

POPULAR COMMUNICATIONS

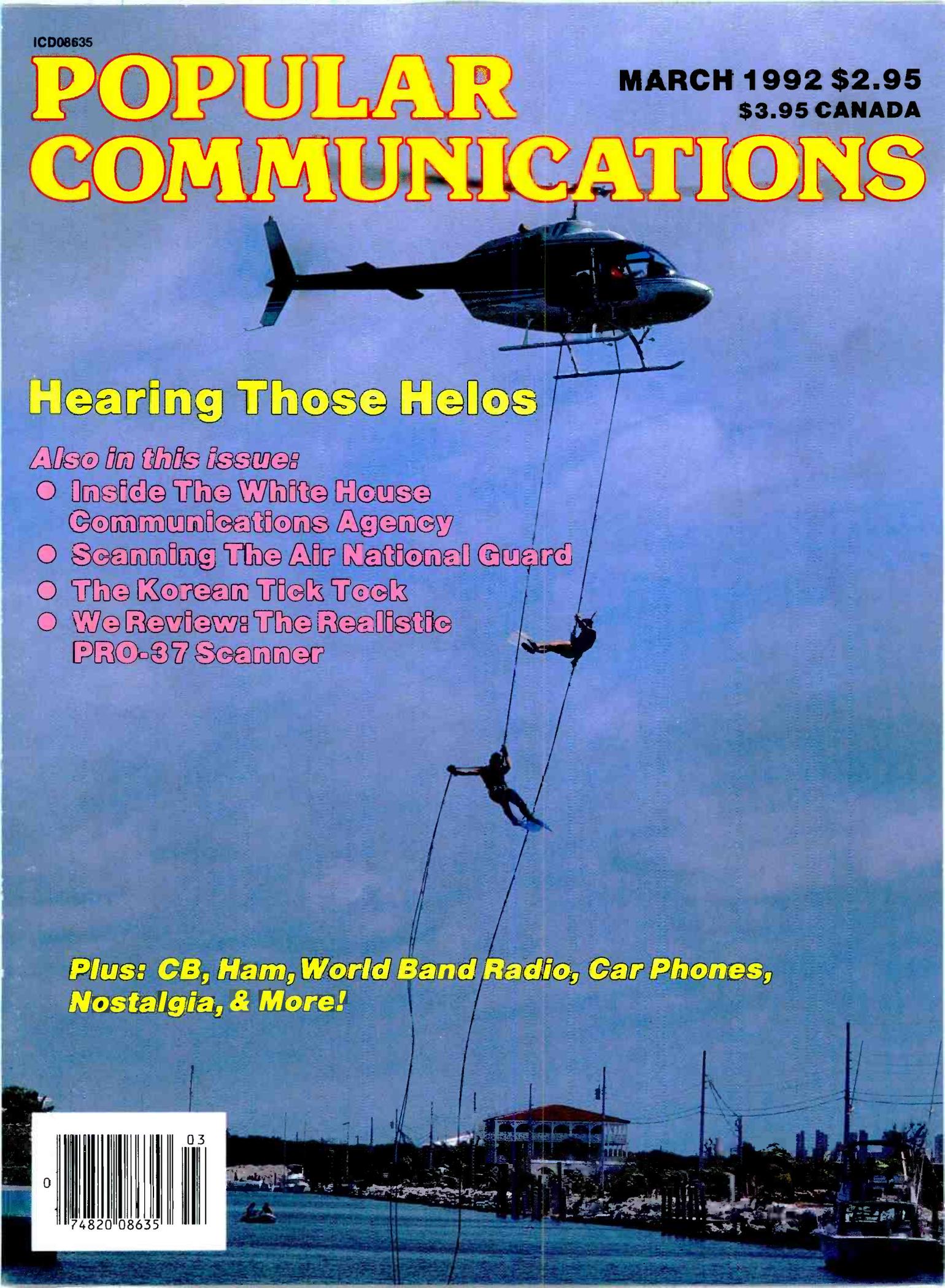
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This month's cover: USA, Florida: Police divers repel from helicopters at scene of an accident. Photo by Larry Mulvehill.

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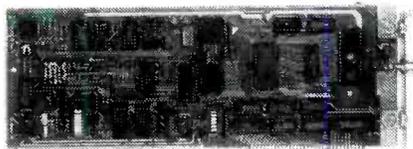
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AN EDITORIAL

The only surprising thing about the latest scheme to try to restrict scanners is that anybody out there can still be surprised by such things. It's like folks thought the "monitoring rights" war had ended and then, when a shot rings out in the silence, they are jarred awake and think the battle has started anew. In fact, the battle that has been going on since the early 1980's has never stopped.

Most recently, the shot that rang through the seemingly quiet halls was the *Federal Communications Commission Authorization Act of 1991* (H.R. 1674). The cellular industry convinced one of the Washington hacks (Matthew Rinaldo, R-NJ) to hook a rider on the bill (which was the FCC's 1992 budget authorization) to restrict the manufacture and sale of scanners that could receive cellular frequencies, or could be modified to do so.

Did anybody really think that after the cellular industry's fiasco of the useless and ineffective 1986 ECPA legislation that they were going to simply crawl back into the woodwork to lick their wounds? Grow up! With the failure of the ECPA to produce the "expectation of privacy" about which the cellular industry has been obsessed, something like the amendment to H.R. 1674 was the next logical step to have been expected. All that was needed was the right timing, the right place to hang the effort, and the ability to convince some simpleton to do its bidding in Congress.

Regardless of the fate of that amendment, if it didn't get introduced and passed now, then you can be assured that it would be back again, and again, until it eventually goes through, next year, or the year after. Those backing such concepts comprise a large, growing, powerful, selfish, and very wealthy industry with a lot of clout in Washington.

So, I prefer to view such events with a certain amount of long-term pragmatism. I choose not to allow myself to be whipped into a temporary frenzy by each individual shot fired in this insidious war. I certainly don't intend to criticize in any way those who choose to run around periodically yelling about the latest piece of sky they see falling. Certainly, their efforts can't hurt. It's just that I see the situation a bit differently, which is why I continually write about this topic—not only at isolated times when fears of pending disaster seem to peak.

Several things come to mind at this point. At least as far back as the early 1980's, in these pages, I was pointing out that efforts being made to restrict the public's ability to receive MDS and certain satellite TV transmissions were the first rumblings of a potentially evil situation that would eventually have extremely unpleasant repercussions for scanner and other monitors.

At that time, I asked for everybody involved in monitoring to recognize the potentials for the entire hobby once such restrictive

laws begin going on the books. From the mail we received, it seemed to me that far too few monitoring enthusiasts shared my fears about the threat; or else they couldn't see what I was driving at. Maybe nobody felt like going to bat for the other guy since the wolf wasn't knocking at their own door. Whatever.

Then came the efforts by the cellular industry to get the ECPA passed, followed by efforts from communications hobby publications and clubs to squash passage of the law. Yes, there were those within the hobby who presented valid thoughts, and who did everything they could to derail the ECPA. How many monitoring enthusiasts tried to help? A thousand? Two thousand? There are millions of scanners in use! Problem was that those who carried the torches were not given sufficient support from the hobby at-large to do battle against the professional, cash-propelled, cellular lobby. It was a pitiful slingshot against armor plate.

Personally, I was underwhelmed by the lukewarm grass-roots support from hobbyists, especially considering the excellent motivation that was presented in the hobby press. Consider the number of hams, SWL's, CB'ers, and scanner owners. Every single one of them, as well as every manufacturer, distributor, and dealer, should have risen up in total outrage at the ECPA. Those good souls who did take action couldn't make anywhere near enough noise, considering that their letters were spread out amongst 100 members of the U.S. Senate and 435 members of the U.S. House of Representatives.

OK, so maybe we are not an activist crowd. So the passage of the ECPA, and the introduction of additional restrictive legislation which will surely come in the future, should hardly be regarded like a bolt from the blue. Expect it.

With each piece of special-interest anti-monitoring legislation that the Washington crew is convinced to vote into law, the way is greased for the next special interest group to come along with full expectations of coasting home on the precedents that have already been established. Blocked-out frequencies, limits placed on equipment that may be manufactured and sold, forbidden radio services that can't be monitored, and the rest! Passage of such legislation could be successful.

Let's take stock, though. Can we talk? It has not been my experience that efforts by the hobby press to get individual members of the monitoring hobby to rally to action in support of rights has ever motivated enough of a response to produce any worthwhile numbers or results.

On the other hand, it does seem that the laws that are being passed seem to be so poorly worded, full of loopholes, impractical, and so unwieldy that they are paper tigers. Moreover, the agencies intended to enforce them

are understaffed, under financed, and therefore tend to place all such garbage laws down at the bottom of their enforcement priorities.

Furthermore, with the technical know-how and motivation within the hobby, there may be very little in the area of equipment restrictions that can't be bypassed by experimenters and hackers with a little time at the workbench. Most any equipment that is priced low enough to sell to the general public, is equipment that is going to be simple enough for a hobby hacker to rework, even if it takes a little time and money.

There are already so many operating scanners covering all frequencies in the hands of the public that passing laws at this point to block out certain bands is really sort of dumb, when you think about it. As for the future, the cellular industry is on the verge of beginning its phase-in of digital communications. Digital cellular communications will not be able to be copied, anyway, on standard FM scanners.

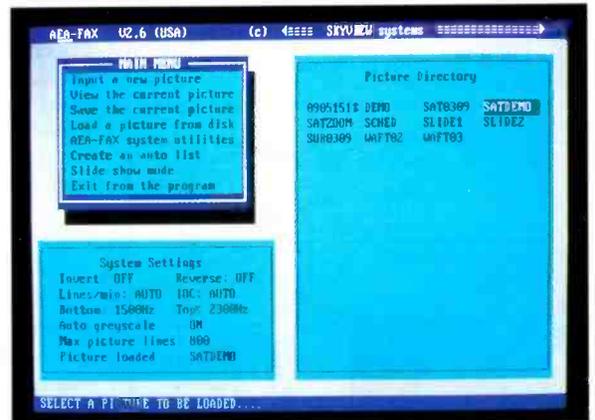
But when it comes to digital monitoring, remember that new digital cellular telephones will have to be produced to serve that forthcoming market by operating on all assigned cellular frequencies. My guess is that it will be possible to convert at least some of these sets into dedicated cellular digital mode scanners.

Oddly enough, the cellular industry is so carried away with this privacy issue (which was never an issue in ship/shore phone calls, or in more than thirty-five years of non-cellular car phones before cellulators were invented), that they have totally ignored correcting a number of basic faults with the national cellular system. Placing a 9-1-1 emergency call from a cellular is still a hassle in many areas. There are no standards. Trying to use your cellular in an out of town city where your home cellular company has no reciprocal arrangement is still a problem. The industry doesn't care! This industry is busy trying to turn off your scanner because they think it will sell more cellulators. They don't have time left to worry about dealing with such trivial matters on behalf of those who have already purchased the car phones.

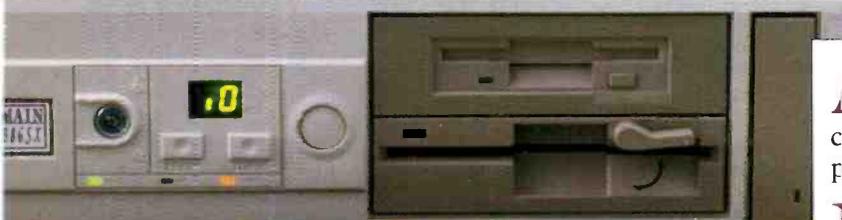
Look, if you are one of those rare people in the hobby who happens to be into writing to your Washington representatives, then I do encourage you to continue doing so. Maybe it's a BB on the elephant's rump, but don't stop. Just don't ever forget that the legislative war of restrictive scanner laws and regulations is one that never stops, slows, or calls time out for truce.

For our part, we'll continue to see the battle as continually raging, and seeking to diminish the right of free access to monitoring the public airwaves. We will continue to lash out on a regular and unrelenting basis against those commercial interests that seek to restrict those rights. Individual shots aren't really as scary as the whole war. ■

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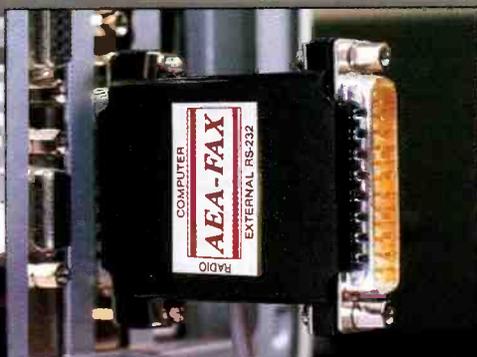
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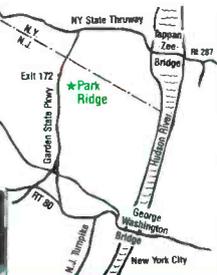
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MAILBAG

LETTERS TO THE EDITOR

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

The Topic Is AM

I enjoyed *AM Revival*, by Paul Courson, WA3VJB, in the November issue. I'd like to add a listing of 50.4 MHz to his listings of popular AM ham frequencies. In New England, there are several ham nets on this frequency. Most of us use old six-tube transceivers such as Gonsets, Heathkit Sixers ("lunchboxes") and HW-10 Shawnees, also Lafayettes, Polycomms, Marshalls, Cleggs, and other gear from the 1950's through 1970's running 50 watts or less. These rigs turn up at hamfests for less than \$25. A ham with a Tech license could get a used AM rig, run it into a 6 meter dipole and be on the air for practically no money at all. In CT, MA, and RI check into the "Old Buzzards Net" on 50.4 MHz (AM) right after midnight on Friday nights (Saturday mornings). There's a net in the Boston area at 6 AM weekdays, and another in the Boston and NH area on Saturdays from 6 to 7 AM, with semi-regular get-togethers from 8 to 9 P.M. daily Thursday through Sunday. Thank you for recognizing AM hamming!

Bob Allison, WB1GCM,
Coventry, CT

It's about time that somebody gave AM its due with an article like the one you ran on vintage radios the hams are using on shortwave. As a broadcaster, I've seen AM listenership slip away to low levels. Yet, I have also heard people say there's nothing on radio any longer, either AM or FM. Some listeners have discovered that shortwave is the place to tune. We could use some of those appealing and entertaining AM'ing ragchewers in AM radio.

John Clough,
Bethlehem, PA

I am not a big fan of AM for voice communications, and probably never will be. It occupies too much bandwidth and requires a

lot of transmitter power to produce. But, despite years of my questioning why hams would continue to use AM, your November article caused me to tune in and hear for myself. No, I'm not suddenly converted, yet I now understand for the first time what the attraction may be: It sounds human! So long as no one tries to promote AM as the way most hams should communicate, I do agree with the author that it has a place for those who wish to enjoy a part of radio that many people grew up with and retain fond memories of.

Ed Bateman, P.E.,
Lightfoot, VA

Thank you for the article on hams using "classic" AM on shortwave. As an SWL, I've discovered that these good folks offer easy-to-follow technical talks. What puzzles me is the sort of ridicule I heard when I approached a local ham club while trying to get my license. I had mentioned that I became interested in ham radio by listening to AM operators. It sounded as if they were afraid that AM was going to steal something from them. Finally, an older ham took me aside and explained that these people are very defensive about their use of SSB and just don't see that there's any room for a nostalgic little specialty like AM.

Lenny Tobias,
Cleveland, OH

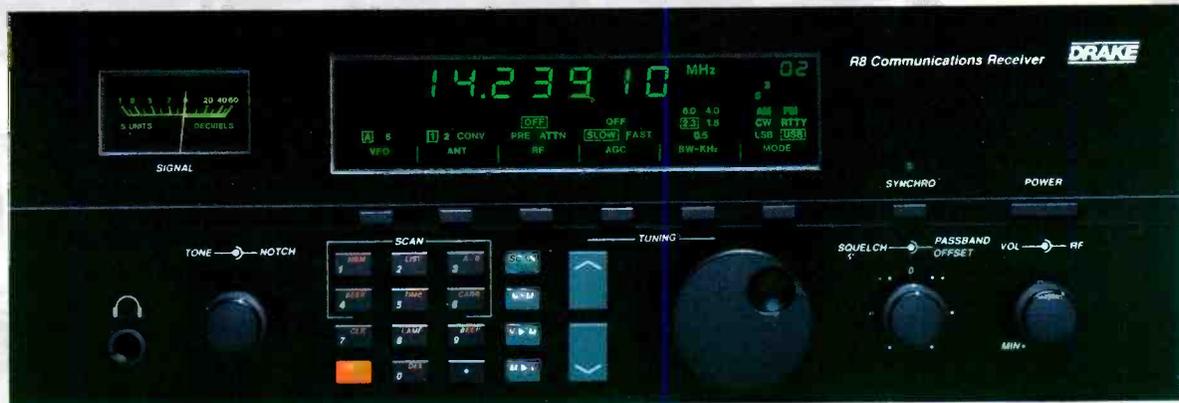
Movin' On

Someone told me that there was a fully legal way of throwing police radar signals out of whack when they're beamed at your vehicle. The idea is to glue a rubber membrane over the face of a 15" loudspeaker, and then paste 6" aluminum foil strips on the membrane. The speaker is then mounted on the front of your car, and when a 2 kHz oscillation is fed into the speaker, your car's speed won't register on the radar meter. Will this really work?

M. H. Schnarr,
Encino, CA

Apparently its intention is to throw the radar's doppler shift out of whack. Whether or not it will work, I'll leave to someone with more of a flair for experimenting than I. I can tell you, though, that it's not going to add much to the looks of the ol' Edsel. Moreover, the cops will probably pull you over anyway, just to ask you to explain that weird thing on the front of your car. — Editor ■

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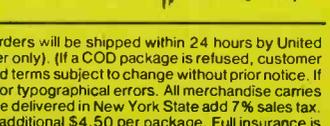
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Hearing Those Helos

Some Thoughts On Monitoring The World's Most Interesting Specialized Aircraft

BY CHAD GATES, KQY7DW

Think back to the last time you saw a TV news report showing an emergency—rescue at sea, or a search for a lost child in the woods, or a forest fire, or a medevac. The one thing they had in common was that they all relied heavily upon helicopters—commonly known as *choppers* and *helos*. These, and many other applications, are the daily tasks performed by the versatile aviation workhorses that have become such a part of our lives.

But think of it, helos frequently operate at deliberately slow speeds, and usually at low altitudes. Radio communications relating to helos are often less related to air traffic control than comms used by commercial and general aviation interests. Helo comms are usually primarily related to the tasks they are performing. As such, one must look towards highly specific frequencies in order to get the most for they're up to, whether it's a police surveillance or a wildlife survey.

It's therefore become somewhat of a specialty within monitoring to zero in on helos, because they're so interesting and vital. Our purpose here is to offer some general thoughts on getting you started.

Generally Speaking

In the United States, the most popularly used frequency for helos is 123.05 MHz, and secondarily 123.075 MHz. Whenever there's a heliport or helipad, or a hospital that accommodates helicopters, you can expect to find activity on one of these frequencies. In Canada, hospital helipads use 129.275 MHz for their comms.

If you listen on 123.025 MHz, you can often find helo pilots communicating with one another. In the Los Angeles area, monitor 122.75 MHz for helo activity, as well as LAX contacting helos on 119.8 and 120.35 MHz. In the New York City area, helos departing from LaGuardia Airport, check their clearance on 132.85 MHz. Helos in the National Capital area communicate with the tower at Washington National Airport on 120.75 MHz. There has been some helo activity monitored on 122.9 MHz around farms and ranches.

Law Enforcement

Police agencies use helos for many purposes, including surveillance, manhunts, and

transporting people and things (such as blood or transplant organs). Aside from those general frequencies given above, check frequencies used by your local area state and county police agencies, and by large city municipal agencies.

Especially check frequencies normally used for surveillance, car-to-car, or maritime use as they will often turn up helo comms.

Industrial Users

The petroleum industry relies heavily upon helos for oil field and offshore operations, also for pipeline inspection, and transportation of equipment and supplies. Along the Gulf of Mexico coastline, and inland wherever there are petro exploration or drilling activities, you can expect to find helos operating on VHF and UHF frequencies assigned to individual companies.

Generally speaking, offshore petrol operations often provide some HF operations in SSB mode. Monitor the following frequencies for this: 2878, 3019, 3434, 4672, 5463, and 5508 kHz.

Other industries that make heavy use of



Checking out the AN/ALQ-136(V)1 countermeasures set on an Army AH-1S helo. (U.S. Army photo.)



In a combined operation, an Army Cobra helo prepares to load aboard the USS Comet. (U.S. Army photo.)

helos include power utilities, air taxis and ambulances, entertainment, the news media, and forest products. Check out frequencies assigned to specific companies for putting you on the inside. Traffic helos operated by broadcasters can often be found between 450.00 and 451.00 MHz, also 455.00 and 456.00 MHz.

Military

The U.S. Coast Guard is a major user of helos, and the choppers can often be heard on 3023, 5680, 5696 kHz, and on a scanner on 123.1, 126.4, 156.30, 157.025, 157.05, 157.075, 157.15, 157.175, 164.30, 282.8, 381.7, and 381.8 MHz. Listen on 126.4 MHz for cutters communicating with helos entering a descent pattern for landing on their decks. The Canadian Coast Guard has considerable helo traffic on 123.1, 123.2, and 282.8 MHz.

Army and National Guard helos are often found in the 30 to 50 MHz band, and they like certain UHF frequencies like 241.0 MHz. Some popular VHF low band frequencies include 38.90, 41.50, and 46.70 MHz. Most U.S. Army facilities have at least some helo activity, with several installations (like Fort Rucker, in Alabama) having extensive helo operations.

Navy helo-related operations are especially concerned with activities aboard certain types of assault vessels such as LHA's and LPH's. These are somewhat like aircraft carriers, except that they are used for accommodating USMC and Army assault helos. They were used in our military operations in Grenada and the Persian Gulf.

The frequencies used would vary with the specific vessel and would be related to command as well as air traffic control comms. It is worth noting that the lingo used for comms between these vessels and the helos is rather



Running test on exterior equipment mounted aboard an Army OH-58. The test will determine if the add-on equipment will interfere with the helo's VHF radio gear. (U.S. Army photo).

specific, as it is also esoteric to the untrained ear.

A chart showing the more commonly used terms for shipboard helo comms is provided here for your use. Helos are considered to be within a vessel's control zone when they are within 10 nautical miles of the vessel, and below 2,500 feet altitude. At that point, they are in contact with the vessel's helicopter direction center (HDC).

Federal Agencies

You're liable to hear governmental helos involved in environmental or natural resources work using 122.925 MHz, or sometimes communicating with small craft on 157.125 MHz.

The Dept. of Agriculture's Forestry Service is a major user of helos, especially when it comes to fighting forest fires. Listen on 118.825, 118.95, 118.975, 119.95, 119.975, 122.85, 166.675, 168.05,

168.075, 168.10, 168.20, 168.55, 168.60, 168.625, 168.70, 169.15, and 169.20 MHz.

For helo operations of the U.S. Fish and Wildlife Service, monitor: 117.975, 121.935, 121.965, 122.925, and 132.015 MHz.

The Bureau of Land Management has helos on 117.975, 123.585, 167.95, and 172.60 MHz.

The U.S. Customs Service has several helos in their fleet. You might hear them on any of the agency's previously published HF frequencies, or try for them on your scanner on 165.7375 MHz. Customs Service aircraft ID with the word *Omaha* followed by digits.

Set To Go

This should give you a starting point for monitoring these busy workhorses of the air. I recommend the *Airscan* aeronautical directory for more detailed information for specific locations. ■

Air Boss - ship's tower controller, normally an O-5.
Angels - altitude in thousands of feet.
Bow - front of the ship (pointed end).
BRC - base recovery course (the magnetic heading of the ship)
Buster - proceed at maximum airspeed.
Center - the ship's approach/departure control.
Charlie - cleared to enter a counterclockwise pattern on the left-hand side of the ship and land.
Cherub - altitude in hundreds of feet.
Delta - a visual flight rule racetrack pattern normally flown clockwise on the right side of the ship, oriented on the ship's heading (i.e. starboard D).
Drink - take on fuel.
Father - the ship's TACAN.
Feet wet or dry - over water or over land.
Foxtrot corpin - old terminology for BRC, if you want to sound salty.
Green deck - clear deck.
Head - latrine.
LSE - landing signal enlisted, the yellow-shirted sailors who direct you to your spot on the ship, they can communicate with the tower but not directly with you.
Mother - your parent vessel.
Parrot - transponder military identification, friend or foe.
Pigeons - magnetic bearing and distance from an aircraft to a specific location.

Pogo return to last assigned frequency.
Popeye - IMC conditions.
Port - left.
Prep charlie - cleared to enter a counterclockwise pattern on the left hand side of the ship in preparation to land; expect charlie.
Primary - the ship's tower frequency (land/launch)
Prifly - normally the ship's tower or the controlling agency in a control zone.
Red deck - do not land.
Say seat - tell them whether the person in the right, the left, the front, or the back is piloting the aircraft. (This is so the LSE can direct you to your landing spot.)
See me/you - ship in sight (Make sure you have identified the right one and save some embarrassment.)
Signal Delta - establish holding pattern as directed.
Souls - people on board (crew and passengers).
Sour - not working, normally communication or navigation.
Starboard - right.
Stern - back of the ship (square end).
Sweet - good reception (communication or navigation gear).
Time to splash - actual time before your complete fuel load will be exhausted and you will flame out. (Tell the truth! This information is for accurate sequencing.)

An alphabetical list of some common shipboard terms used for military helo comms. This list appeared in *The U.S. Army Aviation Digest*.

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Remembering Radio

A Look at Radio of Yesteryear

BY ALICE BRANNIGAN

It is with some sense of history that we proudly point out that the site of the POP'COMM offices was, at one time, a major overseas shortwave transmitting station. This is brought to mind occasionally when one of our readers discovers an old QSL from one of the many stations that operated from this site, and then inquires if we were aware that the magazine's hometown is a part of communications history.

For many years, beginning in the 1930's Hicksville's most famous resident was Press Wireless, Inc. "PREWI" was an international communications company that had numerous transmitting sites. The company's operations were primarily commercial radio telegraphy. The PREWI site in Hicksville was extensive and spread out over a large area, with numerous towers supporting antenna arrays directed towards Europe and Africa.

In addition to stations licensed in the Experimental Radio Service, PREWI's Hicksville facilities had a long roster of fixed commercial stations. The ITU directory for 1939 shows no less than 34 commercial point-to-point stations operating between 3285 and 20800 kHz at the site. These stations mostly had callsigns such as WCQ, WBH, WJP, WRP, WCW, WHL, etc.

So far as we are able to learn, the PREWI facilities in Hicksville existed at least into the late 1950's, and maybe after that. Eventually, it was torn down to make way for the growing suburban business and residential community that presently exists (pop. 45,000) on the former PREWI site and in the surrounding

area named in honor of a long-ago resident named Hicks. So the local legend goes in Hicksville, a wealthy recluse once hid \$750,000 worth of gold and silver that's never been found.

A photo QSL depicting PREWI in Hicksville was sent to us by Edward G. Bailey, of West Haven, Conn. It confirms his 1938 reception of 1 kW Experimental station W9XDH, 12362.5 kHz, located in Illinois. A 1956 PFC for WFK95 on 15700 kHz was received by POP'COMM's Tom Kneitel.

Recalling WLAW

Donald Tinsch, of Cicero, N.Y., reminds us of WLAW, which was a broadcaster in Lawrence, Mass., "the friendliest city in the United States."

WLAW commenced operation on December 19th, 1937, under the auspices of the Hildreth and Rogers. The parent company was the Eagle-Tribune newspaper. WLAW operated days with 1 kW on 680 kHz. Under the direction of Irving E. Rogers, WLAW was a successful operation, calling itself, *The Voice of Northern New England*.

It wasn't long before WLAW grew into a 5 kW station and then extended its broadcast hours to full time. The station eventually went to 50 kW, and became a CBS affiliate.

WLAW was located at 278 Essex Street, which was across the street from the newspaper. The transmitter was located in West Andover, a bit more than three miles down the road.

Irving Rogers stayed with the station as GM until June of 1953, when the station was sold to General Tire and Rubber, which owned station WNAC. The area's 680 kHz spot on the AM dial is presently occupied by Boston's WRKO.

Donald Tinsch recalls visiting the old WLAW studios when he was a youngster. He enjoyed looking through the windows and watching the announcers. The larger of the two studios contained a grand piano and a Wurlitzer organ.

Broadcaster by Accident

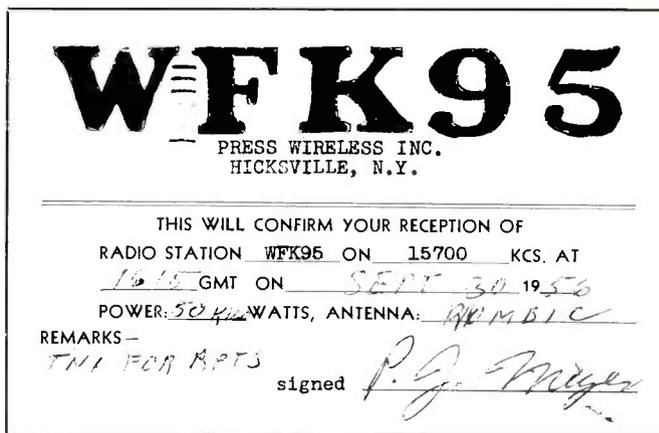
Via Gregg Arens, of Mission, British Columbia, Canada, we learned about an interesting item found in Andreas Schroeder's new book, *Carved From Wood*. This book celebrates the Centennial of Mission, B.C.

The story goes that in 1927, a local fellow named Earl Streeter hooked up a public address system in his yard. The PA system didn't work as planned and must have been sending out parasitic oscillations. Those oscillations, or a harmonic thereof, could be picked up on radio receivers belonging to all of his neighbors. It only seemed logical for Streeter to obtain a license as a radio station, for which he was assigned the call letters CJCU. He called his station, *The Voice of Mission City*.

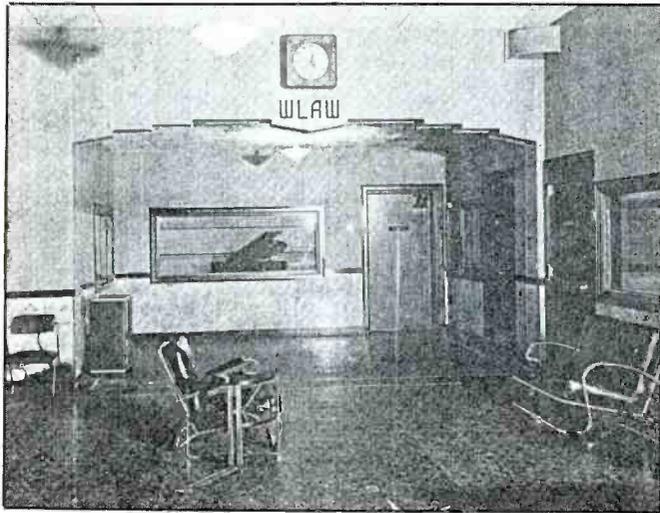
CJCU was on the air only at night and on weekends. Everything was "live," and that included a mix of neighborhood kids, local musicians, preachers, and just about anybody else who showed up to fill some air time.



PREWI's station in Hicksville, is shown on this 1935 QSL from a PREWI station in Illinois that was used for communicating with the Hicksville site. (Courtesy Edward Bailey, CT.)



A PFC from PREWI's WFK95 from 1956. This was a 50 kW CW station operating on 15700 kHz. (Courtesy Tom Kneitel, NY.)



KWTO **KGBX** **KGBX**
 500 Watts 560 Kc. **INCORPORATED** 100 Watts 1310 Kc.
 6 A. M. to Local Sunset **OPERATING** Local Sunset to Midnight
 Springfield, Mo.

Dear Sir:

We are pleased to confirm your report of the reception of KWTO at 2:10 A.M. on Dec. 19, 1931.

Thank you for your interest.

Yours Very Truly,
K G B X, Inc.
 THE BROADCASTING STATION OF THE OZARKS

This 1934 QSL from KGBX shows the arrangement by which the station operated at night on one frequency, but during the day operated on another frequency with higher power and different call letters. (Courtesy Joe Hueter, PA.)

The main studio at WLAW, Lawrence, Mass. It had a grand piano and a studio organ. (Courtesy Donald Tinsch, NY.)

The programming drew a mixed reaction from CJCU's audience, with some listeners complaining that the broadcasts containing jazz music were going to destroy the moral character of the community.

As the local talent became used up, Street-er fell back onto relying upon phonograph records. That was only marginally successful because he kept losing or cracking them, or getting them mixed up.

Ultimately, his wife became fed up with the house having been turned into a broadcasting station. CJCU then moved into the back room of Osborne's Ice Cream Parlour, on Washington (Main) Street. Soon after, Mr. K.C. Wells stopped in for an ice cream and saw the station. It looked so interesting, he bought it on the spot and took it to Chilliwack, where it became known as CHWK.

In time, CHWK's owners built a sister station in Abbotsford. It was powerful enough to reach Mission. That station became CFVR, which is still on the air.

Show Me

A letter from R.S. Coniglio, of San Antonio, Texas, inquires about KGBX, which

was a station in St. Joseph, Missouri that he recalls was started about 1932, and later moved to Springfield.

We were able to quickly trace it back to 1928 in St. Joseph, when it was operated by the Foster-Hall Tire Co., 1221 Frederick Ave., with 100 watts on 1040 kHz, which changed to 1210 kHz later that year. The station claims it began in 1926, but we weren't able to readily trace it back that far. The only pre-1928 broadcaster we could find in St. Joseph was KFHD (100 watts on 1330 kHz, operated by the Utz Electric Stop.), and that short-lived 1924 station was long gone by the time KGBX showed up.

By 1929, KGBX was on 1370 kHz, then, the following year it changed to 1310 kHz. By then, it was owned by KGBX, Inc., 1829 Calhoun Street.

Records of 1934 indicate that, by then, KGBX had already moved to Springfield, had become owned by the Springfield Broadcasting Co., 508 St. Louis Street. The antenna system consisted of two 179 ft. towers situated on Bolivar Road. The station operated from sunset to midnight with 100 watts on 1310 kHz. During the day, the station ran 500

watts on 560 kHz, but used the call letters KWTO. An odd arrangement. Later in the 1930's, it consolidated all operations under the KGBX call letters, running 100 watts on 1310 kHz.

In the early 1940's, KGBX changed frequencies to 1260 kHz and increased its power to 5 kW. This station presently operates under the ownership of the Springfield Great Empire Broadcasting Company, using the call letters KTTS. The station in Springfield on 1400 kHz presently assigned the KGBX call-sign, in fact, used to have the KTTS call-sign. Looks as though KGBX and KTTS switched places on the dial.

Florida Old Timer

We heard from Debra Lee Oliver, of Pensacola, Fla., who sent us a clipping from the *Pensacola News-Journal* concerning station WCOA, the city's first broadcaster.

WCOA began broadcasting testing on January 27th, 1926, then started regular broadcasts on February, from the third floor of the city hall. The station was put on the air by the City of Pensacola, itself. The studios were soundproofed with corduroy on the walls and

1310 **KGBX** **100**
KC **INCORPORATED** **Watts**

Springfield, Mo.

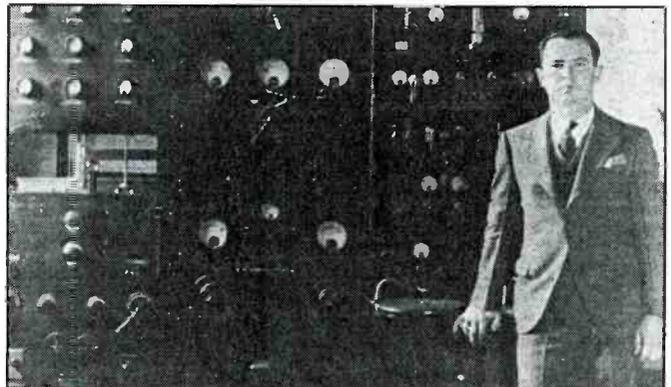
Dear Sir:

We are pleased to confirm your report of the reception of KGBX at 11:00 P.M. on Nov 14 1932 - R.S. Coniglio, P.O. Box 231 - San Antonio, Tex.

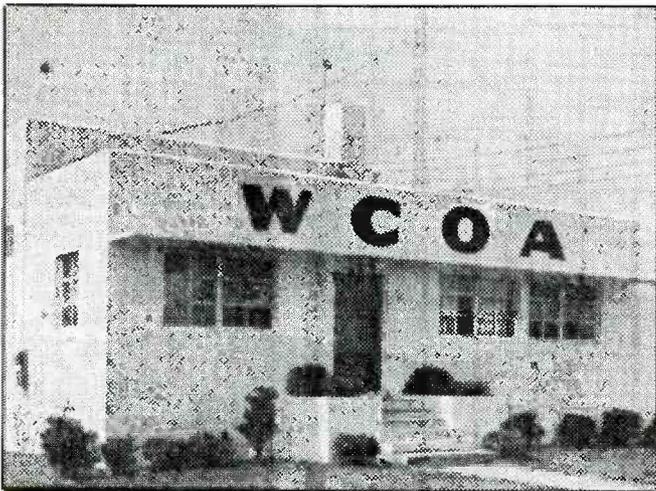
Thank you for your interest.

Yours Very Truly,
K G B X, Inc.
 SPRINGFIELD -- In the Heart of the Ozarks

By 1937, KGBX had gotten it all together on one frequency with a single set of call letters. (Courtesy Joe Hueter, PA.)



The original WCOA transmitter in 1926. (Courtesy WCOA archives, via Debra Lee Oliver, FL.)



A look at the WCOA studios as they were in 1930.

WCOA's home from 1957 to 1988. (Courtesy WCOA archives, via Debra Lee Oliver, FL.)

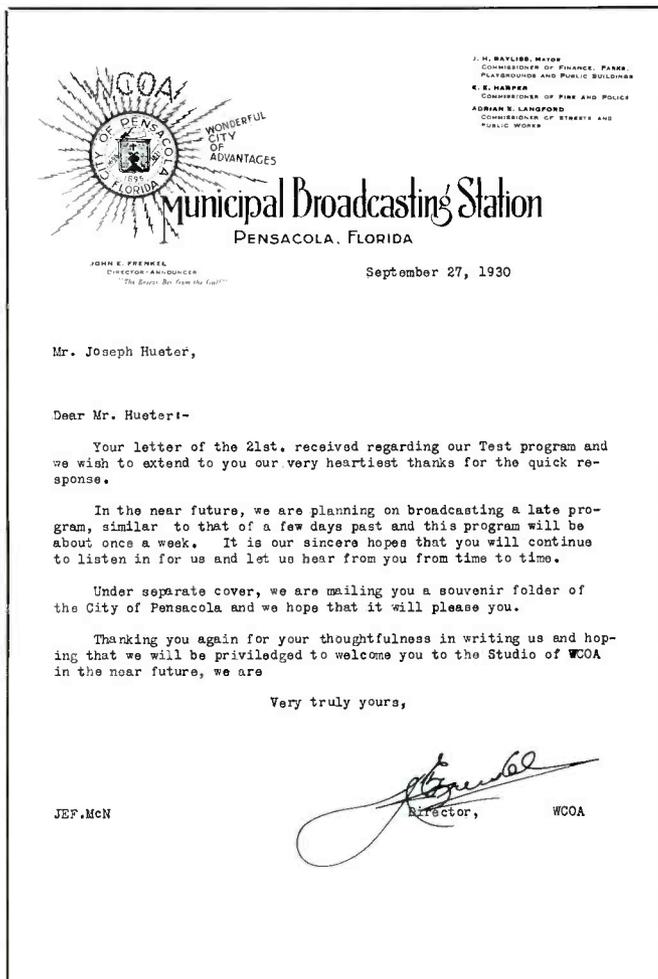
ceilings. The station's slogan was tied to its call letters, being the *Wonderful City of Advantages*. Operating on 1350 kHz, WCOA reached out 300 miles during the day, and for thousands of miles at night. It later shifted to 1340 kHz with 500 watts.

