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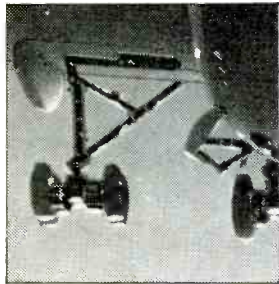
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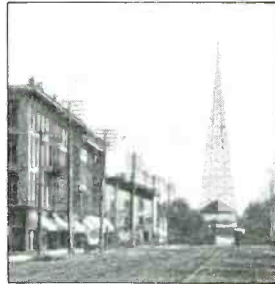
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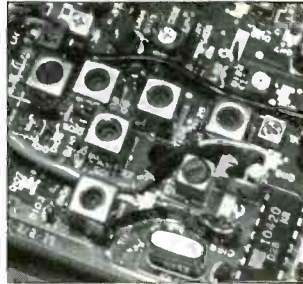
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This month's cover: Charles Pickens, Air Traffic Controller—talks with aircraft from the tower at McArthur Airport on Long Island. Photo by Larry Mulvehill.

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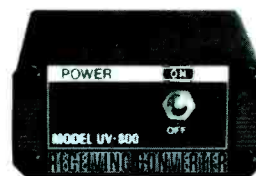


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Tied Too Tightly To The Past

In the early days of landline telephones, telephone operators were young people wearing roller skates who put calls through by skating back and forth along a series of panels until they located the right spot to plug in the jack. In order to become employed in that part of the communications industry, you not only had to know how to read, but you also had to prove that you could deal with a pair of roller skates.

As telephone technology progressed, connecting one party to another could be accomplished manually from a desk switchboard, then eventually the process became fully automatic. The ability to roller skate was scratched from the list of operator requirements as soon as it became an unnecessary part of the job. Those who liked to skate for enjoyment were free to do so at will.

What would you think if, even today, to work at a landline communications company you had to qualify intellectually for the job, and then, as the deciding factor, you had to strap on a pair of roller skates and do a few crossovers, sit-spins, and graceful turns solely to pay homage to those intrepid telco employees of ninety years ago who were required to perform the same deft moves? You'd probably think that maybe it was time for Ma Bell to rethink her entry requirements.

Don't look now, but many of us may well be part of a system that is guilty of perpetuating the very same type of folly. What I'm talking about is continuing to require that all new entrants into the world of ham radio demonstrate a working knowledge of CW, whether or not they have any interest in using that time-honored mode of message transmission.

I'm not knocking CW at all, in fact, from time to time, I enjoy monitoring CW traffic from ships and other stations. But I'm not one of those people who has ever found it pleasant to conduct a two-way ham contact in CW. I'd no more wish to do that than I'd like to sit across the room from another person and converse with them by whistling in *dit's* and *dah's*. Obviously there are many people who derive relaxation and enjoyment from CW, and find it far more suitable for DX work than other transmission modes. Those people should have every right to continue these pursuits to their hearts' content.

The problem is that, the way ham radio is presently set up, in order to get a license to operate in any of the bands, a person is still required to demonstrate a working knowledge of what is essentially a quaint and archaic method of communication with only a few specialized uses left to justify its existence. Demanding that a person demon-

strate a working knowledge of this mode to qualify for entry into ham radio, at this point, seems to me to make as much sense as if the phone company wanted a roller skating demonstration from applicants.

It's like demanding that people need to demonstrate cursive penmanship with a quill pen in order to be permitted to operate a word processor.

This has not been without consequence. Ham radio used to be the technology of choice for young people. Computers, since they are used in most schools now, and because they don't require an FCC test to operate them, have managed to head off at the pass a great many of the bright youngsters who might otherwise have gravitated towards ham radio. Computer people are more than pleased to absorb these bright young people into their inner circles and haven't once suggested that they demonstrate a working knowledge of the abacus in order to pay homage to the past.

Fact is, when presented with the knowledge that CW must be learned in order to tread the ham radio path, the reaction is more likely to be a yawn or a shrug than anything else. In an era of high technology, ham radio's claim to exclusivity is so low-tech that it has become self-defeating to people that the hobby needs to fill its ranks, occupy its frequencies, design its future equipment, and devise communications technologies for the first quarter of the 21st Century! In other words, ham radio is in serious need of a revamped image, and CW as an absolute requirement is part of what has to be dumped.

Those to whom I have spoken about their insistence upon retaining a CW requirement for all grades of ham tickets seem to fit into several categories. The most popularly heard reason is "it's tradition," and that's the part of the problem I've already addressed.

Others have expressed sentiments along the lines of, "it may be useless, but I had to go through the pains of learning CW and so

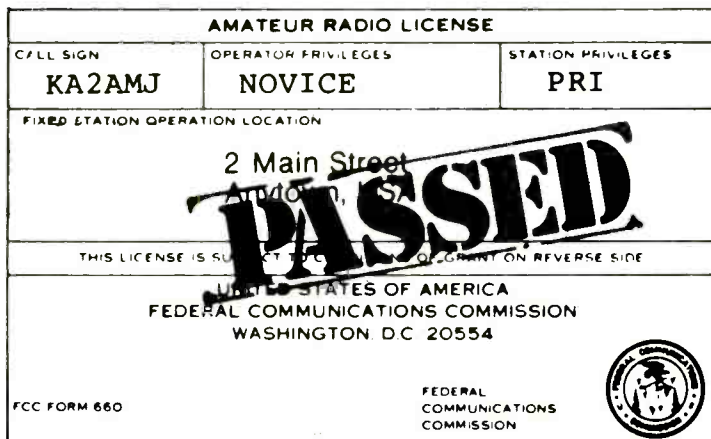
can everybody else who wants one of these licenses." This seems to me to be such an illogical position that there's probably little point in attempting to mention to such a person how counterproductive it is for ham radio as a whole.

One group thinks that forcing people to learn CW is somehow going to keep various ill-defined "undesirables" off the ham bands. The easiest way to do that is simply to avoid communicating with those whom you don't wish to chat. That's the best thing about being able to change frequencies! Why should anybody care who's not on their frequency?

Several have pointed out that CW is good to know in an emergency situation, like when the voice transmitting capabilities of your equipment breaks down you can open up the set and touch a couple of wires together in order to get a vital CW message through. Maybe this worked for Tom Swift, The Hardy Boys, or the Bobsey Twins, but it's probably never actually happened. There probably aren't five hams (of any grade license) in a hundred that could figure out in an emergency how to do this trick with a modern SSB transceiver.

So, let's leave the CW to those who enjoy the mode, but drop it as being the litmus test for a person's suitability for holding a ham license. Let's have an entry grade license that requires passage of the written portion of the Novice exam, then grants its holder various privileges on bands at 50 MHz and above. In addition to voice modes, the license should permit packet communication in specified segments of the bands.

I'm all for maintaining ham radio's traditions that go back to the early days of the 20th Century, but it's now time to dust it off, oil it up, get rid of the cobwebs, and put it on a competitive footing with other technological avocations so that it can hold its own in the coming century. It requires the serious support of all who would see ham radio continue to grow and thrive.



MAILBAG

LETTERS TO THE EDITOR

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

It's Probably Older Than He Thought

About 15 years ago I bought a J.C. Penney solid state receiver. The dial is marked as MB, AM, FM, PSB. I understand all but the MB marking. It's graduated at 1.7, 2.0, 2.4, 3.0, 3.5, 4.0, 4.5. Is this kHz or MHz? Does MB mean it's Marine Band? Tuning across the band all I get is time checks and some foreign language broadcasting.

Donald R. Wiemkin,
Sterling, IL

At this point, I wouldn't think you'd really expect to hear much more than that on your receiver. My guess is that you probably purchased this receiver more than 15 years ago. Appears to have been intended for reception of AM-mode transmissions between 1700 and 4500 kHz. Years ago, the majority of voice transmissions in this portion of the spectrum switched over to SSB—a transmission mode your receiver can't copy—although MB (Marine Band) transmissions in AM mode did occupy portions of this band many years ago. The time signals you're hearing are WWV on 2500 kHz. You're also picking up some regional shortwave broadcasters (mostly in Latin America) that still use these frequencies (in AM mode). —Editor

Channel Crossings

Someone on a local FM station mentioned in passing that they were broadcasting on "Channel 214." That was a new one on me, and there was no further mention of where that channel might be. TV channels appear to end at Channel 69. Is this something new?

Peter LaFourche,
Los Angeles, CA

Not especially new. The allocated frequencies in the FM broadcasting band (88 to 108 MHz) have had channel numbers ever since the band was created (more than forty years ago). The channel numbers run from 201 (88.1 MHz) through 300 (107.9 MHz). Channel 214, which you mentioned is on 90.7 MHz. Perhaps, at some point in the past, the FCC envisioned the FM broadcasting channel numbers to become the way

stations, equipment manufacturers, and the public would refer to this band, just like the TV channels. Although the FM broadcast channel numbers are still referred to by the FCC, and within the broadcasting industry itself, the general public is seldom exposed to the terminology. The channel numbering system seems to work well on TV, CB, the VHF-FM marine band, etc. Too bad it never "took" on the FM band. —Editor

Old Timer Is Scarce

When you ran Alice's review of GE's new Model 7-4100J replica of their 1932 cathedral-style table radio, I was thrilled. As an owner of one of the original 1932 sets, I wanted the new AM/FM version to sit alongside its grandpa. Finding one was another problem since they're not in local appliance or department stores. After numerous attempts, however, I did find one, but not in my local area. It brings back pleasant memories even before the set is turned on!

Jim Schug, WA2YEI,
Queens Village, NY

I refer to GE's replica of their 1932 table radio. It's great, except that this radio cannot be obtained from sources I could locate anywhere in Europe. Where can I buy one?

Alberto d'Orlando,
Trieste, Italy

After your magazine reviewed General Electric's 7-4100J table radio, I went right over to my nearest GE radio/TV dealer to buy one. He thought I was pulling his leg. Since that time, I have stopped in at and called many other GE dealers and asked about the GE Model 7-4100J and have not been able to find one, nor even a dealer who offered to try and order one for me. It sounded like a wonderful idea, but was it ever put on the market?

Barry Goldstein,
Diamond Bar, CA

That GE replica of the 1932 cathedral-style table radio brought in lots of mail. Unfortunately, dozens of the letters said that their neighborhood GE dealer didn't have the foggiest notion as to what it was, hadn't any intention of carrying them in stock, or even checking with a GE distributor to find out if one could be ordered. Sounds like GE underestimated the popularity potential of this receiver. For the many who have written to tell us that the receiver can't be obtained, we say that it's carried in the catalog of the Electronic Equipment Bank, 516 Mill Street N.E., Vienna, VA 22180. Their price is \$72.95 plus \$6 shipping.

It's Alive

At an electronics flea market, I picked up a used Electra Bearcat 250 scanner. Although 7 or 8 years old, it's in remarkably good working condition. The exterior

shows its age in terms of grime and wear. In view of recent developments in scanner technology, I'm wondering what internal modifications I can make to this old soldier to bring it up to date.

Don Mulcahy, KWA7MZ,
Cle Elum, WA

We don't know of any standard updating modification for the BC-250, although the only features of the set that tend to "date" the unit are the Motorola-type antenna connector, and the fact that the UHF band won't accept programming on all of the current "offset" frequencies. Otherwise, it's a pretty good unit. Like the man said, if it's working, don't fix it. Probably best to limit your efforts to going over the case with a sponge lightly dampened with some warm soapy water. Use a dry rag to clean off the area of the programming buttons. If the case is really shot, apply woodgrain vinyl contact covering and let the set live out its remaining days intact, and with dignity. —Editor

A Picture Is Worth 1,000 Worms?

Do you have any publicity photos of Alice Brannigan that you send to your readers? Such a picture would be a welcome addition to my station. If you haven't already thought of the idea, you might wish to take it under consideration. If all of your writers look as good as Alice, the use of such photos would greatly increase the number of POP'COMM readers.

David Styles,
Travelers Rest, SC

Yes, we have thought of this idea, since many requests come in for photos of Alice. We haven't done anything about it thus far, although if the requests keep coming in, we may eventually have to arrange for such photos. As far as most of our other authors are concerned, don't ask. —Editor

Time Out

What about world time (UTC) versus local time? Why doesn't some manufacturer come out with a pocket-sized calculator to enable us old dogs to punch up the time we need in a jiffy? Seems to me it should be a great success since SWL'ing is on the rise. And wouldn't you think that companies doing international business would also find something like this to be useful? Maybe this idea has already been mentioned in your magazine (I'm a new subscriber).

Harry Simpson, Jr.,
Kansas City, KS

Although I've never come across such a gizmo, it sounds like something that must surely be on the market from one or more suppliers. If any readers know of such a device, let us know the source and we'll pass it along to all of our readers as it sounds like a good idea. —Editor

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THE MONITORING MAGAZINE

March 1989 / POPULAR COMMUNICATIONS / 7

A Modern Medium: An Ancient Nation

Special Report on Broadcasting in Afghanistan

DR. ADRIAN M. PETERSON, N9GWY

Convoys of army trucks, columns of marching soldiers, and clusters of military tanks are making their tenuous way along the northern highway running from Kabul in Afghanistan up to the Russian border in the north. They wend their way along the modern but narrow highway, across the wide verdant valleys, over fast running streams, through the long Salang Tunnel, over the high snow covered passes, and on up into the Afghan province neighboring the areas of southern Tadzshikistan. The tribal peoples who live in these provincial areas are saying farewell, with varying emotional responses, to Russian occupation.

What will happen in this "new" Afghanistan? Will the country revert to its old ways, or are they forever gone?

At this stage, in the saga of Asian events, let's take a backward look as we view the story of radio broadcasting in that fascinating, isolated, and ancient nation—Afghanistan.

Afghan Backgrounds

Afghanistan is a landlocked nation located on the edge of the high Himalayas in southwest Asia. It is surrounded by four powerful neighbors, Russia, China, Pakistan and Iran. This rugged, isolated land of high mountain ranges, swift flowing tortuous rivers, and elevated verdant valleys is home to an estimated 20 million people.

The population is made up of 20 tribal groups, each with its own language, though Dari and Pushto are the nation's two official tongues. The religion of the vast majority is Islam, which was imported from Arabian areas some 1200 years ago, though there are some spirit worshipping pagans in isolated mountainous areas.

The largely uncontrolled Khyber Pass links neighboring Pakistan with Afghanistan, and it is quite an adventure just to drive through this historic area, which, at its narrowest, is just ten feet wide. A huge notice board at each end of the pass advises drivers to complete their 33 mile journey through this winding mountainous locality well before sunset. The highway up to the border is officially controlled by Pakistan, and off the highway is listed as "de-controlled." Caravans of smugglers, with large loads on their backs, walk off the highway, around the border check post, and onto the highway again the other side.



Photograph of 6 staff members and 25 kW Siemens AM transmitter, 657 kHz, at Yakatut MW installation. Photo 1970.

Here, in these areas, I have had my car stoned, my camera nearly destroyed, and a borrowed car break down. I have slept all night on top of a trailer to protect its contents, and I have coasted down to the border check point in a car with a seized-up engine. I too have bought needed items at the smuggling village, only to be disappointed. I once bought a packet of imported razor blades at the border smuggling village, only to find out later that they were just old used blades, repacked into new packaging!

Travelling by plane through the pass is particularly spectacular, though at times hazardous. On one occasion, we as a family were on a commercial airliner, scheduled to fly through the pass. In mid air, the flight was cancelled, and we came down at the nearby frontier city of Peshawar. That cancellation was the end of scheduled flights between the two countries for many years.

Each year, or at least during the times I used to visit Afghanistan, there was an annual celebration in Kabul to honor the tribal Pathans. These celebrations of Pushtoistan Day concluded with the most spectacular fireworks display I have ever seen in any part of the world.

The Salang Tunnel, 3 miles long at an

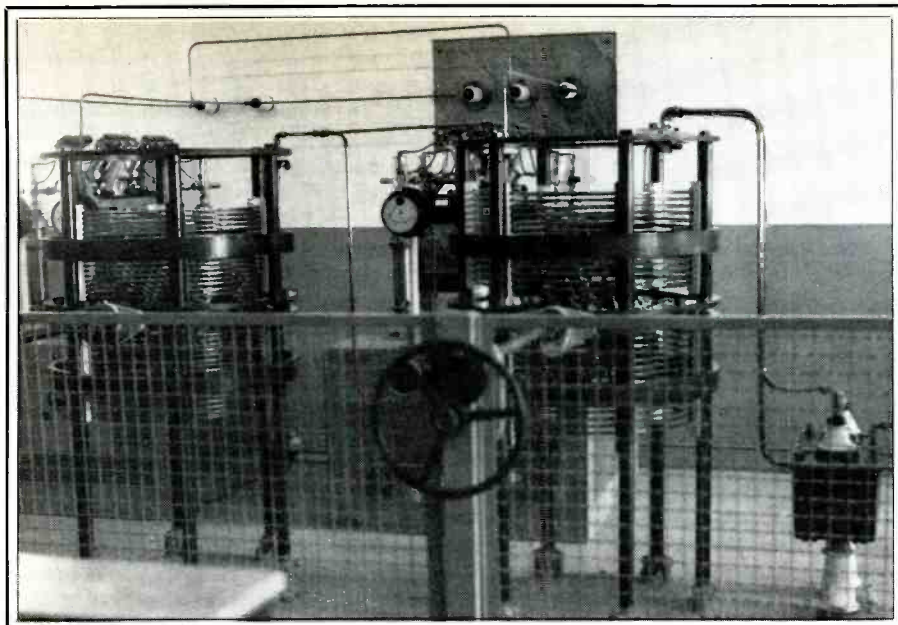
elevation of 12,000 ft. high, connects Kabul with the northern province. Several thousand people died in the tunnel a few years ago, when two convoys were trapped inside. Both entrances to the tunnel were sealed off and people were not permitted to escape.

Two enormous Buddhist statues, carved into the mountainside at Bamiyan, are so large, that the top of a motor car just comes up to the thickness of the toes. These two statues, located in a beautiful and wide valley, are the largest in the world.

Afghanistan issues many stamps and sometimes new sets are not recognized in the philatelic world. The people eat a huge flat bread, 3 ft. long, which is delightful when hot, and has the texture of old leather when cold. The ladies wear a black covered burkah over their modern western fashions; and the men play buzkashi, in which horsemen try to grab a newly-beheaded calf and carry it across a goal line.

Pioneer Broadcasting

The story of radio broadcasting in Afghanistan goes way back into the pioneer days. In 1925, two Russian made transmit-



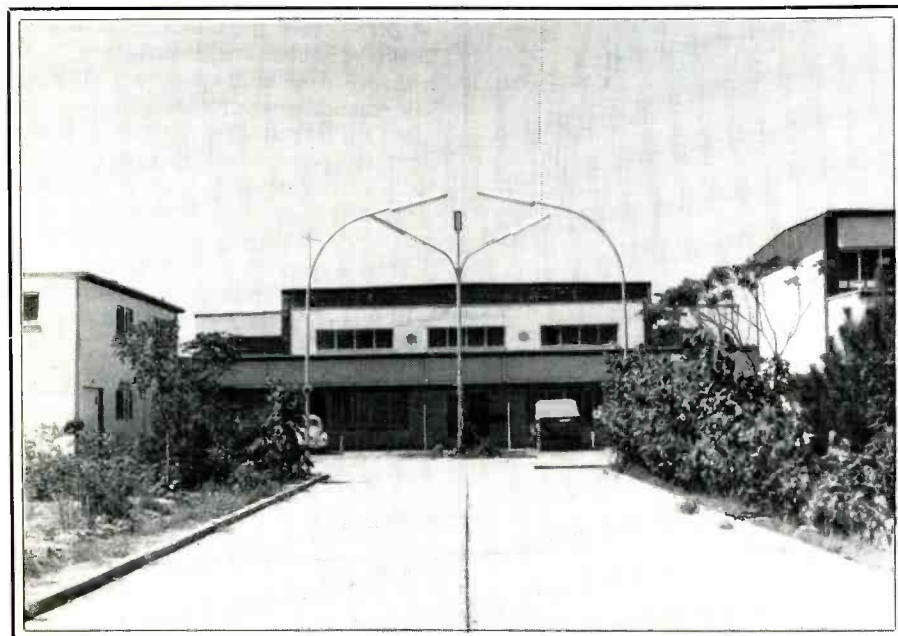
Photograph of old 1933 Telefunken transmitter, 25 kW 660 kHz, on second floor of MW Yakatut installation.

ters were imported. The first was installed in the King's Palace on the edge of Kabul, where it radiated 200 watts on the then standard channel, 360 m, or 832 kHz in the AM band. A consignment of 30 crystal sets was distributed around the city. This project was so successful, that an additional 1,000 sets were obtained and distributed in surrounding areas. In the evenings, hundreds of people gathered around these sets in private homes and in street bazaars to listen to "Radio Kabul." However, by the time I met King Zahir in his royal palace many years later, the old transmitter was no more than a half forgotten historic novelty.

The second transmitter obtained at the

same time from the Russians was intended for installation at Kandahar, 300 miles to the south. However, this early project in regional broadcasting was abandoned because of civil disturbances in the area.

Six years later, in 1931, a large 25 kW Telefunken transmitter was procured from Germany. This ponderous, open housed unit was installed on the second floor of a specially constructed radio building at Yakatut, an outer suburb of Kabul on the highway running towards the Khyber Pass. This enlarged radio outreach became operational two years later, in 1933, and was still functional 40 years later. In fact, during the 1970's it was on the air every Thursday



Exterior of transmitter building at Pol-i-Tscharche, located on highway running towards the dramatic Kabul Gorge.

evening from 7 pm to midnight local time, on the channel 660 kHz. By this time, the radiated power was reduced to 15 kW in order to conserve the ancient equipment. No spare parts were available.

Current Facilities

During one of my many visits to Radio Afghanistan, I became acquainted with Engineer Kageler who was on loan from Deutsche Welle in Germany. Some years later, however, he died while on service in Saudi Arabia. On one occasion he showed me the several major installations of Radio Afghanistan, as well as the utility communication station nearby.

The main head office building of Radio Afghanistan is located at Answari Wat, on the main thoroughfare running between the city and the airport. This facility was opened in 1964. It was built under German supervision, and houses studios, offices, a large auditorium, and some transmission equipment. All programming for Radio Afghanistan originates in this austere furnished building. In addition to the local AM medium wave service and the shortwave service in several languages, there was at one stage, an experimental FM service. A 10 watt (later 25 watt) transmitter high in the rafters, relayed the MW service on 96.1 MHz, and my QSL for this outlet is the only one ever issued. It was from this experimental FM service that the TV service was later developed with 10 kW/1kW output on Channel 5.

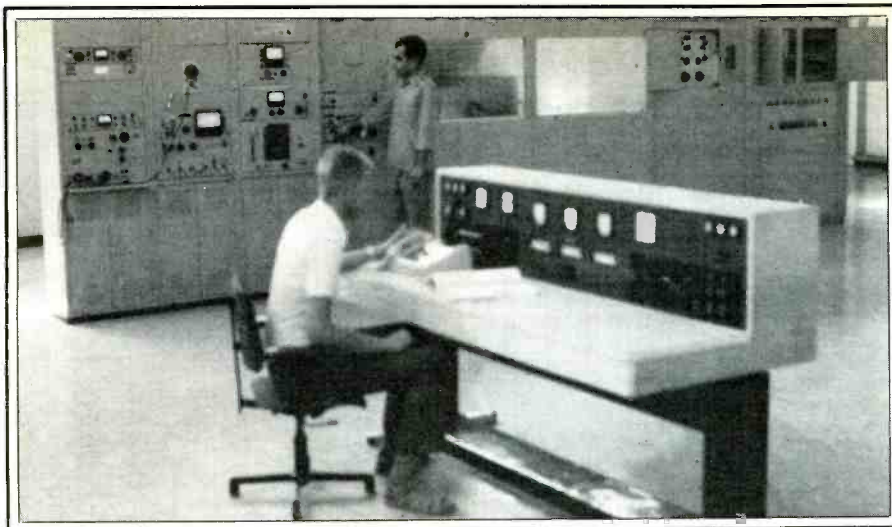
In the foyer of the main building there was a large map of the world on the wall, with markers indicating the locations from which reception reports had been received. In those days, a young office worker was designated full time as the QSL officer, and another young man was their professional DX'er.

The oldest facility of Radio Afghanistan still in use is the Yakatut facility, referred to earlier. This building is about 2 miles from the studio, and it housed the old original Telefunken transmitter on the top floor, and the 25 kW Telefunken on the ground floor. This later unit, quite compact, radiated on 660 kHz.

Behind the AM transmitter building is the utility installation, which houses communication transmitters for provincial and international communication. At times, some of these units have also radiated the broadcast service on shortwave.

Across the highway from the AM transmitter building at Yakatut is another building which houses the shortwave transmitters. This facility came into service in 1957, and at the time of my visit, it contained three Siemens broadcast transmitters: 10 kW, 50 kW and 100 kW, as well as an SSB 20 kW unit used for Bakhtar Newsagency. These transmitters were originally allocated call signs in the YAK series. Many DX'ers on all continents have received QSL cards for broadcasts over these transmitters.

The shortwave antennas are slung across both sides of the highway, and include a 1/4



DW Engineer, the late Mr. Kageler, at the control panels of the 100 kW Siemens AM transmitter, Pol-i-Tscharche.

wave vertical, closed umbrellas for tropical band coverage, and several different short-wave antennas.

The more modern AM transmitter facility is located at Pol-i-Tscharche, a mile off the highway, and quite close to the top of the dramatic Kabul Gorge. This show-place building is the pride of Radio Afghanistan and it houses the single 100 kW Siemens AM transmitter. This unit, originally on 1290 kHz, was subsequently retuned to 1278 kHz. It went into operation in 1964, and is heard over a wide area of Southern Asia during the hours of darkness. Programming from the studios is supplied by two landlines and an emergency backup FM link. Two large MAN diesels supply emergency power.

During the early 1970's, there was an attempt at giving the provincial cities a radio service. For example, at Mazar-i-Sharif, in the northern province, it was not possible to hear Kabul on medium wave, though many Russian stations in Tadzhikistan across the river, were audible day and night.

Thus, in 1971, an advertisement appeared in a Kabul newspaper calling for tenders for the installation of a regional shortwave service at Mazar-i-Sharif. This project never materialised. A few years later, in a subsequent attempt, 3 mobile AM stations were imported for installation in the regional cities of Mazar-i-Sharif, Khandahar and Herat. Disturbances in provincial areas delayed the installation of these stations for some time.

Currently, there are three AM outlets in Kabul, 657 kHz, 1278 kHz, and the 1 megawatt unit on 1107; and three AM outlets in regional cities, Talugan, Baghian, and Farah. The internal and external shortwave services are now carried on two Russian made transmitters located near Kabul and rated at 50 kW and 100 kW. The single low-powered FM outlet carries stereo programming for the capital city area on 96.55 MHz, and a network of about 10 TV transmitters covers many areas of the country with programming on relay from Kabul.

Russian Relays

In a surprise move during 1979, two shortwave transmitters located in USSR began relaying the external shortwave service from Radio Afghanistan in Kabul. The relay was achieved with the use of a PTP utility transmitter located at Yakutat, under the unannounced callsign, YAK. These two broadcast transmitters in Russia are located at Syzran (120 kW) and Tula (100 kW).

In 1981, the main Yakutat shortwave station was destroyed in the fighting. Home service transmissions were then routed to the USSR by a combined PTP utility link and satellite circuit, for relay over three tropical band transmitters in the USSR. These transmitters are located in Ashkhabad and Dushanbe.

Clandestine Stations

The Russian invasion of Afghanistan took place in 1980, and in the next year, the clandestine Free Radio Afghanistan began broadcasting on shortwave, probably from across the border in Pakistan. This station was heard in other areas of Asia, and occasionally beyond.

In the following year, 1982, three portable FM transmitters were hidden in the hills surrounding the city of Kabul. With each of these unattended FM units was a small portable cassette recorder containing a cassette of prerecorded programming. These low powered FM transmitters were tuned to the channels used by Russian tank drivers for communications purposes, and also in the standard FM band. The number of these unusual low powered stations grew to as many as 23. Unfortunately, though I was occasionally in the area, I was never able to hear any of these unusual radio stations. If I had been successful in logging one of these low powered clandestine radio stations, do you think that they would have sent me a QSL card?

Radio Afghanistan still issues QSL cards from its head office in Kabul at Box 544, and the cards currently in use are the same as before the Russian invasion. You can hear Radio Afghanistan best via the relay transmitters in the USSR. Perhaps one day, a new card, signifying the country's current status will be issued. In the meantime however, listen to Radio Afghanistan, and secure for yourself, one of their exotic QSL cards, possibly featuring the Buddhist statues at Bamiyan.

<p>OFFICIAL VERIFICATION Nr. ... We acknowledge receipt of your reception date : 4.7.71 at frequencies of 17775 kc/s from (GMT) 7.30 h to 18.00 h Programme in Deutsch YOUR REPORT has been checked with our records. It is correct in every detail. May you always receive our programmes in best quality possible.</p> <p>WITH KIND REGARDS FOR CHIEF ENGINEER</p> <p>RADIO AFGHANISTAN ... KABUL P.O.B. 544 <i>Mahn</i></p>	<p>Adrian M. Peterson Pakistan Union Office Adventpura P.O. Multan RD Lahore WEST PAKISTAN</p>
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QSL for 4450 kHz. The reverse side shows one of the statues at Bamiyan. Afghanistan is a Moslem country.

Policeman Helps Prevent Drowning

Patrolman Dennis Svihlik of Parma, Ohio, risked his own life to help save a teenager from being swept away by a flood-swollen creek.

Scott Nageotte and Steven Sandly, both 17-year-old Parma residents, were walking in a four-foot high concrete drain that empties storm water into a deep culvert.

"The boys were in the drain tunnel and when they got to the end, they were looking down a 50-foot cliff," Bert Schulte of the Parma Police Community Relations staff told the *Cleveland Plain Dealer*. "They could not negotiate the climb down and they started back through the tunnel. Then they heard the loud rushing water coming at them."



From the left, Mayor of the City of Parma, Michael A. Ries, Officer Dennis Svihlik (in uniform), Officer Michael Farinacci, and the Safety Director of the City of Parma, Gerald M. Boldt.

SCAN PUBLIC SERVICE AWARD

A rainstorm had sent water through the tunnel with great force, and the two boys were reportedly shot out of the tunnel. They fell 50 feet to the creek bed and were then washed downstream by the violent current.

Sandly was able to get out of the water and climb a rocky and muddy embankment to seek help, despite having a fractured left

foot and wrist. Nageotte was carried downstream by the raging water.

Svihlik and Patrolman Michael Farinacci were the first rescuers on the scene. They slid down the muddy embankment looking for Nageotte. Farinacci walked upstream and Svihlik walked downstream, where he saw the teenager about 1,000 yards from the spot where he went into the water.

"I could just see what looked like a black mop (Scott's hair) in the water," Svihlik told the *Plain Dealer*. "I walked out on a fallen branch over the water and reached down and pulled him up. Then I was in the water with one hand holding him and the other on

the branch. I couldn't move in the water."

Svihlik thought his strength would give out and he would lose his grasp of the youth after holding him in chin-high water for 15 minutes.

Farinacci said he tossed a log toward them, but the strong current broke it in two. He then went into the water and grabbed Svihlik while holding a branch. Both policemen were able to swing Nageotte to the bank of the creek.

"We got to the bank, but we couldn't get out of the water," Svihlik said. "We got some footing, but the water was rushing too hard and we couldn't get out."

To summon additional help, Svihlik grabbed his revolver and fired two shots in the mud. A man hoping to help with the rescue summoned firefighters, who pulled Nageotte and the two policemen to safety.

Both policemen said that their only thoughts were to save Nageotte, who suffered neck, chest, and leg injuries. "You do what you have to do in a situation like that," Svihlik said.

For their heroic rescue, Parma Patrolmen Dennis Svihlik and Michael Farinacci will receive the SCAN Public Service Award, which consists of a special commendation plaque and a cash prize. For making the nomination, Thomas J. Maslanka of Cleveland will also receive a plaque. Congratulations to all of you.

Best Appearing

Gino Mancuso of New Kensington, Pennsylvania, gets a lot of listening action from this desktop shack. He uses a Bearcat 800-XLT for all of the local police and fire VHF-high activity, and for police and fire transmissions from nearby Pittsburgh. A Bearcat 260 is also used for police and fire, along with a Fanon wireless intercom to carry scanner audio to another room. For on-the-move scanning, Gino uses a Bearcat 200-XLT portable. A Realistic PRO-30 handheld is programmed for local fish and game commission channels, along with aircraft, railroad and business frequencies. A Regency ACT-R-106 crystal scanner handles the main Pittsburgh fire and police channels when the 800 XLT is being used to



SCAN PHOTO CONTEST WINNERS

search. State and county police, medical emergency and local media frequencies are handled by a Regency Z-60. A Panasonic tape recorder is fed by a BMI Nitelogger.

Gino also has a number of receivers, including a Kenwood R-2000, Yaesu FRG-9600, and a Realistic DX-150A. He uses a 30-foot-high ANT-6 antenna, along with a D-130 discone, AU-801 Astroscan and a beam antenna used with a signal intensifier. The shortwave receivers use longwire antennas.

Gino works for a company that installs fiberoptic communications systems all over the country. He uses the 200-XLT to tune in on the action wherever he happens to be.

Best Equipped

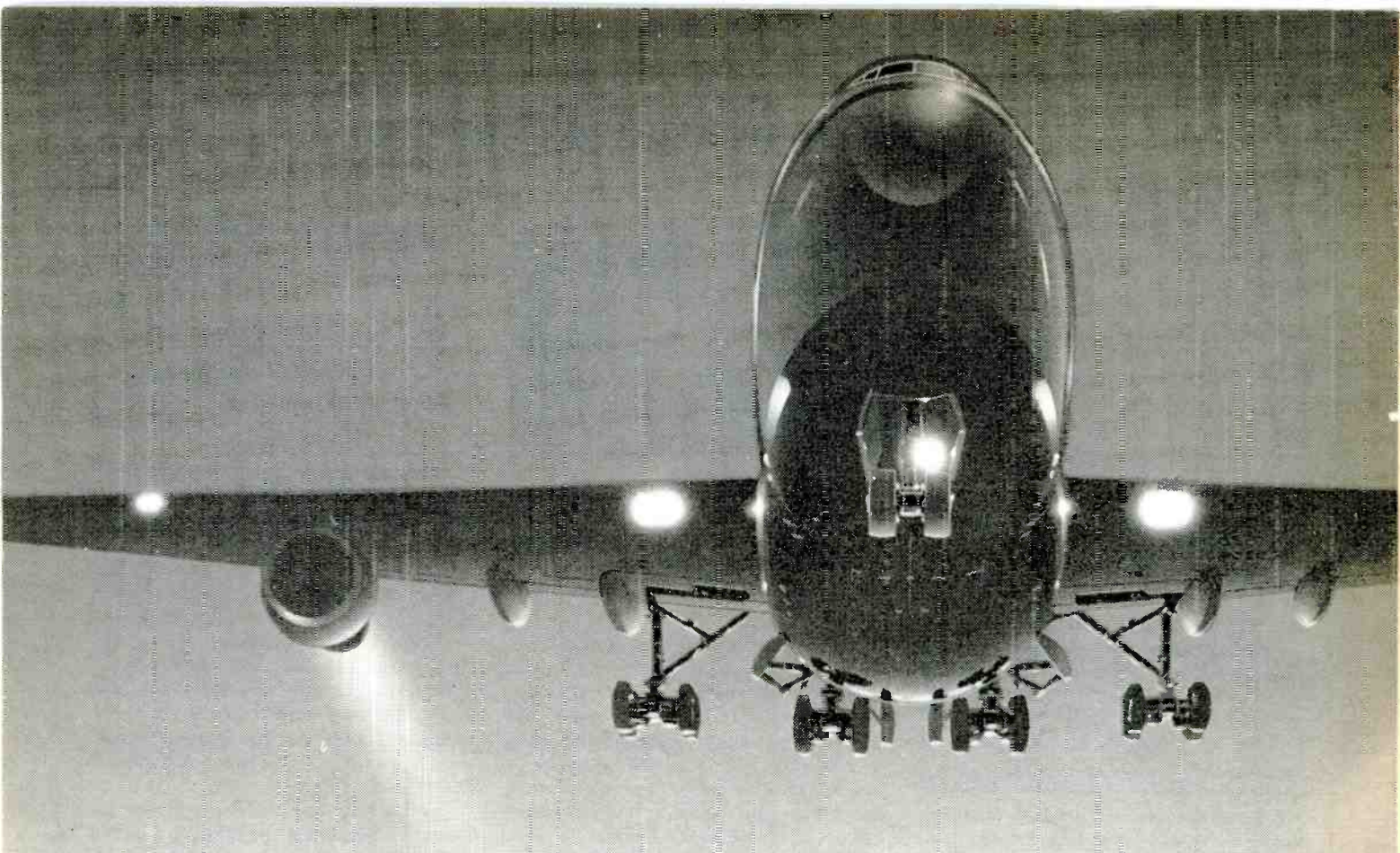
This well-equipped monitoring station belongs to August Stellwag of Orangeburg, New York. August uses a Bearcat 300 scanner, Realistic PRO-2004 scanner, and



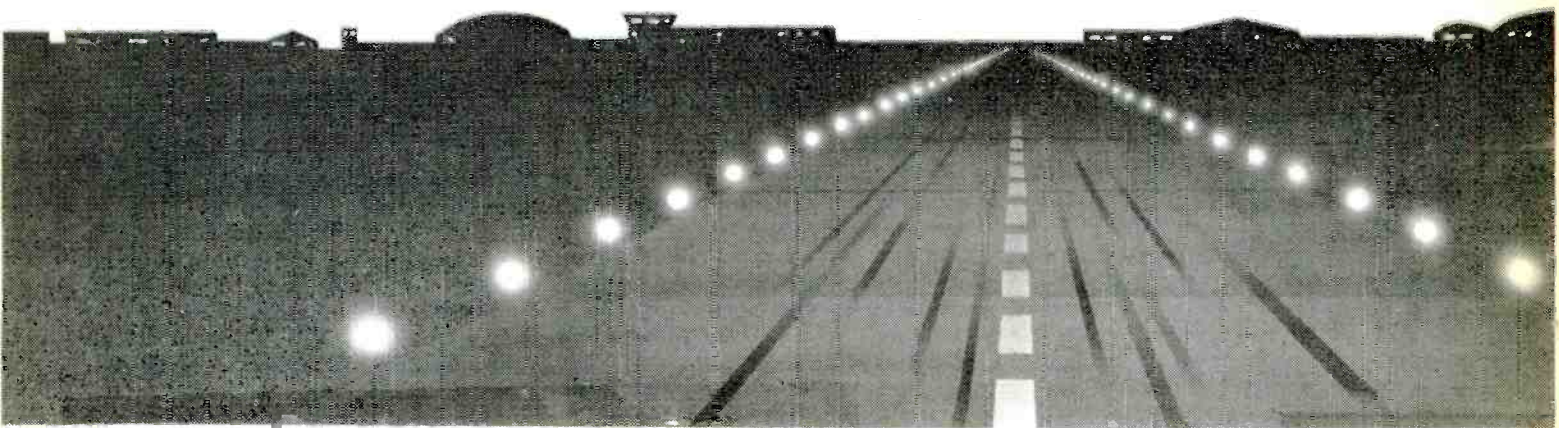
Yaesu FRG-9600 scanning receiver. For shortwave listening, August has a Kenwood R-5000, Drake R-4A and a Hallicrafters SX-100, which he points out is 30 years old in mint condition. RTTY is also an interest here, with an Info-Tech M-6000 decoder and NEC 12-inch monitor standing ready.

August uses three antennas: a Cushcraft R-3 remotely-tuned vertical for the ham bands; a Dressler ARA-30 for general coverage up to 30 MHz; and a Dressler ARA-500 for VHF and UHF. An Ameco PCL-P preamplifier, MFJ-901 antenna tuner and Grove scanner filter III round out the shack.

An active listener since 1948, August enjoys local police and fire activity, New York City police (about 30 miles south of Orangeburg), amateur band listening, aircraft and maritime utility broadcasts.



Monitoring Airport Control Towers



***From Private Aircraft To Airliners, Most Need To
Communicate With a Control Tower Prior To
Takeoff or Landing.***

BY VLADIMIR ESTRAGON, KR11JJ

with an FAA operated control tower, however, its more than that.

While its true that an FAA operated control tower is located at major airports in the U.S., and many of these facilities operate on numerous frequencies, the budget crunch has caused the FAA to put some control towers on limited hours, and even close some down at airports having marginal requirements.

Control towers at private, commercial, and military airports are usually found to be operating within the following frequency ranges: 118 to 121.4 MHz, 123.6 to 128.8 MHz, and 132.025 to 135.975 MHz. In addition, landing areas that accommodate military aircraft will usually have one or more control tower frequencies in the 225 to 400 MHz band.

At uncontrolled airports (that is, not having a control tower), there are several types of air/ground communications facilities that might be in use to exchange information between the pilot and the ground. At uncontrolled airports having an FAA Flight Service Station, an advisory frequency (most often 123.6 MHz) is usually in operation.

