel 9 button.

This seems to be an excellent approach to having the advantages of getting help on CB for those who don't want a full-blown CB installation. Also, it's a fine secondary, backup, or emergency system for those who rely heavily upon CB while on the road and can't afford to be without comms. I might add, that those who have been through the various natural disasters of recent months (hurricane, earthquake, whatever) might think of the benefits of having a little rig like this available on an "I hope I never need it" basis.

For more information on the Midland #77-913, contact Midland International, Consumer Communications Division, 1690 North Topping, Kansas City, MO 64120, or circle 108 on our Readers Service.

You Wrote To Say . . .

Steve, who monitors Channel 13 most of the time, wrote to say that he's an American serviceman stationed in Adana, Turkey. He tells us that CB operation is allowed there, but requires permission from the Turkish Ministry of Transportation. His station is a Cobra 132 AM/SSB rig, an MFJ Versa Tuner, and a full-wave antenna tossed up into a tree. In addition, he enjoys reading *POP'COMM*.

Jim Taege, of Kettle Moraine REACT in Wisconsin, asks that we mention REACT more often—although, I think that a check through back issues will find that the organization is mentioned in the majority of columns. Moreover, he took exception to the fact that we said (in last August's mention of CB coffee breaks) that when the group holding the break is seeking donations for some cause, those attending the gathering are expected to feed the kitty. He points out that his local group (and many other REACT's) don't charge anybody for coffee and do not require any payments, but they



The Midland 77-913 is an emergency CB portable that also receives NOAA weather broadcasts.

do accept donations. Well, I thought that's basically what was said in the first place, but I won't debate Jim's interpretation of my words last August.

A note from Danny Houston, of Warren, OH advises of "A Memorial Tribute to Lady 154" sponsored by the Concerned CB'ers of The East Coast. This will take place on April 27 and 28 at the Ramada Inn, I-80 and Belmont Avenue, Youngstown, OH. For more information, call *Q-Man* at (313) 561-2604.

A "hello" note and station photo arrived from George Wessel, SSB Network Member SSB-777C of Bridgewater, Nova Scotia. George tells us that he enjoys this column so much that he rounded up three years worth of back issues and shipped them off to his pal, *Tango 306*, in Northern Ireland.

Patch Me Through

A number of inquiries have come in over the months asking getting the ability to send

SUPER C.B. OPERATOR --:-- MONITORING SIX, TWO - SIX

(LOCAL) (DX)
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"BREAK"

BREAK

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A QSL card sent in to us by Danny Houston of Warren, OH.

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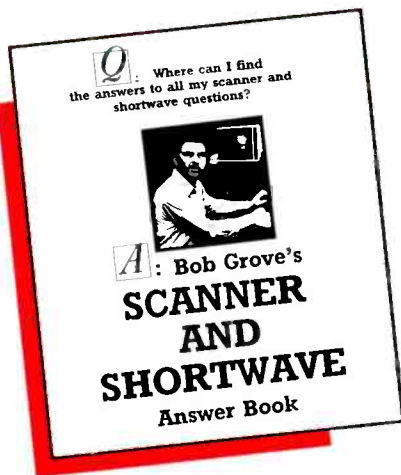
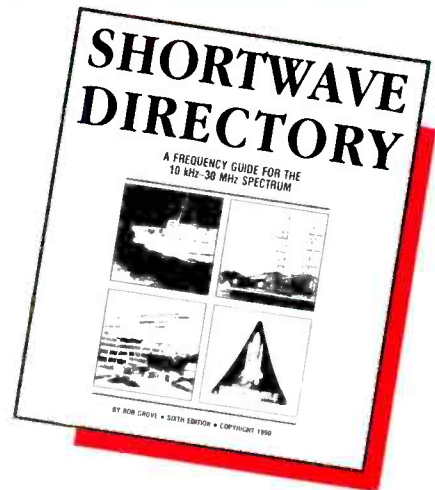
Shortwave Directory

Extensively revised, the new 1990 Shortwave Directory is the consummate DXer's bible for the first 30 MHz of the radio spectrum, including accurate, up-to-date VLF information.

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This attractive station, built around a Browning Golden Eagle Mark IV, is known on the band as SSB-777C. It's operated by George Wessel, Bridgewater, in beautiful Nova Scotia.

and receive telephone calls in the CB mobile unit. This is possible via a device called a "phone patch." The patch is a device that is installed at the base station and tended by the base station operator. The unit easily hooks up to the landline telephone with only a couple of connections that feed to the CB rig, and the base station operator then hand switches between transmit and receive as the phone conversation takes place. Either AM or SSB operation can be employed.