In the early 1930's, WCOA was sold to John Pace, who soon moved it to the San

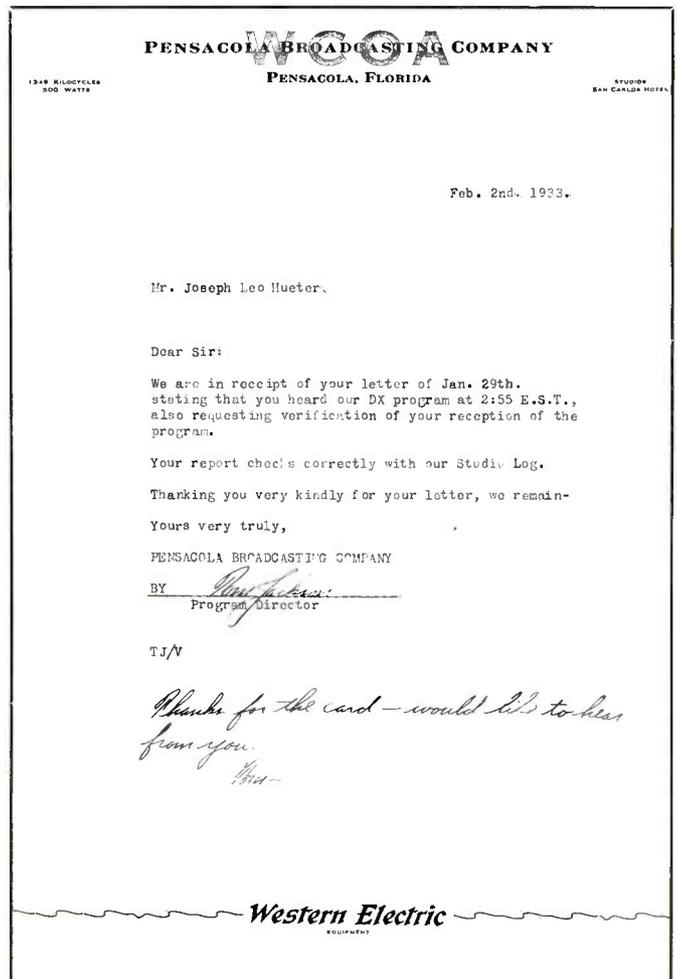
Carlos Hotel. The station was still running 500 watts, but its letterhead curiously insisted its frequency was 1349 kHz. In 1936, WCOA was sold again. This time it was purchased by newspaper publisher John H. Perry, Sr. For the first twenty years of WCOA's existence, it was the only broadcaster in town. The second station in Pensacola was WBSR,

which also had studios in the San Carlos Hotel.

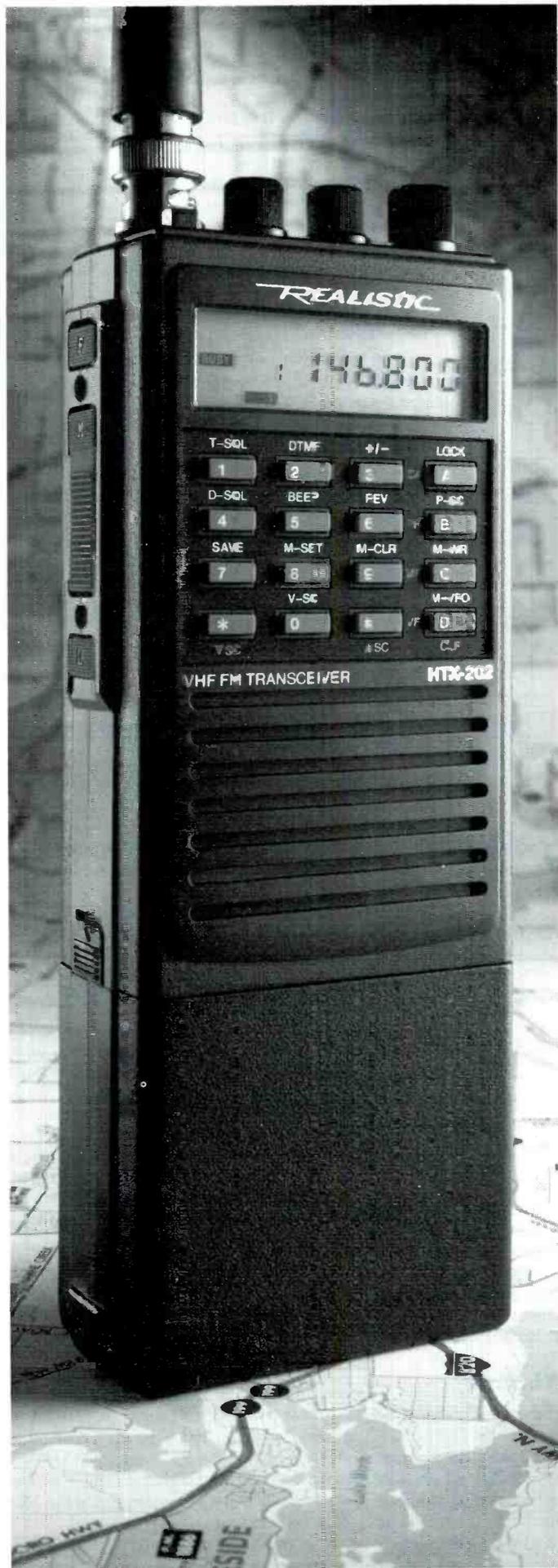
WCOA checked out of the San Carlos in 1951 and moved to 118 East Intendendencia Street. The spacious new facilities had one studio large enough to accommodate a piano and an organ, plus a large choral group. Still, by 1957, WCOA was again moving into new



This 1930 QSL letter from WCOA indicates its status as being owned by the City of Pensacola. (Courtesy Joe Hueter, PA.)



An odd letterhead from WCOA. In tiny letters (upper left) it specifies the frequency as "1349 kHz." (Courtesy Joe Hueter, PA.)



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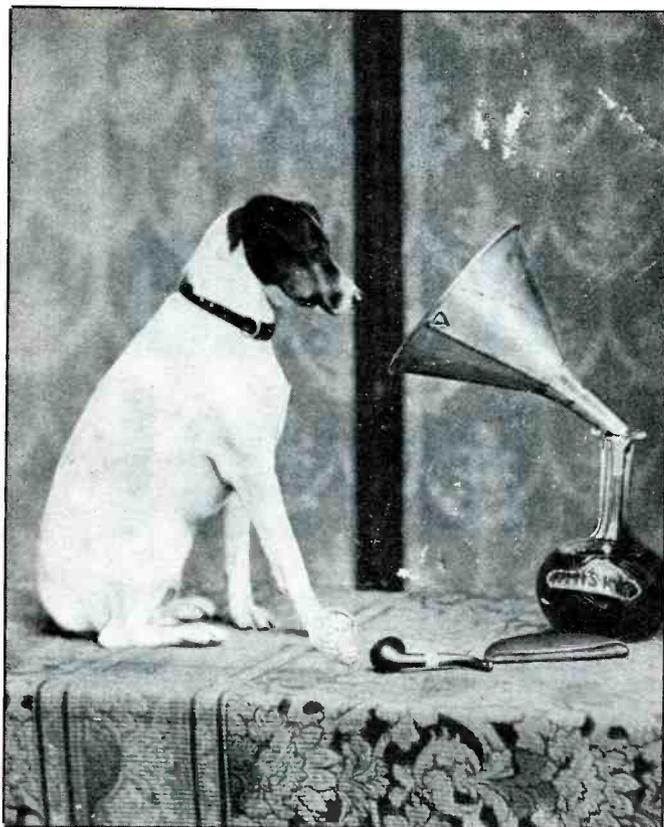
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That Nipper at the horn was not the real one in this spoof card from 1907. (Courtesy Alexander Durant, NY).

studios. These were on Lakewood Road, Warrington.

A year later, WCOA was purchased by Denver Brannon, who soon sold it to J. McCarthy Miller. The year 1975 saw WCOA under the new ownership of Summit Communications, a North Carolina company. That lasted for ten years, then the owners became Norman Drubner, of Connecticut. Not long after, WCOA and its affiliated WJLQ-FM moved to North W Street. It was in December of 1990 when the stations were sold to Edmond J. Muniz, of Metairie, Louisiana.

WCOA runs 5 kW on 1370 kHz. The station's adult contemporary format remains enormously popular with listeners in the Pensacola area.

Spooferd

We got a good laugh from a 1907 post card submitted by Alexander Durant, of Albany, N.Y. The old Victor Talking Machine Company trademark of the dog ("Nipper") listening at the Victrola horn-type speaker to the sound of "His Masters Voice" was famous. Obviously, even by 1907, everybody recognized this symbol.

Someone made up these postcards, showing a pooch that looked just like Nipper, and striking the same pose. The whole thing gives the general impression of being the Victor trademark until you look a bit closer and realize that the speaker is actually a large tin fun-

nel, and it's placed in a decanter. The hand crank is actually a smoking pipe, and a tobacco pouch. The caption reads, "His Master's V-ice."

OK, so vices were a bit more tame in 1907 than they are today. Must have been a real knee-slapper in its time. Still, we thought it was clever, and it can still bring up a smile without much trouble.

New Museum

Motorola spent thirty years and \$20-million putting together its Museum of Electronics, which recently opened in Schaumburg, Illinois. The museum contains displays on the workings of cellular phones, how crystals work in radios, and many other topics. There are more than 500 artifacts in the 20,000 square foot exhibition, which has items dating back to the 1920's, also World War II radios.

Admission is free, but you need an appointment to be admitted. Contact the museum itself, directly, for further information.

How About Djibouti?

Henry Ward, of Sherbrooke, Quebec, Canada, always sends us great old QSL's. We really liked the letter ver he received confirming his 1939 reception of FZE8, which was a ute station. FZE8. The French language ver letter doesn't mention the frequency, but FZE8 operated on 17280 kHz, operating in

RÉPUBLIQUE FRANÇAISE.

POSTES, TÉLÉGRAPHES ET TÉLÉPHONES

Direction du ~~Service~~ Service de la Télégraphie sans Fil
Station Intersolennais de Djibouti

Monsieur Henry Ward Jr.
SHERBROOKE, Que., Canada

Cher Monsieur,

J'ai bien reçu votre lettre du 17 mars 1939; tels que vous me les indiquez maintenant, les résultats de votre écoute sont tout à fait corrects et concordent avec les indications du cahier de marche de FZE8; Je vous confirme donc que FZE8 a bien émis en téléphonie le 5 Janvier 1939, de 1400 à 1425 gmt, comme vous l'avez entendu.

Je vous remercie des petits souvenirs que vous avez enclous dans votre lettre, et j'apprécierais beaucoup, si vous avez l'occasion de m'écrire à nouveau, si vous pouvez m'envoyer quelques timbres oblitérés du Canada.

Veuillez agréer, cher Monsieur, l'assurance de ma meilleure considération.

Djibouti, le 28 Juin 1939
Le Chef de la Station Radiotélégraphique de Djibouti

"FZE8" *Hamilton*

Henry Ward's exciting ute QSL letter from Djibouti. It's dated 1935. Nice trophy, Henry!

commercial CW and point-to-point 'phone service. The station took five months to respond!

In 1939, Djibouti was a small African territory under French control. Since June, 1977, it has been an independent republic.

Northwestern Pioneer

One of the earliest broadcasters in the Pacific Northwest was Seattle's KHQ, which started out in 1922 as a 50 watt operation on 833 kHz. It was run by Louis Wasmer, owner of the Excelsior Motorcycle and Bicycle Company. Within two years, Wasmer's station had become a contender with a 100 watt signal.

In 1925, Wasmer packed up KHQ and moved it to the Davenport Hotel in Spokane. His station upped its power to 1 kW and operated on 810 with the new slogan, *In The Friendly City*. Within the next three years, other frequencies used included 1100 kHz and, in late 1928, 920 kHz.

As of 1930, KHQ was operating on 590 kHz from its new Spokane location at Post and Sprague Streets. KHQ was using an 803 ft. tower. By 1935, Wasmer purchased another local station, KGA (began 1926), which was operating with 5 kW on 1470 kHz. His KHQ was affiliated with the NBC Red Network, while KGA was operated in the NBC Blue Network.

Wasmer centralized his KHQ/KGA opera-

We acknowledge receipt of your recent communication and verify your reception of KHQ.

We thank you for your interest, and trust that we may number you among our regular listeners.

Cordially yours,

RADIO STATION KHQ
SPOKANE, WN.

Simple, and not containing very much information, is the QSL card sent out by Spokane's KHQ in 1932. (Courtesy A. Nonymous, FL.)

tions in the Radio Central Building, with the transmitting facilities for both stations at 4102 South Regal. When the FCC reshuffled many frequencies in 1941, KGA went to 1510 kHz with 10 kW, but KGA remained on 590 kHz, increasing its power to 5 kW. After WWII, Wasmer sold KHQ to the Chronicle Company.

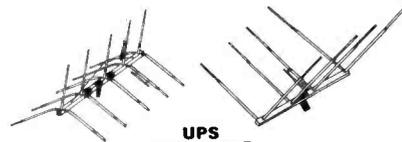
Presently, under the ownership (since 1986) of Lilac City Broadcasting, this station continues on 590 kHz with 5 kW, but now

has the call letters KAQQ. Station KGA, also under new ownership and no longer connected with its former sister station, kept its original call letters and runs 50 kW on 1510 kHz.

We'll put a wrap on it for March, but hope we can get together again in April. We appreciate your helpful contributions of old QSL's (originals or good copies), postcards depicting old radio and wireless facilities, old station rosters and directories, station photos, and your inquiries and comments in general.

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GAIN: 16.5 DB
FRONT TO BACK RATIO:
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SIDE REJECTION:
50-55 DB True
BACK REJECTION: 40 DB True
WEIGHT: 37 lbs.
LENGTH: 17 ft., 6 in.
SWR: 1.1
HORZ. to VERT.
SEPARATION: 25-30 DB
WIND SURVIVAL: 100 MPH
POWER MULTIPLICATION: 65X
AUDIO GAIN: 22 DB
WIND LOAD: 5.2

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DX Antenna
JG - 4V**

SPECIFICATIONS:
TYPE: Horz. & Vert.
Polarization: Single Feed
GAIN: 15.5 DB on DX
FRONT TO BACK RATIO:
50 DB True
SIDE REJECTION:
45-50 DB True
BACK REJECTION: 35 DB True
WEIGHT: 24 lbs.
LENGTH: 12 ft.
SWR: 1.1
WIND SURVIVAL: 100 MPH
POWER MULTIPLICATION: 50X
AUDIO GAIN: 18 DB
WIND LOAD: 2.8



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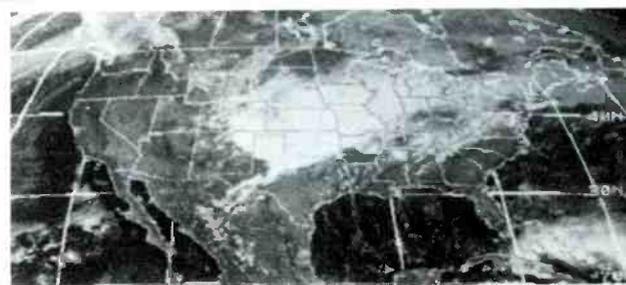
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CIRCLE 8 ON READER SERVICE CARD

THE MONITORING MAGAZINE

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CIRCLE 9 ON READER SERVICE CARD

March 1992 / POPULAR COMMUNICATIONS / 17

Look, Up In The Sky!

DX monitors, ever searching for new worlds to conquer, learned several years ago to turn their collective attention to the skies. That's where satellites are. When it was discovered that satellites were transmitting non-video and data services, they became the center of considerable attention.

A book appeared to advise monitors of what there was to tune in, how to tune it in, the hardware, and everything else. This was *The Hidden Signals on Satellite TV*, by Tom Harrington, W8OMV, and it quickly became the basic reference for this exciting aspect of the ute monitoring hobby. With satellites and

a technician. So, whether you are a professional or a seasoned old timer, or someone just getting started, or are thinking that maybe it's something you would like to get into in the future, you will find plenty of value.

Plenty of useful data is included on specific satellites, their locations, operating transponders and frequencies, transmission modes, and the non-TV services they are accommodating. This includes voice and non-voice (such as RTTY and data) signals.

Tom Harrington is an expert in this field, and this is the book to get for knowing about such matters. He seems to have covered all of the bases, anticipated any questions the newcomer might have, and put it all into an interesting form. It certainly seems that tuning across the satellite communication bands is every bit as active and exciting as the HF ute bands. In fact, some services fled the HF bands because of interference, the lack of communications security, and having to put up with changing propagation conditions. They hooked their fortunes to satellite technology, and now you can again hear them!

Hidden Signals is \$19.95, plus \$3 shipping, from Universal Electronics, Inc., 4555 Groves Road, Suite 13, Columbus, OH 43232.

Railfan Scanner Information

We received a well done publication directed at the railfan who is into scanners. It's called *Getting The Most Out Of Your Scanner: A Railfan's Guide to Scanners and Scanning*, by Vincent Reh.

This is a 59-page staple-bound publication. Nothing fancy, mind you, and it is not a frequency directory. But it is a very nicely done and informative booklet discussing and ex-

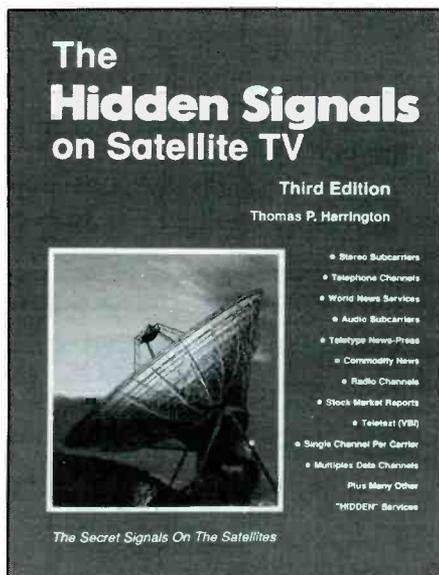
plaining different aspects of railroad communications and how to hear them on a scanner. It also discusses buying a scanner to use for railroad monitoring, results that can be expected, antennas, monitoring tips, and other related material.

The author is, himself, an avid railfan. These are his personal observations based upon years of experience in the field. As such, what he has to say is certainly of use to anybody who wishes to pursue railroad monitoring. It is well prepared and thought-out, and crams a lot of information into its pages, including a comprehensive listing of sources for equipment and information.

Getting the Most is available for \$6 (includes postage) directly from its author, Vincent Reh, 6417 Freeman Road, Byron, NY 14422.

Gee, We're Blushing!

It is with some pride that we tell you about *Popular Communications 1992 Communications Guide*, because it is the first in a series of buyer's guides from the POP'COMM team. These guides are being done under the direction of Harold Ort, long-time POP'COMM staffer.

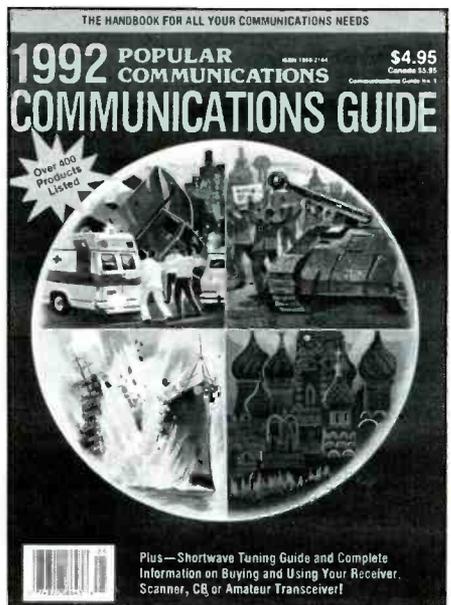
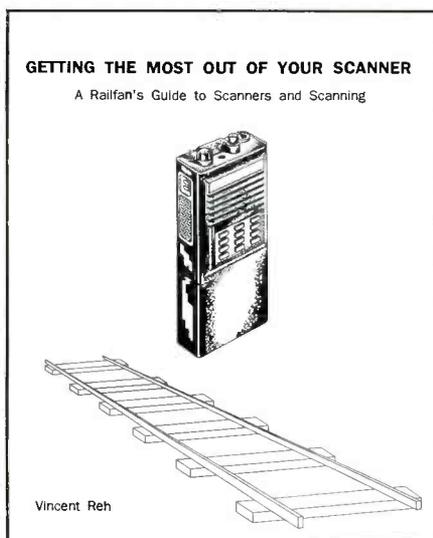


their technology being an ever-changing scene, Tom Harrington has had to continually revise his book to keep it current and useful.

The revised and updated Third Edition of *The Hidden Signals on Satellite TV* has now appeared. It's a guide to what there is to know about satellite-borne stereo subcarriers, telephone systems, world news and press services, teletext and other VBI systems, single channel per carrier (SCPC) systems, stock market and financial news services, and many other "hidden" non-TV services.

This 239-page illustrated (numerous photos, charts, tables) deals with all phases of these areas of satellites. It explains the various systems and how they work, how they are received, and how they are utilized. It provides a thorough understanding of these topics, and how to put that knowledge to practical use.

Harrington's book is written for the average person to understand, you don't need to be



Here is a 144 page book containing feature articles and illustrated buyer's guide directory sections. This edition has detailed specs, prices, and photos of base and portable communications receivers, scanners (base, mobile, and handheld), ham radio transceivers, CB transceivers (base, mobile, and handheld), and miscellaneous station accessories.

There are also extensive directories (names

and addresses) of manufacturers and dealers active in the areas covered by the directories.

Features include ones written by Bill Orr, Harry Helms, Chuck Gysi, Tom Kneitel, Gerry Dexter, Robert Margolis, Bill Sanders, Don Schimmel, George Zeller, and others. It's an all-star line-up offering insights into antennas, scanning, monitoring pirates, getting QSL cards, getting a ham license, buying equipment, using CB radio, scanning and the law, RTTY monitoring, setting up a listening post, and more. It's a well-rounded selection geared to offering practical hands-on information to all users of the guide.

This guide is intended to be kept and used throughout the year as a constant and convenient reference and information source for the hobbyist.

If you can't locate the *Popular Communications 1992 Communications Guide* at your local magazine supplier or electronics shop, you can obtain one by mail, phone or fax. The price by mail is \$4.95, plus \$2.50 shipping and handling (\$3.50 foreign), from CQ Communications, Inc., 76 North Broadway, Hicksville, NY 11801 (phone 516-681-2922/fax 516-681-2926).

Communications Receivers Galore

For the many people who revere the 1932 to 1981 era of vacuum tube communications receivers, it was almost fifty years' worth of magic. This came by virtue of companies with names like Hallicrafters, National, RME, Hammarlund, Drake, McMurdo Silver, Collins, and others. The majority of these companies eventually merged, were bought up, or went under at some point before solid state receivers replaced the vacuum tube designs.

Still, there was something about vacuum tube receivers that was special and unique.

COMMUNICATIONS RECEIVERS
THE VACUUM TUBE ERA: 1932-1981
2nd EDITION

RME
DRAKE hallicrafters
COLLINS

By Raymond S. Madsen

Last year, at Dayton, I picked up an WWII era Hallicrafters SX-28 for broadcast band reception. I can tell you that it sounds like a million bucks, and every bit as good as any modern broadcast receiver I've ever heard. Not only that, it was in remarkably good working condition.

Well, I don't want to ramble on about the wonders of old receivers that give off heat and a warm orange glow, but I do want to tell you about the new 2nd Edition of Ray Moore's book, *Communications Receivers*. This is a 115-page directory of communications receivers made between 1932 and 1981 by almost 60 companies. There are descriptions and specs, plus photos of 375 receivers. With variations of the 375 receivers, more than 700 receivers are covered. That means virtually every known vacuum tube communications receiver ever produced in the USA for commercial, ham, and SWL use.

Lots of new information has been added since the first edition was brought out several years ago. Many more photos have been included, too. Really interesting stuff, here.

Communications Receivers is \$17.95, plus \$2.50 shipping, from RSM Communications, P.O. Box 218, Norwood, MA 02062.

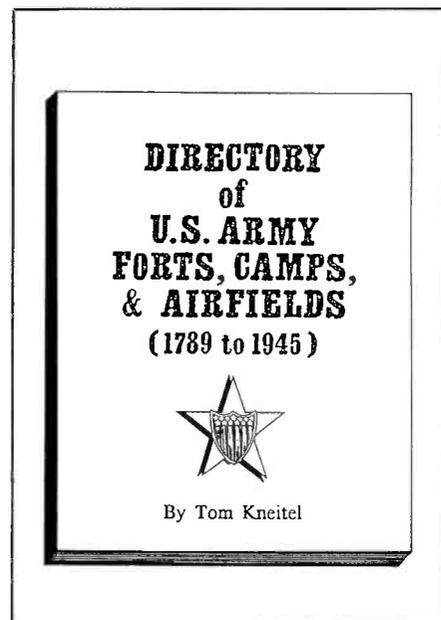
Kilroy Was Obviously Here

From the Revolutionary Era (1700's) to the end of World War II (1945), there were more than 5,400 named American forts, camps, and airfields. They ranged from stockade forts employed by the early settlers for their own protection, to those captured from others and put to use by our own forces. It includes forts and outposts on our western frontiers, training camps, early flying fields, WWII bases of the Army Air Corps, and everything else.

All apparent vestiges of many are now gone, except to those who can successfully track them down using old maps and other archival references. Some facilities still exist, have been restored and maintained, and are open to the public as historic exhibits. Some are in use by our military forces. Others are also functioning, but under other names and for vastly different purposes than they had originally been conceived.

Tom Kneitel's 144-page book, *U.S. Army Forts, Camps, & Airfields (1789 to 1945)* is a reference guide to these more than 5,400 named facilities, giving their individual locations. Included are many photos and other illustrations, plus a listing of some of the personalities whose names have been applied to army forts and camps, and a listing of the best sources for obtaining maps and old map reprints. No other reference of this focus, covering this lengthy time span has ever before been published.

Interestingly, some of the old WWII Army Air Corps fields still exist, although in a state of virtual abandonment. Photos in the book take you to one such place. And you'll find



the fanciful and often grisly names once applied to army installations. We spotted ones like Fort Trial, Camp Toll Gate, Fort Spunky, Fort Cork Screw, Camp Secession, Fort Recovery, Fort Patience, Fort Nonsense, Camp Misery, Fort Skeedaddle, Camp Hopeless Chase, Fort Hell, Camp Discharge, Camp Convalescent, as well as other places you wouldn't want to get stationed. We were also interested to note that certain names, such as Defiance, Henry, Hill, Sherman, Lee, Hamilton, and many others have been repeatedly recycled as names for different forts and camps over the years.

For military buffs; veterans; army types; people who like to explore unusual old sites for artifacts and relics; treasure hunters; trivia fans; and the incurably curious, here's a huge helping of information to enjoy.

U.S. Army Forts, Camps, & Airfields (1789 to 1945), is \$15.95, plus \$3.50 for UPS shipping (sent via 1st Class Mail to Canada, AK, HI, VI, PR, GU and military addresses), from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725. Residents of NY State please add \$1.56 sales tax.

In Addition . . .

We saw a copy of *Secret Signals: The Euronumbers Mystery*, by Simon Mason. Mason is a British DX'er who specializes in monitoring and studying European "numbers" stations. This 69-page book contains Mason's observations, research, and opinions on these transmissions. There is also a frequency log with 300 entries containing formats and schedules. We thought this was an interesting work-up on the topic. This book is \$9.95, plus \$2 shipping from Tiare Publications, P.O. Box 493, Lake Geneva, WI 53147. ■

Inside The WHCA

Within Arm's Reach Of President Bush

BY RICHARD DAVIS, Jr., and MAJOR MARK BARNETTE, USA

WHCA is crucial to the efficient operation of the office of the presidency and certainly to this administration. Never underestimate just how vital your agency is to the nation's security.

—President George Bush address to WHCA, March, 1990.

The men and women of the White House Communications Agency (WHCA) have a single mission.

They provide telecommunications, automation, audiovisual, photographic and graphic support to the President of the United States and his staff, the vice president, and the United States Secret Service.

The awesome responsibility of that single mission is staggering. They must provide the President with immediate access to both secure and non-secure voice communications and message traffic, 24 hours a day, worldwide and for whatever mode of travel the President may select. During President's Bush's administration alone, they have crisscrossed the globe: Paris, Brussels, Malta, Costa Rica, Colombia, Panama, China, and, of course, Saudi Arabia. They have provided instantaneous, clear communications—even under the toughest circumstances—to the other side of the world or, quite literally, out of the world with astronauts in space. Every single time the President appears on television or radio and every single time he makes a public speech, WHCA teams are there.

But the President himself succinctly summarized their greatest responsibility: "In the event of a national emergency," he said, "I depend on WHCA to provide immediate, clear communications while monitoring a constant connection to our military, our colleagues in government and our allies anywhere in the world."

How good are they?

Simply put, they're the best. President Bush has said the support he receives is "Presidential quality." WHCA has the latest telecommunications technology available, but that technology is only as good as the men and women maintaining it. And President Bush says he has tested the systems and technologies. Aboard the USS Forestal, for example, during the Malta Conference, he picked up a random phone and "there at the other end, clear as a bell," he said, "was instant communications with our Situation Room."



Marines at 1st Marine Division site using telephones to call home to families. "Courtesy of White House Comm. Agency Military Joint Service" sign is displayed in the background. Photo courtesy Capt. Jim Curtis USAF.



Here at a WHCA meeting the President is flanked by, from left Brent Schoncroft, National Security Advisor, Richard B. Cheney, Secretary of Defense and General Colin Powell, Chairman-Joint Chiefs of Staff. Photo courtesy Carol T. Powers-The White House.



WHCA personnel (left) SSG Bunnell, USA and (right) ET1 Kretz, USN setting up audio equipment for the President's speech at the 1st Marine Division site. Photo courtesy Capt. Jim Curtis USAF.



SFC Hosea Carlton USA, assembling power distribution panel at the 1st Marine Division site. Photo courtesy Capt. Jim Curtis USAF.

Who are these people, and how do they carry out their critically important daily responsibilities?

WHCA is a joint service organization of nearly 1,000 personnel who are recruited in a worldwide effort to assemble the very best men and women the armed services have to offer. Among them, they possess 91 different pertinent skills, about 90% of which are tech-

nical. Their commander, COL Kenneth Nickel, is Air Force and their deputy commander, COL Thomas Hawes, is Army.

WHCA operates and maintains 10 major facilities across the United States from Kennebunkport, Maine, to Camp David, Maryland. The largest concentration of personnel and equipment, however, is in Washington, DC.

The agency's command group and operations officer are in the Old Executive Office Building (OEOB), adjacent to the White House. This is the focal point for all planning, coordination and direction of WHCA support to the President. The Communications Center, which is the heart of all message traffic for the White House, is here as is the Data Center, which provides secure and non-se-

Improve Your Scanning Coverage!

GRE America is proud to introduce a new family of products to enhance your scanning pleasure! First, GRE has designed the new **Super Converter 9001** for base model scanners. The 9001 converts 810 MHz - 950 MHz down to 410 MHz - 550 MHz. The 9001 is the perfect alternative to buying a new, expensive scanner covering the 800 MHz band. Next, GRE announces the new **Super Amplifier 3001** for base model scanners. The 3001 will increase gain by as much as 20 dB, and is engineered to help scanners with low sensitivity pull in weak signals. Both products use BNC connectors, (1) 9 volt battery and have an off/pass switch for returning to normal operation.



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See tomorrow's news today on your computer screen when you copy crisp, clear AP news photos. You'll also enjoy high resolution WeFAX weather maps, multi-gray SSTV pictures and full color packet radio pictures. You'll also copy the digital text modes: RTTY, Amtor, Navtex, ASCII, Morse and packet.



AP wire photo received on 20.738 MHz using MFJ-1278 with MFJ-1289 Multicom.

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Weather map received on 16.410 MHz using MFJ-1278 with MFJ-1289 Multicom.

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CIRCLE 13 ON READER SERVICE CARD



WHCA and US Army transportation troops in Dharan, Saudi Arabia loading trucks for deployment to 197th Infantry Bde site. Photo courtesy MSG Ray Hrynko USA.

cure support to the President and the White House staff, both in Washington and worldwide.

The WHCA Signal switchboard is also in the OEOB. The personnel who operate it process some 2,500 calls a day.

Complementing the switchboard is a robust radio network, headquartered at Anacostia Naval Station, that provides mobile communications support to the President, the vice-president, their staffs, and the Secret Service.

Anacostia is also home to the vehicles WHCA uses for mobile deployment. Basically, there are three types: modified RVs; lighter, more maneuverable vans called Roadrunners; and WHCA cars for motorcade use. Each contains the minimum essential suite of telecommunications. Each type, by the way, was conceived and engineered by WHCA personnel.

To ensure 100% availability of presidential communications, WHCA operates and maintains its own unique transmission systems. In addition, they use military and commercial satellites, microwave and land line circuits. The bottom line: WHCA can—and does—provide voice, data and record communications services even in places where no communications capabilities exist.

Obviously, travel is a large part of WHCA's routine. When the President moves, the seat of government moves. And when the seat of government moves, teams of WHCA personnel move. Their job is to provide the President from any point on the globe, in any scenario, instantaneous voice (both secure and non-secure) fax, data and record communications.

Here's how it works.

A trip officer makes a planning visit to de-

termine communications requirements at the President's destination. He returns and makes a personnel and equipment list which is immediately assembled. The equipment is gathered and loaded onto trucks at Anacostia. If necessary, the trucks are moved to Andrews AFB where the USAF Military Airlift Command supports presidential 1A1 (top priority) missions.

A communications center is then set up at the deployed site. The center must meet all the requirements WHCA meets in Washington. Therefore, WHCA must be sure all equipment—down to the smallest cable connector—is included because in some places (Saudi Arabia, for example) one doesn't pop down to the local electronics outlet for an overlooked item.

WHCA typically monitors several radio frequencies on the road. The frequencies support the White House staff, the Secret Service and paging networks. In addition, they use their own satellite system to tie the deployed site to Washington.

Once all of this is accomplished, the trip officer is ready to receive—that is, he has established all the necessary communications to receive the President and his party.

Upon the President's arrival at the deployed site, the seat of government has relocated. The second Air Force One comes to a stop, a WHCA member plugs into the aircraft to ensure that there has been absolutely no break in worldwide communications access for the President and his staff.

WHCA personnel are highly trained, dedicated men and women who routinely work within arm's length of the President of the United States of America. ■

Reprinted from the Army Communicator

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We Look At The New Realistic PRO-37 Scanner

What's This Handheld All About?

Radio Shack's new Realistic PRO-37 is presently their top end handheld, so let's get a look at what it can do. First, it's got a 200-channel memory which is comprised of ten storage banks.

Next, the frequency range covers from 30 to 54 MHz, 108 to 174 MHz, 380 to 512 MHz, and from 806 to 960 MHz (minus the two blocked out cellular bands). The VHF band is set up for operation in 5 kHz steps, with UHF in 12.5 kHz steps. The VHF aero band will accept programming in 25 kHz increments.

Two scanning speeds for preset channels are available, slow at 25 channels per second, and the *Hyperscan* rate of 50 per second. It can search at either 8 or 50 channels per second.

A switchable two-second scan delay, and channel lockouts are available. If the *Priority* mode is activated, the PRO-37 checks that channel for signs of activity every two seconds. There's a large LCD display that keeps you informed as to the status of the unit's programming on each channel.

Inside, there is a crystal filter as well as a ceramic filter. The selectivity is rated at plus or minus 10 kHz at -6 dB; plus or minus 20 kHz at -50 dB. Spurious rejection is 50 dB below 154 MHz. The IF frequencies are 10.7 MHz and 455 kHz, with IF rejection being 50 dB at 154 MHz.

The sensitivity of the PRO-37 (20 dB S/N) is 1.0 uV, except on the VHF aero and UHF bands where it is 2.0 uV. The squelch sensitivity threshold is less than 1.0 uV.

There's 200 mW of audio power available for the 1.75" speaker. An earphone or extension speaker can operate from a jack mounted on top of the scanner. The top of the PRO-37 also is the location of the antenna connector (BNC type), the volume control/on-off switch, the squelch, and buttons that determine whether the PRO-37 is to operate in scan or manual mode.

A 25-button programmable keyboard is mounted on the front of the plastic case, just below the display. This contains all of the programming controls, plus a push-button that illuminates the display. There is a separate slide switch that locks the keyboard programming buttons so the unit can't be accidentally deprogrammed. The battery charger/AC adapter input is on the side of the unit, with a detachable belt-clip mounted on the rear.

When you're changing batteries, the unit will retain all of your programming for up to an hour without a battery.

Operationally, you can manually select one channel to monitor, and you can even search up or down from any frequency you happen to be monitoring. You can search between frequency limits of your choice. You can lock out temporarily unwanted channels or entire frequency banks.

When the scanner has been manually set to monitor a particular frequency, if no activity is detected in a five minute period on that frequency, the scanner puts itself into a battery saving standby mode. This shuts the scanner down for one second periods, then brings it back on to check the frequency for

activity. The result is that the scanner uses only 40 percent of the power it would have normally used. It will continue in this mode until it either receives a signal or else the operator presses a button.

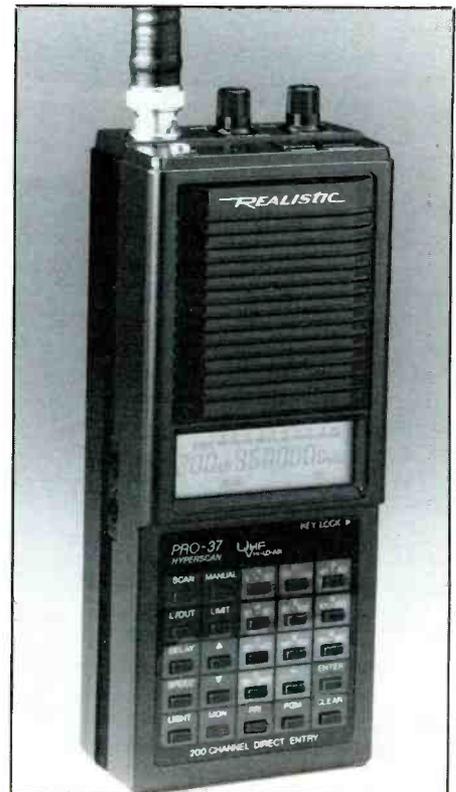
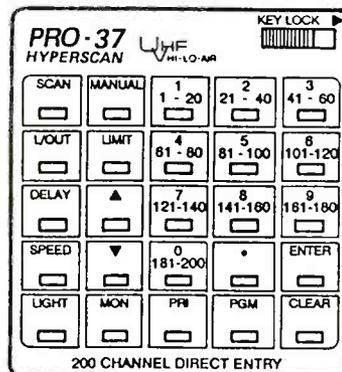
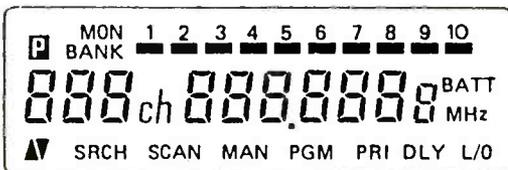
The instruction book listed about sixty birdie frequencies, although we didn't find all of them present in the unit we had. None were on any high interest frequencies.