Another popular facility is a unicom. While not actually duplicating the function of a control tower, the unicom may provide pilots with weather information, wind direction, the preferred runway, available ground services, etc. Popular unicom frequencies include: 122.7, 122.8, 122.975, and 123.0 MHz. At private airports not open to the public, listen on 122.725 MHz. Unicom at helicopter landing areas usually use 123.05 and 123.075 MHz.

Multicom are similar to unicom, but operate on 122.85 or 122.9 MHz.

Those who have a penchant for monitoring military control towers should note that popular frequencies at USAF facilities include: 126.2, 134.1, 236.6, 257.8, 275.8, 285.4, and 363.8 MHz. Control towers at U.S. Army airfields often use 32.10, 37.00, 38.90, 41.50, 41.80, 46.70, 126.2, 241.0, and 229.6 MHz. Popular U.S. Navy and Marine Corps control tower frequencies include: 41.95, 126.2, 340.2, and 360.2 MHz.

All frequencies listed between 118 and 400 MHz are AM modulation, while those between 32 and 47 MHz are FM mode.

Within the scope of the frequencies shown here, you should be able to monitor air/ground communications at the majority of the landing areas in the U.S. that have any radio facilities at all. When a landing area has no ground communications facilities, aircraft that are preparing to take off or land will often announce their intentions "in the blind" on 122.9 MHz.

Canadian monitors will find major civilian airports generally utilizing the same VHF bands as similar facilities in the U.S.A. popular Canadian unicom frequencies are 122.8, 123.0, and 126.7 MHz. Canadian military control towers often use 126.2, 226.4, 236.6, 324.3, 340.2, 358.1, and 360.2 MHz.

MFJ SHORTWAVE ACCESSORIES

MFJ World Time Clock



The new MFJ-109 World Time Clock MFJ-109 gives you a dual LCD display that shows GMT and local time -- and it displays the time for 24 world cities.

Just set the Easy-slide indicator to any of 24 international cities and its dual display instantly shows you both local and international time.

It features international 24 hour display and a local time display with 3/8 inch LCD digits, GMT pointer, alarm with snooze, night light, Daylight Savings Time adjustment, suede-like carrying case, international date change indicators, and a flip stand -- all in an attractive gift box. AAA batteries also included. 2x4 1/2x1 1/2 inches.

Antenna Tuner-Preamp



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

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 in. 9-18 VDC or 110 VAC with MFJ-1312, \$9.95.

All Mode Dual Filter



This all mode dual tunable filter MFJ-752C lets you zero in and pull out your favorite stations and notch out interference at the same time!

Two independently tunable filters let you peak, notch, low or high pass signals to eliminate whistles, heterodynes and interference -- even on the most crowded shortwave bands.

Both tune 300 to 3000 Hz with variable bandwidth from 40 Hz to virtually flat. It plugs between speaker and radio for easy installation. Select 2 receivers. Speaker/earphone jack. Use 9-18 VDC or 110 VAC with MFJ-1312, \$9.95. 10x2x6 in. One year unconditional guarantee.

For your nearest dealer or to order:

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Order from MFJ and try it. If not satisfied, return within 30 days for refund (less shipping). One year unconditional guarantee. Use your VISA/MC to order. Add \$5.00 each shipping/handling. Call or write for free catalog full of SWL/Ham items.

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CIRCLE 71 ON READER SERVICE CARD

Radio's Golden Era

Broadcasting and Wireless in the Pages of History

BY ALICE BRANNIGAN

Would you be surprised to learn that Bo Derek, Kim Basinger, Kelly LeBrock, or Daryl Hannah held a U.S. Patent on a secret U.S. military radio communications design? Probably so, but don't worry, none of them do. However, it would be no less astounding than it would have been to movie fans of the WWII era to learn that just such a design patent was issued to a famous actress whose name had become the household word for glamour. This was Hedy Lamarr, who was quoted as saying, "Any girl can be glamorous. All you have to do is stand still and look stupid."

Hedy Lamarr (whose real name was Hedwig Kiesler) was born in Austria in 1913. In 1933, she created a sensation by appearing nude in one scene of the experimental Czech film, *Ecstasy*. Although in later years it was rumored that Lamarr spent a fortune in an unsuccessful attempt to buy up all prints of that film, it did earn her a career in Hollywood that brought her superstar status in twenty five films made between 1938 and 1957. Some of Lamarr's better known films included *Algiers*, *Com-*

rade X, *White Cargo* (as Tondelayo), DeMille's *Samson and Delilah* (as Delilah), and *The Story of Mankind*.

Despite Lamarr's studio-created image of a sultry and beautiful airhead (an image that she detested) she was constantly coming up with designs for various military hardware. Apparently this was a talent she acquired during the time she was married to an Austrian munitions manufacturer. When her homeland was invaded by Nazi Germany in early 1938, Lamarr's creativity in the realm of weapons design shifted into high gear.

In 1940, she met prominent Hollywood composer George Antheil at a social gathering and expressed a feeling of guilt at living a life of luxury while war was sweeping across Europe. She told Antheil about some of her inventions. Antheil was especially tantalized by Lamarr's concept for a remote controlled radio system since it incorporated techniques in which he was, himself, an expert. That technology was mechanical pianos.

As fate would have it, Antheil's controversial 1927 avant garde composition *Ballet Mecanique* utilized sixteen precision syn-

chronized player pianos, as well as other mechanized devices such as aircraft engines, wind machines, etc. They agreed to combine their unique talents to develop the weapon. Their collaboration resulted in U.S. Patent 2,292,387 of August 11th, 1942 issued to Hedy Kiesler Markey and George Antheil. The device was filed for on June 10th, 1941 and was entitled *Secret Communication System*.

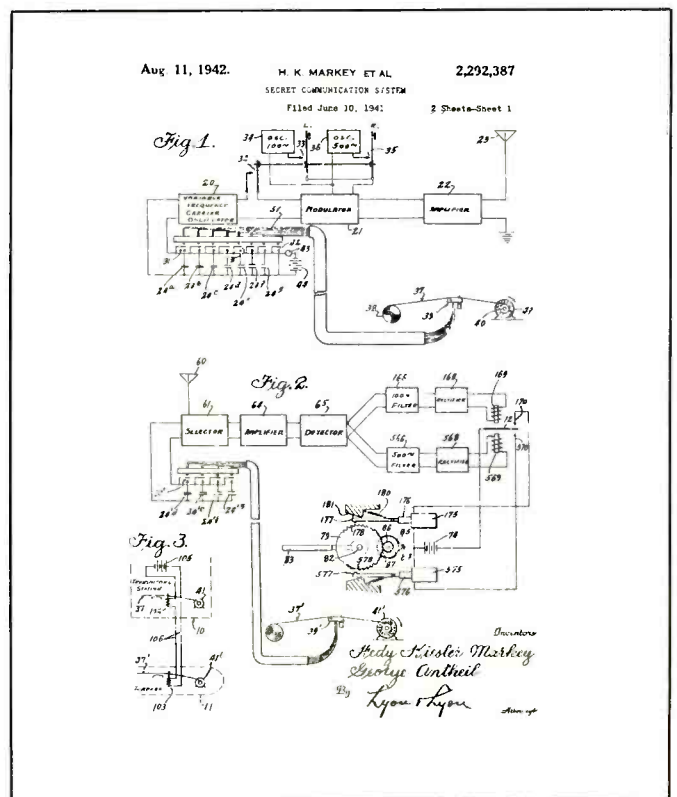
This was a rather complicated concept described as one that "relates broadly to secret communications systems involving the use of carrier waves of different frequencies, and is especially useful in the remote control of dirigible craft, such as torpedoes."

The idea was to enable the transmission of radio control signals that couldn't be detected, deciphered, or jammed. This was accomplished by utilizing synchronized equipment (one at the transmitting station and one at the receiving station) that constantly changed the system's operating frequency at irregular intervals and in a seemingly random pattern.

The system was operated by means of



Hedy Lamarr, aside from being a sultry screen siren was also an inventor of secret radio devices.



Check out this cover sheet for Hedy Lamarr's "Secret Communication System" patent.



Al Kliendienst, 1ANR, in the days before WORC (nee WKBE).



Live studio entertainment in the early days of WORC included this rural string and harmonica band.

long strips of perforated paper that were essentially similar to 88-note player piano rolls. The perforations would contain all of the necessary information and could be made at any length desired. They could be run at fast or slow speeds. The transmitting station would also send synchronization pulses to keep everything operating at the right speeds for proper frequency hopping action.

This was a primitive spread spectrum or frequency hopping device. It may well have been the first time the idea for rapidly shift-

ing frequencies to avoid detection, jamming, or ELINT had been thought of. When you consider that the basic idea for frequency hopping is the heart of many modern highly sophisticated computer-driven communications security systems, you'd have to agree that Hedy had come up with a clever idea. Obviously, Hedy was more than Ton-

delayo, but it didn't quite suit MGM's Publicity Department to let the news out.

Sixty Four Years of Broadcasting

Here's an instance where someone's interest in radio grew into a career in broad-

MEMBER OF COLUMBIA BROADCASTING SYSTEM

RADIO STATIONS
WORC WEPS
STUDIOS AND OFFICES W 60 FRANKLIN STREET
WORCESTER, MASS.

ALFRED F. KLEINDIENST
OWNER AND OPERATOR
TED HILL
DIRECTOR OF STATION

ASSOCIATED WITH STATIONS
W N A C. BOSTON
W E A N. PROVIDENCE
W N B H. NEW BEDFORD
W L D Z. BANGOR

Mar. 18, 1931

Mr. Joseph Hueter,
1610 N. 18th St.,
Philadelphia, Pa.

Dear Sir:-

This will verify your reception of Station WORC on Feb. 9, 1931.

Thanking you for the interest shown, we remain,

Very truly yours,
RADIO STATIONS WORC-WEPS
Ted Hill
Director

TH/S

A 1931 QSL letter from WORC also indicates WEPS, which was a station bought out by WORC. (Courtesy Joe Hueter.)

RADIO STATION
W P G
OPERATED BY
Columbia
BROADCASTING SYSTEM

W P G Broadcasting Corp.
Atlantic City, New Jersey

April 25th,
1 9 3 2.

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

Dear Mr. Hueter:

We are pleased to confirm your reception of this station as outlined in your letter of April 24th, and appreciate the kind remarks contained in your communication.

We are enclosing folder, descriptive of our station, and will be pleased to have you visit us the next time you are in this resort.

Our office staff invariably sends out prompt verifications, and we cannot understand why you did not receive one, in connection with your previous letters, unless that you addressed the letters to some individual artist, in which event we would not open the letters.

Regretting the delay in sending confirmation and again thanking you for your letter, I am,

Very truly yours,
Norman Reed
Norman Reed,
Program Director.

NR:MMK
Encl.

By the time WPG issued this QSL (1932), it had evolved from a being a police dispatching station into carrying CBS programming.



A view of West Main Street, Troy, OH in 1908 reveals this apparent wireless tower sitting in the middle of the intersection at Market Street.

casting. Al Kliendienst became fascinated with wireless when he was a youngster. As a 15 year old SWL in 1912, he was one of those who copied the first distress call sent out by the *RMS Titanic* in 1912. Ten years later, as ham operator 1ANR, Kliendienst had become known as "the pioneer radio man of Webster, Massachusetts" and had a station that was complete as any in the state.

It wasn't long after that when Kliendienst teamed up with William Bandlow to form the Kliendienst-Bandlow Electrical Co., which obtained a broadcasting license for a 10-watt station on 1310 kHz known as WKBE. Located in the attic of Kliendienst's home at 59 Webster Ave. in Webster, MA, the station's first broadcast was at 8 p.m. on February 25th, 1925.

From that time on, WKBE operated once

or twice a week on 1200 kHz, generally beginning at 8 p.m. for about 2 to 2½ hours. Programming was provided by local talent, and although WKBE was essentially a hobby operation, a few programs did have sponsors. Encouraged by fan mail that WKBE began receiving from listeners in communities beyond the Webster city limits, within a few months the station obtained permission to increase power to 100 watts.

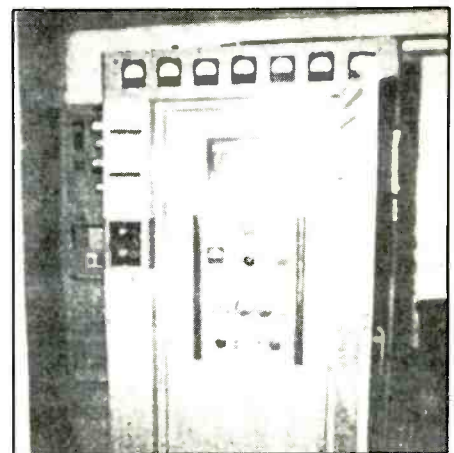
On December 31st, 1928, after little more than three years on the air, WKBE signed off for the last time. In that period of time, WKBE had operated for a grand total of only 610 hours and 46 minutes. But the closing was hardly a reason for sadness. WKBE was closed because, for practical reasons, it was being moved to Worcester, MA where it became known as WORC. It



The Troy, OH mystery tower as it looked as seen from South Market Street.



The VOWR control room looked like this in 1963. The hardware was mostly from Gates, with two Ampex 351 tape units and a National NC-109 receiver. (Courtesy Howard Kemp.)



VOWR's 1 kW Gates BC-1E transmitter used in the 1960's. (Courtesy Howard Kemp.)

soon incorporated into its operations its old time-share station, WEPS, operated by the Matheson Radio Co. in Gloucester, MA.

WORC, billed as *The Station of The Stars*, grew to 500 watts, then to 1 kW, under the direction of Al Kliendienst. In 1951, Mr. Kliendienst sold WORC. A few years ago, the station was sold again, this time to the Great Worcester Wireless Talking Machine Company. WORC presently runs 5 kW on 1310 kHz with an all country music format.

Thanks to POP'COMM reader Mark R. Schmit, of the WORC staff, for sending us this information and some photos. The QSL letter was supplied by Joe Hueter of Philadelphia, PA.

Here Comes The Judge

Al Dobrof, W2IEI, of Mount Vernon, NY recalls his first days as a DX'er using a self-constructed crystal set in the early 1930's. One particular station that sticks in his memory was WPG, operated by the Atlantic City (NJ) Police Department. The antenna for this reception was his mother's curtain rod. Al wonders about the status of WPG in the

history of police radio and believes it was one of the first police radio facilities.

Well, WPG certainly was an early station operated for police broadcasts, but it was hardly the first. As early as 1924, there were police stations such as KOP on 1050 kHz in Detroit; WLAW on 833 kHz in New York City; WRR on 833 kHz in Dallas; and KDKA in Pittsburgh on 920 kHz also used to broadcast occasional police bulletins. Of course, this was when some police radio stations were licensed as regular broadcasters.

Those licensed in 1924 as non-broadcast stations included Baltimore's WLL on 425 kHz, 500 kHz, and 1000 kHz; the Pennsylvania State Police at Butler, PA on 188 and 1049 kHz under the call sign WBR; PA State PD in Greensburg as WJL on 1049 kHz; PA State PD in Harrisburg as WBAK on 750 kHz; New York City's KUVS on 500 kHz, 667 kHz, and 1000 kHz; PA State PD in Pottsville on 1049 kHz; and the PA State PD in Wyoming, PA as WDX on 1049 kHz.

Police use of radio, as you can see, was well established by 1924 and WPG hadn't

even arrived on the scene. But, by 1926, had its 5 kW Western Electric in operation (with reduced power) on 1000 kHz, with an application on file to operate at full power. In addition to occasional police dispatching, WPG also broadcast orchestras from its summer studios on the famous Steel Pier, as well as from sixteen remote locations in Atlantic City's most popular resort hotels.

WPG later moved to 1100 kHz and became a CBS Network affiliate. By the summer of 1940, the station was discontinued. Police communications had graduated from one-way dispatching in the broadcast band, to two-way on 33.10 MHz over police stations WIYB, WLDN, WQIY, and twenty-two radio-equipped patrol cars.

Feedback

Among the mail that came in commenting on our *Imperial Japanese Naval Communications WWII* story last December, was a letter from Capt. Paul H. Lee, USN (Retired), N6PL, who was in the Naval Se-

curity Group doing ELINT work. Capt. Lee says the article took him back, and the info and photos were very good. Capt. Lee picked up on my mention of the Battleship *HIJMS Nagato*. He advises that the *Nagato* was eventually used as one of the target ships for the Bikini A-bomb tests (January issue of POP'COMM). Although the vessel wasn't badly damaged in the blast, it became so radioactive that she was later towed to Pearl and scuttled.

Another reader took me to task for saying that the *Nagato* had been "captured." He pointed out (and correctly so) that it was not seized during actual battle, but came into our possession two weeks after the Japanese surrender. At the time the *Nagato* was at a Japanese naval base and was boarded. The *Nagato's* skipper was ordered to haul down the ship's colors and that's when and how the ship came into American possession. As such, it wasn't actually "captured." If my terminology was incorrect, I stand corrected!

Alice In Blunderland

Now that I've managed to give you cause to think I'm a dummy, permit me to offer definite proof. I'm totally stumped on identifying what looks to be a wireless tower that existed in Troy, OH at least as early as 1908.

Two different picture postcard views, one postmarked in June of 1908, show this at the intersection of Main and Market Streets. The tower sits right out in the center of the intersection and appears to be about 75 feet in height. It sits on a concrete footing, and comprises the outer framework for an elevated covered observation platform at the base of the tower.

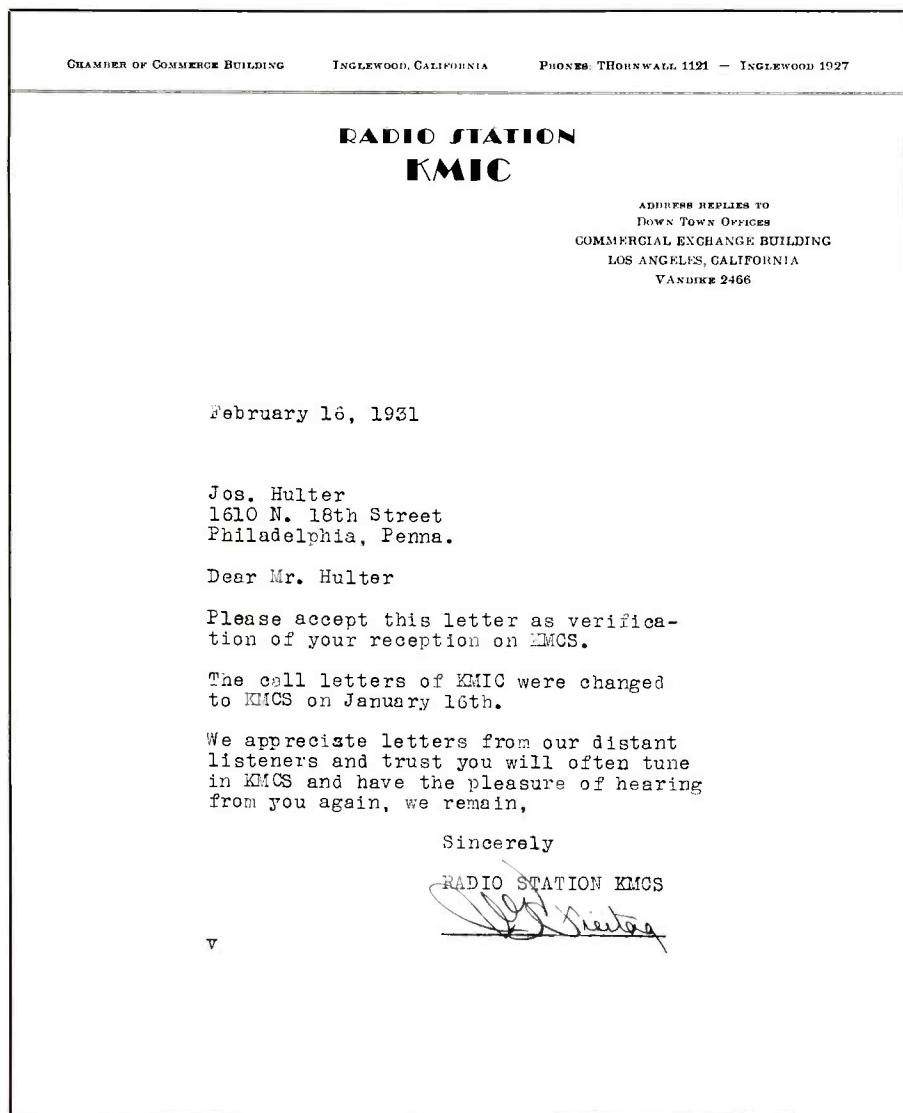
Since the photos were taken thirteen years before the first broadcasting stations appeared anywhere, and more than eighty years ahead of Troy's WTRJ, we can assume that it had nothing to do with broadcasting. Troy, being about 25 miles northwest of Springfield, is too far from the Great Lakes to be the site of a marine telegraph station.

In looking back through old records, I did notice that the Ford Motor Company (which opened in 1908) had an office in nearby Springfield, OH. At some point in the early 1920's, Ford is shown as operating a station with the call sign WNA on 16 kHz in Springfield. Inasmuch as Troy is close to Springfield, one might speculate that perhaps the station in Troy was the ancestor of Ford's WNA.

Whatever the Troy tower was, it looked like it was for wireless, and it probably was at the center of the city in 1908. Maybe a reader who knows about the tower will step forward to solve the riddle.

Newfoundland's Pioneer Broadcaster

Station VOWR, of St. John's, Newfoundland was founded in 1924 by the late Rev. J.G. Joyce as a means of reaching out to the sick and shut-ins in his congregation

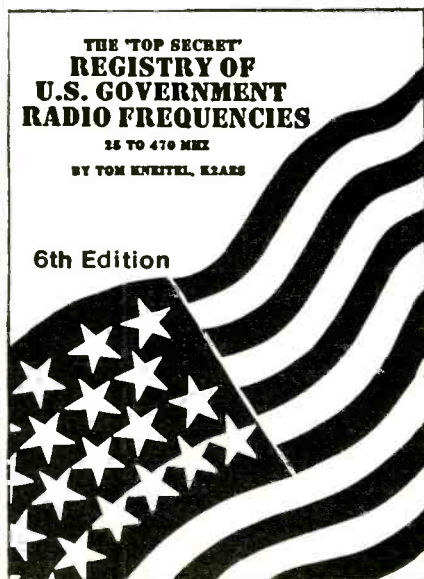


Station KMCS was so new that its owners were still using the old KMIC letterhead when they issued this 1931 veri letter. Within a year, the station had changed its call sign again, this time to KRKD. (Courtesy Joe Hueter.)

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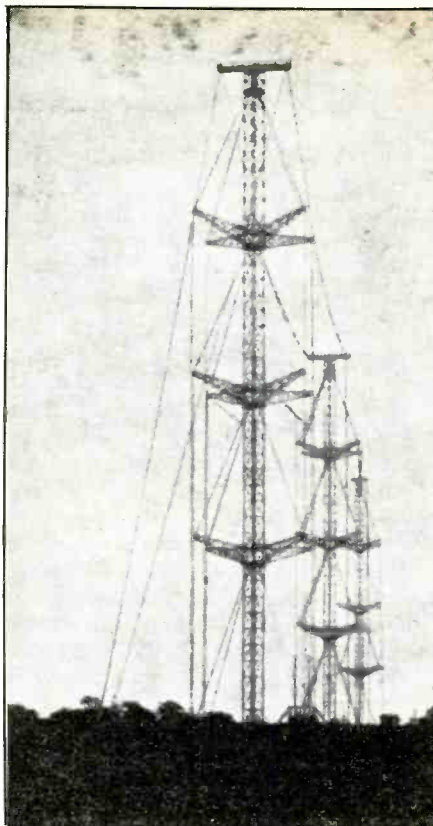


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CIRCLE 6 ON READER SERVICE CARD



The series of 300-ft. antenna masts used by Radio Colonial.

as well as to minister those who lived in isolated or remote areas. Under the callsign 8WMC, and with a 100 watt transmitter, operations commenced on July 18, 1924. In 1927, this was increased to 500 watts on the station's 675 kHz frequency, and in 1932 the callsign was changed to VOWR (*Voice of Wesley Radio*).

In 1948, a new Gates 1 kW transmitter was installed. Six years later, the site was changed to 550 feet above sea level, and the frequency was shifted to 800 kHz. A year later, a considerable amount of new

studio equipment was acquired. The station now runs 10 kW on 800 kHz.

VOWR is a non-commercial station, primarily transmitting religious programs and music. It is operated by the Wesley United Church Radio Board by volunteer personnel whose motto has always been, "We Serve." Funds to cover operating costs and the purchase of equipment are obtained by annual radio auction, grand concert, and from public subscriptions. VOWR was the first broadcaster in Newfoundland, and proud of its history.

Thanks to Howard Kemp, Laconia, NH for this information.

Stations In Transition

A QSL letter received by Joe Hueter in 1931 from station KMCS in Inglewood, CA is probably rarer than he thought, even considering it represents transcontinental reception of a 500 watt station. That's because it would have been possible to QSL KMCS only during approximately a one year period! Not that the station went out of business, but (like many stations) it seemed to be in a constant state of transition.

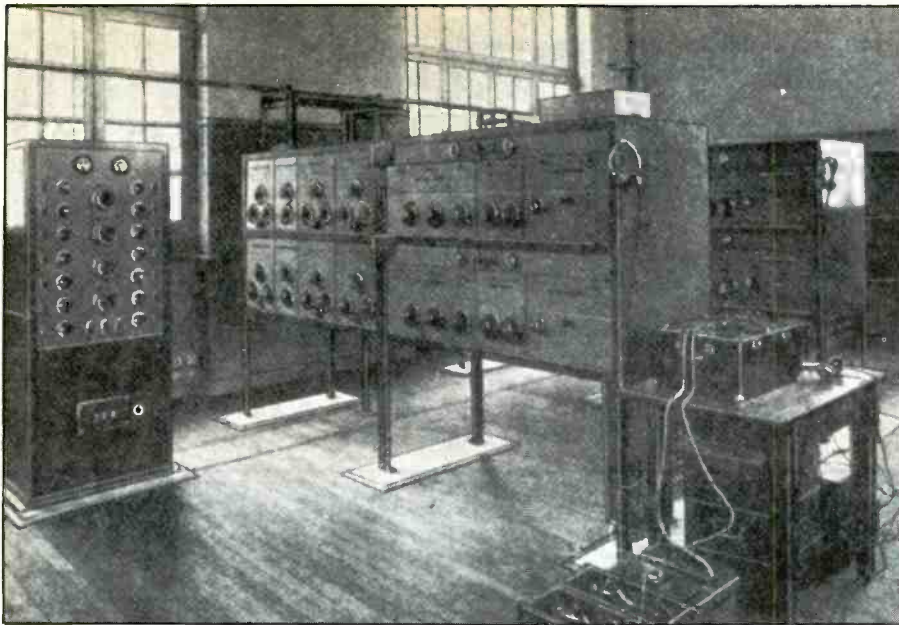
It started out as KMIC on January 10, 1927, licensed to James R. Fought, 219 West Market St. The station operated with 500 watts on 1340 kHz. A year later, Fought had changed the callsign to KMIC. By 1930, he had sold KMIC to Dalton's, located in the Inglewood Chamber of Commerce Building, with offices at 548 S. Figueroa St., Los Angeles. The new owners put KMIC on 1120 kHz with 500 watts.

On January 16, 1931 Dalton's dumped the KMIC call and began using the station's new callsign, KMCS. Joe Hueter tuned in the station at this point in its evolution. A year later, however, the callsign KMCS was ditched in favor of yet another new callsign, KRKD. So much for anybody getting any more KMCS veries!

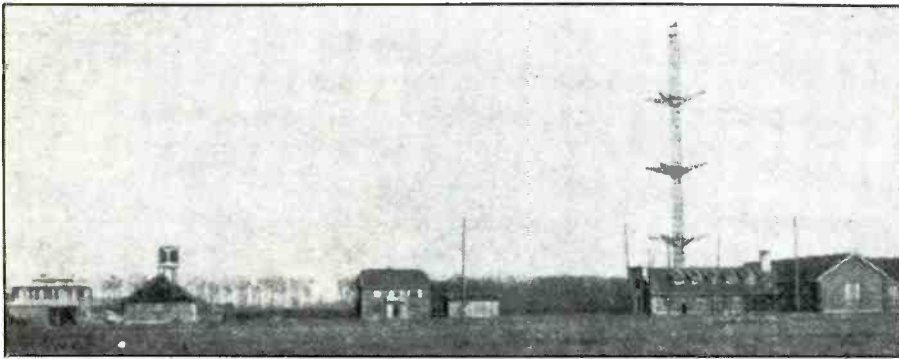
Soon after, KRKD's new owners (Radio Broadcasting, Inc., 312 Spring Arcade, Los Angeles, CA) had KRKD and religious sta-



One of the Radio Colonial transmitter rooms at Pontoise.



This bank of shortwave receivers was used by Radio Colonial for monitoring the programs of other shortwave broadcasters.



Panoramic view of Radio Colonial. At the left is the office and power plant. The center building is the control center and receivers. The building at the right houses the transmitters.

tion KFSG using the same transmitter (2.5 kW days, 500W nights at Glendale Blvd.) and sharing time on 1120 kHz. The antenna was a 250 foot vertical. The frequency of both stations was changed to 1150 kHz just prior to WWII.

KRKD later became known as KPRZ, however, if you've tuned to 1150 kHz in Los Angeles for the last ten years, you'd have heard them calling the station KIIS-FM, a Top-40 stereo broadcaster. It's the sister station to KIIS-FM (102.7), whose popularity is phenomenal.

As you can see, sometimes, if your timing is right, you can catch a station while it's in the midst of becoming something else. Joe Hueter's KMCS veri letter was written on KMIC letterhead.

Radio Colonial

Shortwave broadcaster FYA, *Radio Colonial*, went on the air in 1931. Within a relatively brief period of time, it had received reception reports from throughout the world. While *Radio Colonial's* studios were in

Paris, France, the station's two 15 kW transmitters were located in the Paris suburb of Pontoise. Both transmitters were set up to operate on any one of the station's three frequencies, 11720, 11880, and 15243 MHz.

The two antenna systems were supported by a series of 300-ft. towers, one oriented towards E-W, the other N-S. Originally, the intent was to beam *Radio Colonial's* signal's to the widespread French Colonial Empire (as in the case of the BBC), but the signals were so good, that the French Government decided to use the station to further its goodwill relations with other nations. By the mid-1930's, *Radio Colonial* was on the air daily with primarily French language (and some English) programming, much of it relayed from domestic long and mediumwave broadcasts.

After Nazi forces marched into France, the station operated on 11845 and 15240 kHz under the control of the Vichy (Nazi puppet) Government, transmitting pro-Axis propaganda.

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CIRCLE 177 ON READER SERVICE CARD

RNI Radio Sarah: What Really Happened?

RNI's Second Try At Offshore Broadcasting Ends Up Onshore – In Federal Court!

BY KARL J. ZUK

An interest in the freedom of speech is not new to Allan Weiner, J.P. Ferraro, and Randi Steele. They're the founders of Radio Newyork International, the radio station that has several times broadcast from the motor vessel Sarah, off the shore of New York, in international waters.

In the early 1970's, Weiner and Ferraro established The Falling Star Network with unlicensed stations WSEX and WXMN (and were stopped by an FCC raid) in their first attempt to establish a community station in Yonkers, New York. In 1984, they established FCC licensed broadcast auxiliary station KPF-941, also in Yonkers. Weiner and Ferraro contended that the language in the FCC regulations for broadcast auxiliary stations did not prohibit such a station from being used as a direct broadcaster. The FCC disagreed and subsequently forced the distress sale of WOZI and WOZW, Weiner's two licensed broadcast stations in Maine.

Try, Try Again

Weiner searched for any alternative to open a new type of service to the New York City metropolitan area. He felt the only way to achieve this, without breaking existing laws, was to establish a radio ship in international waters, registered to a foreign country. It would, therefore, be outside of FCC jurisdiction, yet off the shore of Long Island, New York.

In 1986, Weiner and associates decided to purchase an available Japanese fishing vessel, the *Litchfield* and construct a radio station thereupon. It was renamed The Motor Vessel Sarah and registered to Honduras before its first voyage as a radio ship.

Great care was used in picking frequencies for operation so as to avoid possible interference with established broadcasters and other services. The frequencies of 1620 kHz, above the AM broadcast band, and 6240 kHz shortwave, had no known service operating on them. Were a licensed station to have been established on 103.1 MHz FM, it would have to meet FCC standards for spacing and acceptable adjacent and co-channel interference, considering RNI's transmitter, antenna structure, and mooring site.



"It's a simple matter of free speech," says RNI's Allan Weiner.

In 1987, the first voyage of the *M/V Sarah* ended in disaster. After four days of broadcasting, the FCC, aided by the Coast Guard, boarded and seized the radio ship. The agency dismantled most of the ship's transmitting equipment. Weiner and helper Ivan Rothstein, along with a journalist R.J. Smith, were arrested, but were later released without fine or imprisonment.

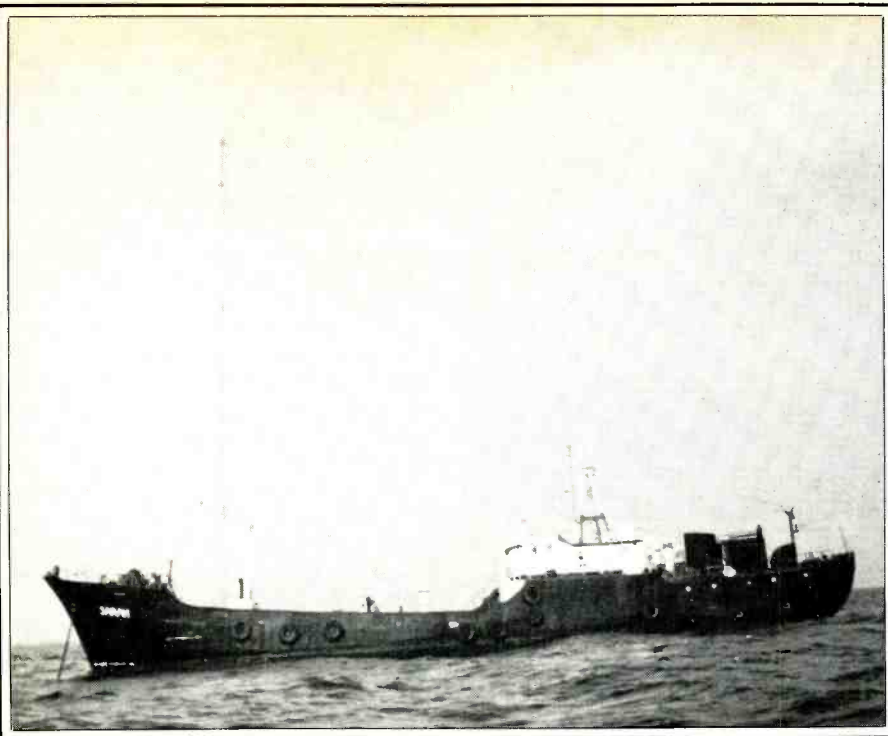
The FCC contended that RNI was testing their authority and trying to impede their regulatory functions. The FCC also claimed that RNI was breaking international law by broadcasting from international waters and not using a fixed position antenna.

The *M/V Sarah* was later returned to the

shipyard in Boston, where it sat for over a year being repaired and readied for another attempt at establishing an offshore station.

One More Time

After its repair was completed, it had to meet governmental safety standards before it could leave port. Insurance against oil leakage had to be obtained, and the vessel had to be temporarily registered as a pleasure craft with the State of Maine. Various safety and structural requirements had to be met. On September 10, 1988, the *Sarah* met the requirements and was allowed to leave port.



The M/V Sarah sports a coat of black paint on its hull in this recent photo taken while on station 4.5 miles off the shores of Long Island, NY.

Sarah arrived, under tow, at its former mooring spot off Point Lookout, Long Island, and waited for about a month without broadcasting so as to establish the mooring. It was also to see if there would be any federal reaction to the vessel's return. There was no reaction.

The boat had been reregistered again, this time with The Principality of Sealand, a mini-nation located on an old artillery platform off the coast of Britain that years ago

had declared itself an independent state. Weiner made this arrangement to insure that his ship's country of registry would not allow voluntary seizure of the vessel. Honduras allegedly did so in RNI's first attempt at broadcasting.

On Friday night, October 14, 1988, at 9:00 pm Eastern time, RNI Radio Sarah returned to the air for a three hour pop music broadcast on 1620 kHz. The three hour schedule was repeated on October 15 and



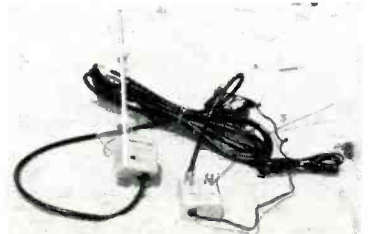
Al Weiner checks out the anchor chain while the Sarah was moored in Boston just prior to its last series of broadcasts.

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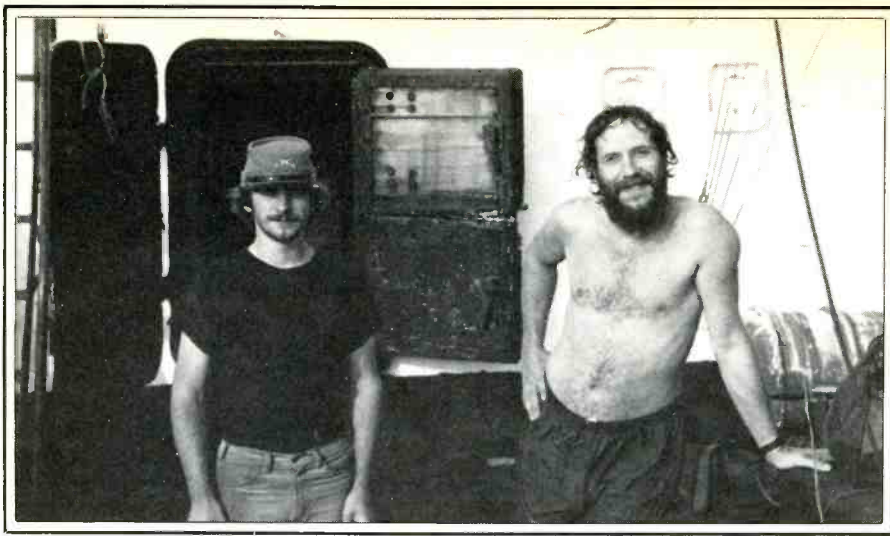
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CIRCLE 49 ON READER SERVICE CARD



Aboard the Sarah, (left) 1st Mate Reggie Boles and (right) Captain Josh Hayle.

16, 1988 without incident.

On Monday, October 17, 1988, the Sarah was on the air from 9:00 to approximately 10:20 pm, when it was approached by an unlit Coast Guard vessel that informed those aboard that it had a temporary restraining order from Federal District Court Judge John J. McNaught in Boston. The TRO declared that RNI was to cease and desist broadcasting at the request of the FCC, or the station would again be dismantled.

The Coast Guard was refused boarding by the Sarah's Captain DJ Josh Hayle, First

Mate Reggie Boles, and crew. They did, however, agree to comply with the TRO. Hayle abruptly brought the broadcast to an end. This time there were no arrests, and the RNI staff accepted, and prepared to go to court.

The Aftermath

The staff of RNI, and several officials of the FCC, met in a preliminary hearing in Federal District Court in Boston on Friday, October 28, 1988. Both sides explained their cases to Judge McNaught for a preli-

minary decision on the case. The American Civil Liberties Union consented to represent RNI and supported the idea that broadcasting should be considered to be protected by the provisions of the First Amendment.

"The case is more confusing when considering the proposed TV Marti, a television station to be owned and operated by the federal government. It is to be transmitting either from a ship with a balloon mounted antenna, or from planes, both in international territory off Cuba, to the Cuban public. Congress has already allocated funds for the study of this project. How can they justify their own broadcasts from international waters and not condone ours?" argued J.P. Ferraro, of RNI, in a recent interview.

Allan Weiner added "International territory is international territory. It doesn't matter if it's four miles or 4,000 miles off the coast of a nation. If the FCC wins their case, they are saying that they have the right to go into any radio station, any place on earth, and say 'We can receive this station, and we don't like what you're saying, so you have to go off the air, because of this court ruling.' The FCC has denied our access to the air. It has been an abridgment of our First Amendment rights." Weiner adds, "If RNI was violating any FCC rules and regulations, we'd all be in the pokey right now."

"Our case would establish that there are First Amendment rights of speech over the air, and if you've got frequencies that aren't being used, and a person wants to speak over them, you can't stop them." Weiner demands. "You can not tell stations in other parts of the world, or in international seas, what they can do. We are trying to be as responsible as we can. We're trying to do it through the processes and legal procedures they have outlined."

Are the airwaves truly in the public trust for public use, and how are the broadcasting frequencies and allocations to be regulated? The future may prove to be interesting.

On December 20th, 1988 the federal judge imposed a permanent silence on the Sarah. This would seem to settle the issue once and for all.