When the person in the mobile unit

wishes to place a call, it is dialed up by the base station operator. When an incoming call is received for the mobile unit, the base operator calls the mobile unit and patches the call through the CB rig. So long as the base station operator maintains direct control of the system, it fits in with the FCC's CB regulations.

When you compare the cost of getting a phone patch against the purchase and air-time expenses of a cellular car phone, you might just decide that this rather simple de-

vice will adequately meet your particular personal or business needs. You don't have to modify your mobile unit, the patch costs only about \$45 and hooks up quickly and easily, and there are no air-time charges to pay anybody. All you pay is your normal landline telephone bill. The patch is reliable and easy to live with. You still have normal two-way use of your base station, too.

Note: Don't confuse a phone patch with an autopatch. An autopatch is a totally different, highly sophisticated, and costly duplex arrangement available on some VHF/UHF FM ham, industrial, and governmental repeaters, but not authorized for use by CB stations.

Phone patches have been used on CB for years, and are also common on the H.F. ham and MARS frequencies for patching local calls through from DX stations at sea, or in distant parts of the world without paying telco rates for overseas calls. In all, an extremely handy accessory which many people in CB still don't seem to know about!

Jiffy Battery Removal

Here's a tip for users of handheld CB rigs (and scanners) using penlite size batteries. I've got big, clumsy, paws that are better suited to working with objects the size of lug-wrenches and ladders than with those little gems. Mostly, I find them difficult to remove from the recess formed by the holder. The cure was to tear off about two inches of cellophane tape for each cell. I then place each cell crossways on the tape, about midway from each end of the tape. The tape is then folded up together over the cell, leaving me with a battery that has a nice little "handle." When it comes time for battery replacement, I just give a few tugs on the pieces of tape that stick out and they all come right out without any struggles or prying tools.

If you've got "bear claws," and own a handheld that didn't come with those nice little nylon battery-removal strips, keep this tip in mind.

Range Formula

Predicting the distance covered by a CB system is difficult due to the numerous factors which affect the signal. Raising the antenna height, for example, increases distance, as does using an antenna with a higher gain. Distance generally improves over terrain which is flat and free of obstructions. The seasons also can affect range, the absence of foliage in winter tends to improve conditions. Transmitting over water generally increases range by approximately three times.

An influence on the radio signal which doesn't change is the curve of the earth's surface. Its effect is to limit range, since the 27 MHz signal tends to travel in straight lines outward from the antenna. Since there is virtually no bending of the signal as it reaches the horizon, it continues to travel into space. This is in contrast to standard AM


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QSL

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AM: MOPANI FLY

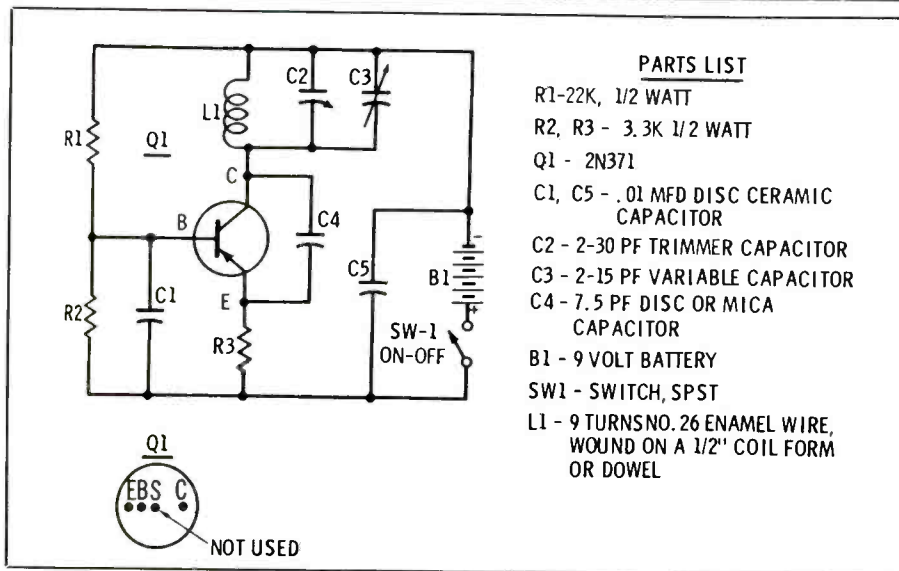
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“Mobile”
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Ant: 108" Whip
Chan: QSL SWOP
Date: 18/9.....