We felt that the operation of the PRO-37 was simple and straightforward. After using the unit only about two or three times, it should make enough sense to be able to be used without constant reference to the owner's manual. It brought in stations like a champ, and we didn't have any problems with overload or intermod. Weighs only 14 oz., so it didn't create any undue drag on the hip while in use. ■

Reviewed by POP'COMM Staff.

The keyboard of the PRO-37. ▶

◀ A better look at the display.



The Realistic PRO-37.

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Frequency range: 29-54, 118-174, 406-512, 806-956 MHz.
Excludes 823,9875-849,0125 and 868,9875-894,0125 MHz.
The Bearcat 200XLT sets a new standard for handheld scanners in performance and dependability. This full featured unit has 200 programmable channels with 10 scanning banks and 12 band coverage. If you want a very similar model without the 800 MHz. band and 100 channels, order the BC100XLT-B for only \$179.95. Includes antenna, carrying case belt loop, ni-cad battery pack, AC adapter and ear-phone. Order your scanner from CEI today.

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RCI2950-B Ranger Comm. 25 Watt 10 Meter xcevr. \$229.95	
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BC142XL-B Bearcat 10 channel 10 band scanner	\$84.95
BC147XL-B Bearcat 16 channel 10 band scanner	\$94.95
BC172XL-B Bearcat 20 channel 11 band scanner	\$124.95
BC177XL-B Bearcat 16 channel 11 band scanner	\$129.95
BC590XL-B Bearcat 100 channel 11 band scanner	\$194.95
BC760XL-B Bearcat 100 channel 12 band scanner	\$254.95
BC002-B CTCSS tone board for BC590/760XLT	\$54.95
BC003-B Switch assembly for BC590/760XLT	\$22.95
BC855XL-B Bearcat 50 channel 12 band scanner	\$199.95
BC560XL-B Bearcat 16 channel 10 band scanner	\$94.95
BP205-B Ni-Cad battery pack for BC200/100XLT	\$39.95
TRAVELLER2-B Grundig shortwave receiver	\$84.95
COSMOPOLIT-B Grundig shortwave receiver	\$179.95
SATELLIT500-B Grundig shortwave receiver	\$499.95
SATELLIT650-B Grundig shortwave receiver	\$849.95
ATS800-B Sangean shortwave receiver	\$89.95
ATS803-B Sangean shortwave receiver	\$159.95
74102-B Midland emergency weather receiver	\$34.95
77116-B Midland CB with VHF weather & antenna	\$66.95
77118-B Midland CB mobile with VHF weather	\$62.95
77913-B Midland CB portable with VHF weather	\$79.95
76300-B Midland CB base station	\$92.95
NPD-B Uniden National Police Directory	\$19.95
FBE-B Frequency Directory for Eastern U.S.A.	\$14.95
FBW-B Frequency Directory for Western U.S.A.	\$14.95
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RFD6 CA, NV, UT, AZ, HI, GU Frequency Directory	\$14.95
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ASD-B Airplane Scanner Directory	\$14.95
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Listening In On The Air National Guard

Scanning This Important Activity

BY C.M. REED

In the wake of the Persian Gulf crisis, the public is becoming more aware of the importance of US military reserve forces. Of particular interest to monitors of military aircraft communications is the Air National Guard, which began flying Gulf-related missions soon after Operation Desert Shield began. There are ANG units in all fifty states and Puerto Rico, providing plenty of monitoring opportunities.

Not to be confused with the Air Force Reserve, the ANG is a branch of the National Guard Bureau. As such, individual state governors normally control Air Guard units. In this capacity, the ANG trains its members in military missions, supports active forces, and provides services such as disaster relief. However, each unit is assigned to an active USAF "gaining command" to which it would join if a mobilization order was to be issued by the federal government. For example, the ANG's KC-135 aerial tanker force, which is tasked with a strategic support mission would become part of Strategic Air Command (SAC), while tactical fighter squadrons would come under the aegis of Tactical Air Command (TAC).

The ANG's importance has dramatically increased since the early 1970's, with new roles and aircraft being assigned to it. This is due to the introduction of the "Total Force Concept" which stressed integration of active and reserve forces. Today, ANG units fly aircraft that are very often identical to those of front-line squadrons (to allow maximum compatibility), and make up a significant portion of the USAF's total strength in many areas. For instance, ANG fighter interceptor squadrons constitute virtually all the continental air defence force for the US, standing alert for intrusions into American airspace.

The Air Guard can boast a cadre of highly experienced flight and ground crews that are as good or better than their active-duty counterparts. ANG squadrons regularly compete in such USAF exercises such as *Red Flag*, *William Tell* and *Volant Rodeo* with good results.



C-130 Hercules turboprop transport.



C-141 Starlifter jet transport, with a C-5 Galaxy in the background.

Some ANG Frequencies

AL	Birmingham	287.3, 390.6, 396.0	MT	Great Falls	287.5, 288.9, 399.9
AR	Fort Smith	163.375, 268.1	NB	Lincoln	259.6, 305.7, 311.0
AZ	Phoenix	311.0	NC	Douglas	292.2
	Tucson	392.2	ND	Hector Field	238.2, 251.9, 262.0
CA	Fresno	298.3	NH	Pease	287.3
	Moffett	40.13	NJ	Atlantic City	251.9, 261.0, 288.7
	Van Nuys	303.0	NY	Niagara Falls	261.9
CO	Buckley	119.0, 121.0, 289.6, 307.3		Suffolk County	251.9, 287.5
CN	Bradley	321.0, 349.7, 413.45		Syracuse	379.5
DE	Greater Wilmington	343.0	OH	Mansfield	297.5, 301.6
GA	Savannah	297.1		Rickenbacker	120.5, 123.8, 279.6, 392.1
IA	Des Moines	41.45, 252.1, 260.4		Springfield	235.5, 261.1, 345.5, 377.5, 383.1, 390.5, 394.5
	Sioux City	254.3, 290.4, 307.0, 325.8	OK	Tulsa	381.1, 383.0, 392.2
ID	Boise	225.1, 238.2, 251.9, 298.7		Will Rogers	319.4
IL	Capital A/P	287.3, 297.1	PA	Harrisburg	311.0, 395.1
	Greater Peoria	40.15, 285.5, 297.1		Pittsburgh	293.7, 303.0
	O'Hare	384.9		Willow Grove	141.80, 343.0
IN	Fort Wayne	289.3, 311.0, 321.0, 340.8, 369.2, 398.2	RI	Quonset Point	141.80, 383.3
	Hullman Field	280.5, 295.1, 392.2	SC	McEntire	253.5, 287.7, 298.3, 378.5, 379.5, 388.5
KS	Forbes Field	286.5, 311.0, 321.0, 413.45	SD	Joe Foss Field	163.46, 253.4, 163.0, 390.1
KY	Standiford Field	306.2, 343.8, 388.2	TN	McGee Tyson	143.80, 303.0
LA	New Orleans	149.235		Memphis	138.10, 140.65, 140.775, 141.0, 341.6, 349.4
MA	Barnes	283.8, 303.0, 347.2		Nashville	138.10, 314.2
MD	Glenn L. Martin	139.70, 235.0, 253.4, 257.5, 268.1, 297.2	TX	Dallas	303.0
ME	Bangor	238.8, 293.2, 311.0, 321.0, 413.45	UT	Salt Lake City	303.0, 311.0
MI	Selfridge	119.6, 126.2, 134.1, 318.2, 340.7, 372.2, 395.9	VT	Burlington	251.9, 261.8, 293.7, 314.4
MN	Duluth	255.9, 285.6	VA	Richard E. Byrd	307.2, 371.1, 319.8, 398.2
MO	Lambert St. Louis	289.1, 324.1, 335.5, 360.6	WA	Fairchild	396.9
	Rosecrans Mem.	349.4, 396.9	WS	Mitcell Field	139.50, 351.2
MS	Key Field	235.5, 255.8, 292.3, 375.5, 375.9, 388.5, 396.5	WV	Kanawha	283.8, 301.6
				Martinsburg	390.1



C-21 (Military Learjet).



F-15 Eagle fighter belonging to the Georgia Air Guard.

ANG Aircraft

F-4D/E Phantom II: The oldest ANG fighter-bomber type, the Phantom II dates from the 1960's and saw extensive use over Vietnam. Those surviving ANG models are being updated.

F-15 Eagle: The USAF's frontline air combat fighter since the mid-1970s, the Eagle was first provided to ANG tactical fighter and interceptor units in 1985.

F-16 Fighting Falcon: Early model F-16s equip several ANG squadrons. A single seat lightweight dogfighter, the F-16 is being upgraded to carry medium-range missiles for the Air Guard's continental air defense mission.

A-7D/K Corsair II: Flown in combat over Vietnam and Libya, the A-7 is a single seat tactical attack fighter based on the old F-8 Crusader. All USAF A-7s have been transferred to the ANG.

A-10 Thunderbolt II: A specialized tank-killer type, optimized for survival over the frontlines of modern battlefields.

C-5A Galaxy: The Air Guard has recently received the Lockheed C-5 transport, the largest US military aircraft.

C-12J: Military Beech 1900C turboprop transport used by the ANG for support duties.

C-22B: Former 727 airliners procured for

ANG support missions.

C-26A: Military Metro III commuterliners used for passenger or medical transport.

C-130 Hercules: A long-lived tactical airlifter, the C-130 is flown by the Air Guard in standard transport configuration as well as rescue (HC-130) and electronic warfare (EC-130E) variants.

KC-135E Stratotanker: Military counterpart to the Boeing 707 airliner, the KC-135E is fitted to refuel other aircraft in flight. Cargo can also be carried. The ANG has operated KC-135s since the late 1970s, and the Air Guard tankers have been refitted with new engines.

C-141B Starlifter: The standard long-range transport for a quarter-century, the four-engined Starlifter was first supplied to the ANG during the late 1980s.

OA-37B Dragonfly: Two-seat forward air control derivative of the A-37B light attack fighter.

RF-4C: Tactical reconversion of the Phantom II with a sensor-equipped nose.

HH-3E Jolly Green Giant: This Vietnam-vintage helicopter is used for combat search and rescue. Can be refueled in the air and works in conjunction with the HC-130 rescue/tanker aircraft.

T-43: Originally bought by the USAF for navigator training, four of these Boeing 737 derivatives see ANG use as transports.

The Korean Tick Tock

Time Standard Station HLA

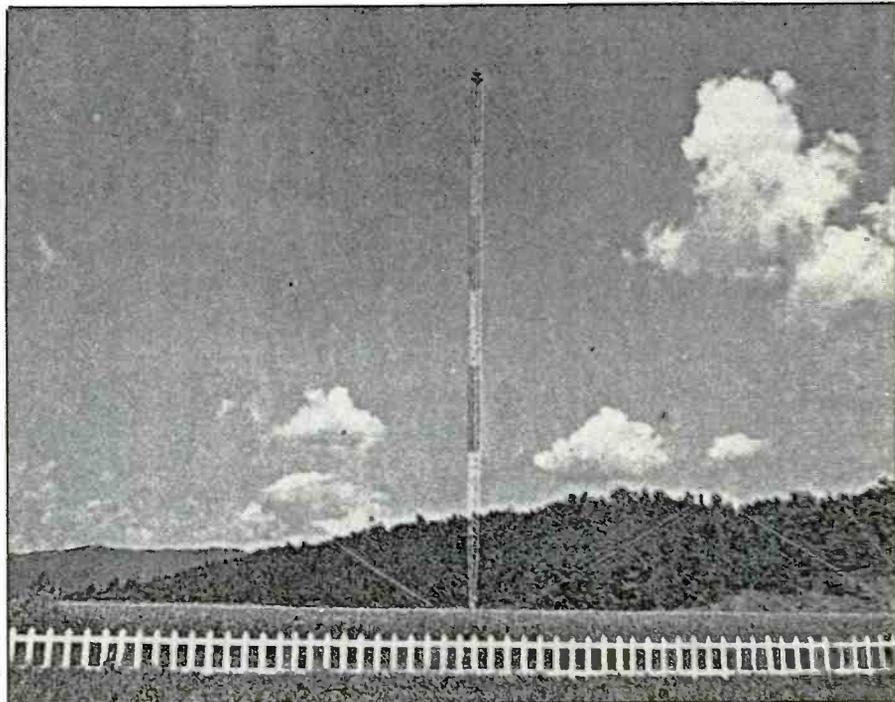
BY WILLIAM D. HEINE, JR

One morning recently I had the opportunity to tour the facilities of Radio Station HLA, the Republic of Korea's Time and Frequency Standard Station. HLA is located within Taedok Science Town, a large research and development complex adjacent to the city of Taejeon, in central South Korea. HLA is run by the Time and Frequency Laboratory of the Korea Standards Research Institute (KSRI), the equivalent of the U.S. National Institute of Standards and Technology (NIST). My hosts during the tour were Dr. Nak Sam Chung, Director of the Division of Electrical Metrology and Mr. Jin Ok Kim, Chief of the Time and Frequency Laboratory.

Five commercial cesium atomic clocks are used to generate the Coordinated Universal Time (UTC) signal which is broadcast by HLA. The clocks are continuously compared with other laboratories' clocks through the LORAN-C network. KSRI comparison with atomic clocks in Japan and Australia is achieved through use of the Geostationary Meteorological Satellite (GMS) achieved system. Additionally, a device co-designed by the Japanese and scientists at KSRI's Time and Frequency Lab, allows comparison of KSRI's clocks with similar devices in Japan through use of Global Positioning System (GPS) satellites. At the time of my tour, a five-year project by KSRI scientists to build an improved laboratory cesium atomic clock was nearing the halfway point. KSRI is also responsible for broadcasting the Korea Reference Frequency (KRF), which is used to synchronize digital communications networks throughout Korea.

KSRI is part of a network of 250 atomic clocks which provide data to the International Bureau of Weights and Measures (BIPM) in Paris for the generation of International Atomic Time (TAI). The Korean Broadcasting System (KBS) in Seoul used one of KSRI's atomic clocks to generate the time signal heard during its conventional AM/FM broadcasts and on its shortwave transmissions. Residents of five major metropolitan areas in South Korea can also dial 116 on any telephone for a recorded KSRI time announcement. The time signals generated by KSRI's atomic clocks are relayed the short distance from the Time Frequency Lab to HLA's broadcasting facilities via conventional RG-58 coax.

HLA's time standard signal is characterized by pulses of 9 cycles of 1800 Hz modu-



HLA's HF Antenna Array.



One of the five commercial cesium atomic clocks used to generate the UTC signal broadcast by HLA.



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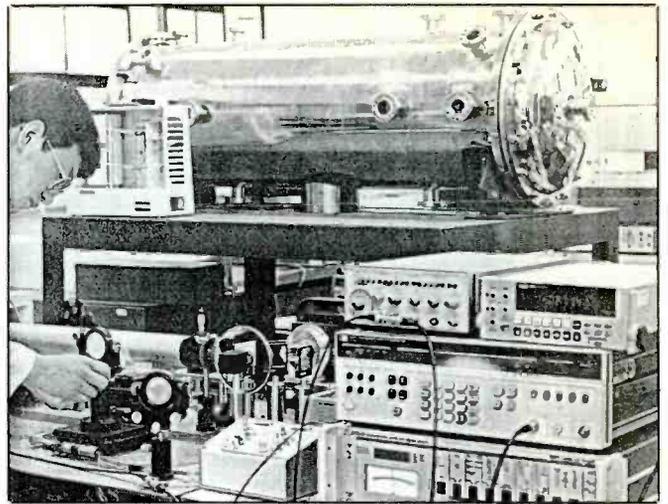
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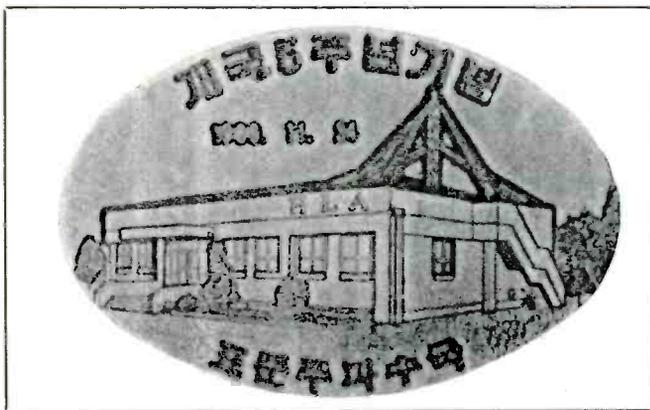
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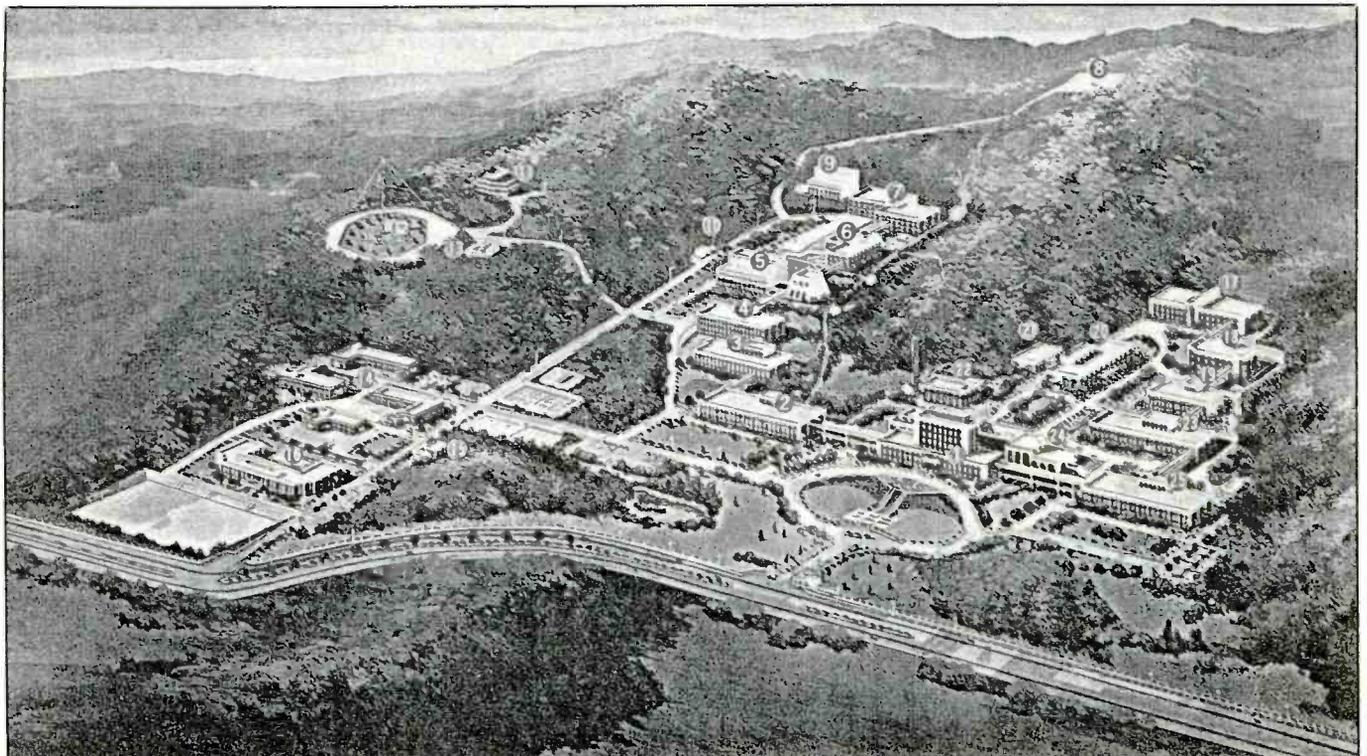
IN U.S.A.: 430 Park Avenue (2nd Floor), New York, NY 10022
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A KSRI Time and Frequency Lab technician works on the joint Japanese-Korean developed GPS interface prototype.



Brass and formica paperweight offered in exchange for reception reports during HLA's 5th anniversary in 1989.



KSRI facilities. Time and Frequency Lab buildings, HLA and antenna.

lation, with 29th and 59th second pulses omitted. A .8 second, 1500 Hz tone marks the beginning of each hour, while the beginning of each minute is marked by a .8 second 1800 Hz tone. Cassette driven automatic devices insert a female voice announcement in Korean following the 52nd second pulse of each minute. BCD time code is given on a 100 Hz subcarrier.

HLA began broadcasting its standard time and frequency signal on 5.000 MHz on 24 November 1984. Broadcasts were initially limited to the hours of 0100-0800 UTC on weekdays. HLA's broadcast schedule was expanded to 24 hours on 15 May 1990. HLA facilities include a small broadcast station which used three 10 kW transmitters and a large vertical monopole antenna system equipped with a diamond shaped ground wave enhancement curtain. The antenna used by HLA can be adjusted to provide peak performance in the 2-30 MHz range. HLA offers an attractive QSL card in return for reception reports from listeners who are fortunate enough to log reception of the station. This is indeed a task to try the patience of Job, however, since HLA's standard frequency of 5 MHz is used by many high power national time and frequency standard stations. Adding to the difficulty is the fact that only one of the station's transmitters, powered back to 2 kW, is used at any given time. The station receives an average of 100 reception reports each year.



Only one report has ever arrived from the U.S. However, stations officials did however indicate that listeners in Western Europe had copied the station's signal. During the period of the station's fifth anniversary in 1989, an attractive brass and formica paperweight featuring a picture of HLA with the KSRI logo on the reverse was offered in

return for reception reports.

Those wishing to contact the station can reach HLA personnel at the following address: Radio Station HLA, Time and Frequency Laboratory, Korea Standard Research Institute, P.O. Box 3, Taedok Science Town, Taejon, Chungnam 300-31, Republic of Korea.

SGC SG-230 SMARTUNER

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DATE PURCHASED: 1/15/90
INSTALLER: J. MARTIN (OPTIONAL)
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PERFORMANCE INFORMATION

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TEST CALL NAME: SEC
MODE: SSB
DISTANCE COMMUNICATED: 1500 KM
INSTALLATION: []
TUNING: []
TEST CALL: []
VOICE QUALITY: []
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COMMUNICATIONS CONFIDENTIAL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

A request for identification of a communications installation was received from Ernie Rice, OH. Ernie described the site as follows: "The small orange and white building has two antennas on top. One is V shaped and has several elements. The right-hand corner has what looks like a scanner antenna. The small box just to the left has two wires coming out and they go up to two wires strung between two towers, each about 50' tall and spaced at 100' apart. The site has a 6' fence, topped with 3 strands of barbed wire, around the entire perimeter.

Can any readers help Ernie? It is possible that this mystery installation is related to Wright-Patterson Air Force base which is located near Dayton, Ohio. The distance from the mystery site to Wright-Patterson is about 30 miles on a straight line.

Gregg Arens, BC, Canada believes he has identified the foghorn like signals that everyone keeps hearing on the SW bands. Greg referred to the loggings by "Penson, MN", in the October '91 issue, showing foghorns on 6580, 10612, and 14440 kHz.

"These signals are Fast Sweep Over The Horizon Radar (FSOTH). One night while searching for pirates on 7415 kHz, my eardrums were almost shattered by the typical "woodpecker" radar pulses. First there were the typical pulses at a rate of about five per second, then ten, then twenty-five, and finally, fifty pulses per second. The latter two speeds generated the "foghorn" sounds that people hear. The "foghorn with sound effects" that Mr. Penson reported on 14440

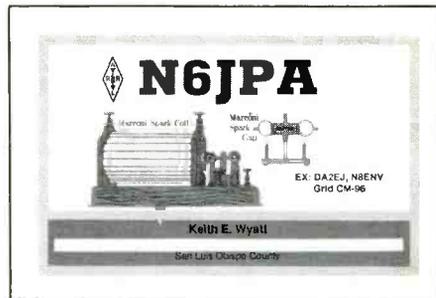
kHz is the duty cycle of the radar pulses being altered, I guess, to optimum performance. Luckily I had my oscilloscope hooked up that night. I thought it appeared that the radar station was turning up their equipment that night and therefore would be on the air for a while (which they were, they tested for over an hour), so I called up two friends who had SW loop antennas and asked them to tune to 7415 kHz and take some bearings. We pinpointed those strong signals as originating from a certain naval base in Washington State."

Our thanks to Gregg for these details regarding the foghorn signals. The likely candidate for the naval base would be Whidbey Island Naval Air Station! However, the State of Washington is also home to Fairchild AFB, McChord AFB, Fort Lewis - USA, Bangor Naval Submarine Base, Naval Undersea Warfare Engineering Station, and the Puget Sound Naval Shipyard.

Perry Crabill, Jr., VA sent in some beacon loggings and said he recently made a careful band scan from 190 to 530 kHz, listening between 0930 and 1100 UTC. "It took me four mornings to cover this range, but I picked up 14 stations I had not previously logged, including two Mexican beacons."

Perry added "Please note that GAI, Gaithersburg, MD on 385 kHz, which had been off the air for a year or more, is now back on."

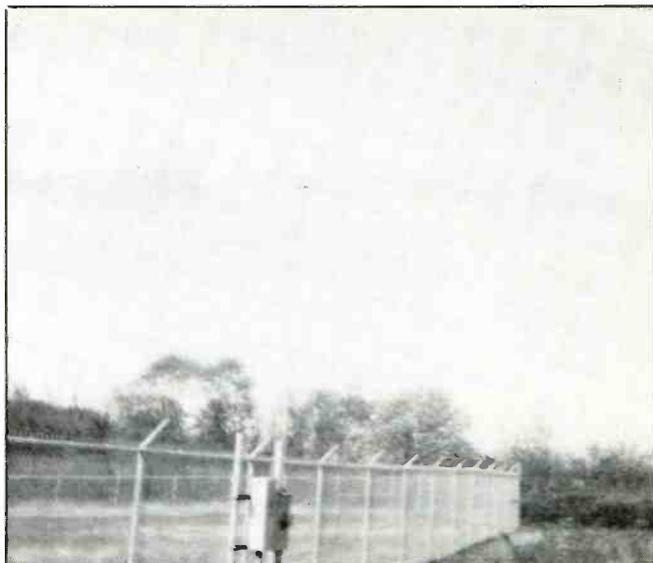
The US Coast Guard will discontinue broadcasts of marine safety information over MF Morse frequencies as of 1 August 1993 in areas where NAVTEX service is provided.



Attractive QSL card used by Keith Wyatt, CA.



Russ Hill, MI received this decal when his PFC was returned.



These photos of a mystery installation were sent in by Ernie Rice, OH. Can any readers identify this facility?

To: David Sabo, Monterey, California, USA

This confirms your reception of



Canarias Aeradio



on 8861 kHz USB/voice at 0128 UTC on 24 February 1991.

Transmitter/Power: CONTROL UNIT GB-953 c1 1KW POWER

Antenna: SYSTEM HE-005 12M ABOVE GROUND

QTH: 275740N 152111W

Signature/Official Stamp:

(CARLOS RODRIGUEZ)

OPERATOR AT CANARIAS RADIO AER. STN.



Another PFC from the collection of Dave Sabo, CA.

For example, the following USCG stations on the East Coast and Gulf now transmitting these notices to mariners will drop their CW schedules as of that date: NMF, Boston, 472 kHz; NMA, Miami, 440 kHz; NMN, Portsmouth, 448 kHz and NMG, New Orleans, 432 kHz.

Stations in other areas will also be similarly affected. The implications is that if you haven't logged these stations on their MF schedules, you'd better get busy. I suppose the day will come when CW will disappear altogether from the marine band between 415 and 500 kHz.

Michael Willmer, MI informed us that he located a Giant Talk frequency which he thinks has not been reported before. "The frequency is 11408 kHz and the channel designator is Papa 382. If what I have read is correct the Mystic Star and Giant Talk programs have been merged under the new name Scope Signal."

Michael also commented: "Readers who monitor ARIA flights should not assume all the aircraft are EC-135N's. While the 495th Test Wing currently operated three EC-135N ARIA aircraft they also operate four EC-18B ARIA aircraft. The EC-18B is a modified Boeing 707-320 series that offers increased cabin space and range over the EC-135N aircraft.

Simon Mason, England sent in a batch of "numbers" loggings and said "There seems to be a record amount of activity at the moment. So much for all the reports that these spy agencies are folding up!"

Along with the QSL from the CG Communications Station at Portsmouth, VA, Mike Starr, MI received a list of frequencies for Coast Guard activity. Voice - 4426, 6501, 8764, 13089, 18314 kHz; CW - 8471, 12718.5, 16986 kHz; SITOP - 4210.3, 6314.3, 8426.3, 12590.8, 16817.8, 22387.8 kHz.

Jeffrey Miller, CT wrote "I am a first time

NY

ENDERBY AEROBEACON
BRITISH COLUMBIA, CANADA

Mr. Robert Homuth, Phoenix, AZ, U.S.A.:
This confirms your reception of non-directional beacon, "NY" on 350 kilohertz.
ANTENNA: _____ POWER: 500 WATTS
TIME: 23 September, 1985, 1200 Z. (41/202)
Remarks: (ESNE/PA) signature

This PFC is from Robert Homuth, AZ.

contributor to the magazine. I currently use a Kenwood R-2000 with a Mckay Dymek active antenna.

Another first time contributor is Matt Barbian, IL who says he uses a Radio Shack DX440 and DX160 with both fed by a 110' longwire. He also uses a Commodore 64 computer with SWL cartridge.

Lance Barefield, TX monitors with a DX-370 with a small indoor dipole from a second story apartment. "I enjoy the magazine and want to learn more about SW DXing."

And from Jeff Davis, GA comes word that he has been reading POP'COMM for about 1 1/2 years and just started monitoring utility stations. He hopes to be sending in some loggings soon. His equipment includes a Realistic DX440 and a 70' longwire. He will be adding a Yaesu FRG-8800 and an antenna tuner.

A hearty welcome to the above individual and now let's look at the items submitted this month.

Ute Intecepts. All Times UTC.

195: Wx report from NYC, Manchester, VT, Caribou, Maine & Windsor Locks, CT in AM at 0633. (Miller, CT) This possibly TUK, Nantucket, MA on 195 kHz. (Ed.)

217: Beacon HZD, Huntingdon, TN at 1046. (Crabill, VA)

224: Beacon BH, Birmingham, AL at 1049. (Crabill, VA)

263: Beacons CDN, Camden, SC at 0956; FIO, Paducah, KY at 1000; MRT, Marysville, OH at 0958. (Crabill, VA)

266: Beacon IN, Indianapolis, IN at 1007. (Crabill, VA)

280: Beacon MID, Merida, Mexico at 1017. (Crabill, VA)

302: Beacon MBY, Moberly, MO at 1033. (Crabill, VA)

308: Beacon EQZ, Seymour, IN at 1038. (Crabill, VA)

314: Beacon GGU, Prague, OK at 1042. (Crabill, VA)

326: Beacon CJE, Cookeville, TN at 0942. (Crabill, VA)

330: Beacon CZM, Cozumel, Mexico at 0950. Noted as DSB although listed as SSB. (Crabill, VA)

349: Beacon FV, Indianapolis, IN at 1023. (Crabill, VA)

429: 3EJC5, MV Star Mirandan sending msgs in CW at 1616 to u/i station. (Boender, Netherlands)

447: OXJ, Thorshavn, Denmark in CW at 0700 w/tfc list. (Boender, Netherlands)

454: UYOQ, MV Rostov in CW at 2000 to Pilot Hoek v. Holland gives ETA; JHRE, MV Ruyoh Maru clg FFB, Boulogne-Sur-Mer, France in CW at 2012; SZVP, MV Kavo Yerakas clg PCH, Scheveningen, Netherlands; UNXR, MT Kaliningradneft clg PCH in CW at 1155. (Boender, Netherlands)

454: LGT, Tjome, Norway in CW at 0938 w/navigation warning t/c; UERT, MV Valya Kourakina in CW at 1648 w/msg to TRANSWORLD Delfzijl re ETA pilot EEMS. (Boender, Netherlands)

468: SZNA, MV World Argus in CW at 0850 w/ETA Antwerp. (Boender, Netherlands)

482: WSC, Tuckerton radio in CW at 0225 w/tfc list. (Boender, Netherlands)

484: ELAX9, MV Product Trader in CW at 0525 w/Fullercoast radio. (Boender, Netherlands)

500: GNF, Northforeland radio in CW at 2113 w/GNF mkr; DNA, Norddeich, Denmark in CW at 2200 announcing for tfc list; OST, Oostende, Belgium in CW at 2312 announcing gale warning. (Boender, Netherlands)

2285: SXGZ, unid, nonstop SXGZ in CW at 2351. (Boender, Netherlands) Believe this is one of those 4-character callsigns which operates like the SLFHB transmissions. (Ed.)

2680.5: DJH59, Navy Wilhelmshaven, Denmark in CW at 1636 w/VVV G23B DHJ59/8/9/11/etc. (Boender, Netherlands)

2725: IDQ, Navy Rome, Italy in CW at 2100 w/msgs fm Metaero/Milano & navigational warnings. (Boender, Netherlands)

3658: SLHFB "V" in CW at 0009. (Boender, Netherlands)

3814: FDC, Air Force, Metz, France in CW at 1928 w/VVV DE FDC. (Boender, Netherlands)

4058: 3INP, u/i calls 3PIQ and HYVX in CW at 0112. (Boender, Netherlands) See comment for 2285 kHz entry. (Ed.)

4740: YL/EE rptng 43171 from 2100-2105. Then said "ready, ready, 22,22" and into 5F grps. (Mason, England)

5246: USCGC Spencer and King 2 in USB at 2316 w/kg DOD Cape supporting shuttle Discovery launch. (Willmer, MI)

5748: Music Box playing "Swedish Rhapsody" from 1900-1905. YL/GG then sent 5F grps until 1923. In background could hear OM/YL in RR "MAYAK" type program. When carrier went off so did voices. (Mason, England)

5835: U/i CW stn at 2225 sends 835 and 5F grps. (Boender, Netherlands)

6623: AAC2, Ft. Ritchie, MD w/kg AARD, u/i. AARD gave ETA to Port Houston at 2230. I couldn't determine where they had departed from. USB at 2027. (Miller, CT)

6708: YL/GG w/702 702 70987 049. After five tones went into 5F grps. This sked is every Sunday at 1500 UTC. (Mason, England)

6853: YL/GG rptng "November Uniform" w/tones from 20000-2005 then 5F grps for 368 and 599. Next day at same time Yl rptng "DELTA TANGO" after which 5F mgs for 809 and 503. (Mason, England)

7100: OM/EE rpts 812 x3 then counts 1-0 for couple of mins. Then series of 5F grps. USB at 0506. (Miller, CT)

7375: YL/GG rptng 543 x3 07573 049 from 1700-1705. Five tones & into 5F grps. At 2000 on same day YL/GG w/066 x3 42695 051. This time was parallel w/6708 kHz. (Mason, England)

7387: Rumanian "Skylark" violin tune from 1900-1906 after which OM/Rumanian shouted out 5F msg ending w/"Terminat" 3 times. Also on 6824 kHz. (Mason, England)

7404: YL/GG rptng "Oscar Kilo" w/ramdom tones 1900-1905. Then 5F grps for 319 and 812. (Mason, England)

7445: Kilo Papa Alpha in AM at 0018. Mossad activity. (Boender, Netherlands)

7830: YL/GG w/3F x3 5F 3F. On this occasion sent 603 x3 12211 043. At 1905 five tones and into 5F grps. Also on 5315 kHz. This sked is every Wednesday at 1900. (Mason, England)

8466: EOPA, MV Lazurnyi Bereg in CW at 1408 clg Kalingrad radio. (Boender, Netherlands)

8660: OM/GG w/5F grps at 2100. Ended w/237 237 26 26 00000. This is the same OM who sent 5F grps in RR on may freqs. (Mason, England)

8665: XSG3, Shanghai, China in CW at 1434 clg S/S Roo Trader Xuan. (Boender, Netherlands)

8764: CG Cutter Bear in USB at 2010 talking to Com-Sta Portsmouth (NMN) requesting p/p re individual picking up parts for the ship. (Miller, CT)

8806: OM/FF w/"ici Paree radio (here is Paris radio) ... "Voice mirror w/accordion music mkr. This is FFL41, St. Lys, France. (Margolis, IL)

8876: NOAA 42 in USB at 0008 w/kg KJY74, National Hurricane Center w/info on hurricane Bob. Channel ID'ed as Echo. (Willmer, MI)

9023: Duckbound to Huntress NORAD station. Requesting Papa Uniform for himself. Asked about going Green on Freq. Huntress denied request. Mode was USB. (Miller, CT)

9023: Bandsaw Gulf (NCS) in USB at 1401 in Link

Abbreviations Used For Intercepts

AM	Amplitude Modulation mode
BC	Broadcast
CW	Morse Code mode
EE	English
GG	German
ID	Identifier/location
LSB	Lower Sideband mode
OM	Male operator
PP	Portuguese
SS	Spanish
tfc	Traffic
USB	Upper Sideband mode with
w/	
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)

11 playground w/Dragnet Uniform, Okie Sam, and Listerine. (Willmer, MI)

9041: YL/EE w/1-0 count and 369 from 1400-1410, then ten tones, "Count 210" and into 3/2F grps. Also on 13518 kHz. Same time, YL on 15938 w/1-0 count and 908 but this YL sent 4F grps. (Mason, England)

9043: Mission Exercise Coordinator (code name Batman) at DOD Cape w/kg On Scene Coordinator (code name Robin) aboard SRB recovery ship Freedom Star in a Shuttle SAR exercise. USCGC Tahoma advised by DOD Cape to send a HH-65 helio to pick up observer at the Shuttle Launch Facility heliopad. Exercise involved SR recovery ship Liberty Star putting people (survivors) in the water at intervals and the CG Cutters would launch zodiacs to retrieve them. USCGC Maui also in exercise. USB at 1430. (Willmer, MI)

9290: YL/SS in AM at 0430 w/5F grps. (Margolis, IL)

10177: YL/GG rptng "Whiskey Lima" w/elec tones from 1900-1905. Then 5F grps for 026 and 522. (Mason, England)

10194: Red Dog 55 in USB at 1353 w/kg Bandsaw Gulf

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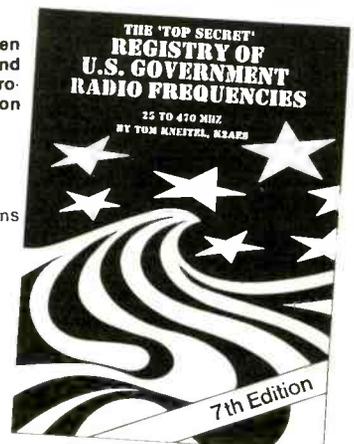
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requesting exercise fuel state for Sentry 40. Also Red Dog 4 in p/p via Edmonton advising Bandsaw Gulf that they were acting as Brewmaster and advised BG to change Op Con status to Canada East. (Willmer, MI)

10246: Habitat in USB in contact w/YL961 w/query if YL961 was in contact w/AD110 and if AD was on station. Hrd at 0421. (Willmer, MI)

10255: YL/GG rptng 457 x3 11779059 every Thursday from 2100-2105. After 5 tones into 5F grps. Also sent on 5315 kHz. (Mason, England)

11246: Grumman 84 Heavy in USB at 1626 w/pp via Macdill to Grumman Ops, Melbourne, FL for wx report. (Willmer, MI)

11607.6: OVG, Frederikshavn, Denmark (navy stn) in CW at 0502 w/VVV mkr. (Margolis, IL)

12010: 2DB in USB at 2243 w/EAM type msg. (Willmer, MI)

12875: FUG, Navy La Regine, France in CW at 1126 w/VVV mkr. (Boender, Netherlands)

12978: ICB, Genoa, Italy in CW at 2153 w/CQ mkr. (Barbian, IL)

12996: IAR33, Rome, Italy in CW at 2155 w/CQ mkr. (Barbian, IL)

13002: KPH, San Francisco, CA in CW at 1603 w/V mkr. (Lyttle, BC, Canada)

13042: PJC, Curacao, Netherlands Antilles in CW at 2206 w/CQ mkr. (Barbian, IL)

13089: NMC, Pt. Reyes, CA in USB at 0430 w/marine wx. (Lyttle, BC, Canada)

13100.8: KMI, Dixon, CA in USB at 0421 wkg u/i ship. (Lyttle, BC, Canada)

13533: YL/EE in AM at 2206 rpts Echo Zulu India. At 2210 "Message, Message. Group 35, Group 35. Takes, Takes." Foll by 5L grps in phonets. (Margolis, IL) I wonder if "Takes" was her pronunciation of the word "Test"?? (Ed.)