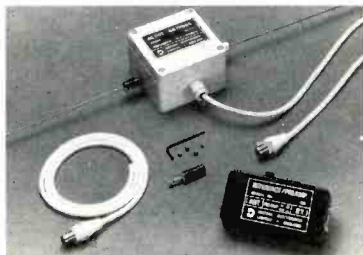
RNI data:

- 1620 AM: Gates BX-5P transmitter, one kilowatt, using a center-fed sloping T antenna, 150 feet long, strung from the top of the transmitting tower to the stern. The ship's hull serves as the ground. The antenna uses a caged design.
- 6240 SW: A military BC-610 transmitter. A half wave dipole, strung just below the AM sloping-T, from stern to mast above the bridge.
- 103.1 FM: Bauer FME-1000, one kilowatt, uses a two ring, horizontal array at the top of the 100 foot tower.

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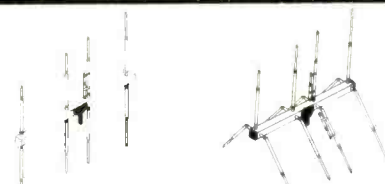


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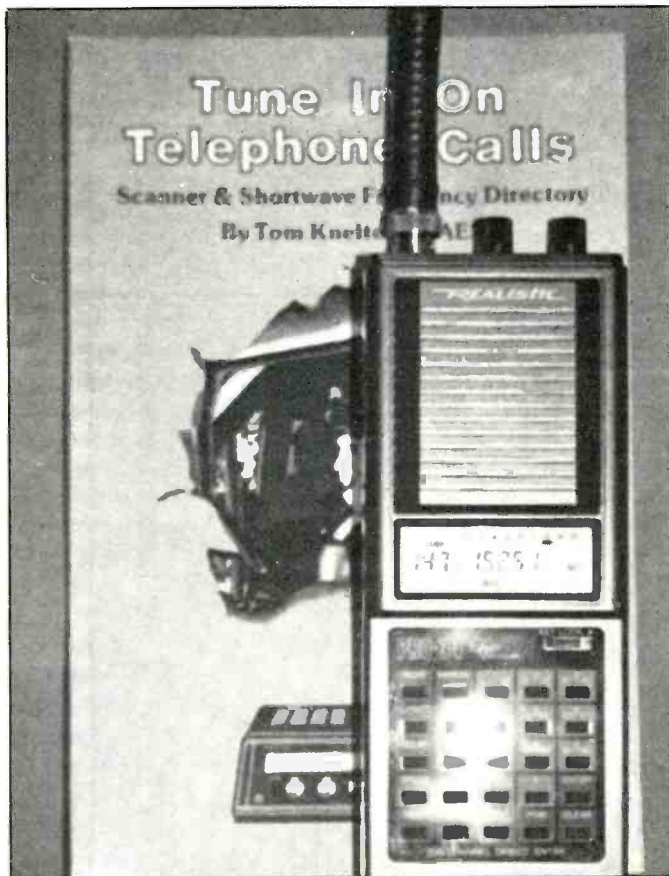
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We Review: The Realistic PRO-34

Handheld Scanner: 800 MHz Too!



The PRO-34, a nifty handful, with excellent frequency coverage.

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As for frequencies covered in the PRO-34, the span is 30 through 54 MHz, 108 to 174 MHz, 380 to 512 MHz, 806 to 824 MHz, 851 to 869 MHz, and 896 to 960 MHz. Oddly enough, this is somewhat different (and more than) the coverage of the PRO-34 listed in the Radio Shack catalog.

You did, of course, notice that the PRO-34 has 800 MHz coverage, although with some gaps. With a little effort, the missing frequencies can be restored, and chances are that a goodly percentage of PRO-34's will eventually endure that minor surgery. Complete details for accomplishing this are shown in a separate feature accompanying this one.

The 200 memory channels are arranged in ten associated groupings ("banks") of

twenty each. Standard scanner features include lockouts, delay, search/scan ability, LCD display, keyboard lock, dual scanning speeds (8 or 4 per second), shiftable priority channel, belt clip, rubberized antenna with BNC connector.

The PRO-34 has a very nice feature that we had also noted on Realistic's great PRO-2004 base station unit, that being a scratch pad. This gives the user the ability to store any interesting frequencies during search in a ten channel "monitor" memory. In the PRO-34, they can be shifted into the permanent memory channels by one press of a transfer key.

The on/off/volume and squelch controls are on the top of the PRO-34, with scan/manual controls on the top, and also on the front panel. The top controls are installed so that when the PRO-34 is used with its belt clip, the lettering for the controls faces the user. The belt clip, by the way, is plastic and may be removed from the PRO-34 by means of two screws if you don't want it there. Luckily, the mounting holes were spaced

the same as another of my scanners that had a belt clip made from spring steel which is better as a belt clip than plastic. I simply swapped it with the original one on the PRO-34.

Speaking of plastic, that's also the material from which the PRO-34's case is made.

You run this scanner on six "AA" size batteries (rechargeables are suitable), or from an optional 9 VDC adapter.

Tech Specs

The PRO-34 is rated at 1.0 uV sensitivity (20 dB S/N) in all frequency ranges except the VHF aero band and also above 806 MHz, where the sensitivity is 2.0 uV. Selectivity is ± 10 kHz at -6 dB, ± 20 kHz at -50 dB. Spurious rejection is 50 dB at frequencies below 154 MHz. The IF frequencies are 455 kHz and 10.7 MHz. Construction incorporates a crystal filter and a ceramic filter.

Physically, it weighs 14 oz., and is $6\frac{1}{2}$ " wide, and just under 2" deep.

In its frequency coverage, the PRO-34 operates in 5 kHz steps between channels 30 and 54 MHz and 136 to 174 MHz. The 108 to 136 MHz VHF aero band is set up for 25 kHz channel spacing. All other bands are in 12.5 kHz spacing.

The PRO-34's manual lists several *birdies*, although they're mostly in frequency ranges that normally receive less attention than others. Moreover, the couple we encountered were able to be cut out by backing down on slightly on the squelch.

Easy To Use

The manual supplied with the PRO-34 runs 28 pages and is thorough and well written, so there shouldn't be anything a user won't easily understand. Actually, the PRO-34 is a fine piece of gear and so simple to operate that, even without any manual at all, most people could probably figure it out on their own in a few minutes.

The keyboard is made up of regular standard pushbuttons rather than the sheet of printed plastic with the buttons beneath. The buttons are large enough to be convenient to man-sized fingers, and separated from one another by sufficient space so that you can press one at a time. The lettering is silver on slate and blue, and large enough to be easily read even by those of us who sometimes forget to bring along the eye-glasses.

In the field, the PRO-34 performed admirably, pulled in stations like a champ, reproducing them with average handheld ($1\frac{1}{4}$ " speaker) audio quality. We liked its frequency coverage, ease of operation, and generally good performance. While the PRO-34 is by no means an inexpensive bauble (\$329.95), it is well designed and built. Moreover, the fact that it may be user-modified to achieve restoration of its 800 MHz coverage gaps, makes us guess that it will be quite popular with serious scanner users.

Reviewed by F.X.F., North Dakota

Complete Scanning With The Pro-34

Pro-34 Modification To Tune 806-960 MHz

BY BILL HOWARD, K1LNJ

This describes a modification to the PRO-34 scanner. The modification will allow tuning 806-960 MHz as a continuous band.

I enjoy using the Realistic series of Pro scanners. They are well designed and rugged. Lately, some PRO scanners are being sold with certain frequency ranges blocked out. Blocked frequencies typically occur in the 800-900 MHz range, the PRO-34 being sold with a wiring option that blocks segments of the 806-960 MHz range. When entering a blocked frequency, the display indicates "Error." At that point, the scanner will not respond to the desired frequency. By de-installing the option, you restore the designed capability of the radio. Modification of the PRO-34 requires only simple tools, no parts, and about one hour. Although you can probably modify the radio yourself, you might wish to seek expert assistance. In any case, your warranty and service contract won't survive any changes you might make.

Start by reading the whole article before actually doing anything.

1. Make sure you have a written record of the frequencies programmed in the radio. During the modification, you may lose memory in the radio. The radio's memory is maintained, while the batteries are out, by the retained charge of an internal capacitor. This capacitor will normally hold its charge for about an hour if your batteries were at full voltage before being removed. Well let's get started. Remove the battery case from the radio.

2. Remove the four phillips head black bolts from the back of the radio case. The antenna along with the volume and squelch knob are then removed. The knobs may require a *gentle* pull with a pair of pliers. The back of the case is removed by lightly pressing upward on the bottom back of the case to release that end. The top of the case will then slide over the top of the radio.

3. Fig. 1 shows you what tools are needed. These include a small phillips head screwdriver, needle-nose pliers, diagonal cutters, and a soldering iron or gun. A small solder-

ing iron would be ideal. I used the gun and a light touch without any problem.

4. Fig. 2 shows the inside back of the radio with the cover removed. Start by removing the four brass hex spacers. These are identified in Fig. 2 as (A), (B), (C), and (D). Do not turn ANYTHING with a phillips head on the top board. This top board is the RF Printed Circuit (PC) board. It must be unsoldered and removed as follows:

A. The two connectors, (star) on Fig. 2, should be gently pulled from their sockets. Don't worry about confusing them. They will not fit in each others sockets. Lift the wire, (T) in Fig. 2, to release the leads to the connector. Move this wire out of the way until you are ready to put the radio back together again.

B. Unsolder the two wires from the volume control switch at the PC board. These wires are (2) and (3) in Fig. 2. The wire should be lifted up away from the board. Leave the wires connected at the other end to the volume control switch.

C. Unsolder the ground and the center conductor of the antenna connector at

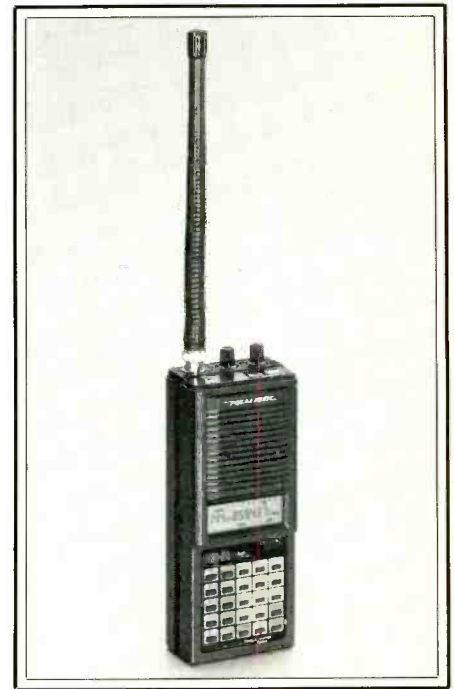


FIG. 1

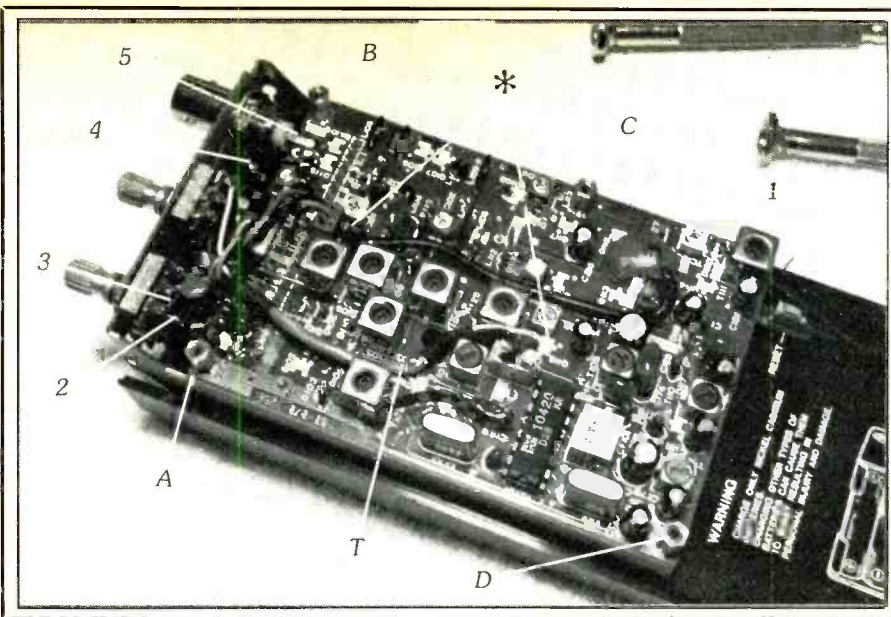


FIG. 2

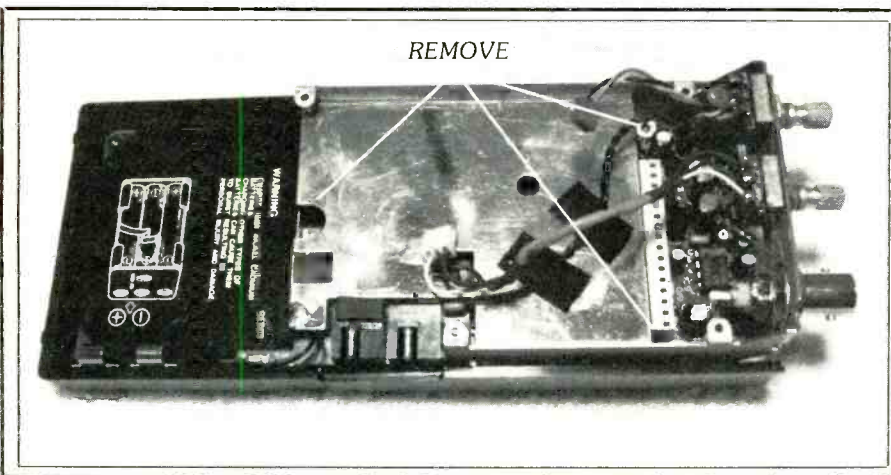


FIG. 3

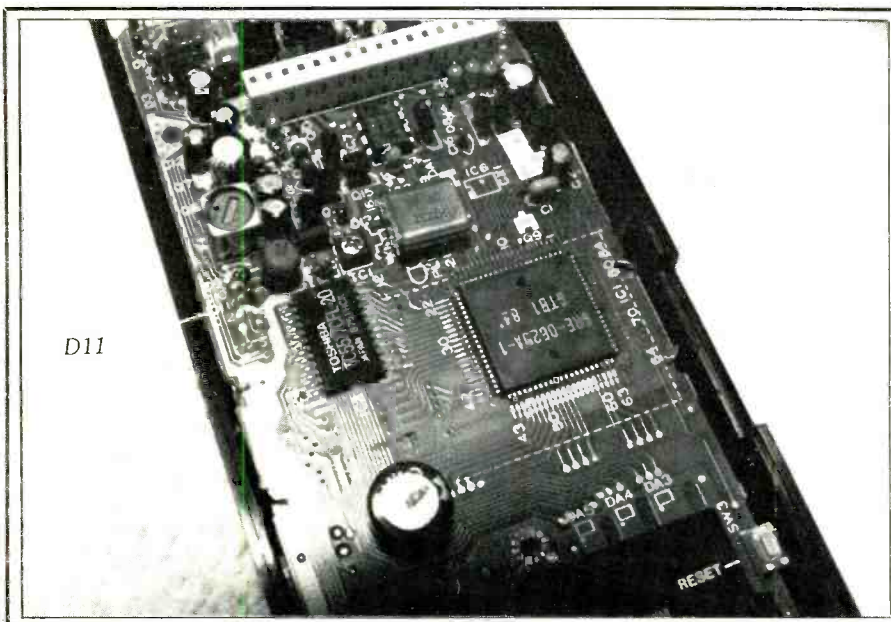


FIG. 4

the PC board end. These connections are (4) and (5) in Fig. 2.

D. Next, there is a bare wire attached to a transformer can on the battery case end of the PC board. Remove the end of the wire attached to the transformer can. This connection is (1) in Fig. 2.

E. The spacers, connectors, and soldered wire have all been removed. The board is still being held by a 16 pin connector underneath near the top of the board. Gently rock the top end of the board back and forth to release the connector and remove the board. Do not attempt to pry the board up with a tool. There are small surface mount devices under the board that could be damaged. Also do not bend or move the small wire coils on top of the board.

5. Next, the shield covering the digital board must be removed. Fig. 3 shows the shield and the three phillips head bolts that hold the shield down. Remove the three bolts (and only those three). Gently lift the shield and remove the connector, (star) in Fig. 3 from its socket. Put the shield aside, revealing the digital board underneath.

6. Locate the diode D11, see Fig. 4. With the diagonal cutters, clip the lead near the top of the diode. There are two diodes D10 and D11 next to each other. D11 is the one closest to the bottom edge of the board. Separate the clipped wires so they will not touch. The modification is now complete. Next put the radio back together and test it as follows.

7. Replace the shield by first reinserting the connector, (star) in Fig. 3, into its socket. Replace the shield and carefully insert the three phillips head bolts.

8. Line up the sixteen pin connector on the RF board with its socket on the digital board and gently push the connector together. Line up the holes in the top board for the brass hex spacers A-D. Reinsert the spacers except for the one near the volume control (A) in Fig. 2. Resolder the volume control switch leads to the PC board. Resolder the Antenna center conductor and the ground lead to the PC board. Reinsert the connectors, (star) in Fig. 2, into their sockets. Dress the leads as shown in the picture. Bend tab (T) over the leads as shown in Fig. 2. Resolder the wire to transformer can, (1) in Fig. 2.

9. Recheck that everything has been soldered properly. Reinsert the remaining brass hex spacer into the top board at the point marked (A) in Fig. 2.

10. Reinstall the back plastic cover. First put the controls through the appropriate holes in the top of the case. slide the case down until you can snap it together at the bottom. Replace the four phillips head bolts in the back cover. Replace the battery case and battery cover.

11. Replace the volume and squelch knobs. Replace the antenna. Turn the radio on and see if your pre-programmed frequencies have been retained in memory. If they haven't you can enter them later. Let's

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see if the modification works. Program in a frequency (872.220). It should enter properly without an "Error" indication. If an error appears try entering another frequency that wouldn't have been blocked before the modification like 807.000. If this frequency enters properly, the clipped leads of diode D11 must be touching. The radio will have to be taken apart again and the leads separated. If you receive an "Error" with the 807 Mhz entry, you clipped the leads to the wrong diode (D10). If this is the case, take the radio apart again, resolder the leads of D10 and this time clip the leads to D11.

12. That's all there is to making a worthwhile modification to your scanner radio. For the experimenters out there, just a few notes of interest. After making the modification, note that the previously excluded frequencies are operational at 30 kHz intervals. The 800-900 MHz frequencies that were not excluded are incremented at 12.5 kHz. By removing diode D11, and inserting it in the slot for D12 all tuning across 806-960 MHz will be 12.5 kHz. Also note that you must remove the bottom board for this soldering. The warning here is that the keyboard lock switch has loose parts that will fall out when removing the digital board. To reinsert the keyboard lock switch, the plastic part is placed in its front cover hole and the metal hairpin is placed with the bump facing up and the opening of the hairpin facing into the center of the radio. I believe you will not need this last modification, so try the radio without it first. **PC**

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CIRCLE 6 ON READER SERVICE CARD

Bad Moon Rising

Or, We've Got Your Number

BY HAVANA MOON

German Numbers

The mailbag has yielded a wealth of German "numbers" information from England's Simon J. Mason. Simon (no pun intended) says: He is of the opinion that something might be gained from a European point of view in regards to "numbers" transmissions. I wholly concur, Simon.

Simon informs me that the first German station that appears on the bands is on 2705 kHz. This - according to Simon - is the first of the "Papa November" (PN) broadcasts.

Simon further states that "PN" is the kingpin of the "two letter" German "sign on" transmissions. It is sent eight times a day with this schedule: 2705, 5015, 7405 and 11107 kHz.

He (Simon) indicates that each broadcast is simultaneously sent on all four frequencies at the following times: 0000, 0600, 1200 and 1800 UTC Transmission mode at these times is AM.

USB transmission mode times are: 0030, 0630, 1230 and 1830 UTC.

"PN"—according to Simon—belongs to a class of German stations that use a "two letter sign on." Other stations in this group use essentially the same message format as "PN." It is typical to hear two messages per broadcast with very short group counts.

This correspondent also tells me that he has noted four different YL's who actually read the German numerical groups "live."

It's often the same with 5-digit Spanish in this country, Simon. Live broadcasts DO exist. And they are—to say the least—very, very haphazard.

Simon also tells me that two stations with a "musical scale" sign on, use 3370 and 4010 kHz. The "sign on" is: 3370 kHz/"Hier is DFC37" (4-times) followed by musical scale. 4010 kHz/"Hier is DFD21" (4-times) followed by musical scale.

Simon indicates that it has been stated that DFD21 and DFC37 are operated by the *Duetsche Bundespost* (the German Post Office)!

Air Force One

HF transmissions (while on the ground) reported from Air Force One on a frequency of 6835 kHz USB. This was during the recent visit of President Bush to the Palm Beach areas of Florida.

"Number" monitors are reminded that—during times in the past—6835 kHz has been active with 5-digit Spanish transmissions. Very, very curious! Also note that Air

Force Two has been active on 6835 kHz in the past.

Thanks to an anonymous Lake Worth, FL respondent for the above.

Tequesta Revisited

Increased security noticed at USAF Missile Tracking Station on Tequesta's—by now infamous—County Line Road.

New and ominous "NO TRESPASSING" signs at the site of former US Navy (WWII) Intercept Station just across the street (Beach Road) and to the north of Jupiter Inlet and Light.

Will the "Ghost" of County Line Road soon become the "Nightmare" of County Line Road?

Confidential Aside

How—and with a straight face—could anybody seriously tell the citizens of Jupiter/Tequesta that this monstrosity and beast of County Line Road would be for the purpose of tracking Soviet submarines?

Snow Job?

Mr. Mason has also stated that on the BBC's World Service "Waveguide" program, that a listener once asked what was the purpose of a YL reading out numbers in English over a BBC broadcast on 7325 kHz? The reply from the BBC was that they did not know for certain. However, since the listener lived in a ski resort area, it is possible that the transmissions were snow fall statistics.

When the listener suggested that the broadcast might be for spies, the BBC host/announcer made a joke of the topic and played the entire matter down.

I'll not comment on the "snowfall" statement, Simon. How can I comment when I'm so busy laughing?

Mad Violinist

A Rumanian station is another regular broadcaster heard on a daily basis in England. The "sign-on" is a "Gypsy violin" tune called "The Skylark" by Giocertier. Usually the format is: "Skylark," "Skylark," "Terminat," "Terminat" is said by an official sounding OM.

On some rare occasion a message is sent in Rumanian numbers. And while the sending of a message is quite rare, the broad-



casting of the musical composition would seem a complete waste of time.

Frequencies and times for the Rumanian transmissions: 5425 kHz at 1900, 2000, 2200 and 2300 UTC. 6825 kHz at 1800, 1900, 2000, 2100 and 2200 UTC. 7385 kHz at 2000 UTC.

And a Big Thanks to—you guessed it—Mr. Simon Mason for the above.

Thanks

Calgary's R.L. Trostem, Simon J. Mason of The United Kingdom, Dr. John Santoso, Hugh Stegman and Diane H.

Time now for a Tecate and . . .

Havana Moon y amigos
33469

PC

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
RURY	"RURY..." test tape
SS	Spanish
tf	traffic
w/	with
wx	weather

9118: PCW1, The Hague, Holland w/ARQ phasing sig & CW ID at 0510. An hour later it was gone & freq was occupied by GPA in Portishead w/ARQ phasing sig & CW ID (Lingenfield, PA).

9124: HVQ, VNA Hanoi, Vietnam w/nx in Vietnamese at 1111, 425/50R (Manthey, NY). Even though HVQ is listed in a ref source as being callsign here, I doubt that info. Call would need to have an XV or 3W prefix; HV prefix belongs to Vatican City. In fact, there may be no formal callsign assigned here at all-- Ed.

9154: SNN299, MFA Warsaw, Poland w/RURY & CQ at 0554, 170/75N (Lingenfield, PA).

9210: CLN251, PTT Havana, Cuba at 0427 w/telegrams in SS to USA. Was 425/50N (Kneitel).

9252.2: ELRB, Roberts Field, Monrovia, Liberia w/RURY at 0255, 425/50R (Kneitel, NY).

9391: SOJ239, PAP Warsaw, Poland w/RURY at 1947, 425/50R (Kneitel, NY).

9846: TUH, ASECNA Abidjan, Ivory Coast w/RURY at 0436, 425/50R (Kneitel, NY).

9969: IT8D, un-ID sta, w/foxes & counting for TZ8P at 1754, 850/75R (J.M., KY). Maybe the Spanish Navy wore out their old tactical ID's & are shifting over to new ones!-- Ed.

10075: CLP24, un-ID Embacuba w/tfc for CLP45/78, 425/78 at 0005, also 425/100N at 0010 (J.M., KY).

10169: RFTJD, French mil, Libreville, Gabon at 0429 w/Contrôle de Voie, ZNR UUUUU in ARQ-E 850/77 via Universal M-7000 with the new IC installed that demodulates ARQ-E & ARQ-E3 modes (Kneitel, NY).

10169.4: HSW63, Bangkok Metro, Thailand w/wx for China at 1118, 650/50N (Manthey, NY).

10298: NODH, USCGC Bittersweet wkg NMG at 1850, 170/75R (J.M., KY).

10298.4: HSW2, Bangkok Metro, Thailand w/aero info & wx at 1200, 170/50N. Long pauses during xmsn (Fred Hetherington, FL).

10321: BAAB, Beijing Metro, PRC w/CQ & RURY at 2340, 850/50R (Kuroda, Japan).

10340.1: HY5D, un-ID sta, w/RURY at 1045, 500/50N (Hetherington, FL).

10398: HGX21, MFA Budapest, Hungary w/RURY to HGX36 (un-ID) at 0854, 425/50R. Started tfc 0900 but Soviet woodpecker OTH radar really blasted the xmsn. By time the woodpecker shut up, HGX21 had gone QRT (Ed.).

10400.4: Un-ID sta w/s-l-o-w ARQ idling pulses 0917-0925 (Ed.).

10439.4: Y3A5, DPA Berlin, GDR w/RURY at 0930, 425/50N (Ed.).

10523.5: HMF45, KCNA Pyongyang, N. Korea w/nx in FF at 1513, 425/50N (Ed.).

10560: FTK56H3, AFP Paris, France w/RURY at 0358, 425/50N, then nx in FF (Lingenfield, PA).

10650.3: BJZ20, Hangzhou Metro, China w/RURY & counting at 0006, 425/50R (Dr. Gary Zaid, WI).

10732: FDY, French Air Force, Orleans, France w/RURY & le brick at 0742, 350/50R (Ed.).

10833.5-10835.4: RCCACF, Canadian Forces in Ottawa w/RURY & foxes on 8 FDM/VFT channels at 1537, 170/75N. The ID is a NATO routing indicator callsign. This sta used to ID as VER (Ed.).

10880.2: CLP1, MFA Havana, Cuba in SS w/circulars to Embacuba Nicaragua & Panama, 245/75N at 0045 (Hetherington, FL).

11010.2: GYA, RN London, England w/freq chart at 2244, 850/75R (Ed.).

11121: KAWN, Carswell AFB, TX w/coded wx, 250/75N at 1907 (Ed.).

11420.1: VNA86, VNA Hanoi, Vietnam w/nx in FF ending at 1200 one day, 1255 on another. Was 500/50R (Hetherington, FL).

11602: 6MK64, YONHAP Seoul, S. Korea w/sports results. Was 425/50R at 1228 (Kuroda, Japan).

11638: DDK8, Hamburg Metro, FRG clg CQ & RURY, 425/50R (Lingenfield, PA). Same at 0023 (Manthey, NY).

12128.9: Un-ID w/Pacif wx at 1115, 850/75N (Jon Palkovic, FL, via Hetherington, FL).

12170.1: Magadan I. Metro, USSR w/wx to 0955, 850/50R. In FAX mode 1045 (Hetherington, FL).

12180: Un-ID w/5F gips at 1537, 425/50R (J.M., KY). Similar has been intercepted here in years past. Anybody have an ID?-- Ed.

12263: TTL, ASECNA, N'djamena, Chad at 0356 w/FF text, then RURY/Testing tape, 170/50R (Kneitel, NY).

12265: BZR62, XINHUA Beijing, PRC w/nx in EE at 1444, 425/75R (Ed.).

12301.4: Un-ID w/foxes, counting & fox "over a lazy dog." At 1236, 850/75R (Kneitel, NY).

12497.9: EWJ, Soviet fish factory ship Arktika w/tfc for UDK2 at 0034, 170/50N (Michael Ricks, PA).

12523: UUKU, a Soviet ship w/RURY to URB2 then 5L kriptomogramma to Moscow, 170/50N at 2257 (Zaid, WI). A stern trawler factory ship named Karpogory-- Ed.

12525.9: UISZ, Soviet spaceflight tracking ship Akademik Sergei Korolev w/crypto for UVAU, another tracking vessel, via UAT at 2220, 170/50N (Ricks, PA).

12692.6: Continuous stream of USN tfc from 1 sta around 0026-0036, plaintext & 5L grps, 170/75R. Seemed to be situation reports to/from Comnavwest referring to ships(?) referenced only as ZTVF, ZTRT, ZTRF, & ZTOE relating to an underway rescue or salvage operation. Many references to submarines, air hoses, survivors, sonar buoys, & retrieving anchors (Kneitel, NY).

12750: NIK, USCG Ice Patrol, Boston, MA w/bc in FEC at 1225. Was //8502 but weaker there (J.M.).

12908.9: Y5M, Ruenen R., GDR w/Schiffspresse nx in GG for ships at 2100, 170/50R (Ricks, PA).

13090: WCC, RCA Chatham R., MA w/tfc list in FEC at 1250 (Kneitel, NY).

13360.7: GPA5, Portishead R., England w/ARQ phasing sig w/CW ID at 0508 (Ed.).

13391: Y2V63, ADN Berlin, GDR w/nx in SS at 2200, 425/50 (Ricks, PA).

13407.5: Un-ID N. Korean embassy w/telegrams in Korean at 1254, 45N (Ed.).

13415: PCW1, MFA The Hague, Holland w/ARQ phasing sig & CW ID at 0446 (Ed.).

13502: YWM1, Maracaibo Navrad, Venezuela w/SS tfc to NBA at 1700, 850/75N (Hetherington, FL).

13530: RW53, Moscow Metro, USSR w/coded wx at 1241, 1000/50R (Kneitel, NY).

13540: LRO81, TELAM Buenos Aires, Argentina w/nx in SS at 0054, 850/50R (Kneitel, NY).

13647.5: OL15, CTK Prague, Czechoslovakia w/nx in FF at 1209, 425/50N (Kneitel, NY).

13732: RFL1, French Navrad, Fort de France, Martinique w/weather info in FF & EE, ARQ-E/72 (Ed.).

13770: VOA Tangier, Morocco w/nx in FF at 1150, 425/75N (Kneitel, NY).

13779: BCA95, PTT Shanghai, PRC w/RURY at 1126, 425/50R (Kneitel, NY).

13803: RCR78, Khabarovsk Metro, USSR w/coded wx at 1434, 1000/50R (Ed.).

13844.3: RFQP, French mil, Djibouti at 0108 & 0138 w/Contrôle de Voie ZNR CUCQC. Was TDM-96A (Kneitel, NY).

13855.3: Un-ID N. Korean embassy w/msg in Korean at 0710, 850/45R (Ed.).

13868.2: Un-ID sta w/ARQ tfc in FF at 0602, but almost faded by 0640 (Ed.).

13872.5: SNN299, MFA Warsaw, Poland w/tfc to embassies in Far East, 170/75N at 0640 (Ed.).

13910.3: "Posolstvotahavana" (Soviet embassy in Havana) w/tfc in RR for "Karakas" (Caracas), 50N at 2323-2341 (Ed.).

13926: Un-ID sta s/off in SS at 2134, ARQ (Ed.).

13940: CLP65, Embacuba Magagua, Nicaragua w/ZZZZZ & crypto tfc to CLP1, 75N at 2127 (Ed.).

13941: G13 (un-ID) w/5F tfc to Z2F at 1800 ("Bunky," IL). See next item-- Ed.

13941.5: ILW (un-ID) w/RURY, FF tfc & a 5L msg to 2nd sta on freq. Other sta also w/RURY & ffc tfc. Was FEC, 0002-0028. About 4 yrs ago this freq produced 5VC w/similar tfc in FEC to sBL at 1830 (Ed.).

13981: Un-ID sta ends ARQ tfc at 2100 w/"Si adelente...hace 45 minutos. Lo pueden revisar e radiografica que...en se mando uno yer no negativo. Todavía no lo la he metido. M pero doday la vvo voy a" (xmsn ended) (Ed.).

14362: SPW, Warsaw R., Poland w/skeds for var modes & tfc list, 425/50R at 1150 (Hetherington, FL). SOQ236, PAP Warsaw, Poland w/nx in Polish at 1220, 425/50R (Kneitel, NY).

14371.5: Un-ID sta w/tfc at 1820, 50N. While monitoring a TDM sta on 14372, I kept hearing a sta under that sig whose op was manually typing msgs. Tuning down to this freq, I was able to catch: "...we would have no other means U asking for a QST K." Nothing further heard (Ed.).

14373: YIL73, INA Baghdad, Iraq at 1301 w/RURY & FF anct, 425/50R (Kneitel, NY).

14392: NNN0MPL, USMC MARS Parris Island, NC w/MARSgrams at 1903, 170/75R (Kneitel, NY).

14402: ZRO, Pretoria Metro, RSA w/RURY, "c

good men," & ZUD/Derdeport Radio Station Testing. Was 275/50R at 1249. Then asked another sta to QSY 16425 kHz, but I found nothing there. Short time later, ZRO asked ZRP to send METS (meteo reports), foll by telexes in Afrikaans & EE. Have no listing for ZRP or ZUD (Dallas Williams, CO). Nicely detailed report, Dallas! ZRP callsign used on 6 freq by Sanae Base & Port Elizabeth (closest one here is 14495). ZUD used by Pretoria & Olifantsfontein-- Ed.

14405.5: AFAZER wkg AKA2XO, USAF MARS stas at 1907, 170/75R (Kneitel, NY).

14501.6: RMS45, PTT Moscow, USSR w/msg in EE for Karachi, TDM-96A at 1800 (Hetherington, FL).

14506.9: Un-ID sta at 1227 idling in 300 Hz shift ARQ (Kneitel, NY).

14508: D4B, Cabral Air, Sal, Cape Verde Islands w/RURY & testing at 1317, 850/50N (Kneitel, NY).

14619: Y7A59, MFA Berlin, GDR w/RURY at 2142, 425/50N (Kuroda, Japan).

14625: RFL1, French Navrad, Fort de France, Martinique w/crypto at 1100, TDM-96B (Tom Sundstrom, NJ).

14639.3: KPL Vientiane, Laos w/nx in EE at 0900 (Hetherington, FL). TTY settings?-- Ed.

14724: TNL, ASECNA Brazzaville, Congo w/RURY & testing at 2308, 425/50R (Kneitel, NY).

14795.7: FT079A/H3, AFP Paris, France w/nx in FF at 1325, 425/50N (Kneitel, NY).

14809.4: GXQ, British Army, London, England w/RURY's & foxes at 1850, 325/50N (Williams, CO).

14817.5: IUV81, INTERPOL Rome, Italy w/tfc in FF to JPA51 in ARQ at 0141 (Kuroda, Japan).

14880: JMG4, Tokyo Metro, Japan w/plaintext wx in EE at 1445, 850/50R (Hetherington, FL).

14912: MFA Belgrade, Yugoslavia w/XYXYXY header & crypto at 1504, 425/75N (Ed.).

14915.5: 5KM, Cinta de Prueba, Colombian Navrad w/RURY & SGSG at 1939, 300/75N (Kneitel, NY).

14932: APS Algiers (El Djazir), Algeria w/nx in SS at 1541, 1000/50R (Ed.); Nx in EE at 1317, 1000/50R (Kneitel, NY).

14945: CLP1, MFA Havana, Cuba w/ZZZZZ header & crypto to CLP65 at 1609, 75N (Ed.).

14950: GYU, RN Gibraltar w/test tape at 1918, 850/75R. Not listed in Klingenfuss, but OK in Ferrell's Confidential Frequency List (Kneitel, NY).

14971: WWQ20, FCC Sabana Seca, PR w/bit inverted tfc for KAA60 at 1708, 425/45N (J.M., KY).

14975: CLP1, MFA Havana, Cuba w/SS tfc to Embacuba, Panama, 1000/75N at 1600 (Hetherington, FL).

15008.5: SOP250, PAP Warsaw, Poland w/RURY at 1653. Another one OK in the CFL listings but omitted from Klingenfuss' guide (Kneitel, NY).

15684: FSB INTERPOL Paris, France idling in ARQ w/CW ID (Kneitel, NY).

15693.5: ISX56, ANSA Rome, Italy w/RURY & freq list at 1412, 425/50N (Ed.); Nx in FF at 1656, 425/50N (Kneitel, NY).

15710: RED52, TASS Moscow, USSR at 1328 w/nx in FF, 425/50R (Kneitel, NY).

15752.6: MAP Rabat, Morocco w/nx in FF at 1703, 425/50R (Kneitel, NY).

15727: YKW113, PTT Damascus, Syria w/telexes to Moscow at 1316, 425/50R (Williams, CO).

15865: RBK79, TASS Moscow, USSR w/nx in AA at 1705, 425/50R (J.M., KY).

15924: TASS Moscow w/nx in EE at 1346, 425/50R (Lingenfield, PA).

15925: RPT32, TASS Moscow, USSR at 1235 w/nx in FF, 425/50R (Kneitel, NY).

15930: RB178, TASS Moscow, USSR w/nx in FF at 1238, 425/50R (Kneitel, NY).

16013.5: Un-ID w/5F tfc at 1354, 550/50N. At 1400 goes to CW for crypto (Ed.).

16071.6: Un-ID w/conctn RURY at 1418, 850/75R (Ed.).

16136.7: Egyptian embassy, Washington, DC relaying diplo tfc in EE from La Paz, Bolivia to Cairo. Was ARQ at 1731 (Ed.).

16190: RGW26, TASS Moscow, USSR w/nx in FF at 1350, 425/50R (Lingenfield, PA; J.M., KY).

16223.9: 3MA35, CNA Taipei, Taiwan w/nx in EE at 1600, 890/50R (Hetherington, FL).

16325: Y2V23, ADN Berlin, GDR w/nx in EE at 1440, 50N (Ed.).

16327: YBU, the GDR embassy in Havana w/RURY & 5L tfc at 1550, 425/75N (Ed.).

16348: CLN530, TASS Havana, Cuba w/nx in EE at 1242, 425/50R (Kneitel, NY).

16395: OMZ, MFA Prague, Czechoslovakia w/tfc in Czech at 1536, 425/75N; then into CW at 1538 (Ed.).

16397.5: FTQ39, DIPLO Paris, France w/nx in FF at 1404, 50R (Ed.).

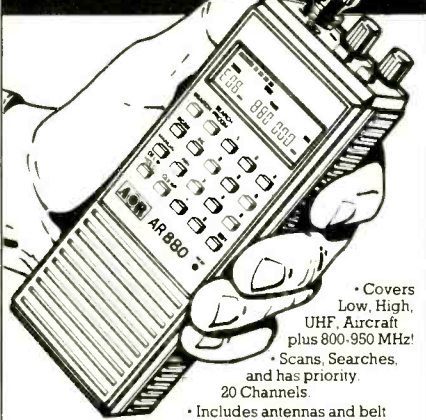
16417: Y2V26, ADN Berlin, GDR w/nx in EE at 1400, 425/50N (Ed.).

16442: ELAD6, Liberian flag tanker Iver Soverign, enroute Kingston w/telex in ARQ at 1325 (Kneitel, NY).

16695.4: URKY, Soviet salvage tug Gektor, off Chile w/tfc for UJY at 0010, 170/50N (Ricks, PA).

16701.9: UTDX, Soviet spaceflight tracking ship Kosmonaut Pavel Belyayev, w/tfc for UAT at 0044. Was at Togo, enroute Canary Islands (Ricks, PA).

