$2.00

MONITORING TIMES

Volume 5 -Number 2 BRASSTOWN, NORTH CAROLINA 28902 February, 1986

Does basking under a palm tree sound good to you this chilly February? Then let MT transport you to the sunny Caribbean, the South Pacific and the Mediterranean (see "High Seas") via the magic of radio!

"What's New?"

THE VERY LATEST IN RECEIVERS ON PAGE 20!

Signals from the Islands

by Ed Noll

Bonaire is one of the six Caribbean islands, including vacation-popular Aruba and Curacao, that make up the Dutch Antilles. About 50 miles north of Venezuela, it is cooled by tradewinds resulting in an average annual temperature of about 80°F.

Bonaire's population of over 9,000 persons live on an island 24 miles long and five miles wide with life centered about the small town of Kralendijk. Other important residents that grace the island are flocks of pink flamingoes.

Remember all of this when next you tune in the Radio Nederland's relay station, located on the higher-elevation northern part of the isle. Two transmitters with a carrier power of 300 kilowatts supply energy to a complex grouping of antennas including omnidirectional and highly directional curtain types.

A curtain aerial is an array of many dipoles suspended between giant towers and guarded by a flamingo (see photo)! A

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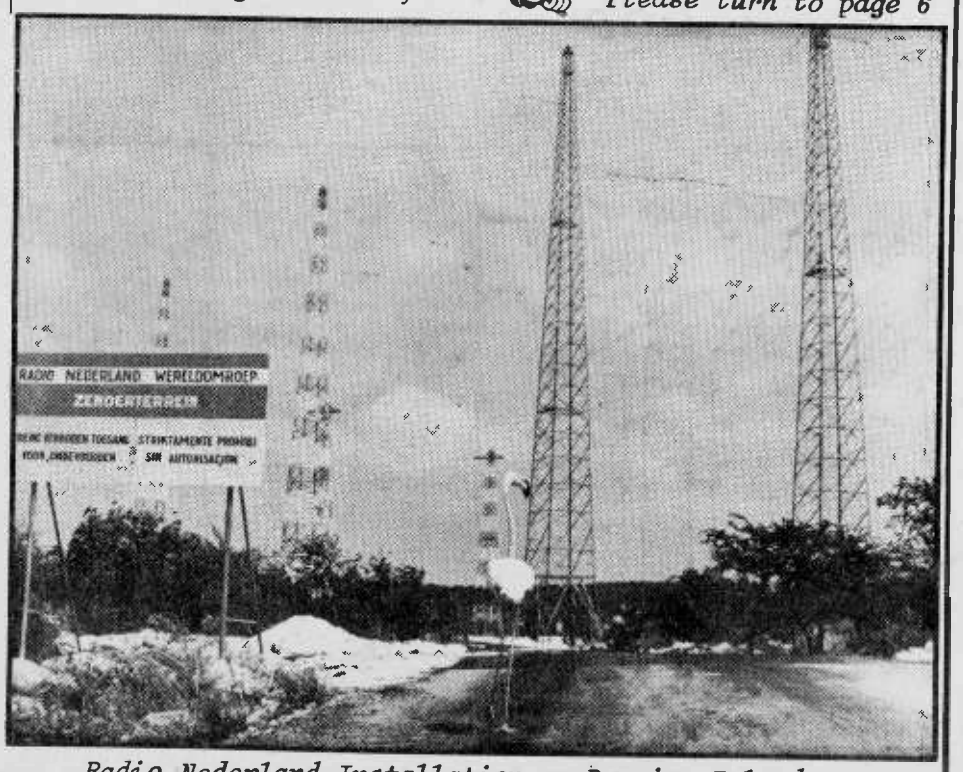

Radio Nederland Installation on Bonaire Island.

Radio Happy Isles

by Ken Wood

Radio Happy Isles is the slogan of the Solomon Islands Broadcasting Corporation--one of the few South Pacific Islands which not only maintain a short-wave broadcasting service but find it an invaluable aid.

World War Two and the U.S. Armed Forces brought the first broadcasting to the Solomons. That was in June, 1944, when the Armed Forces Radio Service set up WVUQ on Guadalcanal and a few months later added WVTJ at Munda on New Georgia Island.

Although intended as a news and entertainment service for U.S. military personnel serving in that area of the Pacific theater, the radio caught the fancy of the islanders as well. Soon after the end of the war operators at the government's wireless and telegraph station began to work towards building the first crude broadcasting station which would serve the people of the Solomons.

Those first broadcasts over a small transmitter were on the air for a half hour Sunday program once a week. By 1948 the government of the then British Solomon Islands could count on small license fees from the owners of 57 radios in the islands.

That same year part of the government's budget was set aside for broadcasting. Though only a small amount, it was to be significant that the government already saw the small service as "most useful as a means of keeping residents of the territory in touch with local developments."

In 1952 the Solomon Islands Broadcasting Service was formed and by then had a 400 watt station, VQO at Honiara, operating on 1030 kHz and running a daily schedule of one-hour programs consisting of local news, shipping and weather reports, sports news, talks, and local music.

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INSIDE THIS ISSUE

Presstop from Washington: LISTENING LAW UPDATE

Report and Commentary
by Bob Grove

At press time there are several important turns of events regarding House of Representatives (Congressional) Bill HR3378 and Senate Bill S1667 concerning monitoring. While the twin bills are still in the initial hearing process and only supportive testimony has been allowed on the House floor, the outrage of the radio users is being felt in Washington.

Two hearings had taken place before the holidays and at least two more were scheduled after the House business resumes January 21st. A witness from the American Radio Relay League, Perry Williams, representing amateur radio interests, was expected to give testimony in support of an amended bill by early February.

Congressman Robert Kastenmeier, who championed the original bill, is receptive to excluding any amateur radio use of the spectrum including autopatch, a system by which an amateur repeater is tied into a telephone line and broadcasting both sides of the conversation.

More important, Kastenmeier will offer an amendment to his bill allowing inadvertent monitoring of

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MONITORING TIMES

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Judy Grove.....Publisher & Advertising Manager
Rachel Baughn....Production
Mitzi McCoy.....Subscriber Services

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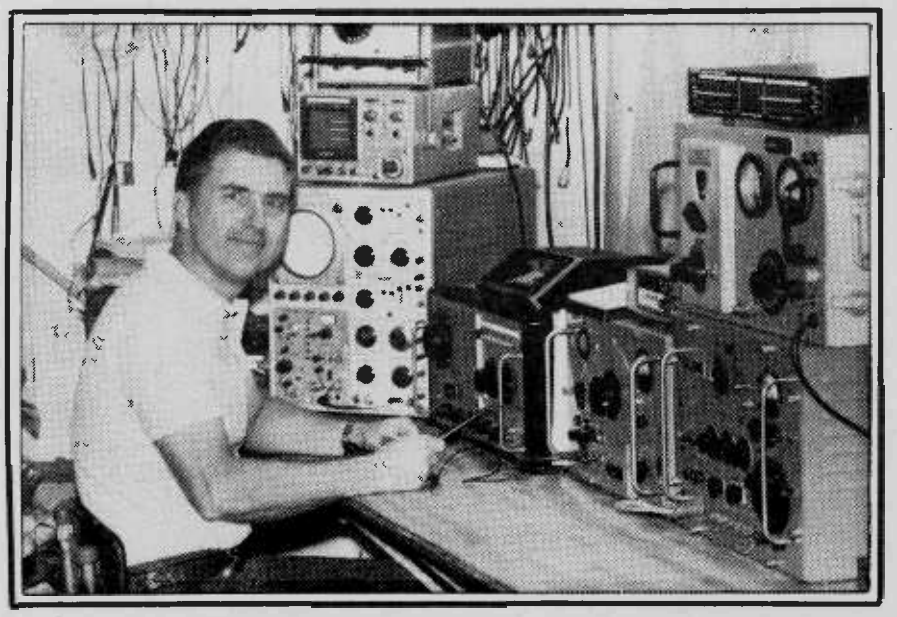
FROM THE EDITOR



A RENEWED PLEDGE

In the daily rush of business it is often difficult to assess whether or not we are remembering the humanity of interrelating with one another. Over the holidays we received a very special gift--a deluge of cards and greetings from our friends all over the world.

We would like to take this opportunity to say a collective "thanks" to all of you and assure you that our first consideration at Grove Enterprises and Monitoring Times will continue to be your satisfaction and enjoyment, both in products and services.....Bob

Free Information for the Beginner

After a number of years in the publishing business, we have begun to recognize patterns in the types of questions which seem to be most puzzling to hobbyists. As a service we have written several informational sheets of facts for the beginning listener, free upon request.

These handy fact sheets are also available to dealers and clubs for distribution and cover the following titles and topics:

"CHOOSING A SCANNER" (includes the "Top 100 Scanner Frequencies")
"ANTENNAS FOR SCANNERS"
"CHOOSING A SHORT WAVE RECEIVER" (includes the "Top 100 Short Wave fRequencies")
"WHAT KIND OF ANTENNA DO I NEED FOR SHORT WAVE?"

Individuals requesting copies must send a number 10 self-addressed, stamped envelope (IRC from foreign counties). Clubs may request any reasonable number of copies with prepayment of $1 per 25 copies for postage.

Be sure to specify which title(s) you are requesting. Write to Monitoring Times, P.O. Box 98, Brasstown, NC 28902.

IMPORTANT NOTE TO MICROFICHE OWNERS

If you purchased the latest (85-07-01) FCC Frequency Master File (FCH-17) from Grove Enterprises before January 9, 1986, you did not receive a special supplement of frequencies in the 464 MHz range.

Call Grove toll-free (1-800-438-8155) stating your name, shipping address and approximate purchase date so that we can send you the free supplement.

THE RADIO ARCHIVIST...

radio club histories, memorabilia and you

Who are: Captain Frank Winch? Marvin E. Robbins? James Critchett? Sterling Pike? Bill Eddings? Maxey Irwin? Sam Rowell? Paul Dilg? Charles C. Norton? William N. Roemer? Ken MacNeilage? August Balbi? Richard Koll? Phil Finkle? Anson Boice? Ken Boord?

Of what importance, you ask, was the URDXC? What is the ISWC? Which radio club was founded in 1927--practically the "dawn of DXing?"

A researcher and radio enthusiast is writing biographical sketches of prominent DXers, radio club histories and chronologies. Clubs of prime interest are:

-the Universal Radio DX Club (URDXC)
-the Newark News Radio Club (NNRC)
-the early American Shortwave Listeners Club (ASWLC)
-the early North American Shortwave Association(NASA)

Research material has become difficult to locate. DXers lose interest and frequently discard items of historical concern. Sadly, people die...DXers are not immortal either!

Radio memorabilia, such as radio club bulletins from the early days of the hobby, 1930s and 1940s radio publications, old photographs of DXers and club officials are often thrown away for one reason or another. The result is that much historical matter of interest to latter-day researchers and historians is irretrievably lost.

Do you have some of this material stored in your attic or basement merely gathering dust? Do you have photographs of prominent DXers of the 1930-1960 era? Would you be willing to donate or sell such material in the interests of research and historical preservation?

Such material, as that solicited here, would be indexed, stored in an archival manner and, after compilation of accumulated data, the material will be made available for publication by the DX press and hobby clubs to the benefit and knowledge of all.

If you have an interest or can be of assistance in this endeavor, please respond to: Stephen Bohac, R.D. #4 Box 750-A, Branchville, New Jersey 07826.

Viewpoint

YOUR RIGHT TO LISTEN

Your lead feature article in the January issue of MT on the Congressional attempt to meddle with our right to listen to the radio leaves me speechless. Perhaps I should say, boiling.

I, too, am a licensed radio amateur (W2YKG). I also hold a First Class Commercial Radiotelephone license. I was born the year broadcasting began (1921). I cut my teeth on free speech. To me it seems absolutely incredible that Congress would try to pull something like this (curb our right to listen) and not create a furor in the media. I'm sure you feel the same way.

Perhaps incredible is the wrong word. Since my retirement, I have tried to keep an eagle-eye on Washington, and find it difficult to believe any of them took an oath to uphold the Constitution.

If we are to have any chance at all of defeating this (HR3378) dastardly Act, we must get some segment of the public behind us.

I realize that Ham Radio, and presumably the Scanning hobby are supposed to be above politics (whatever that is), but ingrained beliefs aside, we are all in the greatest peril: we are about to lose the rest of our freedom--Democrats and Republicans alike. Divide and conquer is the name of the game, and the enemies of freedom are funding and operating through both major parties. First they knock us Americans one way, then the other. When the final blow lands, we won't even know where it came from.

William Tyrrel
E. Northport, NY

****

I enjoyed your article, "YOUR RIGHT TO LISTEN MAY BE OUTLAWED!", in the January 1986 edition of MT. To date,

NEED TECHNICAL HELP?

We are always pleased to offer assistance to our readers who need more information about our products and services. All we ask is that you include a self-addressed stamped envelope to help offset the cost of return postage. Please add $1.50 for article reprints.

If you would like to speak with Bob Grove directly, call 1-704-837-9200 Monday through Friday, 8am-5pm.

VIEWPOINT cont'd

this has to be the first report that has gotten the story out clearly with facts to backup what is going on at the state and federal levels. I now feel I have the facts needed to write my legislators and let them know what I feel this bill will do if it is passed.

It's not only important that monitors write the legislators but try to be as clear as possible at stating the issues to them.

I'm sure monitors (in general) have found out, as I, that not many people understand our hobby of monitoring. The best way I've found to introduce someone to monitoring is to send them home with an old scanner and have them turn it on from time to time. I've helped several persons buy a new scanner for themselves after this type of introduction.

Yet our choices still remain limited with our legislators. Either we find the resources to purchase a scanner for each of the legislators and hope Washington D.C. gets snowed in (leaving them to experience the value of a scanner) or we write them as clearly as possible, not sounding like the jerk who chases emergency calls to be a nuisance at the scene.

I believe that monitors could offer alternative legislation ideas such as putting the screws to the person who makes it a habit of showing up at the scene of an emergency to be a nuisance or criminals who use scanners in the course of a felony. There are in many states mandatory sentences for a criminal with a gun, so let them add scanners to that list and let the criminal take the fall and not monitors who use the air waves for personal enjoyment and news information from their hobby.

The other thing I would like someone to explain is why are we now being singled out to have the airwaves cut off when time after time the courts have told satellite TV that the arwaves are free and to scramble their signal if they don't want the general public to receive their transmissions?

If I remember right, even the American Civil Liberties Union was behind the dish owners who were on the cutting edge of the pirating issue of copyrighted movies being received from satellites. Yet they (HBO, etc.) were told to scramble! So why aren't they (cellular phone, etc.) being told this? We aren't even pirating anything copyrighted!

Eugene Krolak Jr.
Carleton, MI

****

My wife and I wish to thank you for publishing the list of our legislators in Congress. We have written to every single one of them concerning the Electronic Communications Privacy Act of 1985. Allowing for the importance of this legislation, we do sincerely hope that everyone who owns a scanner or monitoring radio will write to them too; or, at the very least, to their own representatives from their state. If this act passes, scanning and monitoring as a hobby may be a thing of the past.

Scanning is a hobby my wife and I have shared for the past few years and we enjoy it greatly. It is not something we wish our government to take away from us.

Thank you again for publishing the very informative information in the January issue of Monitoring Times. If we lose this battle we may lose the war.

Larry K. Wiland
Youngstown, OH

****

Thanks for all of the good work which goes into Monitoring Times. As soon as I received the January 1986 issue, I sent a letter to my Senator urging reconsideration of S. 1667 (I presume the heading, calling it 1167 was incorrect). I will shortly forward a similar letter to my representative. It is becoming increasingly important that legislators know that there are millions of law-abiding scanner owners among the public and that they can be a resource for the public good. The overwhelming majority of us are not sinister types hovering over our receiving equipment while planning the next bank heist.

Paul Gallagher
Guilford, VT

****

I have serious objections to HR 3378 and S 1667!! Why is not the 1934 Communications Act adequate? I feel that my rights under the 1st and 9th Amendments are being taken away!

How could I lawfully tune in Ch 72-81 on a TV as in many areas these channels are used by cellular phones? How can I be sure a phone patch is not being used on a ham channel that I am tuned into? If so I will be a violator.

If the cellular interests feel a need for this law, they would be better to scramble their systems, the Federal Government does and is as well as many others. The capability has been and is available.

This will not prevent Foreign Embasses and others from listening. Criminals don't worry about gun laws and won't about this.

People who use radios or mobile phones know or should know that they are going over the air waves and so should cordless phones owners, so why penalize the owners of over 19 million short wave sets and millions of scanners?

Are we going to be a despotic government and restrict civilians, confiscate their radios and control information??? Others have and do, but should we? Let's keep a free America!!

Carl Patterson, Jr.
Windermere, FL

THE VIEW FROM CANADA

I thought I'd drop you a line so that you could get a few comments from North of the 49th. One of the columns in Monitoring Times that I always read, of course, is Tune in Canada.

It is not that easy to get frequency information up here. We are half a decade behind when it comes to public awareness of the radio spectrum as being public property to all. The closest I have been able to get to acquiring a local frequency directory was an outdated photocopy furtively given by a (Radio Shack) salesperson.

The average man in the street still thinks that a scanner is used by persons of nefarious intent. This will only change with time and the slow recognition that listening to a radio, any kind of radio, is perfectly normal and legal.

I would also like to see some kind of an evaluation article on the different types of logging and file frequency programs that are becoming increasingly popular. This seems to be an up and coming area of interest to monitoring enthusiasts.

Another article that wold be of interest is radio direction finding. I inquired about the "Happy Flyers" UHF DF unit in Behind the Dial but that group doesn't seem to exist any longer. A unit like that would seem to be ideal.

I like the antenna construction projects since they encourage tinkering without a financial headache.

But what I would like best of all, Bob, is to wish you the best in the New Year and congratulations on a publications well done. I hope you enjoy putting it together as much as I enjoy reading it.

L. Fuller
Lethbridge, Alberta

(We surely do, and it's this kind of letter which makes us enjoy it all the more! Columnists, take note of reader Fuller's excellent article suggestions...Bob)

RE: MONITORING TIMES

I am sorry to learn that HAVANA MOON is leaving his post.

Hopefully, you are beating the bushes looking for a replacement??

Maybe you should take the bull-by-the-horns and run a Help Wanted Ad in the Warrenton, VA, "POST DISPATCH", or maybe the McLean, VA, "EVENING BULLETIN"?! Surely, there is someone in those locations who could do a bang-up job writing LOS NUMEROS!

Anyway, please work on it! I gotta tell you, LOS NUMEROS is the primary reason I subscribe to MT!

Charles Johnson N2AKV
Fayetteville, NY

(Hopefully, HM will honor us with an occasional guest column to update us on the numbers. We would also be receptive to hearing from any experts out there who would like to do an occasional authoritative article....Bob)

****

After your survey of several months back, what is the probability of MT going to 8-1/2 x 11 format? I realize that it requires more difficult editing and expense but would really be easier to read and keep! Good stuff like you print shouldn't be so hard to keep or easy to trash. I already pay up to $20 per year for magazines of lesser keeping value and would gladly pay that for MT if it got more "classy." Thanks for a good publication.

Sam Prepelka
Pittsburgh, PA

(Thanks for the kind comments, Sam. The input from our respondents persuaded us to stay with the newsprint format for now. We are constantly evaluating new formats as they come to our attention, but nothing beats the present system for low cost, speed of reporting and printing control....Bob)

YES! TO WEATHER COVERAGE

Re: Your query as to interest in WX Satellites and wide coverage scanners. I would not only welcome articles relative to a system such as this, but would like to see a column covering WX satellites; i.e., equipment, systems, etc. About the only readily available information of which I am aware is WD4MRJs Journal. A bibliography of related publications would be nice to have. This is about the only area which you are not covering!

C.A. Waterhouse
Chattanooga, TN

****

In response to your January issue of the MT artice, "Monitoring Weather Sats," let me say, YES, YES, YES, and YES! I've been waiting for some time now! What's been the holdup?!@# I'm dying for information regarding this topic on how to build (or from whom to buy) an APT/WEFAX system which uses my Apple IIE system to store and manipulate the satellite images. In addition, I would desperately like to put one of my scanners to work collecting this information and my cassette recorder to work remembering it!

I've been enjoying every issue of MT! Keep up the good work and I'll be renewing when it comes time. Also, I appreciate the advertisements in MT! I know some people would prefer not to see them, but they help me in finding information and radio-related goods.

Just two more cents worth...I noticed one of your readers comments under "Viewpoint" in the January issue. He was grateful for MT getting him started in ham radio. Well, that makes

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communications rather than a total prohibition of listening to certain services which he now realizes is unworkable.

A large number of industry experts have volunteered testimony on both the House and Senate floors; although only supportive testimony is being heard at this time, opposing testimony is expected later. Since this is a political process, only representatives of groups will be heard.

Additional testimony yet to be scheduled includes the Justice Department, National Association of Broadcasters and SPACE (TVRO group). Tandy Corporation (Radio Shack) has filed their official comments. A key statement follows: "We support extension of privacy protection to cellular communications as well as to all other forms of encrypted electronic communications."

Tandy's legal counsel feels that the general public's perception is that cellular telephones are private, whereas all other forms of mobile radiotelephones, including ship to shore, have been traditionally free from any reasonable expectation of privacy. Monitoring of those services should not be against the law.

This apparent double standard is understandable; Tandy supplies cellular telephones as well as short wave and scanning receivers to a claimed potential market of 29 million American households!

ANOTHER ASSOCIATION SPEAKS OUT

NABER--The National Association of Business and Educational Radio--has spoken out against the proposed legislation. Quoted herein are excerpts from a statement by Jay Kitchen, President.

"It is NABER's view that the proposed Electronic Communications Privacy Act of 1985 would inadvertently include into its gambit otherwise normal and acceptable operational activities conducted on private land mobile radio systems. Such a result would restrict a normal and acceptable mode of operation.

"Specifically, because private radio frequencies are often shared and in heavy use, the only way to tell whether or not a particular frequency is the best frequency available is to monitor other users on that frequency before applying to the FCC for your own license.

"Shared systems in the private land mobile radio services necessarily require the user to monitor a shared frequency to determine when it may be accessed in order to initiate communications.

"Finally, in the private radio services, technical difficulties or interference concerns arise that require spectrum users to monitor other systems in order to ascertain the possible source or cause of such interference."

UNANSWERED QUESTIONS

There are considerable numbers of hazy areas which must be considered before appropriate legislation can be enacted successfully. For example, satellite TV channels carry private correspondence routinely right along with TV programming; it is a simple matter to use a short wave receiver in conjunction with a TVRO receiver to recover those conversations.

While police and fire transmissions are specifically excluded from the proposed legislation, many of these transmissions are interlinked via telephone lines, a system specifically excluded from unauthorized monitoring.

And how about pager signals initiated by telephone calls? These are heard readily throughout the VHF/UHF spectrum.

Not to be considered by either bill presently proposed is a possible limitation on the manufacture, sales or distribution of radio receiving equipment. This falls under the Energy and Commerce Committee's jurisdiction and there is no indication that such legislation is even being considered.

The concern that limitations imposed on receiver manufacturers might also be addressed by the bills was initiated by testimony from Philip J. Quigley, a representative of the cellular telephone interests, during which he stated that, "an appropriate technical modification in the FCC's rules governing scanners is a necessary adjunct to this privacy legislation." Such a consideration is clearly outside of the jurisdiction of the House committee.

A LITTLE HISTORY

The essence of the original bill was to curb alleged abuses by law enforcement agencies of the privacy of citizens through unauthorized and unwarranted listening devices.

In one particular case involving an electronic mail service, the FBI reputedly demanded copies of private correspondence between subscribers suspected of drug dealings. When the common carrier operator asked for a search warrant, the agent replied that he didn't need one because electronic mail was not covered under Title 18 of federal law regarding wiretaps.

In another case, a 1973 federal appeals court decision opined that mobile telephone conversations are not protected either by Title III (the so-called "Omnibus Act") or the fourth amendment of the U.S. Constitution. In 1984 (Rhode Island) and 1985 (Kansas), state supreme courts similarly approved monitoring cordless telephone calls.

These precedent-setting rulings would indicate that cellular telephone conversations should also be freely receivable.

Another Supreme Court ruling stated that existing privacy law does not protect digitized transmissions; thus, computer intercommunications and electronic mail seem to be, at least for the moment, excluded from protection.

In a special report last October entitled, "Electronic Surveillance and Civil Liberties," the Congressional Office of Technology Assessment pointed out that federal agencies presently use, or are planning to use, electronic surveillance techniques which include scanners, vehicle location devices, computer monitoring, electronic mail and cellular telephone listening, satellite and microwave interception, and even fiber optic transmission monitoring.

Approximately 25 percent of these 33 cabinet level departments and independent agencies (excluding the National Security Agency, Central Intelligence Agency and Defense Intelligence Agency) reported that they use electronic surveillance. Such use is on the rise; 1984 reported a record number of authorized wiretaps--three times the number issued in 1981!

But the private sector has its own share of electronic intelligence gathering as well, including industrial espionage, pri-

VIEWPOINT cont'd

two of us! I read an article, some time back, on "Gordon West's Radio School" in MT. I ordered the Novice class training materials from them and next month I'll be trying for my Technician Class license at the local radio club. I may not make it, but I'm determined to eventually. Thank you for this new hobby!

John Nell
Alton, IL

****

In a recent issue of MT you asked for information about those of us that are interested in the use of computers for RTTY, CW and weather map printers.

I would like to see more articles, literature and information along with hardware and programs.

I'm a 50 year veteran of DX'ing and cannot find enough information and hardware for this exciting field. I know of only one printer for weather maps and it's $1000.00 in kit form. I have some information on obsolete equipment taken out of service, now on the market, but it's beware buyer type of stuff.

I feel that most of us need to be better educated in this field.

I can't help but wonder if our love of capturing weak signals for the past 50 years will diminish as satellites become the thing of the future. The younger generation has a lot to look forward to--but they will have missed the excitement we had in growing with this field from its beginning.

E. B. Duff
Chidester, AR

(Reader Duff also forwarded a couple of nice photos of his monitoring post but they didn't reproduce well. The above comments are well taken and we encourage prospective writers to contact us with article proposals on monitoring satellite weather transmissions and facsimile....Bob)

NEW CARIBBEAN BEACON

On Dec. 5, 1985 at 11:59 pm EST (0459 UTC) on 1610 kHz, I noticed that the Caribbean Beacon was putting in a solid signal when other Caribbean stations were not coming in as well. Soon I heard the reason: they were testing a brand new 50,000 watt transmitter!

Callers were on the air giving their impressions of the powerful transmitter. A selection of Christmas carols was played to celebrate the birth of the new transmitter.

The frequency of 710 kHz is an interesting one to monitor in the Eastern part of North America during sunset. As I write this report, I am listening to a jumble of stations, many of which can be nulled with a selective receiver. It is 6:00 pm EST 2300 UTC and I am hearing WOR-New York and CJRN-Niagara Falls in English, CKVM-Ville-Marie in French and WAQI-Miami and R. Rebelde from Cuba in Spanish. I am curious to know what other monitors are picking up on 710 kHz near this time. Would appreciate it very much if you would be kind enough to let me know what you are hearing on this frequency. Contact: John H. Demmitt, Box A KO848, Bellefonte, PA 16823. ●

LISTENING LAWS cont'd

vate investigators, police departments, blackmailers, and so on.

Initial drafts of the proposed legislation addressed specific grievances in an effort to protect the privacy of American citizens. The cellular industry recognized a golden opportunity to get a free ride on an expanded version of the bill which they could use to their advantage to legislate a guarantee of privacy to their prospective customers as a sales gimmick.

Fortunately, alert members of Congress and the communications industry recognized the ploy for what it was and that self-serving manipulation will hopefully be nipped in the bud.

ENCRYPTION

The obvious answer to the entire dilemma of communications privacy is encoding and encryption. While the most sophisticated forms of security are very expensive--often costing as much as the radio itself--lower level security is more economical.

Special voice codes are a start. Instead of saying, "I'll meet Stan Smith at 5pm in front of Macy's," the user could say, "141 and 148 will continue plan alpha"!

For users who don't wish to be so cryptic, yet wish to protect the security of their voice conversations, a number of electronic voice scramblers are available on the open market. Only speech inversion types, the most commonly encountered because of their low cost, are monitorable by consumer-type descramblers. All other forms of scrambling are virtually immune to casual interception.

The responsibility for privacy falls squarely on the shoulders of those who wish secure communications. Even President Reagan and Secretary of Defense Casper Weinberger were caught with their scramblers down recently when they didn't bother to use their secure radio system.

Federal agencies routinely scramble their own sensitive communications. NSA is encharged with the development of secure telephones with digitized speech capability. While the phones cost $2000 each, it is expected that half a million officials and military contractors along with a million business executives will be using them within the next few years!

A radio listener should not be chastised for coming across a transmission of interest just because the sender was too lazy to guard his speech any more than a pedestrian should be accused of voyeurism just because he glances through a house window where someone is standing naked. We humans are naturally inquisitive!

WHAT WILL BE THE OUTCOME?

While it is much too early to predict the future of HR3378 and attendant Senate Bill S1667, there are some trends which are becoming apparent. Quite clearly, the letter-writing campaign by radio users, spurred by editorial comments in hobby news publications, has made considerable impact. Your legislators are listening!

At this point it would appear that a considerably reduced emphasis on restricting hobby monitoring will be in the final form. Listeners should probably expect free access to the airwaves just as they did before. One Washington representative implied that there is no intent to prosecute hobbyists for casual monitoring of the spectrum.

Nonetheless, it is critical that clubs, individuals, businesses, organizations, and any other entities concerned with the legislation forward concisely written letters to their legislators.

There is some heavy lobbying going on in Washington with billions of dollars in potential revenue at stake. Will your right to listen be sold out? Your letters may make the difference!