QSL TXN ✓

Our DX QSL of the month is from "Mopani Fly," of the African nation of Botswana. He was heard while mobile in the Kalahari Desert. Thanks to Marshall Cubitt, Smiths Falls, Ontario for sharing this card with us.



- PARTS LIST**
- R1-22K, 1/2 WATT
 - R2, R3 - 3.3K 1/2 WATT
 - Q1 - 2N371
 - C1, C5 - .01 MFD DISC CERAMIC CAPACITOR
 - C2 - 2-30 PF TRIMMER CAPACITOR
 - C3 - 2-15 PF VARIABLE CAPACITOR
 - C4 - 7.5 PF DISC OR MICA CAPACITOR
 - B1 - 9 VOLT BATTERY
 - SW1 - SWITCH, SPST
 - L1 - 9 TURNS NO. 26 ENAMEL WIRE, WOUND ON A 1/2" COIL FORM OR DOWEL

SSB receiving adapter for 27 MHz AM sets.

broadcast signals which curve around the earth's surface for great distances.

Since the earth's curvature is unchanging, it is possible to calculate its effect on the CB signal. All we need to know is the height of the antennas at the transmitting and receiving points. The calculation is based on the fact that the higher the antenna, the more opportunity the signal has to "look over" the horizon. The formula shown below cannot take into account various local conditions (obstructions, etc.), but it can help suggest what kind of improvement you can expect by raising the antenna system. In general, small height increases of a few feet provide range increases of only about a mile or so. Moving the antenna to a hilltop site, on the other hand, might be worth the additional expense and trouble if range is critical. The formula indicates the kind of mileage difference you can expect.

$$\text{Range in miles} = 1.23 (\sqrt{h_t} + \sqrt{h_r})$$

where,

h_t is the height of the transmitting antennas in feet,

h_r is the height of the receiving antenna in feet,

1.23 is a constant.

Let's calculate an example where a transmitting antenna is 64 feet off the ground, and the receiving antenna is 16 feet high. These heights are measured from ground to the base of the antenna (where radiation is strongest).

$$\begin{aligned} \text{Range} &= 1.23 (\sqrt{64} + \sqrt{16}) \\ &= 1.23 (8 + 4) \\ &= 1.23 (12) \\ &= 14.76 \text{ miles} \end{aligned}$$

Receiving Single Sideband

Single sideband, an efficient transmitting system that greatly increases power is wide-

ly used in military, commercial, and amateur equipment. It is also approved by FCC regulations for use in CB. The standard AM CB receiver, however, is unable to detect the sideband signal. The audio will sound completely garbled.

There are several ways to equip the receiver for sideband reception. One is to add a beat-frequency oscillator (bfo). This, however, requires considerable skill and internal modifications to the circuit. Another method is to use a signal generator or grid-dip oscillator near the receiver while it is tuned to a sideband signal. Either instrument is adjusted to produce a 27 MHz signal. By care-

ful tuning in the 27 MHz region, it is possible to radiate a signal into a receiver that makes the sideband audio intelligible.

If none of these methods is conveniently available, a simple transistor oscillator may be inexpensively constructed according to the values shown. It is tested by tuning its capacitor while the device is near the CB transmitter. It should be possible to locate the oscillator signal by observing the receiver S-meter. While receiving a sideband signal, the oscillator is tuned back and forth over the channel frequency until the audio clears. Also adjust the strength of the oscillator signal for best results by moving the device different distances from the CB transmitter.

The device can be constructed on a small piece of perforated plastic board. Note that one lead of transistor Q1 (the S terminal) is not used and is clipped off close to the case. The values of capacitors C2 and C3 are approximate and you can use any capacitors within a few picofarads of the ratings given. C2 is a standard mica compression-trimmer type. C3 is a variable and should have a 1/4-inch shaft to which a plastic knob is attached.

After the circuit is wired, turn C3 so its plates are halfway meshed. Turn on power switch SW1, and turn on the CB receiver and tune it to a channel near the center of the band. (Watch the S-meter for the signal.) This procedure sets the approximate tuning range of the oscillator. Now the know of variable capacitor C3 is used to finely tune in sideband signals on any CB channel.

This column would like to hear from readers with station photos, CB QSL's, information about CB activities and coffee breaks, etc.