13538: SLHFB "K" in CW at 2203. (Margolis, IL)

13544: CW stn at 1424 w/"1 654 654 654" rptd at 20 wpm, foll by 5F grps at 35 wpm. T=0. S/off at 1432 w/TTT TTT. Compare w/19467 kHz entry. (Margolis, IL)

13775: YL/GG rptng "Echo Golf" w/tones from 0800-0805. Then into 5F grps for 267 and 472. On top of Radio Moscow EE bcst. (Mason, England)

13890: YL rptng "Foxtrot Kilo" w/random tones from 2100-2105. Then YL/EE w/"Message for (unable hear addressee) and into 5F grps. Very rare EE version of these 2L stations. (Mason, England)

14651.5: Speed 11 in USB at 1700 in contact w/Raymond 28, Bergstrom AFB w/position report. (Willmer, MI)

14811: YL/EE w/1-0 count and 096 from 1300-1310, then ten tones "Count 210" and into 3/2F grps. (Mason, England)

14843: Beatrix 1 in USB at 1345 advising Beatrix 2 that they have deployed comm unit to comm site Bravo. Also mentioned aircraft parts and 34th TFW. (Willmer, MI)

14930: Every Friday YL/EE here from 2100-2105 w/995 x3 28665 049. After five tones into 5F grps. Same YL that does the more common GG version. Also sent in parallel on 11190 kHz. (Mason, England)

15651: YL/SS in RCS at 1238 w/4F grps. (Willmer, MI)

15851: KCP63, Longmont (Denver) CO. (Net control of FAA NARACS Western Region Net) in LSB at 1913 wkg WHX44, Auburn, WA (or Mt Kaala, HI) Refs show WHX44 jointly assigned?? (Margolis, IL)

15938: YL/EE w/1-0 count and 346 from 1400-1410. After ten tones "Count 210" and into 3/2F grps. Affected by warble jammers. (Mason, England)

15920: CFH, Halifax, NS, Canada in CW at 2041 w/NAWS & freq list. (Barbian, IL)

15970: KKN50, US State Dept in CW at 1815 w/CQ mkr. (Barbian, IL)

16128.5: YL/EE w/1-0 count and 562 1400-1410. After ten tones "Count 210" and into 3/2F grps. (Mason, England)

16132: KRH50, US Embassy, London, England in CW at 2243 w/CQ mkr. (Barbian, IL)

16188: SVD6, Athens, Greece in CW at 1615 w/call mkr. (Boender, Netherlands)

16475: YL/EE rptng 42680 w/tune "Lincolnshire Poacher" at 1500. At 1510 into 200 grp msg of 5F grps. This is a new 3rd freq - also sent on 14487//15682 kHz. (Mason, England)

17037: YQ16, Constanta, Romania in CW at 1600 w/tfc list. (Boender, Netherlands)

17064.8: EDZ6, Aranjuez, Spain in CW at 1610

w/call mkr. (Boender, Netherlands)

17465: U/i stn, possibly diplo, w/short rx items in GG from 1620-1648 in CW. (Margolis, IL)

18182: U/i stn in CW at 1855 w/5F grps, T=0. S/off 1909 w/TTT TTT. (Margolis, IL)

19428: SNN299, MFA, Warsaw, Poland in CW at 1345 w/s/off after RTTY xmsn. (Margolis, IL)

19467: U/i w/5F grps in CW at 1417. T=0. Sent at 35 wpm. S/off at 1419 w/TTT TTT. (Margolis, IL)

22376: IAR2, Rome, Italy in CW at 1452 w/VVV mkr. (Boender, Netherlands)

22450: ROT, Navy Moscow in CW at 1454 w/CQ

mkr. (Boender, Netherlands)

22518: WCC, Chatham, MA in CW at 1459 w/tfc list. (Boender, Netherlands)

23197: YL/EE w/"Alfa Yankee November" callup foll by 5L grps in phonets. In AM at 1330. Also hrd at 1537. (Margolis, IL)

This item was received just prior to closing the column for this month.

12380: OM/EE (British accent) calling out 5F grps and rpts each group from 2230-2240. Then said Nine One, repeat, Nine One 00000. Carrier up for about 60 secs then off. (Barefield, TX)



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Aug. 21, 1987

Wilson Antenna Company Inc.
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Henderson, Nevada 89015

Subject: Comparative Gain Testing of Citizen's Band Antennas
Ref: Rye Canyon Antenna Lab File #670529

We have completed relative gain measurements of your model 1000 antenna using the K40 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

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Receiver Accessories – One Man's Opinions

A lot of SWL's are real accessory/gadget freaks. No matter how many little do-dads and add-ons they collect in their shack, they're always adding another little box or two to their collection. They can't tune in a station without tweaking a dozen knobs or so. Other SWL's are "bare bones" types. The only "accessory" they use with their receiver is the antenna!

Me? I'm somewhere in the middle. Some well-chosen accessories can really help the performance of any receiver, from kilobuck deluxe models to budget-priced sets. But it's also possible to go overboard and add accessories that don't appreciably improve reception or even can degrade reception. This month, we'll look at some common accessories and I'll give my admittedly subjective opinions about them.

Preamplifiers

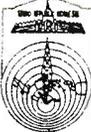
A preamplifier is inserted between your antenna and receiver, and it amplifies the signal from your antenna before it reaches your receiver. That sure sounds useful! What kind of SWL doesn't have an accessory like that in their shack?

Well, I don't.

I'm not ideologically opposed to preamplifiers, it's just that I don't currently feel the need for one. A preamplifier can be useful in many situations, but you might not need one at all.

For starters, keep in mind that most currently available shortwave receivers have sensitivity like you wouldn't believe. I have some old vacuum tube receivers in my shack along with a couple of modern solid-state models, and it is interesting to compare them against each other in how well they can receive the same station with the same antenna. It's startling at times to see how much more sensitive today's receivers are compared to "top of the line" vacuum tube models from a few years ago. Simply put, today's receivers have lots of sensitivity. Odds are that if you can't hear a station you want, you've got a problem — such as in your antenna, selectivity, propagation condition, etc — other than a lack of sensitivity.

You should also keep in mind that a preamplifier is a very easy device to misuse. A lot of SWL's who own preamplifiers use them all the time and turn their gain to full throttle. However, too much sensitivity can overload your receiver, causing distorted spurious signals to appear all across the dial. A pream-



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No. : 1219/S.30/RRI/91

Jambi 12 November 1991.

Lampiran :
M o l :
Slipat :

Kepada Yth :
Saudara Harry L. Helms
San Diego, CA USA

Dengan hormat,

Dengan rasa gembira, kami mengucapkan terima kasih atas laporan saudara tentang penerimaan Siaran RRI Jambi di tempat saudara, Sesuai laporan saudara, Waktu itu penyiar RRI Jambi yang sedang bertugas adalah Lely Anggrina dan pada Jam 20.18 saudara Juprizal.

Sedangkan pemancar kami diudera yang dapat saudara terima ialah Pemancar RCA berkekuatan 7,5 Kw buatan tahun 1957 dan dimanfaatkan tahun 1964.

Selain pemancar RCA, RRI Jambi juga mempunyai pemancar SW 1 Kw buatan TCA dan pemancar MW 10 Kw buatan Harris.

Demikianlah dan atas Laporan Saudara selanjutnya kami tunggu dan harapkan.

Kepada Stasiun RRI Reg. I
Jambi,

DIREKTORAT RRI
REGIONAL I
JAMBI
Mauli Romali
050005682.-

plifier should be used only when necessary to hear a station, and then the gain should be set to the minimum necessary to clearly copy the desired signal.

There are a couple of situations where a preamplifier can be big help. One is where you can't install a decent antenna and have to get by with something like ten feet of insulated wire hanging out of a window. The other is if you have an adequate outdoor antenna, a quiet location, and are chasing weak DX signals right at the noise level. In the first case,

a preamplifier can help overcome some of the disadvantages of an inadequate antenna. In the latter situation, a preamplifier can make the difference whether a signal that's audible or not. But note the qualifications of that situation — an adequate outdoor antenna and a quiet location. If you've got a noisy location, then a preamplifier will only let you hear the noise better! And a preamplifier can't amplify what it doesn't have, so an adequate outdoor antenna is important.

Is a preamplifier a useful accessory? In the



РАДИО МОСКВА

Dear Mr. Helms,

This verifies your report on the reception of Radio Moscow's broadcast to North America
Date August 19, 1991
Time 04:17-05:00 UTC
Frequency 13605 kHz-via Petropavlovsk-Kamchatsky
Best wishes from Radio Moscow
13645 kHz-via Komsomolok-on-Amur

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right situation, yes. But it shouldn't be the first accessory you buy. I can think of a couple of others you should look into first, like an . . .

Antenna Tuner

Let Uncle Harry get right to the point: if you're using a receiver that has a 50Ω coaxial (SO-239) antenna input, this is probably the most worthwhile accessory you can add to your shack.

Those coaxial antenna input are designed to work with antennas having an impedance of 50 ohms. Impedance is a term meaning the opposition an electrical circuit or device has to current flow; it's similar to resistance but varies with frequency. The impedance of an antenna might be very high at one frequency but low at another. Maximum energy is transferred from your antenna to your re-

ceiver when the impedances of the antenna and the antenna input on your receiver are the same. But most antennas used by SWL's are "random wire" types or antennas (such as ham band verticals) used on frequencies they're not designed for. Antenna impedance ranges all over the place, but is usually several hundreds of ohms. Some receivers try to deal with this by having a special "high-Z" (high impedance) antenna input, but even here the impedance mismatch is usually large. And when your antenna impedance doesn't match the impedance of your receiver's antenna input, you lose a lot of precious signal in the process.

An antenna tuner is the solution. You attach your antenna to it, and then connect the tuner to your receiver's 50Ω input by using a short length of coax. The tuner has variable inductors and capacitors which help "fool" your receivers into "seeing" a constant 50Ω impedance from the antenna. These inductors and capacitors are attached to knobs, and it's really simple to use a tuner; just fiddle with the knobs until you hear the loudest signal from your receiver or until the S-meter reading is highest.

If you haven't used an antenna tuner, you may have a difficult time grasping what a major difference it can make. The minimum improvement is usually two or three S-units, and often the improvement is more dramatic. Or, to put it another way, a properly adjusted an-

tenna tuner can mean the difference between whether or not you're able to hear and understand a signal!

Trust me on this. If your receiver has a coaxial antenna input, add an antenna tuner and start hearing all sorts of stuff you're missing now.

Audio Filters

Is there an accessory more thoroughly misunderstood than an audio filter? If there is, I hope I don't run across it! Audio filters have been the subject of a lot of hype and phony promises. That's a shame, because in the hands of SWL who knows what he or she is doing an audio filter can be a really useful addition to the listening post.

The key point to remember is that an audio filter works by processing the audio output of the receiver. Audio filters can reject certain audio frequencies, let a certain range of audio frequencies pass, or reject a narrow slice of the audio from your receiver. They don't operate at radio frequencies, and the selectivity specifications of an audio filter aren't comparable to those of a crystal or mechanical filter operating at the receiver's intermediate frequency! That should be obvious, but you'd be surprised at the mail I get from people who can't grasp that simple point. An audio filter can't take the place of good selectivity in your receiver's intermediate frequency stages.

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POP'COMM's World Band Tuning Tips

March, 1992

This PopComm feature is designed to help you hear more shortwave stations. Each month, this handy, pull-out guide shows you when and where to tune to hear a wide variety of local and international broadcasts on shortwave.

The list includes broadcasts in many languages besides English. Most of the transmissions are not beamed to North America. Keep in mind that stations make frequent changes in their broadcast times and frequencies. Changes in propagation conditions may also make some stations difficult or impossible to receive. Your own equipment and receiving location will also have a bearing on what stations you are able to hear.

Note: EE, SS, FF, etc. are abbreviations for English, Spanish, French and so on. Some frequencies may vary slightly. All times are in UTC.

Freq.	Station/Country	UTC	Notes	Freq.	Station/Country	UTC	Notes
2410	R. Enga, Papua New Guinea	1200		5875	BBC	0500	
2485	VL8K, Katherine, Australia	1045		5960	R. Japan, via Canada	0100	
3205	R. West Sepik, Papua New Guinea	1200		5965	R. Havana Cuba	0400	
3215	Radio Oranje, South Africa	0300	Afrikaans	5975	BBC	0030	via Antigua
3235	R. West New Britain, P. New Guinea	1130	Pidgin	5995	VOA via Germany	0600	
3235	R. Clube Marila, Brazil	0200	PP	6006	R. Reloj, Costa Rica	0700	SS
3240	Trans World Radio, Swaziland	0345	close	6010	R. Bahrain, Bahrain	0300	AA
3250	R. Luz y Vida, Honduras	0230	SS	6015	R. Austria Int'l	0530	via Canada
3260	R. Madang, Papua New Guinea	1030		6025	R. Amanacer, Dominican Rep.	0230	SS
3270	R. Namibia, Namibia	0430	EE	6025	NBC, Enugu, Nigeria	2300	
3280	La Voz del Napo, Ecuador	0300	SS	6050	R. Nigeria, Ibadan	2306	sign off
3295	INBS, Iceland	0400	Icelandic	6050	Caracol, Colombia	0100	SS
3320	R. Orion, South Africa	0245		6055	R. Rwandaise, Rwanda	0255	sign on, FF
3330	CHU, Canada	0200	time signals	6060	Voice of America via Germany	0500	
3365	R. Chortis, Guatemala	1100	local indian lang.	6090	R. Bandelrantes, Brazil	0800	PP
3395	R. Zaracay, Ecuador	0130	SS	6115	V of the Strait, China	1000	CC
3905	R. New Ireland, P. New Guinea	1100	SS	6120	R. Globo, Brazil	0900	PP
3925	R. Tanpa, Japan	1130	JJ	6130	R. Portugal	0700	sign off
3940	Hubei PBS, China	1200	CC	6135	R. Aparcida, Brazil	0930	PP
3990	V of Puijiang, China	1200	CC	6135	Swiss Radio Int'l	0230	
4040	Vladivostok Radio, USSR	1130	RR	6160	CKZN, Canada	0000	
4485	Kamchatka R., USSR	1300	RR	6165	Swiss R. Int'l	0630	
4600	R. Baghdad, Iraq	0200	AA	6174	R. Tawantinsuyo, Peru	1000	SS
4761	Sistema R. Atalaya, Ecuador	0230	SS	6180	R. Nac. Amazonia, Brazil	0900	/PP
4770	R. Nigeria, Kaduna	0500		6210	European Christian Radio, Italy	0600	
4795	R. Doula, Cameroon	0430	FF	6305	La Voz del Cid (clandestine)	0600	
4800	R. Popular, Ecuador	0200	SS	6400	R. Vencereomos (clandestine)	0215	SS
4809	Rdf. Libertad, Bolivia	1030	SS	6576	R. Pyongyang, N. Korea	1100	EE
4810	R. San Martin, Peru	0930	SS	6724	R. Satellite, Peru	0130	SS
4815	RTV Burkina, Burkina Faso	0600	FF	6907	Africa 2000, Eq. Guinea	2100	SS
4815	Rdf. Londrina, Brazil	0130	PP	7100	A Voz do Galo Negro (clandestine)	0045	PP
4830	R. Tachira, Venezuela	0330	SS	7140	R. Australia	1030	
4835	R. Tezulutlan, Guatemala	0130	SS	7145	R. Algiers, Algeria	2200	FF
4845	RTVM, Mauritania	2330	FF	7190	Rep of Yemen Radio, Aden	0300	sign on, AA
4850	CRTV, Cameroon	0430	FF/EE	7190	R. Africa, Eq. Guinea	2100	
4855	R. Centenario, Bolivia	0000	SS	7200	Somali Bc. Service, Somalia	0259	sign on
4865	La Voz del Cinaruco, Colombia	0300	SS	7203	R. Lubumbashi, Zaire	0430	FF
4865	Gansu PBS, China	1130	CC	7205	Adventist World Radio, Italy	0530	
4870	ORTB, Benin	0457	sign on, FF	7235	Deutsche Welle, Germany	0400	AA, via Mali
4875	Super Radio Foralma, Brazil	0500	PP	7240	Croatian Radio, Croatia	0300	
4890	ORTS, Senegal	2345	FF	7250	Vatican Radio	0630	4 Voices Svc.
4895	R. Brazil Central	0030	PP	7270	R. Polonia, Poland	2330	
4900	La Voz de Saquisilí, Ecuador	0230	SS	7275	ELBC, Liberia	0650	sign on
4904.5	R. National, Chad	0427	sign on, FF	7315	Croatian Radio	0000	via WHRI
4920	ABC, Brisbane, Australia	1130		7345	R. Prague Int'l, Czechoslovakia	0100	
4930	R. Barahona, Dominican Rep.	0300	SS	7375	R. For Peace Int'l, Costa Rica	0600	
4939	R. Continental, Venezuela	1000	SS	7395	WCSN, Christian Science Monitor 5t	0100	
4960	R. Federacion, Ecuador	0059	sign off	7475	RTV Tunisienne, Tunisia	0400	AA
4980	Ecos del Torbes, Venezuela	0200	SS	7480	Swiss R. Int'l	1330	via China
5011	Escuelas R/ fonicas, Ecuador	0225	sign off, SS	9265	Icelandic Ntl Bc. Svc	0730	EE
5015	R. Pioneira, Brazil	0230	PP	9325	R. Pyongyang, N. Korea	1100	
5020	ORTN, Niger	0500	FF	9410	BBC	1400	
5025	Bhutan Bc. Service	1230		9435	Kol Israel	0000	
5030	R. Catolica, Ecuador	0200	SS	9445	Voice of Turkey	2330	TT
5035	R. Aparecida, Brazil	0030	PP	9455	WCSN, Maine	0200	
5035	RTVC, Central African Rep.	0428	sign on, FF	9465	KFBS, Saipan	1530	
5040	LV del Upano, Ecuador	0100	SS	9480	TWR, Monaco	0645	
5055	TIFC, Costa Rica	0430	EE religion	9486	R. Tacna, Peru	0400	SS
5286	R. Moundou, Chad	0500	sign on, FF	9509	R. Algiers, Algeria	2000	FF

Freq.	Station/Country	UTC	Notes	Freq.	Station/Country	UTC	Notes
9515	R. Novas de Paz, Brazil	0000	PP	11940	R. Singapore	1100	
9535	TWR, Bonaire	0345		11950	R. Havana Cuba	0000	
9540	R. Nacional, Venezuela	0030	SS, others	11955	Voice of Turkey	0400	TT
9540	R. Polonia, Poland	1500	German	11960	R. Sweden	1130	
9545	R. Tirana, Albania	0530	sign on	11975	R. Tashkent, Uzbekistan	0100	EE
9555	R. Portugal, Portugal	0200	PP	12000	R. Australia	1400	
9560	Swiss R. Int'l	1000		12005	RTT, Tunisia	0430	AA
9565	R. Universo, Brazil	0100	PP	12030	R. Moscow	0700	
9570	R. Romania Int'l	0300	SS	12085	R. Damascus, Syria	2110	
9570	R. Korea, S. Korea	1400		12160	WVCR, Tennessee	2330	
9580	R. Tirana, Albania	0230		13605	Capital Radio, via Voice of UAE	2230	
9580	Africa No. One, Gabon	1900	FF	13610	Deutsche Welle, Germany	0100	
9590	R. Norway Int'l	1300		13630	R. For Peace Int'l, Costa Rica	0200	
9600	V of UAE, Abu Dhabi	2200	EE	13635	Swiss Radio Int'l	2130	
9615	R. Veritas Asia, Philippines	1500	CC	13650	RCI, Canada	1800	
9620	R. Yugoslavia	0000		13655	BRT, Belgium	2330	
9625	CBC No. Quebec Service, Canada	2100		13670	R. Canada Int'l	0245	
9635	R. Portugal	2200	PP	13675	UAE Radio, Dubai	2000	AA
9640	R. Pyongyang, N. Korea	1500	EE	13700	R. Netherlands	2030	
9660	KNLS, Alaska	1500	sign on	13710	BRT, Belgium	2330	
9660	R. Rumbos, Venezuela	1100	SS	13750	Israeli Radio	0430	Heb., Home Svc
9665	R. Marumbi, Brazil	2300	PP	13770	WCSN, Christian Science Monitor	2000	
9690	R. Beijing, China	0330	via Spain	15050	R. Tower, Holand (pirate)	0100	irregular
9695	R. Sweden	0330		15060	BSKSA, Saudi Arabia	1700	AA
9710	R. Centras, Lithuania	0600		15084	VOIRI, Iran	0430	Farsi
9700	R. New Zealand	1100		15095	R. Damascus, Syria	2110	
9720	Sri Lanka Bc. Corp	1230		15100	Kol Israel	2130	EE
9725	Adventist World R., Costa Rica	1250		15110	Spanish National Radio	2000	SS
9735	Cyprus Bc. Corp.	2230	wknds, Greek	15115	R. Pyongyang, N. Korea	0030	
9740	BBC via Singapore	1100		15140	R. Havana Cuba	0300	
9746	R. Bahrain	2000	AA QRM-HCJB	15170	R. Rep. of Armenia	2345	
9750	R. Korea, S. Korea	1245	EE	15180	R. Vilnius, Lithuania	2300	
9755	R. Monte Carlo Middle East	0400	via Canada	15185	R. Finland Int'l	2300	
9765	V of the Mediterranean, Malta	0600		15195	R. Japan	0500	
9780	Voice of the UAE	2200	sign on	15200	R. France Int'l	0100	SS
9785	KVOH, California	0630		15205	Voice of America	2300	
9830	Croatian Radio	0600		15208	R. Bangladesh	1230	
9860	R. Netherlands	2030		15210	Radio RSA, South Africa	1700	
9870	R. Austria Int'l	2230	SS	15250	R. Romania Int'l	1500	
9875	Spanish National Radio	1900		15270	HCJB, Ecuador	0800	
9900	R. Cairo, Egypt	0300	AA	15305	V of the UAE, Abu Dhabi	2200	EE
9905	BRT, Belgium	2100		15320	UAE Radio, Dubai	2300	
9935	R. Macedonia	2000	Greek	15325	R. Japan	1500	via Fr. Guiana
9942	La Voz del CID (clandestine)	1330	SS	15330	R. Sofia, Bulgaria	2330	
9965	R. Caiman (clandestine)	0200	SS	15345	Trans World Radio, Bonaire	1230	
10058	V of Vietnam	2300	sign on, VV	15350	R. Denmark, via Norway	1530	Danish
11330	CPBS-1, China	1000	CC	15365	R. Australia	1100	
11455	R. Kisangani, Zaire	0400	s/on, FF	15425	R. Portugal	1500	
11530	V of Hope, Lebanon	0500	AA	15430	R. Austria Int'l	1330	
11590	V of the Strait, China	1100	CC	15440	R. Finland Int'l	1459	s/on, Finnish
11595	RS Macedonias, Greece	0500	Greek	15450	R. Beijing, China	1200	
11610	CPBS, China	1500	CC	15480	FEBC, Philippines	0200	
11620	All India Radio	2000		15485	R. Vilnius, Lithuania	2300	
11685	FEBC, Philippines	1030	EE	15505	Swiss R. Int'l	1100	
11695	BRT, Belgium	0600	Dutch	15525	R. Kiev, Ukraine	0000	
11705	R. Sweden	0215	EE	15530	R. France Int'l, via Hungary	0630	FF
11710	RAE, Argentina	0100		15550	V of Greece	1530	
11715	R. Beijing, China	0330	via Mali	15560	R. Netherlands	0030	
11715	KNLS, Alaska	0800	sign on	15585	R. Moscow	2300	
11715	R. Korea, S. Korea	1030	via Canada	15600	V of Free Iraq (clandestine)	1700	AA
11730	R. Sofia, Bulgaria	0300		15650	V of Greece	1235	EE
11730	BBC	0300	via Seychelles	15572	VOA (feeder)	0630	
11730	Spanish National Radio	0500	SS	16300	R. Moscow (feeder)	1600	RR
11735	R. Oriental, Uruguay	0100	SS	17555	R. Beijing, China	0100	sign on
11740	TWR, Swaziland	0527	sign on	17595	RTV Moroccan, Morocco	1630	
11740	R. Portugal	1900	EE	17630	Africa No. One, Gabon	1500	FF
11750	BBC	0230	via Ascension	17665	R. Kiev, Ukraine	0000	
11760	R. Tbilisi, Georgian SSR	2000		17710	R. Norway Int'l	1200	NN/EE
11760	R. Vedo, Russia	1600	RR	17725	Libyan Jamahiriya Besting	1900	AA
11790	R. Kiev, Ukraine	0000		17730	R. Alma Ata, Kazakh	2130	
11790	R. Vilnius, Lithuania	2300		17740	R. Yugoslavia	1200	
11795	UAE Radio, Dubai	1600		17740	R. Sweden	1300	EE
11795	Cyprus Bc. Corp.	2213	s/on, weekends	17740	R. Jamahiriya, Libya	2200	AA
11805	R. Globo, Brazil	2300	PP	17745	RTV Algerienne, Algeria	2000	AA
11810	Deutsche Welle, Germany	0035	SS, via Brazil	17750	V of Free China, Taiwan	2230	via WYFR
11815	Trans World R., Bonaire	1230		17810	R. Japan	2330	
11815	R. Polonia, Poland	1430		17840	R. RSA, S. Africa	1630	EE
11823v	R. Nacional, Colombia	0130	SS	17860	Qatar Bc Service	1300	AA
11840	R. Moscow	1430	via Canada	17865	Vatican Radio	1550	
11840	R. Japan	1500		17880	V of Turkey	2230	
11865	R. Norway Int'l	0400	EE/NN	17890	Spanish National Radio	1200	
11865	R. Denmark	0430	DD, via Norway	17950	V of Free Iraq (clandestine)	2245	AA
11910	R. Budapest, Hungary	0030		21480	HCJB, Ecuador	1630	
11920	R. RSA, South Africa	0445		21555	Spanish National Radio	1400	SS
11925	R. Bandeirantes, Brazil	2330	PP	21690	R. Moscow	0800	RR
11935	BSKSA, Saudi Arabia	0400	AA	21705	R. Norway Int'l	2200	NN
11940	R. Romania Int'l	0200		21770	R. France Int'l	1400	

But an audio filter can be a big help in a lot of situations if you know what it's capable of. Audio filters are really effective on single-tone signals like Morse code, and for CW work an audio filter can be almost as good as a narrow crystal filter. For more complex voice and music audio, audio filters can help you tailor the audio output for best intelligibility. Let's suppose you have a premium receiver that

has narrow voice bandwidths, like 2.4 kHz. If you listen to an AM signal using that bandwidth, the result will be clipped, muffled audio that can be hard to understand. But suppose you run the audio through your audio filter and set it to the "high pass" function, meaning the filter will pass higher audio frequencies but reject lower ones. The result will be a more natural sounding audio that's easier

to understand. And when you're chasing weak DX signals, that can mean the difference between being able to identify your catch or not!

A good audio filter should also have a notch function. This takes a narrow slice out of the audio from your receiver, and is most useful in getting rid of an annoying heterodyne (a high-pitched whistling sound) caused when two stations are operating within a few kHz of each other and their signals "beat" against each other. (Tune around 4832 and 4835 kHz most evenings for a good example of a "het".) You can tune an audio filter with a notch function to reject the audio frequency of the heterodyne, producing listenable audio instead of a mess.

So should an audio filter be your next accessory after an antenna tuner? Well, no. The second most important accessory in my shack is a . . .

Tape Recorder

You don't have to go out and spend several hundreds of dollars on a tape recorder. I use a simple hand-held cassette recorder that cost me less than \$50. But once you add one to your shack, you'll wonder how you got along without it.

For example, suppose you're hearing a weak station in a foreign language. You might be able to identify the language as Indonesian, but then what? By repeatedly playing a tape of your reception, you can pick out certain words—such as "Jambi"—that can let you identify the station you heard. Can't identify enough details of the program you heard to write a reception report, such as when there's a long discussion program? Just make a copy of the tape and send it along as your report! Tape cassette players are common all over the world, and tape cassette "reports" are readily accepted. Besides, they're more interesting for the station than a bland "form letter" report.

As I age, I don't find myself quite as eager to catch that sign on at 4:00 a.m. my local time. Instead, I tune my receiver to the frequency the night before, peak my antenna tuner, and then add my tape recorder and a timer. I get my increasingly-needed beauty sleep, and I also get (if conditions permit) a logging that I can examine at my leisure the next day.

Finally, a tape recorder lets you preserve momentous events. The latest additions to my collection were made during last summer's abortive Soviet coup. While Radio Moscow verified some written reception reports during that period for me, I still get goosebumps when I play some of the tapes I made then. Those are genuine pieces of history that I'll treasure long into the future!

So take my advice: get that antenna tuner first. Next add a tape recorder. Then comes an audio filter with a notch function. If all that doesn't make you happy, then buy a preamplifier! ■

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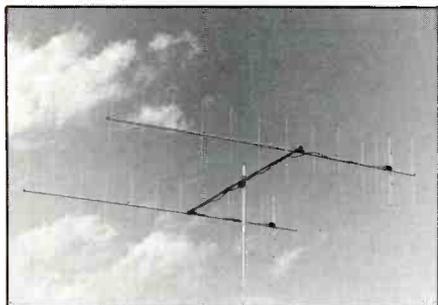
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NEW PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS



Two Meter FM Boomer

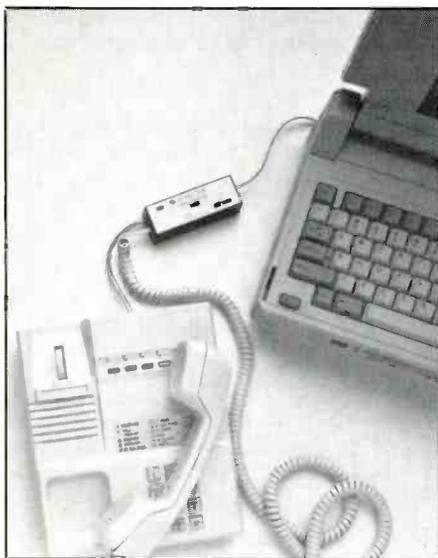
This Cushcraft antenna is claimed to offer the highest gain of any 2 meter FM antenna in the world.

The 26B2 takes the place of our popular 230WB with more gain, cleaner pattern, and improved Ultramatch feed system. Computer aided design gives you all this plus reduced weight and windload!

The package includes two antennas, stacking frame and wiring harness—everything you need.

Select the 26B2 when you need to work repeaters, simplex or packet over extreme distances. Also suited to VHF high-band monitoring.

The 26B2 is available through dealers worldwide. For more info circle 101 on our Readers' Service.



Link Connects Modem Or Fax Through Telephone

Solectek Corporation introduces Laptop Phone Link to connect a modem or fax directly to any office or hotel phone system without a dedicated telephone line.

Designed for use with any modem-equipped desktop, laptop, notebook, or fax, the Solectek Laptop Phone Link attaches to the standard RF11 connector on the phone

handset, and works on both analog and digital phone systems.

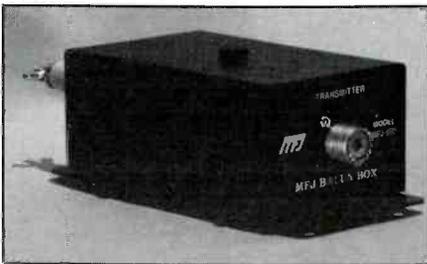
Laptop Phone Link is a stand-alone unit, requiring no software or external power. It measures 3 3/4" x 1 3/8" x 1 1/8" and weighs less than 2.5 oz., making it an ideal carry-along for business travel.

Now any telephone, including those connected to a PBX or digital system, can be sued for communication through a modem or fax by using the Solectek Laptop Phone Link. Suggested retail is \$119.95. A second model for modems or faxes requiring line voltage, comes with an AC adapter and features automatic voice/data switching at a suggested retail of \$149.95.

Solectek Corporation, which purchased the accessories division of Computer Accessories in 1990, is an innovative developer and marketer of specialized interfacing products. The company's commitment to technological excellence and leadership provides a steady stream of electronic linking devices to the microcomputer and peripheral after-market.

The Solectek product line includes automatic and manual data directors, buffers, line extenders, LAN adapters, laptop phone links, ergonomic enhancements and an extensive selection of cable products.

For product information or a free catalog, contact Solectek Corporation, 6370 Nancy Ridge Drive, Suite 109, San Diego, CA 92121, or circle 103 on our Readers' Service.



Balun Box

MFJ Enterprises, Inc. announces the release of the new MFJ-912 W9INN Balun Box for \$39.95.

The new MFJ-912 permits using coax from your wide range T-network tuner to the MFJ-0912 W9INN Balun Box mounted outside the building. The MFJ-912 then converts the unbalanced coax to the balanced transmission line (ladder line). It provides the same function as an internal balun except it is located remotely away from the tuner.

The MFJ-912 comes with MFJ one year unconditional guarantee.

For more information or to order contact any MFJ dealer or MFJ Enterprises, Inc., PO Box 494, Mississippi State, MS 39762, or call (601) 323-5869, or circle 102 on our Readers' Service.

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THE EXCITING WORLD OF RADIOTELETYPE MONITORING

The Federal Aviation Administration's RTTY circuit recently was found in operation on the 15 MHz band. Two stations from the agency, which controls the country's air navigation system, were involved in the transmission of an "exercise" message over the National Radio Communications System (NARACS).

Station KLD70 in Nashua, New Hampshire, was heard sending the message to KDM52 in Memphis, Tennessee (see Figure 1). The transmission was on 15853.3 kHz, identified as channel 17, at 1730 UTC. The mode was 75 baud ASCII.

Extensive details of the FAA's HF, VHF, and UHF radio operations, including callsigns and frequencies, can be found in an article by Tom Kneitel, POP'COMM's ace blue penciller, in the March, 1987, issue of this magazine.

Attention Steve, Frank, Kevin, and Paul: Who are you guys and why were you operating a computerized bulletin board system on 14646.5 kHz last November?

I came across their packet radio transmissions at about 1730 UTC (see Figure 2). Callsigns used were KF2XEW, Rochester, New York (Steve); PI9STC, Staelduin, The Netherlands; VE9LBQ, Ottawa, Ontario, Canada (Kevin); and WE1COM (Frank), which I guess was a repeater in New Jersey. I couldn't determine where Paul was transmitting from, nor did I learn the name behind PI9STC.

This quartet was found on the same frequency for several days, always with the same type of chatter. Their purpose for operating on this part of the radio spectrum, which is allotted to fixed service and fixed mobile service stations, was never learned.

NAM, the U.S. Navy base at Norfolk, Virginia, has a new frequency for radiofax operations, it was found last October. It is 15959 kHz. Weather charts are sent at 120/576 up to around 2200 UTC, or sometimes earlier, depending upon the mood of whoever's in the radio room at the time, so it seems.

Someone should tell the guys in the Air Force that radiofax equipment, and not Teletype machines, are to be used for sending weather maps. Fred Hetherington of Florida reports that he was monitoring 19324.3, the RTTY channel of AFS, Offutt AFB, Elk Horn, Nebraska, when, at 1840, there appeared in text mode a graphical outline map of Texas and part of Oklahoma. Weather data for the outlined area came next, followed by regular weather data for the rest of the country.