The U.S. Senate is presently meeting in preliminary session with the Department of Justice and the future of their bill (S1667) will be largely directed by the development of Congressional Bill HR3378. ●

Bill Sponsors:

Senator Charles Mathias
(R-Maryland)
387 Russell Senate Off. Bldg
Washington, DC 20510
(202)224-4654

Senator Patrick Leahy
(D-Vermont)
433 Russell Senate Off. Bldg
Washington, D.C. 20510
(202)224-4242

Rep. Robert Kastenmeier
(D-Wisconsin)
2328 Rayburn House Off. Bldg
Washington, D.C. 20515
(202)225-2906

Rep. Carlos Moorhead
(R-California)
2346 Rayburn House Off. Bldg
Washington, D.C. 20515
(202)225-4176

Subcommittees with Jurisdiction:

Subcommittee on Patents, Copyrights & Trademarks
U.S. Senate
Washington, D.C. 20510
(202)224-5617

Subcommittee on Courts, Civil Liberties and the Administration of Justice
U.S.House of Representatives
Washington, D.C. 20515
(202)225-3926

Research:

Office of Technology Assessment
Congress of the United States
Washington, D.C. 20510
(202)224-9241

SIGNALS from page 1

similar but passive array of elements serves as a reflecting curtain. Beamwidth is only 28° and the antenna elevation angle falls between 5° and 7°. Several such antennas are necessary to cover the required geographical directions on the various shortwave bands.

Transmitter energy is fed from the transmitter building to the antenna arrays over cables by way of an antenna switching facility located in a separate building and remotely controlled from the transmitter house. The "Majority Path" satellite serves as a direct link between Bonaire relay and the Radio Nederlands studio in Hilversum, Holland.

A second short-wave station on Bonaire is operated by Trans World Radio, a gospel station that broadcasts a variety of cultural, educational and religious programs. The station is located near the town and their transmitter has a 250 kW rating. Catch the newsy and inspirational morning wake-up show conducted by McDaniel Phillips at 1110 UTC on 11815 kHz. Paul E. Freed is the very active founder of TWR.

Radio Nederlands has a number of popular programs; my favorites are "Media Network" with Jonathan Marks (Thur), "Shortwave Feedback" with Neville Case (Sat) and "The Happy Station" with Tom Meyer (Sun). These programs are transmitted twice on the 31 and 49 meter bands, first from Flevo, Holland, and one hour later is is repeated by their Bonaire Island relay station.

Along with the choice of two bands, you are reasonably certain to have a strong clear signal--put their frequencies in receiver memory and switch between 31 and 49 meters for the best signal.

"The Happy Station" is a jolly program and gives you a good outlook for the week to come. Tom Meyer's chatter is entertaining, interesting and often accompanied with humorous radio broadcasting and programming trivia. The selection of music favors those who like variety. These two reasons make it at present my favorite program.

Musical selections tonight were a jazz number, a Brazilian singer doing an English-language number, organ renditions of Dutch favorites, Bruce Springsteen singing "Dancing in the Dark," a semi-classical piano number (Chopin), the second selection on the Dutch hit parade, a Latin number, and finally a Dutch anthem!

Simultaneous transmission on two frequencies can improve your special program listening if you put two receivers into the act. Feed them with the same or separate antennas. Set one receiver on 31M; the other on 49M. Reproduction is improved because both signals are less likely to fade at the same instant.

This system comprises a very simple frequency diversity set up. When one band is especially good, set both receivers on this frequency to get a pleasant room-filling sound. What an

Studio and Office Buildings of Trans World Radio

Tom Meyer of "The Happy Station"

Paul E. Freed, founder and president of TWR

SIGNALS cont'd

enjoyable way to listen to Tom Meyer and the "Happy Station."

Tom Meyer has a command of languages and a knowledge of foreign countries because he traveled about the world with his family as a young person. He studied law and farming but the love of music, theatre and entertainment led him to join Radio Nederlands in 1965, although at that time he was active in international marketing and motivation for which he had been doing more traveling throughout the world.

Every Sunday Radio Nederlands broadcasts Meyer's English and Spanish shows for a total of 15 hours to all parts of the globe. His philosophy is that harmony in person-to-person relationships is the starting point for a greater harmony in world matters; and what better way to achieve such a goal than to provide international friendship ad understanding through his show of smiles across the miles by way of his "Happy Station" program.

The German Federal Republic's Radio Deutsche Welle has relay stations on the Caribbean islands of Montserrat and Antigua. BBC also has an Antigua relay station. Additional details on the Trans World Radio (TWR) on Bonaire as well as other interesting island operations throughout the world are to be covered in future columns. Enjoy your island DX'ing!

WHO'S ON FIRST?

by Patrick O'Connor
Plain Road
Hindsdale, NH 03451

CONCLUSION

DEFINITIONS

In the previous six "Who's on First" articles, we covered the radio spectrum. As anyone who is new to the hobby of DX'ing can attest, some articles, with all the slang and jargon used, seem to be written in Swahili! To help clear up the problem, here are some of the more widely-used terms and their meanings.

AERADIO: A station providing long-range air-to-ground communications for commercial and military aircraft on overseas flights.

AM: Amplitude Modulation. A transmission mode in which the signal information is transmitted by using the audio portion to vary the strength of the carrier wave portion.

AMATEUR: Any radio operator licensed by his government after passing certain qualification tests who may then communicate via radio with other licensed amateur radio operators (ARO's) and amateur radio stations (ARS's).

BAND: A given set of radio frequencies.

BCB: Broadcast Band. The 540-1600 kHz band, used for local radio broadcasts in AM.

BFO: Beat Frequency Oscillator (often called a product detector). Used on radio receivers to provide understandable reception of Morse code and single-sideband voice signals as well as RTTY and FAX.

BROADCAST: Any radio transmission intended for reception by the general public.

CALLBOOK: An annual publication that lists the names and addresses of all licensed amateur radio operators at the time of publication.

CLANDESTINE: Usually, an unlicensed radio station set up in one country to broadcast into another, trying to stir up discontent in the target country.

CW: Continuous Wave. Morse code. Transmission mode in which letters, numbers and punctuations are sent as a series of dots and dashes. Used on all bands due to its ability to get messages through better than any other method of transmission.

DIPOLE: A center- or off-center-fed antenna cut to a specific length for a specific narrow band of frequencies.

DTOI: Date/Time of Intercept for logging purposes.

DX: From the old telegraph

RADIO HAPPY ISLES from p.1

The Wednesday broadcasts were soon lengthened and followed by Sunday experimental broadcasts on shortwave. By 1955, short wave was a part of the regular daily schedule using a 100 watt transmitter with call letters VQ02 on 5960 MHz.

The mid 1950's also saw the beginnings of a small paid staff to do broadcasting work. More powerful transmitters were added and, with the construction of a new studio building, increased transmission time was added. The new building on Medan Avenue, Honiara, was opened on January 5, 1959.

By the early 1960's the short-wave service was airing regular broadcasts for the schools in the islands and the government was finding short wave especially useful, commenting that "among the widely scattered islands of the Protectorate, with their uncertain and unscheduled shipping communications, broadcasting provides the only practicable channel for quick transmission of news and information."

The late 60's brought the introduction of commercial advertising, a full-time schools broadcasting

officer and remote broadcasts from events taking place around the islands. The programming schedule got fatter and fatter and by 1965 program time was outdistancing studio facilities. Additions had to be made to the six year old studios to provide more recording and announcing space as well as more space for offices.

That period also saw the introduction of the so-called "service messages" wherein an individual could send personal messages to friends or relatives on distant islands. About that time the SIBS also began publishing a program guide six times per year.

By the early 1970's SIBS had a staff of 16 people and the broadcasting schedule had mushroomed to 77 hours per week. During this time the service was moved out from under the control of the executive portion of the government and placed under the Solomon Islands Broadcasting Corporation in 1976.

There was still a need for more growth and development of SIBC, so in 1978 the Australian government provided a 1.6 million dollar aid package to upgrade studios and provide for increased training for administrative and program personnel. New transmitters were also on the horizon. A new studio building was constructed near the Botanical Gardens at Rove in Honiara. New antennas and transmitters went up at the Henderson transmitting station.

By 1981 SIBC's first regional station had also gone on the air - Radio Happy Lagoon at Gizo. That was followed by more regional medium wave outlets at Lata in Temotu Province, Kira Kira in Makira Province and Auki in Malaita Province.

Programming today on the SIBC covers a wide range of subjects , broadcasting in both English and Pidgin. There are international news programs, shows for farmers, shows about fishing, shows for the small businessman. There are market prices, a women's program, basic health information on "Radio Doctor," aircraft information, service messages, job availability announcements. The school broadcasts are still on the air and there are religious shows, sports play-by-play from local events and many others.

SIBC on shortwave uses ten kilowatts on both 5.020 and 9.545. Broadcasts on short wave are scheduled from 1900 to 1300 on 5.020 and 2030 to 0730 on 9.545.

Reception reports, which need to be quite detailed with regard to programs and items heard, are welcome and can be sent to the SIBC at P.O. Box 654, Honiara, the Solomon Islands. ●

WHO'S ON FIRST? cont'd

term for "long distance." Now refers to any non-local radio signal.

DX'ER: Generally any person who listens to non-local radio signals.

FACSIMILE ("FAX"): A method of transmitting visual data over radio, reproduced on paper by the receiving equipment.

FIXED: Permanently installed

FM: Frequency Modulation. Transmission method in which the audio information is transmitted by varying the frequency of the carrier wave.

HERTZ (Hz): Measure of frequency. One Hz is one cycle per second. Prefix "kilo" (k) means 1,000; thus 1,000 Hz is 1 kHz. Prefix "mega" (M) means 1,000,000; thus, 1 MHz is 1,000,000 Hz or 1,000 kHz.

HF: High frequency. Generally, the 1800 kHz-30 MHz short wave band.

IRC: International Reply Coupon. Purchased at a post office, an IRC may be redeemed in a post office of any member nation of the International Postal Union for mint stamps of that country in the amount needed to send one ounce of mail overseas via surface mail. Present cost in the U.S. is 65¢; redemption value is 33¢.

ITU: International Telecommunications Union. An internatinal agency that co-ordinates usage and users of the radio spectrum.

LORAN: LOng Range Aid to Navigation. A low-frequency (100 kHz) radio system that allows ships or planes with the proper receiving equipment to achieve a very precise navigational location.

LF: Low frequency. The 0-530 kHz band.

LW: Long Wave. Another name for the LF band.

MARKER: An endlessly repeated message in Morse code or voice identifying a station and advising the frequencies in use by the station.

MOBILE: Any radio transmitter on a moving vehicle such as a ship, plane, automobile, etc.

MW: Medium Wave. Another name for the 540-1600 kHz broadcast band.

NDB: Non-Directional Beacon. A low-powered (25-50 watt) longwave transmitter, sending 1, 2 or 3 letters in slow Morse code, used for navigation near airports or to mark shipping obstructions.

PFC: Prepared Form Card. Card prepared by the DX'er for a station to fill out to confirm his report if the station doesn't have its own verification card or letter.

PIRATE: Any unlicensed radio operator in a licensed service.

Q-SIGNALS: Taken from old telegraph codes, used to send often repeated questions and answers in short form, many are still in use. Among the most common:

QRA? Who is calling me?
QRM Interference
QRN Atmospheric noise (static)
QSA Signal strength
QSB Fading in signal strength
QSL Verification of reception
QSO A two-way communication
QSX Listen on ____ kHz
QSY Change to another frequency
QTH Location

QSL CARD (OR LETTER): Verification of reception provided to a DX'er by a radio station upon reception of a correct report by the DX'er.

RANDOM LONGWIRE: Common reference to any end-fed antenna over 50 feet in length. Strictly speaking, a longwire must be over one wavelength long at its operating frequency.

RTTY: Radioteletype. A system of communicating typed messages over the airwaves.

SINPO: Shortwave reporting code. Stands for Strength, Interference, Noise, Propagation and Overall quality, using the numbers from 1 (very bad or severe) to 5 (perfect).

SSB: Single Sideband. A type of AM transmission where half the carrier and audio are suppressed (not sent). Unless tuned in with a BFO or product detector the signal will be unintelligible, often described as "Donald Duck."

STFS: Standard Time and Frequency Station. A government-operated station that transmits very precise time signals derived from a special atomic clock and transmitted on very precise frequencies.

SWBC: Short Wave Broadcast. Any broadcast transmission in the 1.8-30 MHz short wave band.

TIS: Travelers Information Service. Low-powered short-range transmitters on either 530 or 1610 kHz providing local information for motorists.

TROPICAL BANDS: The three lowest-frequency short wave broadcast bands (2300-2498, 3200-3400, 4750-5060 kHz), noted for the large number of low-powered tropical broadcast stations on them, and for the large amount of static on these bands.

UHF: Ultra High Frequency. The frequencies above 300 MHz.

UTILITY: Any non-broadcast radio transmission; generally, the two-way communicators of the spectrum.

VHF: Very High Frequency. The frequencies between 30 and 300 MHz.

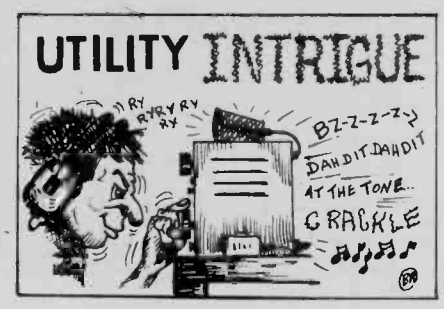
VOLMET: French acronym for "flying weather"; a station transmitting regional weather information for large international "gateway" airports.

WARC: World Administrative Radio Conference. Held every ten years in Geneva, Switzerland; reviews and allocates radio frequency assignments.

WATT: A measure of transmitter output power, normally measured in either thousands of watts (kilowatts), or millions of watts (megawatts).

WAVELENGTH: The distance a radio wave, moving at the speed of light (186,262 miles per second), travels to complete one cycle; usually measured in meters.

WRTVH: World Radio-Television Handbook. Annual publication covering all broadcast stations in the world, including assigned frequencies, schedules and mailing addresses. ●



by
Don Schimmel
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✱ Some readers have written me seeking QSL addresses. I am sorry but I cannot be helpful along those lines because I do not collect QSL cards so have never made a point of compiling a list of addresses. However, for those of you who do include this feature in your SWL activities, I refer you to the latest Grove Enterprises catalog, page 26. The new edition of Guide to Utility Stations/ Guide to RTTY Stations (combined) is now in stock and a section of the volume is said to have an extensive listing of utility station addresses.

✱ A transmission on 19146 kHz started out sounding like a typical FDM signal (buzzsaw sound); however, another signal came up,

UTILITY INTRIGUE cont'd

super-imposed on top of the FDM signal. The second signal started out very slowly, then steadily increased in speed, reached a very rapid rate and then slowed down. This sequence was repeated once more and then the second signal carrier went down. This activity was observed 25 November at 1419Z.

* RTTY (75/425) traffic was intercepted 25 November at 1403Z on 19313 kHz which carried Addis Ababa in the headings as the origination location. Most of the traffic had "ECA" as an identifier and "Secty General" appeared as the signature on many of the messages. The transmitting station was probably 4UNF with United Nations official messages.

A MYSTERY

I have been unable to identify this network. The transmissions began on 13288.8 kHz, November 231244Z with N4RB calling CQ. He then moved down to 13264.6 kHz and continued with the SQ DE N4RV TEST transmissions. He next called UZ1, G4V, UB5, ID6. The other stations were unheard but N4RV apparently did contact them. No traffic was noted and the activity ceased after a few minutes.

On November 12 and 13 quite a bit of traffic was passed on 13286.4 kHz during the 1400-1500Z time frame. The messages were 5L groups with the heading consisting merely of NR.. GR.. DATE/TIME GROUP BT. The signal had a pronounced echo to it but the signal strength and readability were quite good. Callsigns noted included: MNK, BAG, MAN, CRA, ALE, WOY and ADL. The latter station acted as net control.

An interesting point was that the stations were sending GN (good night) when they concluded their transmissions and it was about 9:10 AM on the U.S. east coast. Some of the stations moved up or down after making contact with ADL so the activity covered the span of 13284.6-13292.3 kHz.

German language traffic was copied November 111320Z on a frequency of 20019.8 kHz. This RTTY (50/425) station interrupted the plaintext message and sent NO 0047 QQY AAA and into 5L groups. The message was repeated one time and then the station resumed the German language plaintext traffic.

Another unidentified RTTY (75/850) net was noted on 4605 kHz, November 240255Z. The operation was simplex, Spanish language chatter, and the callsigns were LFL. Calls observed were: S9A, K3J, LØM, X8X OR X8C (was sent both ways) F90, B4V, T5Y, DØF and P3L. Some service type messages were sent and these concerned the receipt of various messages.

The headings of the regular messages printed out all right but the textual material must have been enciphered because it printed out as garbage in long strings. At the end of the garbage, INT R K printed out. After watching this activity for awhile, I concluded IØM was the control station.

* A reminder to readers to complete and mail in the response form which appeared in the November Monitoring Times concerning the MT sponsorship of a "SW LISTENFEST" sometime in 1986. Return the forms promptly because it will take months of planning to conduct a successful event and the earlier such planning can commence, the more comprehensive will be the resulting monitoring exposition. ●

LOGGED NOVEMBER 1985

KHZ	DTOI	MODE/IDENTIFICATION/COMMENTS
4583	240250	RTTY 50-425/CQ DE DDK2-DDH7-DDK8 RY'S (QUICKBORN, GFR) ALSO ON 7646 & 11638
4590	050556	CW/DE FUG (LA REGINE(CASTELNAUDRY) FR.))
5142	250031	RTTY 50-850/CODED WX
5328	050602	CW/283 283 283 TTTTT/DOWN AT 0604Z.
5690	250020	USB VOICE/WX IN ENGLISH/VERY BAD FEEDBACK THROUGH MICROPHONE.
5740	250012	RTTY 50-850/CODED WX
5846	050606	AM VOICE/SS-YL 5F GROUPS
6230	050621	AM VOICE/SS-YL 5F GROUPS
6762	050612	USB VOICE/VARIOUS TACTICAL C/S GIVING CODED WX REPORTS.
6768	050615	AM VOICE/SS-YL 5F GROUPS
6944	250010	RTTY 75-425/USIA PRESS ITEMS IN ENGLISH
6977	120325	CW/WX IN SPANISH FOR VARIOUS MEXICAN LOCATIONS.
7375	120308	MCW/5F GROUPS, DOWN AT 0312Z.
7394	120259	RTTY 50-850/DE RPFN (PROB CTW47, MONSANTO NAVAL RDO, PORTUGAL) RY'S
7528	050623	AM VOICE/SS-YL 5F GROUPS
8138	222359	RTTY 75-850/CODED WX
8204	230002	USB VOICE/TWO OM IN SS HANDLING OFFICIAL SOUNDING TRAFFIC.
8250	230009	USB VOICE/NET COMPOSED OF MANY STNS, ALL CONVERSATION IN PORTUGUESE LANGUAGE.
9068	222355	RTTY 50-425/DE 6VU (DAKAR, SENEGAL) RY'S
10802	222346	RTTY 50-850/PRESS ITEMS IN SPANISH/KNA (KATHOLISCHE NACHRICHTEN-AGENTUR, BONN FED REP GERMANY)
11145	222335	RTTY 75-425/LOK DE LOL (ORCADAS, SOUTH ORKNEY IS. FROM BUENOS AIRES, ARG.) RY'S
11268	222059	USB VOICE/EIGHT YANKEE HOTEL FROM ZERO JULIETT VICTOR(BOTH UNIDEN) CALLS ONLY
12851	222051	CW/DE HKC (BUENAVENTURA,COL)/TFC LIST
13140.8	231314	USB VOICE/SHIP-SHORE CIRCUIT, MALE GG IN CONVERSATION WITH UNHEARD PARTY.
13178.8	231512	USB VOICE/OM CONVERSING IN FF WITH UNHEARD STATION.
13179	081253	USB VOICE/SHORT MUSICAL SELECTION FOLLOWED BY ANNOUNCEMENT IN FRENCH. RADIO SALIS (APPARENTLY FOR FREQ. ADJ)
13185	071626	CW/DE KMI (SANFRANCISCO(DIXON),CA))
13187	241502	USB VOICE/WX IN ENGLISH FROM NAT WX SVC SANFRANCISCO RELAYED ON HIGH SEAS CIRCUIT, TFC LIST FOLLOWED.
13204.5	081638	USB VOICE/AIRCRAFT 560 FROM ANDREWS AFB WITH PHONE PATCH TO PROTOCOL OFFICE.
13264	231250	USB VOICE/SHANNON, IRELAND VOLMET WITH EUROPE/ENGLAND WX
13270.5	161215	CW/BQN DE BZO (PRC ALLOCATION)
13330.5	211738	USB VOICE/SIX NOVEMBER ECHO APPARENTLY WORKING HOUSTON, 6NE SHIFTS TO 17939.5
13390	271412	CW/CLP55 DE CLP1(CUBAEMB GEORGETOWN, GUYANA FROM HAVANA) CLP55 QSY'S 18185 RTTY 50-425, SENDS 5F GRP MSG.
13500	271402	USB VOICE/ROMEO TANGO DE ROMEO ALFA (UNIDEN PERSON WANTS TO TALK TO LT. ALVEREZ, SOUNDED LIKE COZUMEL MENTIONED, POSS MEXICAN MILITARY.
13526	091224	RTTY 50-850/CQ DE RWW73 RBK75 RDZ75 RVW53 (MOSCOW, USSR)

AIRPHONE GRANTED LICENSE EXTENSION

In an earlier issue of MT we mentioned that Airphone, developers of an air-to-ground radiotelephone system, had lost its temporary license for continued testing of their 900 MHz system.

In an eleventh hour decision by the FCC, Airphone's license has received a two year extension through December 1, 1987, demonstrating the Commission's continued intrest in an air-to-ground radiotelephone service.

Airphone has support from the mobile satellite industry because it could bring a large customer base immediately after a satellite launch.

The full duplex system operates in the 899-901/944-946 MHz portion of the spectrum and is presently serving Air Cal, American, Delta, Eastern, Jet American, Midway, Northwest Orient, Ozark, Piedmont, Republic, TWA and United airlines.

CIPHERS ON 40 METERS

On 24 Dec. 1985 at 1615-1635Z, the following was copied by W7JIE on 7001 kHz. Notice, you Morse guys, that there are no characters with combinations such as the letter "C", "F", "R", "Y", etc. In other words, the code set is extremely simple and narrow. And only the numbers 4 and 6 are used. Wonder why?

DE4T U66V BATN EN44 BEB4
VVNB VEVN 4VB4 4VTA T6B4
TAN6 EEEA 4TNV V6ND ETTB
V6BU T6TA AAUT A4VE 6ADE
NBD6 6B4A AEVE TTDV 4DVT
V4BT EVDD 4AUE BDEV BUDD
EN6N U4TN A4ND UNT6 TEET
BEDB VUUO 4AAE BUUG A4ND
UNBB ADVE UV6B D4DE 64VE
6B4E B64E B6EU VTNU NBTA
AUAU EVN6 664A EBBA DN4A
6EBU A4AU TVBD B46D VDVE
EAVB DDU6 6E6A EDA6 UTET
4A44 UVND 4UBU 6D4U 6D4U
EA6U BBET U4NB NEBE TUUA
NNVU A64V D66N D44E VAVB
46BT B4DU 6B4B BAET 444E
UBTD EATA UAUN VD64 DU4N
N4U6 AEB6 4A44 A66E VANE
BEBD N644 ENV6 ENV6 B4N6
6AEU UVVA ANEN BN4A BDET
46DD DAB4 NN6A VEVE VA4T
VA4U NTBE TVVT VUND N464
B46B ((SK) END OF MSG-NO OTHER IDENT OR FURTHER TRANSMISSIONS). Station not heard again.

M.L. Gibson
Renton, WA

MONITORING POWER LINE TELEMETRY

Many listeners to general coverage receivers have noticed a curious and continuous "diddle-diddle" sound in the 160-200 kHz range. This sound is power line telemetry, a form of load management used by the power generating companies.

The system is identical in theory to "carrier current" or "wired wireless" intercom systems which simply plug into the AC line to interconnect offices or rooms which share the same service line.

In addition to power telemetry, some utilities use the link for teletype and single sideband voice intercommunication as well.

DON'T KNOW WHERE TO TUNE IN NEXT? MT WILL CLUE YOU IN!

SCANNING

NEW AG DEPARTMENT CHANNEL PLAN

As of December 1, 1985, the Alabama band plan for the Department of Agriculture has been changed to accommodate several input frequencies. Four channel assignments all utilize 169.125 as an output frequency.

Channel one is simplex (car to car); channel two input is 169.975; channel three input is 170.525; and channel four input is 169.975. A private line tone access to the radio system is employed to avoid accidental keying of the repeater. A separate PL tone for channel four allows the use of the same input frequency as channel two.

We would like to thank Mark Cobbledick for this interesting contribution and invite other readers to share wide-area frequency assignment information with fellow MT readers.

BC-101 OWNERS: TAKE NOTE

The supply of parts for servicing the Bearcat first generation programmable scanner, the legendary BC-101, is now exhausted. As a special consideration for owners of BC-101's which need service, Uniden offers a substantial discount on several present models.

Readers who wish to take advantage of the special offer must contact Uniden directly at their corporate headquarters: Uniden Corporation of America, Personal Communications Division, 6345 Castleway Court, Indianapolis, IN 46250.

FCC PROPOSES SHARED UHF TV BAND

The Federal Communications Commission is proposing that the unused channels in the UHF television band be given to the land mobile services in the eight major urban areas.

Three 84 MHz mobile bands are proposed using UHF-TV channels 23 to 69 (525-806 MHz). Depending upon the location, channel splits between base and mobile assignments will be either 24 or 36 MHz.

The FCC also proposes allowing TV stations to communicate two-way business radio to utilize UHF-TV channels 50 to 59 (687-745 MHz). The conclusion of Docket 85-172 will be the deciding factor on the outcome of the FCC proposals.

UTILITY INTRIGUE cont'd

13630	020020	CW/NO CALLS/5L GRPS, HAND SENT.
13631	081244	CW/DE EC3Y (SPAIN ALLOCATION)
13732	091216	RTTY 50-425/PRESS IN ENGLISH/ADN EAST GERMAN NEWS AGENCY
14402	231458	USB VOICE/MARS PHONE PATCHES
14409	241508	CW/QRA Y7L36 (GDR EMB HAVANA, CUBA)
14421	071315	RTTY 50-425/ARABIC TEXT
14455	251428	USB VOICE/PRIMO, MEJICO & OTHERS IN SPANISH WITH CRYPTIC CONVERSATIONS
14468	081248	RTTY 50-425/TASS(SOVIET NEWS AGENCY), PRESS ITEMS IN ENGLISH
14510	222329	RTTY 45-170/DE ABM4USA (ARMY MARS STN CAMP COINER (SEOUL) KOREA))/PERSONAL MSG
14611.5	231452	CW/NO CALLS/5F GROUPS, CUTS ZERO AS T
17106	222032	CW/NO CALLS/PRESS IN FRENCH RE REAGAN-GORBATCHEV MEETING.
17140	222040	CW/DE UMV QSX 16820(MURMANSK, USSR)
18141	241521	RTTY 50-850/NO IDENT/RY'S & QUICK BROWN FOX TAPE ONLY.
19788	231324	RTTY 50-850/UNIDEN STN SENDING RESULTS OF SOCCER GAME TO UNHEARD STN, TFC WAS IN PORTUGUESE LANGUAGE.
22234	151234	CW/SVB DE SXPJ(ATHENS, GREECE FROM GREEK SHIP)
22312	151232	CW/FBLB DE FUF(FRENCH SHIP FROM FORT DE FRANCE, MARTINIQUE) FRENCH NAVAL TFC.

SCANNING

with NORM SCHREIN

Fox Marketing, Inc.
4518 Taylorsville Rd.
Dayton, Ohio 45424

Welcome to a new column, in a way. Instead of the "Tune in Canada" column, I will be expanding horizons and looking into frequencies that can be scanned around the world. Any input you wish to supply would be greatly appreciated.

First of all I found out that one can come up with active scanner frequencies even though one does not have a scanner. Recently my wife and I took a cruise from Port Canaveral to Nassau. One promise I made to her was that I would not take along any type of receiving equipment. After all, I do travel over the entire country the rest of the year with at least a half dozen scanners. However, I was still determined to come up with some frequencies used by the ship--the S.S. Royale--as well as frequencies used in Nassau. Anyway, what follows is the result.

One of the first radio related items I noticed on the ship was a map published by the Government of the Commonwealth of the Bahamas. In the lower right hand corner of the map was a listing of aeronautical radio beacons, call signs and frequencies:

Radio Beacons	Call Sign	Freq kHz
Bimini	ZBB	396
Chub Cay	ZCC	302
Eleuthera Navy Base	ELJ	224
Freeport	ZFP	209
Georgetown	ZGT	240
Grand Bahama	GBN	326
Grand Turk	GT	232
Great Inagua	ZIN	376
Marsh Harbour	ZMH	361
Nassau Intl Airport	ZQA	251
Rock Sound	RSD	353
San Salvador	SSJ	281
Treasure Cay	ZTC	233
Walkers Cay	ZWC	280
West End	ZWE	317

Just to the right of where the map was located is the office of the custodial staff. Sitting on the counter was a small paging system that probably uses CB channels. The reason why I suggest CB is that I have seen these types of paging systems before and they generally used a CB channel.

This particular unit was manufactured by Direct-A-Page, was a model PA 410C and ran 4 watts, apparently a tone-only paging system as I did not see a microphone attached to the unit. I was told that they use the system to page housekeeping personnel and other ship personnel, including the ship's nurse.

Most ship lines offer a tour of the bridge to interested parties sometime during the cruise. The S.S. Royale was no exception. On November 21st we were on the bridge and could see Freeport off in the distance. I noticed that the VHF radio was tuned to marine channel 16 (156.800 MHz).

The captain explained that the VHF radio had a range of about 50 miles. I can say that 156.800 MHz is active in the Freeport area as I did hear a fair amount of traffic on that frequency while on the bridge.

Once in Nassau I got a chance to look around the city for antenna systems and there were quite a few. One evening we took a taxi to one of the local shows. Inside the taxi was a Regency BTH 201 high band radio. Although I did hear traffic on this mobile radio, I was not able to determine the exact frequency.

I was able to determine that the VHF portion of the spectrum was in use on Nassau. I also observed a VHF quarter wave antenna on the local police cruisers.

One interesting note about the Bahamas which really does not have anything to do with radio--driving is done on the left side of the road, the same as in Britain; however, instead of having cars equipped with the steering wheel on the right side, they are all on the left side like U.S. cars. Makes for an interesting perspective when riding on the roadways of the Bahamas!

We also were afforded a tip to an out island 45 minutes from Nassau. Salt Cay is well known for various movies that were filmed on it including Splash, Blue Lagoon and Gilligan's Island.

There is only one permanent base station located on this island and it uses the VHF marine band for its operations. The station identifies itself on the air as "Blue Lagoon" and used marine Channel 70 (156.525 MHz).