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16870: UJY, Kaliningrad R., USSR w/RURY at 1938, 170/50N (Kneitel, NY).
17363: 5YE, Nairabi Metea, Kenya w/coded wx at 2010, 850/75R (Kneitel, NY).
17400.1: BBE52, PTT Shanghai, PRC w/RURY to CLN565, 425/50R at 1210 (Hetherington, NY).
17403: BAL32, PTT Beijing, PRC w/RURY at 1440, 425/50N (Ed.).
17415: Y7K33, MFA Berlin, GDR w/RURY at 1556, 425/100N (Ed.).
17416.5: CLP1, MFA Havana, Cuba w/RURY at 1600, 425/50N. Oddly, the CLP1 call was included in the RY's (Ed.).
17421: MFA Belgrade, Yugoslavia w/tfc in Serbo-Croat & a 5F msg at 1337, 200/75N (Ed.).
17427.5: OFD47, Nummela R., Finland s/aff ARQ tfc as DE OFA at 1703. In FEC at 1708 advising 2 ships of waiting tfc. Then nx in Finnish, FEC at 1713 (Ed.).
17525: OLV3, CTK Prague, Czechoslovakia w/nx in EE at 1639, 425/50N (Ed.).
17535.2: Un-ID sta idling at 1641, ARQ/425 (Ed.).
17600: RIJ71, TASS Moscow, USSR w/nx in SS at 1750, 425/50R (Kneitel, NY).
17623: 9KT344, KUNA Safat, Kuwait w/nx in EE at 1526, 250/50R (Ed.).
18037.5: Japanese embassy in Cairo, Egypt in Romanized JJ, then "testing de embassy of Japan, Cairo (Ejiputo)" - RYTY/foxes, then "test end." Was ARQ at 1217 (Palmerberg, FRG). Thanks for sending the TTY copy. Had monitored JJ tfc here in the past but didn't know where it was from. Sig usually hrd in USA 1200 to 1500 while on standby-- Ed.
18040: TCY4, AA Ankara, Turkey w/nx in EE, 850/50R ("Bunky," IL).
18045: Un-ID w/RURY at 1652, 425/75N (J.M., KY). The TTY setting leads me to think it's MFA Belgrade-- Ed.
18051.1: Un-ID sta w/nx in an Eastern Euro lang at 1733, 425/75N (Kneitel, NY).
18121-18122.7: MKK, RAF London, England w/RYI's & faxes on 6 FDM channels 170/50N&R at 2035. At times, crypto noted on a 7th channel of 18120.8 (Ed.).
18170.2: Un-ID idling in ARQ at 1420 (Ed.).
18171.5: IRQ21, PTT Rome, Italy w/msg in EE to Khartoum (Sudan) advising that this is the telex freq while IRQ26 on 18630.4 is for phone scx. Was 425/50N (Hetherington, FL). Time not given-- Ed.
18220.9: CNM76X9, MAP Rabat, Morocco w/nx in FF at 1756, 425/50R (Kneitel, NY).
18239: CFL25, Bracknell Meteo, England w/coded wx at 1317, 425/50R (Lingenfield, PA).
18248: DHO91, MFA Bonn, FRG w/crypto to CUD31, Beja, Portugal, 250/75N at 1448. ID's gotten via DHO91's requests for QSL's. CUD31 replies this freq (Ed.).
18279.3: 2 stas in ARQ at 1503. Weaker one sends tfc while stronger one on standby. Occasional tfc in AA seems to turn up (Ed.).
18363.5: 9PL, Kinshasa Aero, Zaire w/RURY (Kuroda, Japan). Time/settings not given. One line of the printout read DE Zaire Centre Wine Test. No wonder it was gabled!-- Ed.
18388.7: LSA, Boca R., Argentina w/aero wx at 1433, 425/50R (Zaid, WI). Sorry, Doc, but this isn't LSA, it's 5AF, Tripoli Aero, Libya. The header shows CZCZ LSA262 but LSA there is a TTY circuit from Lihya to Sudan. It's not a callign-- Ed.
18461.7: OCW1, The Hague, Holland, w/tfc in ARQ at 1515. Weak sigs (Ed.).
18513: Un-ID idling in ARQ/425 at 1456 (Ed.).
18536-18537.7: MKD, RAF Akrotiri, Cyprus w/RYI's & faxes on 6 channels at 1850, FDM 170/50N&R (Ed.).
18544: STK, Khartoum Aero, Sudan w/RURY & testing for 9PL. Was 425/50R at 2150 (Kuroda).
18602.5: LOL, Buenos Aires Navrad, Argentina w/RURY & SGG5 to HDN at 2007, 425/75N (Williams, CO).
18602.7: VOA Greenville, NC w/RURY & tfc to VOA Tangiers, 85/75R at 1444 (Ed.).
18604.1: VOA Greenville, NC w/RURY to VOA Rhodes, Greece at 1357, 85/75R (Ed.).
18648.5: SOT265B, PAP Warsaw, Poland at 1805 w/nx in Polish, FEC mode (Kneitel, NY).
18651.5: SOT265A, PAP Warsaw, Poland w/nx in Polish at 1808, 425/50R (Kneitel, NY).
18690: CLP1, MFA Havana, Cuba w/RURY w/o ID at 1515, 425/50R (Ed.).
18697.5: DFS70L3, DPA Hamburg, FRG w/nx in EE at 1810, 425/50R (Kneitel, NY).
18700: Y2V44, ADN Berlin, GDR w/nx in AA at 1228, 50N (Ed.); Same at 1305 (Hetherington, FL).
18725: 8WA3, Indian embassy in Rangoon, Burma noted here 2nd month in a raw w/tfc in EE & 5L tfc to 8W2D (MFA in New Delhi), at 1509, 425/50R (Ed.).
18776: MKK, RAF London, England w/RYI's & faxes, 170/50N at 1239 (Ed.).
18785: FTS78, DIPLO Paris, France w/nx in FF at 1800, 425/50N (Kneitel, NY).
18786.5: MFA Jakarta, Indonesia w/5L tfc to various embassies at 0140, ARQ (Kuroda, Japan).
18823.6: Y2V38A, ADN Berlin, GDR w/nx in EE at 1400, 425/50N ("Bunky," IL).
18860: ZAT, ATA Tirana, Albania w/nx in EE at

1813, 850/50N. This is a strong harmonic of ZAT's signal on 9430 kHz (Kneitel, NY).
18990: Un-ID USN sta w/quick brown faxes at 2010, 850/75N (Sundstrom, NJ).
18993.5: SPW, Warsaw R., Poland w/skcd info at 1352, FEC (Kneitel, NY).
19013.6: OST68, Oostende R., Belgium w/tfc list in FEC at 1322, also sports results (Ed.).
19100: RFLI, French Navrad, Fort de France, Martinique w/tfc in FF at 2055, TDM-96A; then at 2100 in TDM-96B (Ed.).
19104.8: MFA Jakarta, Indonesia w/nx in EE at 1310, 850/50N (Ed.).
19130: FSB61, INTERPOL Paris, France w/tfc in EE & FF re wants, warrants, etc. at 0434, 170/50R (Williams, CO).
19178: IRR31, IINA, Roma, Italy w/nx in EE at 1050, 425/50N (Sundstrom, MJ).
19238: Un-ID w/crypto that ends "Ciwai Skeawai Actwai." Was 425/110N at 2129 (Ed.).
19327: KAWN, Carswell AFB, TX w/wx data at 2135, 170/75N (Ed.); Same w/coded wx at 1831 (Kneitel, NY).
19443: Y7A77, MFA Berlin, GDR w/5L tfc at 1456, 50N (Ed.).
19458: KNY23, Czech embassy in Washington, DC w/tfc in Czech & 5F tfc from NYC & Mexico City to Prague at 1913, 425/75N (Ed.).
19505: RCD36, PL Moscow, USSR w/nx in PP at 1458, 50N (Ed.).
19529.2: JMG5, Tokyo Metea, Japan w/coded wx at 1557, 850/50R (Ed.).
19576: ORIA9, PTT Brussels, Belgium w/tfc in EE to 9RE395, Zaire, TDM-96B at 1555. Then w/FF tfc at 1558, TDM-96A (Ed.).
19605: YZJ9, TANJUG Belgrade, Yugoslavia w/nx in EE at 0422, 500/50R (Williams, CO).
19690.2: AXM37, Canberra Meteo, Australia w/coded wx at 1645, 850/50N (Ed.).
19731.5: PCW1, The Hague, Holland clg TVKM in ARQ at 1400 ("Bunky," IL). If what you saw looked like TVKMTVKMTVKM..., it was PCW1's selcall-- Ed.
19821.5: Un-ID idling in ARQ at 1629 (Ed.).
19822.5: 5AF, Tripoli Aero, Libya w/coded wx at 2152, 425/50R (Ed.).
19860: GYA, RN London, England w/freq chart at 1626, 850/75R (Ed.).
19865.5: YZJ4, TANJUG Belgrade, Yugoslavia w/nx in Serbo-Croat at 1606, 500/75R (Williams).
19980: EPJ2, IRNA Tehran, Iran w/skcd info at 1015, 425/50R (Palmerberg, FRG). Freqs to watch between 1000 & 2200 are 7400, 7800, 7960, 8050, 18560, 19200 & 19980. Thank for the printout, Wolfgang-- Ed.
20011.7: Un-ID sta (tho SAM, MFA in Stockholm listed here) in ARQ at 1332 w/#'s in long strings at mixed 1 & 2 digits. Also msg in EE re TTY reception (Ed.).
20021.5: IFC20, MFA Rome, Italy w/AA tfc headed w/DA Esteri Rama. ARQ at 1434 (Ed.).
20022.5: DFU20H3, MFA Bonn, FRG w/RURY at 1453 the nx briefs in GG collected from various nx services. Was FEC-96A at 1500 (Ed.).
20055.7: Un-ID w/selcall of SDXC in ARQ at 1427 (Ed.).
20109.8: CLP1, MFA Havana, Cuba w/5F tfc to Embacuba Ghana at 1320, 50N (Ed.).
20078: FTU8B, DIPLO Paris, France w/nx in FF at 1829, 425/50N (Kneitel, NY).
20178.3: RFVI, French Navrad, LePort, Reunion w/non protege tfc in FF at 1221 & 1610, TDM-96A, simulcast on channel B; RFFA, Ministry of Defense, Paris w/crypto & FF tfc to mil bases at 1737, TDM-96B (Ed.).
20204: YZJ, TANJUG, Belgrade, Yugoslavia w/nx in FF at 1224, & in EE at 1300, 425/50R (Ed.).
20311.8: FTU31B, AFP Paris, France w/nx in EE at 1441, 350/50N. Klingenfuss overlooked this one (Kneitel, NY).
20327.1: 6VK221, PANA Dakar, Senegal w/nx in EE at 1552, 425/50N (Manthey, NY).
20331-20332.7: MKD, RAF Akrotiri, Cyprus w/RYI's & faxes on 6 FDM channels at 1350, 170/50N&R (Ed.).
20350: NBA, USN Balboa, Panama testing at 1838 & announcing freqs: 11570, 12205, 16194, 18067.5, 18550, 20350, & 22810 kHz. Was 850/75R (Kneitel).
20385: RFFX1, French mil, Versailles, France w/ID & crypto a: 1359, ARQ-E/72 (Ed.).
20405: CLP1, MFA Havana, Cuba w/5F tfc at 1940, 500/50N (Ed.).
20430: IRS24, ANSA Rome, Italy w/nx in SS at 1630, 425/50N ("Bunky," IL).
20471.7: CXR, Montevideo Navrad, Uruguay w/RURY, SGG5 & faxes, 1200/75N at 1322, Zaid, WI).
20483: CLP1, MFA Havana w/RURY (no ID) & short msgs in SS, 425/50N at 1443 (Ed.).
20544.6: Possibly CLP1 w/ZZZZZ & crypto at 1547, 550/50R. Then sends RURY w/o ID & shuts down at 1600 (Ed.).
20558.4: 5AQ88, JANA Tripoli, Libya w/nx in EE at 1652, 425/50R. Also on 20560 at 1630, 425/50R (Ed.).
20632.2: RFLI, French Navrad, Fort de France, Martinique w/control de voie at 1725, TDM-96 (Ed.).

CIRCLE 64 ON READER SERVICE CARD

20724: CLP1 w/RYRY (no ID's), some SS t/c & crypto 2225 to after 2330, 50N (Ed.).

20911.5: Un-ID continuous RYRY at 1847, 1000/50R, then 5F t/c 1847-1858 & off (Ed.).

21865: Un-ID w/possible crypto in which there seemed to be a pattern to each string of letters such as: evynckgedfvisagwug, evynmuhejvisagwdkw, evyncapifvisagwqk, etc. Went non-stop for a very long time. Was 425/100R at 1456 (Ed.).

21887: Un-ID w/crypto at 1815, 120/75R (Ed.).

22356.8: SAB83, Goteborg R., Sweden on standby in ARQ at 1543 (Ed.).

22562: GKE7, Portishead R., England w/telex to a ship in ARQ at 1737 (Ed.).

22563: FFT91, St. Lys R., France on standby while receiving t/c from FNPD, the French factory ship with the romantic name DLB-1601. Was ARQ at 1841 (Ed.). Noted at 1900 in FEC w/tfc list and ID'ing w/callsign FFL (Kneitel, NY).

22565: PCH75, Scheveningen R., Holland w/telex in Dutch at 1732, ARQ (Ed.).

22567.5: KPH, San Francisco R., CA w/tfc list in FEC at 1702 (Ed.).

22578: GK77, Portishead R., England w/telex to VPHL, cargo ship Faraday, ARQ at 1524 (Ed.).

22911.2: Un-ID idling at 1849, TDM-96 (Ed.).

22955: Y7A87, MFA Berlin, GDR w/nx in GG at 1845, 425/50N (Ed.).

23370.2: HZN50, Jeddah Meteo, Saudi Arabia had wx at 1508, 850/100N (Ed.).

23380.8-23382.5: MKD, RAF Akrotiri, Cyprus w/RYY's & foxes in an 8-channel FDM xmsn 170/50N&R at 1341 (Ed.).

23405: SPW, Warsaw R., Poland w/xmsn sketl & t/c list in FEC at 1350. Simulcast in CW on 23408 kHz. Nx in Polish follows (Ed.).

23440.7: Un-ID idling at 1345, ARQ E/48 (Ed.).

23697.6: DFX69H6, MFA Borin, FRG w/RYRY at 1453 then nx in GG at 1500, FEC A/96 (Ed.).

23715.2: RFL1, French Navrad, Fort de France, Martinique w/ID but no t/c, TDM-96 at 1904 (Ed.).

23905: Un-ID w/crypto at 1305, FEC-A/192 (Ed.).

24230: Un-ID w/crypto at 1413, 1100/45R (Ed.).

24307.8-24309.5: Un-ID British or Canadian mil sta w/crypto on 8 chans 170/50 FDM at 1534 (Ed.).

24370: Un-ID w/5L t/c at 1429, FEC-A/i44, then 5 lines of run-on OK's & a lengthy silence to 1443 s/off (Ed.).

24498: Un-ID w/5F t/c at 1401, 50N. S/off 1409 w/"Jose." Also noted w/telex in SS, 75N at 1549 then later w/2 OM's in QSO via USB made on 24497 kHz (Ed.).

24857: MKD, RAF Akrotiri, Cyprus w/RYY's & foxes, 170/50R at 1534 (Ed.).

24870.2: Un-ID sta idling at 1603, TDM-96A&B (Ed.).

25078.7: ELCF6, Liberian solvent carrier Arabian Trader w/tfc in ARQ at 1421 (Ed.).

25315: RPFN, Monsanto Navrad, Portugal w/RYRY & foxes at 1253, 850/50R (Ed.).

25385.3: MUN1, un-ID sta, w/RYRY & foxes, Q-codes & 5L t/c to MUN7, 500/50R at 1248. Any guesses?? (Ed.).

25390: GKY2, Portishead R., England wkg DAFM. FRG sailing yacht Vasco in ARQ at 1337 (Ed.).

25437: OXZ, Lyngby R., Denmark wkg an un-ID ship in ARQ at 1308, then FEC t/c list at 1727 (Ed.).

26049: Un-ID w/weak & poor 50 baud xmsn at 1402 (Ed.).

26202: TANJUG Belgrade, Yugoslavia w/nx in Serba-Craat at 1530-1639, 425/75N. Clear sigs (Ed.).

26778.9: PCH, Scheveningen, Holland w/ARQ phasing sigs at 1813. ID in CW. Nice, strong sigs (Ed.).

26780: Un-ID w/FEC t/c at 1819, but weak & unreadable (Ed.).

FAX intercepts

122.5: CFH, Canadian Forces, Halifax, NS w/wx chart of 0410, 120/576 (Carol Kirk, CT).

2516.4: Wx chart from Un-ID sta at 0105, 120/576 (Kneitel, NY).

3357: NAM, USN Norfolk, VA w/wx chart at 2215, 120/576 (Kirk, CT).

5785: Un-ID w/wx chart at 0220, 120/576 (Kirk, CT). It's NGR, USN Kato Sali, Greece-- Ed.

5896: Un-ID w/wx text in EE at 0250, 120/576 (Kirk, CT).

6902: KGWC, USAF Global Weather Center, Offutt AFB, Omaha, NE w/wx charts at 0354, 120/576 (Ed.).

7495: RDK23, Tblisi Meteo, USSR w/wx chart at 0138, 120/576 (Kirk, CT).

7640: RST76, Minsk Meteo, USSR w/wx chart at 0138, 120/576 (Kirk, CT).

8146.6: IMB55, Rome Meteo, Italy w/wx map at 0218, 120/576 (Kirk, CT).

9060: RCU73, Novosibirsk, Meteo, USSR w/wx chart at 0100, 120/576 (Kirk, CT).

9340: RCH72, Tashkent Meteo, USSR w/wx chart at 0235, 120/576 (Kirk, CT).

10980: RDD79, Moscow Meteo, USSR w/wx chart at 0235, 120/576 (Kirk, CT).

11118: KWBC, USAF Weather Service, National Metcom Center, Washington, DC w/wx charts all day to about 2400, 120/576 (Ed.).

11483.6: Un-ID sta w/press pix, 60/367 at 0114

(Kirk, CT).

11525: RWZ77, Moscow Meteo, USSR w/wx chart at 0230, 120/576 (Kirk, CT).

12829: 3SD, Beijing R., PRC w/text at 1345, 60/367 (Kirk, CT).

13550: ZKLF, Auckland Meteo, New Zealand w/wx charts at 1300, 120/576 (Ed.).

13597: JMH4, Tokyo Meteo, Japan w/test chart at 1304, 120/576. QSB made for sporadic reception (Ed.).

14367: BAF8, Beijing Meteo, PRC w/wx chart at 1250, 120/576 (Kirk, CT).

14436: GFE23, Bracknell Meteo, England w/wx charts at 2230, 120/576 (Sundstrom, NJ).

14582.5: GFE25, Bracknell Meteo, England w/wx charts at 1750, 120/576 (Sundstrom, NJ).

14610: RCR79, Khabarovsk Meteo, USSR w/wx chart at 1230, 120/576 (Kirk, CT).

14692.5: JMJ4, Tokyo Meteo, Japan w/wx chart at 1228, 120/576 (Kirk, CT).

14827.9: Un-ID w/wx chart at 1236, 120/576 (Kirk, CT). This is NPM, USN in HI-- Ed.

14982.5: RBV76, Tashkent Meteo, USSR w/wx chart at 1500, 120/576 (Kirk, CT); Same at 1225 (Kneitel, NY).

15950: RBI77, Moscow Meteo, USSR w/wx chart at 1220, 120/576 (Kirk, CT).

16025: BAF9, Beijing Meteo, USSR w/wx chart at

2313, 120/576 (Kirk, CT).

16114: GYA, RN London, England w/xmsn sked at 1500, 120/576 (Ed.).

17363: YE, Nairobi Meteo, Kenya w/wx chart at 1845, 120/576 (Kirk, CT).

17672.1: Un-ID sta w/press pix at 2000, 60/367 (Kirk, CT). It's LQZ67, AP in Buenos Aires-- Ed.

18130: JMJ5, Tokyo Meteo, USSR w/wx chart at 2304, 120/576 (Kirk, CT).

18710: Moscow Meteo, USSR w/wx chart at 1345, 60/576 (Ed.).

18712: Un-ID w/wx chart at 1320, 120/576 (Kirk, CT). Possibly Moscow Meteo?-- Ed.

19275: RXO74, Khabarovsk Meteo, USSR w/wx chart at 2240, 120/576 (Kirk, CT).

19322: Un-ID sta w/wx chart of USA at 1413, 120/576 (Kneitel, NY).

20015: NAM, USN Norfolk, VA w/wx charts at 1330, 120/576 (Ed.).

21839: NPM, USN Pearl Harbor, HI w/charts at 1841, 120/576 (Ed.).

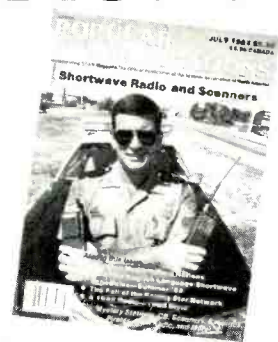
22770: JMH6, Tokyo Meteo, Japan w/wx chart at 2215, 120/576 (Kirk, CT).

23332: KVM70, Honolulu Meteo, HI w/wx charts at 1824, 120/576. Suffers from QSB/QRN (Ed.).

25450: Un-ID w/wx charts at 1408, 120/576. QRM ruined copy. NAM listed here but don't know if for FAX use.

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27 MHz COMMUNICATIONS ACTIVITIES

Midland International has added a new 40-channel CB to the emergency transceiver scene. Known as the Model 77-909, it's got an "instant Channel 9" access button, high intensity LED's, separate up/down channel selector buttons that run at two speeds, mag mount antenna, and a vinyl carrying case.

For the last twenty years, I've had a CB rig mounted under the dash of every vehicle I've owned. Most of those rigs have been AM/SSB transceivers. Still, when my rig conked out on me one day while I was on the road and a long way from home, I realized one of the potentials of these emergency rigs. As fate would have it, I had a brand new one with me that I was bringing as a gift to someone at the other end of my trip. Well, they got cheated out of their gift as that rig went into immediate service in my own vehicle, because there are five things I can't drive without, my sunglasses, my boots, my hat, my seatbelt, and a CB rig. Since that day, many years ago, I've always carried an emergency CB transceiver in the vehicle "just in case" the main rig conks out. You might consider doing the same.

Moreover, this new Midland International 77-909 looks to be about as good an emergency rig as ever inhaled or coughed out a signal on the channels. You might want to find out more about this rig. If so, check with Midland International Consumer Products Division, 1690 North Topping, Kansas City, MO 64120, or circle 101 on our Readers Service card.

What You Wanted

Last October, we mentioned one reader had taken this column to task because it wasn't devoted to operations on illegal frequencies above and below the authorized CB band, "export" rigs, linear amplifiers, modifications to "unlock" transceivers to do illegal things, and so on. My position was that, so far as I was concerned, folks were welcome to follow their own consciences when it came to such matters. However, since it recently became relatively easy to get a Novice Class ham ticket and use 250 watt SSB transceivers legally within a 200 kHz swath of the adjacent 28 MHz band, I really didn't see very much point to going the 27 MHz "outbander" route at this point. Especially true since the FCC has been issuing stiff "monetary forfeitures" to those ops who have been caught using illegal equipment, or operating on illegal 27 MHz frequencies.

At that point, I asked readers to drop me a card and briefly state their *yea* or *nay* about keeping this column the way it has been in

respect to such coverage, or if we should change our viewpoint. The results were interesting.

Chuck Manetta, Coral Gables, FL told me I didn't know what I was talking about since there are "millions of good people on these frequencies." Well, I never said there weren't, so that didn't rack up many points. He rounded off his observations by advising me that I've shown my "true colors . . . as a condescending, ham jerk."

A postcard from SSB-308D in Puerto Rico was handwritten and seemed to contain hundreds upon hundreds of words printed in letters so tiny, that it looked like the finance agreement for my pickup truck. From what I could make of it, I think SSB-308D generally enjoys our column, but would like to see our coverage expanded to encompass all users of 27 MHz, regardless of their operating practices.

An unsigned handwritten postcard from Nanaimo, British Columbia was in favor of operating on illegal frequencies because the authorized channels are overrun with echo boxes, sound effects, and rude operators. We assume that the hope was that this column would cater to those on the illegal channels. This reader added, "any idiot can afford and be on the air with a legal radio."

Believe it or not, that was the *total* extent of the support this concept received. Exactly one hundred and sixty four pieces of mail came in stating, to one extent or another, opposition to the suggestion. Typical of the responses included one from James H. Ingram, a private investigator from Aromas,

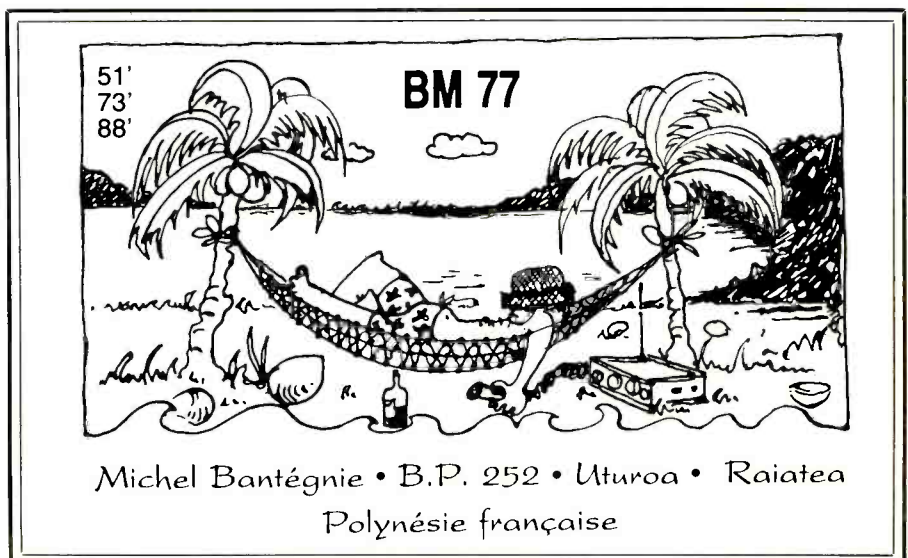


The new Midland International 77-909 emergency CB rig.

CA. Ingram wrote, "Lets keep CB and CB columns legal. Who really needs the junk to enjoy and use CB? Enjoy the column the way it is."

A note from Edward R. Wickum, Jr., Iselin, NJ said, "I would urge you not to encourage new or prospective operators to operate illegally, or out-of-band. I would not change a thing in your column."

With all due respect to those "millions of good people" on the exotic outbanding frequencies, it just doesn't seem that there was sufficient support for any basic change in our mainstream coverage here. I hasten to add, that there was, until recently, a rather good little west coast monthly publication that was devoted almost entirely to outbanding, linears, export rigs, and rig modifications. Despite the excellent quality of the publication, its fine staff, and the generous amount of news on these topics it offered, it always had serious financial problems be-



Overseas QSL of the month comes from French Polynesian station BM-77, courtesy of Marshall Cubitt, Smiths Falls, Ontario.

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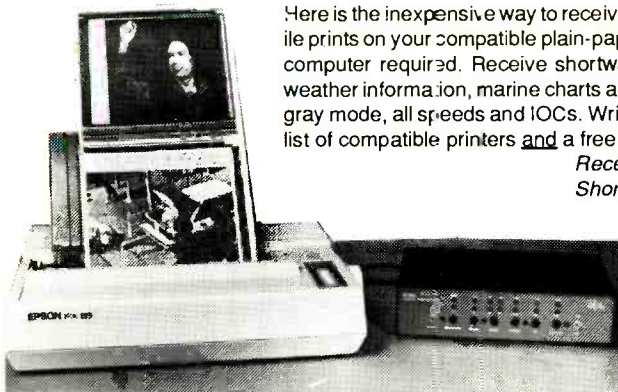
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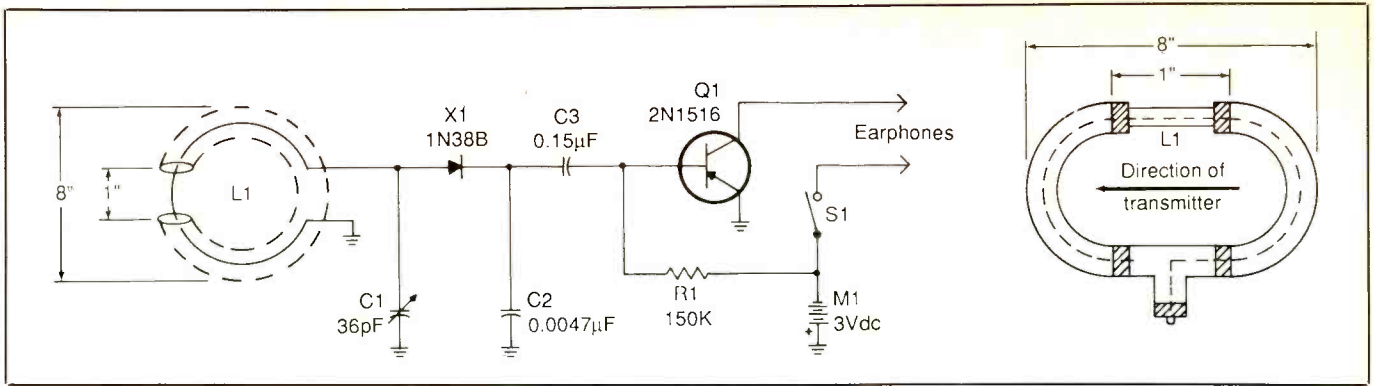
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Schematic of the CB Direction Finder Loop.

Parts List for DF Loop

Item No.	Description
C1	36-pF variable capacitor
C2	.0047-μF capacitor
C3	.15-μF capacitor
L1	See schematic
M1	3-volt battery
Q1	2N1516
R1	150K resistor
S1	Spst switch
X1	1N38B diode

cause of lack of sufficient reader interest and support. This was one of the several reasons it folded a few months ago.

Back To The Mainstream

Until recently, I thought ergonomics was another political buzzword for running up the national debt and making it sound like prosperity. I just found out it means designing things that are user friendly under all conditions, like a glow-in-the-dark Kleenex box you can find in the middle of the night.

Greg Reid writes from San Jose, CA that car stereo makers have for years backlit LCD's, knobs and buttons, and Uniden Bearcat puts backlit displays and knobs on their scanners. So, asks Greg, why don't CB manufacturers realize that displays on their rigs wash out during the day, and the knobs/buttons can't be seen at night? Good question, Greg. Maybe one of the many CB manufacturers who read this column will mention it to a design engineer.

A Browning Golden Eagle Mark IV is the rig of Dan Langston's dreams. Even though this modular AM/SSB base station hasn't been manufactured in many years, it stands out as a shining example of high quality CB equipment. Dan located one of these rare units, but it needs a tune up and Dan hasn't had any luck at all in locating a schematic.

Dan asks three questions. He wants to

know if this rig has any potential as a collectors' item. He wants to know the difference between the Mark IV and Mark IV-A. He wants to know if any of our readers can point him in the direction of (or loan him, or photocopy) a schematic of any of the manuals relating to the Mark IV transmitter and receiver. Contact him at: Daniel A. Langston, 831 Harrington Drive, Milledgeville, GA 31061.

In regards to Dan's first question, a CB equipment collector once told me that he considered the most highly prized collectors' rigs to be the Browning Golden Eagle Mark IV/IV-A, the Stoner PRO-40, and the American Antenna K-40 SSB mobile unit. Save those Brownings, gang!

Finland

A reader in Finland sent us with the first

information we have ever seen on the CB service in that Scandinavian nation. Our reader, Miika Keipi, reports that CB is called *Shortwave Telephone*, and there are almost a quarter of a million licenses. Finland is gradually going into the all-European system of 40-channels, with 4-watts of FM (not AM) mode. Presently, Finland has Channels 1 to 22 (plus Channel 11A) with 5 watts FM and AM. Neighboring Sweden is similar, but has SSB on Channel 23.

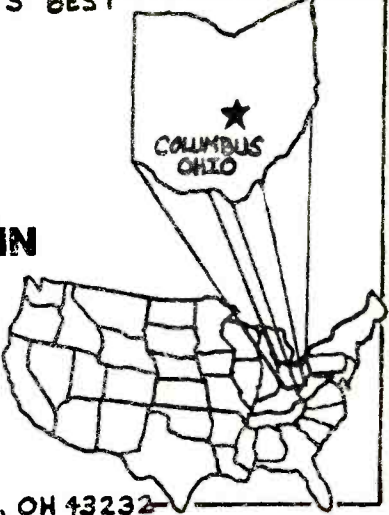
In Finland, Channel 7 is for calling in most areas, with Channels 3 and 9 used in smaller areas. Channel 11A (27.095 MHz) is a maritime distress channel with selective calling. It's also used for radio control. Channel 16 is the maritime calling channel. Truckers are on Channel 10. Local operations are in AM mode, and FM is generally favored for skip work.

"11 METER DX-IN AT ITS BEST"

222

STEVE HALL

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Unit 222 in Ohio tells us to "keep up the good work." Here's Steve's QSL. Too bad we can't show it to you in its original fluorescent yellow!

Not to much in the way of outbanding there, says Miika, but sometimes there is USB activity noted on 27.555 MHz during skip openings.

Miika would probably like to receive some cards and letters from American and Canadian operators. Contact him at: Miika Keipi, 2A, SF-07590 Huuvari, Finland.

The Nome Mobile

Here's a reader problem that stumped us and requires the expertise of someone who normally works with arctic comms systems. Richard Ryan, of Alaska, likes to go cross-country snowmobiling. He feels that if he get a marine CB with a mobile antenna for this installation, he'll have problems recharging the battery and keeping the radio from freezing in the -20 degrees F. temperatures. On the other hand, if he gets a handheld, he's liable to have problems with condensation. If there are any snow-type people who have any answers, please write directly to Richard Ryan, P.O. Box 1589, Nome, AK 99762.

He Made My Day

The Editor of POP'COMM passed along a suggestion from Scott Mickelbank, Box 1128, Salem, NH 03079 who thinks I ought to be fired because I show QSL cards in this column, run photos he doesn't like of people's CB shacks, and tell you about new CB rigs on the market. One CB shack photo we ran in the November issue, "looked like somebody just piled up all of their electronic junk on a table and photographed it," observes Scott.

Just wanted our readers to know that we really have some hairy chested, big-time, ace operators out there monitoring closely to make certain that everybody's CB shack meets with their approval. All of us folks with CB shacks that look like piled up electronic junk are really going to have to watch ourselves with these *real* CB'ers on duty! There's at least one in every crowd!

CB Direction Finder

Over the months we have received several requests from readers for a simple 27 MHz direction finder for rooting out interference, signal chockers, or just having fun experimenting with DF techniques. OK, we have a little diagram for this type of work, in fact, it turns out to be a small project for those who are tinkers.

Heart of the DF system is the eight-inch loop made from RG-58/U or RG-8/U coaxial cable. The loop is directional off each of its sides, and will null out when turned sideways to the signal source. Tune C1 until you hear the signal, then rotate the loop for maximum signal strength.

Acceptable substitutes for the 2N1516 include the 2N1517, 2N3783, 2N3784, GE-1, SK-3007, and TR-62.

Looking forward to hearing from you with your photos, QSL's, and comments.



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

Subject: Comparative Gain Testing of Citizen's Band
Antennas

Ref: Rye Canyon Antenna Lab File #870529

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

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

**58%
MORE
POWER GAIN
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K40**

A complete description of this test is contained in file #870529. Excerpts of this report are enclosed.

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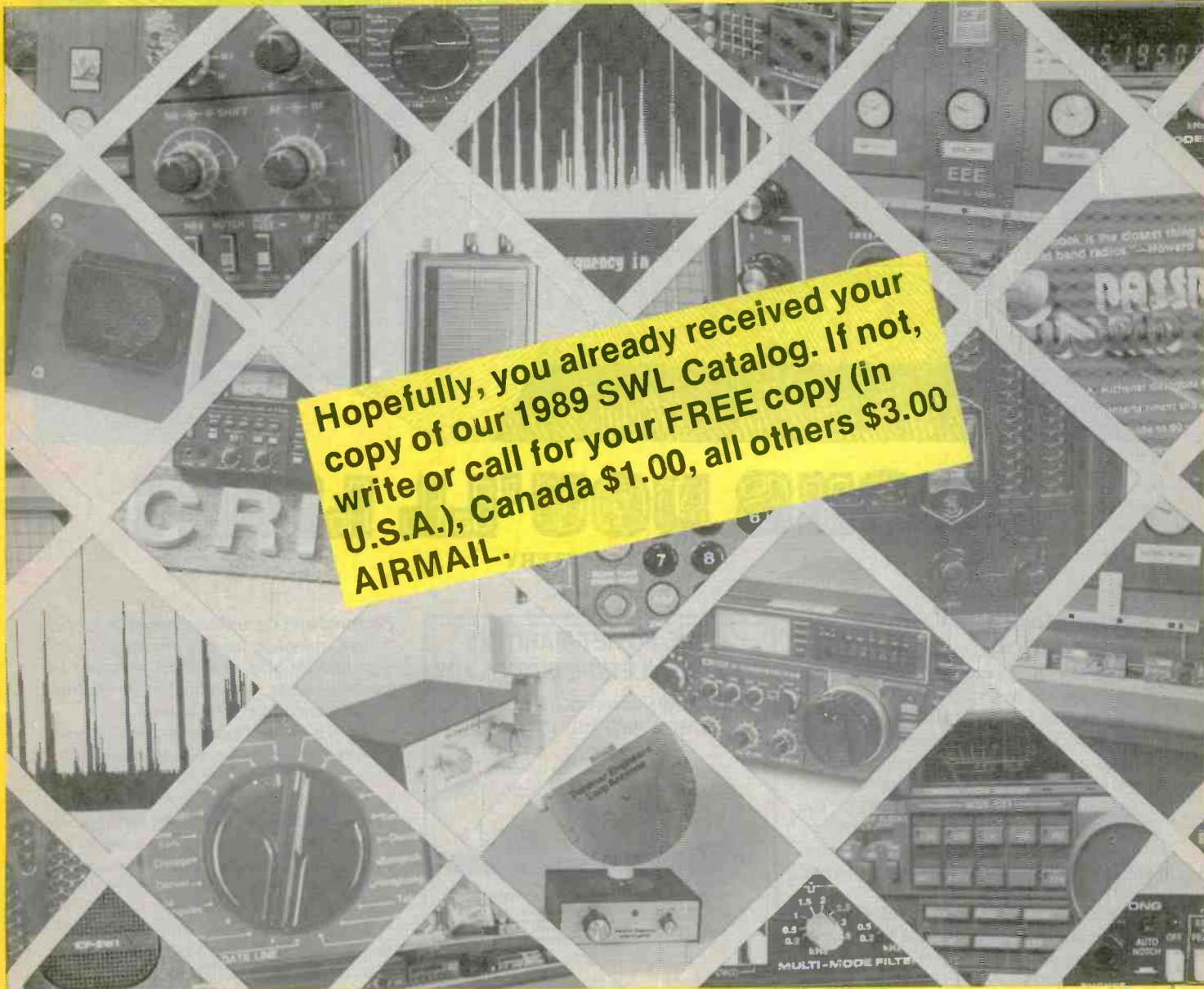
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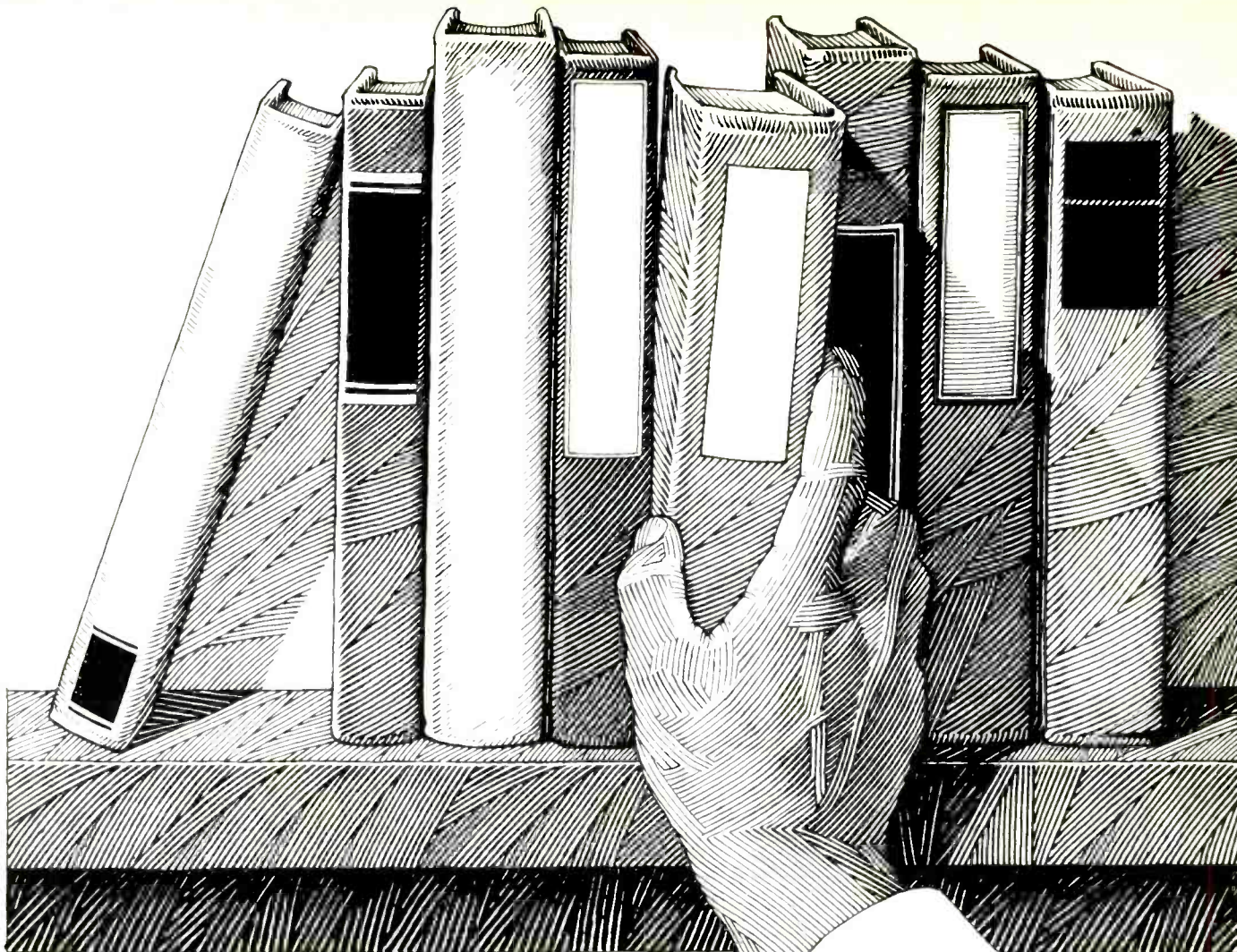
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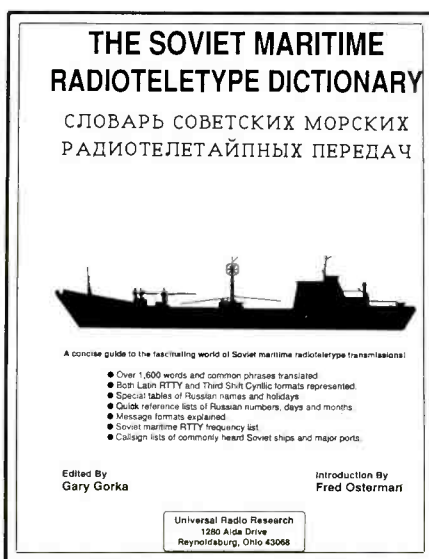
BY R. L. SLATTERY

Soviet Maritime Comms

Any "Ute" DX'er who has tuned across the maritime RTTY bands is aware that the Soviet merchant navy is not only vast, but a major user of RTTY. Ships and shore stations chatter away at all hours exchanging communications that we can copy, but not only in a language that we don't understand, made even more confusing by the fact that the majority of RTTY readers copy only Latin RTTY characters and can't properly deal with the Third Shift Cyrillic format used by the Soviet stations.