Speaking about Offutt AFB, I came across its radiofax transmission on 19365 kHz last August. Around the middle of October that frequency apparently fell into disuse because I could not hear a fax signal there during the

```

VZCZC

KDM-52 DE KLD-70
P 141610Z NOV 91
FROM:MIKE SMITH AFS NASHUA, NH 555-3524
TO:MARY LAMB AFS MEMPHIS, TN 555-6978

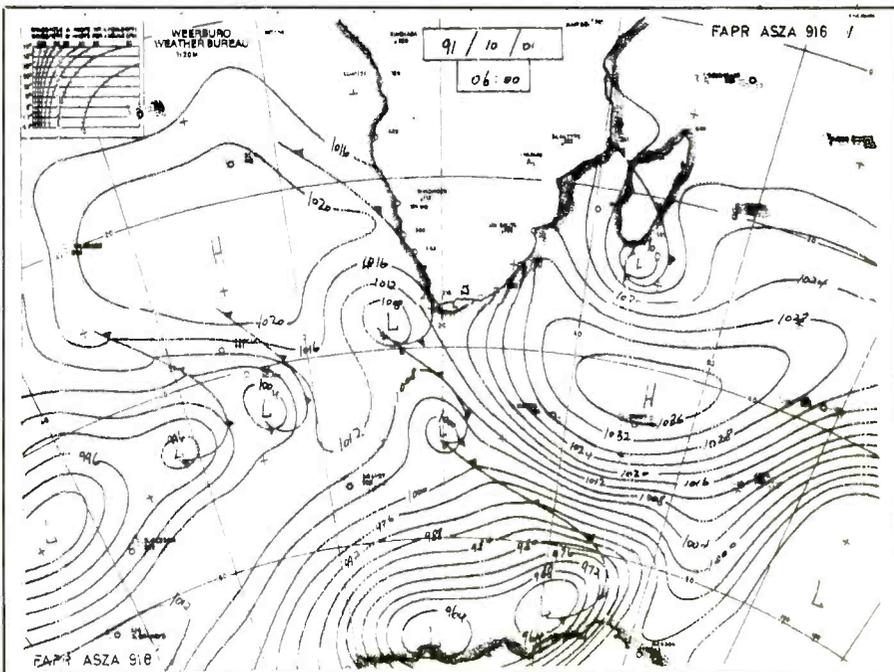
BT
THIS IS A NARACS (EXERCISE) MESSAGE
MEDICAL SUPPLIES TO TREAT RADIATION SICKNESS WILL ARRIVE AT YOU LOCATION
N AT 2000Z. INCLUDED IN THE SUPPLIES ARE ANTIBIOTIC,
ASPIRIN, BANDAGES, THERMOMETERS AND KAOPECTATE.
BT
K
NNNN
    
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Figure 1

following month. It appears that the frequency was changed to 15782 kHz, where I found Offutt's fax transmission toward the end of October. It was using the ICAO listed callsign of KGWC.

In last December's column I asked what had happened to the news agency Allge-

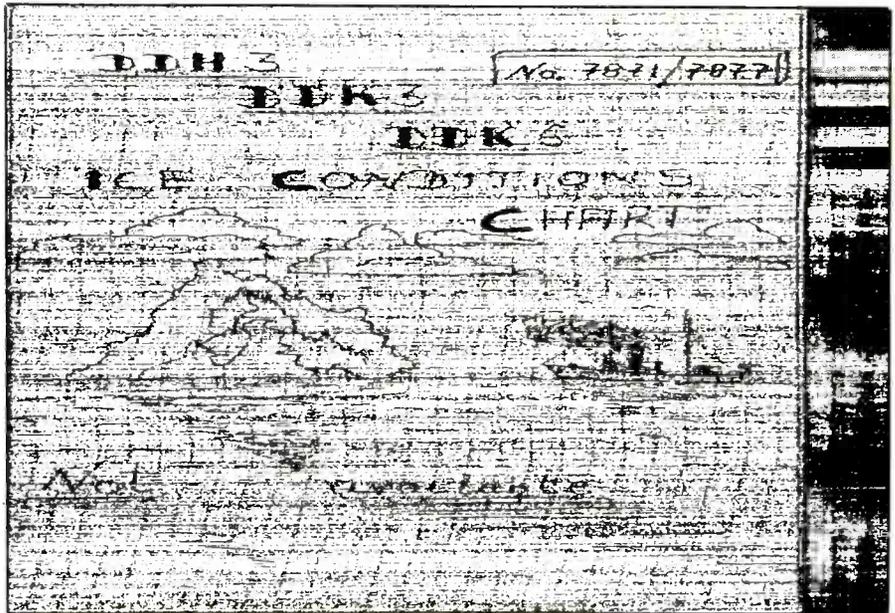
meiner Deutscher Nachrichtendienst (ADN), which had RTTY news broadcasts up to the time of the German unification in 1989. Until then it was located in East Berlin. Well, folks, I'm able to answer my own question: ADN's dispatches, I found out during one monitoring session, can be seen along with



Weather chart from ZRO4, Pretoria Meteo, Republic of South Africa, was sent on 18238 kHz at 1000 UTC, 120/576. (Submitted by Robert Hall, RSA)

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
GD	German
ID	Identification/led
MFA	Ministry of Foreign Affairs
nx	News
PP	Portuguese
RYRY	"RYRY ... "test tape
SS	Spanish
tfc	Traffic
w/	With
wx	Weather



"Ice conditions chart not available" is the wording on this weather chart from DDK6, Hamburg Meteo, Germany. The drawing depicts a ship sailing near icebergs. This chart ran on 13882.5 kHz at 2128 UTC, 120/576. (Logged by the RTTY columnist.)

8416.5: NMO, USCG, Honolulu, HI, w/wx & skeds, FEC at 0436. (Ed.)

8422: KPH, San Francisco R., CA, w/a tlc list in FEC at 1105. (Ed.)

8424.5: HPP, Panama R., Panama, w/ARQ phasing sig + ID in CW at 0440. (Ed.)

8427.5: UAI, Nakhodka R., Russian SSR, w/RYRY & tlc in RR, 50 baud at 1230. (Hetherington, FL)

8962.5: "E4Z," possibly w the Chilean Air Force, w/5L gps + phonets in SS to "Q9J," 50 baud at 0623. (Ed.)

9041.2: 5YE, Nairobi Meteo, Kenya w/coded wx, 100 baud at 0144. (Ed.)

9154.2: D4B, Sal Aero, Cape Verde, w/RYRY at 0458, 50 baud. (Ed.)

9190: RDZ75, Moscow Meteo, Russia, w/coded wx at 1237, 50 baud. (Ed.)

9209.7: NNNOMSD, USMC MARS, San Diego, CA, relaying MARSgrams from Japan, ARQ at 2305. (Ed.)

9217.5: TTL, ASECNA, N'djamena, Chad, heard at 0021, ARQ-M2/96. (Joe Palkovic, FL, via Hetherington, FL)

10195.7: Un-ID idling 0100-0200, ARQ. (Hetherington, FL)

10396.5: HGX21, MFA, Budapest, Hungary, w/RYRY & ID at 0557, 50 baud, foll by encryption at 0600. (Ed.)

10672: Un-ID w/foxes & 10 count, 0153-0453, 50 baud. (Paul Scalzo, PQ, CAN)

10894: GXQ, Royal Army, Stanbridge, England, w/foxes & 10 count, 50 baud at 2344. (Scalzo, PQ)

10956: HBD20, MFA, Berne, Switzerland, w/msgs at 1425, ARQ. (Boender, NLD)

11015: SUU29, Cairo Meteo, Egypt, w/coded wx, 50 baud at 2114. (Scalzo, PQ)

11063: LZU2, Sofia Meteo, Bulgaria, w/coded wx, 50 baud at 1610. (Boender, NLD)

11141: PWN33, Natal Navrad, Brazil, w/telexes & coded msgs to warship c/s PSBL, 50 baud at 0637. (Scalzo, PQ)

11153.5: Possibly HDE, Ambato, Ecuador, w "telex002 nr 1 de ctkmw acc ambato info japon rosario avila gr 132 - cevjt," 75 baud at 0220. Foll by 3L grps that ended w "hde oct 91 via tty". (Hetherington, FL) This one's tricky to ID, but I'm guessing it's from a Japanese embassy. Although there's a town in Ecuador named Ambato, and HDE is a c/s assigned to Ecuador, but not necessarily, Ambato, the key word here seems to be "Japan," which is SS for Japan. The "amb" in ambato could stand for "ambassador"—Ed.

11322.2: Un-ID w/RYRY at 0050, foll by 5L grps & some text in SS, 50 baud. (Hetherington, FL)

11417.5: Un-ID Chilean Navy unit w/tfc & service msgs in SS, ARQ-M2/96, channels A & B, at 0000. (Hetherington, FL)

11430.2: HMF55, KCNA, Pyongyang, North Korea, w/nx in FF, 50 baud at 2315. (Ed.)

11476: HMF52, KCNA, Pyongyang, North Korea, w/nx in EE, 50 baud at 1755. (Boender, NLD) and at 1809. (Bjorn Vaage, CA)

11507.5: STK, Khartoum Aero, Sudan, w/RYRY at 2317, 50 baud. (Ed.)

11536: HMF49, KCNA, Bosong, North Korea, w/nx in FF, 50 baud at 1932. (Ed.)

11638.2: DDK8, Hamburg Meteo, Germany, w/RYRY, 50 baud at 0514. (Ed.)

12482.5: C6CK7, ship Norbrit Vries (Bahamian cargo ship), in receiving mode, aRQ at 0430. (Ed.)

12483: SYSR, ship Toskana (Greek cargo), w/telex tlc at 0140, ARQ. (Ed.)

12484: WGWC, ship Omi Wabash (American cargo), w/telex tlc in ARQ at 0049. (Ed.)

12487: 3EMQ8, ship Tasman Star (Panamanian registry) w "loaded bananas" msg via WCC to Japan, ARQ at 1137. (Ed.)

12493.5: YTXO, ship Obod (Yugoslav cargo), w/a telex in SC, ARQ at 0205. (Ed.)

12494.5: SQDH, ship Narwik 2 (Polish ore carrier), w/telex tlc at 0305, ARQ. (Ed.)

12564.5: UJY5, Kaliningrad R., Russian SSR, w/RYRY at 0120, 50 baud. (Hetherington, FL)

12568: URB2, Klaipeda R., Lithuania, w/RYRY at 0055, 50 baud. (Hetherington, FL)

12579: NMF, USCG, Boston, MA, w/navareas, hydrolants, wxcasts, & freq/time skeds, FEC at 1700. (Ed.)

12714: UXN, Arkhangelsk R., Russian SSR, w/RYRY in RR, ARQ at 1935. (Ed.)

12901.8: PWZ33, Rio de Janeiro Navrad, Brazil, w/wx in PP, 75 baud at 0954. (Hetherington, FL)

12909: DHS, Ruegen R., Germany, w/msgs in GG, ARQ & FEC, at 1000. (Hetherington, FL)

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claris nr:602 sl:250 cp: m:ottawa d:91/10/29
msz - klaczyns~d~n~~zynski
~aaa
sobotnie i niedzielne wydania "the toronto star" zamieszcza-
ja korespondencje a.fergusona z warszawy poswiecone ostatnim
dniom kampanii wyborczej.
pierwszy z artykulow opisujacy atmosfere przedwyborcza
nawiazuje m.in. do niedawnych protestow gornikow przeciwko no-
wej ustawie emerytalnej, ktore odbyly sie w warszawie zaledwie
kilka godzin przed wyborami.
autor przytacza wiele wypowiedzi gornikow swoadczacych o ich
niezadowoleniu z obecnej politycznej i gospodarczej sytuacji
polski.
a.ferguson cytuje m.in. wypowiedz jednego z gornikow, ktory
uwaza ,ze wine za wszystko co zle w naszym kraju ponosza
"zydzi". to jest dzisiaj kraj zydowski. zydowscy zlodzieje
okradali polske za komunistow i dzisiaj ta sama mafia zydowska
przejmuje wladze w polsce".
"powinnismy rzucic bombe na wszystkich zydow".
drugi artykul w calosci poswiecony jest kongresowi liberalno-
demokratycznemu i jego nabybitniejszej postaci premierowi
j.k. bieleckiemu, ktorego ciezka praca i twarde zasady - jak
pisze autor - uczynily bardzo popularnym wsrod polakow nawet
w tak trudnych czasach jak dzisiejsze.
sprawy te poruszane sa, takze w korespondencji l.reaves'a z
warszawy zamieszczonej w montrealskiej "the gazette" z 26 bm.
/-/ bartoszek
+++

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The Polish Embassy at Ottawa, Ontario, Canada, sending news items from Canadian newspapers, translated into Polish, to the Ministry of Foreign Affairs in Warsaw, Poland, This transmission occurred on 14684.3 kHz at 1557 UTC, POL-ARQ. (Logged by the RTTY columnist.)

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12970: URL, Sevastopol R., Ukrainian SSR, w/a msg in RR to "Antarktida," at 2222, 50 baud. (Hetherington, FL). Antarktida is a Soviet merchant ship w the c/s UEIF—Ed.

13015: URD, St. Petersburg R., Russian SSR, w/ARQ phasing sig + CW ID at 2150. (Ed.)

13310: "RFFA," Mindefense, Paris, France, w/5L grps ar 0210, ARQ-E/72. (Ed.)

13370: Un-ID w/RURY, foll by VMGTGNJ, and into encryption, 75 baud at 2230. (Hetherington, FL)

13383.8: KAWN, Offutt AFB, Elk Horn, NE, w/coded wx & RURY, 75 baud at 1406. (Palkovic, FL, via Hetherington, FL)

13399: "DGZG," MFA, Belgrade, Yugoslavia, w/crypto after XYXYXY & badly garbled text in EE, 75 baud at 1432. (Ed.)

13490: RCG77, Tass, Moscow, Russian SSR, w/nx in FF at 1757, 50 baud. (Ed.)

13511.7: U.S. Army MARS regions 5 & 6 w/MARSgrams, packet mode at 1450. (Ed.)

13525.3: DHJ51, Gengel Meteo, Germany, w/coded wx for European cities, 100 baud at 0020. (Manthey, NY)

13530: RVW53, Moscow Meteo, Russian SSR, w/coded wx, 50 baud at 1330. (Boender, NLD)

13539.5: Un-ID w/encryption at 2050. Sig was asynchronous at 125 baud. (Ed.)

13542.2: ZRO3, Pretoria Meteo, RSA, w/coded wx, 75 baud at 0100. (Ed.)

13563: 3MA22, CNA, Taipei, Taiwan, w/RURY & nx at 1425, 50 baud. (Boender, NLD)

13565: RPT36, Tass, Tashkent, Uzbekistan SSR, w/nx in FF at 1630, 50 baud. (Ed.)

13581.2: HBD66, Swiss Emb., Ottawa, ON, Canada, w/5L grps, 2150-2231, ARQ. (Ed.)

13656: XVN8, VNA, Hanoi, Vietnam, w/nx in FF & EE, 50 baud at 1550. (Ed.)

13665: 6VU73, Dakar Meteo, Senegal, w/RURY & CQ, 50 baud at 0205 & 2142. (Ed.)

13738.8: 5YD, Nairobi Meteo, Kenya, w/coded wx at 0435, 50 baud. (Scalzo, PQ)

13801.5: RPTTA, Ponta Delgada, Azores, w/mgsgs in ARQ./ Off the air at 0100. (Hetherington, FL)

13830.7: Several USN MARS stas w/MARSgrams in FEC at ??? (Scalzo, PQ)

13857.8: "Tito" calling "Peca" & "Calle" in packet mode at 2125. Peca sends a trainload of 5F grps after contact. (Ed.)

13903: Un-ID w/5F mgsgs, ARQ-E/96 at 1350. Xsmn ended w "ugly zip iop ux xmn." (Boender, NLD)

13998.5: STK, Khartoum Aero, Sudan, w/RURY, 50 baud at 2230. (Scalzo, PQ)

14372: VER, Canadian Forces, Ottawa, ON, w/encryption, ARQ-M2/96, channel B, at 2030. (Yarbrough, NC)

14508: D4B, Sal Aero, Cape Verde, w/coded wx at 1859, 50 baud. (Manthey, NY)

14531: USAF MARS regions 1, 2, & 3, in packet mode at 1255. (Ed.)

14560.3: Un-ID idling, ARQ-M2/96 at 1731. (Hall, RSA). It's HVN, Vatican City, Vatican—Ed.

14646.5: KF2XEW, Rochester, NY; P19STC, Staelduin, The Netherlands; VE9LBQ, Ottawa, ON, Canada; & WE1COM, w/mgsgs on a computer BBS system at 1737, packet. (Ed.)

14669.2: RFTJDA, French Mil., Libreville, Gabon, w/"controle de voie," ARQ-E/72 at 0615 (Ed.), and at 1642. (Hall, RSA)

14684.3: CYS22, Polish Embassy, Ottawa, ON, Canada, w/text in Polish, POL-ARQ at 1557. Polish Consulate, Toronto, ON, w/telexes in Polish at 1650, POL-ARQ. (Ed.)

14721: OST, Oostende R., Belgium, w/a tfc list in FEC at ??? (Scalzo, PQ)

14747.4: RUZU, SAAM, Molodezhnaya, Antarctica, w/tfc in RR, 50 baud at 1623. (Hall, RSA)

14754: RFFXI, French Mil., Bangui, Central African Republic, w/a 5L msg at 0600, ARQ-E/72. (Ed.)

14760: BAT93, Xinhua, Beijing, China, w/nx in EE at 2145, 50 baud. (Hetherington, FL)

14787: 9PL, Kinshasa Aero, Zaire, w/RURY, 50 baud at 2210. (Vaage, CA)

14832.7: Possibly a Cuban diplo sta w/tfc in SS, 50 baud at 0000. (Scalzo, PQ)

14846: MUA, Royal Army, London, England, w/encryption, ARQ-M2/96, channel A, at 1700. (Ed.)

14878.2: AAA3USA, U.S. Army MARS, Ft. Meade, MD, w/MARSgrams to AAA6USA, Ft. Sam Houston,

TX, packet at 2021. AAA6USA w/MARSgrams to AAA0USA, packet at 1545. (Ed.)

14901: CLN451, Tass, Havana, Cuba, w/nx in EE at 1220, 50 baud. ("Bunky," IL)

14912: DFZG, MFA, Belgrade, Yugoslavia, w/encryption after XPXPXP, 75 baud at 1447. (Ed.)

14928: CLN452, PL, Havana, Cuba, w/nx in SS, 50 baud at 2350. ("Bunky," IL, and Vaage, CA)

14932.5: APS, Algiers, Algeria, w/nx in AA at 1442, and in SS at 1540, 50 baud. (Ed.)

14936.2: NNN0NIK, USN MARS, Mayport, FL, running its BBS in ARQ & FEC at 1447. (Ed.)

14964: RFFX, French Mil., Versailles, France, w/periodic RURY, le bricks, & c.d.v's, ARQ-E/72 after 1320. (Ed.)

15015.6: MFA, Cairo, Egypt, w/telexes in AA & EE to Namibia, ARQ at 1610. (Yarbrough, NC)

15670: HGM36, MTI, Budapest, Hungary, w/RURY to Central America, 50 baud at 1607. (Boender, NLD)

15752.7: CNM66, MAP, Rabat, Morocco, w/xmsn sked in FF at 1530, 50 baud. (Manthey, NY)

15779: Un-ID sta. using an un-ID mode at 300 baud at 1745. Appeared to be a data xmsn. (Ed.)

15801.7: French Embassy, Fort de France, Martinique, relaying tfc from Caracas, Venezuela, to Paris, ARQ-90/200 at 2053. (Ed.)

15853.3: KLD70, FAA, Nassau, NH, w/an exercise msg to KDM52, Memphis, TN, 75 ASCII at 1726. Freq is designated as channel 17. (Ed.)

15856.7: DMK, MFA, Bonn, Germany, w/encryption to Managua, ARQ-E/96 at 1444. Germany Embassy, Mexico City, Mexico, s/on at 1900, foll by a brief msg. & s/off at 1915, ARQ-E/96. (Ed.)

15875: TAD, MFA, Ankara, Turkey, w/5L grps & telexes in Turkish, 100 baud at 1740. (Ed.)

15938.7: MFA, Cairo, Egypt, w/diplo tfc in EE/FF & nx items in EE from the Egyptian press. Was ARQ at 1600. (Ed.)

16009.7: CLP65, Cuban Embassy, Managua, Nicaragua, w/crypto after ZZZZ, 50 baud at 1423. (Ed.)

16014.2: FUF, French Navy, Le Port, Reunion, w/a 5L msg, ARQ-E3/100 at 2030. (Ed.)

16059.2: Un-ID w ".....ons q eures qgissentles apelsk" ending ARQ xmsn ay 1434. Garbled text appears

to me to be in FF. (Ed.)

16066.8: IRO30, ANSA, Rome, Italy, w/"Italian cultural schedule," 50 baud at 1735. (Ed.)

16111: HBD20, MFA, Berne, Switzerland, w/diplo text in FF & GG to HBD29, Mexico City, ARQ at 1337. (Ed.)

16136.7: Un-ID Egyptian diplo w/a 5L msg in ARQ at 1817 & 1845. (Ed.)

16228: Un-ID w/5L/5F mgsgs, 1403-1427, 75 baud. Msg headers consisted of five 5F grps, beginning w 11177. Xmsn ended w QRU SK QRU SK. (Ed.)

16229.2: Un-ID w/5L/5F mgsgs, 1508-1525, 75 baud. Msgs w/o headers and separated by RURY. Xmsn ended w QRU QRU SK SK (compare to 16228 s/off). (Ed.)

16300: Un-ID w/crypto headed by numbered pefaces. Was 75 baud at 1858. (Ed.)

16300.2: NNN0NRO, USN MARS, Rota, Spain, w/MARSgrams at 2110, 75 baud. (Ed.)

16302: DFZG, MFA, Belgrade, Yugoslavia, w/mgsgs, 75 baud at 1500. (Boender, NLD)

16339.5: MFA, Nicosia, Cyprus, w/5L grps, ARQ-E/96, 1502-1512. (Ed.)

16388.3: NNN0MOC, USMC MARS, Camp Butler, Okinawa, Japan, xmtng in ARQ at 2102. (Ed.)

16684: P3TI2, ship Lelaps (Cypriot cargo), w/a telex in ARQ at 2154. Ship had an Indonesian crew. (Ed.)

16693.5: TCBT, ship Kartal 7 (Turkish cargo), berthed at Houston, TX, w/a telex at 2011. 3EQP4, ship Federal Hudson (Panamanian registry, dry cargo), w/a telex at 2130. SXTY, ship Olympian Spirit (Greek tanker), w/a msg at 2038. All were in ARQ mode. (Ed.)

16713.5: YTHB, ship Bohinj (Yugoslav cargo), w/telexes in SC, ARQ at 2135. (Ed.)

16846: URD, St. Petersburg R., USSR, w/mgsgs & nx briefs in RR at 1030, ARQ. (Hetherington, FL)

16918 & 16918.6: GYA, Royal Navy, London, England, testing at 0030, 75 baud on the lower frequency. (Hetherington, FL), and at 0120 on the higher frequency. (Palkovic, FL)

16955: UDH, Riga R., Latvia, w/a msg in ARQ at 1645. (Boender, NLD)

17360: RCF41, Tass, Moscow, Russian SSR, w/nx in AA, 50 baud at ??? (Hetherington, FL)

17432: "DFZG," MFA, Belgrade, Yugoslavia, w/nx

in SC at 1430, 75 baud. (Hetherington, FL) & in EE along w/crypt after XPXPXP at 1602. (Ed.)

17530: Swiss Radio International w/nx in II, GG, & FF, 50 baud at 1915. (Hall, RSA)

18033.5: French Embassy, Fort de France, Martinique, w/5L grps & a circular in FF at 1700, ARQ6-90/200. (Ed.)

18038.2: CLP1, MFA, Havana, Cuba, w/prensa minrex & encryption, 50 baud at 2100. (Hetherington, FL)

18040: TCY4, AA, Ankara, Turkey, w/nx at 1250, 50 baud. (Boender, NLD)

18164.5: STK, Khartoum Aero, Sudan, w/aero wx, 50 baud at 1916. (Ed.)

18320: OMZ, MFA, Prague, Czechoslovakia, w/coded msg to Tripoli, Libya, at 1205, 100 baud. (Boender, NLD)

18385: RRQ20, Tass, Moscow, Russian SSR, w/nx in EE, 50 baud at 1520. (Manthey, NY)

18389: 5AF, Tripoli Aero, Libya, w/RYRY, 59 baud at 0030. (Yarborough, NC)

18610: Un-ID idling, idling, idling, idling, idling, idling, during 6 days of monitoring at around 1800, ARQ-M4/192. (Boender, NLD). One utility station freq guide

says this is the Vietnamese Embassy in Moscow—Ed.

18971.8: DFZG, MFA, Belgrade, Yugoslavia, xmtng in SC, 75 baud at 1555. (Hall, RSA)

19029.2: PWN33, Natal Navrad, Brazil, w/tfc at 1903, 75 baud. (Scalzo, PQ)

19063.7: French Mil., Paris, France, w/"non protege" msgs in FF & 5L grps at 1334, ARQ-M2/200, channel B. (Ed.)

19105: RPT34, Tass, Moscow, Russian SSR, w/nx in FF at 1300., 50 baud. ("Bunky," IL)

19101.7: Un-ID w DMA c/s & RYRY, 50 baud at 1259. (Hall, RSA)

19104.7: RPT34, Tass, Moscow, w/RYRY, 50 baud at 1558. (Hall, RSA)

19117.6: MFA, Jakartas, Indonesia, w/nx in EE & Indonesian, ARQ at 1140. (Hall, RSA)

19127: RMC21, Tass, Moscow, w/nx in PP, 50 baud at 1450. ("Bunky," IL)

19171: CNM85, MAP, Rabat, Morocco, w/a nx sked at 1522, 50 abud. ("Bunky," IL)

19210: RCC79, Tass, Moscow, w/nx in FF, 50 baud at 1520. ("Bunky," IL)

19432: MKD, RAF, Akrotiri, Cyprus, w/RYI's & foxes, 50 baud at 2248. (Scalzo, PQ)

19439: LOR, Puerto Belgrano Navrad, Argentina, w/5L grps, 75 baud at 2243. (Scalzo, PQ)

19498.7: FUJ, French Navy, Noumea, New Caledonia, w/"controle de voie," ARQ-E3/100 at 1600. (Ed.)

19506.7: Un-ID sta. in Mexico City, Mexico, w/text in SS, ARQ, 1633-1646. (Ed.) Ditto at 1922. (Hetherington, FL)

19528: JMG5, Tokyo Meteo, Japan, w/coded wx, 50 baud at 1515. ("Bunky," IL)

19536.7: Un-ID w msgs in AA, ARQ, 2000-2030. (Hetherington, FL) Might be an Egyptian diplo sta—Ed.

19622: Possibly SAM, MFA, Stockholm, Sweden, w/text in Swedish, SWED-ARQ at 1521. (Ed.)

19649: Un-ID w/RYRY at 1435, foll by 5F & 5L msgs until 1451, 75 baud. ("Bunky," IL)

19698: OST, Oostende R., Belgium, w/ARQ phasing sig + ID in CW at 1751. (Ed.)

19707: Un-ID w/encryption in ARQ mode at 1516. (Ed.)

19731.5: PCW, MFA, The Hague, Netherlands, w/tfc to Yaounde re new antenna on embassy roof, ARQ at 1940. (Boender, NLD)

19746.5: 6VU79, Dakar Meteo, Senegal, w/coded wx at 2217, 590 baud. (Scalzo, PQ)

19756.4: MFA, Jakarta, Indonesia, w/msgs in Indonesian & EE, + 5L grps, at 1230, FEC-S/96. (Hall, RSA)

19822.6: 5AF, Tripoli Aero, Libya, w/RYRY, 50 baud at 1700. (Hall, RSA)

19980.2: 9BC33, IRNA, Teheran, Iran, w/nx in EE, 50 baud at 1720. (Hall, RSA)

20091.7: Un-ID w several pages of 5LK grps, ARQ at 1005. (Hall, RSA) Pity the poor sap who has to decode all of it—Ed.

20372: ISX24, ANSA, Rome, Italy, w/nx in FF at 1450, foll by RYRY, 50 baud. (Manthey, NY)

20401: YWM1, Maracaibo Navrad, Venezuela, w/RYRY & 10 count, at 2209, 875 baud. (Scalzo, PQ)

20401.5: Indonesian Embassy, Dar-es-Salaam, Tanzanian, w/nx in EE & Indonesian, ARQ at 1122. (Hall, RSA)

20717: RFFAB, French Mil., Paris, France, w/nx items in FF from Le Figaro newspaper, ARQ-E3/48 at 1747. (Scalzo, PQ)

20945.6: VMA, RAAF, Melbourne, Australia, w/RYRY, foxes, & 10 count, 75 baud VFT. Off the air at 1220. (Hetherington, FL)

20965: RKB50, Tass, Moscow, Russian SSR, w/nx in FF & RYRY, 50 baud at 1455. (Manthey, NY)

22378: FFT91, St. Lys R., France, w/plaintext wx in FF & a tfc list, FEC at 1602. (Ed.)

21859: DFZG, MFA, Belgrade, Yugoslavia, w/nx in SC at 1510, 75 baud. (Hetherington, FL)

22379.5: JCS, Chosi R., Japan, w/tfc in EE, ARQ at 0010. (Hetherington, FL)

22591.5: CUL, Lisbon R., Portugal, working M/V Iihav, ARQ at 1500. (Boender, NLD). This was the old coastal sta. channel 61. The new channel 61 is on 22406.5 kHz as of July 1, 1991—Ed.

22854: Possibly the French Embassy, Fort de France, Martinique, switching back & forth between FEC-A/192 & ARQ6-90/200 modes after 1600 w/5L msgs & circulars in FF. (Ed.)

22948: RPNF, Monsanto Navrad, Portugal, w/RYRY & foxes, 75 baud at 1555. (Boender, NLD)

22955: ISX22, ANSA, Rome, Italy, w/nx in EE + RYRY, 50 baud at 1500. (Manthey, NY)

23159.7: North Korean Embassy, QTH unknown, w/5F grps at 1608, 50 baud. To CW 1608 w/o completing msg. Moved to 23161.7 at 1610, gave CW callup, then resent uncompleted 5F msgs. Some words in KK sighted afterward. To CW 1617 w/ extensive tfc. (Ed.)

23191.7: Un-ID idling at 1709-1746, ARQ-S5/96. (Ed.)

23193: Un-ID w/wx data from EGWR, Croughton, England, 75 baud at 1205. (Hetherington, FL)

23697.6: DFX69, MFA, Bonn, Germany, w/nx in GG, FEC-A/96 at 1547. (Ed.)

23716.8: RFLI, French Navy, Fort de France, Martinique, w/a service msg to Papeete, Tahiti, ARQ-E3/96 at 1823. (Ed.)

24102: DFZG, MFA, Belgrade, Yugoslavia, w/nx in EE, 75 baud at 1506. (Manthey, NY & Hetherington, FL)

25373: Un-ID w/a msg in II. Lubumbashi, Zaire, mentd as an address. Was ARQ-E/96, 1700-1713. (Hetherington, FL)

25420.7: German Embassy, Brasilia, Brazil, w/msgs in GG to Bonn, ARQ-E/96 at 1930. (Hetherington, FL)

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SCORPIO

DISPATCH (PORTSHEAD RADIO) Location: England
Date: 02-27-91 Begin: 03:17:35 End: 17:22:00
Mode: PSK Signal: Agr/Svc: Coastal (sea) QSL:
Remarks: SITOR traffic -<arr>
Date: 2/27/91 17:22:00 FSK / Signal() 12882
(Radio) (PSE) (CLS) Terminal No. (CHG) (CLD) (S/F) (H/W) (L)
LogScan - Log of John Doe

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CLANDESTINE COMMUNIQUE

WHAT'S NEW WITH THE CLANDESTINES

Clandestine broadcasting appears to have begun in two new trouble spots, though, so far, the efforts seem to be rather limited in scope. We've long wondered why there was no known broadcast activity by the communist rebels in the Philippines. Now, when it appears that guerrilla effort might be winding down, we learn that a station has come on the air, even though just on a once-a-week basis. The station is known as Radio Southern Tagalog (RST) but, unfortunately for us, operates only on FM (106.7 MHz). It is designed to serve the Southern Tagalog region and is set up as a mobile operation.

The other trouble spot to acquire clandestine broadcasting is Rwanda, where the Rwandese Patriotic Front (RPF) is fighting the government. The station, called Radio Muhabura, apparently began last summer and operates in the Kinyarwanda language between 0400 and 0600 on an unspecified frequency in the 49 meter band.

Wendel Craighead in Kansas forwards addresses for two of the new anti-Castro programs being aired over WWCR. La Voz de la Tribuna Libre: Organization Oficial de la Alianza Cubana, PO Box 113614, Miami, FL 33111. This one airs Sundays at 2300-0000 on 7520. Radio Voluntal (or Voluntad) Democratica - Voz del Partido Revolucionario Cubano Autentico: Partido Revolucionario Cubano Autentico, PO Box 350492, Miami, FL 33135. At the time of his letter to us, Wendel had not received replies to reports sent to these addresses, nor for two of the other anti-Castro programs.

Craighead also notes a change in frequen-

cy for the Colombian clandestine (Radio) Patria Libre which he noted to 0102 sign off on 4700. Indeed, later reports from others confirm a move to this region. Hans Johnson in Maryland found the station on 4710. So if you want to monitor this station this is the area to check. Craighead copied a bit of the sign off ID as "... de la noche por la banda internacional de las 49 metros ..." and "Patria Libre ... la voz de la nueva Colombia ..." (alternated between man and woman announcers). Vocal and instrumental anthem versions followed until closing at 0102.

Hans Johnson found the Voice of the Iraqi Opposition with an 0300 sign on time on 15600, though he speculates that this might be for UTC Fridays only. Frequencies announced were 9570, 9995, 15605 and 17950. 15605 has been used in the past. 17960 is sometimes used instead of 17950. 17950 and 9995 were not audible. Jordan notes that, on this occasion at least, there was no jamming present. The Voice of the Iraqi Opposition continues to use the the same news theme as the government's Radio Baghdad and similar-sounding IDs.

Keep an ear out for Radio Venceremos, or lack of it, in the 6400 area. With what appears to be the most sincere effort yet at peace talks between the guerrillas and the El Salvador government Venceremos might be in its last phase.

A station unheard of til now is The Voice for Youth Infantrymen, which apparently operates out of North Korea. We're not sure yet which pigeonhole this one goes into, but from the description it sounds as if it's a clandestine.

A Japanese DX club has published a schedule for this running from 1400 to 2100 on 1296v, 3000 and 3025, all in Korean. Well-equipped west coast DX'ers might have a shot at hearing this.

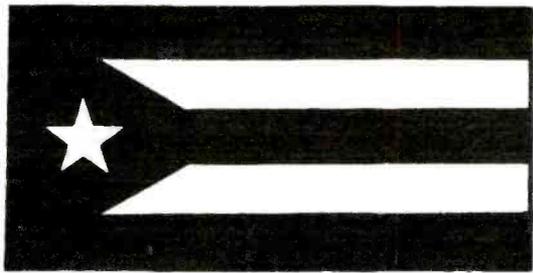
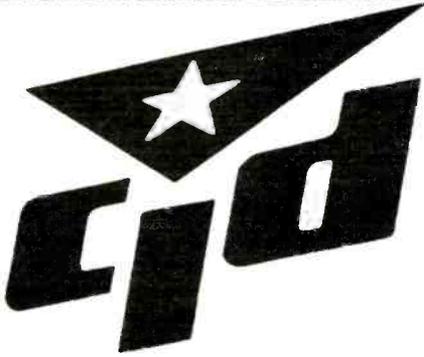
Johnson also reports reception of Seday-e Mojahed, Voice of the Mojahed, using 4740 from 0127 sign on, with the frequency varying as low as 4730 and as high as 4750. The same program is aired on 6540, although it starts five minutes later. These are beamed from Iraqi governments transmitters and are anti-Iranian in nature.

For newcomers to the world of clandestine chasing, here are some notes on a couple of the more easily heard stations these days: La Voz del CID (Cuba Independiente y Democratica) on 6305 from 0210 to 0930, 7340 from 2300-1100, 9941v between 0940 and 0210 and 11635 at 1100-2300. Another anti-Castro station, Radio Caiman on 99965 airs from 1200-1530 and 2300-0400. The anti-Afghanistan station Voice of Unity is often heard on 12230, 15685 and 17540 at 0130-0215, 1200-1255 and 1515-1615.

Please let us have your clandestine loggings, QSLs, comments and related information as often as you can. Extra sets of eyes and ears (as many of them as possible) are invaluable and your input is most appreciated. Thanks for your help.

Until next month, good hunting! ■

Longest-running of the current crop of anti-Castro stations, La Voz del CID is easily tuned on 6305, 7349, 9941 or 11635.

CUBA INDEPENDIENTE Y DEMOCRATICA

¡LA RESISTENCIA ES EL CAMINO DE LA VICTORIA!

SATELLITE VIEW

BY DONALD E. DICKERSON, N9CUE

INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

TVRO Weather FAX

There are several traditional methods by which you can receive weather fax in your shack. One is to pull it off the HF bands. This service is provided by coastal stations for mariners. It requires appropriate computer hardware and software to display this on a screen or printer. It does have the advantage, over some services, of having the weather systems, cold fronts etc, marked.

A second method of receiving weather fax is to set-up your own satellite station. There are two different types of satellite stations you will want to consider. One is VHF, the other is a UHF station. The VHF station intercepts signals from the NOAA polar orbiting, low altitude, weather satellites which use the old 137 MHz band. No new satellites are being allowed to use this band. For a 137 MHz NOAA satellite station you need a pre-amp, to boost the signal at the antenna to maintain picture quality, and a special wideband FM receiver. Coming out of the receiver, and this is true of any satellite station, you have three options. You can drive an interface to a computer or you can feed the signal from the receiver to a fax receiver like an Infotech and finally you can use the antiquated electrostatic printers which I would not recommend under any circumstances as they are noisy, smelly, messy and expensive to operate.

The second type of weather satellite from which you can receive weather pictures is the Geo-stationary satellite known as GEOS. This is the satellite, there were three operational at one time, that provides the pictures for your local TV weather reports. They downlink signals on 1,691 MHz (1.6 GHz) so it will take the addition of a downconverter and a second antenna to enable your basic 137 MHz satellite station to receive signals from these satellites and if you are interested in putting a satellite station together there is one very basic step you must take first. Buy a copy of Dr. Ralph Taggart's classic work *The Weather Satellite Handbook*.

Now, if you are already TVRO equipped then I have stumbled onto an even better method of getting great weather pictures. Well, actually Ronald Burke, of Moorsville Indiana, did the stumbling. Ron found an interesting signal on Spacenet 3 transponder 19 in FDM mode. The signal is a feed of weather photos (maps) from both Polar and Geo-stationary weather satellites. The FDM signal contains three separate information channels.

So how do you tune this FDM signal? First look on the back of your satellite receiver and

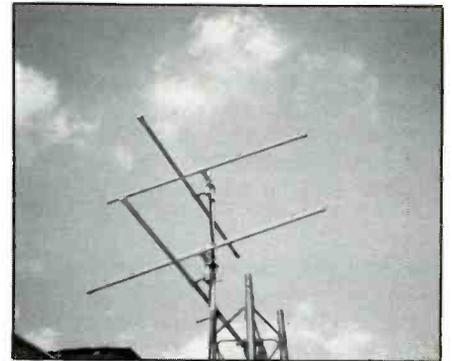


Ron Burke colorizing a wx map.



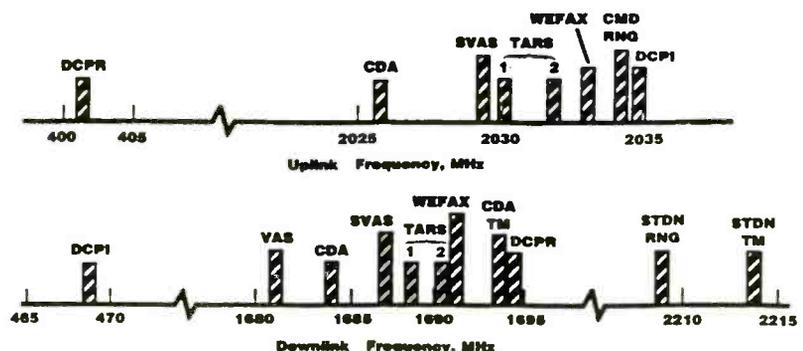
Ron has a great deal of enthusiasm for satellites and SWL'ing in general.

locate the baseband output jack. Connect a 50 ohm piece of coax cable. Run the other end of the coax to the antenna input connector on the back of a stable shortwave receiver. Next you will slowly tune between one and thirteen MHz on the HF shortwave spectrum. Here you will find the FDM signals (FDM stands for Frequency Division Multiplexing). This method will work when searching any transponder for secret signals. For the Weather pictures, however, you will of course be tuned to Spacenet 3, transponder 19. This is the setting on your satellite receiver. As you tune your HF receiver to 1.568 MHz you will find the signal from the Soviet Meteor weather satellite and at 1.883 MHz you will find



Antenna for Polar wx-sats as found in Taggart's *WX-Sat Handbook*.

GOES Uplink and Downlink Frequency Spectra



- VAS - VISSR Atmospheric Sounder
- DCPR - Data Collection Platform Receiver
- DCPI - Data Collection Platform Interrogate
- CDA - Command and Data Acquisition
- SVAS - Stretched VAS Relay Channels
- TARS - Tracking and Ranging System
- WEFAX - Weather Facsimile Service
- CMD RNG - Command and Ranging
- STDN RNG - Spaceflight Tracking and Data Network Ranging
- STDN TM - Spaceflight Tracking and Data Network Telemetry

Polar Satellite Communications Link Summary

Link	Carrier Frequency	Information Signal	Baseline Bandwidth	Modulation
1. Beacon	137.77 MHz or 136.77 MHz	Low Bit Rate Instrument Data and Spacecraft Telemetry, All From TIP	8320 bps	Split-Phase PSK
2. VHF Real-Time —APT	137.50 MHz or 137.62 MHz	Medium Resolution Video Data From MIRP	2 KHz	AM/FM
3. S-Band Real-Time —HRPT	1698 or 1707* MHz	High Resolution Video Data and TIP Data From MIRP	665.4 kbps	Split-Phase PSK
4. S-Band Playback to CDA's	1698, 1702.5 or 1707 MHz	High Resolution and Medium Resolution Video Data From MIRP	2.6616 Mbps	Randomized NRZ-PSK
5. Data Collection (Uplink Only)	401.65 MHz	Data From Earth Based Platforms and Balloons	400 bps	Split-Phase PSK
6. S-Band TIP Data Playback	1698, 1702.5 or 1707 MHz	TIP Data Recovered From On-Board Recorders	332.7 kbps	Split-Phase PSK
7. Command Uplink	148.56 MHz	Digital Commands	1 kbps	Ternary FSK/AM

*1702.5 MHz may be used for HRPT in the event of failure of primary S-band Transmitters.

signals from the GOES west satellite. At 1.928 MHz you will find GOES east. Then during the half hour you will find transmissions from the NOAA polar orbiting weather satellites. Provided your TVRO equipped already, you will not find a better way to get those weather maps.

So now that we have found the signal how do we display it. There are two methods available to you. You can feed the audio signal directly into an infotech data receiver. This unit, and any model of infotech that will receive FAX, will decode the information and display it on a printer. A quality dot matrix printer will work, Ron states that the Epson printers work the best. To further enhance picture quality Ron added an audio amplifier and an audio equalizer in front of his Infotech to raise the signal level and to filter out white noise which can degrade the picture's quality. These, however, are not essential.

A second method Ron describes begins with the same TVRO set-up. You feed the baseband out of your satellite receiver to your HF receivers antenna input jack. Next feed the audio from the earphone jack into a CRL Processor. The CRL Processor is a dedicated

wefax demodulator board that will work on AM or FM. The signal is then fed into an IBM/AT or compatible computer. You will need the Software from CRL for the project. CRL can also provide you with systems to work on other types of computers as well.

I want to thank Ron Burke for forwarding this information on the weather satellite. I think it will be useful to many of you.

There are some government references available to you if you are interested in weather satellite services. See boxed item for details.

Environmental Science Information Center B822
Environmental Data Services
NOAA Dept. of Commerce
6009 Executive Boulevard
Rockwith, MD 20852
(Ask for the Tiros-N Users Guide)

Educations Programs Branch
Office of Public Affairs
NASA Goddard Spaceflight Centers
Greenbelt, MD 20771
(Ask for the *Teacher's Guide to Satellite Ground Stations*)

Project Operations Branch (Code 513)
NASA Goddard Spaceflight Center
Greenbelt, MD 20701
(Ask for orbital predictions and tracking data for specific sats)

CRL Enterprises
4925 Vermont Lane
Fort Wayne, IN 46815
(Ask for equipment list)

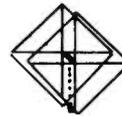


A 1,691 MHz feed horn added to a Satellite TV dish.

That's all for this installment. See you next month.

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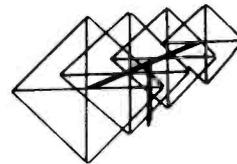
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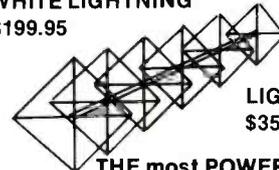
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ANTENNA PLUS-3 30-2000MHz "Scanner" (peaked for VHF-UHF)

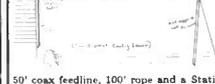
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BROADCAST DX'ING

BY ROGER STERCKX, KVT1JH

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

From Montreal: Mark Hollywood, of Montreal, Quebec wrote to tell us that he enjoyed seeing the *CHTX/990 Hits* sticker in the October issue. Mark advises that the station has now evolved into *CKIS-AM, Oldies 990*, and is playing 60's and 70's music. He hosts the midday show there.