When a shipload of passengers from the S.S. Royale arrives, one can see some of the ship's staff running around with hand-held radios. I was told that they also use channel 70 while on the island, in order to establish a net. However, the Royale monitors channel 69 (156.475) while in port. The ship's doctor said that they can hear the ship on their hand-held units while on the island, but they can not contact it. However, the "Blue Lagoon" base station can make the contact.

Back in Nassau I began looking around for antennas and people to talk to about their radio systems. There are two tug boats for Nassau Harbor--the Grouper and the Turbot. It is the responsibility of these tugs to assist the large ocean liners in and out of the harbor. I asked on of the hands from the Grouper which channel they used while working with the ocean liners; he told me that they use channel 14 (156.700).

I then took a trip down to Nassau Harbor Control. I was told that they monitor channel 16 (156.800) and use channels 9 (156.450), 6 (156.300), 12 (156.650) and 14 (156.700). I noticed two Motorola radios in the Harbor Control office, one of which was a high frequency single sideband unit. I was also told that the Bahamas do not have a Coast Guard, but that the Harbor Control office maintains contact with the police helicopter on the VHF marine band.

Now it was time for a telephone call to the Bahamas Telecommunications Corporation; these folks are in charge of all communications in the Bahamas, including the telephone company. They are the equivalent of the U.S. FCC.

There are about 2,000 registered licensees in the Bahamas, and the Telecommunications Corporation is just now going to a computerized system to keep track of the records. I spoke with a Mr. O.A. Johnson who told me that they try to discourage the use of scanners in the Bahamas and that they were not willing to freely discuss specific radio frequencies. He told me that the police in the Bahamas not only use VHF radios but they also use UHF as well.

As far as Citizens Band was concerned, forty channel units are freely sold in the Bahamas and no license is required from the government for their use. He did mention that the government only recognizes twenty-three channels, but will be changing that to forty in the future.

Amateurs from the U.S. need to obtain a reciprocal license to operate in the Bahamas. The amateurs have one repeater in Nassau on 146.940 MHz (146.340 MHz mobile) using call sign C6 AET.

Typical call sign allotments for amateurs would be something like C6 ABC, while call sign allotments for commercial and government users would be something like C6 B,C,D, --- Z and then followed by numbers.

Nassau has several radio stations and one TV station. AM radio includes ZNS 1 on 1540 kHz in Nassau, ZNS 2 on 1240 kHz in Nassau and ZNS 3 on 810 kHz in Freeport. FM outlets include ZNS 1 on 107.100 MHz in Nassau and ZNS 2 on 107.9 MHz in Nassau. The TV station is ZNS 13 on Channel 13 in Nassau.

I was able to determine that the Nassau Port Security office monitored marine channel 16 (156.800), while channel 27 (161.950 MHz) is used for Bahamian weather forecasts. During hurricane season the broadcasts are continuous; during normal operations the broadcasts are at 8:00 am, 12 noon, 4:00 pm, 8:00 pm, 12 midnight, and 4:00 am.

I did notice a couple of other organizations with radios but was not able to determine the exact frequency. The Armoured Express, Ltd (armored car) had a VHF antenna, while Wells Lumber Yard used the marine radio system.

Finally here is the list from ITU of marine stations listed for the Bahamas.

Borco Oil Terminal	156.300
	156.550
	156.600
	156.650
	156.700
	156.800
Freeport Pilots	156.300
Radio	156.500
	156.650
	156.700
	156.800
Freeport Port Radio	156.300
	156.500
	156.650
	156.700
	156.800
Nassau Harbor	156.300
Control Radio	156.450
C6 V33	156.800

Another final note; I was told that the Nassau Marine Operator (for telephone interconnection) operated on channel 27 (161.950 MHz Base/ 157.350 MHz Ship). This is also the same channel on which the weather broadcasts are located.

If you get to Nassau, check out these frequencies and others for activity. Let

VHF SKIP REPORT

by
Chuck Robertson
RR 2 Box 850
Creal Springs, IL 62922

CANADIAN SKIP

Many Canadian monitors think VHF-low band is virtually unused in their country. In some areas this assumption may be quite correct! However, the mechanics of VHF skip have allowed me to hear vast areas of Canada, and I can tell you that low band is indeed alive and growing, especially in the large cities and southern regions bordering the U.S.

The frequency allocation plan used in Canada varies significantly from that found in the U.S. In Canada, most any 30 to 50 MHz frequency may be used by business, industry, law enforcement or military. Compare that to the highly stratified FCC scheme used in the U.S., and it almost seems as though there is no allocation plan in Canada at all!

A 20 kHz channel spacing using "even-numbered" frequencies (30.46, 30.48, etc.) is most common, although there are exceptions.

Let's take a look at some of the general allocations plus specific users of the Canadian radio spectrum.

SPECTRUM ALLOCATIONS IN CANADA

29.70-37.50	Fixed/Land mobile
37.50-38.25	Fixed/Land mobile/Radio Astronomy
38.25-50.00	Fixed/Land mobile

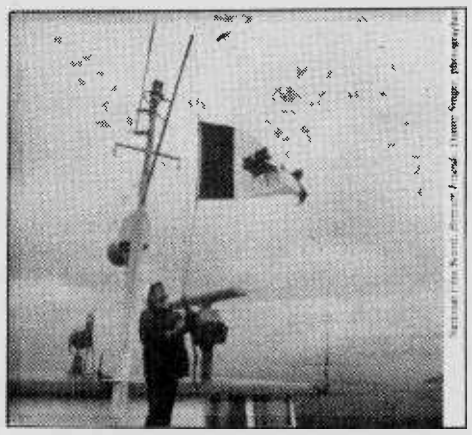
It appears that no maritime mobile allocations are allowed on VHF-Lowband.

The frequency 40.68 MHz is used for industrial, scientific and medical telemetering (same in U.S.).

Radio astronomy observations in the 37.50 to 38.25 MHz band are on a secondary basis to fixed/land mobile services. Most any Canadian business or military operation may turn up in this band!

NORM SCHREIN cont'd

me know, after all I got all this information without the aid of a scanner! Until next time--good monitoring and send in your worldwide scanner listings to share with fellow listeners. ●



One interesting note: The National Research Council at Lake Travers, Ontario, is licensed by the DOC for the entire 37.75 to 38.25 MHz band. Power output? Zero!

Apparently, in Canada if you want to conduct radio astronomy observations you have to get a license like everyone else! I suppose such a license guarantees one a local "radio quiet zone."

CANADIAN PIRATES

In the August '85 MT I reported a catch of Canadian fishing vessel frequencies in use off Canada's coasts and sections of the Great Lakes. Since then, many more fishing vessels have been logged. Here's the complete list to date:

30.04	31.48
30.32*	31.50
30.64	31.64
31.08	31.66
31.20	31.74
31.26	31.76
31.28	31.94
31.32	31.94*
31.38	34.38*
31.46	37.30*

*Speech inversion scrambling

As near as I can determine, none of these vessels is licensed by the DOC! Could they be "pirates"? Robert Berezowski of Regina, Saskatchewan, thinks so. Rob is the editor of the Canada column in RCMA and he, too, was unable to locate so much as one clue as to the identity of these fishing vessels!

It's my guess that VHF-low band is pirate's paradise for Canadian fishing fleets! The data provided by the DOC indicates that the 29.70 to 50 MHz band is allocated for land use only. This DOC directive that coastal vessels not use the frequency range probably makes the band all that more desirable to pirates!

The fishing industry is very competitive, and pirate radio operations are simply an effort to insure a degree of security in communications. Voice inversion scramblers are popular with fishing vessels for the same reason.

U.K. MILITARY SKIP?

Very "proper" sounding English military skip was logged repeatedly during May, June and July on the frequencies 31.60, 31.80 and 34.30 MHz. Canadian fishing vessels were also heard at these times, so I tend to suspect that a United Kingdom task force operation off Canada's east coast may have been responsible for these comms.

THE WANDERING REPEATER

A new Canadian repeater has recently come into operation on the odd frequency of 47.83 MHz. The repeater is located in or near Montreal, Quebec, and both French and English languages are heard. But there's something else "odd" about this repeater: Distinctively southern U.S. voices are occasionally heard over the output!

At first I thought something might be wrong with my scanners. Then I noticed the U.S. comms had the same brief repeater delay as the Canadian traffic. Conclusion: The U.S. business comms are being rebroadcast over the Montreal repeater!

This repeater obviously doesn't have sufficient protection against skip on the input frequency; sub-audible tones, tone burst access or a continuous guard tone could be added to the system to reduce or remove the interfering skip signals. Perhaps this will be done in the future.

The input frequency to this repeater has not yet been determined. One of the repeated U.S. businesses has given the partial call sign "491" several times, but no letters are ever stated which would allow identification through the FCC files.

Most Canadian repeaters have their input frequency located within three megahertz above or below the output frequency, and often within one megahertz. So, the U.S. businesses being rebroadcast are probably in the 47.44 to 49.58 MHz band.

Maybe one of our Montreal readers can enlighten us concerning this "odd" repeater.

MORE ODDITIES

Canadian repeaters using odd numbered frequencies are rare. Here are a few more:

36.00 (37.55 input) Shared business repeater, Kingston, Alberta
45.07 (47.91 input) Shared

VHF SKIP cont'd

business repeater in the Barrie/Essex/Orilla area, Ontario

47.97 (48.97 input) Canada General Electric Co., Ltd. CHC592 Ottowa

48.31 (48.81 input) Shared business repeater, Wilberforce, Ontario

48.51 (49.15 input) C & W Electronics, CHC951, Cormac, Ontario

48.77 (49.98 input) Bridgecom Electronics, Ltd., CHC 890, Milk River Ridge, Alberta. The repeater uses a directional antenna on the output, 30° azimuth.

The Space and Atmospheric Institute has several 49 MHz splinter frequencies for research use. Bases are located in the Swan River/Saskatoon, Alberta area, 100 & 800 watts, 3A1 and 0.1A1 emissions. The channels are 49.919, 49.997, 49.998 and 49.999 MHz.

PAGERS PROMPT PROPAGATION PROGNOSIS

Canadian paging stations are excellent indicators of propagation conditions. The combination of AM emissions and low frequencies make these services harbingers of skip openings to Canada.

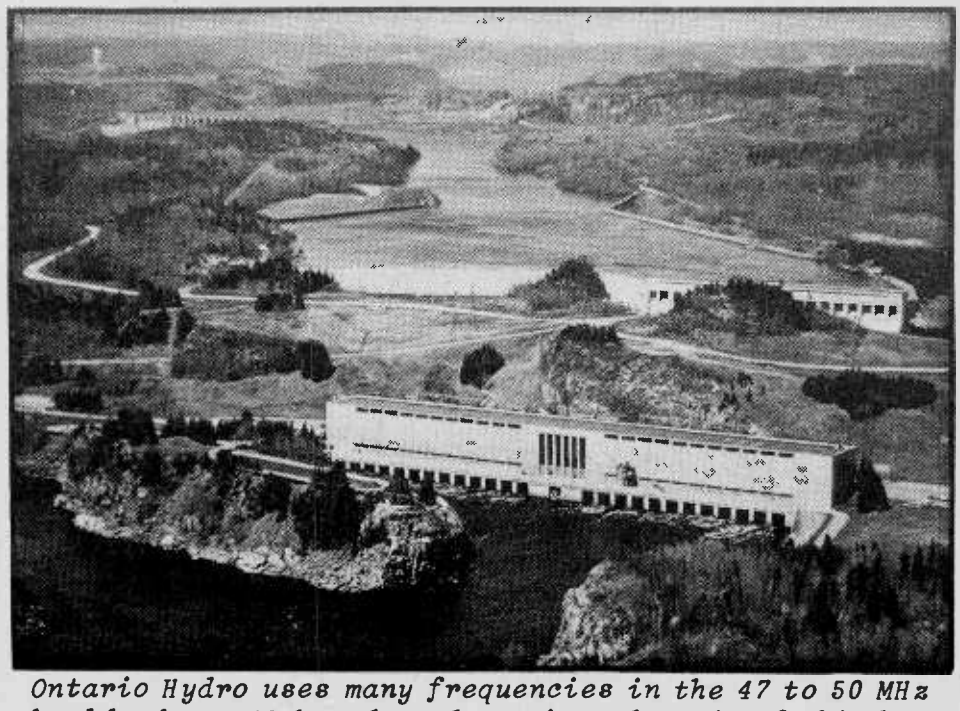
By their design, narrowband FM receivers detect FM signals only about 10 dB above the receiver's noise level. A signal strength of about 20 dB is necessary for "full quieting," the level where communications are heard with little or no noise.

AM receivers detect signals a mere one or two dB above the noise level for CW or SSB modes. This means an AM signal may appear to be much stronger than an NBFM signal of equal ERP (Effective Radiated Power).

For this reason, those of you with AM/FM scanners will want to check out these AM Canadian paging stations. Their beeping is sometimes heard when no FM stations are apparently being propagated. Those of you with standard NBFM scanners needn't give up, though; FM receivers do a surprisingly good job of "slope detecting" the strong AM paging tones and carriers!

Paging allocations for Canada are quite different from those used in the U.S. Below is a list of prime paging frequencies which I've logged countless times. Some appear to be Canada-wide allocations(*).

30.02*	32.42*
30.22*	33.42*
30.42*	33.44
30.46	33.48
31.42*	33.62
31.66	33.92*
31.92*	33.96

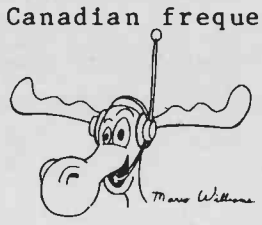


Ontario Hydro uses many frequencies in the 47 to 50 MHz band having a 10 kHz channel spacing. Photo is of Shipshaw Dam in Quebec. From Canada Today, Feb. 1985.

Average power is around 5 to 50 watts. Both AM and FM emissions are used, but AM is most common.

Paging stations may not be very exciting to listen to at length, but they do make good skip indicators. If you hear one of these stations on the air, it's time to put your scanner into search mode and look for new Canadian frequencies!

OMNR



The Ontario Ministry of Natural Resources maintains an extensive radio system using dozens of frequencies and hundreds of licenses! Most channels fall in the 46.20 to 47.26 MHz range. The 46.60 to 47.00 MHz range is loaded with repeaters, with the input frequencies found 400 kHz lower in the 46.20 to 46.60 MHz area. Output power is usually 50 watts.

The 46.75 to 46.89 MHz range has repeaters spaced every 10 kHz! As an example, on July 1st, 1985, I logged the Doherty OMNR repeater; 46.87 (46.47 input). Communications between "towers" and hand-held units were heard concerning tourists and boat rentals. It took me several minutes of puzzled monitoring to realize I was hearing Canadian conservation operations, and not the U.S. military!

OPP

Below are some of the common base/mobile pairs used by the Ontario Provincial Police (OPP). Other OPP simplex and semi-duplex channels can be found in the 41 to 43 MHz area.

41.96 Base	/42.02 Mobile
41.96 B	/42.22 M
41.98 B	/42.22 M
42.06 B	/42.22 M
42.06 B	/42.82 M

OPP aircraft use the frequency 42.00 MHz, although I haven't heard them in years. Also try 41.86 and 42.30, Ontario Provincial Jails.

MOBILE-TELEPHONES

Mobile telephones and phone patches are very popular in Canada. For instance, a Quebec mobile-telephone operation can be found on 30.16 MHz, French language. This radio system uses an unusual technique to achieve what I call "pseudo full-duplex" operation. Actually, it's nothing more than a phone patch.

The first thing you'll notice when monitoring this system is an annoying clicking sound. This is the result of the base station alternately sampling the land line and mobile unit for modulation (voice). The first person to talk keys the base transmitter to his side of the conversation and the clicking ceases; as soon as they stop talking or take a breath, the switching starts up again.

Furthermore, when the transmission is broken, either because the mobile signal fades out or because they hang up, the base station transmits the word OFF in Morse code.

I've noticed several U.S. mobile-telephone stations using this same system format, right down to the Morse code OFF. They are on 31.00, 31.24, 31.44 and 31.80 MHz.

Jimmy Ward of Old Fort, NC, writes to say that when skip conditions were favorable, his father used to talk to a distant mobile-telephone operation on the highway maintenance frequency 47.26 MHz.

Jimmy's father works for the North Carolina D.O.T. and on long winter nights while pushing snow, his father would talk to the mobile-telephone operation to relieve the boredom! A few years back PL was added to the D.O.T. radios, and the phantom mobile-telephone comms have since disappeared.

The location of this mobile-telephone station is uncertain, but I favor Canada. I've logged Canadian mobile-telephone comms on the frequency 47.56 MHz, so such operations do take place in this band segment.

FLORIDA PIRATE CONFIRMATION!

Confirmation of the Florida pirate mobile-telephone frequencies listed in the September '85 MT comes from a reader known to us only as the "Custom Avenger"! Here's what he has to say:

"As a recent resident of South Florida, I know well of the 'Pirate Telephone Systems' that are in operation. You have listed most of the common net frequencies in 09-85 MT.

"One system you will not monitor is a 173 MHz mobile and a 422 MHz base network operating full duplex, using Motorola Motrac mobile radios with VHF-HI transmitter and UHF receiver strips (not requiring a duplexer). A fine custom (and very illegal) telephone system!

"Below I have listed the major Florida 30-50 MHz government frequencies to aid you in observing propagation from this interesting area. Good luck."

CUSTOM AVENGER

30.940 So Fla Water Mgt.
31.020 So Fla Water Mgt
37.120 Metro-Dade Co Local Govt (Miami)
37.180 Metro-Dade Office of Emergency Mgt (Miami) KFK513
39.100 Fla Emergency Mgt F2 ROLLCALL 0900et M-F
39.160 Fla Emergency Mgt
39.180 Fla Emergency Mgt F1 ROLLCALL 0900et M-F
39.940 Fla Emergency Mgt
44.800 Fla Marine Patrol F3 simplex
44.900 Fla Highway Patrol F2 simplex
44.960 Fla Marine Patrol F2 mobile to 45.000
45.000 Fla Marine Patrol F1 base to 44.960
45.060 Fla Highway Patrol F1 Dispatch simplex
45.100 Fla Alcoholic Beverage and Tobacco F1 simplex

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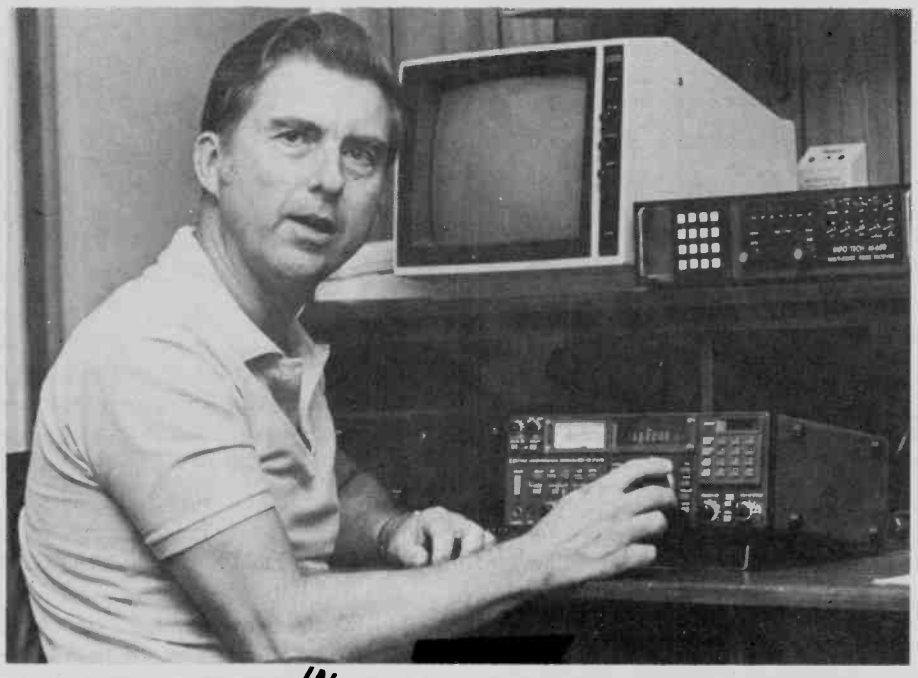

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—Bob Grove

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Add to this enormous tuning range 99 memory channels with priority function, keyboard entry or dial tuning, FM/AM/SSB modes, five tuning speeds, S-meter/center tuning meter, narrow/wide filter selection, noise blanker, and adjustable scanning speed (1-5 channels/sec.) with selectable delay, and you have the most advanced scanning receiver ever designed for the serious VHF/UHF listener.

The R7000 covers aircraft, marine, business, ham (amateur radio), emergency services, government and television bands—all for a remarkably low price. For simplified operation, this receiver offers direct keyboard entry. Precise frequencies can be selected by pushing the digit keys in sequence of the frequency. The frequency will be automatically entered without changing the main tuning knob.

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VHF SKIP cont'd

45.160 Fla Offender Rehabilitation Fl simplex
45.220 Fla Dept of Transportation-Police simp
45.260 Fla Alcoholic Beverage and Tobacco F2 simplex
45.300 Fla Highway Patrol F3 simplex
45.380 Fla Dept of Law Enforcement mobile to 45.460 encrypted
45.420 Fla Offender Rehabilitation F2 simplex
45.460 Fla Dept of Law Enforcement base to 45.380 encrypted
45.820 Fla Revenue Dept
47.140 Fla Dept of Transportation-Maintenance simplex
47.260 Fla Dept of Transportation-Maintenance simplex

Thank you, Custom Avenger!

Once again, here's the Florida pirate mobile-telephone list. Next time the skip is in from Florida, program some of these channels into your scanner and eavesdrop on the pirate party lines!

47.47	47.65	48.93
47.53	47.77	48.97
47.59	47.83	48.99

CAJUN PIRATES

Don't tell Smokey the Bear, but the state conservation frequency 31.70 is being used by barges in the Gulf of Mexico for ship-to-ship comms! Both English and Cajun languages are used, so Louisiana is probably home port for these pirates.

The language spoken by Cajuns is an archaic form of French incorporating elements of English, Spanish, German, Indian, and African. Originally, the Cajun people lived in Canada, but began settling Louisiana around 1755 due to pressure from the British (the Cajuns refused to pledge allegiance to the British Crown).

Here are some other frequencies which carry Cajun comms from the Gulf of Mexico and Louisiana:

30.58	31.74
30.62	31.96
30.74	33.18
31.00	35.70

GERMAN SKIP UPDATE

In the August '85 MT I reported monitoring German language skip on the frequencies 30.80, 31.10 and 31.60 MHz. Shortly after submitting that article, three more frequencies were logged with similar German comms: 31.30, 31.80 and 32.00 MHz.

The frequency 31.30 was also logged in the summer of 1984. I think this pretty well proves that the 1985 and 1984 German skip is all part of the same ongoing operation. But what is the nature of the operation? Could it be NATO exercises? Scientific exploration? Engineering?

Would any of our German speaking readers like to translate the recordings I've made? All I ask is that you send me a rough transcript of what you hear.

A LOOK BACK

There were not as many equinoctial F_2 and E_s openings in the fall of 1985 as in the previous few years. Nevertheless, for the ardent skiphound the propagation was there for the chasing! Here's the skip I tracked down with particularly good targets starred (*).

October 20, 1730 to 2200 CDT

*29.66 (29.56 input) Virgin Island amateur repeater. Always a good indicator of overall ionospheric conditions!
*30.00 Aircraft and tower talking about the approaching weather front as reported by Camp Lejeune, Jacksonville, NC. Could be Cherry Point Air station or Fort Fisher AFB.
30.02 30.22 30.42 31.42 32.42 33.06 and 33.44 Canadian paging
30.30 US. Navy "Eight across the board"
30.96 31.00 31.04 31.16 31.20 and 33.16 New York City taxis, Spanish
*31.02, channel 1 and 31.06, channel 2, South Carolina Conservation Police. KUB780, Charleston, 500 watts
31.10 Georgia conservation KJU922, Richman Hill, 300 watts
31.18 South Carolina conservation?
*33.20 Rptr-out, U.S. military! This repeater has been heard several times. I suspect a petroleum business repeater may be rebroadcasting the U.S. military traffic from its input.
48.42 Bahama radio-telephone

October 21 1430 to 1900 CDT

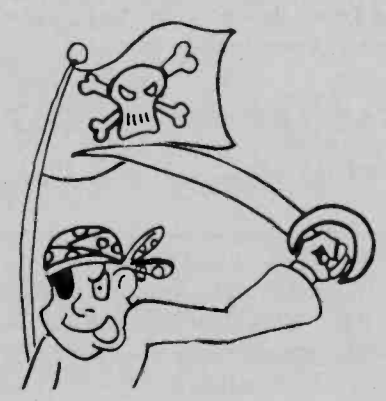
29.66 Rptr V.I.
29.84 Mexican oil operations
29.85 Whistler radio-telephone, Spanish
30.50 31.15 31.90 31.95 32.70 and 34.90 Spanish-speaking military WBFM
*30.66 30.76 32.96 35.32 Argentina paging stations. The presence of these stations on such high frequencies indicates ionospheric conditions were above normal.
31.11 Radio-telephone, Spanish, full-duplex
31.37(37.19 output)Construction, Dominican Republic
31.44 Whistler, Spanish
31.48 Gulf Fleet, LA. Spanish and English
31.56 Whistler, British West Indies dialect
31.94 32.18 32.24 32.88 35.16 35.72 35.90 Spanish-lang. businesses
31.95 Jamaican bookmaking offices. "Crossroads" & "Spanish Town" bases
32.10 Jamaican bookmaking offices "Half Way Road" base
32.55 Jamaican bookmaking offices, Kingston
32.60 Honduran business "Juticalpa," "San Antonio"
33.35 Rptr-out. Cuba "CMP" operations. "Central"=base
*33.76 Mexican oil operations. Also uses 33.55 MHz. "Zacatecas", "Planta la Pluma", "Planta la Pluma" "Planta Norte"
33.825 (39.825 input) Central American business. "Campo"=base
34.61 Radio-telephone, Spanish language, full duplex
35.26 Phone-in paging, Puerto Rico
36.34 Spanish-lang business, "Santa Fe"
*37.00 Radio-telephone, Spanish, half duplex. The other side of the conversation is on 32.00 MHz.

Here are some other catches from September and October 1985.

*29.74 Ham operator calling "CQ on Ten." Needless to say, since the ham band is 28.0-29.7 MHz, he didn't get a reply!
*29.74 Radio-telephone, Spanish lang. full duplex. This is not a "Whistler."
*29.88 Whistler Radio-telephone. This is the first time I've logged this Whistler. Note that it fits in perfectly with the 15kHz spacing used by the other Whistlers in the 29 MHz band.
29.92 and 29.93 Radio telephones, Spanish lang.
*29.94 and 29.95 (semi-duplex) Russian, origin Cuba. Last heard on Oct. 16, 1930 to 2000 CDT.
*29.995 Spanish radio-checks. Origin probably Central America. Use unknown!
*30.10 31.70 Canadian military, French lang. WBFM. The Canadian military may turn up on any frequency having a 100 kHz channel spacing, less often on 50 kHz channels.
*30.14 37.52 39.96 39.98 Canadian mobile-telephone stations, full-duplex. English and French lang.
30.19 31.87 33.29 Spanish lang. businesses
30.395 Radio-telephone, Spanish, full-duplex. Unusual frequency!
30.65 31.10 Spanish speaking military, WBFM
*31.06 McDace, Ltd. construction. Bases are at London, VCZ291, and Bancroft, VCZ292, Ontario, Bases 50 watts. Mobiles 30 watts.
31.20 DES scrambling
*31.48 Gulf Fleet personnel were conversing in Norwegian (I think). Spanish also used. Sept 2, 1900 CDT. Would any of our readers like to verify and/or translate these comms? Let me know, and I'll send you a cassette.
*31.48 The vessel Gulf Majesty gave the coordinates of 13° North, 80° 25' West (east coast of Nicaragua)

The Gulf Majesty was also heard telling the Gulf Godfather how they had successfully talked on 31.48 MHz to the Gulf Service located at Algeria! Sept 14, 1300 CDT
*31.48 Gulf Fleet, an unidentified vessel gave the position "Latitude 15 even, longitude 57°35.8'; miles traveled, 3872.8; miles to go, 1645. This vessel was approximately 400 miles west of the French West Indies island of Martinique. Oct. 24, 1110 CDT.
31.75 U.S. military "Conga Base"
32.00 German, phonetics used. Oct 23, 1110 CDT
*32.00 U.S. military "Sea Horse 5", "Road Dog 5", "Waterborn Operations", Sept. 9, 1230 CDT
*33.46 (35.32 input) Saugeen Valley Conservation Authority, Hanover, Ontario. 100 watts out, 5 watts in. XJK615.
*34.02 (34.52 input) XDG, Ltd. Kitchner, Ontario. 50 watts out & in. Rock hauling VCV975.
*34.98 Argentina paging station. This station has not been reported previously
36.04 Kember, Ltd. Sarnia, Ontario, Veterinary Clinic VCR711
*36.14 (37.56 input) Frew, Ltd. Orangeville, Ontario. 100 watts out, 30 and 25 watts in. CHD353 Construction.
*36.80 U.S. military war games near Kansas City, Kansas. Aircraft were firing anti-aircraft missiles: "Just put three up the tail--it was a Flogger, I think." Oct. 23, 1130 CDT.
*38.56 (36.74 input) Dol Johanes, bases at Cookstown, XNC312, and Maple, VCK546, Ontario, 50 watts out. This business appears to be a sod farm.

NEXT MONTH: New York cabbies have been discovered operating on a state conservation frequency--using AM emissions! Several New York area pirate mobile-telephone nets have also been uncovered. All this, and much more!



HIGH SEAS RADIO

by James R. Hay

With winter in high gear now, at least for those of us living in Canada and the northern states, it might be appropriate to look this month at a warmer climate--namely the area around the Mediterranean Sea.