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CLANDESTINE COMMUNIQUE

WHAT'S NEW WITH THE CLANDESTINES

T rue to our prediction a couple of months back, *Radio Clarin* in the Dominican Republic is now airing a program produced by the Cuban American National Foundation, headquartered in Washington, D.C. CANF's program is called *La Voz de Fundacion* (Voice of the Foundation) and is scheduled from 0100 to 0200, although there have been reports of it as late as 0300. The program, which began on November 6, 1989, is produced at a radio studio located in CANF's Miami offices. The program's purpose is to serve as a link between Cuban-Americans and Cubans on the island; at what a CANF representative termed "a very critical time" and to express the Cuban exile community's hopes for Cuba in such areas as democracy and human rights. An organization spokesman said the program is being listened to within Cuba.

Radio Clarin left its longtime 11700 frequency in favor of 9950 to escape interference on the former frequency. We understand that the CANF time purchase was contingent upon Clarin's changing frequency. And we have to wonder whether it was CANF or Clarin that chose 9950—right in the middle of the "anti-Castro band."—*La Voz del CID* is just 10 KHz down, on 9940, and the still mysterious Radio Caiman is 15 kHz up, on 9965.

Chances for QSL'ing *La Voz de Fundacion* appear good. Reception reports can be sent to the attention of Mr. Delsin Pernas, Cuban American National Foundation, 7300 NW 35th Terrace, Suite 104, Miami, FL 33122.

Radio Venceremos and *Radio Farabundo Marti* programmed jointly during the FMLN's offensive in and around San Salvador in November/December last year. Radio Venceremos has been using frequencies considerably lower than 6.500-6.800 where it formerly hung out. Reader Barbara Harris in Tennessee reports hearing Radio Farabundo Martin on the unusual frequency of 13.440 around 0110. This would seem to be a harmonic since the station is normally heard in the vicinity of 6720. Hearing the harmonic of a clandestine station has to be a pretty rare thing!

William Walbesser of New York tells us that a reception report he sent on *UAE Radio*, Abu Dhabi—while duly QSL'd—also produced a 127 page book from the Embassy of the Palestine Liberation Organization. The book, entitled "Shalom Rings Hollow" was written by Ahmed A. Shouly, the individual who signed the QSL. Bill says that either Shouly "has a supply of PLO envelopes" or forwards names to the PLO embassy there, or both. In either event, this

Date : 31st. October, 1989

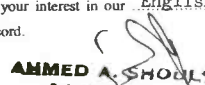
Mr. : William F. Walbesser.....

Sir,

We acknowledge receiving your reception report about our broadcast dated 15.10.1989 on Short Wave 31.25x21 Meterband 9595, 11985 KHZ. & 13605.


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Sincerely Yours'

Director,
 UAE Radio from Abu Dhabi



The UAE Radio from Abu Dhabi was set up on 25th of February 1969 under the name of Abu Dhabi Radio with six hours transmission in Arabic only. With the formation of the seven Trucial Emirates into a Federation "The United Arab Emirates" on 2nd December 1971, Abu Dhabi Radio assumed the present name and has grown enormously since then.

The foreign Language services of Abu Dhabi Radio transmit (beside the short-wave service) in English, French, Urdu, Bengali and FM programme (Capital Radio) to listeners inside the country on M/W band. The task of the F.L.S is to convey to non-Arab residents a comprehensive and realistic picture of political, economic and cultural life in the UAE as well as UAE's viewpoint on current affairs and problems of International significance.

BROADCAST SCHEDULE / MEDIUM WAVE / (ABU DHABI TIME = G. M. T. + 4 HOURS)

Time in GMT	KHZ	M. Band	K. W	Language
02.15 - 21.30	729	411.5	750	Arabic
02.15 - 21.30	1314	228.3	2000	Arabic
07.00 - 09.30	810 - 657	370 / 456	50 / 100	English
10.30 - 12.30	810 - 657	370 / 456	50 / 100	French
13.00 - 15.30	810 - 657	370 / 456	50 / 100	Urdu
16.30 - 17.30	810 - 657	370 / 456	50 / 100	Bengali
03.00 - 20.00	93.5 MHZ, F.M	—	1	Music
02.15 - 12.00	1575	180.5	50	Arabic
02.15 - 06.00	972	308.6	1	Arabic
06.00 - 12.00	1539	194.9	100	Arabic

S/W Schedule enclosed

The veri signer from UAE Radio from Abu Dhabi has connections to the PLO.

may be something to keep in mind as a potential avenue should you hear one of the several PLO programs carried on short-wave and wish to get a QSL.