What you end up with are words that read out like ZADA4A, TE-A, and many other similar gems. To the rescue comes a new 102-page publication called *The Soviet Maritime Radioteletype Dictionary*, edited by Gary Gorka, with an intro by Fred Osterman. This takes the worry out of being close, but yet so far from telling borscht from blintzes when it comes to Soviet RTTY traffic.

With this book at hand, you'll be able to decode and even understand this Soviet



traffic. More than 1,600 words and common phrases are translated, showing both their Latin RTTY and Cyrillic formats. There are chapters on the various types of

personal and commercial message formats in use, message header information, call sign lists for ship and shore stations, frequency charts, common Soviet idiomatic phrases encountered in telexes, etc.

Then there are listings of popular Soviet names, holidays, and a reference chart showing Russian numbers, days of the week, and months, shown as represented in both Latin RTTY and Cyrillic formats. The book is quite well done and easy to use, moreover, it contains more than enough information to be of considerable use to the RTTY monitoring enthusiast.

The Soviet Maritime Radioteletype Dictionary is \$11.95, plus \$1.00 postage, from Universal Radio, 1280 Aida Drive, Reynoldsburg, Ohio 43068.

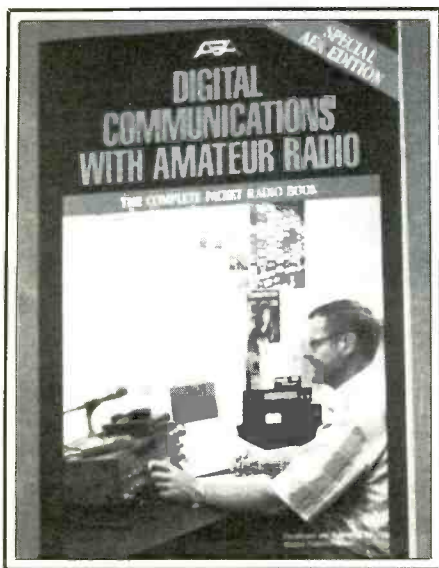
Packet Radio

Packet radio is what it's called when people communicate via shortwave using computers. At this point, it's primarily a mode used within ham radio, but it's growing rapidly in popularity and would probably gain

even more converts if it didn't scare off so many folks who don't quite know what it's all about.

It's not half as complicated or confusing as you probably thought. Packet is explained in a rather straightforward manner in the new book *Digital Communications With Amateur Radio, The Complete Packet radio Book*, with contributions by Mike Forsyth, N7KQE. This is a nicely illustrated (plenty of photos, charts, diagrams) 160-page book that provides a basic understanding of packet radio (as well as some other modes).

In addition to theoretical explanations, the book offers practical examples of computer/radio interfacing. As such, it offers plenty of meaty information for the ham and also the computernik. Those who are both, have the best of two worlds. It's quite interesting to see the ways these two technologies mesh so well with one another in packet communications.

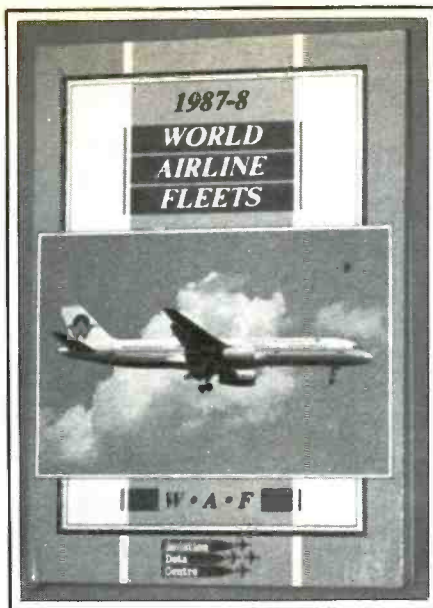


This special edition of *Digital Communications With Amateur Radio* has a foreword by Mike Lamb, President of AEA, a leading manufacturer of packet radio equipment. This book is available through AEA's authorized dealers for \$9.95. More information can be obtained from Advanced Electronic Applications, Inc., P.O. Box C-2160, Lynnwood, WA 98036.

Aero Monitoring Bonanza

The most recent edition of the *World Airline Fleets* directory is dated 1987-88, and is one of the bibles of aero communications enthusiasts, aviation buffs, and world travelers. A fat 344-page book, it covers more than 170 nations of the world, listing airlines, charter services, air taxis, and air cargo carriers. (those that operate only light planes aren't included). Approximately 1,500 companies are shown worldwide, showing airline name, logo, and some general information about the company's history and operations.

For the companies shown, each individual aircraft is listed, showing its tail (registra-



tion) number, make/model, builder's serial number, engine data, lease information, year of build, and any prior registration numbers. About 360 American carriers,

large and small, are covered, and that includes more than 5,000 individual aircraft listings. The Canadian section shows 138 companies and about 1,250 individual aircraft. Some 2,700 aircraft belonging to the Soviet airline, *Aeroflot* are included in the extensive listings.

The book also contains thirty-two full color photos, making it as attractive to look at as it is jam-packed with useful information. In all, it's an extremely comprehensive and highly detailed reference source. They're all here, from gutsy little charter companies that own two aging DC-6's, to the giants like TWA, United, JAL, Alitalia, Lufthansa, British Airways, Air France, American, Northwest, and others. Just looking through it is an education, but if you monitor the HF or VHF aero frequencies, it's a unique guide to the airliners of the world.

World Airline Fleets, by G. G. Endres, is \$23.95, plus \$2 postage/handling to addresses in North America, from CRB Research Books, Inc., P.O. Box 56, Com-mack, NY 11725. NY State residents add sales tax. Be sure to get your copy of CRB's big, new catalog!

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Sub-Audible Tone

There is a reason for that almost inaudible hum that rides along with the signal you are picking up from your local police department, fire department, or paramedics over your scanner. That "hum" is technically called Continuous Tone Coded Squelch System. It's abbreviated CTCSS.

Another name for this tone system is "PL," a trade mark name by Motorola that stands for "Private Line." Other manufacturers call the tone "Channel Guard," "Quiet Channel", and, erroneously, "Clear Channel".

The main purpose of this tone system is to keep the receiver quiet to all other on-channel transmissions except those that are accompanied by the specific tone assigned to your network of stations. There are over 42 individual tones ranging between 67.0 hertz to 254.1 hertz.

The electronics industry of America (EIA) has standardized on these tone frequencies—and a sub-audible tone may either be identified by its actual tone frequency, or by the very common Motorola tone-frequency designator.

For instance, a station transmitting with the 82.5 tone is using a tone designator "YZ". If it's a Motorola set you are looking into, chances are you'll see the tone designator listed right on the actual tone generation element. The new breed of imported radios may specify tone in ascending numbers. With tone 67.0 hertz assigned as #1. It's also interesting to note that some manufacturers of imported radios leave out tone "ZB", 97.4 hertz, which may throw ascending numericals off by one number when comparing a commercial ICOM radio tone #15 to a commercial Yaesu radio.

The sub-audible tone normally occupies no more than 1/2 kHz deviation on a 5 kHz deviation signal. Some of the higher tones you can hear quite well—but some of the lower tones are hardly noticed.

If you're listening to sub-audible tones on your scanner receiver, chances are they are easily detected—and some may even be objectionable. Connecting your scanner to an external speaker with good base response intensifies the sub-audible tone sounds. Try another speaker system with less base response, and chances are the tone won't be as objectionable.

Commercial radio receivers incorporate low frequency filters that eliminate the tone coming out over the speaker system. Some repeaters may also incorporate these filters

to mask the outgoing tone.

Users of a radio system incorporating CTCSS will find their receiver quiet from other traffic on the channel except from those stations employing the same tone frequency. This would allow a local police department that shares the same frequency with outlying distant police departments to only hear calls directed to their own units. However, using a tone system does not, in anyway, guarantee privacy. As you know, anyone with a scanner can hear tone-encoded calls.

A tone coded system also does not guarantee a "clear channel". This is why all radio mobile units incorporate a feature that disables the tone circuit from silencing the receiver as soon as the microphone is off-hook. This allows the radio operator to monitor the channel with open squelch before transmitting. If there is another conversation already in progress, the user waits until the channel is clear before transmitting with their own individual CTCSS tone coded system. Unfortunately, most portable handheld sets have no easy "automatic" tone disabler prior to pushing the mike button.

The tones are now generated much more accurately. In years past, slow reacting reed elements would generate and decode incoming tones—but they were subject to falsing every time you ran over the railroad tracks. New systems now incorporate all solid state tone elements, and the elements are now PLL controlled for up to 50 variations of EIA tones. These encode and decode elements are now no larger than a postage stamp—so a tone coded squelch system is no big deal to add to any type of transceiver.

Tone decoders are also available for programmable scanners. It's interesting that no programmable scanner manufacturer incorporates tone decode as a standard feature in these sets—it wouldn't cost that much. Nonetheless, it's something that must be added near the audio output section of your scanner radio in order to screen incoming radio calls and automatically pass only those of a specific tone group. For more information about tone decoders for your scanner receiver, write Communications Specialists, Inc., 426 W. Taft Avenue, Orange, California 92665-4296; 714/998-3021.

Another type of tone system, predominantly used by Motorola, is called "Digital Tone", (DPL) and it may not be decoded or encoded by conventional sub-audible tone

EIA Standard Subaudible Tone Frequencies

Code†	Freq. (Hz)	Code†	Freq. (Hz)
XZ	67.0	4Z	136.5
WZ	69.3	4A	141.3
XA	71.9	4B	146.2
WA	74.4	5Z	151.4
XB	77.0	5A	156.7
WB	79.7	5B	162.2
YZ	82.5	6Z	167.9
YA	85.4	6A	173.8
YB	88.5	6B	179.9
ZZ	91.5	7Z	186.2
ZA	94.8	7A	192.8
ZB	97.4	8Z	206.5
1Z	100.0	9Z	229.1
1A	103.5	M1	203.5
1B	107.2	M2	210.7
2Z	110.9	M3	218.1
2A	114.8	M4	225.7
2B	118.8	M5	233.6
3Z	123.0	M6	241.8
3A	127.3	M7	250.3
3B	131.8	OZ	254.1

†Motorola designator

systems. Digital tones contain a 21-bit character string automatically sent at the beginning and end of every transmission that opens and closes the audio section of companion transceivers. There are literally thousands of tonal combinations, so the chance of ending up with someone else's same digital tone squelch numbers is unlikely.

Digital tone also makes it harder for the radio "pirate" to get in to police repeaters or to communicate illegally with other stations on the system. Any system using plain old sub-audible tone is open for almost anyone with modestly priced equipment getting into their system and disrupting communications.

At your communications command post, you should have tone capabilities available on your programmable transceivers in order to meet emergency communication requirements with other agencies. Find out what their tone frequencies are ahead of time, and seek permission to use the specific tone on their channel in an emergency.

For general scanner monitoring, consider a sub-audible tone decoder to minimize annoying interference from other stations assigned to the same channel as the desired station you are wishing to tune in. Your decoder will keep everything nice and "quiet channel" until the service you want comes on the air.

PC

BROADCAST DX'ING

BY KARL ZUK

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

Could it have been Santa Claus transmitting backwards? OH OH OH OH OH BEST OF DX TO ODXA TIE came across my receiver in Morse code on 1620 kHz at around two in the morning, Eastern local time, and I'd love to know what it was! Was it a beacon doing a DX test, a pirate, or some other kind of broadcast? I'd love to know, so if you know, let me know, and I'll put it in a new section of this column called "My Best Catch." No, we are not covering the DX scene for those waiting for a bass. We are looking for your best DX catches, and how you got them. Are you interested in a particular station, club, or need the address of a station and a name you can send that QSL request to? Do you have some information of interest, a request, a comment, logos and bumperstickers you'd like to share, or a picture of your last DXpedition? Send them along to me at POP'COMM, and look for them in the future on these pages! We would love to hear from you!

POWER-side

Our hobby is being continually updated with new technology. Dream receivers are filled with new filters, exalted-sideband detectors, digital memories and such. Leonard Kahn, of Kahn AM Stereo fame, has invented a new kind of modulation technique called POWER-side. We all understand what regular AM and single-sideband transmission modes are about. AM has a carrier and two sidebands: a lower and upper one. Single sideband has a carrier and two sidebands: a lower and upper one. Single sideband has a carrier and one single sideband. POWER-side is a cross breed of the two. It provides a broadcaster with some of the advantages of SSB, less interference and greater range, with a compatible system for a normal AM receiver. It also helps in situations where a station is close to another station on the dial, and one would like to minimize interference from the other. By putting most of the modulation of the station into the sideband that is furthest from the interfering station, hopefully the signal will arrive cleaner at your set.

Many stations are using this interesting modulation around the country. Take a look at the list of current POWER-side stations and see if you think if they sound stronger and cleaner than all the others. Mr. Kahn also theorizes that someday AM radio will be all single-sideband, just like amateur radio has become, and we will all be using extremely frequency-accurate receivers to eliminate BFOs and pitch controls found on today's SSB receivers.



NEWS

For fifty years, news and information programming has been a way of life at WMGA. WMGA's fulltime local news department is a consistent award winner dedicated to community involvement. With walkie talkie units, police and fire monitors, portable recorders and editing equipment, WMGA gets the NEWS WORD on the air quickly, thoroughly and accurately. WMGA's news sources include law enforcement offices, city and county commissions, school boards, chambers of commerce, economic development organizations, civic groups, National Weather Service and our own listeners.

WMGA's local news coverage is complimented with a complete schedule of programming from the CBS Radio Network. CBS, acknowledged as the best news organization in the industry, has a long-standing reputation for credibility and integrity. CBS News Correspondents Charles Osgood, Dan Rather, Douglas Edwards, Mike Wallace, Charles Kuralt, Harry Pearson and Bill Lynch are among those who are recognized on television and radio as the best in the business.

Expanded 10 minute local newscasts are aired at 7:30 a.m., 12:30 p.m. and 5:30 p.m. Monday thru Saturday. Updates are aired each hour Monday thru Friday. CBS News is carried at the top of the hour throughout the broadcast day.

When it comes to news... WMGA comes through every time.

CBS RADIO
AFFILIATE



tached, clipped onto various points of the coil to find the right spot for a particular frequency.

The higher up on the coil, the lower the frequency. I tried it on my communications receiver with great results too. This really takes very little technical knowledge or effort and makes a big difference in your pick up. You are electronically teasing your antenna to believe it is much, much longer, and tuned to the AM frequency you want. You can use a used oatmeal carton or anything non-conductive and tubular as a form for your coil. Tin cans, and believe it or not, colored or black PVC pipe are conductive and will ruin the effects of the coil. Last month I mentioned an easy update for the classic Realistic DX-160 receiver. By replacing C16 and C19, two small .04uf ceramic capacitors with crystal filters such as a Murata BFB455D or a Vernitron TF-01A, you will make your set much more selective and useful. A little careful soldering will go a long way. And if you have a tip, let us know and we'll make you a star!

Knowledge Is Power

Just think how many stations you could pick up if you had hundreds of people looking for them for you. If you think you need millions to hire a staff like this, you don't. All you need to do is join a DX club. This month I will cover "The Big Three" of AM, FM, and TV DX. The International Radio Club of America, P.O. Box 21074, Seattle, WA

DX Tips

Here's a couple of simple tricks that may improve your reception and your log book totals: Try a loading coil! Someone recently gave me an old Heatkit CR-1 crystal radio, produced as a battery-free radio for use in bomb shelters back around 1960. Along with being an interesting piece of gear, it brought to mind an old trick. I took a piece of white PVC pipe and wrapped some thin insulated wire around it, and bared the insulation every five turns or so to create places I could pinch on an alligator clip. I connected the bottom of the coil to the receiver, and the antenna wire, with alligator clip at-

Station Update

Call	Location	Freq.	Power	Ant.	Status
KNGS	Templeton, CA	1060	1 kW D	ND	new
KNNX	West Klamath Falls, OR	1070	10 kW D 2.5 kW N	DA-N	was KWSA
KFKF	Klamath Falls, OR	1340	1 kW D + N	ND	was KJLU
KKFO	Coalinga, CA	1470	1 kW D 250N	ND	
KOTR	Cambria, CA	94.9	25 kW	300 ft.	
KNGS	Coalinga-Fresno, CA	100.1	38 kW	600 ft.	
KKFO	Altamont-Klamath Falls, OR	107.9	100 kW	975 ft.	was KPMA
WMYJ	Erie, PA	97.9	3 kW		new

Courtesy of Mike McKenna and Ernest P. Maletto.

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

98111, is the largest only AM radio club. Since 1964, this group has grown to over 300 members who share the common bond of DXing AM radio. Their newsletter, DX Monitor, is published 34 times a year, and is filled with information about station changes, DX tips, news clippings, letters from mem-

bers, and receiver reviews and technical projects. They also print a comprehensive guide, the IRCA Almanac, that includes lists of stations in networks, formats of various syndicated programs and where they can be heard, sports networks, station slogans and other listening topics. It is a great resource

for trying to ID the station you could just barely pull through. If you are technically inclined, or looking for easy ways to update your receiver, or find a new one, IRCA's DX'ers Technical Guide is for you. It has many receiver reviews and lots of construction projects.

The granddaddy of broadcast DX clubs, The National Radio Club, P.O. Box 118, Poquonock, CT 06064, has recently added a little FM DX'ing to its long standing AMDX offerings.

If you think a picture is worth a thousand words, or you want to DX more than just AM, The Worldwide TV-FM DX Association, P.O. Box 514, Buffalo, New York 14205-0514, is for you. They publish their monthly bulletin, VHF-UHF Digest, and a very accurate and comprehensive listing, The WTFDA North American Television Data Base, and companion list for low-power and translator stations. Their amazing FCC FM News bulletin column is edited by Bruce F. Elving.

All of these clubs, and their membership, put incredible amounts of volunteer time and effort into producing these very useful information sources, and they're yours for small membership fees.

WORLDWIDE TV-FM DX ASSOCIATION

SERVING THE
VHF-UHF DX
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Call Letter Changes

Location	Frequency	Old	New				
Atmore, AL	104.1	WIZD-fm	WGXC	Liberty, MO	106.5	KLTY	KXXR
Talladega, AL	92.7	WOXR	WEYY	Sparta, MO	96.5	KJLR	KLTQ
Payson, AZ	101.1	KFSZ	KRMM	Newport, NH	101.7	WXXX-fm	WNTK
Huntsville, AR	95.9	KRRA	KFAY-fm	Rio Rancho, NM	101.7	KZIB	KZIA-fm
Little Rock, AR	98.5	KZOU	KZOU-fm	New York, NY	101.9	WPIX	WQCD
Prunedale, CA	89.7	KCLM	KLVM	Williamston, NC	103.7	WKKE	WHITE
Santa Rosa, CA	91.9	KCLB	KLVR	Fairfield, OH	94.9	WLLT	WOFX
Widefield, CO	106.3	KKQX	KKLI	Johnstown, OH	103.1	WXLE	WEZS
Fort Meyers, FL	95.3	WSOR	WFJY	Medina, OH	94.9	WDBN	WQMX
Immokalee, FL	98.3	WIKX	WCOO	Comanche, OK	96.7	KHME	KDDQ
Kankakee, IL	89.7	WKOC	WONU	Carbondale, PA	94.3	WLSP	WSGD
Danville, IN	107.1	WGRT-fm	WSYW	Harrisburg, PA	94.9	WMSP	WHKS
Spencer, IN	92.7	WLSO	WSKT	McKinney, TX	95.3	KWPL	KSSA-fm
Pella, IA	103.3	KFMD	KDMG	Provo, UT	96.1	KFMY	KZOL
Goodland, KS	107.7	KGCC	KGCR	Big Stone Gap, VA			
Shreveport, LA	100.1	KCOZ	KMJJ-fm	VA	93.5	WLSD	WAXM
Saginaw, MI	107.1	WWWS	WTLZ	Richmond, VA	103.7	WEZS	WMXB
Eupora, MS	101.7	WEXA	WLZA	Superior, WI	91.3	WSSU	KUWS
Greenwood, MS	99.1	WSWG-fm	WYMX				
Buffalo, MO	99.9	KBFL	KSDI				

Courtesy WTFDA

98.1 OR 99.5

KRXXV FM Takes the drag out of the drive

Station Profiles

In this section of the column we will be looking at a couple of different stations each month. We heard from 24 year old General Manager, Art Sutton, of WMGA, Moultrie, Georgia. WMGA is currently trying to move from 1130 kHz, 10 kW days non-directional, 250 watts directional nights, to 580 kHz, 900 watts days, 500 watts critical hours, and 250 watts at night. Their city of license would change to Riverside, Georgia, and they would be using only two of the four towers now in use to gain their necessary directional pattern. By taking advantage of

low end of the band ground wave, they will maintain their coverage area in the daytime and increase it at night, and pending FCC approval, should be an interesting new DX catch. Look for their hourly CBS network newscasts and CBS features, and their coverage of Atlanta Braves baseball and Florida State University and Valdosta State College football. They also have extensive farm coverage for an hour at 6 AM and Noon and feature an adult contemporary music format throughout the day. This will be their third frequency change since they signed on in 1939.

Robert Margolis sent us an article about a man who wanted to transmit into a desert, and succeeded! With a transmitting facility on top of 5,495 foot tall Calico Peak, he established KRXXV, 98.1 FM Yermo, CA, and KXVR, 99.5 FM in Mountain Pass, CA. He broadcasts to a lot more than cactus, though. He has a near-monopoly with listeners who make the long deserted drive between Los Angeles and Las Vegas along Interstate 15.

His name is Howard Anderson, and his dream came true. He estimates that he has about 81% of the audience in this area, and the stations are so important to area, the State of California has put up official signs requesting travelers to listen to KRXXV and KXVR for highway and weather information. How's that for support? He started it all in 1978 with \$1.5 million dollars and a studio in a mobile home. He has a real studio, now, and a big smile on his face. Listen for their soft rock and country sounds when you are passing through.

This column wants to hear from you. Send in your longwave and mediumwave DX loggings, TV/FM loggings, veri signers, station photos, shack photos, station logos and bumperstickers, news items, and anything else that relates to LW/MW/FM/TV broadcasting. Send to: Broadcast DX'ing, c/o Popular Communications Magazine, 76 North Broadway, Hicksville, NY 11801. Let's hear from you soon.

POWER-side stations

WBSM 1420 New Bedford, MA
 WEBR 970 Buffalo, NY
 WSYR 570 Syracuse, NY
 WELI 960 New Haven, CT
 WMCA 570 New York, NY
 WWRL 1600 New York, NY
 WTHE 1520 Mineola, NY
 WMTR 1250 Morristown, NJ
 WHWH 1350 Princeton, NJ
 KYOK 1590 Houston, TX
 KTSA 550 San Antonio, TX
 KTOK 1000 Oklahoma City, OK
 KSL 1160 Salt Lake City, UT
 KMNY 1600 Los Angeles, CA
 KEST 1450 San Francisco, CA
 WLEO 1170 Ponce, Puerto Rico

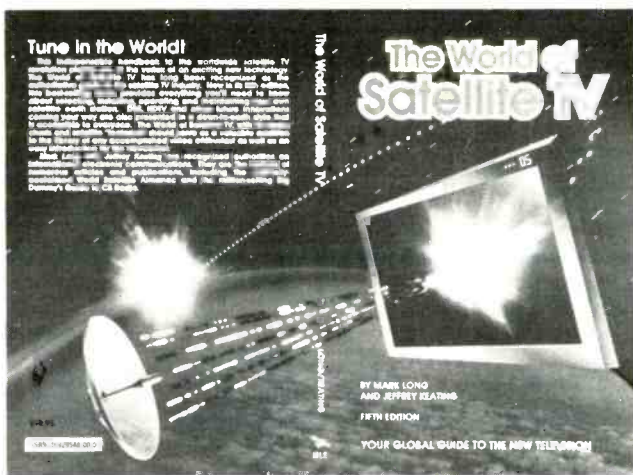


USE
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Co-authored by former POPCOM editors Mark Long and Jeffrey Keating, this perennial best seller places you at the vortex of the worldwide satellite TV revolution. It provides everything you need to know about selecting, installing, operating and maintaining the latest satellite TV systems and accessories. **THE WORLD OF SATELLITE TV**, with its many satellite TV program grids, wall charts, technical graphs and "footprint" maps, can serve as a valuable reference for both the casual viewer and the dedicated video enthusiast.

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CIRCLE 68 ON READER SERVICE CARD

PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS



Another West Upgrade Course

Gordon West announced two more additions to the Radio School \$19.95 series of amateur radio upgrade courses.

General class FCC license preparation course features Gordon West's new fully illustrated General class textbook plus two long-play code speedbuilding cassette tapes.

"My new General class textbook covers Element 3B and the exact 284 questions, answers, and explanations. My book is full of exciting charts, diagrams, and reference lists. I also include a chapter on preparing for the actual exam plus an additional chapter on preparing for the code test," comments Gordon West, WB6NOA, well-known writer and instructor.

The two code tapes feature speedbuilding exercises with random text fully narrated by West.

"I realize it's next to impossible to build speed from 5 wpm to 13 wpm on just two long-play code cassettes. However, my motivational cassettes show the shortcuts on speedbuilding techniques, and with some outside code practice and on-the-air monitoring, these cassettes prepare applicants for the General class code test nicely," adds West.

Like his other \$19.95 courses, the General class FCC license preparation course includes the vinyl tape and book holder, radio rebate certificates worth \$75.00, FCC Form 610, a QSL card kit, practice written exams, practice code exams, full color frequency chart, color world map, license holder, and an upgrade welcome letter from the American Radio Relay League.

The visually handicapped may order this

course with two long-play theory cassettes exchanged in place of the theory book.

"Our \$19.95 theory and code courses are a successful indication that every ham wants to upgrade. Our students first start with the "21 Day Novice" code and theory course, and then they go to our "2-Week Technician" theory course, and now we offer our new "General Code and Theory Course" for their worldwide license upgrade," adds West.

These courses plus other Radio School code and theory products may be seen at popular amateur radio dealers, or may be ordered directly from Gordon West Radio School, 2414 College Drive, Costa Mesa, CA 92626. Add \$2.50 for mailing.



Antenna Tuner with Peak and SWR/Wattmeter

MFJ Enterprises, Inc. announces the release of the new 3 kW Roller Inductor Differential-T Antenna Tuner—a uniquely designed T-network tuner that uses a single differential capacitor in place of two variable capacitors. It covers 1.8 to 30 Mhz continuously, including MARS and all the WARC bands.

The differential capacitor makes tuning foolproof and easier than ever because you get minimum SWR at only one setting and you have only two controls to adjust. It also gives you a broadband response that eliminates constant retuning.

The Roller Inductor lets you get your SWR down to absolute minimum—something a tapped inductor tuner just can't do.

A three-digits turns counter plus spinner knob gives you the precise inductance control you need to instantly return to your favorite frequency.

The compact 10 $\frac{3}{4}$ " x 4 $\frac{1}{2}$ " x 15" black aluminum cabinet has plenty of room to mount the silver plated roller inductor away from metal surfaces for highest Q and maximum power into your antenna.

A lighted two-color peak and average reading Cross-Needle SWR/Wattmeter lets you read forward and reflected power and SWR at a glance. Plus it has a new direction-

al coupler that gives you more accurate SWR and power readings over a wider frequency range.

A six-position antenna switch lets you select two coax lines and/or random wires (direct or through tuner), balanced line and external dummy load.

A new current balun for balanced lines reduces feedline radiation that causes RF in your shack, field pattern distortion and TVI. Ceramic feedthru insulators for balanced lines withstand high voltages and temperatures.

The new MFJ-986 3 kW Roller Inductor Differential-T Antenna Tuner comes with MFJ's one year unconditional guarantee. That means MFJ will repair or replace your MFJ Tuner (at MFJ's option) no matter what for a full year.

For more information or your nearest MFJ dealer contact MFJ Enterprises, Inc. at (601) 323-5869, or write MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762, or order toll free at 800-647-1800. You can also get more information by circling 103 on our Readers' Service.

New Amateur Transmitter-Receiver

Radio Shack® introduced its new Realistic® HTX-100 SSB/CW Mobile Transceiver. Operating on the "10-meter" amateur frequency band, the HTX-100 will allow literally world-wide communications from home stations or automobile installations. This technologically advanced transceiver is the ideal choice for beginning hams and a perfect addition to an established amateur radio operator's equipment.

The HTX-100 features coverage of 28.0 to 29.6999 MHz, SSB or CW modes with convenient built-in sidetone and semi break-in keying. Pushbutton frequency controls on the microphone allows safe and easy QSY while mobiling. 10 Memory Channels make it easy to switch to your favorite frequencies and a front-panel Frequency-Lock Switch prevents accidental frequency changes. The RIT Control permits you to fine tune the receiver and the High/Low Power control lets you switch between 25 watts or 5 watts of output power.

This transceiver also has an easy-to-see backlit LCD frequency display, 3-watt audio output, built-in speaker and rear panel jack for adding an external speaker. Mobil mounting bracket and DC cord are included. The HTX-100 retails for \$259.95 and is available nationally at over 7,000 Radio Shacks and participating dealers.

For more information, visit your nearest Radio Shack store.

SCANNER SCENE

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

Now that spring is rapidly approaching, it's time to start thinking about getting up on the ladder and checking those scanner antennas on the roof. Make sure winter winds haven't loosened the antennas or masts from their supports, make sure any guy wires still are tight and above all, make sure all coaxial connectors are protected from the elements and haven't become loosened. A half-hour on the roof now will mean more hours of listening pleasure throughout the warmer months this year. While you're checking your PL-259's and N connectors, I'll check the Scanner Scene mailbox:

From a reader in Vass, North Carolina, who prefers to remain nameless comes the following frequencies. Fort Bragg military police are using 173.4875 with Digital Voice Protection only part time now. They formerly used DVP full time on that frequency. Security police at Pope Air Force Base are reported to be using 163.4875 with DVP, also. Central Electric Membership Corp. in Sanford, N.C., uses 48.26 for meter tampering investigations. Interestingly, our reader also reports that VHF marine channels 60 to 64 are used by truckers and recreational vehicles traveling highways such as Route 1 and Interstate 95 in his area. Marine Channels 60 to 64 are not authorized for use in the United States, let alone in motor vehicles. These 156-MHz channels are used on an international basis, but their use in the United States causes potential interference to users on those frequencies and adjacent authorized frequencies. Some marine radios are capable of operating on these international channels without any modifications. The FCC, however, is taking a look at cracking down on marine band radios that can operate on unauthorized VHF frequencies.

David J. Wise of New Orleans, Louisiana, checks in to say that he has a Radio Shack Realistic PRO-2004 scanner that he modified according to a recent article here in POP'COMM. He has a pair of speakers salvaged from a portable stereo and tied together with a "Y" splitter. He says he's using the Radio Shack Realistic CTR-75 VOX tape recorder to catch scanner action when he's away from the radio. He says that he's seen ads for tape recorders that can log up to 12 hours recording time on one C-120 cassette tape. He wonders whether there is a modification that can be done on regular cassette recorders to get this long-play feature. That's really beyond the scope of this column, David. Quite honestly, if I recorded 12 hours of scanner action, I'd be hard-pressed to find a full half-day to listen to the playback. For most listeners, a VOX setup



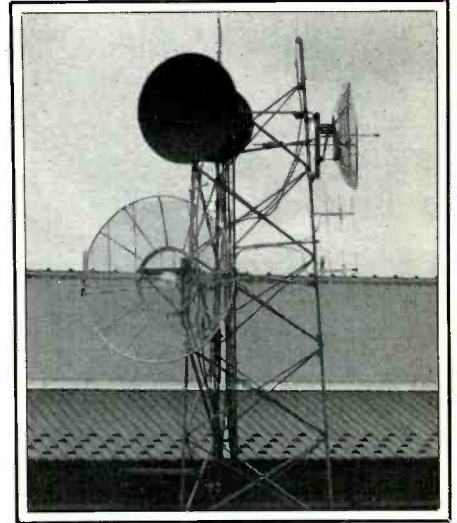
The U.S. Forest Service Rocky Mountain Region Aviation and Fire Service Center dispatches a five-state region from this building at the Jefferson County Airport north of Denver.

works best. I was recording a specific station myself with a VOX setup connected to my scanner and after about a week, I found that I just didn't have the time to listen to the playback. While I realize many have more time on their hands, you might want to check out some of the long-play recorders advertised in some of the radio publications. A 12-hour tape sure could hold quite a few 10-4's!

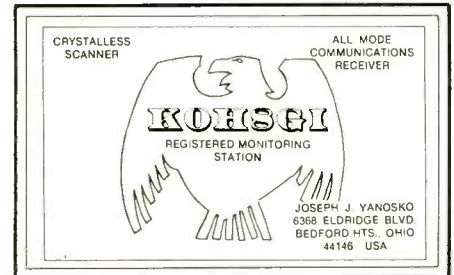
Tom Barton of New York City wonders whether we've heard of any out-of-band programming tricks for the Regency MX4200 to allow monitoring of the 225-400 MHz band. No we haven't. In fact, most out-of-band programming tricks only allow reception of adjacent frequencies, never a whole band fully removed from any other band in a given radio. For instance, out-of-band tricks might allow reception of the 50-54 MHz 6-meter ham band on radios that already receive 30-50 MHz.

The only advice I can offer to anyone who desires to monitor a specific band not included within the range of their present radio is to either buy a new scanner that can receive the desired band, or check out an external converter that can receive the desired bands. However, converters sometimes are liable to receive undesired signals, thus a radio that can tune in the desired band is much more preferable.

Harry H. Abery Jr. of Hartford, Connecticut, says he recently visited St. Croix in the U.S. Virgin Islands and was wondering what frequencies might be used by fire, police, EMS and governmental services in the territory. He said he plans to take along his Regency HX1500 handheld the next time. Hey, it's a part of the United States, right? Why not? We dug through our files and came up with a list that should be of some help. First, there is virtually no VHF low



This close-up view of the Forest Service dispatch center's tower shows the communications, microwave and link antennas. Photos by Patrick M. Griffith.



The station card of Registered Monitor KOH8GI in Ohio.

band activity that we know of on the islands. Most activity is centered on VHF high band and UHF. You also might find some 800 MHz trunked activity on the island as well.

There are two frequencies that you need to listen to throughout the U.S. Virgin Islands for fire: 158.955 for dispatch and operations (this repeats 154.010), and 153.890, which is used for fireground operations. For emergency medical services, check out the routine med channels 1-10, 462.950 to 463.175. For water utilities, listen to 153.425 and 153.515 throughout the islands. In addition, 158.235 is used for water utilities in Christiansted. Police in the U.S. Virgin Islands are authorized to use several frequencies, including: 154.650, 155.130, 155.130, 155.490 (mobile only), 155.535, 155.655 (mobile only), 156.150, 156.210, 158.730, 158.790, 158.910, 159.030

(repeater output), 159.090, 159.150, 159.210, 451.125 and 451.525.

Government operations in the Virgin Islands uses any of the following frequencies: 37.10, 153.755, 153.785, 154.025, 154.055, 154.980, 155.115, 156.015 (mobiles only), 158.745 (repeater output, prisons), 158.775, 158.805 (repeater output), 158.835 (port and airport operations), 158.865 (repeater output), 158.880, 158.895 (repeater output), 158.925, 158.940 (repeater output), 452.975 and 453.000.

If you get back to the islands, Harry, let us know what you hear. Some frequency allocations in the Virgin Islands and Puerto Rico may be a bit different than here in the continental United States, especially business band, which is allowed to use 150.800 to 151.490 (automobile emergency, forestry and special industrial in the continental United States); the special industrial radio service, which is allowed to use 159.240 to 159.435 as well as 160.410 to 160.620; and remote broadcast pickup for TV and radio stations, which can use 160.860 to 161.400, which is shared with land transportation services.

Don Hallenbeck of Pittsfield, Maine, says that he has been copying a skip station on 33.94. He said he had heard call signs of KKZ332, KKQ846, KKZ846 and KAQ846. I couldn't find anything in my files for the last two call signs, but the first call sign is issued to the fire department in Westwego, Louisiana. The second call sign is issued to the Marrero Harvey Volunteer Fire Co. in Marrero, Louisiana. Apparently this is a mutual aid channel used by fire departments in Jefferson Parish, Louisiana. Don says he was in the office of the local newspaper and also heard the station on their scanner on 33.70, which would make sense because that is the fire dispatch channel for Jefferson Parish. Don is hearing these stations on his Bearcat 220 with only the telescoping antenna that came on the back of the radio. It just goes to prove that fancy radios and antennas aren't needed to snag a few rare DX catches on the VHF low band. Don says that the frequency of 154.310 is used statewide by fire departments in Maine.

Don also wanted to know the citywide dispatch frequency for the New York City Fire Department in case he might be able to hear it sometime at his listening post. Well, Don, if you get a good inversion up the coast some evening, check the following frequencies for the FDNY (there is no citywide dispatch channel; each borough has its own frequency): 154.190, Staten Island and The Bronx; 154.250, Manhattan; 154.370, Brooklyn; 154.400, Queens; and 154.430, citywide operations and fire boats.

Rick Barasch of Santa Ana, California, says the fire departments in Orange County, California, are changing over to 800 MHz. Unfortunately, he has a Bearcat 210 scanner that cannot tune in this band. He said he was told of a converter that can tune in the 800 MHz band with his existing scan-

ner. Rick, check with POP'COMM advertisers because several carry an 800 MHz converter that should suit your listening interests. However, when the converter is in use, you will be able to monitor only 800 MHz frequencies and not normal frequencies programmed into your radio. The converter installs between the radio and your antenna and down converts the 800 MHz frequen-

cies to UHF frequencies that your radio is capable of tuning in.

We'd like to hear from you here at Scanner Scene. Send your questions, comments, frequencies, listening tips, radio modifications, and especially photographs to: Chuck Gysi, N2DUP, Scanner Scene, Popular Communications, 76 North Broadway, Hicksville, N.Y. 11801-2909. **PC**

Feeling Left Out?



Super Converter™ 8001

Have your favorite communications (Police, Fire, etc) moved to the 800 MHz band? Are the scanners available which access this band too expensive? If you are like many scanning enthusiasts, this can be a real dilemma.

*Introducing the **Super Converter™ 8001** from **GRE America, Inc.** The **Super Converter™ 8001** once attached allows any UHF scanning or monitoring receiver to receive the 810 to 912 MHz band.*

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CIRCLE 174 ON READER SERVICE CARD

ANTENNAS AND SIGNAL IMPROVING ACCESSORIES

DX'ing The High-Frequency SWB Bands Indoors

Signal levels on the 13, 16, 19, 21 and 25 meter bands will peak over the next several years. More stations and higher signal levels are a sure thing. On these high-frequency bands resonant antennas are of shorter length as compared to low bands. This is a boon to indoor installations. Maybe there will be some activity on 11 meters because propagation is sure to improve.

A quarter-wavelength piece of wire on 25 meters, the lowest frequency of the group, is about 24 foot. It has to be a small room that cannot accommodate this short length. Stretch it out as best you can. It is good if you can route it across the top, or encircle a window area. Use vinyl hook-up wire for your antenna. A gauge size as small as #20 or #22 is fine. Such is flexible and easily hidden away. A quarter-wavelength antenna has a high impedance at its far end and a low impedance where it connects to the receiver low-impedance input. Connect a banana plug to the receiver end of the wire and insert it into the inner conductor of the coaxial input receptacle of the receiver. When comparing antennas, it affords a quick way of making change-overs if each wire has a banana plug attached to its receiver end. Table 1 gives the length of a quarter-wave wire on each of the bands.

I use a 3-position coaxial switch, Fig. 1, that permits a rapid comparison among three antennas when necessary, especially if I am comparing two antennas against a reference. Usually, though, you are making a fast one-on-one check and only two inputs are needed. In this case, you need only a two-position coaxial switch.