First, let's have a look at Greece and its main coastal station, Athens Radio. Several call signs are used indicating the band in question, in this case: SVA, SVB, SVD, SVF, SVG, SVI, SVJ, SVM, SVS, SVT, SVU. The following frequencies in kilohertz are in use for CW:

4223	6344	8454.5
4239.4	6411	8530
4327	6444.5	8536.5
4343	6478.75	8681
		8687
		8690
		8692.5
		8704
12720	16903	22327.5
12833	16966	22346.5
12859	16981.5	22410.8
12942	16995	22417
13029	17094.8	22471.5
13047	17147.2	22500
	17188	
25401	17194.4	
25535		

The following frequencies are used for SSB by Athenai Radio and the call sign is SVN:

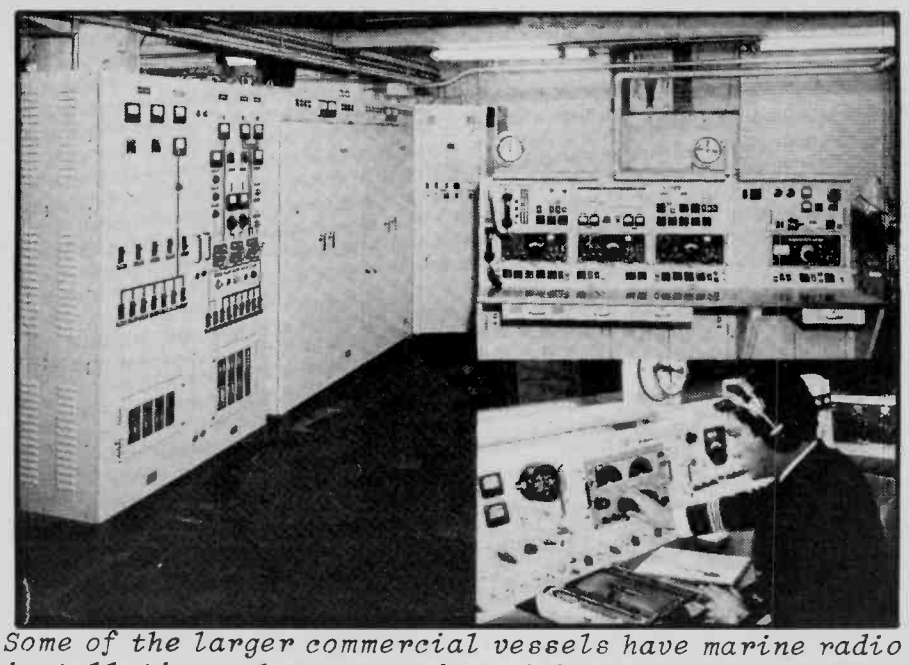
4394.6	6512.6	8722
4400.8		8734.4
4428.7	17251.5	8740.6
4431.3	17257.7	8743.7
	17307.3	8759.2
13110.1	17310.4	8774.7
13119.4	17313.5	8777.8
13134.9	17319.7	8787.1
13159.7	17353.8	
13196.9		
	22620.8	22667.3
	22645.6	22689
	22651.8	22701.4

In Turkey, Mersia Radio with call sign TAM5 operates single sideband on the following frequencies:

8725.1	17263.9
13116.3	22633.2
13147.3	22636.3

Syria, not being a heavyweight in the shipping world, has only one station on HF, Lattakia Radio (YKM7), operating CW on 8625 and 12728 kHz.

The next country on the list is Lebanon, with



Some of the larger commercial vessels have marine radio installations that are quite elaborate, such as this equipment from Anritsu.

Beyrouth Radio using call sign ODR, and they can be found on the following frequencies:

CW	SSB
4351	4434.9
8702	8802.6
13101	13147.3

Cyprus Radio, which uses the callsign 5BA, is found on the following SSB frequencies:

4372.9	6512.6	8737.5
4397.7	6521.9	8771.6
4419.4		8777.8
4434.9		8780.9
		8805.7
13100.8	17239.1	22630.1
13122.5	17294.9	22648.7
13162.8	17329.0	22658.0
13190.7		

Returning to the mainland we come to Israel, whose main coast station is Haifa Radio, call sign 4XO, using CW on:

4238	12860
6430	13051.5
6470.5	17060
8485	17146.4
8694	22491

And in SSB the station uses the following channels:

4366.7	6512.6	8718.9
4385.3	6517.7	8731.3
4410.1		8753.0
4425.6		8780.9
		8799.5
13110.1	17257.7	22605.3
13119.4	17270.1	22614.6
13138.0	17282.5	22645.6
13144.2	17294.9	
13162.8	17316.6	

Finally, we come to Egypt whose main coast station is Alexandria Radio with callsign SUH: they can be found on the following frequencies:

CW	SSB	
8578	4410.1	13147.3
12970.5	6518.8	17260.8
	8768.5	22673.5

This month we have taken a look at the stations which might be heard from the eastern part of the Mediterranean area. Next month we will finish out the area by continuing with the western portion.

● In the belated mail department, some time ago I received from the Association of DX Reporters a book which might prove interesting to some readers--especially those interested in company operations. The publication is the ADXR List of Limited Coast Stations, available for $3.00 from:

Association of DX Reporters
7008 Plymouth Road
Baltimore, MD
U.S.A. 21208

The publication contains a listing of stations by call sign and by the city in which they are located. Unfortunately, it does not list the company operating the station; however, in many cases, while this would be a major job to include in a book like this, it is not usually hard to figure out who operates a given station. Hints can be found in the vessels with which the stations communicate, as well as the types of messages passed back and forth.

That's all for this month, so until next time good listening--and try to catch a few of the stations I have listed. As always, your questions, comments, and suggestions are welcome. Please address them to James R. Hay, 141 St. John's Blvd., Pointe Claire, P.Q., Canada, H9# 4Z2. Good listening, and for those in the northern part of the continent happy shovelling! ●

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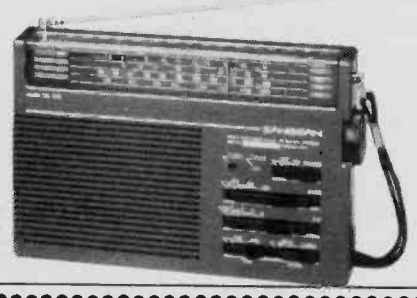

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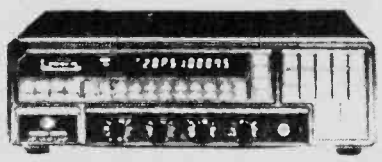

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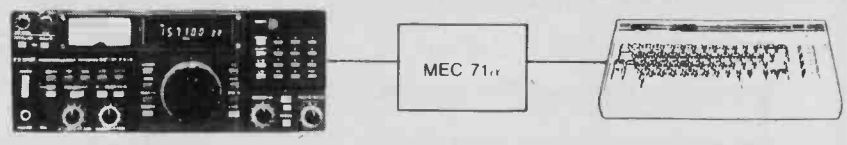

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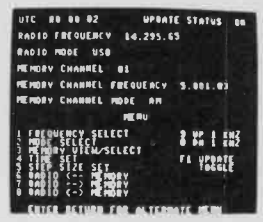

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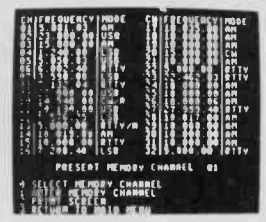

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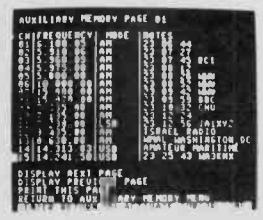

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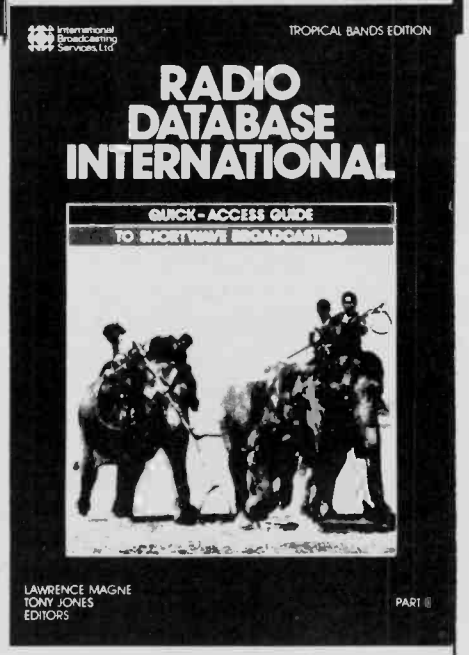

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SIGNALS FROM SPACE

by
Larry Van Horn
160 Lester Drive
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The Radio Technical Commission for Aeronautics' Special Committee 155 has recommended a plan for an air traffic control surveillance, navigation and communications system for the U.S. in the 21st century. The new aircraft systems will be largely space based.

Although the RTCA study was aimed at a future U.S. system, this proposal has international implications because satellite coverage typically extends beyond national boundaries and because of the need for global standardization.

The cornerstone of the committee's recommendation is for the use of the NAVSTAR navigation satellite system. "We recognize that NAVSTAR is here and the price is right, because there is no user charge," said one committee member.

NAVSTAR will provide the aeronautical industry accurate en route navigation and map-of-the-earth coverage for helicopter pilots. The present accuracy of 328 feet (100 meters) for civil users will permit use of the satellite system for non-precision approaches.

Communication satellites in geosynchronous orbit, operating in the currently authorized L-band (1.5-1.6 GHz) would serve as relays for air-to-ground communications during flight. Data communications would be primarily used, but a limited voice capability for emergency situations would be provided for.

In terminal areas, the same airborne L-band transceiver would be used but communications would be direct and not via satellite. This would permit greater use of voice communications.

Aircraft band monitors should take note that in the not-too-far-distant future, aircraft band communications will be a thing of the past and you will have to monitor satellites to enjoy your favorite communications.

● On November 13, 1985, the three Soviet cosmonauts aboard Salyut 7 started scrambling their voice communications. Kettering Group members first noted the scrambling at 1911 UTC. On November 21, the Soyuz T-14 mission to Salyut 7 was cut short and the cosmonauts were returned to earth due to the illness of mission commander Vladimir Vasyutin.

Vasyutin's two space colleagues, Viktor Savinykh and Alexander Volkov were initially reported as feeling well according to TASS reports received here in Orange Park. However, TASS later revised its description of their conditions, and it was unclear whether they, too, suffered ill effects from prolonged space flight.

TASS quoted doctors who examined Vasyutin at the landing site as saying he was in "satisfactory" condition. "We cannot yet say anything more than that as we have to make a thorough checkup," the doctors said, according to TASS. "It is only clear now that, like we expected, he (Vastutin) needs hospital treatment."

My last confirmed Soviet voice comms from Salyut 7 was on November 9 on 142.417 MHz. It is unclear at this point whether the scrambling occurred on 142.417 MHz or the Russians moved to 143.825 MHz and scrambled their communications on this frequency. It is also unknown whether the scrambled transmissions were related to the illnesses being suffered by the cosmonauts or for some military purpose. Two members of the T-14 crew were Soviet military officers.

● A recent article in Worldradio has caught my attention. Victor Blackwell, Director of the International Satellite Society in Oxford, Ohio, is asking help from anyone who can monitor 137.5 MHz. It would appear we have a rogue satellite on this frequency normally used by U.S. NOAA weather satellites.

Blackwell said that the maverick has been difficult to identify. "To make matters worse, it appears as if the downlink transmitter is being turned on and off at unexpected times," said Blackwell.

Anyone wanting to help Mr. Blackwell in this project can send an SASE to: The International Satellite Society, Project 137.5, Box 670, Oxford, Ohio 45056. You will receive report forms and project explanation sheets.

● Want to decode the Russian RS amateur satellite telemetry? There is a nifty article in the November 1984 issue of 73 magazine, entitled "Decode Soviet Space Messages" by Todd Enders WDØBCI. The program is written in Basic for the IBM PC, but if you know Basic, you should be able to convert it for your computer.

Also Home Satellite TV in their November 1985 issue published a nifty little program for the Commodore 64 computer. This program will let you obtain pointing information (azimuth and elevation) for any satellite visible to your location in geostationary orbit. This should be a popular program for a popular computer.

Also, see Chris Williams" "Ten Meter Preamp" article in MT's "Experimenters Workshop" this month for help in decoding the Russian ham satellites.

● Usually reliable sources in Europe predict the launch of RS-9 and RS-10 early in 1986. February is the most likely time frame. Both satellites will be placed in a low earth orbit similar to all prior RS's, that is, a polar orbit with a period approximating 120 minutes so as to approach sun-synchronicity.

RS-9 has been experiencing some test difficulties but, if these diversions are overcome, it will be launched together with RS-10. RS-10, on the other hand, is said to be in excellent shape and should soon be shipped to the launch facility for integration with the launcher.

RS-9 will be quite similar to RS-1 and RS-2 with a Mode A transponder only. The big surprise is RS-10 which will probably carry three transponders. In addition to the now-traditional RS Mode A transponder, RS-10 is reported to include both a Mode K and Mode T transponder.

Mode K, previously used on an ISKRA satellite launched from Salyut 7, uses 15 meters up and produces a 10 meter downlink. Mode T is a new mode not previously used in any OSCAR satellite. It will use 15 meters up to produce a 2 meter downlink.

A 2 meter beacon will be placed at 145.557 MHz while a 70 cm beacon's frequency remains undetermined pending licensing arrangements. Information courtesy of ASR No. 112-November 27, 1985.

● Those of you who copied and/or worked the German amateur radio operators during the Spacelab D-1 mission and want a QSL card can write the following address with your reports:

DARC DPØSL Activity
Postfach 1155
Lindinalle 6, D3507
Baunatal 1
Federal Republic of Germany

● During the last week of November and the first week and a half of December, I have been monitoring what appears to be testing on a new geostationary satellite utilizing the 225-400 MHz range. Azimuth bearings from Orange Park appear to be in the area of 105°. The test tone has been heard varying from 225.615 MHz to 225.865 MHz, a bandwidth of 250 kHz.

The general beam heading would place the satellite somewhere in the geostationary Clark belt around 12 to 30 degrees west. Right now it is a toss-up between a possible DSCS III satellite at 13° W or a Russian geostationary satellite at 25° W. I hope to have more on this as information becomes available.

LAUNCH REPORT

Information for this monthly feature is courtesy of the Spacewarn Bulletin, NASA Thirty Day Special Bulletins-Goddard Space Flight Center, "Communication Satellites" authored by the editor, and the editor's monitoring during the period covered by the report. Numbers in parentheses are NORAD catalog numbers.

85-89A(16107) Cosmos 1688 launched 10/2/85 from Kapustin Yar on C-1 booster rocket by USSR. Initial orbital elements: period 93.43 min, apogee 551 km, perigee 345 km, inclination 50.66°. Mission: military technology satellite (minor military). Frequency unknown.

85-90A(16110) Cosmos 1689 launched 10/3/85 from Tyuratam on A-1 booster rocket by USSR. Initial orbital elements: period 97.22 min, apogee 662 km, perigee 593 km, inclination 97.98°. Mission: natural resources. Freq unknown.

85-91A(16112) Molniya 3-26 launched 10/3/85 from Plesetsk on A-2-e booster rocket. Initial orbital elements: period 735 min, apogee 40194 km, perigee 651 km, inclination 62.79°. Mission: highly eccentric orbit domestic COMSAT. Freq: 6 GHz uplink/4 GHz downlink.

85-92A(16115) STS-51J launched 10/3/85 from KSC

SIGNALS FROM SPACE cont'd

by shuttle Atlantis. Initial orbital elements: period 93.86 min, apogee 475 km, perigee 469 km, inclination 28.52°. On orbit 8 Atlantis set new STS high altitude record of 519 by 473 km with a period 94.34 minutes. Mission: to launch two DSCS Phase III satellites designated USA-11 (85-92B 16116) and USA-12 (85-92C 16117).

The crew consisted of USAF Col. Karol J. Bobko, USAF Lt. Col. Ronald J. Grabe, Army Col. Robert L. Stewart, Marine Major David C. Hilmers, and USAF Major William D. Pailes. Atlantis returned to Edwards AFB on 10/7/85.

85-93A(16115)USA-10 launched from the Cape 10/9/85 by U.S. Initial orbital parameters: period 92.28 min, apogee 20688 km, perigee 660 km, inclination 62.99°. By the following day USA-10 had achieved a 20534 by 19567 km orbit inclined 63.4970°. Mission: NAVSTAR-10, GPS navigation satellite.

Freqs: L1 downlink 1575.42 MHz, L2 downlink 1227.6 MHz, S-band downlink 2227.5 MHz, S-band uplink 1783.74 MHz, L3 downlink 1381.05 MHz. (Global Burst Detection downlink), and UHF crosslink that is tunable in the 225-400 MHz band.

85-94A(16138) Cosmos 1690 launched from Plesetsk 10/9/85 by USSR. Initial orbital elements period 114.78 min, apogee 1474 km, perigee 1421 km, inclination 82.6226. Mission: launched with five other spacecraft. Possible new military COMSAT tier of satellites or new Geodesy satellite series. Freqs unknown.

85-94B(16139) Cosmos 1691-apogee 1435, perigee 1406 km, see Cosmos 1690 above.

85-94C(16140) Cosmos 1692-apogee 1435 km, perigee 1390 km, see Cosmos 1690 above.

85-94D(16151) Cosmos 1693-apogee 1439 km, perigee 1398 km, see cosmos 1690 above.

85-94E(16142) Cosmos 1694-apogee 1452 km, perigee 1405 km, see cosmos 1690 above.

85-94F(16143) Cosmos 1695-apogee 1441,perigee 1407, see Cosmos 1690 above.

85-95A(16167) Cosmos 1696 launched 10/16/85 from Tyuratam on A-2 booster rocket by USSR. Initial orbital elements: period 89.34 min, apogee 296 km, perigee 216 km, inclination 73.38°. Mission: Third generation, high resolution, military photo recon. Freq: 19.989 MHz. Simple FSK.

85-96A(16177)PRC 17 launched 10/21/85 by People's Republic of China. Initial orbital elements: period 90.06 min, apogee 397 km, perigee 173 km, inclination 62.9°. Mission: photo recon. Freq unknown.

85-97A(16181) Cosmos 1697 launched 10/22/85 by USSR. Initial orbital elements: period 101.96 min, apogee 876 km, perigee 850 km, inclination 70.98°. Mission: unknown. Possible weather satellite failure.

85-98A(16183) Cosmos 1698 launched 10/22/85 from Plesetsk on A-2-e booster rocket by USSR. Initial orbital elements: period 711.3 min, apogee 39352 km, perigee 623 km, inclination 62.92°, and RAAN 286.9213. Mission: failed Molniya 1 class satellite.

85-99A(16187) Molniya 1-65 launched 10/24/85 from Plesetsk on A-2-e booster rocket by USSR. Initial orbital elements: period 700.09 min, apogee 38548 km, perigee 666 km, inclination 62.95°. Mission: high eccentric orbit domestic/military COMSAT. Freqs: 970-1000 MHz data transmissions.

85-100A(16191) Meteor 3 launched 10/24/85 from Plesetsk by USSR. Initial orbital elementsperiod 110.33 min, apogee 1262 km, perigee 1345 km, and inclination 82.55°. Mission: new class 3 meteor weather satellite. No details known about this satellite as of yet. Will keep MT readers posted as soon as something is learned.

85-101A(16198) Cosmos 1699 launched 10/25/85 from Plesetsk on A-2 booster rocket by USSR. Initial orbital parameters: period 89.58 min, apogee 362 km, perigee 179 km, inclination 67.14°. Mission: 4th generation military photo recon with solar panels, long duration. So SW (HF) telemetry noted. High and low data rate signals around 240 MHz.

85-102A(16199) Cosmos 1700 launched 10/26/85 from Tyuratam on D-1-e booster rocket by USSR. Initial orbital elements: period 1434.1 min, apogee 35828 km, perigee 35672 km, inclination 1.46°. Mission: geostationary orbit, mission unknown and current position 31° W.

85-103A(16220) Molniya 1-66 launched 10/28/85 from Plesetsk by A-2-e booster rocket by USSR. Initial orbital elements: period 702.4 min, apogee 38903 km, perigee 492 km, inclination 62.80°. Mission: high eccentric orbit civilian/military COMSAT. Freqs: 970-1000 MHz.

85-104A(16230) STS-61A launched 10/30/85 aboard shuttle Challenger by U.S. Initial orbital elements: period 91.0 min, apogee 340 km, perigee 323 km, inclination 56.99°. Mission: Spacelab D-1 mission and launching of the satellite GLOMR. On board were astronauts Hank Hartsfield, Steve Nagel, Bonnie Dunbar, Guion Bluford, James Buchii, E. Messerschmid, R. Furrer, and W. Ockels.

85-104B(16231) The GLOMR (Global Low Orbiting Message Relay) launched 10/30/85 from orbiting STS-61A by Department of Defense. Initial orbital elements: apogee 339 km, perigee 323 km, inclination 56.9847. Mission: U.S. Defense Advanced Research project, a 150 lb. satellite that will demonstrate the feasibility of using a small satellite to send on/off commands to small sensors on the ground and then record data from those sensors on the ground for playback over U.S. ground stations or ships. Frequency unknown. Any help with this one folks?

● That concludes this month's Launch Report. Boy, did the Soviets give me fits this month! This has to be one of my worst months for ID'ing Soviet spacecraft--they are really getting imaginative up there! My best guess on Cosmos 1690-1696 is some sort of new military communications satellite constellation. Also Cosmos 1697 could be some sort of ELINT satellite in a new flight regime.

The new Meteor 3 class satellite is very interesting as no pre-announcements were received here concerning a new class of Meteor satellite. And finally, the Cosmos 1700 geostationary mission might be headed for 25° W with a SDS relay mission to send back real time data to Moscow from an orbiting recon satellite. Only time will tell on this one.

'Til next month, the best of 73's to all and I'll CU in 30. ●

Another "War of the Worlds" Broadcast Had Serious Repercussions

The radio drama broadcast of H.G. Wells' "The War of the Worlds" by Orson Wells on Halloween night, 1938 over The Mercury Theater is legend in the annals of radio.

But how many readers are aware of a far more destructive--and this time intentional hoax--broadcast which took place eleven years later?

In February, 1949, at radio station HCQRX in Quito, Ecuador, the broadcast was paraphrased, substituting local Ecuadorian locales for American cities.

The hysteria which resulted was compounded when the listeners learned that they were deliberately deceived; a contingent of rioters stormed the radio station and burned it to the ground, killing 15 people in the purge.

YOU'VE COME A LONG WAY, BABY!

Did you know that at one time AM radio broadcasting was assigned only one frequency? In 1922 the Secretary of Commerce issued an order assigning the 360 meter wavelength (833 kHz) to broadcasting. Later on that same year 750 kHz was added. It remained that way until 1924 when the 550-1500 kHz AM broadcast band was established. The band was later extended to 1605 and will get stretched again in 1987 to 1705 kHz making room for approximately another 1,000 stations (depending on power levels).
(courtesy the W5YI Report)

NEW ARRIVALS

WHAT'S NEW?

Several new receivers are due for imminent release; let's have a look.

Japan Radio Company is still promising the appearance of the bold new NRD-525, a radical departure from its predecessors, the NRD-505 and NRD-515. The 525 is definitely high tech; unfortunately, all information released so far is in Japanese!

Regency has just announced their new MX5500, effectively cancelling their popular forerunner, the MX5000.

Still no word on the MX8000 which was described in last month's issued as an updated version of the Japanese AOR Company's AR-2002, now in wide European distribution.

Uniden has no new Bearcat products, sticking with the large barrage of programmables released early last fall.

Radio Shack has decided not to replace their popular DX400 version of Uniden's CR2021 with anything. The CX400 was unquestionably a bargain at its closeout price of approximately $150. Some may still be lurking in small shops around the country, but they have been permanently discontinued.

TenTec, a prominent American manufacturer of amateur radio gear, expects to have their new general coverage 100 kHz-30 MHz receiver available for display in February for the Miami Hamfest and full production going by April, hopefully in time for the Dayton Hamvention.

The receiver is taking direct aim at the venerable Kenwood R2000 and is targeted to sell in the $550 range.

Digital Electronic Systems has announced their replacement for their Infotech M600 RTTY/Morse/TOR/ASCII demodulator, the M6000. Several improvements over the old model have been incorporated. See MT's review in "Behind the Dials" on page 22.

THE NEW REGENCY MX8000

The Japanese AOR Company has confirmed to MT that they will be private-labeling their new AR-2002 scanner in the United States as the Regency brand MX8000. The new scanner is identical to the previous MX7000 with some additional features.

Most noteworthy among the improvements are a continuous tuning dial, an LED S-meter, full stroke keyboard, separate volume and squelch knobs, power switch, a front panel headphone jack, and a rear panel computer port.

As with the previous MX7000, the MX8000 features 750 MHz up-conversion for the 25-550 MHz range, but 45 MHz down-conversion has rather poor image rejection above 900 MHz (90 MHz above the interference frequencies).

The front end of the receiver is broadbanded with no preselection above 800 MHz; whether this will result in severe intermod or image response will depend in large measure upon the location of the user and the frequencies of interest.

AR-2002 (MX8000)

In actual laboratory tests, the MX8000 fared very well. On all frequency ranges, average sensitivity was better than 0.5 microvolts (NBFM) with selectivity 12-14 kHz at -6dB. Audio frequency response (-6dB) was 224-2720 Hz with 10% distortion not beginning until 0.9 watts into an 8 ohm load.

Grove Enterprises will be carrying the MX8000 as soon as it becomes available. There is no word of pricing from Regency at this printing.

Ten-Tec Developing General Coverage Receiver

Ten-Tec, a Tennessee based manufacturer of amateur radio equipment, has announced the imminent production of a general coverage short wave receiver, tentatively designated RX325.

The Ten-Tec entry is targeted to retail for under $500 and could mark serious American competition for the Japanese.

MT will provide additional details as the Ten-Tec project continues. Tentative availability: April.

TENTATIVE SPECIFICATIONS:

Display: 9 digit vacuum fluorescent, 100 Hz resolution
Tuning Methods: rotary knob with variable tuning rates, MHz up and down buttons, keyboard entry
Memories: 25, will store frequency, operating mode, tuning rate. Individual channel lockout, memory clear, memory tune via rotary knob, memory scan with adjustable rate (up to 20 ch/sec), program scan with selectable upper and lower limits and adjustable rate, scratch pad memory (temporary, single entry memory)
Modes: AM, LSB, USB
Frequency: .1 to 30 MHz
Selectivity: Wide, 6 kHz Narrow, 2.7 kHz (optional filters also available)
Antenna: telescoping amplified whip
Built-in speaker
Noise Blanker
Front End Attenuator
AGC Fast/Slow
Tuning Knob Lock-out
AC Wall Charger
S Meter
Clock/Timer: On/off once in 24 hours - 12/24 format
Battery Operation 8 C Cells
Front Panel: volume, headphone jack, lamp, power narrow/wide, noise blanker, attenuator, fast tune, AGC fast/slow, mrmory tune, dial lock, MHz up/down
Rear Panel: external speaker jack, 2 antenna jacks, record jacks, on/off and audio output, DC input jack, gnd. lug.
Cabinet Dimensions: 9-1/2"W x 3"H x 9"D

NRD-525

SPECIAL CLEARANCE!

1985 WRTVH AT COST!

GROVE ENTERPRISES IS CLEARING THEIR STOCK OF 1985 WORLD RADIO TV HANDBOOKS AT DEALER COST--ONLY $10 INCLUDING BOOK RATE SHIPPING ANYWHERE IN THE U.S.

ONLY A FEW LEFT, SO SEND A CHECK OR MONEY ORDER NOW TO GROVE ENTERPRISES, P.O. BOX 98, BRASSTOWN, NC 28902.

Equipment Predictions Featured at ODXA Convention

An interesting forum presented by the Ontario DX Association at their recent 1985 convention brought futuristic predictions from guest speaker Tak Itagaki of Sony Corporation.

Mr. Itagaki led off the discussion by forecasting changes which we can expect to see in receivers during the next ten years. Points made were that receivers will scan by program, meaning that a receiver could be told to seek out news programs and pause when it found one. The same could be done to search for sports or music, or whatever.

Cassette tapes will be replaced by integrated circuit memories, built right into the receiver. Voice recognition will be a feature, allowing the operator to speak commands to the radio and it will respond by tuning up the spoken frequency, etc. Automatic language translation will also be possible, with the receiver containing a microprocessor that can both translate and produce audio in the English language.

Digital circuits will increase to the point where digital audio will be a part of both transmitters and receivers, essentially eliminating fading and interference. The best frequency of all those used at a particular time by a broadcaster will automatically be selected. In fact the receiver could quickly switch from frequency to frequency, possibly without the listener even knowing. Lastly, both size and price will continue to decrease.

We would like to thank Ruth Hesch for submitting this interesting report.

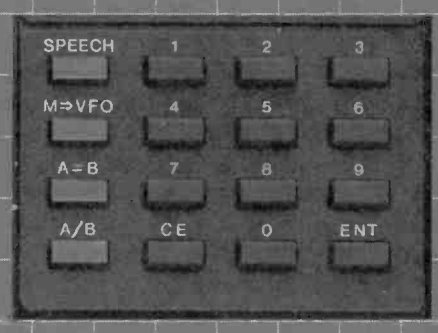
ICOM HF Receiver

IC-R71A

The World Class World Receiver

ICOM introduces the IC-R71A 100KHz to 30MHz superior-grade general coverage HF receiver with innovative features including keyboard frequency entry and wireless remote control (optional).

This easy-to-use and versatile receiver is ideal for anyone wanting to listen in to worldwide communications. With 32 programmable memory channels, SSB/AM/RTTY/CW/FM (opt.), dual VFO's, scanning, selectable AGC and noise blanker, the IC-R71A's versatility is unmatched by any other commercial grade unit in its price range.



Keyboard Entry. ICOM introduces a unique feature to shortwave receivers...direct keyboard entry for simplified operation. Precise frequencies can be easily selected by pushing the digit keys in sequence of frequency. The frequency will be automatically entered without changing the main tuning control.

Superior Receiver Performance. Passband tuning, wide dynamic range (100dB), a deep IF notch filter, adjustable AGC (Automatic Gain Control) and a noise blanker provide easy-to-adjust clear reception even in the presence of strong interference or high noise levels. A preamplifier allows improved reception of weak signals.

32 Tunable Memories. Thirty-two tunable memories, more than any other general coverage receiver on the market, offer instant recall of your favorite frequencies. Each memory stores frequency, VFO and operating mode and is backed by an internal lithium memory battery.

Options. FM, RC-11 wireless remote controller, synthesized voice frequency readout, IC-CK70 DC adapter for 12 volt operation, MB-12 mobile mounting bracket, two CW filters, FL32-500Hz and FL63-250Hz, and high-grade 455KHz crystal filter, FL44A.