Here's The Score: As this is being written, Chicago is working on getting an all-sports AM station to be known as *WSCR*, and operating on 820 kHz. The call letters represent *The Score*, and the station will be known as *Sports Radio-820*. In order to even consider using the call letters *WSCR*, the new station's owners needed to contact the owners of a station in Scranton, PA that was using the callsign, and ask if they would consider giving them up. The Scranton station went along with the idea; apparently they were considering getting a new callsign for their station, anyway.

Actually, the Chicago operation isn't an all-new station being started from scratch. It's an existing station with new owners, a new format, and a new callsign. Might be in full operation by the time you read this. (Thanks to E. Wallesen, La Grange Park, IL.)

Digital First: Iowa City, Iowa's FM'er *KRNA-FM/94.1* claims it's now become the first American broadcaster using digital transmitting equipment. When the station moved from its old 93.9 MHz frequency last October, it put the new Harris Corp. transmitter on-line. The new digital transmitter, which kicks out a 100 kW signal, offers improved audio quality. The transmitter is located near the community of Homestead, Iowa, and the installation ran about \$500,000, including the new tower. The station runs a rock music format and has been on since a 1974 start. (Thanks to Brent Popham, North English, IA.)

Towering Problems: It's not unusual for FM and TV broadcasters to seek out prime locations, such as tall buildings and mountains, for increased signal coverage. This isn't always without its own problems. When one great location is discovered, it attracts other broadcasters, then two-way radio users, and before anybody knows what happened, there's an antenna convention and people start complaining.

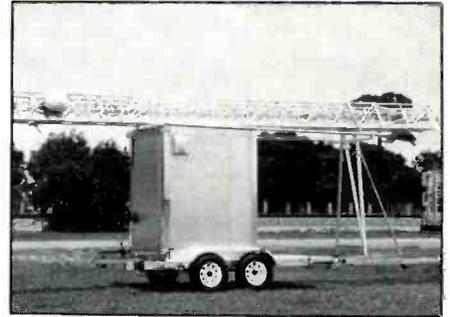
That's what's happening on top of Lookout Mountain in Jefferson County, Colorado. There are already six TV stations there, plus all sorts of land-mobile systems towers (including several used by the Coors brewery) for a total of 47 structures. And there are other companies who want to erect additional towers there, too.

Residents of the area around the mountain

are complaining loudly that the existing towers are an eyesore, as well as being sources of interference. They don't want any more to go up on the site. They would like to get rid of many that are already there and consolidate them into only three or four towers.

It's gotten into quite a flap, with citizen's committees, lawyers, and county zoning people. (Thanks to Pat Griffith, NONNK, Denver, CO.)

Sunny Days: The Sun Radio Network, Clearwater, Florida, wrote to tell us that they are continuing to expand. The following



This Aluma Tower trailer-mounted tower and shelter has a number of applications. See text.



Pittsburgh's famous KDKA/1020 has this nifty bumper sticker. (Courtesy of E.H. Walters, Registered Monitor, KPA3JG, Fayette City, PA.)



KOTR/94.9, of Cambria, Calif., uses a bumper sticker marked with the call "K-OTTER." The station is in sea otter country! But which way is up? (Courtesy Michael Carland, Valencia, CA.)



WMAS-FM/94.7 hails from Springfield, MA and runs an adult contemporary format. (Courtesy Mike Fitzpatrick, Jr., Great Barrington, MA.)

Applications Filed For New AM Stations

CA	Chico	92.7 MHz	
CA	Gualala	100.5 MHz	6 kW
FL	Pennsuco	88.3 MHz	3 kW
IA	Belle Plaine	95.5 MHz	6 kW
KS	Hays	91.3 MHz	50 kW
KS	St. Marys	102.9 MHz	
MI	Bronson	94.7 MHz	6 kW
MO	Springfield	88.3 MHz	12 kW
MT	Great Falls	91.9 MHz	8 kW
MT	Kalispell	106.3 MHz	2 kW
ND	Fargo	88.9 MHz	8.3 kW
NE	Chester	89.9 MHz	50 kW
NY	Hague	93.7 MHz	5 kW
OK	Del City	91.7 MHz	150 watts
OR	Cottage Grove	105.5 MHz	2 kW
SC	Chesterfield	107.3 MHz	3 kW
WA	Twisp	106.3 MHz	6 kW

Permits Granted For New FM Stations

AR	Pine Bluff	91.1 MHz	1 kW
CA	Ludlow	105.7 MHz	
GA	Warner Robins	102.5 MHz	6 kW
ID	Twin Falls	89.9 MHz	4 kW
IL	Norris City	90.1 MHz	22 kW
IL	Olney	90.3 MHz	25 kW
IN	Kokomo	91.7 MHz	2.1 kW
LA	Lafayette	91.9 MHz	1.5 kW
NY	Blue Mtn. Lake	91.3 MHz	11 kW
NY	Hudson	91.1 MHz	Low Power
OR	Lincoln City	95.1 MHz	23 kW
TX	Amarillo	91.9 MHz	2.25 kW
TX	Woodville	94.7 MHz	50 kW
WI	La Crosse	106.3 MHz	16 kW

Requests To Modify AM Facilities

WJPF	Herrin, IL	1340 kHz Drop to 770 watts
WTKY	Tompkinsville, KY	1370 kHz Drop to 2.1 kW

AM Facility Changes Granted

WADE	Wadesboro, NC	1340 kHz Increase to 1 kW
WCCF	Punta Gorda, FL	1580 kHz Drop to 710 watts
WWRV	New York, NY	1330 kHz Become non-commercial
WXGM	Gloucester, VA	1420 kHz Drop days to 704 watts

Requested FM Frequency Changes

WNEK-FM	Springfield, MA	97.5 MHz Move to 99.7 MHz
WQPM-FM	Princeton, MN	106.3 MHz Move to 106.1 MHz, 32.4 kW
WSAE	Spring Arbor, MI	89.3 MHz Move to 106.9 MHz, 3 kW
WSUY	Charleston, SC	100.7 MHz Move to 100.5 MHz, 25 kW

FM Frequency Changes Made

KRAY-FM	Salinas, CA	103.7 MHz Moved to 103.5 MHz, 1.2 kW
KSTG	Sikeston, MO	97.7 MHz Moved to 97.9 MHz, 12.4 kW
WGUD-FM	Pascagoula, MS	106.3 MHz Moved to 105.9 MHz, 25 kW
WJJQ-FM	Tomahawk, WI	92.7 MHz Moved to 92.5 MHz, 25 kW

broadcasters have recently become affiliates: KAKN, KFXD, KPLA, WGNC, WCSL, WNOG, WSPO, KKRK, WBG, WCNU, WZEP, WRDJ, and WTCG.

Keep On Truckin': Aluma Tower an-



This Power-104 sticker is from KRBE, of Houston, Texas. (Courtesy Steve Smith, of KRBE.)

nounced their Model TM-51-35-S. It's basically a combo trailer and tower, with a portable 4-ft. by 4-ft. by 6-ft. insulated shelter. The shelter can house broadcast or two-way equipment, and can be manned. It is also available with heat, air conditioning, insulation, electric power, and a storage box along with other optional accessories. The tower is a 100-ft. aluminum crankup type. The easily transportable unit is ideal to accommodate some types of temporary, backup, emergency AM or FM broadcast transmitters, for remotes, or for two-way use.

For more information, contact Aluma Tower Company, Inc., 1639 Old Dixie Highway, Box 2806, Vero Beach, FL 32961-2806. Please mention that you read about it in POP'COMM.

FCC Matters: The FCC amended its rules governing the operation of FM booster stations by codifying the limitations imposed on

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WAMU/88.5 is PBS in Washington, DC. (Courtesy S.P. Cashin, Havertown, PA.)

Request For FM Call Letter Changes

Now	Seeks	
KGUC-FM	KKYY	Gunnison, CO
KMLO-FM	KBAX	Fallbrook, CA
WNDN-FM	WKTD	Salisbury, NC
WWMH	WMQA-FM	Minocqua, WI
WYCL	WBYN	Boyetown, PA

Changed FM Call Letters

New	Was	
KBLS	KXDJ	N. Ft. Riley, KS
KBLZ	KANY	Kanehoe, HI
KBSY	KLMK	Poteau, OK
KFXT	KFNC	Sulphur, OK
KHKN-FM	KPUP-FM	Gonzales, CA
KLTH	KMBR	Kansas City, MO
KMJI	KXLT	Denver, CO
KNNC	KJWL	Georgetown, TX
KODZ	KHYI	Arlington, TX
KPIG	KHTX	Freedom, CA
KRIG	KNFB	Nowata, OK
KRSS	KRCD-FM	Chubbuck, ID
KSPY	KZDD	Quincy, CA
KTZN	KQSN	Green Valley, AZ
WAQQ	WGKL-FM	Charlotte, NC
WBMW	WVNL	Ledyard, CT
WBQQ	WJIB	Kennebunk, ME
WDBN	WIML	Wrightsville, GA
WEGM	WBOZ-FM	Hormigueros, PR
WENY-FM	WLEZ	Elmira, NY
WGGR	WVYJ	Greenwood, IN
WGUS-FM	WOPW	Augusta, GA
WKOD	WKEZ-FM	Yorktown, VA
WLS-FM	WZRI	Cleveland, MS
WMJW	WZRI	Cleveland, MS
WMKG	WWMY	Eden, NC
WNOX	WLOD-FM	Loudon, TN
WOAD-FM	WJXN-FM	Utica, MS
WORD-FM	WEZE-FM	Pittsburgh, PA
WQLA-FM	WQLA	La Follette, TN
WQON	WFXK	Grayling, MI
WQXA-FM	WQXA	York, PA
WRRK	WMYG	Braddock, PA
WSQN	WJZX	Scranton, SC
WTCF	WKFK	Carrollton, MI
WXKB	WAKS	Cape Coral, FL
WXTK	WOCB-FM	W. Yarmouth, MA
WZSR	WAIT-FM	Woodstock, IL

Changed AM Call Letters

New	Was	
KHKN	KPUP	Carmel Valley, CA
KLCJ	KFNS	Amarillo, TX
KSHO	KGAL	Lebanon, OR
KTOX	KSFE	Needles, CA
KVFC	KISZ	Cortez, CO
WAQS	WGKL	Charlotte, NC
WBYY	WJPW	Rockford, MI
WHBS	WBZS	Eatonville, FL
WJSH	WYTL	Terre Haute, IN
WLAT	WLVH	Manchester, CT
WQLA	WWGR	La Follette, TN
WQSV	WAJN	Ashland, TN
WQXA	WKKU	York, PA
WUOK	WOCB	W. Yarmouth, MA
WWEA	WLVG	Cambridge, MA

New AM Call Letters Issued

WWTL	Walkersville, MD
------	------------------

New FM Call Letters Issued

KBVC	Buena Vista, CO
KMRL	Buras, LA
KTSL	Spokane, WA
KYAA	Ketchum, ID
KYFA	Amarillo, TX
KYFB	Pine Bluff, AR
KYFE	Alexandria, LA
KZKE	Seligman, AZ
KZKF	Howe, TX
KZKG	Pueblo, CO
KZKH	Topeka, KS
WFWI	Ft. Wayne, IN
WGRI	Pt. Huron, MI
WKQM	Churubusco, IN
WKRW	Wooster, OH
WUOX	Radcliff, KY
WUOZ	Belvedere, SC
WUSI-FM	Olney, IL

Requests For AM Call Letter Changes

Now	Seeks	
KORL	KHNR	Honolulu, HI
WDFZ	WJIG	Tullahoma, TN
WJPW	WBYY	Rockford, MI
WMYM	WMQA	Minocqua, WI
WPNT	WSCR	Chicago, IL

the stations by international agreements. Also, the standards were defined to which FM booster stations must conform to prevent interference to stations that are 53 or 54 channels removed from the booster station.

Applications for FM booster stations located within 320 km of the Canadian border won't be accepted for filing by the FCC where the predicted interference or primary service contour of the proposed station would extend beyond the corresponding contour of the primary FM station being rebroadcast.

The EBS two-tone alert signal will probably be reduced in duration to a minimum of 8 seconds and a maximum of 25 seconds. The FCC will most likely also reduce the time delay incorporated into the demuting process to a minimum of 3 seconds and a maximum of 4 seconds. This would ensure that the EBS

alert tone would be audible for a period of from 4 to 22 seconds.

In addition, the FCC proposed a prohibition against broadcasters sending out the EBS tone, or a simulation of it, except in an actual national, state, or local, emergency, or for the purposes of an authorized test of the EBS system.

The FCC also addressed itself to the growing practice of broadcasting different types of hoaxes by broadcasters. The agency is proposing types of sanctions such as fines which might be used against stations that send out hoaxes.

The agency says it recognizes that the broadcasters have First Amendment rights, and also that the broadcasting of dramatic presentations shouldn't be covered by the sanctions. However, they generally are in-

clined to think that there should be some method for ending the public's being fooled, harmed, misled, and inconvenienced by deliberately falsified reports of crimes and catastrophes. Questions remain as to defining what a hoax is, if they are truly harmful to the public, if the rights of broadcasters would be impeded by anti-hoax regulations, and if meaningful rules could be drawn up not to be so vague as to be meaningless.

The present broadcast station count is 4,988 AM's, 4,517 commercial FM, 1,484 educational FM, plus 1,875 FM translators and boosters.

We're Out Of Here: See you in April. Please let us hear from you with bumper stickers, newspaper clippings, station format changes, AM/FM station activities, and anything else related to our column. ■

Up In The Sky: It's A Bird!

In response to a large number of questions asked by newcomers, this month's column introduces one of the most exciting—and exotic—modes of Amateur Radio communications: satellites.

Orbiting Satellites Carrying Amateur Radio (OSCARs) have been flying overhead for almost two decades. As with the rest of Amateur Radio, OSCAR operation has its own jargon. To participate effectively, you'll need to be familiar with the lingo.

This column will help you to understand some of the jargon, specifically, the names and meanings of the various satellite modes of operation. Once you're familiar with the terminology, future columns will explain where to listen for amateur satellites, how to make QSOs through them and even how to interpret satellite telemetry.

Satellite Modes

Unlike traditional HF operation, satellite QSOs require the simultaneous use of two frequencies in different amateur bands. Standard satellite operations are full duplex—the operator transmits and receives on two bands at the same time, monitoring his own signal through the satellite's transponder. (A transponder is a lot like a repeater. Instead of having one input and output frequency, however, it receives signals over a narrow range of frequencies and retransmits them over a similar range of frequencies on another amateur band.)

The signal transmitted to the spacecraft is called the uplink, and the signal received from the spacecraft is known as the downlink. The term "mode" identifies the uplink and downlink combinations around the world to quickly recognize the operational requirements of a satellite. As the amateur satellite service has evolved, groups around the world have experimented with frequency combinations.

A satellite operator referring to Mode A (2-meter uplink, 10-meter downlink), is much like an HF operator referring to 20 meters—it's a reference to a specific point in the spectrum. In satellite work, a mode designator doesn't refer to the station's emission type, it refers to the "band" used, or more correctly, the combination of bands employed.

Table 1 outlines the mode designators used for the combinations of bands used by amateur satellites. Although it provides an analytical answer to the question, "What do all of those letters mean?" a look at the origins

of the mode designators is of interest to OSCAR newcomers and old-timers alike.

Alphabet Soup

Defining mode designators for satellite transponders didn't become an issue until the November 1974 launch of OSCAR 7, the first OSCAR to have more than one transponder aboard. Initially, choosing a mode designator was straightforward. Because the transponder that used the 2-meter uplink and the 10-meter downlink had previously flown on OSCAR 6, it became known as Mode A. The second transponder, with the new 70-cm uplink and 2-meter downlink, became known as Mode B.

Following the successful launch of OSCAR 7, attention turned to the construction of the next spacecraft. Because of the heavy use of 2 meters for terrestrial communications in Japan, our Japanese colleagues proposed a new transponder configuration that inverted the Mode B uplinks and downlinks, making the signals more accessible to Japanese satellite enthusiasts. This new transponder, with a 2-meter uplink and a 70-cm downlink, was designated Mode J (for Japanese).

Advances in digital store-and-forward techniques demonstrated with the launch of Japanese satellite Fuji-OSCAR 12 produced more refined Mode J capabilities. Operations via FO-12's linear transponder were designated Mode JA (for Japanese analog), while the digital store-and-forward mode became known as Mode JD (for Japanese digital).

Other transponder configurations were labeled according to their geographic origins. In 1987, RS-10/11 was launched by our Soviet colleagues (RS stands for Radio Sputnik). This satellite was built at the Tsiolkovskiy State Museum of the History of Cosmonautics in Kaluga, USSR.

This unique spacecraft contains a multiple-transponder suite, including two configurations flown for the first time. The first was known as Mode K. It uses a 15-meter uplink and a 10-meter downlink. The second transponder configuration was named Mode T. It uses a 15-meter uplink and a 2-meter downlink. The mode designators were taken from the names of the city and the institute where the spacecraft was developed.

Higher And Higher

Rounding out the growing list of transponder designators are Modes L and S. These designators were chosen because the trans-

ponders use frequencies in the microwave spectrum. Above 1 GHz, blocks of microwave frequencies are identified by letter designators. You're familiar with the X (10.525 GHz), K (24.1 GHz) and Ku (15-18 GHz) bands referred to by manufacturers of police radar detectors.) In the case of the Mode L transponder, its uplink is in the 23-cm L band at 1.2 GHz. Likewise, the Mode S transponder's downlink appears in the 13-cm S band at 2.4 GHz.

There are designators that use two letters. These are combinations of transponders that share a mutual uplink or downlink.

As the state of the art progresses and ham satellites use higher frequencies, the question is: What will the next amateur satellite mode be called?

If you're a newcomer entering the realm of the OSCARs and need information, contact AMSAT, the national organization of satellite enthusiasts, at PO Box 27, Washington, DC 20044 for a complete literature package; or the ARRL at 225 Main St., Newington, CT 06111; tel 203-666-1541; fax 203-665-7531.

In an upcoming column I'll fill you in on where to listen for amateur satellite QSO's and how you can use your computer to track the ever-increasing number of amateur satellites.

In the meantime, you might want to glance at a copy of Martin Davidoff's excellent *Satellite Experimenter's Handbook*. The proverbial "everything you ever wanted to know about satellites and satellite operation" is contained within. It's available at your local dealer or directly from the ARRL.

Keep your QSL cards, photos and ham radio questions coming to me at ARRL, Department PCN, 225 Main St., Newington, CT 06111. See you on the birds! ■

TABLE 1
Amateur Satellite Mode Designators

Mode	Uplink	Downlink	Notes
A	2m	10m	
B	70cm	2m	
J	2m	70cm	
JA	2m	70cm	Analog, same as Mode J
JD	2m	70cm	Digital Mode J
JL	2m/23cm	70cm	Combination J & L
K	15m	10m	
KA	2/15m	10m	Combination K & A
KT	15m	10/2m	Combination K & T
L	23cm	70cm	
S	70cm	13cm	
T	15m	2m	

27 MHz COMMUNICATIONS ACTIVITIES

People wonder what ever became of CB base stations. Looks like just about every rig around is either portable or mobile. It was therefore refreshing to note that Radio Shack's Realistic TRC-492 is an actual base station transceiver.

The TRC-492 has a switchable NB/ANL, as well as buttons for instant Channels 9 and 19. It has an S-meter, also jacks for external speaker and headphones. A really good feature is the electronic rotary type channel selector, just like on the old CB rigs before they invented those up/down pushbuttons.

The TRC-459 is only \$149.95, and that's pretty reasonable. We would have liked to have seen this rig also available in an upgraded AM/SSB version. Also, the TRC-492 comes with a dynamic mike. We would have preferred it designed around a ceramic mike for best audio quality. Still, it's a decent rig and we were glad to see that there are still base station rigs being introduced.

What Was The Outcome?

Several readers have inquired as to what, if anything, more has been heard about the idea of introducing low-power FM handheld transceivers to the CB band. We mentioned (last July) that Midland International was doing this with their Model 75-160. At that time, we observed that we disliked this idea and thought it would cause interference to AM and SSB communications.

Midland International wasn't at all happy about our opinion, or in the way it was expressed. The result was a rather strong letter written to us in which our views were ripped as "bigoted" and "below the belt" because we specifically mentioned Midland's company name and product when we wrote that this was a poor idea.

We used to be deluged with press releases from Midland. Remember the Midland "7-watt" handhelds, but they meant audio, not RF, although they never specified? After we criticized their idea of putting FM handhelds into the CB band, the Midland press releases stopped dead. Guess they showed us.

That's all we know, at least for now. If we hear anything further, we will pass it along.

Hooked on CB?

A note from a CB'er who ID's as *The Black Sheep in California*, of Los Angeles, mentions that in areas of Nevada there are legal brothels. He notes that most seem to have a CB antenna on the roof, and assumes that these stations are on Channel 19 and intended for chatting with passing truckers.

Black Sheep notes that the Cottontail Ranch is the only building at the desolate intersection of US 95 and Nevada 266. Giant



The Realistic TRC-492 is an honest-to-goodness base station.



This cheerful operator is Trevor Fletcher, of Edmonton, Alberta, Canada. On AM he's monitoring Channel 19 as *The Cornbinder*. Look for him also on Channel 36-LSB as Unit 174.

antenna on the roof there. Well, guess there's an application for CB in every walk of life.

Here's One To Listen For

Ray, *Straight Shooter 1*, of Illinois, passed along a QSL from Laci, *Straight Shooter 673*, of Hungary. Laci is fluent in English and usually monitors the lower side of 27.385 MHz (Channel 38). His complete AD is: Laci Varga, Poszto Utca 4, 6500 Baja, Hungary.

Ray tells us that he sends Laci copies of *POP'COMM* to keep him current on the world of communications as viewed from North America.

Old Timers' Corner

Chip Cox, WA9EAE, of Illinois, writes to encourage us to continue providing information on CB rigs from the past, which he finds most interesting. A similar vote came in from Kent C. Babcock, of Arcadia, Mich., who was fascinated by our mention of the International Crystal Executive 19 (October issue).

In the same area of interest, Craig Blankenheizer, 621 Branch St., Kingsport, TN 37660, advises that he has been involved in

CB since 1975. He describes himself as "a Browning fanatic who is especially fond of the company's LTD mobile rig."

He realizes that it's probably just a fantasy, but he hopes that someday he'll locate one that is still in the box, and still has the original manual. Maybe one of our readers knows of such a unit, although when you're talking about a deluxe transceiver produced almost thirty years ago, there is little real hope. By the way, we may have messed up the spelling a little on Craig's last name, but that's the best we could do trying to decipher his signature.

This month, we will look at the Multi-Products CD-7 *Citi-Fone*. It was the 1962 entry in the CB market from The Multi-Products Company, of Oak Park, Illinois. This company had been making a line of reasonably good rigs, and the CD-7 made a nice name for itself for reliability and performance.

The CD-7 had five crystal controlled transmit and receive channels, plus a tunable receiver covering all 23 channels. There were nine tubes and three diodes performing twelve tube functions. The transmitter used a 6AQ5 tube with another as the modulator. Receiver sensitivity was 0.5 uV., with selectivity 3 kHz at 6 dB down. There was an S-meter, and also a feature that made it easy to spot the transmitting channel on the tunable receiver. It operated from 6 and 12 VDC, also 117 VAC. The price was \$189.50.

Wire You Asking?

Jeff Davis, of Savannah, Georgia, wonders why CB'ers can't or don't use longwire antennas like hams do. Actually, there's no reason at all, and there's no problem. We'll show you how it's done because it makes a good cheapie antenna, a dandy emergency antenna, as well as one that's good for taking on a trip.

What you need to do is get, or put together, a tuner for the purpose. Once you do this, you can convert practically any length of wire into a CB antenna.

The heart of the piece is the alligator clip



Multi-Products brought out this Model CD-7 Citi-Fone in 1962.

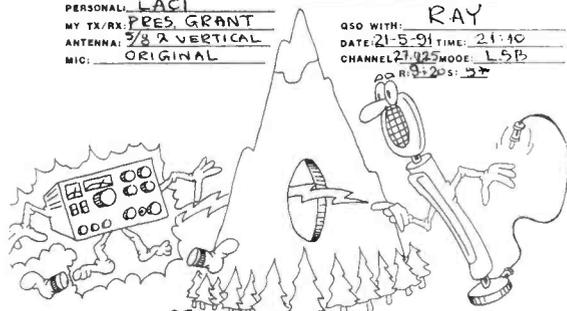
You don't see many QSL cards from Hungary. Here's one from Laci, better known as Sharp Shooter 673.

STRAIGHT SHOOTER

INTERNATIONAL DX CLUB

PERSONAL: LACI
 MY TX/RX: PRES. GRANT
 ANTENNA: 3/8" VERTICAL
 MIC: ORIGINAL

QSO WITH: RAY
 DATE: 21-5-91 TIME: 21:10
 CHANNEL: 27.925 MODE: LSB
 RPT: 20



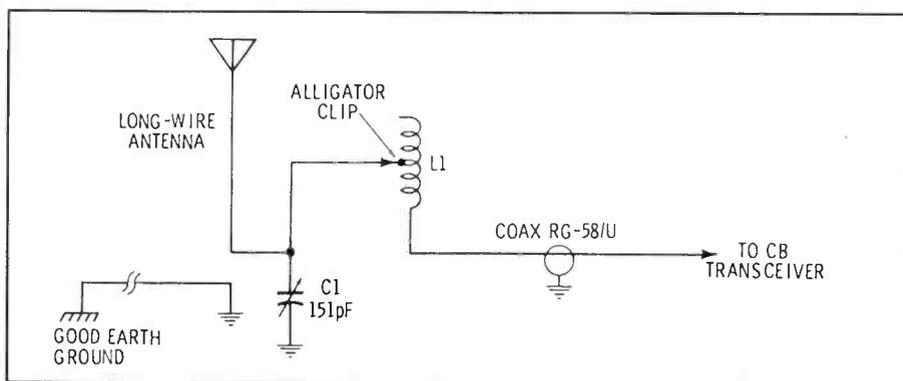
SHARP SHOOTER NO. 673

HUNGARY - EUROPE P.T.C.

attached to L1. Where this tap is placed is best determined by trial and error. Same thing for the adjustment of C1. A field strength meter (FSM) is very helpful for this purpose, as is a good SWR meter. By trying different combinations of L1 and C1 you will eventually hit upon the right one for the length of wire you are using. It's as simple as that!

How Cheap Can You Get?

Now that we are on the subject of wire antennas, here's a ground plane type antenna you can make quickly and inexpensively out of some wire and assorted scraps. When my own antenna came down in a bad storm a few



A way of using a long wire for a CB antenna.

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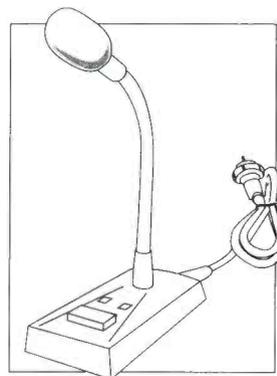
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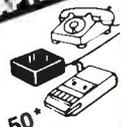
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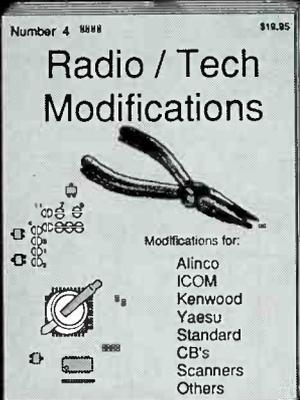


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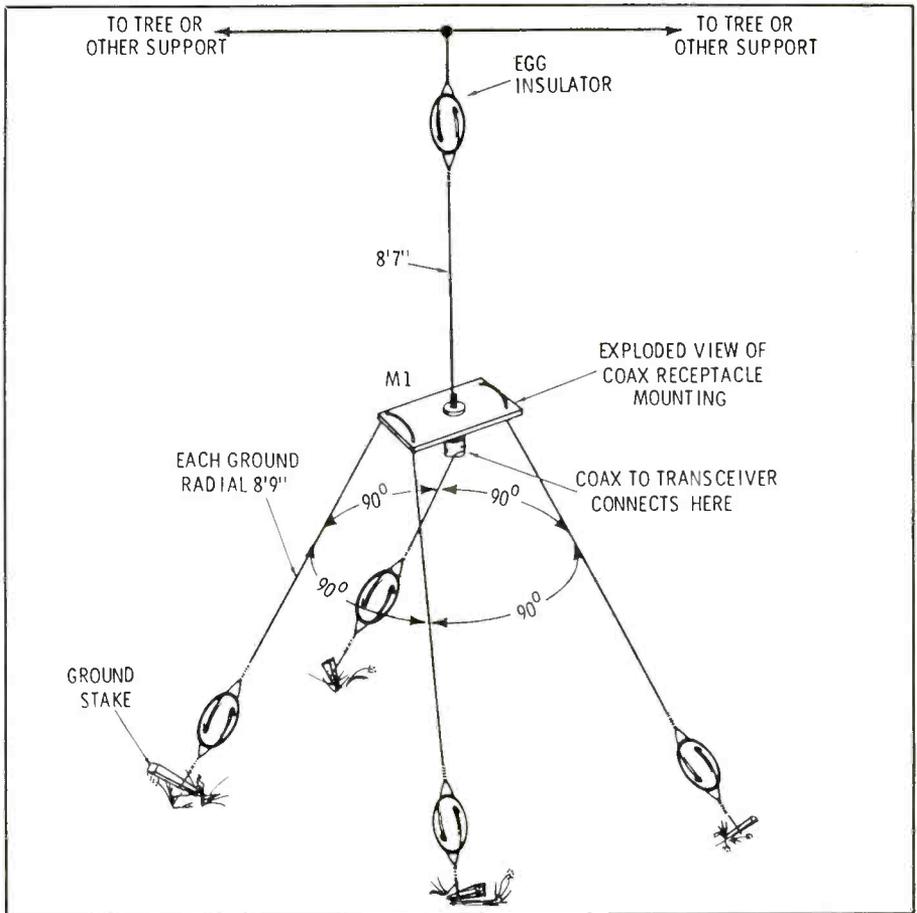


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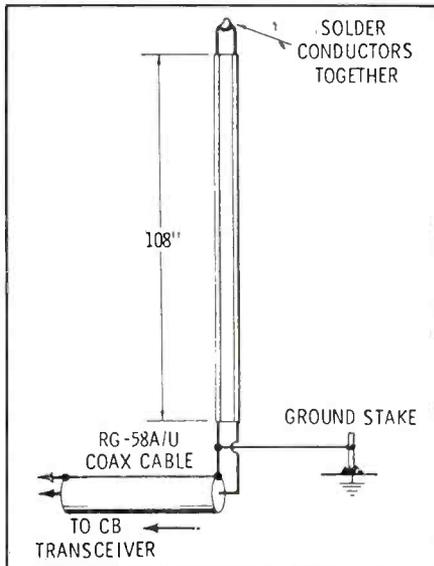
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Quickie ground plane made from wire.



CB antenna made from 300-ohm TV twinlead.

months ago, I used one of these until I could get around to putting the main antenna back on the roof.

The driven (vertical radiator) element, which is 8 ft. 7 in., is supported by an overhead line. These are separated from one another by a small insulator (Radio Shack 278-1335 or 278-1336). The other four insulators can be the same type.

M1, is a SO-239 chassis mount coaxial receptacle. The wire for the antenna should be No. 10 or 12 solid copper.

When installation is complete, insulate the coax socket (M1) from the harmful effects of weather by giving it a coating of plastic spray paint, or rubber base insulation, or outdoor caulking, or even nail polish if nothing else is handy. You might even want to wrap M1 in all-weather tape. Note that only the vertical (driven) element comes in contact with the center conductor of the coaxial cable through M1.

Another Junkbox Antenna That Works

If you have at least a nine ft. length of 300-ohm TV twinlead, you can whip up a CB antenna in jiffy time. Not only that, the thing actually works about as good as a standard dipole.

Be certain that the shielded section of the coaxial feedline and one side of the twinlead are solidly grounded. Position the antenna in such a way as to ensure a stiff, straight, structure. This will offer good omnidirectional performance.

March Into Spring

Next month we hope you will be back on frequency with us. In the mean time, send us your shack photos, QSL's, comments, questions, and suggestions.

HOW I GOT STARTED



Maurice LeBlanc, VE1QJ, has been in the hobby for more than forty years.

We invite readers to submit, in roughly 150 words, how they got started in the communications hobby. Send this information in (preferably) typed, or otherwise easily legible. A photo of yourself will be a definite plus, so try to include one. We can't return or acknowledge material, whether or not it is used. Your story need be submitted only once, we

will keep it on file and consider it for future use. All submissions become the property of *Popular Communications*.

Each month we will select one entry to appear in the magazine. The one selected will be evaluated by taking into consideration whether it is especially interesting, unusual, or amusing. We reserve the right to make necessary editorial changes to improve style or grammar.

The reader whose entry is selected to appear will receive a 1-year gift subscription to *POP'COMM* (or a subscription extension if already a subscriber).

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

The Cabanne on The Hill

Our winner for March was sent in by Maurice LeBlanc, VE1QJ, of St. Basile, New Brunswick, Canada. Maurice wrote:

"It was in 1951, when I was 14 that I discovered shortwave. I went to visit Bee, a friend I had not seen in many months. His

mother told me he was in his *cabanne*, which is a French word meaning shack.

"The cabanne was some distance from the house, on a hill overlooking the river. As I approached, I thought I heard what sounded like Morse code. Bee didn't even notice my entry, he was too preoccupied with his home-built transmitter and its glowing tubes. He had a war surplus receiver, plus other equipment, some of which was built on a breadboard. The sounds of *dits* and *dahs* filled the room. Finally, Bee looked up and saw me. He said, 'Hi, I'm talking to a guy in Chatham.'

"That's all it took to hook me. I've had *radiotitis* ever since.

"I was able to interest another friend and we devoted hours to studying and arguing radio theory, practicing code, and learning the regulations. A year later we both were hams.

"Thousands of contacts and many friends have been made over the years. Some of my time has been devoted to interesting others in the wonders and miracles of radio, and helping them to get on the air. So, I'll always be grateful to my friend Bee, and his little cabanne filled with magic on the hill overlooking the river." ■

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by Harry Helms

SWL's have plenty of questions. What radio should I buy? Where and when should I listen? Who is broadcasting in Farsi today? And on the list goes. Having a copy of The Shortwave Listening Guidebook will answer these and many more questions! In addition, you get profiles of the different broadcasters and their stations, frequencies used by various utility stations: Air Force One, selected military installations, and ship-to-shore stations. "Pirate" and clandestine stations, amateur radio, just about every radio station transmitting gets covered in this text. Great for beginners and old hands alike. ©1991 316 pages First edition

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KEYS, KEYS, KEYS, by Dave Ingram, K4TWJ

Dave Ingram's new book is a tribute to how it used to be done in "the old days." Loaded with pictures, this new book shows just about every key that was ever used in both Amateur and professional telegraph circuits - from simple "cootie keys" and miniature spy keys to gold plated presentation models - they're all in this book. Also gives you insights on how to collect, restore and use your classic keys. Great for the collector, old timer or newcomer. ©1991.

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Computer generated instructional book from the folks at W5YL. Contains all the questions for the Novice, element 2 and Technician, element 3A, exam with clear explanations and correct answers. Also includes illustrated 200 page Ham Radio Handbook by Don Stoner and FCC Part 97 Rules and Regulations. No prior knowledge of electronics is necessary with this complete, easy-to-use study guide.

□ FHO-NCT (MS-DOS 5.25" disk only) \$21.95

THE HAM RADIO HANDBOOK by Don Stoner, W6TNS

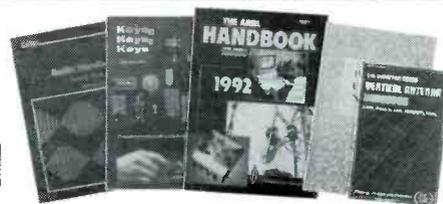
Written with the newcomer in mind, this book de-mystifies many of Amateur Radio's "deepest secrets." Also gives the reader all you need to know to pass the new no-code Technician Class Amateur license. Requires no prior knowledge of radio and includes a copy of FCC Part 97 Amateur Rules and Regulations. Full of helpful hints, handy tips and suggestions on how to make an Amateur station work most efficiently. Includes practical circuits plus much more. Must book for the beginner. ©1990 208 pages 1st Edition.

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This is one of the best beginner's books on SWLing we carry! No techno-jargon or incomprehensible babble to confuse the newcomer. Begins with a complete overview of what is available in the international broadcasting world. Lists the twenty most popular stations and gives you a full explanation of their programming. Simplified band by band listening guide and local time to UCT found anywhere. ©1991 Third Edition 80 pages

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1992 WORLD RADIO TV HANDBOOK New 1992 Edition

Jam-packed with frequencies, program formats, broadcast schedules, plus much, much more. Great reference book to have by your SWL radio. Includes information about all the latest equipment as well as a special insight into the fascinating world of shortwave radio. Also includes TV and mediumwave broadcasters. ©1992. 43rd edition.

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PROPAGATION HANDBOOK

Principles, Theory, Prediction

by Ted Cohen, N4XX and George Jacobs, W3ASK

Includes a complete explanation of ionospheric propagation principles; what are the D, E and all those F layers and what do they mean, as well as two sections on the Sun and how it effects radio wave propagation. 2nd Edition. 150 pages. ©1991.

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TELEPHONES ENROUTE

BY TOM KNEITEL, K2AES

WHAT'S HAPPENING WITH CELLULAR, MARINE & MOBILE PHONES

The question of power output for cellular comms seems to pop up regularly, so we thought we'd take a moment to kick it around. For instance, the usual mobile unit is powered at 3 watts output, while handhelds are pegged at 600 milliwatts, which is six-tenths of 1 watt.

Those power ratings brought us an inquiry from Bruce A. Wright, N8MWL, of Cleveland, Ohio. Bruce points out that 600 mW is really kind of puny, and hardly adequate for use in fringe areas. Bruce appreciates that maybe it wouldn't be great for your health to have 3 watts of UHF radiating into your skull for hours on end, but maybe handhelds could go to 3 watts when connected to a separate antenna.

The present generation of handhelds are being primarily marketed towards urban users, so the cellular industry probably doesn't see fringe area operation as being much of a problem. Also, besides the possible health factors, there could also be design problems with weight, size, and in packing enough talk-time into the batteries powering 3 watt units. Lastly, if the intention is to use the set with an external antenna, such as a mag mount, it might be just as easy to simply get a bag phone that runs 3 watts and not worry about a handheld.

We have also gotten inquiries about the amount of power run by cell sites, since it appears that it's a topic that nobody ever seems to discuss.

The most powerful cell site activated east of the Mississippi River is rural site VIN-U in Vineland, New Jersey, operated by Bell Atlantic Mobile Systems almost a year ago. A high power transmitter and higher gain antenna were installed, giving the cell 400 watts of power, with a maximum power potential of 500 watts. A typical cell can operate with 100 watts maximum.