One example—*The Voice of Palestine*—aired over Radio Damascus, Syria. This is reported to be on the air at present from 1830-1900 on 11625. Note that this frequency is also sometimes used by the National Radio of Sudan.

The Chicago Area DX Club bulletin recently carried an item to the effect that an international association of Chinese students was preparing a regular radio program to be

called the *Voice of June 4th*. The one hour per day program in Standard Chinese would include news, comment, analysis, historical information about the achievement of democracy around the world and other items. The information indicates that several U.S. medium wave stations had already agreed to carry the feature. The group also hopes to purchase time on shortwave and/or mediumwave stations who can put a signal into China. The group is based in Chicago.

William Walbesser sent a clipping from a *New York Times* story (November 13, 1989) about a Swedish radio station called

Radio Islam. The station promotes the idea of a "worldwide Jewish conspiracy" and, despite its name, does not focus on Islamic culture or religion. The article says a good deal of time is devoted to readings from the "Protocols of the Elders of Zion" a forgery that dates back to Czarist Russia and was often cited by Nazi Germany. Such activities are against the law in Sweden and last fall a former Moroccan military officer, Ahmed Rami—now a Swedish citizen—and said to head up the unnamed group behind the broadcasts was tried, and found guilty, of breaking the law against defaming a race, people or ethnic group. Apparently, the station continues to operate. The piece gave no location or frequency, but we'd suspect it's probably on the FM band and located in the Stockholm area.

The Democratic Alliance of Burma (DAB) was expected to begin operating its own clandestine radio station early last December. *The Voice of the DAB* is to operate from a site along the Thai/Burma border and operate from 0130-0330 on 7135—which makes reception in North America virtually impossible. The Karen National Union, which once had its own clandestine station, will provide programming on Tuesdays and Fridays, with others responsible for the rest of the hours. Burmese, English and a number of minority languages are on the schedule. Some 20 minority groups make up the DAB, along with students. Burma, incidentally, is now officially known as "Myanmar." We'd appreciate being advised if any of our readers in Asia or the Pacific are able to hear this station.

The Voice of the Broad Masses of Eritrea now operates at 0300-0345 on 7880 with program in Amharic. We've checked this several times, though, without success.

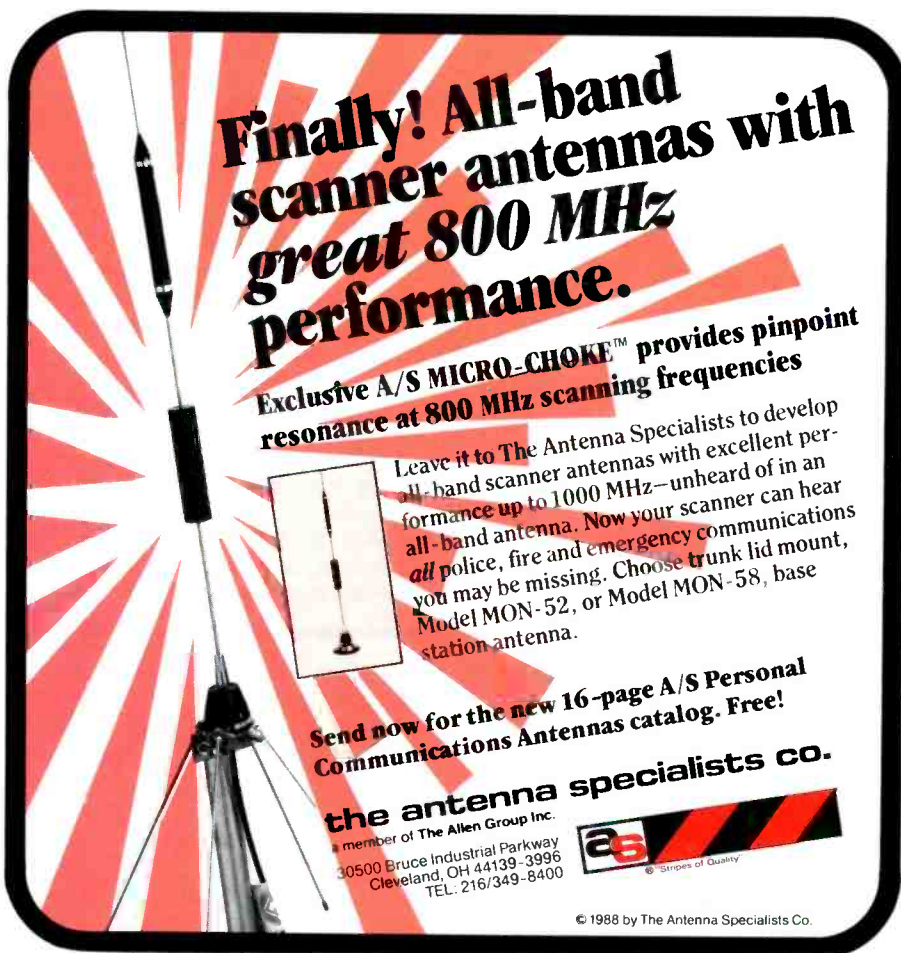
Robert Ross in Canada reports a non-QSL from the *Voice of Iran Toilers*, but, actually, the reply was from John Takman, MD, who handles the maildrop for the Tudeh Party of Iran which runs the station. Takman said he didn't think Tudeh would reply to Bob's letter. We had a similar experience sometime back, through Takman did promise to forward the report. There's been no response, unfortunately.