ICOM

First in Communications

ICOM America Inc., 2380 116th Ave NE, Bellevue, WA 98004 / 3331 Towerwood Drive, Suite 307, Dallas, TX 75234

BEHIND THE DIALS

INFO-TECH M6000 MULTIMODE DEMODULATOR

It has been a good three years since Digital Electronics unleashed their powerful RTTY/Morse/ASCII/TOR demodulator, the Info-Tech M600. It was a stand-alone (no computer needed) unit which connected between the audio output of a receiver and a video monitor or printer.

Now Digital has done themselves one better. While the new model 6000 is an extremely powerful and flexible accessory for the serious monitor of the radio spectrum, it does have one or two shortcomings which we will examine shortly. But first, let's take a look at what it does--and does well.

While still providing Morse, RTTY, TOR and ASCII, it has added TDM--Time Division Multiplex, a form of radioteletype overlaying two or four channels on one frequency. It also allows tunability of non-standard speeds (37-251 baud) on RTTY and two new non-standard speeds on ASCII (1050, 1800 baud).

Extended Baudot shifts are also available from 85-1200 Hz and high/low tone choice for Morse.

Parallel printer (Centronics) output is now standard in the 6000, allowing use with inexpensive computer printers without optional accessories. A bevy of LED status indicators makes the unit light up like a Christmas tree during some reception modes.

A graphics generator provides on-screen tuning, a handy adjunct to the LED light bar on the demodulator itself. The CRT status line alerts the operator to exact mode and permits continuous operation during the speed query which used to shut down the M600 until the status line announced the speed.

MOSTLY GOOD NEWS

It seems unfair to find fault with a sophisticated piece of equipment with such outstanding credentials, but there are one or two caveats which must be addressed. They should not deter an experienced utilities monitor who has RTTY savvy, but I would hesitate to recommend the M6000 to a newcomer to the game.

The new demodulator seems to be a victim of the "Let's put everything in one box" syndrome. Perhaps it is a little too feature-packed. True, if an individual monitors HF, satellites, telephone lines, and microwave realys he is likely to find most of the modes and features useful during his lifetime. But the bevy of front panel keys and switches which require constant attention need to be addressed in a more systematic manner by the operating manual.

One design flaw requires the majority of new owners to remove the cover's 12 screws, lift the lid, adjust a trimpot, snip out a resistor, try a variety of modes while readjusting the pot for its correct position, and reassemble the lid again.

The internal audio gain control is factory set for the high output level of the NRD-515 receiver; the vast majority of record output levels found on more common receiver is much lower. Sadly lacking is the front panel gain control provided on its predecessor, the M600. This control also allowed the operator to shut down the display while tuning the receiver through the spectrum without garbage constantly printing out on the screen.

The operating manual is loaded with information--if you know where to look. For example, this initial check out procedure:

"Adjust control #1 (no such designation is found on the board)...with a medium strength RTTY station tuned in properly." (There is no explanation of how to tune it in properly). The manual continues:

"If adjustment...does not cause...LED to illuminate...cut one lead (of resistor #2)." (Resistor is not identified on the board and no value is given to identify its resistance. It is in a cluster of three resistors.)

While a parts location diagram is inserted in the back of the manual, it is unreferenced in the instructions.

These criticisms are primarily ergonomic in nature--user friendliness, to borrow a phrase from the computer world. The instrument itself works very well. The new owner should brace himself for an intense breaking-in period while he digests the convoluted manual from cover to cover. After he starts feeling comfortable with the instrument's operation, he will command the most powerful data demodulator on the market.

(Info-Tech M6000, $947.90 suggested retail; available from Grove Enterprises at a special introductory price of $849 including UPS shipping.) ●

M6000 FEATURES AND SPECIFICATIONS

RECEPTION MODES:

Morse Code (CW) 5-120 WPM
RTTY Baudot Standard Speeds 45,50,57,75,100 baud
RTTY Baudot Non-Standard Speeds 37-251 baud
RTTY Baudot Bit-Inverted
RTTY ASCII Low Speed Standard 75, 110 baud
RTTY ASCII Hi Speed Standard 150,300,600,1200 baud
RTTY ASCII Hi Speed Non-Standard 1050,1800 baud
TOR (aka SITOR, SPECTOR, AMTOR, ARQTOR, FECTOR)
TDM Time Division Multiplex (Moore) 2ch 86,96,100 baud
TDM Time Division Multiplex (Moore) 4ch 172,192,200 "

RECEPTION SHIFTS:

Standard Baudot Shifts 170,425,850 Hz & Variable
Extended Baudot Shifts 85,1200 Hz
Microprocessor Controlled Shifts
Automatic Shift Selection
Automatic Shift Display
Automatic Tuning
Standard ASCII Hi Speed Shift (BEL)
Extended ASCII Hi Speed Shifts: 103A, 1030, 202
CCITT v.21 O&A,CCITT v.23 Mode 1 & 2
Low Tone & Hi Tone Set Capability
Morse Code Dual Tones 750 & 1000 Hz.

PRINTER CONTROL:

RS-232, MIL188, Loop Driver at 8 baud rates
ASCII 8th Bit Select Switch (Serial only)
Digital Auto-Start Output
Parallel (Centronics) Printer Port
Screen Print (Retro-Print) Full 1800 characters
User Programmable Sel-Cals/String Search

ADDITIONAL FEATURES:

Microprocessor Controlled Switch Capacitor Filters
Unshift-on-Space, Multiple Scroll Inhibit
Automatic Threshold Control, Status Line, Speed Readout
User Programmable Initialization Format
User Programmable Video Formats (4)
Remote Terminal/Computer Control
Automatic Gain Control
On Screen Bar-Graph Tuning Indication
Scope Output RTTY
Scope Output RTTY & Morse
Three Built-In User Selectable Teletype Alphabets
110/220 VAC 50/60 Hz Selectable
Tuning Error LED
Data LED
Data Error LED
Parity Select on ASCII Receive (ODD, EVN, none)
Built-In Diagnostics

The HX-1200 Does Have Lockout

In a recent review of the new Regency HX1200 programmable scanner one observation was incorrect.

Although there is no "lockout" key, the user simply presses the channel number(s) he wishes to lock out during the scan mode. To restore a channel into the scan sequence, simply repeat the routine that was used to lock it out. The command is mentioned in the instruction manual.

DRIFTING SPURS

An interesting phenomenon which has been reported by users and observed here at MT headquarters is the roaming presence of internally-generated signals drifting through the spectrum, occasionally causing the scan sequence to stop on an unoccupied channel as the signal drifts past that frequency.

Fortunately, those spurious signals ("spurs") are quite weak and with the squelch set back a reasonable distance from the threshold, it should not represent a serious problem.

CLUB CORNER

Paul Swearingen
P.O. Box 4812
Panorama City, CA 91412

Welcome again to MT's Club Corner. I hope that all of you had a chance to join us in December for ABC Talk-Radio's Ray Briem Show DX Special which was organized by DX'er Greg Hardison, also a KABC employee.

For me, it was a real privilege to participate with such DX'ing and international broadcasting luminaries as Arthur Cushen, Dr. Richard Wood, Jonathan Marks, H. D. Norman, and Ian McFarland, to name only a few. We were able to include 23 call-ins, several of whom were DX'ers.

Perhaps the most important thing to emerge from the broadcast was that two of the callers indicated that they were motivated by last year's broadcast to become DX'ers/SWL's, and if you expand the number exponentially, you'll soon realize that the show has been able to reach the general public to inform them of the benefits of the hobby, and we would hope has increased the number of club members.

Coverage (especially in the central part of the country) was unfortunately spotty by participating radio stations, but there is an indication that changing policies at ABC will permit more stations to carry the Ray Briem show. Perhaps next year the 3rd Annual DX Special will blanket the country.

At any rate, we hobbyists are indebted to Ray Briem and Greg Hardison for their efforts in promoting DX'ing/SWL. If you'd like to send a note of thanks to them to the above address, I'll certainly be glad to forward all correspondence.

O For a non-club, the **ROCKY MOUNTAIN LISTENERS** is certainly active, and if their application for affiliation with SPEEDX comes through, they may become even more involved with projects. Their next meeting is February 23 in Aurora, CO. For more details send an SASE to RMRL, 4131 S. Andes Way, Aurora, CO 80013.

Another radio organization providing services to DX'ers is **KCBI**, Dallas. Their program "Radio Connection" airs M-F at 1930 UTC on 11790 kHz and Sunday at 1830 UTC on 11905 kHz. DX'ers may phone their tips to host Jeff Fallen between 0200 and 0400 UTC Tuesday through Saturday at (800) 223-5224. Thanks to RMRL for that tip.

UNID (United Northwest Inland DX'ers) is offering twelve different awards to DX'ers throughout the radio spectrum, and they do NOT have to be members of UNID to receive the awards. For info, send an SASE plus $1.00 (or 3 IRC's) to UNID Awards, c/o Gary Stone, East 603 Empire, Spokane, WA 99207. UNID is also soliciting loggings from SWBC's and Utes for their newsletter.

The **515 CLUB** is growing, but they'd still welcome more members who own the JRC NRD-515 receiver. Send an SASE to Richard M. Oddie, 857 Virginia Court, Sonoma, CA 95476 for details.

The **CANADIAN INTERNATIONAL DX CLUB** has changed its mailing address to #12 1411 Millwoods Road East, Edmonton, Alta, Canada T6L 4T3. The CIDX Executive Secretary has purchased an acreage about 15 miles east of Edmonton which will serve as his DX center.

The **NATIONAL RADIO CLUB'S** "DX Audio Service," a creation of Fred Vobbe, has been adding features as well as members, both sighted and non-sighted. Formatted much like a news-talk radio program, the topic is primarily AM radio DX. The program is dubbed onto audio cassette tapes from NRC's "DX News" and other material exclusive to the Service.

Inquiries, either written or on cassette, may be directed to Fred at 706 MacKenzie Drive, Lima, OH 45805-1835. A full year's subscription to the service, with the member retaining the tape, is $25; a tape-return membership is $12. Sample copies are $3.00 and checks should be made to the "National Radio Club."

The February 1 meeting of the **ASWLC** at 16182 Ballad in Huntington Beach, CA, will start at 10:00 a.m. Members and non-members alike are welcome. The **SCADS** meeting February 15 will start at 9 a.m. and will be held at the Village View School Auditorium, 5361 Sisson Drive, Huntington Beach, CA.

Ron Pokatiloff's **"Radio Equipment Review"** keeps ticking along with #4 hot off the press in December.

CLUB CORNER cont'd

$12 to Ron at 2661 Sheridan Rd., Zion, IL 60099 will get you 6 issues.

SPEEDX has just published a booklet which takes a look at radio in the U.S.S.R. Entitled "A Guide to Soviet Radio," it is authored by Michael Nowicki, N6LUU. The entire spectrum of Soviet radio is covered, including internal services, external republics, R. Moscow World Service, feeders, military radio, hams, maritime services, beacons, and jamming.

The book is a must for the serious DX'er, and at $2.50/9 IRC's (to non-members) is a real bargain. Contact SPEEDX at 7738 East Hampton Street, Tucson, AZ 85715.

I LIKE...

Michael Nowicki's column "Product Profiles" in SPEEDX's club bulletin. He manages to pack excellent advice concerning the treatment of equipment in just a few words, that the non-technician can understand, too. A sample copy of "SPEEDX" can be yours for $1.50 (another bargain) sent to the above address.

A personal note...this column is a bit shorter than usual because I've moved to the west end of the San Fernando Valley...and not everything seems to be readily accessible at the moment! Perhaps by next month I'll get it all together; and perhaps I'll receive more material, too. Let's see some sample bulletins from the new clubs springing up, including the new SPEEDX affiliates; just send 'em to the address above. Until next time...73!

Special Event Amateur Radio Station

San Antonio, Texas From Alamo Plaza, next to the Alamo, W5SC will celebrate Texas Independence Day as part of the Texas Sesquicentennial activities--150 years under the Lone Star. March 2, 1986, 0600Z to 0600Z; 10, 15 and 20 meters, lower portions of the General CW and voice bands, conditions permitting. QSL, #10 envelope, SASE: W5SC, 90 Brees Blvd., San Antonio, TX 78209.

For further information contact: Melvin (Andy) Anderson Jr.. WB5NOL, 8932 Saddle Trail, San Antonio, TX 78255. (512)698-1712 or 698-1714.

ANTIQUE RADIO CLASSIFIED (Subscription, 5-1/2" x 8-1/2", approx. 22 pages, monthly; $15 from Antique Radio Classified, 9511 Sunrise Blvd. J-23, Dept. MT, Cleveland, OH 44133)

Are you interested in antique radio equipment? Now in its third year of publication, ANTIQUE RADIO CLASSIFIED is a delightful, nostalgic trip through time. Articles on early receivers, speakers and other equipment are featured with excellent photographs as well as dozens of classified and display ads to buy and sell.

The theme concentrates on pre-1950 radios with many going back near the turn of the century. A rich resource for hard-to-find parts as well as entertaining reading.

THE 1986 AERO/MARINE BEACON GUIDE by Ken Stryker (83 pages, 8-1/2" x 11", looseleaf drilled; $10 postpaid U.S.; $15 overseas from Ken Stryker, 6350 N. Hoyne Ave., Dept MT, Chicago, IL 60659)

For years, Ken Stryker's Beacon Guide has been the standard of reference for "lowfers," those stalwart souls who endure the electrical noise of the low frequency bands in quest of new signals in the 200-400 kHz range.

Now Ken has released an all new, updated version which emphasizes these aeronautical and marine navigations signals in the 16-1745 kHz range--over 6100 of them! Listings include city, airport and chart names, geographical coordinates, transmitter power, and operating characteristics.

Listings are as recent as October 1985, making this new beacon guide quite up to date. Included in this volume is a list of those license-free lowfers transmitting in the 160-190 kHz range.

The book is divided into two cross references: listings by frequency and listings by Morse identifier.

GOVERNMENT RADIO SYSTEMS by Robert Kelty; Third California edition (256 pages, 8-1/2" x 11", paperbound; $20 from Mobile Radio Resources, 2661 Carol Drive Dept. MT, San Jose, CA 95125; ph. 408-292-4342)

Now in its third revision, Kelty's excellent directory of federal, state and local government frequencies throughout California continues to provide a comprehensive guide to listening in that state.

Arranged by county, state and local listings include channelization plans as well as tone encoding frequencies. The federal government section is listed by agency.

Although directed toward the California scanner enthusiast, many federal listings are nationwide in scope and are of use to listeners across the country.

A GUIDE TO SOVIET RADIO by Michael Nowicki N6LUU (32 pages, 6" x 9", paperbound)

This SPEEDX publication is a handy booklet for short wave listeners with a penchant for tuning in various emissions from the USSR. Not only excellent for the international broadcast SWL but for the utilities buff as well.

The guide includes propagation information, instructions for reporting signals reception for QSL's, a map and list of transmitter sites, a list of addresses of Soviet stations, a list of Radio Moscow feeder stations and frequencies, VOLMET and other aero stations, government, amateur, beacons, and even ham radio operations.

A lot of neat stuff for the Iron Curtain enthusiast from SPEEDX, 7738 East Hampton Street Dept MT, Tucson, Arizona 85715-4212.

SCANNER RADIO LISTINGS Nevada/East Central California edition, by Norm Schrein (201 pages, 8-1/2" x 11", paper bound; $9.95 from Fox Marketing, 4518 Taylorsville Rd. Dept. MT, Dayton, OH 45424) ●

SWB and Ham Listening on 40 Meters

The 40 meter band has always provided useful and exciting listening along with a smattering of frustration. It is basically a just-before-dusk to just-after-dawn SWL and Ham DX band. In addition it offers all-day ham activity over short to medium distances. You can always find a signal on 40.

In the early evening, just before dark, SWB stations begin booming in from Europe and the Middle East. Late at night and in the wee hours signals may come from anywhere depending upon season of the year, propagation conditions and sunspot cycle.

The Orient and down-under stations are favored at dawn with the Radio Australia Outlet on 7205 serving as a beacon to let you know just how strong morning propagation conditions are.

Officially, the 41-meter SWB band extends between 7100 and 7300 kHz but it stretches out on both sides with Albania on 7090 and BBC on 7325, but in patches it goes much further. My procedure is to search between Radio Beijing, China, on 6933 and South Korea on 7550.

These late afternoon stations can be used as propagation clues. All of the four but BBC sign off about 2300 UTC. Signals on 6933 and 7550 are most always low level and sometimes just heterodynes at my location.

When propagation is especially good there are signals to be heard almost every five kHz from 7100 to 7300. Most are clear enough for ID'ing readily. Weaker ones require the usual patience, careful tuning and hope for a good ID. More about working this crowded segment of the band later.

Of great value for ID-scanning a band is the publication, Radio Database International--Broadcasting Edition (IBS, P.O. Box 300, Penn's Park, PA 18943). In this publication the frequency channels are listed in order. So are the occupant stations, their individual broadcast times and other information.

There are additional interesting facets of the 40/41 meter band. Don't forget CHU on 7335 for checking short and medium range propagation conditions during the day. Pirate stations like to frequent the region between 7350 to near 7550. Best search time is weekend evenings.

Set your receiver on lower sideband and tune into the daytime eastern CARS network that usually operates near 7255. It is an instructive mix of net operations, mobile signals, chatter, liaison for hams wishing to establish contact with other hams, and additional useful services.

ED NOLL cont'd

A number of other networks are based on 40 meters with activities associated with some special interest or for strictly social contact. Many radio amateurs begin their listening on 40 by tuning into the slow code speeds present on the novice section of the band (7100-715) and shifting to W1AW at scheduled times for receiving code practice.

Time was spent tuning the phone portion of the band, too, mixed with some daydreaming about the day you could operate a phone station. Sometimes one picks up a sentimental attachment for a particular band despite the almost nightly bedlam that is 40 today. But that bedlam is in itself a challenge.

Over the frequency spread between 7100 and 7300 kHz North American hams and European broadcasters intermingle. Broadcasters transmit on AM; hams on sideband. When the Atlantic Transoceanic path dominates you can use AM to receive the strong SWB stations. However, if you are interested in a weaker SWB signal, it can be helpful if you try sideband (exalted carrier single sideband) when ham interference is a problem. Select the sideband that delivers the more readable signal.

Hams on 40 use lower sideband; a few operate on AM. The radio amateur part of the USA phone band occupies a frequency span between 7150 and 7300 kHz. Amateur code operation continues from 7150 down to 7000.

The European radio amateur phone operation is concentrated between 7050 and 7100. When USA and European phone operators wish to make contact with each other on this band they must operate split frequency because the European hams may not operate above 7100 because of possible interference with the European broadcast stations above that frequency.

You can hear the hams call each other and at the end indicate a listening frequency. If you wish a challenge try to listen to both ends of a European/USA conversation by tuning between the two frequencies or by quickly putting the two frequencies in your memory bank and switching between them.

Most hams who operate split frequency have two VFO's with one set to the transmit frequency; the other to receiver. Give it a whirl!

Canadian and Latin country radio hams are permitted to operate below 7150 and you can often hear them on the code (CW section) of the USA band, usually between 7050-7150. Of course they can also be found from 7150 up to 7300 intermixed with the USA phone operating hams. Daytime ham radio listening is excellent and rewarding from one end of the band to the other (7000-7300 kHz, CW and phone portions).

You can hear slow code speeds from W1AW everyday on 7080 kHz. Excellent practice! The slow speed times of W1AW transmission are:

W1AW SLOW CODE SPEED
Time: Eastern Standard

Sun	4 pm	10 pm
Mon	9 am	7 pm
Tue	4 pm	10 pm
Wed	9 am	7 pm
Thurs	4 pm	10 pm
Fri	9 am	7 pm
Sat	4 pm	10 pm

Frequencies are 1.818, 3.58, 7.08, 14.07, 21.08, 28.08, 50.08 and 147.555 MHz. Code speeds begin at 5 WPM and increase progressively to 7-1/2, 10 13 and 15 WPM each session.

FIRST CODE "HEARING" TABLE

LETTER	CODE	LETTER	CODE
E	.	K	-.-
I	..	R	.-.
S	...		
H	....	C	-.-.
		Y	-.--
T	-	X	-..-
M	--		
O	---	L	.-..
		P	.--.
A	.-	F	..-.
U	..-	Q	--.-
V	...-		
		1	.----
N	-.	2	..---
D	-..	3	...--
B	-...	4	....-
		5	.....
W	.--	6	-....
J	.---	7	--...
G	--.	8	---..
Z	--..	9	----.
		0	-----

After you build up your speed, tune to the many nighttime DX signals you can often hear between 7000 and about 7035 and, on occasion, on up to 7100 and higher. If you think you would like to go two-way instead of being only a one-way listener contact your local ham radio club. The novice requirements are very simple and you can expect a lot of help.

A lot happens on the 40 meter band. As they say on 40 meters the difference is as big as day and night. Tune in and find out. ●

Reflections on Radio

by Hank Bennett

We never mobile DX'd with a scanner before

It'd been a year since we purchased our Bearcat 100 scanner from Grove Enterprises and, to say the least, we've had a lot of fun with it. We've done just about everything with it that can be done except use it in operation in the family car which, in our dearly beloved (?) state of New Jersey, is a major no-no.

I've been a licensed amateur operator since 1940 and a semi-professional column writer since 1948, but I cannot get legal permission from our state or from our community to operate my scanner in the car, strictly for purposes of research, of course!

I'm not into chasing fire trucks or police cars but I am into DX'ing on the scanner bands from both a fixed and from a mobile location. The law in New Jersey, as interpreted by my favorite guardhouse lawyer, is that I can operate my scanner in a mobile situation as long as it is I that is mobile and on my own two feet.

So how does this affect him who would like to operate a scanner from public transportation? Can it be done legally? I decided to try it without asking questions and wound up having a ball.

We (my wife, Mea, and I) went to visit my sister out on Cape Cod so we rode AMTRAK from Philadelphia's 30th Street station to Boston's suburban station at Route 128. But AMTRAK doesn't exactly make scanner listening any picnic, either. Headphones are a must and I wasn't about to ride 309 miles with a hearing aid stuck in the side of my head. Besides, that's the one feature of the Bearcat 100 that I don't like--they give you a poor version of an earplug.

We obtained good seats in a coach up near one end of the car where we'd be less likely to disturb other passengers. Everything was set up, the antenna was extended out (we bought the long-distance ANT-8 antenna from Grove, too) and we rode on through the country-side, past the New Jersey state

HANK BENNETT cont'd

capital, past the meadows, through New Brunswick and into Newark right on time.

We left Newark right on time, too, but only got as far as the east end of the station when our new electric locomotive decided it was time to break down. So there we sat for 45 minutes, listening to the activities on the scanner and watching all of the other AMTRAK and PATH trains passing.

We heard that New York was sending over a replacement engine and, in due time, it arrived, coupled on and took us on into the Big City and on to New Haven where the electrics were changed to diesel-electrics for the balance of the trip.

While waiting there in Newark, various trainmen would go rushing through the cars and passengers would try to stop them to find out what was happening. Fortunately, only a couple of the people around us knew that we had all the news as it happened.

The trainmen were no good at all for any information if they knew anything they simply weren't about to reveal it. But we were able to follow by radio the backing of the relief engine from New York to Newark.

We left Newark 50 minutes late and arrived at Route 128 50 minutes late. Now that's consistency!

The trip home a few days later proved very uneventful from Route 128 to Pennsylvania Station, New York. But in the station there we monitored messages that said the Boston-Washington train ahead of ours (by 2-1/2 hours) was broken down "somewhere in Jersey" but if a location was given, we didn't catch it.

Our train, the "Minute Man," left Penn Station on time and was soon keeping time with the scheduled run at 86.5 miles per hour, right on through Newark and into the Jersey flats. But wait - there was the matter of a train broken down "somewhere in Jersey" and we soon found out where.

It was the "Yankee Clipper" and it was on the tracks, but dead, at Metropark station in Iselin. Passengers from that train had had to work their way over to the platform--no easy matter! They waited for over two hours until it was decided that our train would be the one to stop and pick them all up.

All of this activity was duly noted on the scanner and by this time we had an audience. Some of the train crew seemed unhappy with our scanner but nothing was said. At this point our train was working Lincoln Tower nearby.

We loaded up and soon started off again but there wasn't a bit of room for another person. Passing through Princeton Junction, our train began working Fair Tower and were told to reduce speed, that our train was going to be "put in the hole," as the saying goes, to allow a New Jersey Transit train to briefly have the right of way on our tracks.

Shortly after crossing the beautiful (yuck!) Delaware River, transmissions really picked up between our train and Grundy Tower. Grundy was inquiring whether our train had any passengers from the "Yankee Clipper" that were hoping to make a connection in Washington for points south. The train crew checked their tickets, found a number of Florida-bound passengers, and the information was radioed ahead to Washington to hold the connecting Florida train.

In the midst of all this, the very obliging operator at Grundy kept everyone abreast of the latest ballgame scores and we, in turn, passed them on to those around us. The train conductor, although aware of the scanner, was still maintaining strict silence about everything that was happening.

Since I had left my frequency list for AMTRAK at home I had to use the "search" feature on the Bearcat to locate AMTRAK channels. We located 160.790 MHz for the New Haven-Boston region, 161.060 MHz for New Haven-New York and 160.800 MHz for the New York-Philadelphia area.

While we're at it, I'd appreciate a list of scanner frequencies for CONRAIL in South Jersey as well as for CONRAIL in the Albany-Utica portion of the old New York Central System, if anyone has it. And thank you in advance!

- . . . -

I few issues back I asked if anyone remembered someone from radio named Phil Cook. I seemed to recall, from my childhood days, that he was an early-morning comedian.

A letter in from Duncan Kreamer, W1GAY, of Vineyard Haven, Massachusetts, reveals that Phil Cook was probably a pop performer on CBS in the mid-1930's, playing a guitar, singing and chatting with a radio audience. "I never knew him as a comedian." He was on WABC until perhaps 1945.

This information was obtained from a "Pictorial History of Radio" by Irving Settel, and published by Castle Books. Mr. Kreamer asks if we remember the Dream Singer (or was he known as the Street Singer?)? He was Ralph Kirberry, a client of Mr. Kreamer's Dad when he practiced law in Paterson, N.J. W1GAY, by the way, has been licensed for 60 years!

- . . . -

A mystery station has been provoking some interest as indicated by member Edouard Provencher of Biddeford, Maine. A member of the American Short Wave Listeners Club, Mr. Provencher has been hearing a station on 21,000 kHz at various times between 1500 and 1700 GMT.

The transmissions last for about 20 minutes without any spoken words. All that is heard are Strauss waltzes ("Blue Danube" and "Emperor Waltz") and two polkas ("Fast Track" and "Thunder and Lightning"). The frequency is approximate and any help may be sent to Mr. Provencher at 145 Summer Street, Biddeford, Maine 04005. (Some mention of this has appeared in John Santosuosso's Pirate Radio column...ed.) ●

SWL WORLD WATCH

by Ken Wood

It's good to be back with you again. Topping our news this month is the arrival of a mini-version of the U.S. Government's Radio Marti. This new entry is called "Radio Free Afghanistan" and, initially, anyway, it amounts only to a 15 minute program twice daily beamed over the facilities of Radio Free Europe/Radio Liberty.

It is scheduled Tuesday through Saturday at 1345 on 17.750, 17.895 and 21.510 MHz and at 2315 on 7.295, 9.625, 9.660 and 11.970. The programs are in Dari and are aired from RFE/RL's European transmitter sites.

What's going on in Cuba? The transmitters used for Radio Havana Cuba and for Radio Moscow and the Mayak relay have been doing strange things lately. RHC's daytime 15.230 frequency has been cutting in and out periodically almost every afternoon. The 4.765 Mayak transmitter frequently shows up at various spots on the dial besides the main frequency.

One night in late October Jeeves noted the Radio Moscow North American Service via Havana with a tremendous buzz/hum spread out over much of the 49 meter band. Peaks of signal strength and clarity were found every three to four kilohertz continuously from 6.143 right on up through 6.188 around 0145 UTC. At the same time, RHC was using 6.140. In between, nothing but hum and buzz.

Several new Peruvians have been added to the log here in the past four weeks. Radio Amistad on 8.515, apparently broadcasting from Moyabamba until variable 0400 sign-off, is one.

Another was Radio El Porvenir on 3.914 variable around 1010 sign-on, also variable. Location of this one is uncertain yet, but perhaps Trujillo or the town of El Porvenir.

A third new one, Radio San Miguel Huanchac on 4.966 signing on around 0900, is particularly weak.

Here are some of the other things we've noted.

AFRICA

ANGOLA - Radio Nacional, Luanda on 4.820 at 0500 sign-on with anthem, gongs, into Portuguese.

ALGERIA - Radio Algiers heard at 2010 with English news and commentary on 17.745. English begins at 2000.

CAMEROON - Radio Bafoussam heard on usual 4.000 at 0500 sign-on with ID by man in French, news in French.

CENTRAL AFRICAN REPUBLIC - Radio Centrafrique, Bangui, 5.035 at 0500 sign-on in French and into music program.

DJIBOUTI - Radio Djibouti on 4.781 (nominal 4.780) in French at 0315, but heavily QRM'd by Emisora Atlaya, Ecuador on 4.792.

EQUATORIAL GUINEA - Radio Nacional, Bata, on 4.925 at 0505 with music and good signals, in Spanish.

GUINEA - Radiodiffusion Nationale, 4.910 at 2355 with vernaculars, ID in French, anthem and off at 0000.

IVORY COAST - Radiodiffusion Ivoirienne, in French with man announcer on 7215 at 0615.

KENYA - The new Voice of Kenya transmitter at Koma Rock on 9.725 at 1430 in English. Only fair at best, despite 250 kW.

LIBYA - Voice of the Arab World in Arabic on 7.245 at 0140. Man and woman talking with battle sounds in background.

SWL WORLD WATCH cont'd

MALI - Radiodiffusion Nationale du Mali, Bamako, in French on 4.783 at 2350. African music up to the sign-off routine just before 0000.

NAMIBIA - Southwest Africa Broadcasting Corporation on 3.295 at 0440 with easy listening music, in English.

SOMALIA - Radio Mogadishu, 7.200 around 2045 to 2100 sign-off in Somali with local music. QRM-free, unlike 0300 sign-on.

ZAMBIA - Zambia Broadcasting Service, 3.346 at 0333 with interval signal, into vernaculars after 0345 sign-on but quite weak.

ASIA - MIDDLE EAST - OCEANA

BANGLADESH - Radio Bangladesh on 15.525 at 1255, music and talk in English. Into another language at 1300. Weak.