A coaxial T-connector can also be used in making comparisons. Fig. 2. Attach it to the coaxial antenna receptacle of the receiver. You can use either input and arrange to change over quickly between two antennas. Also, by plugging one antenna into one side and a second into the other, you can use the pick-up from both antennas. This can produce the same, or a high or lower signal than on either one of the wires alone depending upon the band used, direction of signal arrival and physical location of the antenna wires. It gives you some choice in finding the most suitable signal level and signal-to-noise ratio.

We'll have to do some Window calculations and go through a set of tests for use in the column. A T-connector is an easy way to do it. There is also the possibility of attaching small loading coils at certain positions along the antenna wires to obtain bet-

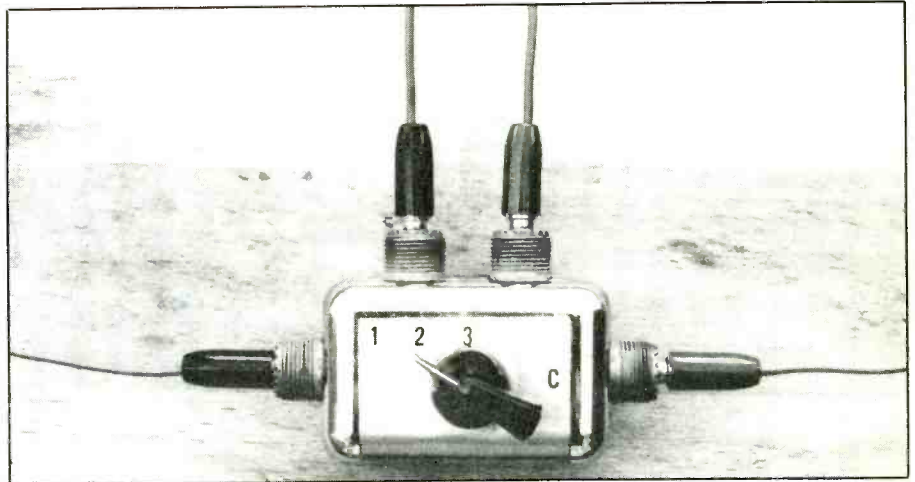


Fig. 1. Here is a switching plan to compare single wire antennas using coaxial switch inner conductors.

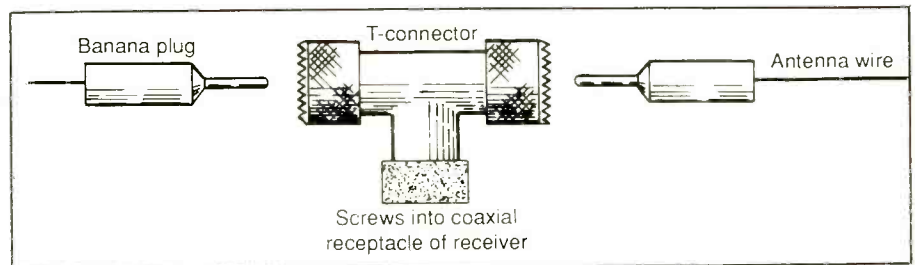


Fig. 2. Use of T-connector to check one of two indoor wires or both together.

Band	11	13	16	19	21	25	31
$\lambda/4$ Length Wire	9'1"	10'10"	13'3'	15'3"	17'	19'10"	24'1"

Table 1. Dimensions for $\lambda/4$ indoor antenna wires.

ter results on the lower frequency SWB bands as well as into the MW broadcast spectrum.

In our first test we cut the quarter-wavelength wires for 31 and 19 meters. It was convenient to run the 19M (15', 3") wire directly from one input of the coaxial switch to the curtain rod above a 6-foot long window. It was permitted to droop down along the window about 1 foot at the center. Fig. 3. The far end of the wire dropped to near carpet level behind furniture. The 25M (24', 1") wire, connected to the other input of the switch, was dropped directly to carpet level and was taped along the baseboard, through the door and along the baseboard of the opposite side of the wall.

Results are given in Table 2. The 19M

short wire dominated on bands 16, 19 and 21; long wire, on 25. Performance varied on 13 and 31 meters and differed among the stations received. The results may not be the same with your installation because of the variables at your site. However, the two-wire plan gives you a choice in picking the better signal for each received SWB station.

On 11 meters there were no receivable SWB stations. However, a UTE station was operating and indicated that the long wire produced a stronger signal than the short one. It is a shame there is no activity on this band. It would be an excellent one for short-wave broadcasters to try out single sideband operation. Radio hams around the world could make good use of this unused slice of radio spectrum.

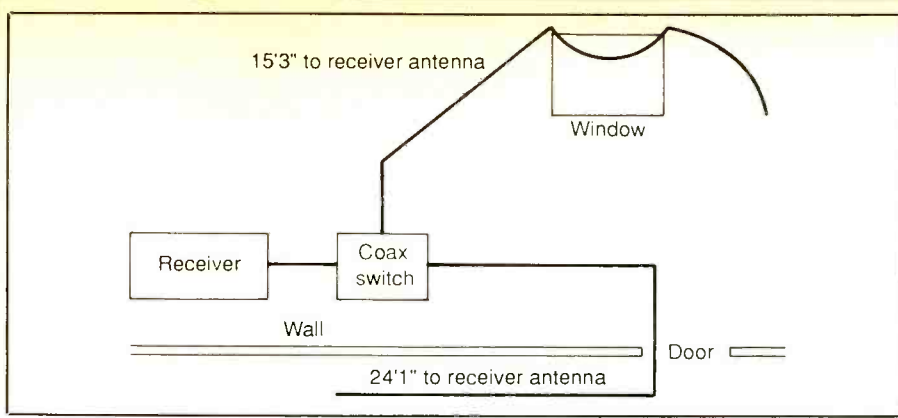


Fig. 3. Indoor antenna test set-up.

CB to Scanner Antenna Modification

Pat Griffith's fine coverage in the *Pop-Comm* August '88 issue of the operation of a single whip that provides odd-harmonic performance on 3 VHF/UHF scanner bands brought in a reply from Richard West describing his helical winding mobile monitor antenna that operates between 33.90 and 162.55 MHz. It is a modified 4-foot helical CB antenna, Fig. 4. His concise construction procedure follows:

1. Cut the insulating cover from a 4-foot helical loaded CB antenna. Be careful not to cut the loading coil wire.

2. Unwind the loading coil wire. Measure the antenna mount plus the wire and cut the

wire to a combined length of 56.5 inches (2-inch mount plus 54.5 inch wire = 56.5 inch total).

3. Spiral wind the wire back on the 4-foot fiber glass antenna form. The winding allows 56.5 inches of antenna length to be compressed on a 48-inch antenna form. Richard, in comparing the 48-inch helix to a regular 56.5-inch whip, could not notice any difference in reception.

4. To finish the antenna, spiral wrap the entire antenna with black plastic electrical tape and install the plastic top cap.

If you have constructed a good-performing home-brew or modified antenna, send along the information to this column. Readers are interested.

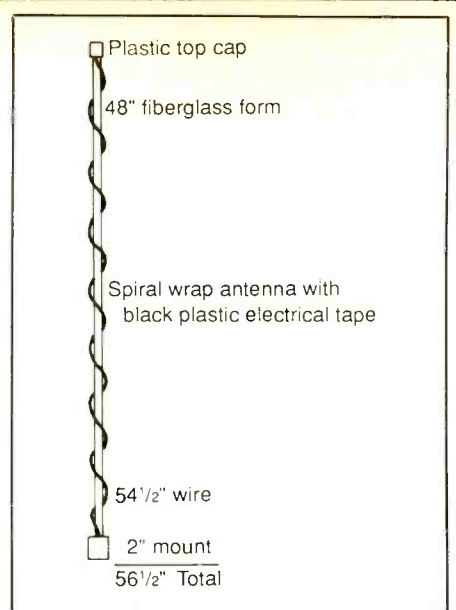


Fig. 4. West's two-band mobile antenna.

Band	Best Signal
11	Long
13	Varied
16	Short
19	Short
21	Short
25	Long
31	Varied

Table 2. Favored antenna wire according to band.

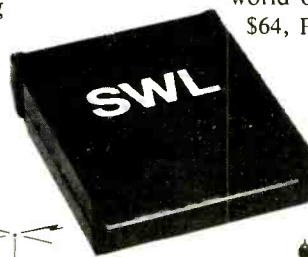
Copy Worldwide Short-wave Radio Signals on Your Computer

Remember the fun of tuning in all those foreign broadcast stations on the short-wave radio? Remember those mysterious sounding coded tone signals that baffled you? Well, most of those beeps & squeals are really digital data transmissions using radioteletype or Morse code. The signals are coming in from weather stations, news services, ships & ham radio operators all over the world. Our short-wave listener cartridge, the "SWL", will bring that data from your radio right to the video screen. You'll see the actual text as it's being sent from those far away transmitters.

The "SWL" contains the program in ROM as well as radio interface circuit to copy

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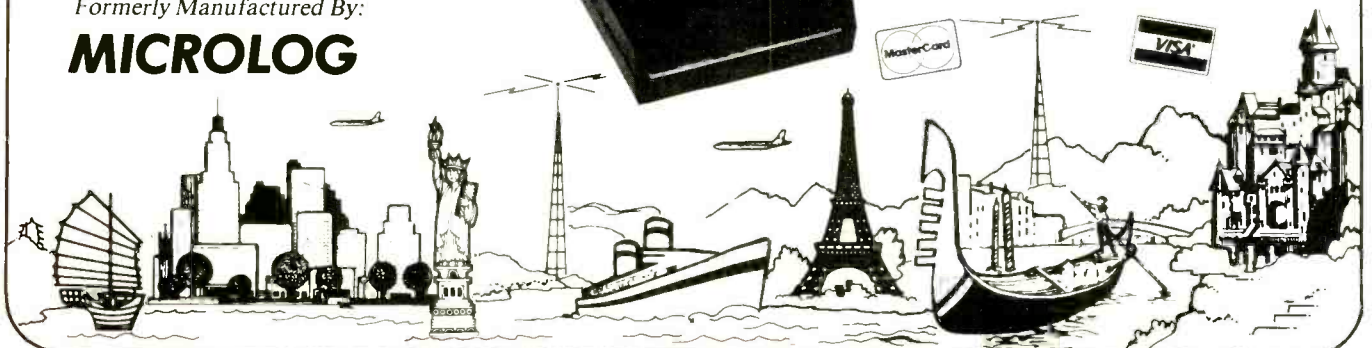
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Morse code and all speeds/shifts of radioteletype. It comes with a cable to connect to your radio's speaker/earphone jack, demo cassette, and an excellent manual that contains a wealth of information on how to get the most out of short-wave digital DXing, even if you're brand new at it.

For about the price of another "Pax-Zapper" game, you can tie your Commodore 64 or 128 into the exciting world of digital communications with the SWL, \$64, Postpaid, U.S.

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LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

The new Christian Science Monitor short-wave station may well be on the air from Cypress Creek, South Carolina by now. WSHB's start up schedule was given as 0000-0200 on 11980 and 13760, 0200-0400 on 9745 and 13760, 0400-0800 on 6005 and 9495, 0800-1000 on 9495, 1000-1200 on 6150 and 9495, 1400-1600 on 11580 and 17640, 2000-2200 on 15225 and 17750 and 2200-0000 on 15205 and 17640. With a duo of 500 kW transmitters, WSHB ought to rattle the rafters of your radio.

Yugoslavia finally seems to be using its *newish* 500 kW transmitters in a way which will benefit listeners in our neck of the world. Recent information indicates new English language broadcasts are being aired at 2200 and 0100, announced as intended for several parts of the world including North America. Frequencies are 5980, 7130, 9620 and 9660.

The Republic of Burundi's government station, always a difficult log, has been carrying out tests with a 100 kW transmitter. Most receptions of La Voix de la Revolution take place from 0300 sign on, on 3300. But this is a poor frequency and the propagational winds need to be blowing in the right direction. Even with the higher power Burundi will still be difficult, but probably not quite so much as before. Broadcasts are in French and local languages.

Radiodiffusion Francaise d'outre Mer (Radio Noumea) in New Caledonia has taken just the opposite direction. This station was a frequent late night visitor on 7170. But this frequency, along with 11710, has been dropped and the only one in use now is 3355, which will mean Noumea will be heard less often by most of us.

You can forget about Aruba coming on shortwave. A year or so ago, there were reports that Radio Victoria was planning to go on the air from this island, which used to be one of the "A-B-C" islands of the Netherlands Antilles before it got independence. Anyway, according to Sweden Calling DX'ers, the station is saying the intent is for a new 10 or 20 kW medium wave transmitter for programs to Latin America.

Radio Bucharest has apparently changed its name to Radio Romania. Wonder how many SWL's would like them to change it back?

Radio Hong Kong, mentioned a few months back as running tests on 9685, has settled down to a regular schedule and made a frequency change. Broadcasts in Chinese and Vietnamese are at 2300-0100 and 1100-1300 on 7290 and are intended to explain Hong Kong's refugee policies to Vietnamese trying to gain entrance to Hong Kong.

BRT-INTERNATIONAL 25-9-88 - 25-3-89

UTC	PROGR.	DIR.	FREQ.
08.00	BRUSSELS CALLING (Mon to Fri)	Australia	11695
		S.E. Asia	21815
09.30	HIER IST BRÜSSEL (Mon bis Frei)	Europa	11695
		Europa	6035
10.00	BRUSSELS CALLING (Mon to Fri)	Africa	21810
		Africa	17595
10.30	ICI BRUXELLES (Lun à Sam)	Afrique	21810
		Afrique	17595
13.30	BRUSSELS CALLING (Mon to Sat)	North-America	17555
		S.E. Asia	21815
14.00	ICI BRUXELLES (Lun à Sam)	Europe du S.O.	15515
		Amérique du Nord	17555
16.30	BRUSSELS CALLING (Mon to Sat)	Africa	17585
		Africa	21810
17.30	ICI BRUXELLES (Lun à Sam)	Afrique	15510
		Afrique	17585
		Europe (Sam)	1512 OM
18.30	BRUSSELS CALLING (Daily)	Europe	11695
		Europe	5915-1512 MW
20.00	HIER IST BRÜSSEL (Mon bis Sams)	Europa	5915-1512 MW
20.30	ICI BRUXELLES (Lun à Sam)	Europe	5915-1512 OM
21.30	AQUI BRUSELAS (Diario)	Europa	5915-1512 OM
		América del Sur	9925
22.00	BRUSSELS CALLING (Daily)	Europe	5915-1512 MW
		North-America	9675
22.30	ICI BRUXELLES (Quotidien)	Amérique du Nord	9675
		Amérique du Sud	9925
00.00	AQUI BRUSELAS (Diario)	América del Sur	9925
		América del Norte	9675
00.30	BRUSSELS CALLING (Daily)	North-America	9675
		South-America	9925

BRT in Brussels makes a postcard out of their program schedule. A nice touch!

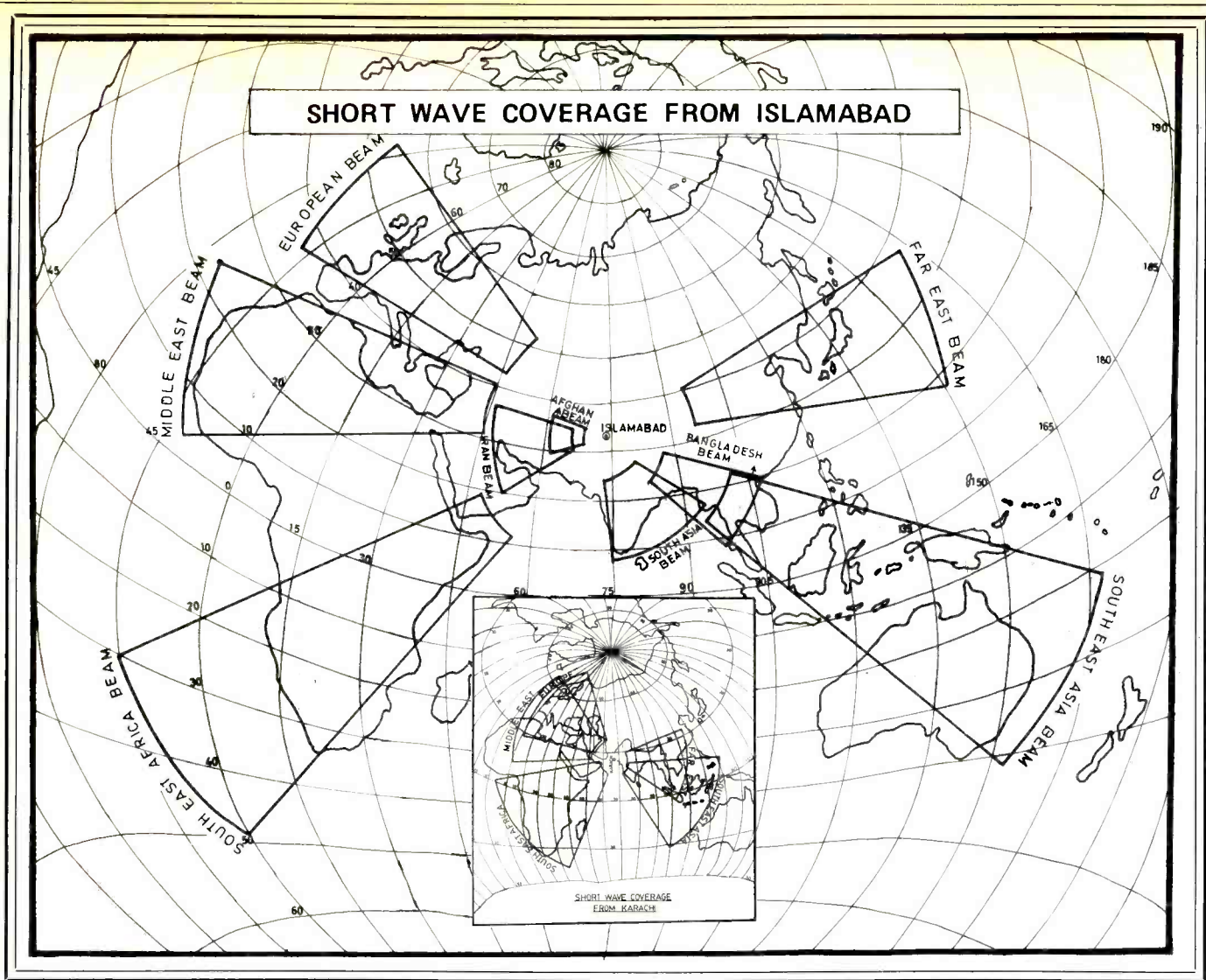
Sri Lanka and Radio Japan will work together to refurbish the Sri Lanka Broadcasting Corporation's transmitting facility. That will include the addition of two high power transmitters which Radio Japan will then have access to for replay purposes.

Guinea is also building a new broadcasting center which will have high power transmitters, though the exact wattages and due date isn't known.

Elsewhere, the high power sweepstakes just keep rolling along. The latest stations to be ordering kingsize kilowatts include the Voice of Germany—2.250 kW for its Rwan-

da relay; Radio Mexico a 100 kW transmitter. RAI in Italy—4 100 kW and Swiss Radio International a 500 kW unit.

Although it's a part of India, the Andaman Islands would likely be considered a separate DX country if there were a short-wave station there. Well, now there is! All India Radio has installed a 50 kW transmitter at Port Blair and was reported by Media Network on Radio Netherlands to be testing between 0230 and 1130 on 6000, 7180 or 9690. By now a regular schedule is probably in place. The station had not been reported in North Americas as of this writing.



As this diagram shows, North America is not a target area for Radio Pakistan.

The mail brings a letter from Jay S. Jackson of Nacogdoches, Texas complaining about the loss of AFRTS programs on shortwave. His wasn't the only one! We can only repeat what we said earlier: write to AFRTS, the USIA and your congressman and complain.

Jay notes that he has been interested in radio for 35 years, holds ham call KA5SBP and has read every issue of POP'COMM!

Also checking in for the first time is Mike Decerbo of Thumbull, Connecticut who got into shortwave less than a year ago. He's 15, a high school student and also into swimming and playing jazz saxophone. He uses a Sangean ATS-903 for his shortwave listening. Good to have you with us Mike and we look forward to having your logs regularly.

Lloyd Roupe in Knob Fork, West Virginia has been a DX'er since the 1950's. Back then he was interested in medium wave. Now he's purchased a Kenwood R-5000 and has expanded into shortwave monitoring. Welcome aboard Lloyd. Your regular

logs can be sent to POP'COMM headquarters.

Another newcomer is Vincent P. Collura from Tampa, Florida who has expanded his monitoring up from medium wave, thanks to interest developed by reading this magazine. Hope you'll send reports in regularly, too, Vincent.

Click those cameras! We need photos of you and your listening post to include in these pages. Clear black and white or color shots are acceptable. Please place a label on the back identifying people and equipment. Sorry, but we can't return photos.

We also need your logging reports, preferably by country and with a space or two between each so they can be cut up for sorting. Include your last name and state abbreviation after each item. That will make our job move along much more smoothly! By letting us know what you are hearing you'll help us help other shortwave listeners hear more stations and countries. Your comments, questions, spare QSL's for inclusion as illustrations, program schedules and

other shortwave broadcast related items are always appreciated so check in as often as you're able!

Here's what's being heard. All times are UTC and language English except where noted otherwise.

SWBC Loggings

Albania: R. Tirana, 7300/19760 at 0050 in Albanian into SS (Roupe, WV); 9375 at 0529 w/trumpet IS & off.

Argentina: R. Nacional, 6120 in SS at 0015 w/nx, ID (Garcia); At 1010 in SS w/nx, ID (Berman, WA).
R. Rivadavia, 4588 at 2301 in USB w/sports in SS. Feeder (Garcia, MD).

Austria: R. Austria Int'l., 6015 in GG w/nx at 0305 (Decerbo, CT); 15450 at 1130 w/nx (Northrup)
Bangladesh: R. Bangladesh, strong on 11510 w/chants, AA ID at 1607, talk by OM, exotic mc (Tuchscherer, WI).

Belgium: BRT, 9925 w/Radio World pgm at 2325, then Music From Flanders jazz pgm (Decerbo, CT).

Benin: ORTB Cotonou, 4870 at 2230 w/pops, s/off w/anthem 2300, all FF (Garcia, MD).

Brazil: R. Timbira, Sao Luiz, 4975 in PP at 0725 w/pops (Berman, WA).

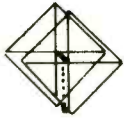
R. Bandierantes, Sao Paulo, 6090 at 0725 in PP w/commentary (Berman, WA).

R. Aparecida, Aparecida, 6135 at 2250 in PP (Garcia, MD).

R. Araguaia, Araguaia, 4905 at 2202 in PP after Chad s/off. Local nx, commercials (Garcia)
R. Journal do Brazil, Rio, 4875 at 2335 w/financial nx, market prices (Garcia, MD).

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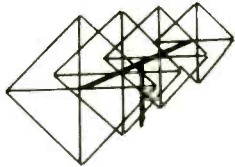
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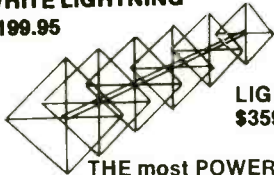
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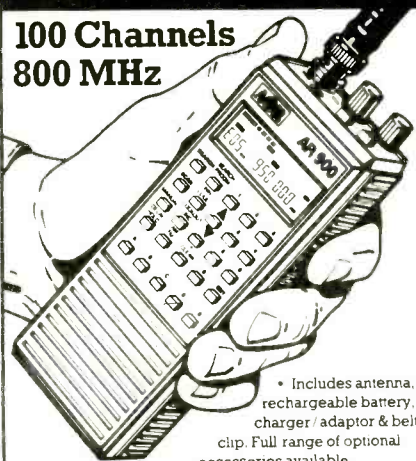
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CIRCLE 126 ON READER SERVICE CARD

R. Atalaia, Corumba, 4838 in PP at 0002 w/talks, commercials, time checks (Garcia, MD).
Radiodifusora do Amazonia, Manaus, 4805 at 2315 in PP w/political talk (Garcia, MD).

R. Cancao Nova, Cachoeira Paulista, 4825 at 2305 in PP w/6 mx numbers in a row, ID 2330, political talks (Garcia, MD).

R. Clube do Para, Belem, 4845 at 0405 in PP w/ID, freq, mx, commercials (Garcia, MD).

R. Nacional, Manaus, 4845 at 0030 in PP w/mx & ID (Garcia, MD).

R. Guaiba, Porto Alegre, 6000 at 2310 in PP w/nx (Garcia, MD).

Radiobras, 11745 at 0220 w/EE DJ, ID (Northrup, CT).

Bulgaria: R. Sofia, 7115 at 0450 w/DX pgm, space mx, Bulgarian mx, into Turkish 0600 (Callura)

Canada: CKZN, St. John's, NF, 6160 at 2315 relaying CBN (Decerbo, CT).

CFRX, Toronto, 6070 at 2230 relaying CFRB (Decerbo, CT).

CFCX, Montreal, 6005 at 2125 relaying CFCF w/mx (Decerbo, CT).

Chile: R. Nacional, 15140 w/ID in SS at 1130 (Northrup, CT); 2300 (Meece, OH); 0433 (Thackrey)

China: R. Beijing, 11860 at 0323 w/nx, ID 0315 (Tuchscherer, WI); 15300 at 1120 in CC (Northrup)

Colombia: Caracol, 4755 at 0811 w/SS talks, ID (Thackrey, WA).

Ondas del Meta, Villavicencio, 4885 in SS at 0340 w/nx, commentary, mx, ID 0400 (Berman, WA).

R. Guatapuri, Valledupar, 4815 at 0025 in SS w/mx, time checks, commercials (Garcia, MD).

La V. del Guaviare, San Jose del Guaviare, 6035 at 0100 in SS w/economic report. QRM from Havana (Garcia, MD).

R. Nuevo Vida, Cucuta, 5569 at 0050 in SS w/rx pgm (Garcia, MD).

Costa Rica: TIFC/Faro del Caribe, 5055 at 0300 w/rx pgm (Garcia, MD).

R. Impacto, 5030 at 0255 in SS w/Latin tunes, pgm info, ID 0301 (Mierzewski, PA).

Cote d'Ivoire: RTI Abidjan, 4940//6015//7215 in FF at 0605 w/nx comment, ID (Berman, WA); 11920 at 2325 in FF, s/off at 2359 w/ID (Roupe, WV).

Cuba: R. Havana Cuba, 6140 at 0310 ending nx (Decerbo, CT); 11760 at 1408 in SS (Meece, OH); 11795 at 2050 (Grantland, CT).

Czechoslovakia: R. Prague, 5930 at 0120 w/folk mx (Neff, FL); 13715 at 1740 to Africa/Asia (Grantland, CT).

Denmark: R. Denmark, 15165 in Danish at 1125 w/ID in Danish & EE, then s/off (Northrup, CT).

E. Germany: RBI, 6125 at 2145 s/on (Decerbo, CT); 13610 at 1835 w/nx (Grantland, CT); 17775 at 1125 (Northrup, CT); 21465 at 1303 w/commentary (Meece, OH).

Ecuador: T. Jesus del Gran Poder, Quito, 5050 in SS at 0955 w/rx mx & ID (Berman, WA).

R. Zarcay, Santo Domingo de los Colorados, 3395 at 0115 w/rx pgm Mas Alla de los Sentidos in SS (Garcia, MD).

R. Bahai, Otavalo, 4990 at 0006 in SS w/Latin mx, time check, ID (Garcia, MD).

HCJB, 15245 in GG at 2239 (Meece, OH).

Egypt: R. Cairo, 9475//9675 w/mx & nx at 0210 (Decerbo, CT).

France: RFI, 17620 at 1306 w/mailbox & requests, mx & into FF (Neff, FL).

RFO Cayenne, 5055 at 0101 in FF w/FF songs I African mx, over R. Catalica, Ecuador (Tuchscherer, WI); 0230 w/TL anncr (Garcia, MD).

Ghana: GBC1, 4915 at 2245 w/nx & mx to 2305 s/off (Roupe, WV); 2250 w/nx, venacular prayers 2300 & hymn, off 2305 (Garcia, MD).

Greece: V. of Greece, 7430//9425 at 0130 folk

Abbreviations Used in Listening Post

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

mx, nx (Decerbo, CT); 7430//9420//11645 at 0112 in Greek w/EE nx 0130 (Roupe, WV).

Guam: KSDA, 11805 at 0958, weak w/QRM (Decerbo, CT).

Guatemala: TGNA/R. Cultural, 3300 at 0204 w/classical mx, ID in SS 0259, in EE 0300 & into rx pgm (Mierzewski, PA); 3300//5055 in SS 0715 (Berman, WA).

R. Tezulutlan, Coban, 4835 at 0032 in SS w/mx, time checks (Garcia, MD).

Haiti: 4VEH, 4930 at 2333 in SS w/nx, next day in FF (Garcia, MD).

Honduras: R. Luz y Vida, San Luis, 3250 in SS at 0245 w/rx mx & pops, full ID 0300 (Berman, WA); 3249 at 0220-0228 s/off (Garcia, MD).

Hong Kong: BBC relay 15280 at 0336 w/talk (Tuchscherer, WI).

Hungary: R. Budapest, 11910 at 2345 (Meece)

Iceland: ISBS, 15659//17558 in Icelandic at 2320, OM/YL w/nx (Tuchscherer, WI).

India: AIR, 11620 at 2045 w/full ID (Decerbo) 15335 at 1130 in Hindi, w/o ID (Northrup, CT).

Iran: VOIRI, 15084 in Farsi (Northrup, CT).

Iraq: R. Baghdad, 17770 at 1130 w/mx (Northrup, CT).

Israel: Kal Israel, 9885 at 0225 ending EE (Decerbo, CT); 1130 w/interview in un-ID lang on 15615 (Northrup, CT); 21760 at 1302 in Hebrew (Decerbo, CT).

Italy: RAI, 9575 w/nx at 0105 (Decerbo, CT).

Japan: R. Japan, 9675 in JJ at 0825, 17810 at 0515 (Thackrey, WA).

Nihon SW Broadcasting, 9595 in JJ at 0813 (Thackrey, WA).

Kuwait: R. Kuwait, 11665 at 1800 w/lock DK asking for phone/mail requests (Decerbo, CT); 15504 at 2042 in AA (Grantland, CT).

Lesotho: R. Lesotho, 4800 at 0330 in Sesotho w/talks, African mx (Garcia, MD).

Luxembourg: R. Luxembourg, 6090 at 0555 in GG w/mx, nx, wx, ID (Callura, FL); 15350 at 0725 w/paps & commercials in FF. Also classical mx at 2030 (Roupe, WV).

Malta: V. of the Mediterranean, 9765 at 0607



Studios of Radio Austria International in Vienna.



This listening set up belongs to John Burzynski in South Bend, IN.

w/Nice & Easy 45's, good level (Meece, OH).
Mexico: XEWW, Mexico City, 16150 in SS at 0310 w/pops & XEW ID (Berman, WA).
Netherlands: R. Netherlands, 17605//21865 at 1912 w/Media Network pgm (Decerbo, CT).
Netherlands Antilles: TWR, 11815 at 1125, possible ID, mx & drama (Northrup, CT); 15345 at 1230, & 9535 at 0302 w/nx, rx pgm (Decerbo, CT).
R. Netherlands Bonaire: replay 21685 at 1900 w/Media Network (Meece, OH).
New Caledonia: R. Noumea, 3355//7170 in FF at 0840 w/mx; nx 0900 (Roupe, WV). Note that 7170 now dropped-- Ed.
Northern Marianas: KYOI, Saipan, 11900 at 1340 w/world svc of CSM (Meece, OH); 9465 at 2048 w/hymns, ID (Tuchscherer, WI).
N. Korea: R. Pyaryang, 11735 at 1120 w/political talks, ID, mx (Neff, FL).
Norway: R. Nariway, 15180 at 1120 w/nx in Norwegian (Northrup, CT).
Oman: R. Oman, 17735 at 1822 w/local mx, AA talks, chimes, ID at 1900 (Tuchscherer, WI).
Pakistan: R. Pakistan, 15090 at 1728 w/local mx & ID in un-ID land (Tuchscherer, WI).
Papua New Guinea: R. Northern, Papanetta, 3345 in EE & an un-ID lang (not Pidgin), w/pops (Berman, WA). Time not given, but surely early a.m.-- Ed.
Paraguay: R. Nacional, 9735 at 2346 w/various ID's in SS (Meece, OH).
Peru: R. Atahuapla, Cajamarca, 4821 in SS at 0000 w/La Voz de la Melodia, Andean mx, no commercials, but personal messages (Garcia, MD).
R. Satellite, Santa Cruz, 6726 at 0035 in SS w/pops, commercials, time checks (Garcia, MD).
R. Huanavelica, 4885 in SS at 0435 w/Andean mx, ID's (Berman, WA).
Poland: R. Polonia, 7270 at 0550 w/Espanto pgm, then ID (Collura, FL).
Portugal: R. Portugal, 9680//9705 at 0245 w/tourist pgm (Decerbo, CT).
Romania: R. Bucharest, 17805 at 1125 in slavic language (Northrup, CT).
Senegal: ORTS Dakar, 4890 at 2150 in FF & local lang. Singing, ID, nx (Garcia, MD).
S. Africa, Rep. of: Radio RSA, 6015 at 0300 w/nx (Decerbo, CT); New freq 11760 at 0316 w/interview, ID; 17745 new freq at 1758 w/IS, ID & into Dutch; 21590 at 1737 in GG, IS, ID & into Dutch 1800 (Tuchscherer, WI); At 1514 w/Africa Today (Meece, OH).
R. Oranje, 3215 at 0315 in Afrikaans w/mx, ID & commercials (Mierzwinski, PA).
Spain: REE, 9630 at 0435 in SS w/DX pgm (Collura, FL); 11880 at 2115 in SS (Northrup, CT); 9630//11880 at 0030 w/features (Decerbo, CT); 15395 at 2035 in FF (Tuchscherer, WI).
S. Korea: R. Korea, 15575 at 1300 (Decerbo).
Sweden: R. Sweden, 21690 at 1245 w/nx, ID, freq info in several lang, into Swedish 1300 (Mierzwinski, PA).
Switzerland: Swiss R. Int'l., 9885 at 0200 w/ID & close; 13685 at 1120 w/editorial, mx; 17830 at 1125 w/ID, into FF (Northrup, CT).
Syria: R. Damascus, 12085 at 2015 w/nx, ID (Thackrey, WA).
Togo: RT Togolaise, 5047 in FF at 2245 w/talks, but w/QRN (Garcia, MD).
Turkey: V. of Turkey, 9445 at 2355 w/IS, ID in Turkish, nx & Turkish mx (Roupe, WV); 0200 in Turkish (Garcia, MD); 9825 at 2030 (Grantland, CT).
Tunisia: RT Tunisienne, 7475 at 2035. OM/YL in un-ID lang (Grantland, CT).
U.A.E.: UAE Radio, Dubai, 17865 at 1600 w/rx pgm (Decerbo, CT); 9550 at 1946 w/local mx, call-in pgm, some EE (Tuchscherer, WI).
USA: VOA, 6030 stepping in for AFRTS in SS at 0110 (Meece, OH); 6165 at 1010 w/Newslines; 7220 at 0430 w/nx in Romanian & Serbo-Croat at 0445; 17705 in FF (Collura, FL).
KUSW, 15580 at 2200 w/rock; 15690 at 1910 (Decerbo, CT).
WCSN, 21640 at 1715 w/Kaleidoscope (Decerbo)

WRNO, 11965 at 1545 w/ID, rock, tentative (Collura, FL).
USSR: R. Moscow world svc, 17675//17860//17880 w/classical mx, ID, nx at 0130 (Roupe, WV); 15460 at 1257 (Decerbo, CT).
R. Magallanes, 9470 at 0110 in SS w/anti-Chile rhetoric (Garcia, MD).
R. Tikhyy Okean feeder on 9905 at 0807 in RR (Thackrey, WA).
R. Peace & Progress, 17645 at 1410 w/commentary (Meece, OH).
Vatican: Vatican R., 9605 at 0100 w/nx (Decerbo, CT); 15190 at 0505 w/rx commentary (Meece, OH); 17840 at 1125 w/prayers, ID (Northrup, CT).
Venezuela: R. Tachira, 4830 in SS at 0636 (Thackrey, WA); 0234 w/commercials (Decerbo, CT); 0950 w/latin mx, ID (Berman, WA); 0340 (Collura).
R. Mundial Balivar, 4770 in SS at 0004 w/mx, time checks, commercials (Garcia, MD).
R. Capital, 4850 in SS at 0025 w/American Top 10, ID & time checks between songs (Garcia, MD).
Vietnam: V. of Vietnam, 15010 w/nx, political talks, into Vietnamese 0000 (Garcia, MD).
W. Germany: V. of Germany, 6085 at 0500 in GG w/nx, wx, interviews, anthem, close 0547. Relayed from Antigua (Collura, FL); 9565 s/an 0100 (Decerbo, CT); 11865 at 0116 w/nx, pops (Tuchscherer, WI).
Yemen Rep.: R. San'a, 9779 at 0313 w/local mx, talk in AA (Tuchscherer, WI).
Yugoslavia: R. Yugoslavia, 9660 at 0048 w/YL reading the nx in EE, but in FF at tune-in. Scheduled for EE at 0100 on 5980/9620/9660 (Tuchscherer, WI).

A heap 'o thanks go to the following contributors this month: Mark Meece, West Chester, OH; Mark Northrup, Danbury, CT; Hal Thackrey, Seattle, WA; Fernando Garcia, Baltimore, MD; Frank Mierzwinski, Reading, PA; George Neff, Tampa, FL; John Tuchscherer, Neenah, WI; Vincent P. Collura, Tampa, FL; Johna than D. Berman, Amboy, WA; Mike Decerbo, Trumbull, CT; Tom Grantland, Bandord, CT and Lloyd Roupe, Knob Fork, WV.

Until next month, good listening!



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CIRCLE 60 ON READER SERVICE CARD

SATELLITE VIEW

BY DONALD E. DICKERSON

INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

The Soviet Union launches more spacecraft per year than any other nation, including the US. During the last three years the Soviets have launched nearly 300 spacecraft from three sites. By comparison, the ESA (European Space Agency) has launched four, Japan six and well, never mind how many we have launched.

The USSR operates an extensive system of tracking and communications stations. It consists of seven ground stations in the USSR and 30 world-wide. This includes 20 tracking ships equipped with special relay equipment to relay signals back to the Soviet Union.

The largest and busiest launch site in the country is located at Tyuratam in the south central part of the country. The second site is Plesetsk, located in the far North. The third, at Kapustin Yar, is the smallest and seldom used site, located near the Black Sea.

The Soviet manned spacecraft are launched from Tyuratam. Their spy satellites, depending on size, are launched from both Tyuratam and Plesetsk.

The Spacecraft

There are three types of satellites used by the Soviet's for collecting intelligence: ELINT (Electronic Intelligence) RADINT (Radar Intelligence) and Photo Reconnaissance. The Photo Recon come in two classes. A low altitude low resolution satellite system consists of short duration spacecraft which can stay in orbit nearly two weeks. The second class, high resolution spacecraft, can stay in orbit for up to three months. During 1987, 45 of these satellites were launched. Two dozen have already been launched this year. This type of spacecraft maintains an altitude between 150 to 250 miles in a polar orbit.

The ELINT satellites are passive. That

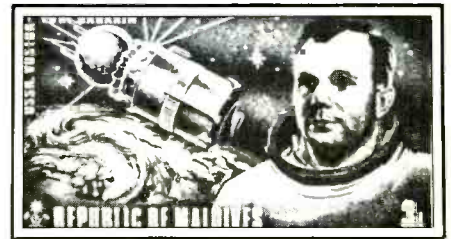
means that they simply collect information without emitting any form of radiation to do it. RADINT satellites, on the other hand, are active. They are simply radar platforms in space. These satellites consume so much power that the Soviet's have routinely used a nuclear power source. It was a satellite of this class which re-entered over Canada several years ago leaving a trail of radiation in its wake. These satellites are normally boosted into an extremely high orbit near the end of their life-span to prevent such an occurrence from happening.

In order to keep cost down, the Soviets seldom change the basic design of their spacecraft, though the on board systems change as technology improves. For example, the Vostok manned spacecraft, first developed in the 1960's, is still used to carry photo recon packages into space. The Progress supply ships are a variation of the Soyuz manned spacecraft. It is also used for scientific payloads. Even the Vega spacecraft which intercepted Halley's Comet last year, is based on the Venera spacecraft design which is over 20 years old.

Support Satellites

The USSR utilizes two classes of navigational satellite. A low altitude system consisting of 9 to 12 spacecraft and a high altitude system also consisting of 9 to 12 satellites. The low altitude satellites carry COS/PAS search and rescue transponders. They are part of the international search and rescue program. Active participants in the program: Canada, France, the United States and the USSR.

Government and military communications are accomplished through the use of several satellite systems. The military has transponders on host satellites like the Molniya TV satellites and the geostationary Gori-



The world's first man in space Yuri Gagarin and his Vostok-1 spacecraft.



The First docking of two Soyuz spacecraft.