Bob had better luck with *Iran's Flag of Freedom Radio* (15560) with a letter received from Dr. Manouchehr Ganji, Secretary General, via DERAFFSH, 20 Rue de Condorcet, 750009 Paris, France.

Bob has recently taken logs on *La Voz del CID* from 0300 on 7380 and the *Voice of Democratic Kampuchea* (via Radio Beijing) on 17533 at 2350-0005, in Cambodian.

That will do it for this month. Remember your informational input is highly valued! We can use schedules, loggings, news clippings, material from groups which run stations, address leads, copies of QSL's received and so on. We can protect your identity if you wish. Thanks very much for your help.

Til next month — good hunting!




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Beaming In (from page 4)

dead and you couldn't quickly find another one, you just grabbed any handy 5T4, 5U4, 5V4, 5W4, 5Y3, 5AW4, 5CG4, or 5AX4 and plugged it in to the 5Z4 socket as a direct and equal substitute. The majority of receiving tubes had numerous direct substitutes, or substitutes that could be made to work with a couple of minor wiring changes at the socket. Most of the repairs required for non-military radios made between 1935 and 1960 can still be accomplished with tubes, transformers, resistors, chokes, capacitors and most other parts readily available in the general and specialty electronics marketplace.

On the other hand, I wonder how many of the custom and other components used in modern equipment is not only "old" but also unavailable in what certainly seems like a brief period of time. When I think about the week I bought this scanner, Detroit had just won the World Series from San Diego. I remember watching the Series as if it took place only a few months ago.

I suppose that, most of the time, manufacturers plan a bit better and can keep parts in stock longer than this. However, I have heard from owners of BC-250 and other seven or eight year old *Bearcats* made prior to *Uniden* taking over the company. Many of these scanners can't be repaired because of the inventory of certain vital parts is depleted. Just my luck to also have a scanner that cashed in its chips with little hope of a convenient organ transplant. I suppose you might embrace the philosophy that, after six years, I should figure I got my fair use from the set and now be ready to replace the entire organism with a more current model. Maybe so, but it's still a far cry from the low tech era of vacuum tubes with all of their many drawbacks.

All was not lost. I fell back on haunting ham flea markets and scouring classified ads until I chanced to find someone selling one of these scanners. The price was low, but it worked even though it looked as though it had been beaten with a tire iron. My XYL said it was so ugly that the marks all over the set were probably from being hit with a 10-foot pole.

I carefully removed all chips and other important-looking parts, then tossed the cannibalized carcass into the trash. The needed chip was installed in my "old" scanner and works just fine.

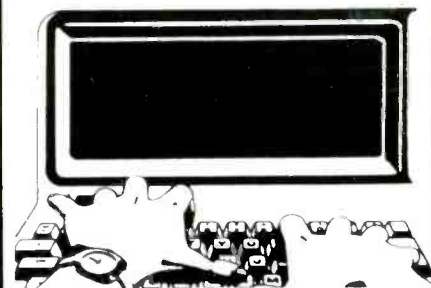
Interestingly, I noticed that the latest high end stereo equipment is again being designed around vacuum tubes. Everything old is new again. Maybe someone of influence in the audio field shared my unhappy experience of high tech chip obsolescence.

Oh, Jeeves, refresh my memory, What were those reasons everybody decided thirty years ago that vacuum tubes were inherently lousy and needed to be replaced by a better technology?

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