CHINA - Radio Beijing on 15.520 at 0040 with listener's letters in English. Also quite weak.

IRAQ - Radio Baghdad with English news at 2030, items on war with Iran. Poor and considerable QRM.

MALAYSIA - Radio Malaysia, Kuching, Sarawak on 4.835 at 1155 in Malaysian with local music, ID.

PAPUA NEW GUINEA - Radio Milne Bay 3.360, in Pidgin at 1102, ID and seeming newscast.

SOLOMON ISLANDS - SIBC on 5.020 at 1140 with pop music. Announcers in both Pidgin and English.

SUDAN - Radio Omdurman on 5.039 from 0415 tune, in Arabic with singing, flutes, ID.

VIETNAM - Voice of Vietnam on 15.010 in English with news at 1332. Off at 1359.

EUROPE

ALBANIA - The Gjirokaster home service outlet on 5.020 noted with a music program at 0055.

HUNGARY - Radio Budapest, 6.025 at 0103 in English with news, local happenings in Budapest. Just fair.

ROMANIA - Radio Bucharest with classical music on 11.940 at 1315. Off at 1326. English.

NORTH AND CENTRAL AMERICA

BELIZE - Radio Belize, 3.285 with news at 0122 in English.

COSTA RICA - Radio Casino, 5.954 at 0550 with English to 0600 sign-off. Poor and heavy QRM.

GREENLAND - Grønland's Radio on 3.999 being heard again around 1010 although it took several checks. In Greenlandic and airing a variety of music.

GUATEMALA - La Voz de Nahuala on 3.360 at 0250 with marimba music.

MEXICO - Radio Mexico International on 11.770 at 1903 in Spanish with talks.

SOUTH AMERICA

BOLIVIA - Radio Santa Cruz, 6.135 sometimes good at 0930 sign-on, all Spanish.

COLOMBIA - La Voz de Yopal, 5.050 at 0050 in Spanish to sign-off with announcements at 0102. Heard infrequently.

FRENCH GUIANA - RFO Cayenne noted at 0908 on 5.055 with pop music, news, listener mail, all in French.

ECUADOR - Radio Baha'i on 4.990 heard to 0500 sign-off in Spanish. Fair. Often QRM'd or not there at all.

La Voz de Upano on 5.040 at 0140 with music, into long sign-off procedure and gone at 0152.

PERU - Radio Continente on 8.925 variable at 0302, Latin music, man announcer. Good some nights, not heard others.

VENEZUELA - Radio Mara on 3.275 at 0428 in Spanish, some U.S. popular music.ID at 0430 in Spanish.

Radio Yaracay returned to the air on its old frequency of 4.940. Latin music, IDs in Spanish from 0105 tune-in.

CHALLENGER:

This month's target is the Turkish State Meteorological station in Ankara. From the name it might be taken as a utility but short wave broadcast listeners claim it, too, due to the fact that it broadcasts music between its weather reports.

Look for it on 6.900 with a scheduled 0400 sign-on time. It's been heard by a number of DX'ers over the years although hardly on a regular basis. If conditions are right and this one is showing then check also for Turkish Police Radio on 6.340.

Scheduled for an 0600 sign-on, instead of weather, Turkish Police Radio airs traffic reports, at least according to the WRTH. It, too, has been logged by a number of listeners under the right conditions. Both stations program only in Turkish.

JEEVES SAYS:

Still no sign of Radio Lira International, the Adventist outlet which was supposed to commence short wave operations from Alajuelas, Costa Rica, on 25 and 49 meters in the latter part of October. Maybe it'll be on by the time you're reading this.

Meantime, AWR's Guatemala City station, Union Radio, is reported to be off the air but hopes to be back on around the first of the year.

Conditions in the shack here have swung about wildly over the past month, ranging from very good to extremely bad, so the effort to make interesting loggings for you has been a battle at times. To make matters even worse, Ken usually gives me the really early morning tuning assignments!

Hope this month's column has been of some use to you in your search for new ones. I still have one more pass to make over the grounds (sweeping up leaves) and then need to do a third checkout of the antenna systems before the snow flies.

73 from Ken and me. ●

ENGLISH LANGUAGE BROADCASTS

by Tom Williamson

This month we will start by taking a look at a unique short-wave operation --RADIO EARTH.

This is a privately owned company which many of you probably have already encountered on the air; its difference in style can be seen in its slogan, "The short-wave listeners' station" and in the new station project in Curacao slogan, "Built BY short-wave listeners, FOR short-wave listeners"!! Well, at least that's something original in our favor, isn't it? The poor old SWL usually has to put up with a barrage of whatever a given government wants him to hear!

Since June 1983 Radio Earth has been on the air with time on the Dominican Republic station at Santo Domingo, "Radio Clarin"--11700 kHz. Then more recently over WRNO New Orleans; currently KCBI is airing the program, also Radio Milano in Italy.

The program entitled "The World" has included in the past many well-liked segments such as "This is the Caribbean," "Short-wave Pandemonium," "Skyline," musical sections from North American sources, DX programs from Sweden, Swiss Radio, and Glenn Hauser, and also a mailbag program. So you can see there has been a

ENGLISH LANGUAGE BC cont'd

great variety of types of programming, which has added to its popularity with short-wave listeners.

The ideology is non-political, featuring unbiased information and entertainment. They have sought an international audience, bearing in mind that modern technology has provided inexpensive, digitally-controlled short-wave portable radios for a large multitude of people.

People listening to the station usually have a strong interest in international affairs, and it is assumed that such people are more apt to travel overseas. This point is relevant to the latest developments with Radio Earth--the plan to build their own transmitting station on the Caribbean island of Curacao in cooperation with Landsradio, the government telecommunication authority. This liaison would be of mutual benefit since Radio Earth will be promoting tourism on the island, the administrative center of the Netherlands Antilles.

In this connection, Radio Earth has already purchased a short-wave transmitter of TMC make with an output power of 25 kW AM, and double this on the SSB mode. Initial consideration is being give to antenna construction and an inaugural service to North America and the Caribbean. The service will be partly sponsored by the Curacao Tourist Bureau and the operation will be of commercial nature.

You may buy air time on the station: for rates contact the General Manager, Jeff White, at 312-492-9300 in Evanston, Illinois.

Until now, Radio Earth's operating time has been restricted to about six hours weekly over the above-mentioned stations. Considerable expansion is anticipated when their own facilities are available.

Since 1983, they have operated a studio in Curacao in addition to Miami; other facilities are available in the U.S. and Europe. Already the first tour group has been organized to Curacao and should have visited the island by the time you read this article.

The projected sign-on date for the Curacao station is June 1st, 1986. We take this opportunity to wish Jeff White and all the staff of Radio Earth a very happy and prosperous 1986!

UPDATES:

The current KCBI schedule for Radio Earth broadcasts is Sundays from 1800-2200 UTC on 11790kHz. This four-hour session is for North America and reception by your editor on this channel is usually good.

WORLD HARVEST RADIO: This is a new religious short-wave broadcaster due to go on the air at Christmas 1985. They were heard here in December with test transmissions on 9770 kHz as 2120 with test tones and taped announcements requesting reception reports. The address given was Box 50250, Indianapolis, Indiana 46250; station location is Noblesville, Indiana and call sign is WHRI.

As promised in the December column, we close this month with a chart of selected broadcasts of music around the world. The chart should be consulted in combination with the column. A selection of different types of music has been chosen with emphasis on ethnic folkloric types, representative of the country of origin.

Also included as alternatives are some other stations in the countries listed, since these often have more music content of the type concerned. However, these alternates are NOT in the English language.

In addition to ethnic music some stations' program of pop, jazz and classical music are quoted (such as the V.O.A. and B.B.C. for example, since they give a good quality reliable signal, and have quality programming). ●

MUSIC OF THE WORLD - Summary Chart.

ALBANIA	0000/0130	7065/7120	alternate:Gjirokaster
R.Tirana	0300	6200/7300	5020/5057 about 0300-0500
ARGENTINA	0100-0200	9690 11710	
R.A.E.	1200-1300	15345	
	2100-2200	15345	
AUSTRALIA	0730-1100	5995 6060 9580	Soundabout 0910 Wed. and
R.Australia	1200-1500	9580	Australia Top Ten -Sun
			Concert Hall 1430 Fri.
BRASIL	0200-0300	11745	alternate:Manaus 11780
(Nacional-Brasilia)			
CHINA	0000-0100	15520 15385	
R.Beijing	0800-1100	15520 15385 11650	
	1100-1300	17795 15520 15385 11860	
	1900-2100	11650 9820	
CUBA	0000-0600	9740 6140 6100 6090	
R.Havana	0600-0800	9525	
ECUADOR	0115 (SAT)	9870 6230	Musica del Ecuador
HCJB	0230 (TUE)	.. ..	
	0500 (TUE)	11910 9870 6230	
	0545 (SAT)	.. .. ..	
EGYPT	0200-0330	9475	
R.Cairo	2100-2230	9805	
GERMANY (F.R)	0100-0200	6145 6085 6040	
Deutsche Welle	0500-0600	6130 6120 5960	
GREECE	2300-0400	9905 9420 7395	
Voice of Greece	1200-1600	17565 15630	
NETHERLANDS	0130	9895 6020	Jazz series-Tuesdays
R.Netherlands	0230	9590 6165	Happy Station-Sundays
	0530	9715 6165	
PORTUGAL	0000-0100	6095	
R.Portugal			
SPAIN	0000-0200	9630	
S.F.R.	0500-0600	9630 6125	
TURKEY	2330 (MON)	9560 7215	
Voice of Turkey	0430 (WED)	9560	
UNITED KINGDOM	0000-0800	6175 5975	Concert Hall 1515 Sun.2115 (Tu
B.B.C.	1100-1800	15070 11775	Sacred Choir 0145(Mon)John
	1900-2200	15400 15260 9410	Peel 0330(Tu)0830(Th)1330(Fri)
	2100-0000	7325 7150 6175 6120 5975	Sandi Jones 1345(Sun)
U.S.A.	0310	15205 11675 9690 9650 5995	Music USA Jazz/
(V.O.A.)	0130	11530 9450 6170	Concert Hall Music USA.
WRNO	1900/0100	15420/7355	Jazz 30(Tu-Thur)/Weekly Top 10 (Fri)
	0000-0300	7355	Top 30 USA
U.S.S.R.	0730/1430/		Jazz zhow;Music request/Folk
	1830/2130		Box/Music & musicians(Sun 1030

THOSE 20 METER BEACONS: The Mystery is Solved!

Several sharp-eyed MT readers came to the rescue of listener Edward Campbell who reported hearing mystery CW beacons on 14100 kHz,

It seems that the beacons are a coordinated effort by members of the Northern California DX Foundation (Box 2368, Stanford University, CA 94305) to establish a synchronized series of radio transmissions worldwide so that hams can predict with some certainty the element of success they might have in working those parts of the world at that time.

The system is computer-coordinated and operates 24 hours a day.

Participating beacon stations in order of their transmission time slots are:

Ø New York 4U1UNB
1 San Francisco W6WX/B
2 Hawaii KH6O/B
3 Japan JA2IGY/B
4 Israel 4X6U/B
5 Finland OH2B
6 Madiera Is. CT3B
7 South Africa ZS6DN/B
8 Argentina LU4AA
9 Colombia

Each station transmits for one minute, beginning with its call sign in CW (Morse) followed by a succession of ten-second dashes, each denoting a decrease of power: one dash=100 watts; two dashes=10 watts; three dashes=one watt; and four dashes=0.1 watt.

Since the sequence repeats on a continuous basis, each of the nine stations transmits every ten minutes.

IT'S ABOUT TIME

by Arch Wicks W6SWZ

One of the most important needs in this day of instant communication is to know the time in other parts of the world. During the past two decades the ability to communicate instantly and easily with all parts of the globe has increased at a tremendous rate. No longer does a business person ponder as to whether a cable is less costly than a telephone call--immediate communication is the guiding factor. And radio listeners and amateurs need to know the time in many parts of the globe for best communications.

The chart that is shown can provide instant information as to the hour in 150 locations on the globe (you can easily add to the list, too). Except for a few instances the minutes will be the same in all locations at any given time. As a folded sheet, the chart may be used by travelers wishing to know the time "back home" or at their next destination. But first, some back-

IT'S ABOUT TIME cont'd

ground on the standards of time and the basis for the chart.

"Standard Time" was adopted by most of the nations of the day at a conference held in Washington, D.C. in 1884. Standard time, as defined, was to be based on the mean solar day as determined at the Royal Observatory in England. This was a radical departure from "apparent" solar time which had been used up until that time. Apparent solar time, whereby noon was determined as being the time at any location when the sun was directly overhead, had resulted in the local time being different in towns and cities only a few miles apart.

The meridian (great circle) of longitude at Greenwich, England, was accepted as the prime (zero) meridian. It had existed for centuries but was not acknowledged by every nation as being the "prime" meridian. In fact, at the conference there was a great deal of debate in deciding just where the prime meridian would be located.

The meridians passing near Jerusalem and Rome were advocated for religious reasons; the one passing through the Great Pyramid at El Gizeh was suggested due to the survival of this landmark for many centuries. A meridian through Hierro in the Canary Islands was also recommended because of its location near important sea lanes.

Although the final location at Greenwich was at the Royal Observatory, the Observatory was moved in 1948 but the meridian reference point location remained at its original position as part of a national museum.

Once the zero meridian was finally agreed upon, a method for calculating the hour of the solar day was determined. The 360-degree circumference of the earth would be divided into 24 time zones, each 15 degrees wide. Each time zone would differ in time from the Greenwich meridian by an integral number of hours. The center of each zone would be one a meridian on longitude with the zone itself extending 7-1/2 degrees on each side of the meridian. This was the ultimately agreed upon plan.

The time zones along these meridians are seldom exactly parallel to the meridian; political boundaries of the various countries and states and geographic considerations have caused some modification. Hence, although on the sea surface and in the air a zone will usually parallel a meridian, a time zone on land may vary considerably.

As an example of this, in a certain area of the U.S.S.R. a person traveling in a straight line north and south may have to change his watch three times between the southern border and the Arctic shore.

Some countries, although having time differences from the zero meridian that are fairly close to the nearest meridian, have fractional hourly changes. For example, the time zone passing through the approximate middle of Australia has a difference of 9 hours and 30 minutes from the zero meridian. The Tonga Island group in the South Pacific has a difference of 12 hours and 19 minutes. Fortunately, there are only a few of these deviations from even hour differences.

INTERNATIONAL DATE LINE (IDL)

Many years ago, circumnavigators of the earth arbitrarily agreed that a new day would begin (or a day would be lost) at the 180th meridian--180 degrees east and 180 degrees west of the Greenwich meridian, an area of water for almost its entire length. When crossing the IDL westbound, a full day is "lost." When moving east, a day is "gained." This must be done also in converting time when using the chart.

The position of the IDL has changed little in the intervening years, deviating only to avoid large land areas and some islands, most notably the East Cape of the U.S.S.R., the Aleutian Islands and the Fiji Islands area of the South Pacific.

TIME ZONES

The mean solar time of the Greenwich meridian is used for many commercial, scientific, business, and technical purposes in order to avoid problems that would occur by attempting to use conflicting local times. The official name that has been adopted by international agreement is Universal Time Coordinated (UTC). By long custom it is also known as Greenwich Mean Time (GMT), and many still designate it thus (see related article).

The military of all nations and civil aviation and marine activities call

The Measurement of Time-- Then and Now

by Donald de Neuf

The practical standard for measuring time is based on the rotation of the earth: Early devices to indicate time embrace sundials of various sorts, controlled trickling of water or sand, and even the burning of a candle marked with periods of "time." A primitive mechanical clock was invented about 996 AD.

For many years "time" was strictly local, based on the transit of the sun across the meridian--approximately one minute of time for each 13 miles of distance, or one second of time for each 1140 feet of longitude. Each city and town adopted a time standard which was based on local "Sun Time" at the City Hall or some other designated location. A traveler from Maine to California would be obliged to change his watch some twenty times if he was anxious to constantly have his watch showing the correct "Railroad Time."

In the railroad station in Buffalo there existed three clocks for a confused public to "tell time." One was set to New York City time--by which the New York Central Railroad operated, another was set to Columbus time used by the Lake Shore and Michigan Railroad, and the third was set to "Buffalo Time." In Pittsburgh there were six different time standards for the arrival and departure times when having to change trains.

In Kansas City each of the leading jewelers furnished his own "standard time"--no two of which agreed--and often varied as much as twenty minutes. In order to have at least somewhat identical time within the area of a city, the "Time Ball" system was adopted in many places. Each day at "official noon" a large ball--often three or four feet in diameter and visible for several miles, was dropped at noon from a tall mast. As the ball fell, people adjusted their watches.

With adoption of standard time zones Western Union, who had been supplying some subscribers in New York City with "accurate time ticks" from a precision clock in the U.S. Naval Observatory in Washington, began the distribution of time signals on a nationwide scale over its Morse lines. The "lag" on the lines amounted to about 1/15th of a second from Washington to New York, and to San Francisco about 1/4 of a second. But this accuracy was vastly superior to any other methods then in use.

Master Clocks of the pendulum type were located in Western Union central offices and were corrected manually once each day through "time ticks" sent over the entire WU Morse system at noon. Subscribers' mechanical clocks were electrically coupled together in "slave fashion" into the central office master clock which would set them once each hour automatically.

When synchronous electric clocks were developed and electric power companies began to systematically control their AC generators to provide "precision time" this resulted in the gradual disappearance of the WU Time Service. However, it was not completely phased out until 1973.

In 1869 a Telegraphic office was established in the Naval Observatory with lines connecting it to the Navy Department, the Washington Fire Alarm Telegraphic Office and Western Union for the purpose of communicating "exact" time. This was the forerunner of the Navy's radio transmission of "time signals" which began August 9th 1904 over the NAA at Arlington, Virginia.

In 1923 the U.S. Bureau of Standards (now the National Bureau of Standards) aware of the growing importance of disseminating highly accurate time signals for the benefit of navigators at sea and in the air, radio broadcasting stations, scientific experiments, etc. established a radio station WWV in Washington for this purpose.

Today the NBS service operates from Fort Collins, Colorado (WWV) and from Kauai, Hawaii (WWVH). The stations also transmit propagation forecasts, marine storm information and geophysical alerts. Transmitter radiated power is 10 KW on frequencies of 2.5, 5, 10, 15, and 20 MHz. There is also a "long wave" transmitter (WWVB) operating on 60 kHz.

The time and frequency broadcasts, controlled by the primary NBS frequency standard in Boulder, CO, are accurate to one part in 100 billion at all times.

A large emergency power diesel generating plant starts up automatically in the event of a commercial power failure. The master oscillators, however, are never affected by any power interruptions since they are all powered by independent battery systems.

** WORLD-WIDE TIME CONVERSION CHART **

Z	N	O	P	Q	R	S	T	U	V	W	X	Y	M	L	K	I	H	G	F	E	D	C	B	A
0	23	22	21	20	19	18	17	16	15	14	13	12	12	11	10	9	8	7	6	5	4	3	2	1
1	0	23	22	21	20	19	18	17	16	15	14	13	13	12	11	10	9	8	7	6	5	4	3	2
2	1	0	23	22	21	20	19	18	17	16	15	14	14	13	12	11	10	9	8	7	6	5	4	3
3	2	1	0	23	22	21	20	19	18	17	16	15	15	14	13	12	11	10	9	8	7	6	5	4
4	3	2	1	0	23	22	21	20	19	18	17	16	16	15	14	13	12	11	10	9	8	7	6	5
5	4	3	2	1	0	23	22	21	20	19	18	17	17	16	15	14	13	12	11	10	9	8	7	6
6	5	4	3	2	1	0	23	22	21	20	19	18	18	17	16	15	14	13	12	11	10	9	8	7
7	6	5	4	3	2	1	0	23	22	21	20	19	19	18	17	16	15	14	13	12	11	10	9	8
8	7	6	5	4	3	2	1	0	23	22	21	20	20	19	18	17	16	15	14	13	12	11	10	9
9	8	7	6	5	4	3	2	1	0	23	22	21	21	20	19	18	17	16	15	14	13	12	11	10
10	9	8	7	6	5	4	3	2	1	0	23	22	22	21	20	19	18	17	16	15	14	13	12	11
11	10	9	8	7	6	5	4	3	2	1	0	23	23	22	21	20	19	18	17	16	15	14	13	12
12	11	10	9	8	7	6	5	4	3	2	1	0	0	23	22	21	20	19	18	17	16	15	14	13
13	12	11	10	9	8	7	6	5	4	3	2	1	1	0	23	22	21	20	19	18	17	16	15	14
14	13	12	11	10	9	8	7	6	5	4	3	2	2	1	0	23	22	21	20	19	18	17	16	15
15	14	13	12	11	10	9	8	7	6	5	4	3	3	2	1	0	23	22	21	20	19	18	17	16
16	15	14	13	12	11	10	9	8	7	6	5	4	4	3	2	1	0	23	22	21	20	19	18	17
17	16	15	14	13	12	11	10	9	8	7	6	5	5	4	3	2	1	0	23	22	21	20	19	18
18	17	16	15	14	13	12	11	10	9	8	7	6	6	5	4	3	2	1	0	23	22	21	20	19
19	18	17	16	15	14	13	12	11	10	9	8	7	7	6	5	4	3	2	1	0	23	22	21	20
20	19	18	17	16	15	14	13	12	11	10	9	8	8	7	6	5	4	3	2	1	0	23	22	21
21	20	19	18	17	16	15	14	13	12	11	10	9	9	8	7	6	5	4	3	2	1	0	23	22
22	21	20	19	18	17	16	15	14	13	12	11	10	10	9	8	7	6	5	4	3	2	1	0	23
23	22	21	20	19	18	17	16	15	14	13	12	11	11	10	9	8	7	6	5	4	3	2	1	0
Z	N	O	P	Q	R	S	T	U	V	W	X	Y	M	L	K	I	H	G	F	E	D	C	B	A

***** EXTENDED LOCATION INDEX *****

UTC ZONE LOCATION

Z..ACCRA
C..ADDIS ABABA
A..AMSTERDAM
W..ANCHORAGE
B..ANKARA
D..ARCHANGEL
Z..ASCENSION ISLAND
Q..ASUNCION
B..ATHENS
R..ATLANTA
M..AUCKLAND
N..AZORES
B..BAGHDAD
G..BANGKOK
B..BEIRUT
A..BELGRADE
A..BERLIN
R..BOGOTA
E..BOMBAY*
K..BRISBANE
A..BRUSSELS
B..BUCHAREST
P..BUENOS AIRES
Z..CAIRO
E..CALCUTTA*
B..CAPE TOWN
Q..CARACAS
Z..CASABLANCA
S..CHICAGO
A..COPENHAGEN
R..CUBA
Z..DAKAR
T..DALLAS/FT. WORTH
T..DENVER
G..DJAKARTA
C..DJIBOUTI (no std)
Z..DUBLIN
T..EDMONTON
A..FRANKFURT
P..GANDER*
K..GUAM
S..GUATEMALA
Q..GUYANA (-15m)
R..HAITI
Q..HALIFAX
G..HANOI
R..HAVANA
W..HAWAIIAN ISLANDS
B..HELSINKI
G..HO CHI MINH CITY
S..HONDURAS
H..HONG KONG
C..ISTANBUL
T..INUVIK
I..JAPAN
B..JERUSALEM
B..JOHANNESBURG
U..JUNEAU
D..KABUL*
D..KANDAHAR*
E..KARACHI
K..KHABAROVSK
B..KHARTOUM*
G..KUALA LUMPUR*
M..KURIL ISLANDS
C..KUWAIT
Q..LA PAZ
C..LENINGRAD
R..LIMA
A..LISBON
Z..LONDON
U..LOS ANGELES
C..MADAGASCAR
A..MADRID
S..MANAGUA
H..MANILA
K..MELBOURNE
S..MEXICO CITY
R..MIAMI
X..MIDWAY
S..MINNEAPOLIS/ST. PAUL
Z..MONROVIA LIBERIA
P..MONTEVIDEO
R..MONTREAL
T..MOOSE JAW
C..MOSCOW
D..MUSCAT
C..NAIROBI
L..NAURU*
E..NEW DELHI*
S..NEW ORLEANS
R..NEW YORK CITY
X..NOME
L..NOUMEA
C..ODESSA
Z..OKINAWA
S..OMAHA
A..OSLO
A..PARIS
H..PEKING
H..PERTH
E..PETROPAVLOVSK
T..PHOENIX
K..PORT MORESBY
A..PRAGUE
C..QATAR
H..QUEZON CITY
R..QUITO
F..RANGOON*
E..RAWALPINDI
Z..REYKJAVIK
A..RIGA
P..RIO DE JANIERO
C..RIYADH (SUN TIME)
A..ROME
T..SALT LAKE CITY
U..SAN FRANCISCO
Q..SAN JUAN P.R.
S..SAN SALVADOR
Q..SANTIAGO CHILE
U..SEATTLE
I..SEOUL
G..SINGAPORE*
B..SOFIA
S..ST. LOUIS
A..STOCKHOLM
M..SUVA
K..SYDNEY
W..TAHITI
H..TAIPEI
F..TASHKENT
S..TEGUCIGALPA
C..TEHRAN*
Z..TENERIFE
Q..THULE
I..TOKYO
R..TORONTO
L..TRUK
U..VANCOUVER
A..VIENNA
K..VLADIVOSTOK
C..VOLGOGRAD
M..WAKE ISLAND
A..WARSAW
R..WASHINGTON D.C.
T..WINNIPEG
I..WONSON
I..YAKUTSK
C..YEMEN
A..ZURICH

* +30 MIN.

IT'S ABOUT TIME cont'd

UTC "Z" (Zulu) Time. Each time zone has also been given an identifying letter using the International Civil Aviation Organization phonetic alphabet.

Times in the successive 15 degree zones east of Zone Z are designated A, B, C, D, E, F, G, H, I, K, and L (note the omission of J). Time in the eastern half of the zone over the IDL is designated Y, and the western side of the IDL is M. You will notice that this results in the 15-degree width of the IDL having two letter zones--an exception to all of the other zones.

West of the Greenwich meridian, the time zones are N, O, P, Q, R, S, T, U, V, W, and X. For example, the Eastern Standard Time zone in the U.S. is in the "R" zone--five hours behind "Zulu time."

By using these internationally identified letters and the time differences among them, it is possible to arrive at the local time at any location on the face of the globe. The 24-hour time system is a requirement and, although a program may be devised easily that will use a 12-hour system, the assignments of many a.m. and p.m. times causes the reading of such a chart to be confusing.

The 24-hour clock is now used almost universally. In Europe and Asia all railway and airline timetables use it exclusively as do radio stations, civil authorities, the military, and most individuals. In the U.S. and Canada it is used in airline operations, police and fire departments, the military, the government, and others.

Time signals transmitted by the U.S. Bureau of Standards and its equivalent organizations worldwide also use the 24-hour notation as well as prime meridian time. Because it saves much confusion it is becoming more common in the daily operations of computer rooms and various communications operations. The 24-hour system was accepted by international agreement on January 1, 1925.

Becoming familiar with the 24-hour system is not complex. As most readers of Monitoring Times probably already know, the hours from 1 a.m. to 12 noon are the same in both the standard and 24-hour system. The hours from 1 p.m. to midnight in the 24-hour system are designated as 13 through 24 (midnight can be either 24 or 00). For example, 3 p.m. is 15 hours (usually shown as 1500, as the last two digits are used for the minutes following the hour). That's all there is to it; anyone should be able to learn it in a few minutes.

USING THE CHART

Select the column letter of your own location. Then, using the letter reference table at the top or at the base of the chart, select the column that has the letter of your choice of location. Scan directly across from the current hour at your location to the column of the other location. This will be the hour time at that location (or any other place within the same time zone).

If your city or the one for which you wish to know the time is not listed, then select the nearest city that is in the same zone. If you use some particular city or location frequently and it is not on the chart, you may wish to place it on the list or just remember the zone letter.

Let us assume that you are in Pueblo, Colorado--which is in the same zone as Denver and therefore is zone T. The time in Pueblo is 0930, so you run down column T to the figure 9. What time is it in Moscow, USSR? The table shows that Moscow is in the column for zone letter C. In that column directly across from the 9 that you noted you will see 19, so the time in Moscow is 1930 hours.

You will note in the vertical middle of the chart that two columns are duplicated; these are the two zones within the same 15 degrees that were described when we were discussing the

Goodbye GMT, Hello UTC!

by D. K. deNeuf, WA1SPM

GMT will soon pass from the scene; Great Britain has decided that it can no longer afford the upkeep of "Greenwich Mean Time." GMT was inaugurated in 1844 through international agreement that the meridian of Greenwich, England, would be adopted as the starting point for reckoning longitude and that the world would be divided into 24 standard time zones.

The Royal Greenwich Observatory began timekeeping in 1675 to provide a standard by which sailors could set their clocks before starting out on voyages that led to the conquest of much of the world. With the advent of radio and aircraft the system became invaluable. A schedule of, say, 2130GMT was understood in any part of the world, irrespective of "local" time--no manipulation was required because of time differences or occasional departures into "daylight saving time" in some places.

Two decades ago atomic clocks began to replace the much-less-accurate mechanical clocks. Today, what is known as Greenwich Mean Time to the public is Coordinated Universal Time, or "UTC" to the time-keeping cognoscenti (The letter "Z" is sometimes used, especially in military operations, to designate UTC). UTC is based on readings from 150 atomic clocks around the world under the auspices of the International Organization of Legal Metrology, or Weights and Measures, in Paris.

It costs Great Britain about $100,000 a year to keep the Royal Greenwich Observatory's six atomic clocks running. Every few years the vacuum tubes containing the element cesium have to be replaced. Cesium is the most electropositive of all known elements, meaning that it has a tendency to release electrons. It is by tracking this "electron shower" that atomic clocks are accurate to one millionth of a second.

The old Time Ball signal atop the Royal Greenwich Observatory is the world's first time signal, and the ball has been dropped daily at 1:00pm ever since it was erected in 1833 (see photo).