Amateur Satellite Nets

Day	UTC Net	Frequency
Sunday	0900 AMSAT S/C/E African net	3.665/3.718/7.080/14.280 MHz
Sunday	0945 AMSAT Australia	3.685/7.064 MHz
Sunday	1015 AMSAT UK	3.780 MHz
Sunday	1100 AMSAT Pacific	14.305 MHz
Sunday	1300 SESAT S.E. US net	7.280 MHz
Sunday	1800 AMSAT International	21.280 MHz
Sunday	1900 AMSAT International	14.282 MHz
Sunday	1900 AMSAT Espanol	14.227 MHz
Monday	0000 AMSAT Argentina	3.737 MHz
Monday	0300 AMSAT Argentina	14.277 MHz
Monday	1900 AMSAT UK	3.780 MHz
Tuesday	2330 W1AW RTTY Kaplerian Elements	3.635/7.095/14.095 21.095/28.095 MHz
Wednesday	0200 AMSAT E. Coast US (Tuesday night)	3.840 MHz
Wednesday	0300 AMSAT Mid-States US	3.840 MHz
Wednesday	0500 AMSAT West Coast US	3.840 MHz
Thursday	1830 AMSAT S. Africa	3.665/3.718 MHz
Saturday	0900 AMSAT Austria	7.070 MHz
Saturday	1000 AMSAT Europe	14.280 MHz
Saturday	1200 USSR Sputnik net	14.290 MHz
Saturday	2200 AMSAT S.W. Pacific	28.878 MHz
Saturday	2230 AMSAT S.W. Pacific	21.280 MHz
Saturday	2330 W1AW RTTY Kaplerian Elements	3.625/7.095/14.095 21.095/28.095 MHz

zont and Raduga also carry ESDRN transponders for communications with the Mir space station.

The Soviet military also use a low altitude system which is much like the RS-1 through RS-8 Amateur Radio which were launched in the early 80's. They are launched simultaneously in groups of six or eight. Several clusters can provide inexpensive 24 hour communication coverage.

Mir

Both of the Soviet space stations, Salyut 7 and Mir, have been used for Photo, ELINT, SIGINT, and RADINT gathering. There are three cameras onboard the Mir used for mapping the earth surface. There are also three cameras in the Kvant Astro-Physical laboratory used for deep space research.

The 1986 docking of the Kvant with the Mir was not without its problems. The module failed to automatically dock with the space station as scheduled. The Kvant module began to drift away from the Mir due to a computer problem which was corrected the next day. This was just the beginning as the docking port than failed to pressurize. It took a 4 1/2 hour EVA to correct the prob-

lem. Cosmonauts Yuri Ramaninko and Alexander Leveikin were onboard the station at the time. Romaninko hold the in-space record of just under one year on board the Mir. The Soviets are expected to add three more modules to the Mir during the course of the next two years.

Radio Moscow recently announced that their space shuttle would undergo another test flight prior to a manned flight. Their shuttle is expected to be able to dock with the Mir space complex. The French are also negotiating an agreement with the USSR for docking rights at their station. The French have plans to build a mini-shuttle called the Hermese. It should be operational by the mid 1990's.

1988 was a very busy year for the Soviet space program. They put space stations in orbit, a space shuttle program and made plans to expand the Mir complex. They displayed their ability to handle potential emergencies in space, as they nearly lost Soyuz TM-5 in September of 1988. It carried a Soviet/Afgan crew. They launched 45 intelligence gathering spacecraft not to mention the TV, communications and early warning satellites. All things considered, 1988 was a very successful year for the Soviet Space Program.

Soviet Satellite Frequencies

Satellite	Frequency	Mode
Photo Recon	19.955/149.950/232 MHz	FSK
ELINT	153.5/204.5 MHz	TLM
RADINT	166 MHz	TLM
NAVSAT	149.10/150.3/1250 MHz	TLM
Space Station	165/192 MHz	TLM
Soyuz	121.75 MHz	WBFM

Letters

Russell Hoover of Hoboken, New Jersey wants to know if there are more than one TVRO nets on the ham bands. Russ listens to the Idaho net run by KX7B on 14309 kHz at 1800 UTC Sunday. I don't know of any other nets Russ. The newest edition of the ARRL's net directory might help. If you have any tips for Russ let me know, I'll pass the information along.

Ken of Des Moines, WA wants to know if CANCOM descramblers can be obtained in the states. CANCOM is the scrambling system used on the Anik satellites. I don't know, Ken, if there are any outlets in the US where you can get a CANCOM descrambler. In fact I think it's illegal to sell or own one in the US, but don't quote me. I do know of people who have these descramblers, but they payed a premium price for them. You should check your local area for such possibilities.

A further note on Amateur radio nets, one can be heard on Sunday at 1400 hrs UTC on 7240 kHz. Net control is Bob Brown KW3F.

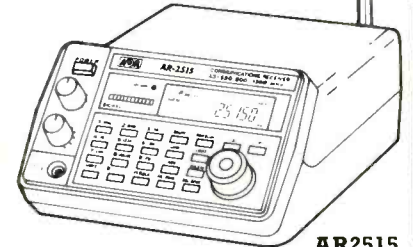
Ash Nallawalla of Werribee Victoria, Australia, co-author of the book Better Radio/TV Reception, was kind enough to send us an updated listing of world-wide satellite nets which can be found on the Amateur Radio bands.

That wraps it up for now . . . see you next month.

PC

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CIRCLE 53 ON READER SERVICE CARD

CLANDESTINE COMMUNIQUE

WHAT'S NEW WITH THE CLANDESTINES

BY GERRY L. DEXTER

There's another new clandestine station on the air. *The Voice of Namibia* says it broadcasts on behalf of the People's Liberation Army of Namibia from 0500 to 0700, 1030-1230 and 1800-2000 UTC, all on 9575, though 15235 may be used instead of or in addition to 9575 during some of its transmissions. The station says that it broadcasts from the town of Lubango in Angola. This station seemingly is not connected with the Voice of Namibia program produced by the Southwest Africa People's Organization and aired over several African radio stations.

We sometimes get reports about a clandestine station reactivating after a long period of silence so, normally, this isn't unusual. Except when three items of this kind occur in just a few weeks. One has to wonder if, assuming the information is correct, whether the stations may have been active all along. Anyway, here's what we have on these three returnees.

A *Voz de Verdade* (Voice of Truth) a long-running, albeit intermittent, operation against the Angolan government is reported active on its old frequency of 4950, with broadcasts at 0600 and 2000. The information, from Richard Ginbey in South Africa and aired on Radio Netherlands Media Network program, is that the station operates from Jamba (UNITA territory) in Angola. A couple of years ago UNITA representatives told us Verdade was not theirs, though they readily admitted to running the Black Cock-erel station. Indeed, most clandestine experts have long believed Verdade was a South African operation. It may be, though, that with South Africa reducing its Angolan involvement, Verdade has been moved and turned over to UNITA.

Also associated with the Angolan situation is *Cubanos en Africa*, another station about which nothing has been heard in some time. The station is reported to be on the air from 0500-0600 and 1700-1800 (in Spanish) on 6045. The 0500 broadcasts have been heard by North American monitors in previous years, though not lately. This station directs its programs to Cuban troops in Angola. There's never been any evidence or even good guesses at who is behind this station.

A third station, believed inactive for two or three years, is *Vietnamese Resistance Radio*, now said to be active again with hour long broadcasts in Vietnamese at 0200, 0600, 1000, 1400 and 2200 all on 7320. As far as we know, the station has never been heard in North America. It's said to be run by the National Unified Front for the Liberation of Vietnam. Best opportunities

VOICE OF KHMER IN CAMBODIA
C/O KPNLF
P.O. Box 22-25
Ramindra Post Office
Bangkok 10220
Thailand

GERRY L. DEXTER

October 14, 1988

Dear Sir,

We are very glad to confirm the reception report in your letter dated October 2, 1988.

We would like to apologize to you for not having replied immediately. We appreciate your tuning to our VOK station and writing to us.

Since we have improved the equipment of our station, we expect VOK can be heard clearer than when you tuned previously.

We are enclosing a QSL Card of the VOK station, and we hope you will tune to us again.

With Best Wishes,

Sincerely yours,



POL HAM

CHIEF EDITOR

QSL letter from the Voice of the Khmer, which should be loggable on 6325 between 1100-2400.

to hear this one would seem to be at 1000, perhaps 1400, too, on the west coast. Unless there's been an increase in power, though, this one will remain very tough.

The *Voice of the Khmer* has finally begun to answer reception reports. Your editor received a nice letter and folding paper QSL card from Pol Ham, Chief Editor. The full address is Voice of the Khmer, c/o KPNLF Office, P.O. Box 22-25, Ramindra Post Office, Bangkok, Thailand. The station is run jointly by two Cambodian opposition groups headed by Son Sann and Prince Sihanouk. Schedule is 0500-0700, 1100-

1400 and 2300-0000 in Khmer on 6325. Best heard in North America during the 1100-1400 period. The letter, incidentally, mentions improved equipment so that should make it an easier log.

Despite conflicting information floating around about the anti-Sandinista stations recently, we can confirm that both are still alive and, presumably, well. *Radio Quince de Septiembre* was still in operation and still using that ID as of late fall, using 6214 and 5929 slightly variable. *Radio Liberacion* continues to hold forth on variable 5889. The pirate station, *Radio Caroline*, uses

6215 so there are sometimes interference problems on that frequency. These two stations bear close monitoring for possible future changes, though.

The *Voice of the National Army of Kampuchea* was tentatively logged by Michele Shute in Florida on 5408 at 1102. Michele thinks she even caught an English language ID.

The *Voice of Democratic Kampuchea* was heard in presumed Khmer by Robert Ross of London, Ontario on 9440 from 2332 (he notes 2330 sign on) to close at 0030.

The anti-Afghan *Voice of Unity* was found by Ross on 15685 in Pushto or Dari from 1511-1518. Open carrier to 1514, flute interval signal, announcement and then the signal was jammed from 1515. Fernando Garcia in Maryland also hears the station, in Dari on 17540 at 0135 with an apparent newscast, followed by possible ID, songs and abrupt shutdown at 0215.

Radio *SPLA*, the anti-Sudan station of the Sudan People's Liberation Movement/Army was tuned by Robert Ross on 11710 at 1300-1335 in both English and Arabic. English ID as "Radio SPLA" and mentions of Sudan.

Robert also caught *Radio Venceremos* at 0221-0235 on 3475 with talks, music and ID. The station moved to 3471 at 0229 to avoid jamming.

Iran's Flag of Freedom Radio was having some problems when Fernando Garcia in Maryland heard them at 0316 on 15555. After a couple of words and some music the signal went off the air, came back at 0318-0326, then was off again til 0331, when it returned and stayed to close at 0454. Fernando notes the sign on announcement includes Farsi, French and English. He says reception at his location is better on the station's 9045 frequency.

Thanks to all who checked in with loggings and other information this month. Remember, your information is important. Your loggings, news items, background information, schedules, mailings from opposition groups which have clandestine stations—anything to do with the fascinating world of clandestine radio is wanted and welcome. We can provide you with source security if you wish.

'Til next month, then—good hunting!

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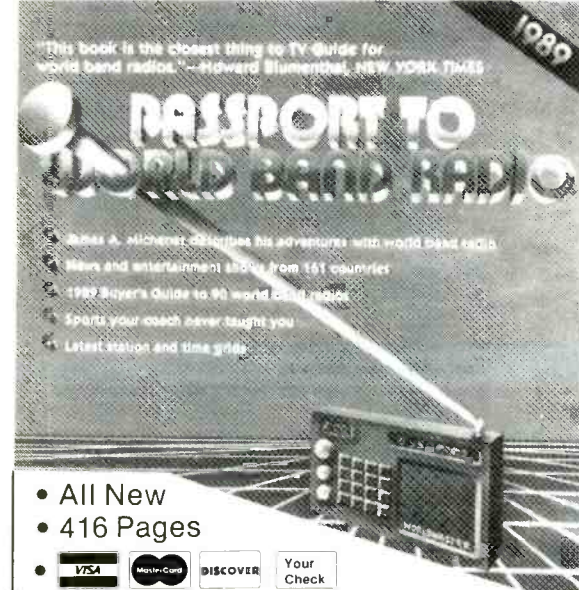
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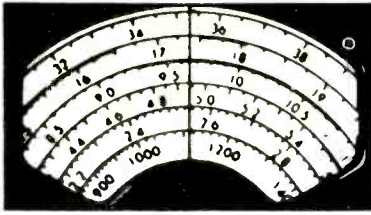


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CIRCLE 47 ON READER SERVICE CARD



COMMUNICATIONS CONFIDENTIAL

BY DON SCHIMMEL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Dave Ford, TN described his station in a recent letter indicating he had a Kenwood R-2000 receiver, 100' longwire oriented N/S, AEA CP-1 RTTY Demodulator, RS Color Computer, Hamsoft/Amtor software, Realistic PRO-32 Scanner, Bearcat 300 Scanner, 65' & 45' dipoles and a Butternut VHF/UHF vertical antenna.

Patrick O'Connor, NH has provided some more QSL addresses and here they are: 7TF—Boufarik Marine Radio 7TF, Le Chef de Centre, Boufarik, Algeria; ASK—Karachi Marine Radio, Pakistan Telecommunications, Karachi 5, Pakistan; GKT62—Portishead Marine Radio, BTI Coastal Station, Highbridge, Somerset, TA9 3JY, England.

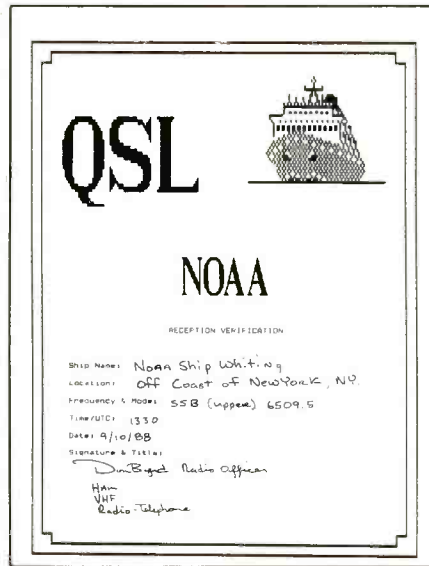
Robert Edler, RI reports he uses a Sony 2010 with a 64' random wire into a AR-COMM Preselector.

Saudi Arabia is where Paul Spurlock is currently located and he does his monitoring with a ICOM R-70 and a Sony ICF-7600D.

From the Far East, we heard from Randall Reese in Thailand, and he uses a Yaesu FRG8800 with a 35' longwire.

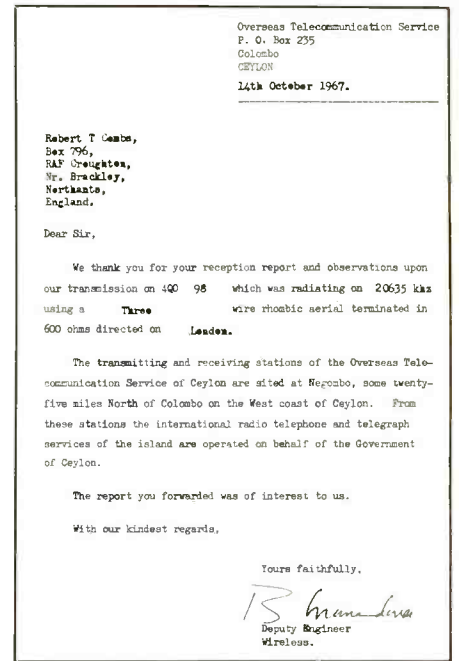
First-time contributor T. Grantland, CT recently purchased a Kenwood R-5000 and for an antenna he has a 60' Delta sloper.

Andy Gordon, CT reports another USN/USMC MARS frequency of 14465 kHz for phone patches. He also indicated he had received nice QSL letters & photos from the USS Safeguard ARS50 and the USS Harry



E. Yarnell CG17. From the USS Truxtun CGN35 he received a neat ship's ballcap with the QSL.

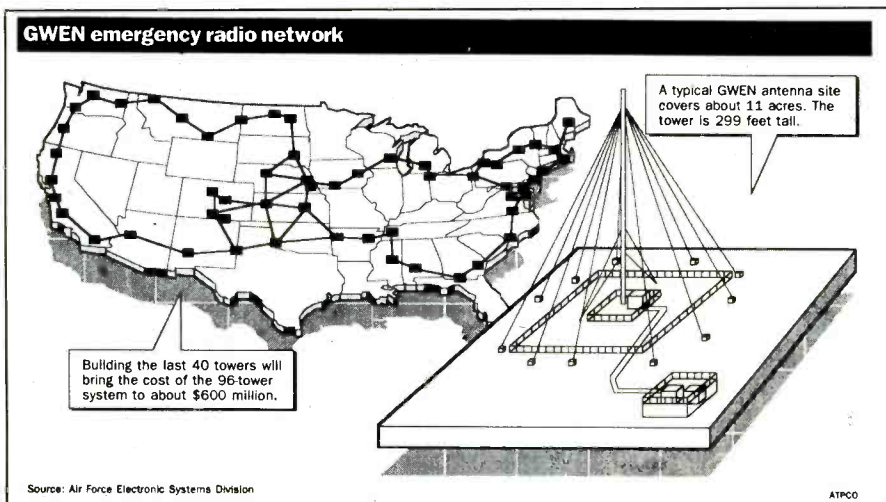
Some Gulf of Mexico Drilling Platform frequencies were sent in by Sam Neal, TX. He obtained the info from a "Zapata Off-shore" drilling supervisor. 4637.5 kHz—Drilling Platform "Intercom Frequency." Also check 6210.5 & 8281.5 kHz nighttime. One of my references shows "Zapata Off-Shore Company" assigned 2293.4, 2399.4 & 4638.9 kHz. Transmitter locations were shown as Channel View, TX.



Remember when there was a country called Ceylon? Here is a reception verification received by Bob Combs when he was stationed in England in 1967.

An informative note was received from Roberto Benevolo, Brazil who wrote—"I noted that your contributors have intercepted Brazilian Aeradios on 5526 and 8861 kHz. These are two frequencies used in Brazil by the Flight Information Regions (FIR), whose purpose is to give advice and information for flights and also to provide alerting service in need of search and rescue aid. There are seven FIR's in Brazil as follows:

- FIR Manaus (SBMU), Amazonas State, operating on 3479, 5526, 8855, and 10096 kHz.
- FIR Porto Velho (SBPH), Rondonia State, operating on 3479, 5526, 8855 and 10096 kHz.
- FIR Belem (SBBL), Para State, operating on 3479, 5526, 8855 and 10096 kHz.
- FIR Campo Grande (SBCD), Mato Grosso do Sul State, operating on 3479, 5526, 8843, 8855, 10042 and 10096 kHz.
- FIR Recife (SBRE), Pernambuco State, operating on 3452, 5565, 8855, 8861, 10096 & 13357 kHz.
- FIR Brasilia (SBBS), Federal District, operating on 3479, 5526, 8855 & 10096 kHz.



An "Air Force Times" article forwarded by Ricky Hudson, OH outlined construction details of the Ground-Wave Emergency Network (GWEN). Phase II consisting of 56 towers is almost complete with just four more antenna locations to be constructed. Phase III will include 40 more towers and 11 towerless radio terminals.

From NOAA SHIP WHITING

I am sending you a booklet on the NOAA, also for your HF listening in the future NOAA freq's. are :

- *4431.0 13141.1
- 6509.5 17267.0
- *8753.0 22695.2

In the AM hours we mostly use 4MEG freq. and the 8MEG freq. in the evening. these are all simplex freq's., therefore you will be able to hear both sides of the conversation.

Our equipment is SUNAIR GSB 900 DX, we run either 100 watts or 1kw into a 35 ft. whip. We have 3 systems onboard and a new PC Pakrat system for working the CG. on TTY and our home office on Amtor, ASCII, or Packet. These systems are much more efficient and error free. Also here is a list of our east coast ship and home office call signs:

...NOAA SHIPS...

- WTER RESEARCHER
- WTEG MT. MICHELL
- WTEQ PEIRCE
- WTEW WHITING
- WTDO OREGON II
- KNBD DELAWARE II
- WTEZ FERREL
- WTET RUDE
- WTEY HECK
- WTED CHAPMAN
- WMVF ALBATROSS IV

...COAST GUARD...


- NMN PORTSMOUTH VA
- NMF BOSTON MA
- NMA MIAMI FL
- NMG NEW ORLEANS LA

...NOAA OFFICES...



- KVH AMC NORFOLK VA
- KAC WOODS HOLE MA
- KVJ PMC SEATTLE WA

In addition to the return of his PFC, John Harris, Ohio received some technical data from NOAA Ship Whiting.

CONTAINER SHIP TOHBEI MARU 36,585 GWT



THIS WILL VERIFY YOUR RECEPTION OF JDZA ON 500 KHZ CW AT 0526 UTC ON JAN 3 1988
 TRANSMITTER/POWER: 500W
 ANTENNA: LONG WIRE 113M L 83M
 APPROX POS'N OF VESSEL: 50N 134W
 SIGNATURE & OFFICIAL STAMP:

EX  *Flag changed to PANAMANIAN ON FEB. 2, 1988* 


Another nifty PFC from Steve McDonald, BC, Canada.

g. FIR Curitiba (SBCW), Parana State, transmitted from Porto Alegre, Rio Grande do Sul State, on 3479, 5526, 8855, & 10096 kHz.

Every now and then someone reports a multiple "Numbers" catch. This time it was Richard Draper, SC who noted a YL/SS in 5F grps on USB (exalted carrier-ECCS) and during the transmission another YL/SS was heard in the background also with 5F grps. Richard intercepted these on 6670 kHz between 0215-0255 UTC.

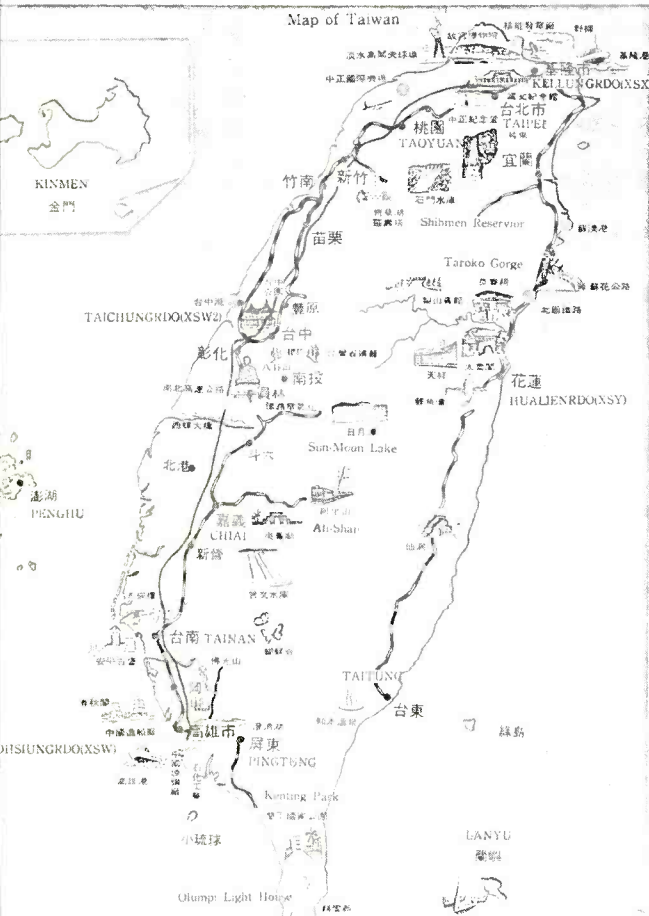
Thomas Lussen, TX wrote asking for information on a utility station calling itself "Rainbow Radio" and heard on 13285 kHz days and 5604 kHz nights. Tom, it is a Canadian Airlines activity for company operations. Such activities are referred to as "Long Distance Operational Control (LDOC)." Traffic passed on these frequencies includes ETA/ETD info, flight management advisories, flight progress reports, aircraft maintenance, crew scheduling and alternate airport selection. According to my references "Rainbow Radio" has assigned frequencies of 5604, 8819, 13285 and 13420 kHz. This latter frequency is designed for phone patches.

Mr. Milan Seifert
 74th Maint Bn, PO Box 1234
 APO S.F. 96483-0119



VERIFICATION OF RECEPTION

Kaohsiungradio/XSW
 Maritime Radio Telegraph
 Coastal Station
 Republic of China




This will confirm your reception of our radio transmission on the details:

DATE: July 23rd 1988
 TIME: 06.10 hrs UTC
 POWER: 3 kW
 FREQUENCY: 16940 kHz

The station you heard was XSW on the exact regards.

Aug. 5th 1988

Station Master *[Signature]*

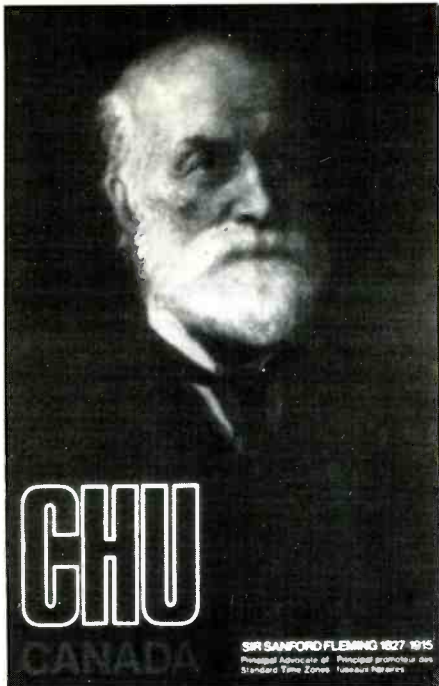
 Kaohsiungradio
 coast station ministry of communications Taiwan
 Republic of China

QSL received by Milan Seifert from Taiwan station XSW.

Abbreviations Used For Intercepts

AM	Amplitude Modulation mode
BC	Broadcast
CW	Morse Code mode
EE	English
GG	German
ID	Identifier/led/cation
LSB	Lower Sideband mode
OM	Male operator
PP	Portuguese
SS	Spanish
tfc	Traffic
USB	Upper Sideband mode
w/	with
wx	Weather report/forecast
YL	Female operator
4F	4-figure coded groups (i.e. 5739)
5F	5-figure coded groups
5L	5-letter coded groups (i.e. IGRXJ)

- "Ute" Intercepts
 All Times Are UTC
- 248: Beacon HZP, Zionsville, IN at 2123 (Meece, OH).
 - 250: CW warble jammer at 1534 (Vendetti, NJ).
 - 278: Beacon HOC, Hillsboro, OH at 1609 (Meece)
 - 284: Beacon UYF, London, OH at 1602 (Meece).
 - 371: Beacon AI, Middletown, IN at 2315 (Meece).
 - 375: Beacon OVO, N. Vernon, IN at 2331 (Meece, OH).
 - 515: Beacon OS, Amlin, OH at 2341 (Meece).
 - 524: Beacon HEH, Newark, OH at 2344 (Meece).
 - 2182: USCG North Bend, OR in USB at 0552



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CHU time signals are transmitted on 3 330 and 14 670 kHz with a power of 3 kW, and on 7 335 kHz with a power of 10 kW. Carrier frequencies and second pulses are derived from a cesium standard. A time announcement is made each minute in French and English.

Les signaux horaires CHU sont transmis sur 3 330 et 14 670 kHz d'une puissance de 3 kW et sur 7 335 kHz d'une puissance de 10 kW. Les fréquences des porteuses et les repères des secondes sont dérivés d'un étalon au césium. L'annonce de l'heure se fait à chaque minute en anglais et en français.

Thank you for your report of reception on

Merci pour votre rapport de réception sur

3 330 kHz 7 335 kHz 14 670 kHz

Radio Station CHU · Ottawa Ontario Canada K1A 0S1

From Canadian time station CHU, Dave Ford, TN received this QSL card.

w/advisory of overdue vessel *Cougar*, a 45' fishing vessel w/9 POB (Sabo, CA).

2598: Yarmouth CG, NS on USB at 0545 w/fishing regulations re size of species, catch limits, boat size, etc. (Fernandez, MA).

2622: Booster recovery vehicle *Independence* in USB at 0339 w/calls to *Liberty Star* & *Freedom Star* nite before shuttle launch (Fernandez, MA).

2716: CGJL, *HMCS Assiniboine* (DDH-224) wkg CZCB, *HMCS Glenside* (YT8-644) at 0920, then went to VHF-FM Channel 10; USN Miscellaneous Auxiliary *Deer Island* (YAG-62) wkg Autec Opns & Snapper Base at 1010; NPPFD, *USS Leftwich* (DD-984) clg San Diego Control 1 at 1020. This DD was using tactical ID of C-10; NLZL, *USS Fidelity* (MSO-443) using tactical ID 1YP calling Navy Ops Control, Cape Canaveral at 2310-- Canaveral Dockmaster used tactical ID Q0X. Comms re to early a.m. rendezvous between *Fidelity* & a Trident sub. Un-ID sta w/ID Tango clg *USCGC Baronoff* (WPB-1318) at 2330 advising, "I can't control your movements but please stand clear of the instruments I am towing." I called *USCGC Miami* (*Baronoff's* homeport) & was advised that Tango was a secure/sensitive matter & couldn't be explained further (Gordon, CT).

3201: Couple of un-ID fishing boats in USB at 0335 chatting (Tom Kneitel, NY).

3261: Fishing boat skippers passing the time away in USB at 0146 (Kneitel, NY).

3635.5: Beacon U in CW at 0137 (Kneitel, NY).

4030: YL w/5F groups in Bulgarian, AM-mode at 0403 (Kneitel, NY).

4066.1: NWUO, *USS Butte* (AE-27) clg Norfolk ICSB at 2205. Phone interphase made to Operations Officer NWS, Earle, NJ; NMJE, *USS Estocin* (FFG-15) clg Norfolk ICSB at 0100. Patch to DO at an Autovon # re spare parts needed (Gordon, CT).

4403.9: KMI, Inverness, CA w/CW call marker at 0215 (Combs, CA).

4580: Sta ID'ing as Colville (pass Colville Lake, NWT) wkg 957 re request for earplugs & goggles thru Forest Service channels. USB at 0541. This is a Canadian Ministry of Natural Resources freq (Sabo, CA).

4634.5: Gulf of Mexico oil rig t/c in USB at 0613 (Sabo, CA).

4731: MKL, RAF Edinburgh, Scotland w/dots & testing in CW at 0200 (Kneitel, NY).

4820: YL/EE at 1300 repeating Juliet Oscar in AM w/slow electronic tones in background. At 1305 anncd a message for 314 w/36 groups, then into 5F grps (Mason, England).

4837.5: FSB, INTERPOL HQ, Paris in CW w/marker & data burst at 0242 (Kneitel, NY).

4996: RWM, Moscow, USSR w/time pips in CW at 0248 (Kneitel, NY).

5015: YL/GG w/5F groups (each grp X2) in AM-mode at 0041 (Kneitel, NY).

5258: CMU967, Soviet Navrad, Santiago, Cuba in CW at 1115 clg RMCK. Klingenfuss doesn't bother to list this one (Kneitel, NY).

5413: YL/EE in USB at 0332 ending 3/2F grps w/End at finish (Fernandez, MA).

5696: Cape Air to CG Rescue 2116 in USB re Scott AFB activating CAP Cessna 310 to continue search for downed a/c, at 0130 (Willmer, MI); USCG Rescue 1375 wkg USCG Boston re locating vessel taking on water in Buzzard's Bay, MA at 2313 (Fernandez, MA); USCG Camspac San Francisco to GSV w/instructions to divert to the Dunbarton Bridge (SF Bay) for SAR, foll by CG Air SF to Rescue 1480 w/advisory of downed a/c on E side of Dunbarton Br; then Rescue 2115 to San Diego Air Sta re ETA San Nicholas w/injured party aboard. USB 0138-0147 (Sabo, CA).

5922: Beacon X in CW at 0428 (Kneitel, NY).

6470: JCX, Naha R., Okinawa in CW at 1235 w/slow CQ marker (McDonald, BC).

6484.5: WSC, Tuckerton R., NJ w/CW marker at 0632 (Combs, CA).

6506: USCG Portsmouth, VA in USB w/wx (Gerard, CT).

6540: YL/SS repeating 936 in USB at 0302 (Kneitel, NY).

6605: New York Aeradio in USB at 0647 w/wx (Kloth, IL).

6679: Valmet in USB from Honolulu at 1130; Tokyo 1140; Hong Kong 1145 (weak), & Auckland 1150 (Watts, KY).

6750: Charlie India Oscar 2 repeated by YL at 0248, AM-mode. Ended 0250 (Fernandez, MA). This is a Mossod (Israeli intelligence) xmsn-- Ed.

6760: SAM 86972 in LSB 2211-2332 w/patch via Andrews. Taking VIP's to Shuttle launch (Lamar, FL); SAM-60200 in USB at 2315 w/patch via Andrews to Atlantic Aviation re Customs check (Willmer, MI).

6801 to 6803: Beacons D, O, & P all about 0115 in CW (Kneitel, NY).

6842: YL/EE repeating 814 (X3) 00000 at 0130 (Ford, TN).

6963: YL/EE repeating 754 (X2) & counting 1-to-0, USB at 0205 (Kneitel, NY).

6982: YL/SS in AM-mode w/5F grps in progress 0707 to 0709 off (Kloth, IL).

6998: YL/GG w/5F grps, tones 0300-0305 then 5F grps to 0308 "end" then into 2nd 5F grp msg. Same format on 5 other days at same time (Gerard, CT).

7525: YL/SS in USB at 0307 w/5F grps (Gerard) **7552.1:** WN1Y791, SW Bell Tele, Houston, TX reporting local wx to SW Bell's WN1M867 in St. Louis MO in USB at 1503. At 1514, WNEC703, Technical Systems Engineering Unit 6 came on & asked WN1M867 who they were. Unit 6 was near Kansas City (J.M., KY).

7705: NMN, USCG Portsmouth, VA clg CQ in CW at 0710 (Combs, CA).

7904.5: Beacon K in CW at 0337 (Kneitel, NY).

8078: YL/EE with 3/2F grps, AM mode at 0045 (Kneitel, NY).

8125: KDM49, FAA Atlanta, GA clg KLC48 in USB at 1920, advising their audio sounded distorted. Sounded to me like they were using AM (J.M., KY).

8216.7: W1BK, M/V *Cherry Valley* wkg WOO for comms check & advising they were having problems

with rig on 12 MHz. USB at 2145. Located 40N & 70W (Kneitel, NY).

8294.2: WBQ, Bowling Green, KY in USB at 1606 wkg tug *James A Hines* (Pat O'Connor, NH).

8361.8: UVTC, Soviet general cargo ship *Simferopol* in CW at 0241 clg CLG (McDonald, BC).

8430: YL/SS in AM-mode w/5F grps in progress at 0704; off 0706 (Kloth, IL).

8436.1: PKC, Palembang, Indonesia in CW at 1325 clg CQ (McDonald, BC).

8445: 9PA, Banana, Zaire in CW at 0225 w/VVW marker (Ross, ONT).

8502: XSG, Shanghai, PRC in CW at 0720 w/marker (Combs, CA).

8606: ZRQ2/4, RSA Navrad, Cape Town, RSA w/CW call marker at 0247. Klingenfuss doesn't list this freq (Kneitel, NY).

8652.5: PZN, Paramaribo, Surinam in CW at 0025 w/CQ (Ford, TN).

8669.5: Beacon U in CW at 0407 (Kneitel, NY).

8706.5: UFN, Novorossiysk R., USSR w/CW & data burst marker at 0128 (Kneitel, NY).

8728.2: Monaco Marine Radiotelephone Service in EE & other languages w/music box type signal between each ID, then list of xmsn times given in FF (Fernandez, MA). Time not reported-- Ed.

8792: WOM, Miami R., FL w/wx forecast at 0500 (Willie, ALTA).

8843: American 112 in USB at 0408 clg Honolulu (Watts, KY).

8855: Durinam 7632 to Piarco R. (Trinidad) w/pos report in USB at 0354 foll by Clipper to Manaus (Sabo, CA).

8967: Aitevac 228 over Atlantic wkg wkg Lajes in USB from 2305 (Willmer, MI).

8970: LM70 to R7M (both un-ID) in USB at 2008 w/inquiry re "black box" (Grantland, CT).

8971.9: OM/EE giving permission to unheard sta for going "Green" then into scrambled mode (Grantland, CT).

8972: 8NI & X9F (both un-ID) in USB at 1403 re "Going Green" & "In the Green. Tones & scrambled. H8A requested radio check but not answered. 8NI had no t/c but "just trying to get up on the Alligator Net" (Watts, KY).

8984: Rescue 1603 to Honolulu Commsta re SAR for downed a/c w/talk re wkg up poss splasdown point based upon a/c's altitude, speed, glide path, etc. Was USB at 0815 (Sabo, CA).

8993: Gull 60 in USB 2250 via MacDill to Miami Monitor w/wx info. Also Gull 20 & 21 returning to Little Rock AFB (Willmer, MI).

9213: Magic w/test count then called Researcher 607 at 1310. Someone ID'ing as Novy 50607 clg Magic at same time on 9215 (J.M., KY).

9313.5: Beacon U in CW at 0430 (Kneitel, NY).

9325: YL/EE repeating Romeo Kilo in USB at 0930 w/slo electronic tones. At 0935 a message for 104, 67 grps; for 702 w/35 groups. Then into 5F grps but off at 0940 halfway into msg. A series of X's sent in CW on top of msg then CW sig went into 5F grps at 0941 (Mason, England).

9450: YL/GG at 1130 repeating Lima Uniform w/R. Moscow world svc on same freq. Into 5F at

1136. Have sent a tape of this to R. Mascau asking if they can ID this interference (Masan, England).

10015: NOAA 41 & 43 w/kg Miami, USB at var times (Lamar, FL).

10051: NY Volmet w/wx in USB at 1245 (Watts, KY). 10180: YL/EE at 1900 repeating 847 till 1905 the 532 (X2) 106 (X2) & into 5F, AM mode (Mason, England).

10650: OM in pass RR, AM mode at 0618 w/5F grps, ended w/2F rptd then 1F repeated X5 (Fernandez, MA).

11107: YL/GG in AM mode at 1800 repeating Yankee Sierra w/fast flute tones. Should have been Papa November. 2705/5015/7405 carrying PN as normal. Repeated 1830 at 1830 w/PN on 1107 per sked (Mason, England).

11117: USAF air/ground in USB at 1901. Pilot asking permission to return to McGuire AFB. Was 200 miles out w/inop outpilot (Grantland, CT).

11176: USN a/c LY64 w/patch to Andrews AFB via Ascension Island. Heard names/ranks in the clear. Someone on a/c heard saying, "You're telling the whole world on HF radio." Could hear cockpit chatter (Ford, TN).

11205: YL/EE w/ID of H6N in USN at 1506 sending string of 41 alphanumerics, repeated several times. OM/EE w/ID E2H confirmed reception. Both ops sounded like Americans (Reese, Thailand).

11222: Lufthansa 435 in USB at 2326 w/pp to Austria via Stockholm (Vendetti, NJ).

11235: RAAF Darwin w/kg AUSY 905 in USB at 0716 (Saba, CA).

11246: MAC 40653, a C-141 a/c enroute Goose Bay w/kg McDill AFB, FL w/patch to McGuire Metro asking for wx at 1751 in USB (Meece, OH).

11279: YL/RR in USB at 0312 w/wx (either Tbilisi or Aktyubinsk) that ended at 0315. At 0320, Tashkent came on, but weak. At 0326, Baku came on (Fernandez, MA).

11282: Continental 12 in USB at 0307 clg San Francisco (Watts, KY).

11288: Fortress 40 w/kg Slingshot reported they were holding 20 miles N of November 9 far target, then req more info on subject at 2119. Was USB. Anti-smuggler comms (Meece, OH).

12315: NADY, USS Shreveport testing all modes w/NAM at 1413 (J.M., KY).

12336.2: PJCH, M/V Nieuw Amsterdam, Dutch pass ship at anchor in Ketchikan w/kg KMI at 0232 in USB (McDonald, BC).

12541: UZDP, Soviet cargo ship Akademik Kuprevich in CW at 0253 clg UFB (McDonald, BC).

12429.2: KVR416, Pensacola, FL in USB at 1321 w/kg tug American Pride (O'Connor, NH).

12784: XSX, Keelung, Taiwan in CW at 0929 w/CQ marker (Vendetti, NJ).

12788: JFA, Chuo Gyogyo, Japan in CW at 9652 w/marker (Combs, CA).

12916.5: KLB, Marysville, WA w/CW marker at 2203 (Combs, CA).

12892: Canberra, Australia w/time sigs, USB at 0640 (Watts, KY).

13008: JOR, Nagasaki R., Japan clg CQ in CW at 1251 (Kneitel, NY).

13024.5: ASK, Karachi, Pakistan clg CQ in CW at 0332 (O'Connor, NH).

13063: JDB, Nagasaki R., Japan at 0706 w/marker (Combs, CA).

13117: Aircraft 104 in NY clg Air Jamaica Ops at 2128 in USB (Meece, OH).

13138: Halifax CG w/patch for ship Northern Osprey in USB at 1335 (Watts, KY).

13261: Brisbane R. telling un-ID a/c to switch to 118.9 MHz for Brisbane Control. Was USB at 0507 (Saba, CA).