Initial testing of this site was done in a dualized mode, with ten channels at the more usual 90 watts serving nearby mobiles and five channels at 400 watts serving those at the periphery. The cell's coverage area, originally 113 square miles, increased to about 314 square miles, and the outer ring filled with traffic and stayed consistently busy.

Further refinement will give all channels high-power capability and examine other operating factors of the high-power cell. Such super-cells may provide an alternative means of serving large expanses of rural areas economically with fewer cells.

Cellular Public Safety Role

The Houston Cellular Telephone Company, in Texas, has donated a number of cellular phones and needed crime prevention education materials worth \$25,000 to the Hous-



Houston Police Sergeant Fred Guidry (left) presents a new cellular phone to HPD Citizens on Patrol (COP) participant Stephanie Leggett (right). The phones were donated by Houston Cellular Telephone Company.

ton Police Department towards the goal of keeping local neighborhoods safe.

The phones are being used in conjunction with the Department's existing Citizens on Patrol (COP) program. COP groups are trained by the Houston Police Department in neighborhood surveillance and crime prevention techniques. Many such groups had been using CB radios for ongoing comms with HPD dispatch.

Police Chief Elizabeth Watson pointed out that the cellulars offer increased communication security over CB channels, and are also more versatile than CB radios since they can be used to place calls to the nearest police substation in case of an emergency. Those COP groups having portable phones, she said, would be able to use them while on foot patrol.

Fifteen selected COP groups received the first cellulars last October, with the remaining phones gradually being distributed over a period of time. Houston Cellular Telephone is Houston's non-wireline carrier, and a good neighbor.

Travel Bonuses

US West Cellular and B.C. Cellular customers will now have continuous coverage from the Puget Sound area as far north as the Whistler recreational area in British Columbia. This is as a result of a new networking



Jim Frank (left), of US West Cellular, and Ted Lattimore (right), of British Columbia Cellular, celebrate the arrangements between the two companies that will provide enhanced coverage along the U.S./Canadian border.

agreement between the two companies.

It means that customers no longer drop calls as they cross the border. You could talk non-stop from Olympia, Washington to Vancouver, B.C., and right on to Whistler. Airtime rates are based on where the call originated.

US West has expanded its "Calling Party Pays" program for its Phoenix customers while they travel in Pinal County, Ariz. Previously, customers using the Gila cellular system in northern Pinal County had to shell out for all calls to their phones. Now they can receive calls airtime-free when they are in Pinal County. This is especially useful along the Interstate 10 corridor through Pinal County. Callers are alerted to the call charge via a "1(602)" prefix attached to the cellular number.

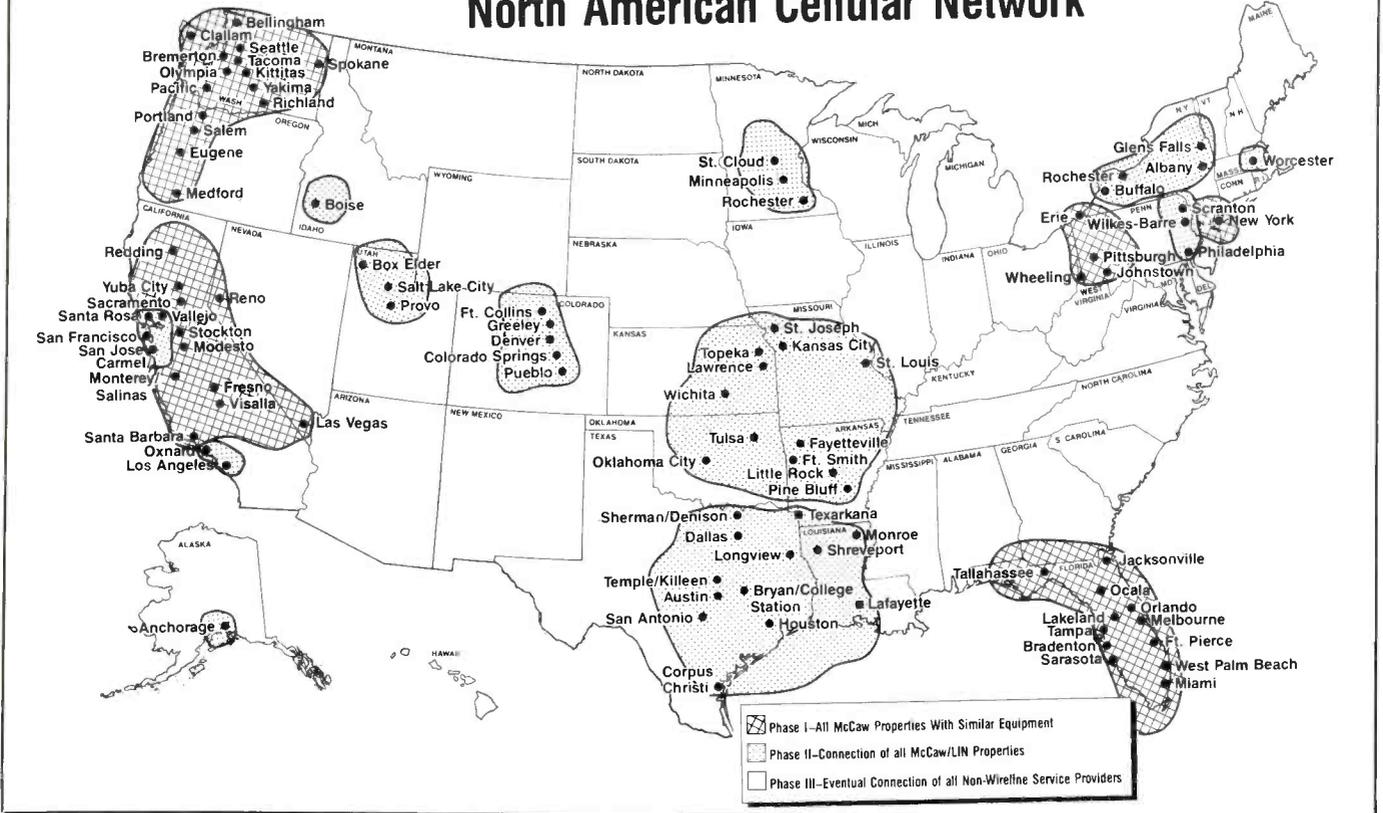
The American Cellular Network was recently formed by McCaw Cellular Communications. This service offers many features, such as:

1. Automatic call-delivery while traveling anywhere in the Network.
2. No need for the caller to know the location (roaming access codes) of the cellular customer being called.
3. A customer's individual calling options (i.e., call-waiting, conference calling, call-forwarding, etc.) are available throughout the network.

The Network is being activated in three phases. Phase I, which began last fall, connects the company's regions, which include the Northeast (NY/NJ metro and Pittsburgh), Florida, California/Nevada, and Pacific Northwest. The NY/NJ metro is the area previously served by Metro One, which changed its name to Cellular One when it affiliated with the ACN.

Phase II, now underway, will connect all of the McCaw and LIN Broadcasting markets that have dissimilar types of switching equip-

North American Cellular Network



The new North American Cellular Network. The crosshatch areas show Phase I; the dotted areas indicate Phase II; and the white areas are Phase III.

ment. Phase III will offer the nation's other non-wireline cellular license holders, and Cantel in Canada, the opportunity to affiliate. The ACN expects to be phasing in new markets over the next three to five years.

McCaw Cellular's phone number, for further information, is (206)-828-8685. They're headquartered in Washington State.

Tidbits

What with some no-frills cellars going for \$49.95 now, and being given away with vinyl slip covers, they no longer have the snob appeal they once had. For those who must have the latest snob status-symbol in the field of communications, it's known as the Nov-Com MAGNaphone.

This is a portable (47 lbs.) personal communications system that can deal with voice, telex, or FAX messages. It has a handset and a keyboard, and there's a folding parabolic dish antenna that will hook you to satellites in order to let you place or receive calls, no matter where you are on the planet. Optional accessories include a thermal printer and duplex telex. The whole thing stores in a rather compact suitcase.

Prices range from approximately \$35,000 to just under \$49,000, depending on the options you want. I was going to get one but I think I'll wait until they're willing to throw in a monogram on the carrying case at no extra cost.

At the National Technical Investigators Conference (NATIA) held in Washington, DC, a few months ago, I noticed that a company called Glenayre Electronics had a device that many of this column's readers have asked about. It was the GL-1131 Digital Paging Monitor Decoder.

The thing could decode numeric and alphanumeric paging messages sent out in the most commonly used formats. It could be used with just about all IBM 286/386/486 clones. The fully programmable receiver covered from 25 MHz into microwave. The MSRP was more than \$8,100, but they had

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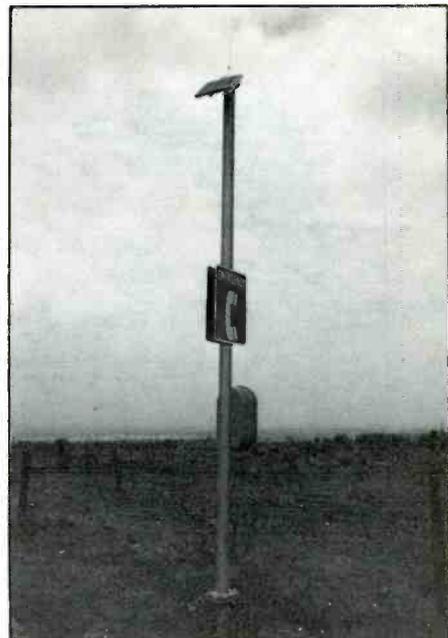
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Motorola says their new America Series cordless phones are protected against eavesdropping by scanner owners. This is the deluxe America Series 500 unit.

a really good price on it during the conference. Their phone number is (604) 293-1611, which is in British Columbia, Canada.

Pat Griffith, N0NNK on the ham bands, of Denver passed along a photo of one of the newly installed solar-powered cellular emergency phones along US 36 (Denver-Boulder Turnpike) in Colorado. This is a long, heavily-traveled, somewhat remote stretch of road.



These new solar-powered cellular emergency phones are now in use along US 36 in Colorado. (Courtesy Pat Griffith, N0NNK, Colorado.)

Cordless Phones With Scramblers

Motorola brought out two models of an eavesdrop-proof cordless phone, the America Series 300 and Series 500. They claim that the units have "Secure Clear" technology, developed exclusively by Motorola, that makes it "nearly impossible" for conversations to be overheard on scanners, baby monitors, or other cordless phones.

The security feature works with 65,000 randomly selected security codes. These are ten channel units that scan until they locate the quietest frequency. There are nine memories for speed dialing. The handset offers an hour of continuous talk time in case of electric power outage; a battery saver switch allows handset life to be extended to five weeks without a recharge.

The functional difference between the two models are that the Series 300 has the keypad only on the handset, while the deluxe Series 500 has two keypads, one on the handset and the other on the base, and offers other features such as speakerphone, hands-free operation, intercom, a paging feature allowing three-way conversations, an operating channel indicator, and a dedicated emergency dialup button.

These come from Motorola Consumer Products Division, Pan American Cellular Subscriber Group, 1475 West Shure Drive, Room N232, Arlington Heights, IL 60004.

We will be looking forward to sharing more chatter with you next issue. Always glad to hear from readers with clippings, comments, ideas, opinions, anecdotes. Good, also to receive information from manufacturers and service suppliers.



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FOCUS ON FREE RADIO BROADCASTING

There's another bumper crop of reports this month. I'll try to cover as many as possible!

KCKBI—Interplanetary Radio has been heard by man. John Robinson in Tennessee had them on 7415 at 0315, requesting reports to this column. Skip Harwood in California had them at 0300 with light rock. Barry Boone, Alabama found them with space type music, announcing 1,000 watts and saying no QSL's because "drops were being monitored by the FCC." (I don't know about that!) Ken Evans of South Carolina found them just after a Radio USA sign off, saying they were "owned and operated by the Clandes Corporation, with studios in outer space, in outer space, in outer space," the last part done a la Max Headroom. Randy Kaeding of Michigan heard the station at 0325 and thinks the corporation name is spelled "Klandis," also notes slogan "music at the speed of light." The station was also reported by Randall M. Morrison, Tennessee; Ned (?—sorry, I just can't make out your last name) in Hamilton Square, NJ; Thomas Mazanec, Ohio; Scott Grieg, Illinois and Henry Cotterill, Pennsylvania.

Cotterhill reports XERK on 7415 at 0615 claiming to be broadcasting from "south of the border" with anti-FCC comments and fake commercials. Noted they were working on a new QSL card and gave an address of PO Box 25302, Pittsburgh, PA 15242. Joshua Wilkes of Kentucky had them at 0439 and notes it was a return broadcast after they were busted by the FCC some months ago.

Harwood had KCMR—Magic Carpet Radio on 7415 at 0300 with technical problems. Announces PO Box 109, Blue Ridge Summit, PA 17214. Judge Charles Horan of California heard them at 0209 on 7412.5 with announcers Radio Animal, Wanda and Magic Mike.

Joe Wright of Massachusetts had Radio Free New England on 7420 at 0443, giving the Wellsville, NY maildrop just before 0445 sign off.

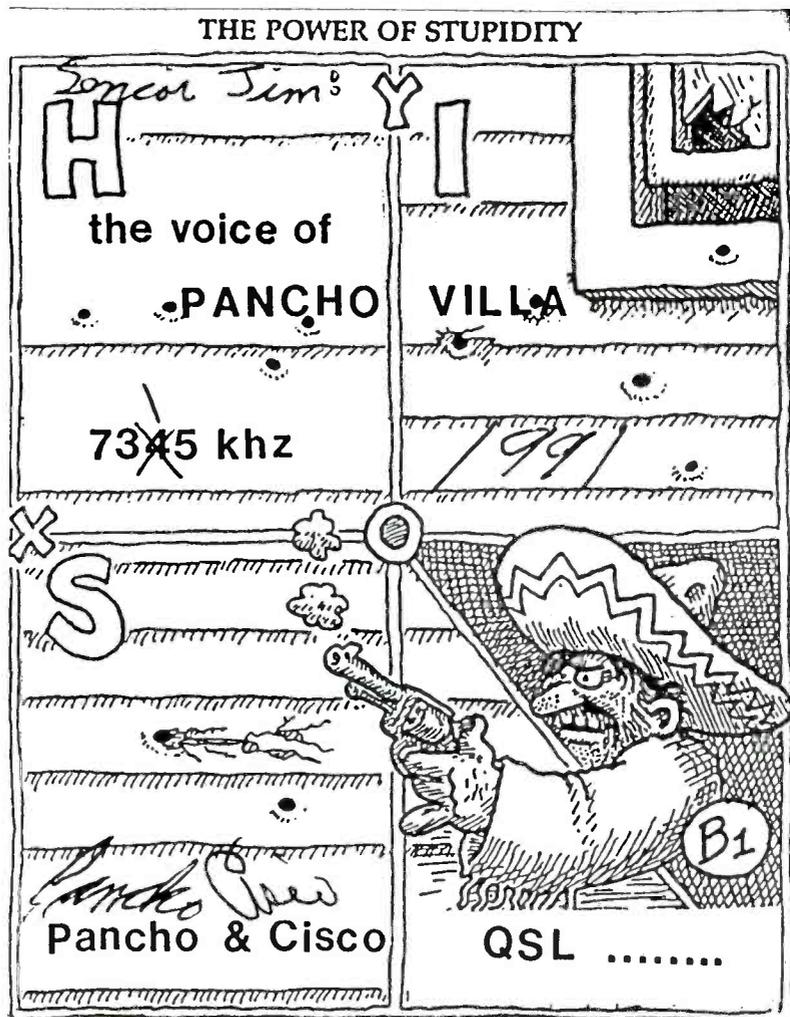
Omega Radio was heard by William Hassig in Illinois on 7413 at 0153 with Desert Storm Retrospective, gave both Box 452, Wellsville, NY and the Blue Ridge Summit address.

Hassig also reports WMEX—Radio Free Yesteryear at 0130 on 7420, drifting to 7418 with oldies music and funny commercials. No address given.

Ned in NJ had WCYC—The World's Craziest Youth Committee on 7410 at 1900, playing alternative music. They said they were within a 100 mile radius of Trenton, NJ. Address announced as PO Box 11425, Trenton, NJ 08620.

Wilkes had Radio Beaver on 7416v at 0205 with Canadian pops, mailbag and off with "Leave it to Beaver" theme.

He also heard The Car Show on 7416v at



A rarely heard pirate station is The Voice of Pancho Villa, active only about once a year. A. J. Michaels is one of the fortunate ones who've QSL'd this station.

0205 with recordings of old car commercials and talks on cars and car history. Uses the Wellsville address.

Radio Freedom was logged by Horan right after KCMR signed off (7412.5) at 0252 playing mostly rock. Harwood heard them at 0253 closing at 0346 with "congratulations, you have found Radio Freedom."

Wilkes had the Voice of Laryngitis on 7418 at 0118 at 0130 with host M. Schnauzer and features called "Pick Your Brain" and "Parrot Radio."

He-Man Radio was logged by Boone on 7415USB at 0017 taking a phone request. Hassig found them at 0035 running a phony telephone conversation with Kristin Kay.

Hassig has Action Radio on 7415 at 0021 with '70's "teeny-bopper" music. Wellsville address. Wilkes heard them at 0037. Kaeding had them at 0058 to 0103 sign off with announcer A. J. Michaels.

Radio Garbonzo was heard by Boone on

7416LSB (and up) at 0105 being relayed by Radio USA. Kaeding had this, too, with announcer Joel mentioning he was probably drifting up in frequency. He gave Wellsville drop and asked for three mint stamps.

Just about everybody heard transmissions from Radio USA. Frequencies reported were 7414, 7415, and 7416, sometimes in LSB, sometimes USB. Times ranged from as early as 2224 to as late as 0322, with Mr. Blue Sky hosting. Heard by: Wilkes (KY), Evans, (SC); Niel (NJ); Cindy Noreiko, (NY); Boone, (AL); Hassig (IL); and Greig, (IL).

That does it for this time. A big thank you for all the reports this month! Please keep 'em coming. Good copies of pirate QSL's are needed for illustrations, too. Always glad to hear from station operators about your facilities, programs and future plans. Station photos are always welcome.

Until next month, good luck chasing those pirates!

SCANNING VHF/UHF

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

It won't be too much longer before you can turn your cold weather monitoring into warm weather listening. Now's actually a good time to start getting your frequency lists ready for the active warmer months.

From Jersey City, comes a note from someone identifying himself as Knobby Base. Knobby sent along some frequencies used by the police in his city. Jersey City Police Department uses the following: 460.025, South District, F-1; 460.350, West District, F-2; 460.325, East District, F-3; 460.375, North District, F-4; 460.050, Detectives, F-5; 460.275, Detectives and supervisors, F-6 (this is an unlicensed frequency); 470.3375, Street Crime, Detectives Intercom Channel 1; 470.4125, Street Crime, Detectives Intercom Channel 2 (unlicensed frequency).

Knobby also says that for those who have CTCSS-capable scanners, the police department uses a tone of 146.2 hertz.

In addition, the police department's new Motorola Saber handheld radios also can operate on the repeater outputs for talkaround capability.

At press time, Jersey City was considering enacting an ordinance that would require the registration of all scanners used by residents within the city. There was much to be said about the proposal by both sides, but police were tired of drug peddlers being tuned into their communications every time they executed search warrants and arrests.

From Brooklyn, New York, Len Raymond writes about a problem he is having with using his handheld Realistic PRO-38 scanner in the car. It seems that when the scanner is stationary, Len has no problem listening to signals in the 470 MHz range. However, when using the radio in the car with the supplied rubber duck antenna, the signals are broken up to the point where nothing can be understood. Actually, this shouldn't be normal with a handheld scanner. You shouldn't be having difficulty, for instance, if you're trying to listen to local police activity on the 470 MHz band. However, there may be some electronics equipment in the car that is causing interference to your reception. On-board computers and other devices have been known to cause difficulty in reception. In an effort to try to isolate the problem, you may want to try a mobile antenna to get the reception "out" of the car. With the rubber duck, you're inclined to pick up all the interference your car is generating. By moving your antenna to the outside with an antenna such as a magnetic mount, you may accomplish the task. Before buying a new antenna, however, you may want to try starting the car and then standing outside it with your handheld scanner. If you notice the reception problem in the car, but



Here's the interesting listening post and ham station of Alton Coffey, K5QWW, of Grand Prairie, TX. Alton uses a Realistic PRO-38 for scanning, among his other gear. Note the old Hallicrafters receivers.

not when standing outside your car right next to it, you may have isolated your difficulty. It's worth a shot.

Len also asks about active ham frequencies he can tune in on his scanner. Being in the nation's biggest city, he shouldn't have any problems hearing hams on VHF and UHF. The 2-meter band at 144-148 MHz is the most popular band for hams. Listen for repeaters relaying ham signals in the 145.1 to 145.5 and 146.6 to 147.4 MHz ranges as well as the 440-450 MHz band. For simplex communications, or hams talking without repeaters relaying their signals, check the nationwide frequencies of 146.52 and 446.000 MHz. There are deviations on these band plans on a local basis around the nation, but you certainly should be able to hear hams on these frequencies just about anytime, especially if you live in a larger area.

David Williams of St. George, S.C., says he has a Realistic PRO-2023 scanner and he wants to unlock it to receive more frequencies and to have it scan faster. We get a lot of scanner modification questions hear at POP' COMM, however, unless you know what you're doing you can cause serious damage to your radio. The best source of scanner modifications that really work is the *Scanner Modification Handbook* (Vols. I and II), published by CRB Research Books, Inc. (PO Box 56, Commack, NY 11725). We

don't know of any modifications for the PRO-2023, but that doesn't mean there aren't any. If you have a scanner covered under the *Scanner Modification Handbook* it is worth your while to purchase the volume.

And if you aren't sure whether you can handle the soldering yourself, check whether a local radio shop is willing to handle the project for you if you have the directions. Don't forget, too, that modifications may void your warranty. If you're not sure, you're better off waiting until your warranty is no longer in effect.

A reader who prefers to identify himself as "Deputy Dog" sends in a list of interesting frequencies useful to southern Californians.

Here's the list: 460.450, Riverside Community College police "Control" F-1; 461.375, Riverside Community College police "Sierra Base", F-3; 151.715, Alvord Unified School District security (nights and weekends); 461.375, Riverside Unified School District alarm agents; 461.350, Inland City security F-1; 463.300, Inland City security, F-2; 460.350, F-1, 460.275, F-3 and 460.225, F-5, Riverside County Sheriff correctional facilities (at least one channel is active at any jail); 853.5125, Fontana School District police; 461.6625, University of Redlands campus police "control"; 151.955, University of Redlands student safety patrols and maintenance; 860.7875, Westec private pa-



Here's Alton Coffey's first station back in 1957. The receiver was a Hallicrafter's S53A, in addition to a transmitter putting out 20 watts on the 40-meter ham band.

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Michael J. Benedetti



Station card of Mike, Registered Monitor, KWA7CF, of Seattle, WA.

trols "L.A. Central"; 462.0875, Westec vehicular extenders and tactical operations; 35.10, Bel Air private patrol.

For those interested in things south of the border, a letter comes from Miguel Angel Reyes of Morelia, Michoacan in Mexico, who sends along some frequencies used in Monelia City, Mexico. Taxicabs can be heard on the following frequencies: 152.625, 168.270, 168.850, 169.950, 171.700, 171.950, 173.580; police on: 172.030; electric company on: 157.750 and 168.230.

From Ben Winton of Basking Ridge, New Jersey, who says that he hears strange sounds occasionally on 173.075 and was wondering what it could be. The frequency you're hearing Ben has been allocated nationwide for stolen vehicle tracking. A Massachusetts-based company, LoJack, sought the frequency for its system which is operating at present in areas such as Illinois, Florida and New Jersey. A LoJack transmitter is purchased by a car owner and hidden in the vehicle somewhere. If the vehicle is stolen, police are able to remotely activate the hidden transmitter so that it sends out a signal.

The signal from the vehicle then can be tracked statewide by police cruisers equipped

with LoJack recovery units. The units consisted of four antennas mounted on the cruiser's roof and a control box inside the patrol car. The control box has indicators to tell the officers which way the signal from the stolen car is coming from. Then all the officers need to do is follow the signal and watch another indicator for signal strength. When the officer is close enough, the LoJack unit indicates a strong signal plus the direction the stolen car is located from the cruiser. Recovery of stolen vehicles can be accomplished in a matter of minutes, company officials have said.

The 173.075 frequency formerly was allocated to the U.S. Department of Justice, but because it was not widely used, the agency agreed to have it reallocated for vehicle tracking systems.

Boris Kasinsky of Niles, IL wants to know whether the Uniden Bearcat 70XLT can be modified to receive the VHF aircraft band or the 800 MHz band. We know of no such modifications. As to having your scanner work in a band well removed from what it was designed for (such as 800 MHz when your scanner covers only up to 512 MHz to start with), it just never will do it. The tuned circuitry in the radio might be able to accept the proper digits for such a frequency with some tricky programming, however, the circuitry inside the radio never would allow you to receive communications on that band.

Boris also sends along a list of frequencies of interest in the Chicago Police Department channels; 460.600, Chicago Fire Department ambulance, north; 460.625, Chicago Fire Department ambulances, south; 154.445, North Suburban Red Center dispatch; 155.595, Cook County Sheriff's police, north.

What are you hearing on your radios? Stumble across a rather baffling frequency lately you can't figure out who is using it? What are your favorite frequencies? What questions do you have about your equipment? Send your frequency lists, questions and photographs of your listening post to: Chuck Gysi, N2DUP, Scanning VHF/UHF, Popular Communications, 76 North Broadway, Hicksville, NY 11801. ■

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CIRCLE 22 ON READER SERVICE CARD

WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Results of Sample Testing of 49 MHz Walkie-Talkies

As part of its post-grant sampling program, the Sampling and Measurements Branch at the Commission's Laboratory in Columbia, Maryland tested 13 pairs of walkie-talkies operating in the band of 49.82-49.90 MHz for compliance with the technical standards in Part 15 of the FCC Rules. These rules are intended to reduce the radio frequency interference potential of low power unlicensed transmitters.

The testing involved making measurements of the fundamental and out-of-band radiated emissions from the devices. Six of the thirteen pairs had at least one unit with out-of-band emissions which exceeded the limits in Part 15 of the Rules. All of the units were compliant with the fundamental emission limits. The manufacturers of the non-compliant devices have been contacted, and we are working with the industry to resolve the problems.

Questions concerning this public notice should be addressed to Mr. Hugh L. Van Tuyl at the FCC Laboratory, telephone (301) 725-1585, ext. 221.

Private Video Distributions Of Video Entertainment Access To The 18 GHz Band

The Commission granted a request by Microwave Radio Corporation (MRC) for clarification of the Commission's Report and Order permitting private video distribution systems of video entertainment access to the 18 GHz band. The Commission denied a request by Utilities Telecommunications Council (UTC) for reconsideration of the Order.

In the Order, the Commission amended its rules to permit alternative multichannel video providers eligible in the Operational-Fixed Microwave Service (OFS) to use the 6 MHz wide, point-to-point frequencies in the 18 GHz band for the distribution of video entertainment material. The Commission noted that this action would promote the public interest by responding to the well-documented need for competition in the video distribution marketplace. At the same time, the Commission also amended the rules to make the four-channel-per-transmitter-site limitation inapplicable when the 18 GHz frequencies are used for the delivery of video entertainment programming. The Commission stated that it took this action to enable

alternative multichannel operators eligible in the OFS to transmit the number of channels necessary to meet subscriber demand and vie with competitors' offerings. The Commission also viewed the Order as an opportunity to clarify certain portions of Section 94.9 of its rules.

MRC expressed concern that the Commission's clarification of the Section 94.9 may be construed as a change in existing policy that would effectively prohibit television broadcasting from using the 21.8-22.4 and 23.0-23.6 GHz bands for studio-to-transmitter links. MRC asked the Commission to modify the new Section 94.9 to make plain that no change in policy had occurred. UTC's petition challenged the Commission's decision to eliminate the four-channel-per-transmitter-site limitation contained in the rule as it pertains to the use of the 6 MHz wide, point-to-point frequencies in the 18 GHz band for the distribution of video entertainment material.

Granting MRC's petition for clarification, the Commission agreed that the version of Section 94.9 adopted in PR Docket 90-5 should be modified to make plain that its policy of permitting television broadcasters to use the 21.8-22.4 and 23.0-23.6 GHz bands for studio-to-transmitter links remain in force. With respect to UTC, the Commission stated that its claims were without merit.

Proper Use of Network Connectors

The FCC has received many complaints that some manufacturers are specifying improper connectors for baseband digital services and for leased lines used with analog modems.

Baseband Digital Data Services

Baseband digital customer premises equipment (CPE) devices such as Channel Service Units interconnect via a 4-wire interface. The correct connector for substrate single circuit applications is the type RJ48S; for substrate multilayer services, the type RJ48T should be ordered. The types RJ48C and RJ48H, respectively, are used for single or multiple T-1 circuits. There have been many reports of manufacturers specifying the type RJ45S which provides a 2-wire interface.

Leased Line Modems

Customer information shipped with leased line modems often specifies the use of either hardwire connections or the use of the type RJ11C modular connector which is a connector used with the public switched network. Either of these non-standard arrangements

frequently result in improperly configured circuits. A major problem results when a customer incorrectly connects leased line modem to the public switched network through the type RJ11C jack. (Signal power levels permitted on leased line circuits are substantially higher than those permitted on the PSTN). To alleviate these problems, the correct connector for leased line service is the type JM8 which accommodates 2-wire, 4-wire or 6-wire interfaces.

All manufacturers of these equipment types should review their customer information material to ensure they contain correct connector information.

Complete network interface connector information is found in the following publication:

*Technical Report No. 5:
A Technical Report on Carrier-to-Customer Installation
Interface Connector Wiring Configuration Catalog.*

It is available from Exchange Carriers Standards Association. Contact them at (301) 564-4505 for ordering information.

FCC Contact: William von Alven, (202) 634-1833.

Secondary Fixed Tone Signaling In The Private Radio Service

The Commission proposed amending Part 90 of the rules to permit exclusive-use systems to conduct secondary fixed tone signaling and alarm operations without conforming to the provisions of Section 90.235.

Section 90.235 includes restrictions relating to bandwidth, output power, type of emission, duration of transmission, use of voice techniques, and automatic deactivation for secondary fixed signaling operations. Under this section, private radio land mobile radio licensees authorized under Part 90 may conduct secondary fixed tone signaling and alarm operations above 25 MHz under certain terms and conditions. The conditions imposed upon secondary fixed tone signaling or alarm operations are designed to protect other licensees in a shared-spectrum environment. The Commission recently amended the rules to allow trunked Specialized Mobile Radio (SMR) systems and their end users to conduct secondary fixed tone signaling and alarm operations on a less restricted basis without complying with the terms and conditions of Section 90.235.

The American Petroleum Institute (API) asked the Commission to allow non-SMR trunked systems above 800 MHz to conduct secondary fixed operations without being subject to the additional conditions currently imposed upon such operations. API's proposal would enable trunked non-SMR systems above 800 MHz to conduct secondary fixed operations in the same manner as trunked SMR systems. API claimed that the same reasoning that justified exempting trunked SMR systems from these restrictions should apply to trunked non-SMR systems.

The Commission has decided that API's proposal has merit. Therefore, the Commission has proposed to eliminate the requirement that private land mobile radio systems that are licensed for exclusive use comply with conditions imposed by Section 90.235 when conducting secondary fixed tone signaling or alarm operations. The Commission believes that this will relieve licensees of these systems, including small businesses, of an unnecessary regulatory burden. Comments are requested on this proposal.

WARC-92 Strategy For Digital Audio Broadcasting

On June 13, 1991, the Commission adopted a Report which recommended proposals of the United States to be submitted to the International Telecommunications Union (ITU) World Administrative Radio Conference (WARC-92). *Report in Gen. Docket No. 89-554*, adopted June 13, 1991 (FCC 91-188). Those proposals indicated a desire on the commission's part to recommend an allocation for Digital Audio Broadcasting (DAB) which will retain some flexibility for future national decisions to accommodate development of DAB service.

Since June, the Commission and the Executive Branch have been working together to develop a practical solution for achieving this Commission objective.

FCC Chairman Alfred Sikes today announced an agreement with the Executive Branch that the U.S. will seek an allocation for satellite and complementary terrestrial DAB at 2.3 GHz. The specific band to be considered is 2310-2360 MHz.

Chairman Sikes indicated that the FCC is examining carefully the development of solutions for achieving terrestrial DAB within spectrum currently allocated to broadcasting. He noted that DAB research and development (R&D) efforts, which range across a number of bands, are very active and include so-called in-band research. The Commission not only is following closely these R&D efforts, but also is looking at the potential ground rules for a transition to DAB that would give existing broadcasters the opportunity to upgrade their services.

The Executive Branch also agreed with the

Commission that the United States will seek the addition of terrestrial DAB allocation issues to the agenda of the post 1992 ITU WARC, at which time all bands will be considered.

These agreements will form the basis for proposals and negotiating positions of the U.S. delegation to the WARC-92.

Fined For Signal Leakage

The Commission notified TCI Cablevision of Maryland, Inc., that it has incurred an apparent liability for forfeiture of \$23,750 for excessive cable signal leakage at its system serving Elkton, North East and Charlestown, MD.

The Commission's Field Operations Bureau (FOB) inspected the system on January 22 and 23, 1991, and found signal leakage. The leakage constituted a threat to Index calculations. FOB issued a cease operations order to TCI, with which the cable operator complied by curtailing service in the relevant frequency bands.

In determining the amount of the forfeiture, the Commission was guided by its recently adopted Standards for Assessing Forfeitures, released August 1, 1991. Under these standards, \$12,500 is the base forfeiture for unauthorized signal emissions. In this case, serious leakage problems were discovered on the first day of the inspection. On the second day, the leakage was more severe. The Commission found this latter signal leakage violation to be a substantial aggravating factor, because of the serious threat to the public safety caused by such operation. Consequently, because the violation was egregious, a forfeiture of \$23,750 was determined to be appropriate by applying the adjustment factors of the standards.

First Forfeitures For Violation Of Operator Service Requirements Assessed; Nine Operator Service Providers Cited

The FCC notified nine companies providing operator services that they apparently violated the informational tariff filing requirements of the Telephone Operator Consumer Services Improvement Act of 1990 (TOCSIA) and are liable for forfeitures of \$52,500 each.

These are the first in a series of enforcement actions dealing with violations of operator service requirements.