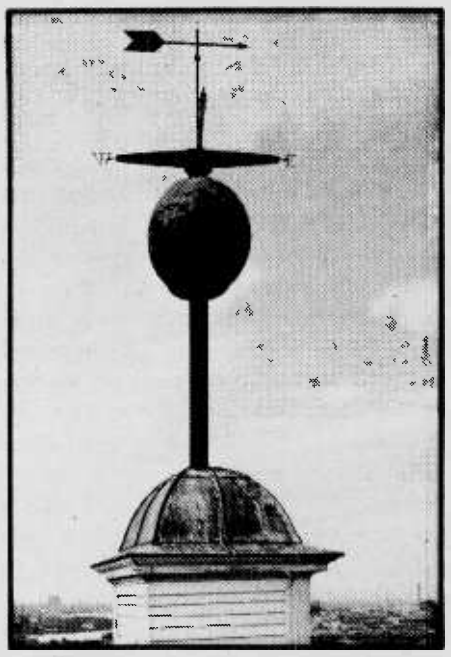
Observations of star transits made at astronomical observatories first furnish UT in a form known as UT0; small variations are corrected by international agreement. UT0 is changed to UT1 by correcting for a small variation in longitude caused by polar motion; correcting for seasonal variations in speed of the earth in its orbit changes UT1 to UT2.

In fact, the differences between UT0, UT1 and UT2 are small, generally less than 0.05 second. UTC itself is obtained from the atomic clocks which are adjusted in epoch so as to remain close to UT2. For the next few years clocks on UTC will be retarded about once a year.

When the clocks at the Royal Greenwich Observatory stop, the Observatory will become a user of international time instead of being a contributor.

Tempus Fugit.

The Time Ball Signal, Old Royal Observatory.



NEED A CLOCK?

From time to time (pardon the pun) we have been requested to supply addresses for sources of 24 hour clocks. Would our readers be interested in Grove Enterprises providing a quality, quartz-movement, 24-hour wall clock?

We need to know if there is interest and what size (6" or 9" diameter) would be desirable. We can include local time and daylight savings time on the dial as well as 24-hour UTC. Cost should be in the neighborhood of $30-$40.

Do you want round studio style? Square wood? Black or red numerals (or a combination for local/24-hour)? Or would you prefer a small, digital 24-hour clock --perhaps a combination of two LCD movements for 24 hour and local time?

Let us know and we will give it serious consideration. We already have our sources lined up for supplies.

IT'S ABOUT TIME cont'd

IDL. The time is the same in both zones; however, on the east (left) side of the zone it will be one day of the week, while on the other side (right) it will be the following day. Keep this in mind when determining if the day has changed in the location you are checking. Technically, for an infinitesimally short moment in time, the same day will occur all over the globe as midnight occurs at the IDL.

Let's look at one more example. In this one we will cross the IDL. The current time in Los Angeles (or San Francisco, etc.) is 2010. That's 8:10 p.m. if you haven't yet caught on to the 24-hour system. We want to know what the time is in Auckland, New Zealand. Los Angeles is in column U and Auckland is under column M, and shows 16 directly across from the Los Angeles time of 20. So the time in Auckland will be 1610.

You may have noticed that as you scanned across from column U to column M that you "crossed" the IDL (X and Y). Therefore, it is "tomorrow" in Auckland. That is, while it is just after eight in the evening in Los Angeles, it past four in the afternoon of the next day in New Zealand. Of course, if you are a New Zealander looking for the time in Los Angeles, it will be "yesterday" in L.A. from your viewpoint.

Note that all times are considered as Standard Time --add or subtract as required for Daylight Saving Time differences (or "summer time" as it is called in some countries).

References:

World Encyclopedia 1985
Hammond World Atlas,
Classics Edition

(NOTE: A computer program, written for the TRS-80 series computers but adaptable to other machines as well, is available from the author for one dollar plus a self-addressed stamped envelope: Arch Wicks, 30646 Rigger Road, Agoura, CA (91301). ●

PIRATE RADIO

by
John Santosuosso
P.O. Box 1116
Highland City, FL 33846

WAQI MIAMI: Last month we reported on this medium wave station on 710 kHz. Its Spanish language programs continue to be beamed to Cuba and the Caribbean as well as South Florida. However, Castro's response to the station has been somewhat modified. Although there have been occasional exceptions, use of conventional jammers against WAQI Radio Mambi appears to have stopped for the most part. Instead, Castro seems content to use his powerful Radio Rebelde relay to block reception.

In Hawaii Chuck Boehnke reports that much of the time Radio Rebelde dominates the frequency even that far away from Cuba. Chuck notes that the Rebelde frequency may be shifting from time to time between 710 and 713. He says Dr. Richard Wood, who is also hearing the relay in Hawaii, believes it is using at least two transmitters.

Chuck did hear WGBS several months ago before the station was "converted" into WAQI and has also logged WOR New York. So it is always possible that WAQI Radio Mambi might make it to the mid-Pacific despite the interference on 710 kHz.

Here, in Central Florida at present, WAQI dominates during daylight hours, but Radio Rebelde can usually be heard in the background. During darkness the frequency usually belongs exclusively to Radio Rebelde.

Interestingly enough, for about three nights when hurricane Kate was in our vicinity, WOR was the dominant station during evening hours. It has not been heard since.

In Pennsylvania John Demmitt managed to log Radio Mambi in the clear on November 17. He says there was no sign of jamming and the station was transmitting a long comedy program.

RADIO TAINO: A new Cuban medium wave station on 1160 kHz also is worth watching. Broadcasting in both Spanish and English, it identifies as Radio Taino and also as "Tour Radio from Havana." The broadcasting

PIRATE RADIO cont'd

schedule is from 1200 to 2300 UTC and the station claims to be a special service for tourists visiting Cuba.

Monitoring of both Spanish and English programming (English can be heard from 2100 to 2200) has so far revealed nothing other than tourist-oriented and cultural broadcasts.

Despite Radio Taino's seeming nonpolitical purpose, it should be remembered that the 1160 transmitter in use has long been known to be one of the country's most powerful. Should Cuba desire to do so, a transformation of Radio Taino into "Radio Lincoln" would probably be very easy!

The station is named for one of the four Indian tribes that once inhabited many of the Caribbean islands and parts of the Latin American mainland. It is also possible that there may be a government-controlled tour company using this name.

RADIO CAIMAN: From Minnesota Marty Croze reports he is still logging Pro Libertad de Cuba's Radio Caiman on 9960. Marty also keeps track of 7400 and 9940, but notes nothing unusual on those frequencies.

Loggings of Radio Caiman, WAQI Radio Mambi, Radio Taino, and Radio Marti's 1180 medium wave transmissions are especially welcome here. We might note that Radio Marti's QSL cards are now available. Reports go to United States Information Agency, Washington, DC 20547.

OTHER CLANDESTINE NEWS: From B.H.S. in New Hampshire comes some very interesting clandestine news. On 5000 kHz, where one would normally expect to hear only WWV and WWVH, he remarks you may come across anti-Sandinista Radio Quince de Septiembre, sometimes about as clearly as WWV. The best time to try for this is around 0400 UTC. He last logged it November 26 around 0445.

Also, B.H.S. reports a very clear signal from La Voz del CID evenings on 7380. He says reception is even better than on 9940, which is always very good at his New Hampshire location.

Finally, he notes a lower sideband Spanish numbers station on 5651 kHz. The station uses rapidly speaking male announcers with 5-digit groups. Transmissions are two-way.

PIRATE LOGGINGS: In Illinois Robert Margolis got a Thanksgiving Day logging of WMTV. The exact time was 0536, November 29, UTC, and the frequency was 7450 kHz. Until the 0627 sign-off he heard rock music with host "Captain Megacycle." Reception was poor until improving after 0605.

WMTV continues to announce an address of P.O. Box 1945, Delray Beach, FL 33444; however, these people do not answer their mail.

Thanks to a tip from Florida's Dave Crawford, this writer was able to log pirate KBFA on November 13 from 2345 to sign-off at 2351. The station said it was operated by "Broadcasters of Free America" and transmitted with a power of 250 watts.

What makes this station of interest is its announced frequency of 8000 kHz. As we recently reported, some pirates may be considering abandoning the 41 meter band because of the crowded conditions there.

ENGLAND: We reported last month that offshore commercial pirate Laser 558 had ceased broadcasting. Word has arrived that fellow pirate Radio Caroline is now using Laser's abandoned 558 kHz frequency. Meanwhile, surveillance of the Caroline operation by the British authorities continues.

At the time of its November closing, Laser 558 was Britain's most popular radio station.

ITALY: The winter DX season offers the best time to try for the low-power unlicensed European stations. Even during the present low sunspot conditions such reception may be possible.

From Italy Dario Monferini sends information on the currently active unlicensed Italian shortwave stations. He declares the government has no plans to license or regulate these broadcasters.

Probably the easiest of the Italians to hear is Adventist World radio out of Forli with 10 kilowatts of power. It transmits on 6205 kHz from 0500 to 0900, from 1500 to 1800, and from 2200 to 2300. On 7215 the schedule is 0900 to 1500 and 1800 to 0500.

Those wanting something a bit more challenging might wish to try for the extremely tough Radio Nuova Musica from Pordenone with only 100 watts. It uses a variable frequency around 7481 from 0700 to 1500 UTC. A bit easier is 5 kilowatt Radio Milano International on 7295 from 1800 to 1400 UTC. We will have details on some additional Italian stations next month.

IRELAND: We do not have complete details, but two Irish unlicensed stations may be running test transmissions to North America this winter. These are Rainbow Radio on 6240 kHz and Westside Radio International on 6280. Probably the best time to try would be weekends around 0600 UTC.

Several years ago this writer did manage to log Prince Terry's famous Westside Radio during one such test. It is possible that some or all of these tests may be in the 25 meter band (11 MHz) rather than the station's usual frequencies.

COSTA RICA: It is a licensed broadcaster, but Costa Rica's Radio Columbia on 4850 kHz often sounds more like a clandestine. A good time to monitor this is around 1000 UTC.

You may hear anti-Sandinista and anti-Castro programming; the Nicaraguan's have claimed it is a CIA operation. Reception reports can be sent to Apartado 708, San Jose, Costa Rica.

FAREWELL HAVANA MOON: Adios, mi buen amigo. Su ayuda ha sido indespensable. No le olvidare. Beberemos tecate en Habana. Hasta eso dia, vaya con Dios, mi amigo.

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A wise man holds his tongue. Only a fool blurts out everything he knows; that only leads to sorrow and trouble.

PROVERBS 10:14

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LET'S TAKE A LOOK at some of the mail before the final farewell, the big "adios" or whatever...

Guillermo has been kind enough to forward some intercepts from Canada. Guillermo says that the frequency of 6225 kHz is intriguing--male and female announcers are often repeating numbers. Spanish numbers in the form of 5-digit groups are monitored on 6870 kHz. It's also reported that a strange type of noise is heard on the frequency of 5135 kHz. What kind of noise, Guillermo?

Other active frequencies monitored in Canada:

17258 kHz	LSB Guillermo says traffic on this freq sounds Polish
16450	1500Z YL/4-digit SS
15650	1700Z YL/4-digit SS
13685	1800Z YL/5-digit SS
12255	1200Z YL/5-digit SS
12156	2000Z YL/5-digit SS
11532	1400Z YL/4-digit SS
11450	1300Z YL/4-digit SS
11050	0500Z OM/4-digit SS
9975	0600Z YL/4-digit SS
9260	possibly a MOSSAD freq

Five-digit Spanish also reported on 4670, 5135, 5912, 5965, 6228, 6230, 6840, 6870,6962 and 8100 kHz.

Four-digit Spanish reported on 4828, 5092, 5745, 8725, 9074, 9465 and 9465 kHz.

Thanks very much for the information, Guillermo. I'm happy that you and your associates have enjoyed the column. It's a shame you guys didn't contact me sooner.

Hank Bennett checks in with a very fine letter. Thanks for reading the column, Hank. Yes, Hank, the big island near Florida will --in the not too distant future--be host to an overthrow. VIVA CUBA LIBRE!

Hugh Miller of Washington State says that on a recent edition of ANPR's news and actualities program, "All Things Considered," reference was made to SW frequencies and the Duarte kidnapping. I wish we had the frequencies, Hugh.

Hugh says that close to a decade ago in Stern or Der Spiegel that reference was made to an East German spy and SW radios. It seems that this captured spy held some sort of government post in West Germany and was only found out when police searched his car after an automobile accident.

During the search a short-wave radio was found and the police determined that this spy would drive to some forested area, park his car, pick the correct crystal and insert in his radio, and (apparently) listen to a transmission from the Department for State Security from East Berlin.

LOS NUMEROS cont'd

Hugh continues by saying that he assumes that by now everyone agrees that at least some of the numbers broadcasts are one half of a spy communications net, the other half, the more vulnerable, being carried from the agent by means of letter drop and courier.

Would you be surprised that some 5-digit Spanish transmissions originate from Florida, Hugh? Well, they darn well do, Hugh! I'll have more after a few other paragraphs.

John Carlson of Massachusetts was kind enough to send a tape of a "numbers" transmission on 7375 kHz at 0210Z. This was a German transmission, John.

You might be interested to know that I just returned from a delightful stay at Boston's Park Plaza Hotel. While there I was privileged to be a luncheon guest at the Harvard Club. That's one helluva city, John, and beats the heck out of El Cajon any day.

Thanks to all who took the time to write.

NUMBERS AND THE LOGO

Do the numbers in the Havana Moon logo really equate to anything that's meaningful? One California group that's into UFOs and "ring-of-fire" prayers go to the Book of Revelations for their answer. It's regretful that I have been identified with the "Mark-of-the-Beast" and the dreaded 666. What can I say other than that my cloven hooves itch. Wonder if a little Tecate might help?

A MOST PECULIAR TRANSMITTER

Llano, California, which is about 85 miles northeast of Los Angeles, is where a certain group wishes to construct a transmitter of some sort to communicate with Angels or...

Getting FCC type acceptance of this transmitter could pose minor problems.

MILKSHAKE MADEMOISELLE: Definition of

Larry D. Loper of Sugar Land, which is deep-in-the-heart-of, writes a letter to the editor (MT, December '85) wherein he says, "What is a `milkshake Mademoiselle,' anyway?" I really don't wish to be the first one to tell you, Larry. Head for the pick-up and scoot on down to Needville for the answer to that one. Just kidding, Larry.

THINGS TO COME

Just because some 4-digit Spanish transmission sites have been revealed does not mean that activity of this type will soon come to an end. The same holds true for 5-digit Spanish and all the other types of "numbers" transmissions. They're just gonna be around for awhile. Maybe even another 25 years.

+++++++

"...it's my opinion that you--for reasons of your own--are not telling your readers everything you know about "numbers" transmissions..."

(name withheld)

VERY TRUE, MY FRIEND! My reasons, however, were valid.

Why do I have this feeling that some of you are not going to accept the fact that Florida is home to some few 5-digit Spanish transmitters? The following sites are not based on conjecture.

THE GRAND FINALE

One station operating at various times on 5135 kHz after 0500Z is located slightly west of the northwestern Ft. Lauderdale city limits. The 5-digit Spanish transmitted from this site is, however, of the live, non-computer generated type. The transmission format is slightly different than the most often reported 5-digit Spanish stations:

Attencion! (3X)
775 (Identifier)
100 (Groups)
XXXXX XXXXX ...
Final (3X)

Readers are cautioned that 5135 kHz is used on an irregular basis by this Ft. Lauderdale station. Transmitter sites for the other "numbers" stations on this frequency are not known. It's also a distinct possibility that these type transmissions are not related to the other 5-digit Spanish transmissions.

+++++++

A 4825 transmission at 1330Z and at 0500Z has been located very near Palm Beach International Airport. This is the 5-digit Spanish transmission format that's most often reported.

There's also growing evidence that 0200, 0230, 0300, 0330 and 0400Z (Wednesday only) transmissions on 3090, 3445, 4445 and 4052 kHz are coming from sites in Broward or Palm Beach County.

+++++++

Daytime transmissions on Saturdays and Sundays on 3090 and 5080 kHz are very well received in the area of Ocala, Florida. S9+ signals were recently heard using a Sony 2001 with no external antenna at 1500, 1530, 1600, 1630, 1700, 1730, 1900, 1930, 2000 and 2030Z. It has been determined that these signals were being originated from a site very near the Kennedy Space Center or Patrick Air Force Base.

+++++++

In addition: strong daytime signals have been monitored on 3090 and 4030 kHz in the vicinity of Pensacola, Florida and Mobile, Alabama.

+++++++

One of the strangest 5-digit Spanish transmissions was monitored just a few months back while in Boston. It was 0230Z on 3090 kHz. This S9+ signal was received on a Panasonic portable while in my top floor hotel room in the downtown area. I could view Boston Commons from the window. I have no logical explanation for this transmission.

I'll readily admit that the location of the above Florida sites was in no way possible without the help of two very well qualified individuals. To them a very big thanks.

It's also very curious that two other very qualified investigators know of these sites. Why they remain silent is their business.

Why will I not say more? Read the first part of this article again.

THANKS TO

The preparation of this column over the months has been made possible by: Zel Eaton, Jim Beckett, John Santosuosso, John Demmitt, Hank Bennett, James Ingram, Hugh Miller, Susan Moll, BHS, "Custom Avenger", John Carlson, Radio Caiman, Kristi-Ana, Dianna Lee, Jennye Michelle, "El Condor", "Willie of the Valley"; and those who wish to remain anonymous. I apologize to any I've overlooked. I'm deeply indebted to all of you.

ANSWER TO A QUESTION

I'm holding the photos for a later time. This ain't over yet.

BULLETIN

INFORMED FLORIDA SOURCES TELL ME THAT THERE IS A VERY REAL POSSIBILITY THAT SOME 3/2-DIGIT AND 5-DIGIT GERMAN LANGUAGE NOW BEING HEARD ON VARIOUS 3 MHZ FREQUENCIES DURING DAYTIME HOURS ARE BEING TRANSMITTED FROM CUBA!

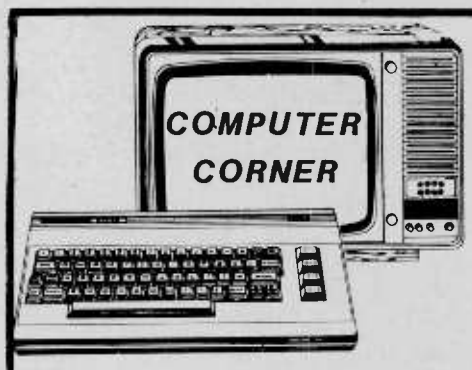
FAREWELL

...guess I better go
fin, final, ende, adios
it's been fun
and I really don't want
to go
but this
concludes
my show
be brave, Tammy Faye
hang on, Lani
there's another day
Time now for a Tecate
and...

Adios,
Juan Austin y Amigas
a/k/a/ Havana Moon

VIVA CUBA LIBERTAD!

The views expressed in this column are those of Havana Moon and do not necessarily represent the views of the MT management, staff or readers.



by
C.W. Ellis
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Ulster, PA 18850

COMPUTERS FOR COMMUNICATIONS

I know I promised some RTTY/Morse circuits this month, but...I'm going to postpone that slightly, and hopefully in a future column I can get together not only some circuit ideas, but perhaps some pictures of several ham shacks set up for computer reception.

Instead I thought I might outline the equipment necessary to get started in computing, and separate the needed from the frills. With that in mind, here goes.

Most home computers consist of various components which we can list and cover one by one:

SYSTEM UNIT	MEMORY
EXPANSION CHASSIS	PRINTER
DISK DRIVE	PLOTTER
TAPE BACKUP UNITS	DISPLAY
KEYBOARD	

Not all setups will contain all the above components and some will have various components combined in one unit.

SYSTEM UNIT:

The main "box" of a computer system is designated the system unit and contains a large printed circuit board which is the heart of the computer. If the computer has space for additional cards, they normally plug into this

COMPUTER CORNER cont'd

board (This main board is usually referred to as the "motherboard" and the plug-in units as "cards").

Also in the system unit is a power supply and any disk drives the system may have. Memory chips may be included on the motherboard, on a plug-in card, or both.

The power supply found in most home computers today is usually a switching-type power supply to save weight and space, and is big enough to power most cards that might be added. If these additional components cause the capacity of the supply to be exceeded, an external power supply must be provided to the accessory or the original supply replaced with a heftier one. The most common problem is that a replacement supply cannot be found to fit in the system unit.

MEMORY:

Most home computers fall in one of two categories where memory is concerned - those with sufficient memory, and those without. Most system units have provisions for adding more memory. Naturally this adds to the system cost.

As to actual numbers, 16 kbytes through 64 kbytes is probably enough for a machine to be used for communications work (16 kbytes = 16,384 bytes, a byte being the base unit of computer storage, approximately equivalent to one typed character--a number or letter).

Since most machines wind up being used for more than communications work, the actual memory needed is determined by the application. One should balance the need for more memory with the increase in cost as a tradeoff to adding other accessories.

The machine I use to prepare this column contains 640 kbytes of memory; this amount of memory is not needed to prepare this article, as a check just now shows 285 kbytes unused. There are, however, applications using more memory than this. Graphics applications are notorious memory eaters.

DISK DRIVES:

Like memory, these come in various sizes. There are computers on the market without disk drives, relying instead on cassette tape drives for program and data storage. There is nothing wrong with tape, it is just very slow compared to a disk drive. For those users operating on a tight budget, it is an alternative to the more expensive disk drives.

There are three prime considerations for disk drives; size, type and number. We shall take type first, as the use of the word "disk" carries several connotations.

The most common drive is properly called a diskette drive, as the recording media is a flexible disk made of the very same type of material cassette tape is made from. The other disk drive is referred to as a hard disk, meaning the disk is constructed of a magnetic material which coats a rigid disk rather than a flexible one.

In summary, hard disks (or "fixed disks" as they are also called) tend to be expensive, fast and store a lot of data. Part of the increased storage capacity is achieved by using multiple disks in a single drive. All of which is nice in a communications setup, but not necessary.

Which leaves us with diskettes and brings us to size. There are two size considerations for diskettes (also known as floppy disks or just "floppies"). Size refers to actual diameter such as 5-1/4 inch (the most common) or 8 inch (which was a common size on mainframe computers for many years).

Newest on the market, and attractive for portable personal computers, is a 3-1/2 inch drive.

The other size consideration is the actual amount of data that can be stored on a given diameter floppy. As an example, we can use the IBM PC series of machines, starting with the PC1, the original. Without getting into bytes per sector, sectors per track and so forth, we can still trace the size expansion of the 5-1/4 diskette used.

The PC1 used a diskette drive that wrote and read data to and from only one side of the diskette. Under IBM's DOS 1.0 operating system, these diskettes could store 160 kbytes. Later in the game, IBM announced double sided drives.

Those drives wrote and read both sides of the diskette, thus doubling the amount of data stored to 320 kbytes. Even later, DOS 2.0 was announced, with a change in the way data was stored on the diskettes, and capacity went to 360 kbytes.

As the storage capacity increased, IBM took great pains to assure that the newer drives could read and write the older lower capacity diskettes. IBM's next move was the PCAT with a new diskette drive storing 1.2 mbytes (1.2 megabytes = 1200 kbytes).

While the diskette physical size stayed the same, the high capacity diskette drives couldn't write the old 320 and 360 kbytes diskettes reliably. They will, however, read the older diskettes. At least that was IBM's claim. As it turns out, many high capacity drives will write a 320 or 360 kbyte diskette that the older machines can read.

There are other manufacturers' machines whose capacity per diskette is different yet: 120 kbytes, 760 kbytes, 820 kbytes, and other exist. The chief concern with size is pretty much solved by what is available for the machine you are considering. For communications work, even the 120 kbyte versions should prove adequate in most cases.

Last but not least we have to consider number, meaning the number of diskette drives installed. In the interests of cost, one drive can be utilized exclusively; anything a two-drive machine can do in communications a single drive can do. The only obvious limitation is data capacity.

The nice thing about having two diskette drives is not having to switch diskettes in and out when copying files from one diskette to another. Believe me when I say the wrist can get tired mighty quickly when copying more than a few files between diskettes!

DISPLAY AND KEYBOARD:

These two items can be disposed of together. The cheapest functional keyboard available is sufficient for communications work. Anyone who has hammered away on a Model 14 or 19 teletype setup will have no complaints with even the cheaper keyboards offered on some personal computers.

The display is also a matter of preference and pocketbook. A color display with incoming and outgoing text in different colors on a third color background is pretty. More color can be had by displaying the commands in a fourth color and error messages in still another color (Yes, computers occasionally display error messages, usually an operator or programming error since the computer doesn't make errors!).

But every color consideration is a frill, and a communications setup can get by on a green screen or even a black and white TV set. How much frill is a function of the state of the pocket book, with a good color monitor starting at $300.00. A small monochrome (black and white) TV can be had for well under $100.00.

The five items above constitute the necessities and the remaining four are, with the possible exception of the printer, not needed to do meaningful work in communications. Since we are about out of column, discussion of the remaining items will have to be covered later.

Incidentally, if there is a topic relating to computers you would like to hear about, give Bob Grove a shout. Even if it's something you don't like about computers or the column, let him know. Or drop me a line. I am slow to answer, what with all the correspondence, but I will eventually get your reply out--if you enclose an SASE.

GETTING STARTED

A new monthly column by
Ike Kerschner N3IK
Rd #1 Box 181A
Kunkletown, PA 18058

Welcome to a new column devoted to the newcomer to the radio hobby. Each month I will discuss some aspect of our hobby and tell you how you can participate in the many activities radio has to offer.

We will also talk about equipment, techniques and describe simple projects to improve your shack.

I invite your questions and will answer all queries that include a self addressed stamped envelope (SASE). Let me know what you want to see in your column!

LET'S BEGIN

This month we'll take a look at the HF (high frequency) radio bands. These are the most popular short wave bands that are most listened to by the radio hobbyist. They occupy the portion from 2 MHz to 30 MHz on your radio dial.

Within this range of frequencies you will find the short wave broadcast (SWBC) bands. The stations occupying this portion of the radio spectrum are primarily concerned with broadcasting an organized program of information to a large audience of listeners.

GETTING STARTED cont'd

They are similar to your local AM or FM broadcast station except they are usually located many thousands of miles away. Many SWBC stations will be quite loud and easy to receive; others will be more difficult to hear without some effort.

A majority of stations on the SWBC bands are controlled or sponsored by the government of a given country. These stations try to give the listener a picture of what life is like in that country and programs discussing social and cultural attitudes are popular with them. Some government stations have programs featuring music, drama, news, listener mail bag, and a few feature special programs for the SWL.

Religious broadcasters comprise a second group that provide excellent entertainment for the short wave listener (SWL). While these folks are primarily interested in broadcasting the message of their faith throughout the world, they also provide excellent programs concerning life and social conditions in the host country. A variety of programming such as music, plays and interviews is available to the SWL via these religious stations.

A new era in short wave broadcasting has recently been introduced by commercial broadcasters. Programming is largely dictated by the audience to which the station is directed. Presently, the most successful of these stations are music oriented. It is still a bit early to say if there is enough profit in short wave to keep commercial stations running.

Initially you will be interested only in stations broadcasting in your native tongue which, for most of us, is English. You can find the frequencies and times of stations broadcasting to the U.S.A. in publications such as MONITORING TIMES, INTERNATIONAL RADIO (formerly "The Shortwave Guide") and the WORLD RADIO-TV HANDBOOK.

INTERNATIONAL RADIO is devoted mainly to short wave broadcasting and every month a detailed program guide is issued for many of the English language broadcasts. For more information on International Radio write to Miller Publishing, P.O. Box 691, Thorndale, PA 19372.

A book no SWL should be without is the WORLD RADIO TV HANDBOOK which provides you with all the necessary data you need to tune to any of the world's major broadcasters; in addition it contains much valuable information on equipment.

The SWBC bands occupy specific places on your radio dial. Monitoring the following accepted SWBC bands will get you started today!

SWBC BANDS

120 meters: 2300 to 2500 kHz
90 meters: 3200 to 3400 kHz
75 meters: 3900 to 4000 kHz
60 meters: 4750 to 5060 kHz
49 meters: 5950 to 6200 kHz
41 meters: 7100 to 7300 kHz
31 meters: 9500 to 9775 kHz
25 meters: 11700 to 11975
19 meters: 15100 to 15450
16 meters: 17700 to 17900
13 meters: 21450 to 21750
11 meters: 25600 to 26100

These are the major frequency bands used by the short wave broadcasters. Many times these frequencies are shared with other services and broadcasters will often show up on unauthorized frequencies outside of the major bands to escape interference. They are where you find them!

Normally, the 120 to 41 meter bands are most active after dark and 31 to 11 meters are active during the hours of daylight. We are presently experiencing a period of low sunspot activity and radio conditions on the higher frequencies are so poor that will frequently find the bands of 60 to 25 meters active with SWBC stations throughout the entire day. 120 to 75 meters are still pretty much nighttime bands. Often 16 through 11 meters will be devoid of signals. Stations are still active on these bands, but conditions prevent us from hearing them. This is a normal phenomenon that occurs every 11 years. Conditions will be back to normal in another year or so. So, for now, enjoy your listening on the lower bands!

LOGGING

Many SWL's keep a log or record of their listening activities. A log can be of great benefit as it will (1) let you return to a frequency of interest; (2) provide a record of stations heard and verified; (3) help to identify stations at a later date; and (4) provide useful propagation information. You can purchase log sheets or books or you can make you own.

My logs follow this format: Date/time (in UTC)--frequency-- station-- report (SINPO)--weather conditions --receiver--antenna--report sent () QSL received () Taped y/n.

I allow a maximum of 6 loggings on a sheet because I like to include a lot of program detail. You can allow as many loggings per sheet as you wish. I frequently tape programs for later use or to send along with my reception report.

Most SWBC stations will be happy to send you a verification card for reporting reception of their signal. Often these are beautiful photo postcards of some interesting part of the station's country or you may receive a calendar, magazine or pennant from the station.

Verification cards are called QSL cards. To receive a QSL card from a station you will need to send them a reception report which should include some details from the program you received and a report on the quality of their signal. You can purchase prepared reporting forms from many of the advertisers in "Monitoring Times" and I advise using this type of report initially. I will cover methods of obtaining QSL cards fully in a future column.

Short wave broadcast stations transmit amplitude modulated (AM) signals and they can be received on a wide variety of receivers from one transistor (tube or IC) receivers to units costing many kilobucks. A new portable short wave receiver capable of providing you with many years of SWBC pleasure may cost you as little as $200.00. For those of you on a more stringent budget, I suggest the purchase of a used receiver (take a friend who knows radios along when you shop!). I have a receiver that I bought for $65.00 many years ago, a battered old surplus R388 which is still my main SWL receiver (it was built in 1952). A more expensive unit is always nice to have; the extra frills like extra sharp filters, clocks, programmable scanning, and memories are great and make the hobby even more enjoyable, but they certainly are not absolutely necessary.