13271: NY Aeradio w/wx forecast at 1533 (Willie, ALTA).

13826: NNNOCWE, USS Ingersoll (DD-990) USN MARS sta w/kg NNNOPRQ at 1300. NNNOCWE was in Pacific w/QRM from the woodpecker. NNNOCWE made radio checks with NNNONNYC & NNNONCA. All trying to make a stateside contact (Gordon, CT).

13957: American 680 clg Ft. Worth dispatch on HF Chan 13A at 2023 in USB. At 2024 Cancun Opns called Ft. Worth Dispatch to relay (Meece).

14441.5: NNNOCYV, USS Dutton (T-AGS-22) USN MARS clg for stateside QSO at 0035; NNNONXR, USS Fearless (MSO-442) clg for stateside QSO; NNNONZS, USS Shark (SSN-591) clg for a stateside QSO at 2330. He finally raised the MARS station at USN Sub Base in New London, CT (Gordon, CT).

14461: WWJ40, FHWA HQ, Washington, DC & WWJ73, St. Paul, MN in comms on Freq F7 at 2033, USB (J.M., KY).

14461.5: CFARS net in USB at 2114: CIW307 (Calgary) to CIW-9102, vessel Martha L. Black near King William Island in Arctic area (Saba, CA).

14470: NNNOC TM, USS Reeves (CG-24) w/kg NNNOKRQ at 2315 (Gordon, CT).

14477: NNNOCYX, USNS H. H. Hess (T-AGS-38) MARS sta w/kg NNNONIG at 0100. NNNOCYX is a new MARS call assignment (Gordon, CT).

14485: Army MARS net in USB at 0510 w/ABM4USO in S. Korea running patches (Saba).

15000: BPM, Xian, PRC time sta in CW at 0129.

ID in CW then YL w/ID in CC, 'neath WWV sigs (Ross, ONT).

15036: OM/EE in USB at 1735 w/aero wx for Canadian locations (Klath, IL).

15867: Anti-smuggling Oceanside 300 & Gill Fish in USB mode at 2334 on ZE channel (Saba, CA).

16463.1: GDHH, cable ship ITM Venturer in USB at 1649 w/phone t/c thru Partishead R. (O'Connor).

17198.5: KFS, San Francisco R., CA in CW sending ID marker at 0419 (Micklus, VT).

19881: USMC MARS net in USB at 2320: NNNOMET w/kg NNNONVT (Japan), & NNNOMOQ w/patches (Saba, CA).

19971: PBC319, Dutch Navrad, Goree Island, Holland clg PBC322 in CW at 1658 (J.M., KY).

20130: YL/EE in AM mode at 2335 repeating NDBU N6NT VA4B EBUE in international phonetics (Vendetti, NJ). My guess is this was phoneticized cut numbers with AUV4E6BDNT= 1 to 0-- Ed.

20198.4: Shuttle Launch Mission Control, Houston, TX in LSB at 1445 w/Shuttle comms before & after launch (Spurlock, Saudi Arabia).

20524: YL/EE w/4F in AM at 1439 (J.M., KY).

20992: Beacon D in CW at 1546 (J.M., KY).

21366: Space Shuttle net in USB at 1550 checking pix on all TV networks (Micklus, VT).

23441: Idaho Potato to Attach & Patted in USB at 0002. Called this Channel Victor (Saba, CA).

23700: UL, jamming sta in CW at 1429. Also jammer LF at 1948 (Vendetti, NJ).

24160: Jammer RR in CW at 1946 (Vendetti).

25130.5: LPD34, General Pacheco R., Argentina w/VVV marker in CW at 1925 (Kneitel, NY).

25197: LSAB, Boca Argentina in CW w/t/c list (McDonald, BC).

25775: EAD4/EAD44/EDZ5 marker in CQ at 1933 is 2nd harmonic of 12887.5 kHz (Kneitel).

26494: E4M w/t/c re RTTY xmsn for B4T. USB at 1513 (J.M., KY).

29610.4: two OM/EE w/southern accents in AM at 2034 using XXX lang, then talking about running boat out 400 miles to wait for drop. Possible drug runners?? (Vendetti, NJ).

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Like the little girl in that movie says: "They're back!" Or, at least they were. True to their word, the operators of **Radio Sarah RNI** actually did get back on the air from the ship "Sarah", anchored more than four miles off of Long Beach on Long Island, NY.

But the station soon received hassles from the FCC. **RNI** was back for three nights over a weekend. The fourth broadcast, on Monday night, though, lasted only about an hour. Monday night's brief broadcast came as a result of a temporary restraining order issued by a Boston judge at request of the U.S. attorney's office which was acting for the FCC. The order was read to those on board the Sarah through a Coast Guard loudspeaker. Station operators decided to close down rather than risk being boarded and having the radio equipment removed, dismantled or smashed as happened in 1987.

About two weeks before **RNI**'s return the owners sold the Sarah to a London-based company, Atlantic Communications. Two of Atlantic's staff were among the six people on the Sarah when the station was voluntarily shut down.

An interesting part of the story is that the ship was to operate under the flag of Sealand, though an actual flag had yet to be obtained. Sealand is a floating platform built by the British in World War II. The platform, little larger than a basketball court, was occupied in the 1960's by British businessman Roy Bates who had a pirate station of his own at the time. After a long legal battle, Bates finally won title to Sealand and has named himself prince, his wife princess, has established a constitution, designed a flag and postage stamps and even set up a currency!

RNI's broadcasts used only the 1620 kHz frequency this time but its 1 kW watt signal was heard over quite a large area. Bradley C. Lucken heard them in Ohio and Larry Shaunce picked them up in Minnesota that weekend. At this writing there's no saying what direction this story will take next. The ACLU has taken up **RNI**'s cause and is providing legal help. **RNI**'s deal with Atlantic Communications reportedly allows **RNI** to buy the ship back should the courts decide the government cannot prevent shipboard broadcasts from outside territorial waters. **RNI**'s QSL address is: **RNI**, P.O. Box 1659 Gracie Station, New York, NY 10028.

According to a couple of DX loggings I've seen, it seems that just a couple of weeks after the **RNI** episode, there were one or more test broadcasts from **World Music Radio**. **World Music Radio** is a Scottish pirate station and was heard by listeners in New Jersey, Pennsylvania and Florida on a Satur-



K-BAD's QSL is in bright red and blue letters against a black and white background of stars

day afternoon around 2000 on 15045. I'm hoping this (a) is no ruse and (b) that there'll be more tests. If you hear the station or if anyone QSL's their loggings, please let this column know.

If you like to try to QSL your pirate loggings there may well be a large problem to furrow your brow. Brad Lucken says he sent a report to **Radio Clandestine** via the usual P.O. Box 982, Battle Creek, Michigan address and had the letter returned marked "Return to Sender—Box Closed". Well there's always the chance that some postal worker simply messed up but this might also explain why recent loggings of **Radio Clandestine** have had no mention of an address when, formerly, the station was quite good in the QSL department! If "982" has been closed down it's a serious blow to QSL hounds because this drop was one of the two main pirate mail forwarders in the country. If you are getting reports returned, let me know and if the operator of "982" is reading this how about letting us know what gives and where reports should go now!

Brad also says that (maybe) he's made some progress in trying to get a report to the **Voice of Tomorrow** at its Clackamas, Oregon address. This time he used "P.O. Box" 314 instead of just "Box" 314 and this time the letter hasn't been returned. Keep me advised on your efforts, Brad. I don't think **VOT** has been active in several months but they are probably well aware that the FCC had its collective monitoring ears up for them, due to the nature of the **VOT** programming.

A new pirate, at least to me, is **K-BAD** (AM600) which the operator notes, uses

600, 810, 1500 and 1510 kHz and which he says will soon become a legal "Part 15" transmitter on 1510. It will broadcast from a large balloon tethered some 1,500 feet above the top of a 10,000 foot mountain in Utah. It'll use a mere .005 kW, though, so you probably can't expect to hear this one unless you live in the area.

WRFA (Radio Free America) was the first pirate station entered into the log of Donald A. Grim in Texas. He heard the station at 0330 on 7445 with a weak signal and frequent breaks in the transmission. Don quotes the announcer as saying "This is **WRFA**, bringing you the best in country music. This is a test broadcast. Our station will not be in operation for a quite sometime—schedule will be advertised in the near future." Don says some of the program was a re-broadcast of a station identifying as "**FM93**".

Robert Ross of London, Ontario forwards several pirate logs. He caught **Radio Clandestine** on 7414 at 0252-0312 and also on 7424.4 at 0502-0515. **Radio Garbanzo** was noted from 0417 to 0437 close on 7415.3 and he had a tentative log of **WYMN** from 0212-0256 on 7425. He also caught **Radio Caroline** at 2310-2325 on 6215.

Be sure to send me your loggings, news, QSL copies and general pirate news as often as you can. That goes—in spades—for pirate station operators! Pirate activity seems to be up significantly over a year or two ago so there's lots to log if you listen regularly, especially on weekends. So, stay with it and keep in touch.

See you next month.

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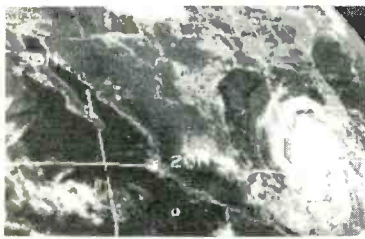
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GETTING STARTED AS A RADIO AMATEUR

What is Ham Radio, Anyway?

Our "Getting Started in Ham Radio" subtitle may be misleading: The Ham Column's readers are a mixture of hams and nonhams. Reflecting this, Ed Bateman, Davidsonville, Maryland, writes:

"This is in response to your request for more feedback that you sent out in your July issue of POP'COMM. As a non-licensed but potential ham radio operator, I have found that in the few columns I have read of yours, missing is a sense of *why* anyone would want to make all the effort to get a license and take part.

"I happen to know how much fun your hobby can be because I hang out with someone who's really into it and shares it with me. In fact, I'm looking forward to this weekend, since I've been recruited to play some role in *Field Day*, which sounds like a blast.

"Your articles assume the reader has already been exposed to ham radio, and that's faulty. I'm a shortwave radio buff primarily and was drawn into international broadcasting because those stations are *trying* to recruit their audience. But to listen to the ham bands on HF, I get very little feeling of being drawn in. In fact, it sounds like a closed society most of the time.

"And before I knew any better, I thought Amateur Radio was just something for crippled people, or else seemed to be a haven for the retired or those who are so technical that they don't know how to relate to people in human terms (nerds). Your articles need to overcome this image problem, and identify for a reader reluctant to make the effort those things that would give them the incentive to try."

Gee, Ed. What is ham radio? You're right: I *didn't* begin my stint as Ham Column editor with a general description of ham radio. My intent in The Ham Column is to talk about ham radio doings in a way that might interest *people already interested in radio*—hams, "prehams" and nonhams—in *doing ham-radio things*. In doing this, I make two, and only two, assumptions: (1) POP'COMM readers can read and (2) POP'COMM readers are interested in radio communication. Both are pretty safe assumptions—I hope!

But I haven't yet tried to *describe* ham radio. Hmm. We might try to describe "hamming" by trotting out a list of neat stuff you can do as a ham—kind of like describing the fun of eating by listing delicious foods. Okay, let POP'COMM reader Pete Dillon, N3FNE/SV, stationed in Greece, toss in his two cents' worth in response to my "tell me



As KB4CQL, Samuel A. Robinson—now General class N4KGC—took #1 in Alabama honors with this modest ham station in the 1984 Novice Roundup. Have a photo of you in your ham shack? Send it to The Ham Column, ARRL, Dept PCN, 225 Main St., Newington, CT 06111.

what you want to read" bleating in July 1988 POP'COMM:

"Gee whiz, there's lots of stuff you can write about. Since I'm overseas now, foreign ham activity, clubs and DX interest me a lot. How about something on operating outside the US and Canada? Hey! What about a paragraph or two on 'moonbounce' and meteor-scatter communication? Can't get much further DX than that! Perhaps something on satellite operation would interest folks. Say, maybe a profile on a well-traveled ham operator—people who go on DXpeditions (to put rare countries on the air). Then again, you could look at the humanitarian side of ham operation, such as traffic (message-handling) nets—and what about ham radio's relation to the Military Affiliate Radio System (MARS)? (I'm a MARS operator.) In fact, you could look at all the different types of nets (ham radio networks and round-table discussions, generally) in operation."

Al Fant, Jr., WB5WAF/DA1FT, another US ham who's presently stationed overseas (in Germany), provides another list of writing assignments: "DX'ing—Why do it? What is a QSL card? A QSL bureau? How do you QSL via the bureau?"

"Contests—there seem to be so many! How about describing the major contests? What are the prizes?"

"Certificate (operating award) hunting: What is it, and how do hams do it?"

"Slow-scan television? Amateur fast-scan television (ATV)?"

"FM/repeaters—What is repeater operation? Why is it so popular? What is a frequency coordination council?"

"MARS: What is its connection with Amateur Radio? I thought two of the bigger victories in ARRL's history was that the League kept the military from taking over *all* the ham bands at the conclusion of WW I and WW II. What caused the military's change of heart?"

"QRP: I know that this stands for reduced—or low-power ham operation, but *why* bother using low power?"

"Mobile: Is all mobile ham work done at VHF and UHF? I never hear of hams running HF mobile.

"Space communication: My Extra-Class-license guide states that if I were ever a passenger on a space shuttle, I could use my Extra Class license for space-to-earth communication (assuming that I had the permission of the master of the craft). I realize that there might be a considerable time lag in transmissions to and from space, but is this possible? Does the International Telecommunication Union concern itself with space operation?"

Ed Bateman, are we getting anywhere in describing ham radio? Despite the fact that ham radio consists, *in part*, of working worldwide DX on voice, code, television, radioteletype and other modes; of having in-person fun at ham radio clubs and conventions; of bouncing signals off the ionosphere, the moon and ionized meteor trails; of talking through satellites designed and built by hams; of traveling to "rare DX" countries for the sole purpose of putting them on the air for *other* ham-radio-DX hounds; of handling critical emergency traffic during and after floods, earthquakes, storms and other disasters; of cooperating with the Military Affiliate Radio System to helping GIs worldwide keep in touch with their families back home; of on-the-air operating contests, and collecting QSL cards and awards; of building, researching, developing, experimenting and just plain fiddling on radio's technical side, with stations, transceivers, receivers and transmitters built into everything from Band-Aid® boxes to space shuttles—despite the fact that all of these things are part of ham radio, just listing them provides a pretty spotty picture of Amateur Radio. Okay, we'll try another approach or two: Next month, our "what is ham radio?" discussion continues with FCC's definition of the Amateur Radio service. See you then.

PC

NEW AND EXCITING TELEPHONE TECHNOLOGY

How To Wreck A Nice Beach

What is this? Vandalism? Another boring tale of pollution and unwanted garbage? More horror stories about infectious medical waste? Try again, read the headline to someone. They may understand it as: "How to Recognize Speech" which is what we are really talking about. This is just an illustration of how difficult it can be to understand what is being said when there is no idea of context. If humans are sometimes not sure what is being said, computers have a worse time.

Beyond the problem of context, there is the problem of accent and syntax. A morning greeting in the U.S. can be either a civil "Good morning!" or a gruff "howya doin'?". Foreigners can be confused by this even when they have a grasp of the context. Computers get lost. Telephone companies and large phone service users are obviously interested in speech recognition. They have been playing with digital storage and synthesis of voice for some time. If you dial a changed number or need to put more money in a coin phone, the "operator" has been a computer for some time now. If the same computers could recognize that the caller would like the last message repeated or the caller could ask for "Mr. Jones" and get his extension. With voice recognition, phone service would be cheaper and more useful.

So where do we stand today with speech recognition? Well progress is being made and basically there are two ways of going about it. You can teach a system to recognize a few words spoken by anybody. The other approach is to train a system to recognize thousands of words from one person. You then hope that the one person who can be understood does not lose a tooth or get a bad cold as the computer would have to be retrained to understand the new voice.

For telephone use, it would be better to be able to recognize a few words spoken by anybody, whether they came from Texas or the Bronx. The speech recognition must be flawless, getting it right most of the time is not good enough. Current systems are supposed to be 98% accurate. Fans of Peter Sellers movies will probably recall that there are many ways to pronounce even the word phone, and that is how these systems fail. The horrible secret of voice recognition is that just like the rest of us, it can have trouble understanding heavy accents. Henry Kissinger may have trouble getting his bank statement from a voice recognition system. There must also be a back up, if the caller shouts HELP!, the system should put a live

TABLE 1

A list of companies currently manufacturing voice recognition systems.

Conversant Systems
AT&T
6200 Broad Street
Columbus, OH 02154

Intervoice
1850 North Greenville
Richardson, TX 75081

Kurzweil Applied Intelligence
411 Waverly Oaks Road
Waltham, MA 02154

NEC
8 Old Sod Farm Road
Melville, NY 11747

Speech Systems
18356 Oxnard Street
Tarzana, CA 91356

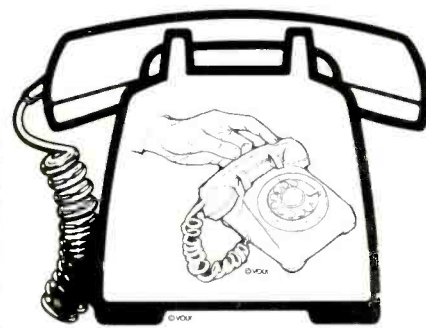
Voice Control Systems
14140 Midway Road
Suite 100
Dallas, TX 75244

Votan
4487 Technology Drive
Fremont, CA 94538

human on the line. Not all systems have this available.

The horrible fact is that today, Voice Recognition is no smarter than the current systems that take input from you Touch-Tone phone as a response. At times they can be a bit dumber. Of course Voice Recognition is friendlier and more human than punching digits on a Touch-Tone phone. Also, a dial pad can only handle numbers and the Asterisk and Octothorpe as yes/no indicators, or the Octothorpe as an end of input indicator. Voice recognition can of course understand words like "Checking" or "Savings". This is friendlier than "Touch one for savings, two for checking, three for securities." The techie types that read Popular Communications may enjoy telephone banking and registering for college with a Touch-Tone phone. Alas, a massive percentage of the public is terrified of anything with more than three knobs. The low usage of banking automated tellers is an illustration of this.

So where do we stand today with Voice Recognition? Some companies are currently using it for telephone banking, medical



claims and simple customer service. As you can expect, some IBM lines have voice recognition equipment on them, so do some Blue Cross lines. With a good system in the right environment, you will never know that the voice you hear is a computer. The responses you give are understood by the computer which then cause the next question to be asked.

The test to see if you are dealing with a computer or a human is called the Turing Test. The test is named after Allan Turing a computer pioneer. To pass the test, a computer must appear as if it is not a computer but another human. Of course, whether a system passes the Turing test very much depends on the questions asked. The computer in the Arthur C. Clarke movie, *2001*, HAL was pretty human, but how would HAL or any machine respond to a question like: "Tell me what you like to eat in Sushi bars?"

Northern Telecom, a large Canadian equipment manufacturer, is currently working on a computerized voice recognition long distance operator. When finished, later this year, it should be able to handle collect calls, international calls and never call in sick.

As can be expected, AT&T are heavily involved in this field. Their voice recognition division is called Conversant Systems. Conversant Systems currently have a system that will recognize numbers 1 to 5 and yes and no. But possibly by the time you read this, they will have equipment that can recognize numbers in the hundreds and tens. They call this "connected-digits" speech. What this means to the user is that instead of saying six (pause) nine, the system will recognize "sixty-nine" as 69 and not 6 and 9. It will also recognize long nine digit or longer numbers for ordering from catalogues, quoting serial numbers, phone numbers and bank account numbers.

All the systems that will handle any caller are somewhat limited, they will get lost if extraneous comments and grunts are inserted. Over the next few years you can expect better and better recognition with bigger vocabularies.



WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

License To Operate A Stolen Vehicle Recovery System

The Commission granted a request by the Lo-Jack Corporation and the department of Highway Safety and Motor Vehicles (DHSMV) of the State of Florida, for authority to operate and conduct a market test of an experimental stolen vehicle recovery system on 173.075 MHz in the State of Florida.

The Lo-Jack vehicle recovery system consists of a radio receiver-transmitter installed in a hidden location in a vehicle, tracking devices mounted in police vehicles and a computerized network of radio transmitters.

On March 10, 1986, Lo-Jack and the Massachusetts Department of Public Safety was granted experimental authority to operate and conduct a market test of the Lo-Jack system in that state. Lo-Jack subsequently filed a petition for rulemaking requesting the allocation of 173.075 MHz for a new stolen vehicle locator service and establishing that law enforcement and public safety department eligibility for licensing this service. The 173.075 MHz frequency is currently used only by the federal government.

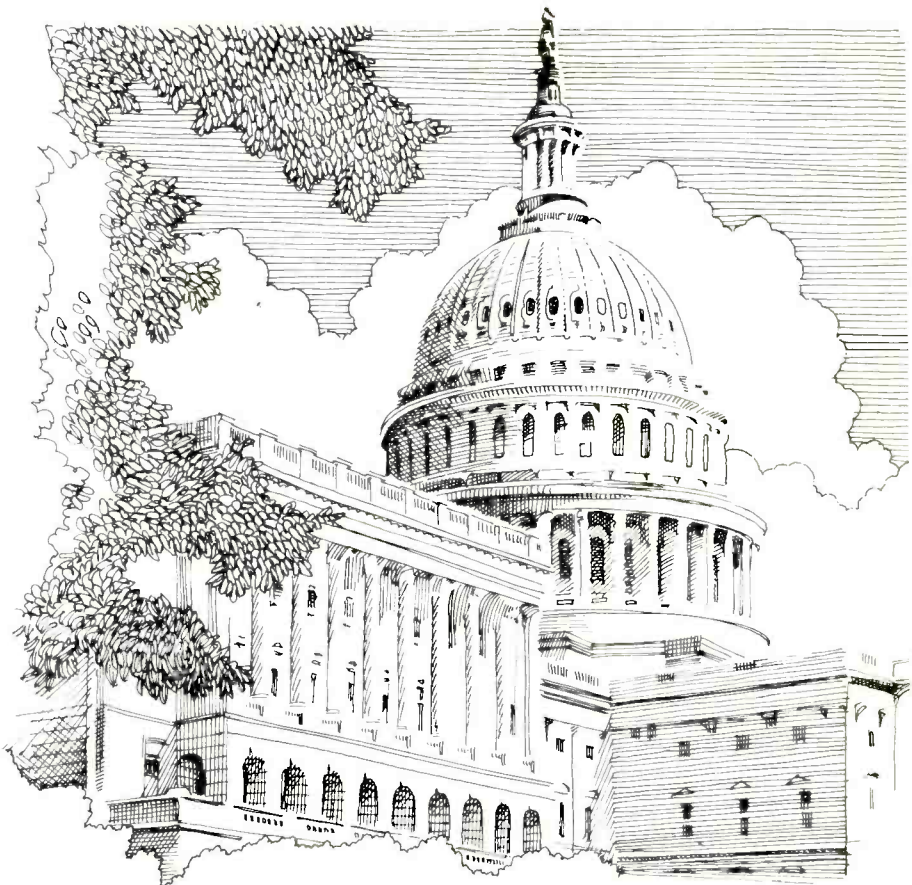
On September 23, 1988, Lo-Jack and the Florida DHSMV filed applications for the purpose of expanding the demonstration of the Lo-Jack vehicle recovery system to the State of Florida. Lo-Jack also requested authority to conduct a market test of its system components in Florida.

In granting Lo-Jack's request, the Commission stated that the expansion of experimental authority and the market test of the Lo-Jack system to the State of Florida appeared warranted. Geographical differences between Massachusetts and Florida should provide useful information necessary for the design and implementation of stolen vehicle recovery systems and demographic differences, such as the high number of part-time residents and tourists in the State of Florida, should provide important marketing data.

Maximum Reimbursement Fee For An Amateur Operator License Examination

The FCC announced the maximum allowable reimbursement fee for an amateur operator license examination will be \$4.75. This amount is based upon a 4.2% increase in the Department of Labor Consumer Price Index between September 1987 and September 1988.

Volunteer examiners (VE's) and volun-



teer-examiner coordinators (VEC's) may charge examinees for out-of-pocket expenses incurred in preparing, processing or administering examinations for Technicians, General, Advanced and Amateur Extra Class operator licenses. The amount of any such reimbursement fee from any examinee for any one examination session, regardless of the number of elements administered, must not exceed the maximum allowable fee. Where the VE's and the VEC both desire reimbursement, they jointly decide upon a fair distribution of the fee.

No fee is allowed for the Novice Class operator license examination.

Expansion Of The 6 Meter Repeater Subband

The Commission proposed amending its amateur service rules by expanding the 6 meter repeater subband by 1 MHz.

Currently, one-half of the 4 MHz comprising the 6 meter band, 50-54 MHz, is authorized for repeater operations. However, because of the growing number of repeater stations in the 6 meter band, a larger repeater subband has been suggested.

The Commission stated that the expan-

sion of the 6 meter repeater subband could provide for additional flexibility in the use of the 6 meter band. With this added flexibility, the amateur community could then determine for itself exactly how the additional 1 MHz could be used. Some possibilities are that in urban areas, the 1 MHz could be used for additional repeater operation and in less populated areas where additional repeater operations are not an immediate need, the spectrum could be used for other types of operation.

Although there appears to be a strong demand in the amateur community for the expansion of the 6 meter repeater subband, the Commission expressed concern about the effect such an expansion would have on the other users of the 51.0-52.0 MHz segment. Therefore, comments are invited on whether expansion of the 6 meter repeater subband is needed and its impact on existing users.

Operator Convicted Of Transmitting Obscene Language

Gary Ray Roach of Porter, Texas was recently convicted on one felony count of

transmitting obscene, indecent, and profane language by radio. Judge Kenneth Hoyt of Houston, Texas, sentenced Roach to a fine of \$1,000 and three years supervised probation. In addition, Roach was restricted from purchasing or using a radio capable of operating on a frequency for which he does not have a license. Roach must obtain prior approval from the court before applying for any FCC-issued license. Conviction of a felony results in the loss of, among other things, the right to vote. Transmitting obscene, indecent, or profane language by radio violates Section 1464, Title 18, United States Code, and subjects the violator to a maximum fine of \$250,000 and two years imprisonment.

Although Roach does not hold an Amateur Radio Service license, his unlawful transmissions took place in the two meter amateur band. Section 301 of the Communications Act of 1934, as amended, prohibits the unlicensed operation of a radio transmitter. Violators can receive a maximum fine of \$100,000 and one year imprisonment.

The investigation was conducted and coordinated by the FCC Houston Office, in cooperation with the U.S. Attorney's office. The criminal prosecution was directed by Assistant U.S. Attorney Richard Banks.

Arizona Man Fined \$1,000 For Illegal Operation On A Government Frequency

Stevan F. Vandecar of Glendale, Arizona, has been fined \$1,000 by the Federal Communications Commission for illegally operating a radio transmitter on a frequency reserved for government use only.

Investigators from the FCC office in Douglas, Arizona observed radio transmissions of the frequency 27930 kHz, a frequency reserved for use only by federal agencies. Using mobile direction-finding equipment, the investigators traced the illegal transmissions to the home of Mr. Vandecar.

Since Mr. Vandecar was not licensed to use a government frequency, the FCC issued him a Notice of Forfeiture in the amount of \$1,000. The investigation of this case was recently brought to a successful conclusion after being referred to the United States Attorney for collection.

Unlicensed operation of a radio transmitter is a violation of Section 301 of the Communications Act of 1934, as amended, and is punishable by fines and/or imprisonment. Such misuse of radio frequencies is a serious offense because it has the potential to interfere with safety-of-life services.

Illegal Radio Equipment Seized From CB Operator

Illegal radio equipment was seized from a Brooklyn, NY woman after area residents had continued to complain of interference

to Television and other home entertainment electronic equipment, the Federal Communications Commission said.

On November 3, 1988, United States Marshals, with the assistance of Investigators from the FCC's new York Office, conducted a search and seizure at the home of Palma Russo, in the Bay Ridge section of Brooklyn, NY.

The seizure was the second for Russo. In November 16, 1987, Federal Officials seized CB radio equipment from her residence after she failed to comply with FCC directives to cease operating her CB radio until she could eliminate the interference. Civil fines

of \$2750 had been assessed against her by the Commission.

However, the FCC began to receive complaints against Russo's CB radio operation. The Commission sent warning letters to Russo in April and September 1988 which were received but went unheeded by Russo.

The FCC monitored and found Russo operating her CB radio station with excessive power and on frequencies not authorized for use in the Citizens Band radio Service.

The radio equipment seized was capable of operating on frequencies reserved for the U.S. Government.

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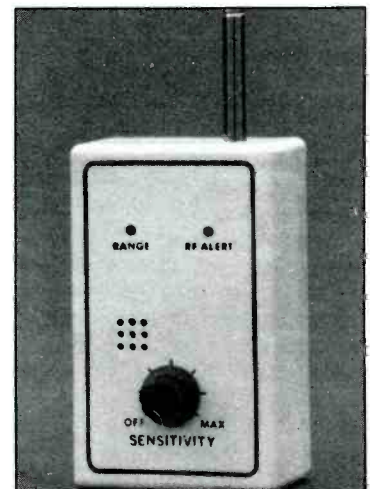
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100 channel pocket sized hand held scanner (6"Hx1"Dx2.5"W), no crystal portable scanner, 29-54 MHz, 118-174MHz, 406-512 MHz, bank scanning, backlit LCD display, automatic search, lockout, scan delay, priority, key lock, plus much more. Includes rubber antenna, rechargeable Ni-Cad battery pack, AC adapter, charger, earphone, and carry case. optional cigarette lighter adapter # 15MPC \$12.99.

- | | |
|---|-----------------|
| BEARCAT 100-XLT Hand-held 100 Channel | \$199.99 (7.00) |
| BEARCAT 70XLT Programmable Hand-Held | 169.99 (6.00) |
| BEARCAT 55XLT Programmable Hand-Held | 119.99 (5.00) |
| AD100U AC Adapter/Charger for 50 XL/55XLT | 12.95 (.) |
| BP55 Ni-Cad Battery Pack for 50XL | 13.99 (.) |
| VC001 Carry Case for 50XL/55XLT | 11.99 (7.00) |
| PS001 Cigarette Lighter Adapter for 50XL/100XL/100XLT | 12.95 (.) |
| BEARCAT 140 AC Programmable Scanner | 94.99 (5.00) |
| BEARCAT 145XL AC Programmable Scanner | 98.99 (5.00) |
| BEARCAT 175XL AC Digital Scanner | 159.99 (5.00) |
| REGENCY TS-1 Turbo Scan AC/DC | 169.99 (7.00) |
| REGENCY TS-2 Turbo Scan 800 AC/DC | 299.99 (7.00) |
| BEARCAT 210 XLT AC/DC Digital Scanner | 189.99 (7.00) |
| BEARCAT 800 XLT AC/DC Digital Scanner | 264.99 (7.00) |
| REGENCY MA-257 Cigarette cord for HX1000/1200 | 16.99 (7.00) |
| REGENCY MA-917 Ni-cad Battery for HX1000/1200 | 24.99 (.) |
| REGENCY HX-CASE Hwy Leath. case for HX1000/1200 | 19.99 (.) |
| REGENCY MA-549 Drop in charger for HX1000/1200 | 59.99 (5.00) |
| REGENCY MX-3000 AC/DC Digital Scanner | 149.99 (7.00) |
| REGENCY Z-30 AC/DC Digital Scanner | 99.99 (7.00) |
| REGENCY Z-60 AC/DC Digital Scanner | 109.99 (7.00) |
| Mobile Mounting Bracket for Z Scanners | 5.99 (.) |
| REGENCY RH-256 High Band Transceiver w/Ant. | 329.99 (7.75) |
| REGENCY UC 102 Hi-VHF Hand Transceiver | 119.99 (5.50) |
| REGENCY RH-606B High Band Transceiver w/Ant. | 469.99 (7.75) |
| REGENCY RH06 AC/DC Crystal Scanner | 79.99 (5.00) |
| REGENCY INF-3 AC Informant Receiver | 139.99 (7.00) |
| REGENCY INF-5 AC Informant Receiver | 119.99 (7.00) |
| COBRA SRJ5 100 Channel Hand-Held | 199.99 (7.00) |
| COBRA SR12 Digital Hand-Held Scanner | 189.99 (6.50) |
| COBRA SR10 Digital Hand-Held Scanner | 124.99 (6.00) |
| COBRA SR900 AC/DC Digital Scanner | 104.99 (5.00) |
| COBRA SR925 AC/DC Digital Scanner | 99.99 (7.00) |
| Book "Top Secret Registry of Gov't Frequency" 6th | 14.99 (3.00) |
| Book "Covert Intelligence, Electronic Eavesdropping" | 8.95 (.) |
| Book "Betty Bearcat Frequency Directory" | 14.95 (.) |
| Book "Rail Scan Directory" | 7.95 (.) |
| Book "Air Scan Directory" | 12.95 (.) |
| RCD MRP-1 Single Channel Hand-Held | 38.99 (3.00) |
| FANON M8HLU DC Crystal Scanner | 89.99 (5.00) |
| FANON PSK-1 AC Adapted for M8HLU | 12.99 (.) |
| FOX BMP-1060 AC/DC Digital Scanner | 129.99 (5.50) |
| FOX Mounting Bracket for BMP-1060 | 9.99 (.) |
| ANT-1 Magnet Mount Mobile Scanner Antenna | 29.99 (3.00) |
| ANT-6 Base Scanner Antenna w/50' cable | 29.99 (3.00) |
| REGENCY CB-ONE CB Radio | 34.99 (5.00) |

Regency

Z60

60 Channel Automatic Programmable Scanner

Includes Public Service and Aircraft Bands

Scanner World Special

\$109.99

(plus \$7.00 shipping each)

Optional Accessories:

Cigarette Lighter Plug RGMPC \$4.95
Z Mobile Bracket — Special \$5.99



The Regency Z-60 is a compact, programmable 60 channel multi band, FM monitor receiver for use at home or on the road. It is double conversion, super heterodyne used to receive the narrow band FM communications in the amateur, public safety and business bands. 30-50, 118-136, 144-174, and 440-512 MHz. Size 10 3/4" W x 2 7/8" H x 8 3/8" D.

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

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

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



UNIDEN
Bearcat
BC-600 XLT

\$199.99 (\$7.00 shipping)

Digital Programmable 100 Channel Scanner

BC 600 XLT covers the following frequencies: 29.54 MHz, 118-174 MHz, 406-512 MHz. Features: compact size of 6.5" H x 1.5" W x 7.3" D. Scan delay, priority memory, backup channel, backlit bank scanning, key lock, AC/DC power cords, telescopic antenna, mounting bracket, supplied one year factory warranty, search direct channel access, track tuning, service search, including pre-programmed frequencies by pushing a single button for police, fire, emergency, aircraft, weather and marine services. Plus exclusive optional features never available on any scanner before. First is an RF receive amplifier for boosting weak signals for only \$24.99 plus a CTCSS tone board is available for only \$59.99 to make this the number one scanner available in the USA. Optional cigarette lighter plug #600MPC \$4.99.

BEARCAT BC-950XLT

Same features as BC-600XLT but also receives 800-954mhz.

\$249.99 (\$7.00 shipping)

BEARCAT 70XLT

20 CHANNEL HAND-HELD SCANNER

Small size 6"Hx1"Dx2 1/4"W, full digital readout, priority search, channel lockout, scan delay, key lock. Covers following frequencies: 29.54mhz, 136-174mhz, 406-512mhz. Package includes: rubber antenna, rechargeable Ni-Cad battery pack, AC adapter/charger, and carry case.

SPECIAL PACKAGE DEAL \$169.99 (\$6.00 shipping each)

SCANNER WORLD EXCLUSIVE

UNIDEN BEARCAT BC205XLT

\$259.99 (7.00 shipping each)

Digital programmable 200 Channel hand-held portable scanner with raised button keyboard for easy programming of the following frequency ranges: 29-54MHz, 118-175MHz, 406-512MHz, 808-956MHz. Features include: Scan delay, memory backup, key pad lock, side lit liquid crystal display, channel lockout, 10 twenty channel banks, direct channel access, automatic search, full one year factory warranty, 10 priority channels, Ni-Cad battery pack, AC adapter/charger, flexible rubber antenna, carry case are all included. Size is 2 1/16" H x 3 3/8" D x 1 1/2" high. Optional extended 2 yr. warranty \$59.99 3 yr extended warranty \$79.99.



SCANNER WORLD SPECIAL

COBRA
SR-925
\$99.99



(plus \$7.00 shipping each)

Digital programmable, 16 channel, AC/DC mobile/base, with raised button keyboard for easy programming of the following frequency ranges: 29.54mhz, 118-174mhz, 406-512mhz. Covering aircraft, marine, police, fire, weather, trans, public service, plus much more. Features include: digital display, priority scan delay, weather button, memory lockout, search, scan speed, automatic squelch, memory backup, one year factory warranty, external speaker jack. (Extended warranty 2 years extra \$29.99, 3 years extra \$39.99)

Regency HX-1500 Hand-Held Scanner Package

Deal includes MA-549 Drop in Charger
\$199.99 (plus 8.00 shipping)

ORDERING INFORMATION

Call (518)436-9606 to place orders by phone or mail orders to **Scanner World, USA** 10 New Scotland Av., Albany, NY 12208. Orders will be shipped same day received by United Parcel Service. **Scanner World** accepts Visa, MasterCard (COD shipments by United Parcel will be cash or certified checks only). Mail orders with personal or business checks will be held 4 weeks for bank clearance. Orders with cashiers checks or money orders shipped same day received. Prices, specifications and terms subject to change without prior notice. If items are out of stock we will backorder and notify you of delivery date. All shipments are F.O.B. **Scanner World** warehouse in Albany, NY. We are not responsible for typographical errors. All merchandise carries full manufacturers warranty. Bid Proposals and Purchase orders accepted only from Government agencies. Free full line catalogue available upon request. New York State Residents add 7% sales tax. Any claims must be made within 7 days of merchandise receipt.

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The FRG-9600. A premium VHF/UHF scanning communications receiver. The 9600 is no typical scanner. And it's easy to see why.

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Scan in steps of 5, 10, 12½, 25 and 100 KHz. Store any frequency and

related operating mode into any of the 99 memories. Scan the memories. Or in between them. Or simply "dial up" any frequency with the frequency entry pad.

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The FRG-8800 HF communications receiver. A better way to listen to the world. If you want a complete communications package, the FRG-8800 is just right for you.

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Store frequencies and operating modes into any of the twelve channels for instant recall.

Scan the airwaves with a number of programmable scanning functions.

Plus you get keyboard frequency entry. An LCD display for easy readout. A SINPO signal graph. Computer interface capability for advanced listening functions. Two 24 hour clocks. Recording functions. And much more to make your listening station complete.

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FRG-9600 SSB coverage: 60 to 460 MHz.

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RZ-1 Wide-Band
Receiver.

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R-5000

R-2000

High performance receivers.

Scan the entire frequency range from 100 kHz to 905 MHz with Kenwood's R-5000, R-2000 and RZ-1. Listen in on foreign music, news, and commentary. Monitor local police, fire, and other public safety services, as well as the Marine channels, and the many other services 50 MHz and above.

(The VHF converter options must be used in the R-5000 and R-2000.)

R-5000

The R-5000 is a high performance, top-of-the-line receiver, with 100 memory channels, and direct keyboard or main dial tuning—makes station selection



R-2000

The R-2000 is an all band, all mode receiver with 10 memory channels and many deluxe features such as programmable scanning, dual 24-hour clocks with timer, all-mode squelch and noise blankers, a large, front-mounted speaker, 110 volt AC or 12 volt DC operation (with the DCK-1 cable kit), and 118-174 MHz VHF capability with VC-10 option.

Optional Accessories

R-2000:

• VC-10 VHF converter • DCK-1 DC cable kit for 12 volt DC use.

R-5000:

• VC-20 VHF converter • VS-1 Voice module • DCK-2 for 12 volt DC operation • YK-88A-1 AM filter • YK-88SN SSB filter • YK-88C CW filter • MB-430 Mounting bracket.

Other Accessories:

• SP-430 External speaker • SP-41 Compact mobile speaker • SP-50B Mobile speaker • HS-5 Deluxe headphones • HS-6 Lightweight headphones • HS-7 Mini-headphones.



super easy! Other useful features include programmable scanning, large, built-in speaker, 110 volt AC or 12 volt DC operation (with optional DCK-2 cable), VHF capability (108-174 MHz) with the VC-20 option, dual 24-hour clocks with timer, and even voice frequency readout with the VS-1 option.

RZ-1

Wide-band scanning receiver



The RZ-1 wide-band, scanning receiver covers 500 kHz-905 MHz, in AM, and narrow or wideband FM. The automatic mode selection function makes listening

easier. One hundred memory channels with message and band marker, direct keyboard or VFO frequency entry, and versatile scanning functions, such as memory channel and band scan, with four types of scan stop. The RZ-1 is a 12 volt DC operated, compact unit, with built-in speaker, front-mounted phones jack, switchable AGC, squelch for narrow FM, illuminated keys, and a "beeper" to confirm keyboard operation.

Optional Accessory

• PG-2N Extra DC cable

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