The companies involved are: Call West, Dallas, TX; Columbus Telephone Co., Inc., Columbus, KS; Northeast Phone Systems, Inc., Schenectady, NY; National Tele-Sav, Inc., Myrtle Beach, SC; Payline Systems, Inc., Portland, OR; Payphone Systems, Redding, Ca; S.I./C-T Coin Telephone, Inc.,

Chattanooga, TN; Telefonica Larga Distancia de Puerto Rico; and World Communications, Inc., St. Louis, MO.

TOCSIA, which was signed into law on October 17, 1990, required that each operator service provider (OSP) file an informational tariff with the Commission not later than January 15, 1991, specifying rates, terms and conditions, including commissions, surcharges and any fees which are collected from consumers, and reasonable estimates of the amount of the traffic priced at each rate, with respect to calls for which operator services are provided.

TOCSIA also directs the FCC to monitor OSP compliance with the Act. In order to do this the Commission implemented policies and procedures requiring OSP's to file with the Commission, at specified times, a total of four monitoring reports setting forth: (1) compilations of rates, including sample charges; (2) the incidence of complaints for six specified categories relating to OSP operations; and (3) certain cost data. The first of these monitoring reports, for the period January 1, 1991, through April 30, 1991, was due by June 21, 1991.

The Commission said that, while all nine companies filed the monitoring report due June 21, none, apparently, filed the informational tariff due January 15, last year. ■

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LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Last month we reported the unusual news that the Voice of Germany would be leasing some of the USSR's former jamming transmitters to increase its coverage in the USSR and other areas. At least some of those transmitters seem to be in use now and as soon as we have a schedule we'll try to pass along some tuning suggestions.

In something of a similar move, the BBC has arranged to have some of its Russian language broadcasts aired by Radio Russia! This should be in effect by now, although we don't yet have any times or frequencies available. Radio Russia is expected to air two one half Russian segments from the BBC each week-end. Next thing we know the VOA will be building a 500 kW relay station next door to the Kremlin!

The radio scene throughout the former USSR is undergoing a considerable change. One such change is the arrival of a new Russian station, Radio Ala, based in St. Petersburg (formerly Leningrad). The programs are mostly news and Russian folk music. It is scheduled 0730-1600 on 7400, 1630-0700, 1630-0700 on 5040, 0700-120 on 11925 (latter hours, at least, currently blocked by HCJB), 1200-1500 on 11920 and 1530 to 0700 on 6055. At this writing, the station hadn't yet announced its address but we'll bet eager beavers might just get a letter through simply by addressing it to Radio Ala in St. Petersburg.

Lithuanian Radio hopes to put a new 100 kW shortwave transmitter on the air at its present broadcasting site near Kanaus. But the new unit won't carry Radio Vilnius programs, however. This transmitter will be operated by a new company which will lease time to other broadcasters.

Incidentally, when you write to stations in the former USSR Baltic states (Estonia, Latvia, Lithuania) use those country names and don't put "USSR" on the envelope. The US Post Office has officially recognized the independence of these countries.

High Adventure Ministries' King of Hope station in Lebanon has added a second transmitter. The new 25 kilowatt unit is operating on 11530 and is being heard in North America at various hours between 0500 and 2000. They seem to be calling programming on this transmitter, "Wings of Hope."

A report via HCJB's DX Party Line program indicates that the Voice of Galapagos in the Galapagos Islands—which has been off the air for several years—does plan to return to shortwave. The station needs to repair or replace its 5 kW transmitter but has no idea of when this can be accomplished. The radio country list of the North American Shortwave Association, used by many experienced DX'ers, considers the Galapagos as a separate radio country.

Radio Republic Rwandaise in Rwanda plans to add a 100 kilowatt transmitter in a year or so. Their 6055 channel which was logged by a few DX'ers last fall—currently runs 50 kW and the 90 meter band frequency (3330) only 5 kW.

At long last the Voice of the Islamic Republic or Iran has added a broadcast for North America, in English, no less! It airs from 0030 to 0130 on 9022, 9765 and 15260.

Speaking of Iran, reader Randall W. Morrison of Manchester, Tennessee says that in a recent reception report he told the station he knew little about the Islamic religion, culture and way of life. Several weeks later he received seven books on Islamic culture, law, religion and nationalism. The station also read his letter over the air.

There's a new DX show on shortwave you should try and catch as often as you can. It's called *Signals* and it covers all aspects of SWL'ing—broadcast, pirates, utilities, clandestines, plus AM radio, scanning, satellites, propagation and more. It airs over WWCR Saturday nights, local (UTC Sunday) at 0335 UTC.

The Ontario DX Association has placed yet another feather in its club cap. As of last October ODXA became probably the first club ever to act as a regular QSL handler for a shortwave broadcaster! The station involved is CFRX-6070, Toronto (and the medium-waver it relays, CFRB). The CFRX ID each hour should be carrying the ODXA address by now. The ODXA's Steve Canney who, with fellow member John Grimley is handling reports for the station, says that they'll likely design a new card when the supply of the current red and white QSL card is gone. They're also hoping to issue a special QSL certificate for reception during the 24 hour period of the spring equinox. Reports for CFRB/CFRX should be sent to the Ontario DX Association, PO Box 161, Station A, Willowdale, Ontario M2N 5S8, Canada. Return postage in the form of Canadian mint stamps or IRCs would be appreciated. You can also FAX reports to club headquarters at (416) 853-3169.

FROM THE MAIL: Mike Martin of Monroe, Iowa wonders about Radio Tahiti, he's having some trouble getting a for sure log on them. It sounds like your 11827 log is indeed Radio Tahiti, Mike. This frequency and 15171 both vary a bit from the nominal 11825 and 15170. The station hasn't increased power, your log is probably due to your better receiver and/or better high band propagation in recent years.

Alan Bloch of Arlington, VA sends in his shack photo and we send thanks in return. Alan uses a Sangean ATS-803A and wonders where he might look for some "tweaking tips" to get more out of this receiver. As to the Voice of Turkey, Alan, their North

CFRB 1010
AM STEREO

CFRX 6070
SHORTWAVE

QSL card from Toronto's CRFX/CFRB. Reports on these stations should now be sent to the Ontario DX Association and not to the station.



Here's the shack of Alan Bosch, Alexandria, Virginia, which includes a Sangean ATS-803A receiver, a GMR-1 transceiver and TRS-448 CB. He also has two scanners, not shown.



Radio Polonia can be heard in English at 0630-0700 on 7270 and 9675.



Charles Goslow of Worcester, MA sends this QSL from Radio Vilnius, operating from now independent Lithuania.



This stylish FEBC card is in black and white, with a light green background. Thanks to John Miller, Thomasville, GA.

America service was off the air for a few months but it should be active again by time you read this.

Good to hear from Edouard S. Provencher of Biddeford, Maine again. Edouard's special shortwave kick is to obtain commemorative or otherwise special QSL's—sometimes just to mark something interesting that occurred on a particular date. His most recent is a QSL from Radio Moscow for reception on August 21 last year, which he noted in his records as "the first day of the end of the communist empire." That was the date Gorbachev was returned to power after the failure of the coup. Edouard notes that he recently went through his entire QSL collection and finds his total now stands at 913 QSL's!

Marie Lamb of Brewerton, NY checks in to comment on Carol Serrano's November comments about the percentage of women SWL's. Marie encourages all the other women readers of *POP'COMM* to send in their loggings and "contribute to the advancement of the DX field." Indeed! And why doesn't someone start an SWL club for the ladies? There's one for women hams—why not for listeners?

Speaking of clubs, a new one is being formed for users of the old Drake SPR-4 receiver. It's called "SPR-4 International" and is being organized by Rick Sitz, 5210 14th Street West, #11, Bradenton, FL 34207. The idea is to trade parts and information through at least two newsletters each year. There are no dues but Rick would appreciate contributions to help cover postage and paper costs.

So what's happening in your shack? We are always glad to receive your comments, questions and news of your SWL'ing activities. We can always use more shack photos, too, so don't be shy! Schedules, new clippings, spare QSL's you don't need returned, station information and the like are also needed. And, of course, your shortwave broadcast logging's! Please list them by country, allow some cutting room between each item and, please, include your last name and state abbreviation after each logging. Thanks, and

we look forward to hearing from you soon and often!

Here are this month's logs. Broadcast language is assumed to be English (EE) unless otherwise noted as SS (Spanish) FF (French), etc. All times are UTC.

SWBC Loggings

Albania: Radio Tirana, 9760 at 0237 with sports. (Rocker, NY) 0328 with new IS, new age music. (Lamb, NY)

Antigua: BBC relay on 5985 at 0130 with science quiz. (Tucker, GA)

Argentina: Radio Continental, 9115USB at 0148 with woman, man talking in SS, clear ID. Listed 10kW feeder. (Wright, NY)

RAE, 11710 at 0158 with IS, IDs in eight languages, then into EE program. (Lamb, NY)

Armenia: Radio Yerevan, 9775//12010//15485 at 2130 in Armenian to Europe, 2152 in FF, off 2200. (Roberto, Italy) 17690 at 0349 in Armenian, short EE news at 0354. (Lamb, NY)

Ascension Island: BBC relay on 15140 at 2118. (Tucker, GA)

Australia: Radio Australia, 5995 at 1252. (Zamora, CA) 13730 at 0150. (Rocker, NY) 17795 at 0400, QRM co-channel DW. (Provencher, ME) 21740 at 0112. (Seefeldt, WI)

ABC, Brisbane, 9660 at 0822 with sports and ID. (Lamb, NY)

Austria: Radio Austria International, 6015 (via Canada) at 0613. (Sitz, FL) 9875 USB at 0130. (Rocker, NY) 13730 at 1930 with ID, IS, "Report From Austria." (Lamb, NY)

Belgium: BRT, 21810 at 1227 with "Brussels Calling." This time/frequency combination is Sundays only. (Lamb, NY)

Botswana: Radio Botswana, 7255 at 0250 sign on with farm animals IS, EE ID, program in SeTswana. (Lamb, NY)

Brazil: Radio Marajoara, 4955 at 0030 in PP with pops, ID, frequency and commercials. (Lamb, NY)

Radiodifusora Amazonas, Manaus, 4805 in PP at 0025 with "futebol." (Lamb, NY)

Radio Clube do Para, Belem, 4885 at 0830 in PIP with commercials, IDs, pops. (Lamb, NY)

Radio Nacional do Amazonas, 6180 at 0915 in PP, talk and Brazilian music, clear ID. (Wright, NY)

Bulgaria: Radio Sofia, 9700//17825 at 2304 with mailbag program. 11660 at 2205 with mailbag. (Rocker, NY) 15160 at 0438. (Sitz, FL)

Horizon program, Stolnik relay, 7670 at 0906 with news in Bulgarian. (Roberto, Italy)

Byelorussia: Byelorussian Radio, 11790 at 0028 with frequencies, phone and fax numbers in English. (Lamb, NY)

Canada: CKZU relay CBU, 6160 at 1456, CBC news on the hour. (Berghuis, CA)

CHNX, Halifax, 6130 at 0705 with IDs, rock. (Lamb, NY)

Radio Canada International, 6050 with ID, "The Arts Tonight." (Lamb, NY) 6095, via South Korea, 1330 with news beamed to Asia. (Zamora, CA)

Chad: Rdf. National Tchadienne, 4905 at 0501 in FF with African music. (Lamb, NY)

China: 9768 at 0300. (Sitz, FL) 11685//11840 with news at 0412. (Rocker, NY)

Colombia: La Voz del Llano, 6116 at 0359 in SS with pops, closing ID and frequency announcement. (Lamb, NY)

Caracol Neiva, 6150 at 0728 with phone-in program in SS. (Lamb, NY)

Costa Rica: Adventist World Radio (Radio Mundial Adventist) in SS with religious programming at 0245 on 9725. (Provencher, ME) 1245 in EE. (Wright, NY) 1105. (Rocker, NY)

Radio For Peace International, 7375USB at 0118. (Seefeldt, WI) 0003 with documentary. (Tucker, GA)

Radio Reloj, 4832 at 0638 in SS with Latin and reggae music. (Lamb, NY)

Croatia: Hrvatskoj Radio Zagreb (Croatian Radio) 2100 on 7240 with time signal, news in Croatian, EE news segment at 2103. Also on 9830 at 0807 with CW jamming repeating "Franjo Tudjam is (a) dog." Zagreb running 24 hours on shortwave with mediumwave first program. English news is at 0600, 0800, 1200 and 2100 following the Croatian segment. (Roberto, Italy)

Cuba: Radio Havana, 5965 at 0527 in SS. (Sitz, FL) 0409 in USB, in EE. 6000 at 2305 in SS. (Rocker, NY) 6000 at 2325 with test transmissions for possible use as a wintertime frequency. ID in SS, IS, station promo. (Tucker, GA) 11971.2 at 0540. (Rocker, NY) 11795 at 1302 with news in SS. (Zamora, CA)

Radio Rebelde, 3366 at 0440. Man and woman in SS, mostly music. (Wright, NY)

Cyprus: BBC relay, 6180 at 0428 with "Newsdesk." (Lamb, NY)

Czechoslovakia: Radio Prague International, 0100 with news and commentaries from former eastern bloc countries. (Provencher, ME) 0200 in SS, 0300 in EE. (Sitz, FL) 7345 at 2209 with DX program. (Rocker, NY) 0102 on 5930//7345//11685. (Martin, IA)

Dominican Republic: La N 103, tentative on 4800 at 0342 in SS with salsa music. (Lamb, NY)

Ecuador: HCJB, 3220 at 0432 in SS with classical music. (Lamb, NY) 9745 at 0100. (Seefeldt, WI) 15155 at 0030 special "Musical Mailbag" show, taking calls from a Quito pancake house. (Tucker, GA) 0048 with "Saludos Amigos." (Zamora, CA)

Radio Quito, 4920 at 0415, man and woman in SS with QRM from burst transmission. (Wright, NY)

Egypt: Radio Cairo, 9475 at 0230. (Sitz, FL) 9900 at 2138 with news, commentary, Arabic music etc. (Tucker, GA)

England: BBC, 6175 at 0100 with "Newsdesk." (Seefeldt, WI)

Estonia: Radio Tallinn on 5925 at 2030 with IS, announcement in EE "This is Tallinn, you are listening to

Abbreviation Used in Listening Post

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

Estonia Radio English Program." Then half hour in EE. This airs on Mondays. (Roberto, Italy)

Finland: Radio Finland, 9560 at 0236 with news of Finnish business. (Berghuis, CA) 15400 at 1230. (Northrup, MO) Here and // 21550 at 1300. (Martin, IA)

France: Radio France International, 9715 at 0210. (EE? ed) (Sitz, FL) 11670 in FF at 0720 in FF. (Rocker, NY) 15275 in CC at 1215; 15435 at 1225 (language? ed) 17860 in FF at 1230. (Northrup, MO)

French Guyana: RFO Guyane, 5055 at 0430 man and woman in FF, news, music. (Wright, NY)

Greece: Africa No. One, 9580 in FF with news and music at 0501. (Lamb, NY)

Swiss Radio International, via Gabon, 12035 at 2100. (Martin, IA)

Georgia: Radio Tbilisi, 11760 at 2015 with EE news read by a woman, Georgian songs. Poor. (Roberto, Italy)

Germany: Deutsche Welle, 9515 and 9565 at 0129. (Sitz, FL) 15390 at 1230 with IS, 17715 at 1225 in GG, 17775 at 1230 in CC, then into unidentified language. (Northrup, MO)

Voice of America, 3980 at 0429 with Slovenian broadcast. (Lamb, NY) 6060 at 0555 with world news. (Berghuis, CA)

Sudwestfunk, 7265 at 0520 in GG, man and woman talk, pops. (Wright, MA) 0903 with news, weather, ID 0905 "Sudwestfunk Baden-Baden einz program." (Roberto, Italy)

Suddeutscher Rundfunk, 6030 at 0828 with music, 0830 ID "Sudfunkeinz" and highway info in GG. (Roberto, Italy)

RIAS, Berlin, 6005 with talk show at 0855. (Roberto, Italy)

Bayerischer Rundfunk, 0857 on 6085 with commercials. (ID 0900 "Nachrichten im Bayern einz" followed by time pips and news. (Roberto, Italy)

Radio Bremen, 6190 at 1600 with time pips, ID and news. (At 1605 into light music, sports to 1700 off. All in GG. (Roberto, Italy)

Sender Freies Berlin, 6190 at 1950 with music and listener's phone calls. GG. (Roberto, Italy)

Ghana: Ghana Broadcasting Corporation, 0539 on 4915, African music in local language. (Zamora, CA) 0602 with EE news. (Wright, NY)

Greece: Voice of America relay, 9715 at 0500 with news. (Berghuis, CA)

Radiophonikos Stathmos Makedonias, Thessaloniki, on 9935//11595 at 0935 in Greek with political comments in Greek. (Roberto, Italy)

Voice of Greece, 9420 at 0205 in Greek. (Rocker, NY) 2345 in EE and 11645 at 0342. (Sitz, FL) 11645 at 0330 almost all Greek music. (Provencher, ME) 15550 at 1535 in EE, into Greek 1540. (Martin, IA)

Guatemala: TGNA, 3300 in EE with station address, "Back to the Bible." (Lamb, NY)

Honduras: HRVC, 4820 at 0415 in SS, presumed religious program. (Lamb, NY)

Hungary: Radio Budapest, 11910 at 0230, DX show. (Rocker, NY) 6110//9835//11910 at 0213 in EE. (Lamb, NY)

Kossuth Radio, home service first program, 6025 at 0825 in Hungarian. Children interviews. (Roberto, Italy)

Iceland: INBS 9265USB in Icelandic at 0650. (Rocker, NY)

India: All India Radio, 11620 to Europe at 2100, news, commentary, music. Woman announcer. (Tucker, GA; Lamb, NY) 15050 at 1046 in AA with music. (Rocker, NY)

Iran: VOIRI, 9022 at 0235 in AA with chants, ID, news. (Lamb, NY) 0200 in Farsi and AA. (Sitz, FL)

Iraq: Radio Baghdad's "Sault-al-Jumuryiah" 4600 in AA, followed by Quran prayer at 2130, off 2200. News announced by a Big Ben-like chime. Slight bubble jammer QRM. (Roberto, Italy)

Israel: KolIsrael, 9435//15640 at 2251 with DX program. (Rocker, NY)

Italy: Radio Europa International, 9420 at 0950 with music on request. 1000 news and commercial, announced test transmission relaying their FM outlet. Said to run 24 hours, though there are some breaks. Address: Direzione Technica, via Franco Gerald 6, 25100 Brescia. (Roberto, Italy)

Radio Due, RAI second program home service, relayed by Caltanissetta, Sicily on 7175 in Italian. Scheduled from 0400-2130. Carries Sicily regional program at 1010 and 1215. (Roberto, Italy)

Radio Uno, RAI first program (home service) in Italian relayed by Caltanissetta 0915 on 9515, same schedule as Radio Due but no local program. (Roberto, Italy)

Adventist World Radio, Forli, 7230, ID in II, EE, FF, GG at 1035. (Roberto, Italy)

European Christian Radio, Ravenna, 6210 at 1658 with IS, ID by woman in EE, into Romanian at 1700. (Roberto, Italy) 9815 USB at 0410 in AA. (Rocker, NY) RAI on 9575//11800 at 0100. (Martin, IA)

Japan: Radio Japan, 5960 via Canada, 2230-2300 with DX program. (Rocker, NY) 0100 with news. (Seefeldt, WI) 0130 with DX program. (Rocker, NY) 9505 at 1500 with time check, music, ID 1510. (Zamora, NY)

Lebanon: Voice of Hope, Marjayoun on new 11530 at 2140 in EE with religious sermon, parallel 6280. Also heard at 1100 in AA. (Lamb, NY) (They are calling 11530 "Wings of Hope." editor)

Lesotho: BBC relay, 6190 at 0413; 0415. (Lamb, NY; Berghuis, CA)

Luxembourg: Radio Luxembourg, 6090 at 2335 with woman in GG, old pop/rock. (Wright, NY) 0647 with pop. (Rocker, NY) 15530 at 0439 with "Luxembourg Music Jam." (Lamb, NY)

Malaysia: Radio Malaysia, 4950, 1401 with news by woman, ID 1403 "This news comes to you from Radio Malaysia, Kuching." Commentary at 1408. (Zamora, CA)

Malta: RTV Malienne, 4835 at 2119 with man in FF, news, music, clear ID. (Wright, NY)

Voice of the Mediterranean, 9765 at 0600 with EE sign on. (Martin, IA)

Monaco: Trans World Radio, 9480 at 0655 with religion. (Rocker, NY)

Mozambique: Em. Provincial de Sofala, tentative, 3280 at 0316 in African language with music, mentions of Sofala. (Lamb, NY)

Netherlands: Radio Netherlands, 11835 at 0055 with "Media Network." (Rocker, NY)

Netherlands Antilles: Trans World Radio, 15345 at 1210. (Northrup, MO)

New Zealand: Radio New Zealand, 9700 at 1100. (Sitz, FL) 0710 on 9700 and 17770 at 0635. (Rocker, NY)

Nigeria: Voice of Nigeria, 7255 at 0450 sign on in EE. (Lamb, NY) 0540. (Martin, IA) EE news 0515. (Wright, NY)

Radio Nigeria, Kaduna, 4770 with EE news 0505.. (Martin, IA)

North Korea: Radio Pyongyang, 13650 at 1310 man with EE news, female vocals, woman announcer. (Wright, MA)

Northern Marianas: KHBI on 15665 at 1230 with news. (This is a standby frequency. (Lamb, NY)

Norway: Radio Norway International, 9605 at 0101 with news. UTC Sunday/Monday only for EE. (Lamb, NY)

Philippines: FEBC at 0935 on 9800 with news, EE ID. (Martin, IA)

Poland: Radio Polonia, 7270//9675 at 0630 with IS, ID, news. (Lamb, NY)

Portugal: Radio Portugal, 9705 at 0207; 0245. (Sitz, FL; Rocker, NY)

Romania: Radio Romania International, 9570 at 0205 with news. (Rocker, NY)

South Africa: Radio RSA, 15440 at 0358 sign on with news, music and "African Tapestry." New frequency. (Lamb, NY)

South Korea: Radio Korea, 11715 via Canada, at 1029; 1031. (Lamb, NY; Rocker, NY) 15170 at 0555 with IS, ID. (Martin, IA)

Spain: Spanish National Radio, 9630 at 0030; 0139. (Rocker, NY; Sitz, FL)

Sri Lanka: SLBC World Service, 15120j with mailbag at 2123. Off 2130. Parallel to 9720. runs 2000-2130 to Europe. (Roberto, Italy)

Sweden: Radio Sweden, 9695//11705 at 0105 with "60 degrees North." (Rocker, NY)

Swaziland: Trans World Radio, 9655 at 0400 in Chewa, some African music similar to that played by Africa No. One. (Provencher, ME)

Switzerland: Swiss Radio International, 9650 at 0203. (Sitz, FL)

Syria: Radio Damascus, 12085//15095 at 2009 in EE with ID, news. (Lamb, NY)

Tahiti: Radio Tahiti, 11827 in FF with island music at 0815. (Martin, IA) 15170.8 in FF at 0537. (Sitz, FL)

Taiwan: Voice of Free China, via WYFR, 5950 at 0250 with Chinese lessons. (Seefeldt, WI) 11580 at 2225 with science program. (Rocker, NY) 21720 at 2214 with "Business Digest." (Zamora, CA)

Togo: RdTfV Togolaise, 5046 at 0528 with IS, 0529 anthem, 0530 sign on in FF followed by children's songs. News at 0535. (Zamora, CA) 2313 in FF with music, mix of French and American tunes. (Wright, CA)

Ukraine: Radio Kiev, 9785 at 0130 and 9820 at 2120 with news and "Ukraine Today." (Roberto, Italy) 11790 at 0139. (Lamb, NY)

United Arab Emirates: Voice of the UAE, Abu Dhabi, 9600//13605 at 2313 with Islamic program and mailbag. (Lamb, NY) 2200 opening English with Holy Quran in AA, then translation and explanation of verses. (Roberto, Italy)

United States: KGEI, 9615 at 0659 in SS with ID, news. (Lamb, NY) 15330 at 1215 in SS. (Northrup, MO) Voice of America, LSB feeder to Africa, 6873 at 0520. (Rocker, NY)

AFRTS via Croughton, UK 10538LSB at 1526 with AP news. Also 9242.5LSB at 2015 with NFL game. (Roberto, Italy) (Football, Ciappi, editor)

Croatian Radio Zagreb, via WHRI on 9495 at 0000, news in EE, into Croation at 0012. (Tucker, GA)

Radio New York International via WWCR 7435 at 0104. (Tucker, GA) 0400. (Seefeldt, WI)

USSR: Radio Moscow, 9180USB at 0647, feeder in RR, 9685 at 0143, 9735 at 2245, 11730 at 0259. 1217USB feeder at 0730 in RR. (Rocker, NY) 11730 at 0100 with news. (Provencher, ME)

Uzbekistan: Radio Tashkent, 15470//17740 with EE sign on at 1331 "This is Tashkent calling!" (Roberto, Italy)

Vatican: Vatican Radio, 11625 at 1728 to Africa with liturgical program. (Lamb, NY)

Venezuela: Radio Nacional de Venezuela, 9540 at 0250 in SS with IS, opening announcement. (Provencher, ME)

Ecos del Torbes, 4980 at 0220 in SS relaying Radio Nacional. (Wright, NY)

Radio Tachira, 4830 at 0326 in SS with radio play. (Wright, NY)

Radio Rumbos, 4970 at 0039 in SS with talk show. (Lamb, NY)

Vietnam: Voice of Vietnam, 15009 at 1027; 1230; 1300. (Rocker, NY; Sitz, FL; Tucker, GA) 15010 at 1805. (Lamb, NY)

And that's the lot! Many thanks to the following reporters this month: Jeff Seefeldt, Wausau, WI; Mark A. Northrup, Gladstone, MO; Mike Martin, Monroe, IA; Joe Wright, Jamaica Plain, NY; Daryl Rocker, Frankfort, NY; j Larry R. Zamora, Highland, CA; Rick Sitz, Bradenton, FL; Robert E. Tucker, Jr., Savannah, GA; Ciappi Roberto, Le Grazie, Italy; Marie Lamb, Brewerton, NY, Frank Berghuis, Manteca, CA and Edouard S. Provencher, Biddeford, ME. Thanks to all!

Until next month, good listening!

Excuse me, but do you like having ears?

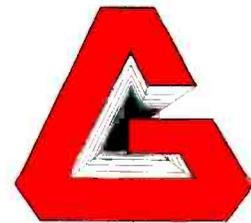
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Electronic Compasses For Direction – Finding

Take any magnetic compass, and put it inside a vehicle, and you may notice that the heading may be up to 40 degrees in error. This is caused by ferrous metals in the vehicle influencing your magnetic compass, and may also be an error caused by the big magnets found in your vehicle's radio and communications receiver section. But once you calibrate your magnetic compass, it should be a good performer in that one precise spot.

Nothing beats a magnetic compass as your main heading sensor. Little could go wrong except for a catastrophic smash to the compass assembly, completely destroying it. So always make sure that your rescue vehicle or portable rescue pack has a magnetic compass inside.

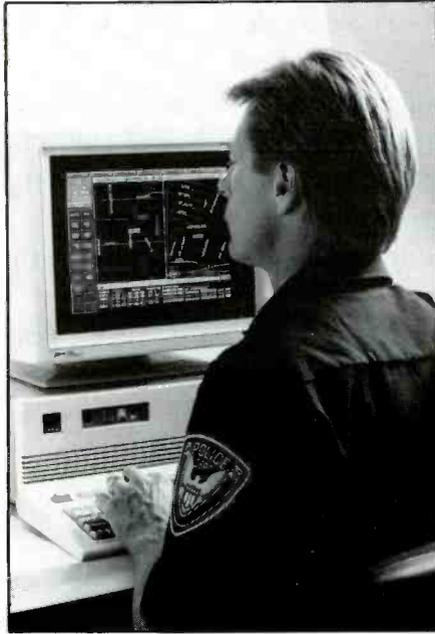
Electronic compasses, called fluxgate heading sensors, have some distinct advantages over magnetic compasses for emergency personnel: large LCD digital readout; self-compensation to varying magnetic deviations; memory bearing recall circuit; bright back lighting for nighttime use; heads-up remote mounting; built-in clock and electronically controlled sensitivity.

Your local Radio Shack (TM) store sells the fluxgate compass for under \$50, which proves that thinking fluxgate does not necessarily mean you need to buy a \$300 marine-grade compass. In fact, that little Radio Shack fluxgate compass works quite well although it doesn't have all the neat LCD bells and whistles that the more professional, marine-grade, digital compass features.

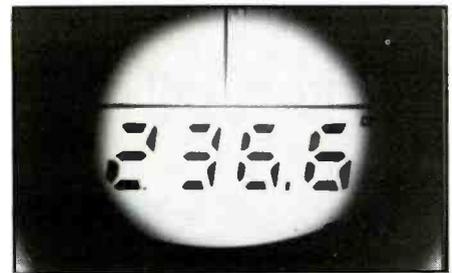
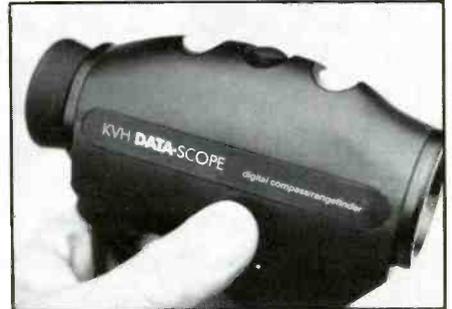
The heart of the digital compass is a fluxgate sensor which measures the horizontal magnetic field of the earth. It measures this horizontal field electronically using a saturable inductor.

Remember in high school when you passed an electric current through a piece of wire, and the compass immediately responded to the magnetic field around the wire? The opposite principle takes place in a fluxgate compass. A wire, wound in a coil, is energized to generate an essentially uniform field intensity inside a solenoid. A toroidal inductor confines the magnetic field almost entirely to the inside of the coil. The amount of current and the number of turns in the winding determines how much flux is inside the toroid.

The LCD readout of your magnetic bearing is calculated by induced AC currents that exist in a secondary winding, only when the primary current is changing. An induced voltage potential exists in a coil, only if the flux through the coil is changing, either due to cur-



A fluxgate sender, tied into a GPS receiver, allows police to keep track of their vehicles.



A boat in distress has a magnetic bearing of 236.6° from the search plane on the KVH Datascope rangefinder.

rent changing, or due to external earth's magnetism.

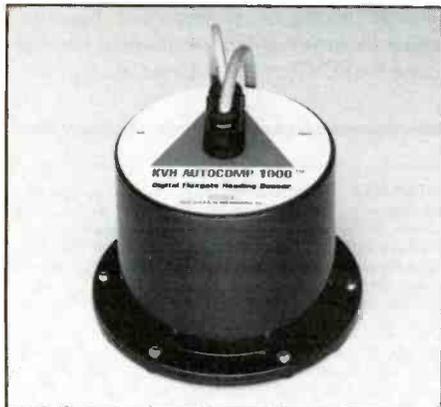
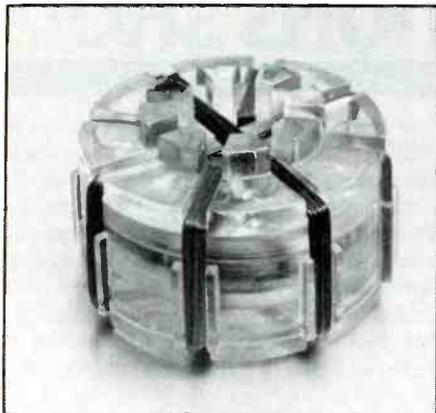
Inside that neat digital electronic gadget is a circuit that samples the changing flux caused by the AC drive signal, and the device mathematically analyzes the 2 magnetic fields (artificial and earth) and derives magnetic north.

The self-calibration mode for the electronic

compass may only be found on the more advanced units selling for more than a couple hundred bucks. Leaders in fluxgate technology for emergency communication vehicles would include Ritchie (telephone 617/826-5131), KVH Industries (telephone 401/847-3327), Sitex (telephone 813/392-1811), and Raytheon (telephone 212/629-6333).



The "heads-up" view of magnetic north from a fluxgate readout.



The inside and outside photos of a remote mounted vehicle fluxgate sensor.

Each of these companies offer under-\$400 fluxgate heading sensors as well as handheld fluxgate bearing sensors.

The handheld fluxgate compass is a good way to triangulate your position on known mountain or seaside landmarks. It will also memorize bearings, and this is important when tracking down activated ELT's or EPIRB's. Many emergency personnel carry the KVH hand-bearing fluxgate compass because it also doubles as a monocular. Simply look through the 'scope, read out the bearing, push a button to memorize that bearing, and then get back to your topographical map or marine chart to plot your findings.

The fluxgate sensor might also drive electronic charting devices. With electronic charts now coming to the tube, it won't be long until you are able to watch your progress along the road electronically, with a fluxgate heading sensor keeping your map always oriented north-up. For search and rescue missions, the north-up display is especially useful in all-terrain vehicles as well as helicopters.

As vehicular mapping devices, combined with the global positioning system (GPS), vehicle location begins to emerge as hand-in-hand technology, expect to see a lot more use of fluxgate technology for heading information. And if you haven't tried a hand-bearing compass with no moving parts—just a fluxgate sensor—try it and see for yourself the capabilities it may have during your next search and rescue mission. ■

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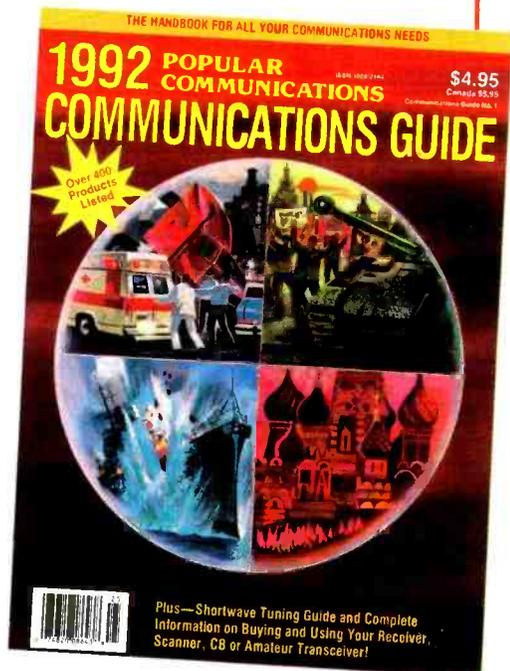
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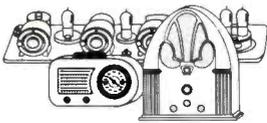
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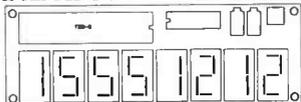
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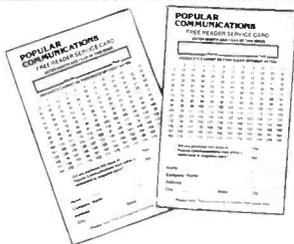
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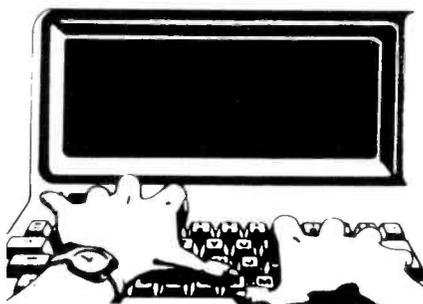
WANTED: Old Radio Shack catalogs, 1981 and older. Will return postage. Send to: Jeffery Crawford, 1270 Section Line Trail, Deltona, FL 32725-6532.

Realistic DX-400 and manual. Exceptionally good condition - AM/FM/SSB. Also AC/DC operation. Trade for table model self-programmable scanner w/aircraft or best offer. Robert Berg, Sr., (313) 623-6636.

FOR SALE: ICOM R-7000 communications receiver, very good condition, \$650.00. George Miller, 2723 Saddle Ridge Lake Drive, Marietta, Georgia, 30062. (404) 973-7286.

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- Backlighted LCD display.
- 10 Scan Banks, 10 Search Banks.
- Selectable Priority Channel.
- Delay, Hold Features.
- Selectable Search Increments, 5-955KHz.
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IF: 561.225, 58.075, 455KHz or 10.7MHz
Increments: 5 to 955KHz selectable/ 5 or 12.5 steps.
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Antenna: BNC
Display: LCD
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Extended Warranty. 2/3 yrs \$40/\$55

Specifications:

Coverage: 27-54, 108-174, 406-512, 830-950MHz
Sensitivity: .4uV Lo,Hi. .8uV Air. .5uV UHF. 1.0uV 800
Scan Speed: 15 ch/sec.
IF: 21.4MHz, 455KHz
Increments: 10,12.5,25,30
Audio: 1W
Power: 12.8VDC, 200MA
Antenna: BNC
Display: LCD w/backlight
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5 3/4H x 2W x 1 1/2D. 12oz wt. (AR900)

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- AM, FM, wide band FM, & BFO for SSB, CW.
- 64 Scan Banks.
- 16 Search Banks.
- RS232 port built in.
- Includes AC/DC pwr crd. Antenna, Mntng Brckt.
- One Year Limited Warranty.

Options:

Earphone.	EP200	\$2.00
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Extended Warranty. 2/3 yrs.		\$65/\$75
Mobile Mounting Bracket.	MM1	\$14.90
RS232 Control Package (software & cable) offers spectrum display and database.	SCS2	\$295.00
Wide band preamp	G-W2	\$89.00

Specifications:

Coverage:	1MHz-1500MHz
Sensitivity:	.35uV NFM, 1.0uV WFM, 1.0AM/SSB/CW
Speed:	38 ch/sec. scan. 38 ch/sec. search
IF:	750.00, 45.0275, 5.5MHz 455KHz
Increments:	5,12,5,25 KHz
Audio:	1.2 Watts at 4 ohms
Power:	Input 13.8 V. DC 300mA
Antenna:	BNC
Display:	LCD, backlighted
Dimensions:	2 1/4H x 5 5/8W x 6 1/2D Wt. 1lb.

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- Backlighted LCD display.
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- 4 Priority Channels.
- RS232 control through DB25 connector.
- Delay, Hold Features.
- 15 band pass filters, GaAsFET RF amp.
- Sleep and Alarm Features.
- AC adaptor / charger. DC power cord.
- Telescopic Antenna
- One Year Limited Warranty.

Options:

Earphone.	EP200	\$2.00
External Speaker. Mobile Mount.	MS190	\$19.50
Extended Warranty. 2/3 yrs.		\$65/\$75
Mobile Mounting Bracket.	MM1	\$14.90
RS232 Control Package (software & cable) offers spectrum display and database.	SCS3	\$295.00
Wide band preamp	G-W2	\$89.00

Specifications:

Coverage:	100KHz-2036MHz
Sensitivity:	.35uV NFM, 1.0uV WFM, 1.0AM/SSB/CW
Speed:	20 ch/sec. scan. 20ch/sec. search
IF:	736.23, (352.23) (198.63) 45.0275, 455KHz
Increments:	50Hz and greater
Audio:	1.2 Watts at 4 ohms
Power:	Input 13.8 V. DC 500mA
Antenna:	BNC
Display:	LCD
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R-5000

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R-2000

The R-2000 is a full 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
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- YK-88SN SSB filter
- YK-88C CW filter
- MB-430 Mounting bracket.

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- SP-50B Mobile speaker
- HS-5 Deluxe headphones
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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.

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- Optional Accessory
- PG-2N Extra DC cable

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