What kind of antenna do you need? Well, that's tough; I always say put up the longest, highest wire you can. With most modern sensitive receivers you will be able to hear a heck of a lot of signals with a wire of 20 to 30 feet long and strung along the floor of your home, but you will hear more with one 50 or 100 feet long and 20-50 feet high.

In today's world antennas are often difficult to erect and one answer has come in the form of active antennas. Prices for these dandy compact antennas run from about $50 to $100. And they really do work well. Only a few feet long, they cover a wide frequency range. If you have a problem erecting an outside wire I suggest you try an active antenna.

Short wave broadcasting is only a small portion of the activity that can be found in the 2 to 30 MHz portion of the radio spectrum. Next month we will continue our discussion of the users in the high frequency bands.

Please write and tell me what you want to see in your column. Send photos of your shack (black and white preferred for best reproduction in MT). I will answer all letters that enclose an SASE.

CUL (See you later!)
Ike

ANTENNA TALK

by W. Clem Small

THE DIPOLE

Probably no antenna, with the exception of the ubiquitous ground plane, has found such widespread use throughout the history of radio communications as has the time-honored dipole (see fig. one). There are good reasons for this, too.

It was one of the antennas employed by Heinrich Hertz when he first demonstrated electromagnetic radiation to the world back in the 19th century. That antenna, of course, became very well known and was therefore utilized by early wireless experimenters. Its popularity continues right up to the present.

Some reasons for its continued popularity are that it has reasonable gain, it is not too difficult to make and erect, and it is reasonably rugged if properly constructed. Another desirable feature for many antenna users is that its radiation pattern gives good "geographical" coverage, being only broadly directional (see fig. 2).

The directional characteristics of the dipole, even if slight, are useful at times for two reasons. One reason is that, in directions perpendicular to the antenna wire, they give a little gain over the common quarter-wave vertical

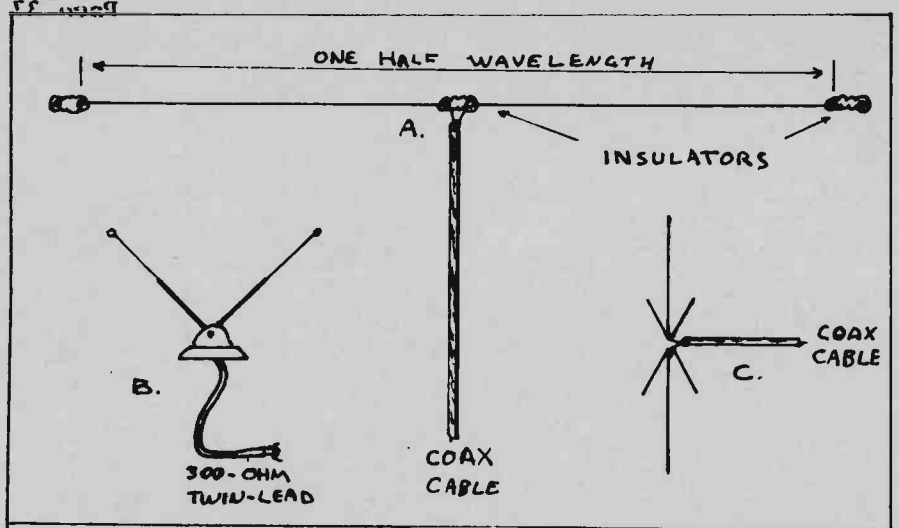

Fig. 1. Some examples of common dipole antenna configurations.

***ANTENNA TALK** cont'd*

(1.8 dB more gain): the second reason is that nodes (directions of minimum response) can be used to null out undesired stations if the antenna can be mounted with a node in the precise direction of the interference.

Actually, the radiation pattern of most dipoles is not nicely symmetrical like that shown in figure two; practical deviations from theoretical assumptions (like having your house, a power line or trees in the vicinity of the antenna: feedline radiation, etc.) cause the pattern to vary somewhat from that predicted by theory. Nevertheless, the dipole is a good performer and provides many of us with countless happy hours of listening or operating on frequencies from the HF to the UHF band.

Look at figure 1A. There we see a simple dipole as it is found in many monitoring stations when a specific band of frequencies is to be monitored. The dipole is a resonant antenna which, in simple terms, means that the antenna's length "fits" the wavelength utilized. Thus, the dipole antenna functions best at the specific frequency band for which it is designed.

To make an antenna for a specific band, the antenna is cut to a length which equals one-half wavelength at the center frequency of the band desired. When designed in this manner, the dipole antenna will function well over a relatively moderate bandwidth.

Although the dipole does function best on the band for which it was designed, it is often a passable, although not optimum, all-round monitoring antenna for signals at frequencies relatively far removed from its design frequency. As a matter of fact, many types of antennas can be used for monitoring at frequencies other than their design frequency, especially when the signals to be monitored are fairly strong. If you are in a fringe area, however, you will need optimum performance from your antenna, and your dipole should be cut for the band on which you use it.

Another common configuration of the dipole antenna is the rabbit-ear antenna shown in figure 1B. This antenna is frequently useful in monitoring local VHF-FM or TV broadcast stations. It can also be used for other VHF applications such as listening in on utilities, the amateur two-meter band and aeronautical stations.

Aside from the TV and FM broadcast signals, however, the signals just mentioned are usually vertically polarized and so you might want to mount the rabbit-ears vertically for this kind of monitoring. Also, as scanners tend to have 50-ohm coaxial cable (unbalanced) type inputs, you would need a balun to match the high impedance, balanced antenna transmission line to the low-impedance, unbalanced input of your scanner.

Since the element length of rabbit-ear antennas is adjustable, its performance can be optimized by setting its elements to shorter lengths for the higher VHF frequencies and to its longer lengths for the lower VHF frequencies. The element lengths can be set for specific frequencies by use of the formulas given later in this article.

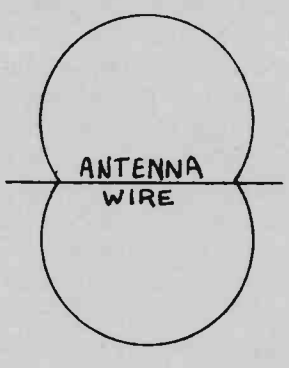

Fig. 2. The horizontal radiation pattern of a horizontally mounted dipole antenna. Note that the antenna has some directionality, as the gain, or response, of the antenna is maximum for signals that are perpendicular to the length of the antenna, and minimum (null) for signals off the ends of the antenna. If the dipole antenna is mounted vertically, as in figure 1C, its horizontal radiation pattern is circular, and the antenna is non-directional.

As mentioned above, the response of the simple dipole drops off fairly rapidly when it is operated off its design frequency. This problem can be alleviated to a degree by using a form of dipole developed by the well-known scientist and ham radio operator, John Kraus, W8JK. This broader frequency-response antenna is the folded dipole. The "driven" element, which is the center antenna element in figure 3, is an example of the folded dipole which is frequently found useful in communications work.

Its gain and directivity are the same as for the simple dipole, but its higher impedance (300 ohms for a single element as shown) makes it useful in beam construction where the addition of reflector and director elements would bring the simple (non-folded) dipole's impedance so low as to make it difficult to match to a feedline. Additionally, the folded dipole's increased bandwidth makes it a desirable driven element in wide-band beam antennas.

Such a beam, a Yagi-Uda, is the one shown at figure 3. The combination of the basic half-wave dipole driven element with other half-wavelength elements (used as directors and a reflector) make an antenna with excellent gain and directivity. Either the simple dipole or the folded-dipole antenna may be used as the active element in a Yagi-Uda beam, but matching to the feedline is different in each case.

You may wonder why the elements of this beam are different in length, since they are all three tuned to operate the beam at one particular frequency or band. To function appropriately, the reflector and director elements must be tuned to slightly different frequencies than is the driven element, and thus are different in length from that element. The director is slightly shorter, and the reflector is slightly longer, than the driven element.

YOU CAN MAKE YOUR OWN DIPOLE

Now let's get down to the practical situation of making our own dipole antenna. Just about any size copper or aluminum wire will work it if is strong enough to take the strain of being strung up between two insulators. Thicker wire is, of course, usually stronger and it also produces a somewhat broader bandwidth for the antenna.

For short antennas, aluminum or copper tubing is fine. All it takes to get the job done is deciding what length the element should be, cutting it to length, then cutting the element in the center to attach the feedline. Use insulators as necessary at the center and ends of the antenna.

When it comes to erecting the antenna, an old antenna installer's rule of thumb is: "The higher the better." On the other hand, if you can only mount it ten feet off the ground, it will likely still give you usable results. If you have a tree or so that you can use for a tower, you're in business on the HF bands (3-30 MHz).

Above the HF bands the situation is even better--you can usually find enough space to mount the antenna on your roof or even in your

Inventor Sues over "Perpetual Motion"

Joseph Newman of Lucedale, Mississippi, insists that his generator is not a perpetual motion machine; nonetheless, the Patent and Trademark Office has refused to grant him a patent.

Newman claims that while batteries provide less that two milliamperes of current to the machine, the magnetic field from a whirling permanent magnet cutting through a giant coil apparently produces some 200 watts of electrical power.

Newman believes he has discovered a new principle in which the machine taps the kinetic energy of streams of subatomic particles.

The trial is set for February, 1986; the outcome will be eagerly awaited.

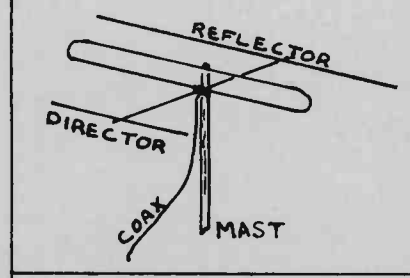

Fig. 3. A Yagi-Uda beam antenna. Each of its three elements is a dipole antenna.

***ANTENNA TALK** cont'd*

monitoring room! If the ceiling of your monitoring or operating room is the only space which you have available for mounting an antenna "as high as you can," then use it. Indoors is not a prime antenna location, but a lot of people have a lot of fun using indoor antennas.

A point to remember, however, is that buildings with a great deal of metal in their construction make poor locations for indoor antennas. When you mount an outdoor antenna, don't forget lightning protection if you live in "thunderstorm country."

To determine what length to use for your antenna, just divide the number 468 by the frequency (in MHz) which you wish to monitor: this gives you the length in feet of a half-wavelength at the frequency of interest. To find the same one-half wavelength measured in meters, substitute 142.7 for the 468.

On the other hand, substituting 5616 for the 468 gives the same length measured in inches. So the length of a half-wavelength dipole cut for the 20 meter band at 14.1 MHz would be 33.2 feet, 10.1 meters or 398 inches.

After you have an antenna cut in length cut it in the middle and attach the feedline. You may use 75-ohm twinlead or, more commonly, 75-ohm coaxial cable for the feedline from the dipole to your receiver, scanner or transceiver. For twinlead, the hook-up is obvious: one side of the line goes to each leg of the antenna. When using coax, the center wire goes to one leg of the antenna, the shield or braid to the other leg.

The use of 75-ohm coax with equipment having a 50-ohm input, as most receivers and scanners do today, will result in a 1.5/1 SWR--virtually undetectable. It can be corrected to a lower value, if you wish, with an antenna tuner(1).

Some authorities recommend that you use a 1:1 balun, or matching device, to connect coaxial feedline to an antenna. This does help prevent feedline radiation. The use of the balun preserves the balanced nature of the two halves of the dipole with respect to ground. If you don't use a balun, you may not get a nice symmetrical radiation (reception) patter, but your house and trees nearby have probably already distorted that.

Baluns can be important in other situations, such as when your TV receiver has only a high impedance input (300 ohms) and your antenna lead-in has a low impedance (50-75 ohms). In such a case, you may well want to use a 4:1 balun to convert the low impedance of the coax to a higher impedance at the receiver's antenna input. This will give better matching between coax and receiver, and result in better power transfer to the receiver. An antenna tuner may be used for this matching rather than using a balun(1).

In using baluns it is well to remember that, although they are usually broadband devices, they do have their frequency limitations and you must use one that is appropriate for the frequencies you are covering.

If you want a dipole for, say, 160 MHz, in the VHF utility band, the appropriate length would be 468/160, about 2 ft. 11 in. (or about 90 cm). Cut this length, then cut it at its center and connect your coax without a balun (unless you are sure that you have a low loss balun to avoid signal loss at VHF and UHF frequencies).

Note that the VHF dipole in fig. 1C is vertically oriented. Virtually all communications signals are vertically polarized at VHF frequencies and your received signal strength is greater with vertical polarization as shown here.

If you'd like to check that last statement out, just make this antenna and rotate it from vertical to horizontal polarization as you listen. Some of the stations may fade completely away! On the other hand, some signals will not fade away due to the multiple reflections at various polarizations which they have at your location.

If you'd like a broader coverage dipole, try making yours like the one in figure 1C. Cut more elements for the other bands desired and add them as shown.

Now you know some of the secrets of the venerable dipole antenna, you should be able to design one yourself. Of course there is much more to dipole antenna design than we've covered here. We haven't really considered the effect of such factors as the height of the antenna above ground, end-effect and so on.

If you want to read about dipoles, references 2 through 7 can give you helpful information in this direction. References 2, 3 and 4 are somewhat better for the beginner than the others. By the way, both references number 1 and 2 were written by Ed Noll, whom you will recognize as a regular columnist for Monitoring Times.

To get started working with antennas you don't need to know the more advanced concepts. You can design your own working monitoring antenna with the ideas covered in this article, and have a good performer for your efforts. So, full speed ahead, and Happy Monitoring!

THIS MONTH'S THOUGHT TEASERS:

1. Who was the first person to use a dipole antenna for electromagnetic wave radiation and reception? Hint: It was not Heinrich Hertz!

2. Why is a dipole sometimes said to have 0 dB gain? (Answers next month) ●

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HELPFUL HINTS

THAT ICOM BATTERY AGAIN...

"Much ado about nothing" might be a proper reference to the storm of controversy presently raging over the lithium battery backup used to store programming information in the ICOM R-71A RAM chip.

Although ICOM estimates that it should be 15 years or more before the battery might need to be replaced, critics denounce the use of such a system which renders the entire receiver inoperative in case of premature failure.

MT previously reported simple replacement techniques which might be employed to avoid losing the receiver's programming while replacing the lithium battery; without a voltage backup, the RAM card must be returned to ICOM for reprogramming.

MT reader Bob Parnass expressed concern that one of the techniques suggested by ICOM (January 1986 issue), leaving the receiver turned on while replacing the battery, is horrendous practice, encouraging destruction of delicate MOSFET semiconductors in the circuitry at the least, and electrocution of the unsuspecting technician at the worst!

Bob is certainly correct in his caveat and the best technique, one that was mentioned in an earlier issue (December 1985), is to apply five volts to the battery diode while making the switch; this keeps the circuit energized with the receiver unplugged, avoiding loss of RAM programming.

Again, we reassure our readers that the likelihood of losing the programming of an R71A RAM chip by premature failure of the lithium battery backup is unlikely and no cases have been reported by ICOM.

Should this occur, a simple $25 service fee and 24 hour turnaround assures the owner of a brand new RAM backup for another 15 + (?) years!

CLEANING THE ANTENNA RELAY ON THE R-390

by M.L. Gibson W7JIE

A couple of issues ago, one MT reader suggested a method of wiring OUT the antenna relay on the R-390 and 390A to cure contact noise. Unfortunately, wiring out the relay will also disable the circuit that kills input signals while calibrating the receiver.

If a noisy relay is your problem the cure is simple. Use a narrow strip of high grade bond paper (letterhead from your credit bureau, banker or attorney).

With the power OFF, open up the receiver and take the cover off the antenna relay located on the ☞

HELPFUL HINTS cont'd

back panel of the chassis. With a small screwdriver, insert the strip of paper between relay contacts, then press the contacts together with the screwdriver and gently pull the strip out from between the contacts. The strip should show a small dirty stripe.

Continue to clean EACH set of contacts until NO dirt shows on the paper strip. It may take several passes to clean each set. Reassemble the receiver and enjoy QUIET NOISE-FREE reception with full use of the antenna relay.

STRONGER SIGNALS ON THE SPECTRUM PROBE

The ANT-9 Spectrum Probe active antenna from Grove Enterprises was designed for installations where a full size outside antenna is impractical or undesirable. It has restricted signal pickup to avoid overload interference in strong signal areas.

But if you live away from strong transmitters, it is possible to improve the sensitivity of the Spectrum Probe substantially by lengthening the whip antenna. It can actually be replaced by a 48 inch (approximate) whip antenna from a parts jobber, or even a length of wire (inside installations).

The additional length will provide considerably stronger signal levels, although the vulnerability to intermodulation interference from strong signals will also increase. Experiment for the best length for your installation.

DIRECT CHANNEL ACCESS ON THE MX7000

An oversight in Regency's instruction manual has led many scanner users to conclude that the MX7000 user must sequentially step through each memory channel to select one of the 20 to hear. This is not true; direct channel access is readily available.

To access any one of the 20 memory channels on the Regency MX7000 (or MX5000), simply press: "MANUAL," the channel number, then "MANUAL" again. For channel numbers one through nine, precede the number with a zero (01, 02, etc.)

We would like to thank MT reader Pat Welch for bringing this item to our attention.

BALKY BATTERY BACKUP ON THE BC-800XLT

Several MT readers have reported that during power line dropouts they have lost memorized channels in their new Bearcat 800's even though fresh batteries had been installed.

Curiously, when the scanners were returned to Grove Enterprises for a thorough checkout, the battery backup worked just fine. It would seem that MT reader Bob Parnass has discovered the culprit.

The construction of the battery compartment is such that, unless the AA cells have long center posts (the positive + tab), the shoulders of the lower compartment hold the terminal from making contact! It is unknown at this time whether Uniden is working on the problem.

Several possibilities for simple field "fixes" come to mind:

1. Add a dab of solder to the top of the lower AA cell terminal so that it makes solid contact;

2. Compare several brands of AA cells before purchase, choosing the pair with the tallest center post;

3. Wedge a small metallic washer or similar conductor between the battery post and the holder contact to assure a solid connection.

It would seem additionally possible to bend the tab slightly toward the cell terminal in order to assure contact, but this may also be a violation of warranty in case the holder breaks. Bob Parnass made an internal wiring change as a cure for the battery misalignment in his personal radio, but we don't recommend that remedy while the radio is still under new warranty.

We would like to thank Bob for contributing this excellent user hint and encourage other readers to send similar findings to us to share with fellow monitoring hobbyists.

Custom Connectors for the Mobile Antenna

Virtually every mobile scanner antenna on the market comes equipped with a standard "Motorola" connector, a holdover from the automotive days perpetuated by the major scanner manufacturers.

Some scanner manufacturers, especially the Japanese, are now equipping their scanners with the superior BNC connectors and the mobile listener must modify his cable for this application.

BNC connectors, both solder-on and solderless, are available from Radio Shack (and other electronic suppliers) for both RG-58/U and RG-59/U, the dominant mobile cable types. With some care BNC's can be substituted for the old Motorola plug. Unfortunately, there are no adaptors that can change the present Motorola plug into a BNC, UHF (PL-259) or whatever.

MT reader Ed Poland suggests yet another possibility: Replace the Motorola plug with an inexpensive, easy to mount RCA phono plug, then get a phono plug-to-BNC adaptor. He tried this combination and reports greatly improved reception with the Grove ANT-10 mobile scanner antenna over a previous competitive model from a prominent antenna manufacturer.

EXPERIMENTER'S WORKSHOP

BUTTONING THE REGENCY BEEP--AGAIN

Few annoyances get as much attention from scanner listeners as the keypad annunciator tones, popular among recent Regency products. While the MX7000 has solved the problem by permitting the beep level to be controlled by the front panel volume control, the MX5000 and other scanners have a fixed level.

Max Cooley of Newton, Kansas, has solved the problem quite handily on his Regency products without having to resort to circuit surgery. Let's let him tell the procedure in his own words.

"By wiring two 10 ohm, 2 watt resistors in series, then wiring those in series with the input of a Radio Shack 8 ohm L pad, I have a minimum 20 ohm load across the receiver's output. I then tied the output side of the L pad to two external 8 ohm speakers.

"I can now adjust the volume via the L pad, make keyboard entry, then turn the volume back up with the L pad. The tone can be eliminated or diminished to any level. Peace at last!"

Max chose to connect two speakers in a successful effort to improve the audio quality of the MX5000. Thanks, Max, for sharing a clever solution with fellow listeners.

Incidentally, another external solution to the problem would be to attach an adjustable tone notch filter, available from a number of amateur radio dealers, to the audio output of the scanner and adjust the control for minimum tone level.

CHECK YOUR SUBSCRIPTION DATE--DON'T MISS A SINGLE ISSUE!

AN EASY LOW-NOISE TEN-METER PREAMP

by Chris Williams

Ten meters is pretty much dead nowadays--the sunspot cycle low has seen to that! But on occasion a flurry of signals will appear as one tunes through the 28-30 MHz region. Sometimes these are DX stations from rare locations on the other side of the world and sometimes they are from a much closer source, but no less interesting.

There are currently four operational Russian amateur radio satellites in low earth orbit. These satellites pass over most points on the earth several times per day and, at an altitude of only a few hundred miles and with downlink frequencies in the 10 meter ham band, they are not difficult for a good 28-30 MHz listening post to receive.

These satellites are designed for ham radio and on their 10 meter downlink you can hear the transponded 2 meter uplinks of hams conducting QSO's. The 2M-10M combination is called Mode A and has become the standard for low earth orbit, phase II ham satellites.

The Russian satellites also broadcast Morse code telemetry via CW beacons in the 29.0-29.5 MHz range and these transmissions make fascinating listening. The format of the telemetry is shown in fig. 1, which comes from published material available from the ARRL.

What you will hear from

Group	Address	Parameter	Units	Decoding Formula
	K	Output Power of Transponder	mW	0.2 X N squared
	D	Voltage of Power Source	V	0.2N
	O	Load Current	mA	20(100-N)
(E)	G	Telemetry Test		
	U	Sealed Container Pressure		
	S	Stabilizing Unit Temp.	Deg. C	N
	W	Transmitter Radiator Temp.	Deg. C	N
	K	Transponder Output Power	mW	0.2 X N squared
	D	Zero Setting of Telemetry		N
I	O	Beacon Output Power	mW	0.2 X N squared
(S)	G	Repeater Sensitivity	dB	N
	U	1st Srvc Receiver S-Meter	S	0.1(N-10)
	S	ROBOT Receiver S-Meter	S	0.1(N-10)
	W	2nd Srvc Receiver S-Meter	S	0.1(N-10)
N(R)		Parameter Being Completed		
	K	Transponder Output Power	mW	0.2 X N squared
	D	9V at Transponder	V	0.1N
A	O	7.5V at Transponder	V	0.1N
(U)	G	9V at 1st Stabilizer	V	0.1N
	U	7.5V at 1st Stabilizer	V	0.1N
	S	9V at 2nd Stabilizer	V	0.1N
	W	7.5V at 2nd Stabilizer	V	0.1N
	K	Transponder Output	mW	0.2 X N squared
	D	Filing out of ROBOT log	QSO	N
M	O	Turned-On Heaters' Power	W	0.1N
(W)	G	ROBOT Transmitter Power	mW	20N
	U	Srvc Transmitter Power	mW	20N
	S	Robot Transmitter Sensitivity	dB	N
	W	Srvc Transmitter Sensitivity	dB	N

FIGURE 1: Telemetry Format

EX WORKSHOP cont'd

the beacons is a letter (sometimes two: group and address) followed by some numbers. The letter will be in sequence with the columns shown in fig. 1.

The numbers are plugged into N in the decoding formula to obtain the value of the measured parameter. So, if you are in group "E" and received "S11", that would mean the stabilizing unit's temperature was 11°C at that point in time.

To receive these signals you need a receiver capable of tuning the 29.0-29.5 MHz band. Most HF receivers do, but not many do so well; i.e., they are not adequately sensitive. The circuit presented in this article is an RF preamplifier optimized for the 29.0-29.5 MHz region and with it you should be able to improve an insensitive receiver's performance well enough to hear the satellites.

OTHER APPLICATIONS

While the values used in the circuit are selected with 29.0-29.5 MHz in mind, the design itself is reasonably general. The preamp can be used to improve receiver performance at frequencies below 30 MHz by changing component values, specifically T1 and T2.

The design formulas needed for these calculations are presented in fig. 3 and by using them you'll be able to change the frequencies of optimization to other areas of the spectrum.

THE CIRCUIT

The circuit in fig. 2 is a grounded-gate FET (field effect transistor) amplifier designed to have tuned-circuit Q's of about 50 with the center frequencies (F_o) at 29.25 MHz. This Q yields a bandwidth adequate to provide coverage of 29.0-29.5 MHz, which is where the Russian RS satellites operate both their transponders and their telemetry beacons.

The actual Q obtained will vary with the antenna and receiver feed impedances used, but the design here should give you bandwidth wide enough to permit setting C1 and C3 for 29.25 MHz.

Since sensitivity is essentially noise figure, an inexpensive MPF102 N-channel JFET was selected as Q1. At 29 MHz, atmospheric noise is such that an amplifier noise figure better (less) than about 4dB is useless, but anything worse (higher) than that will degrade performance. The MPF102 in this circuit has no trouble achieving that specification.

There is little gain in the preamp which is common in high performance front ends. The preamp serves to establish the system's noise figure; gain can come from later stages.

Referring again to fig. 2, T1 and T2 are wound on Amidon T-50-10 iron-powder toroidal cores. The turns ratios and tap points are specified in the parts list, but you will almost certainly have to experiment a bit to find optimum values.

The number of turns on the secondary of T1 and on the primary of T2, however, should <u>not</u> be changed as these are part of resonant circuits.

Any experimenting you might need to do will be limited to changing the turns <u>ratios</u> or the tap points. This will be especially true of T1 as the antenna you choose will affect the impedance presented to the transistor. I suggest you use the numbers specified in the parts list as a starting point and, if necessary, experiment from there.

The functions of the other components are straightforward. R1 provides an elevated DC voltage at the source of Q1 when current is flowing which serves to provide self-bias for th transistor.

C2 is a bypass capacitor selected to have a value high enough so that its reactance is insignificantly low at the frequency of operation. This effectively places an RF short across R1 from Q1's source to the tap on T1. R1's resistance is then non-existent at RF and does not affect the load placed on the tuned circuit.

A similar arrangement exists at T2. Here, the purpose of C4 is to place the bottom of T2's primary at RF ground so that it can be tuned with C3. R2 is simply the drain load resistor.

The taps on T1 and T2 transform the impedance of Q1 to values which can create the desired Q and power transfer.

● In building this circuit, one of your major concerns must be stability. The traps and the grounded-gate configuration of the amplifier should help in preventing the circuit from oscillating, but it can still happen.

Pay special attention to separating input and output leads which should run at right angles to one another, and keep them as short as possible. Also, the tap on T2 can be adjusted to create a mismatch which will lower the overall gain, decreasing the chance of oscillation.

The turns ratio on T1 and T2 is designed to produce an output close to 50 ohms to match virtually all receivers, so you'll probably want to equip your enclosure with coax connectors for interconnection between the preamp and the receiver.

The preamp draws little current and works well at 9 volts so a battery is an obvious source of power. Should you prefer not to use a battery, any well-filtered 9-12 V source of regulated DC will do.

The circuit is not hard to get operating and if your receiver was insensitive at 10 meters to begin with, the increase in performance should be pronounced. Good luck! ●

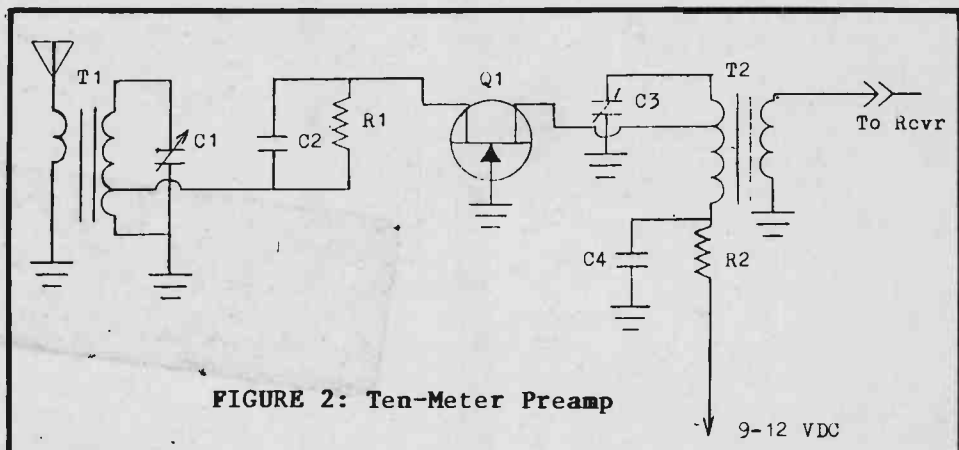

FIGURE 2: Ten-Meter Preamp

PARTS LIST

C1,C3	5-30 pf. trimmer capacitors
C2,C4	.01 uf.
R1	200 ohms
R2	330 ohms
Q1	MPF102 N-Channel JFET
T1	Secondary 19 turns on Amidon T-50-10,tapped about four turns from ground end. Primary three turns.
T2	19 turns on Amidon T-50-10, tapped three turns from "hot" end; secondary about five turns.

Parts available from:
Dick Smith Electronics, 1-800-332-5373
Circuit Specialists, 1-800-528-1417

To change the center frequency of the preamp, one must change T1 and T2. The fundamental formula to determine this is:

$$F = \frac{1}{2 \times Pi \times \sqrt{LC}}$$

Fix C at 15 pf. and solve for L. Once you have L, use the following formula to determine the number of turns on the toroid core, which we'll assume is still a T-50-10.

$$\text{Turns} = 100 \times \frac{L\ (\text{uh.})}{40}$$

Refer to the ARRL Handbook for the proper way to wind a torodial coil.

FIGURE 3: Formulas for Frequency Change

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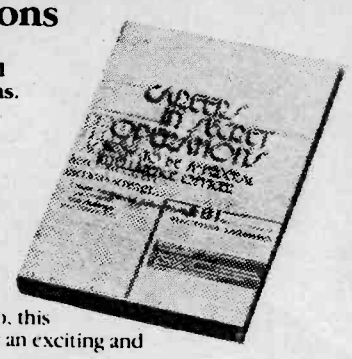

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