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MONITORING TIMES

Volume 3-Number 2 BRASSTOWN, NORTH CAROLINA 28902 February, 1984

TUNE IN U.S. AIR FORCE COMMUNICATIONS WORLDWIDE

by Mark Edward Springer

Perhaps one of the most frustrating elements of communications monitoring is having a "known active" list of frequencies, only to listen, and listen, AND LISTEN.

"That doggone Bob Grove," you might mutter to yourself, as the R-70 hisses, or the R-2000 scans, "I paid good money for his frequency list, and I never hear a thing on these channels."

Well fans, I'm here to tell you to buck up. There is action on some (many) of the freqs--you just need to know THE OPERATING SCHEDULE!

In this article I am going to concentrate on the USAF HF/SSB Command Control Communications network, with a few other tidbits thrown in.

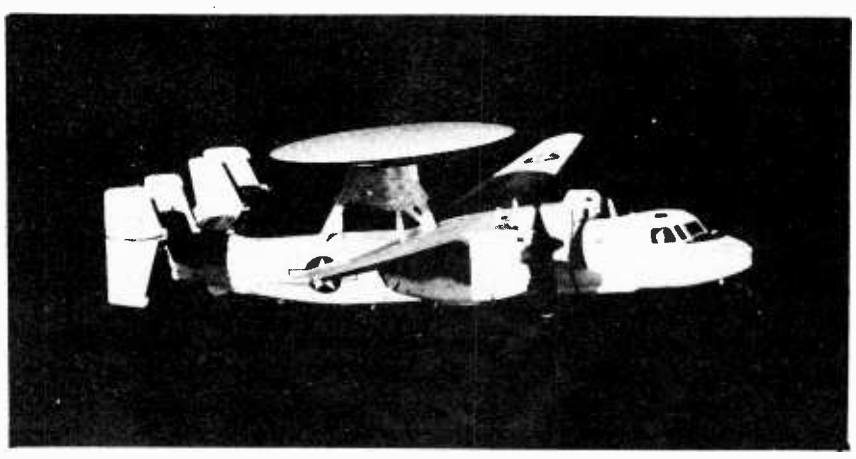
Managing an air force the size of Uncle Sam's is no easy task. Previous MT articles have considered the somewhat specialized aspects such as AWACS. But for every AWACS ship in the air, there are a dozen C-131's, C-130's and C-5A's, just making milk runs from here to there.

Angel Flights (MEDIVACS), logistics runs and rushing a spare part for an SR-71 on Shemya Island--that's all in a day's work for the Military Airlift Command.

The U.S. Air Force HF/SSB Airways and Command Control Station system "provides air-ground HF radio communications support to U.S. military aircraft for passing command control and flight information," according to a description of the system published in United States Flight Information Publications.

"Certain overseas Control Areas (CTA's) and Flight Information Regions (FIR's) have USAF Aeronautical Stations designated as Primary Guard stations," the publication goes on.

What this means to the listener is that by keeping track of the Airways Station an aircraft is communicating with you can make a fairly educated guess as to its general location.



I would suggest that the serious listener get copies of the appropriate Flight Information Publications (I use the SUPPLEMENT ALASKA) since they all contain the USAF HF/SSB Net listings and the Communications Routing Guide (i.e. where you are/who to talk to). Check with large airport supply stores for these.

The listed SSB frequencies are used for initial contact and Emergency Action Message (EAM) broadcasts as well as selected en route Air Traffic Control and command control communications.

The airways stations will assign aircraft frequencies for working from both published and unpublished listings. This makes it very important for the monitoring station to maintain an accurate log, since the unpublished (discrete) frequencies are re-usable.

Aircraft are required to maintain a continuous listening watch on the primary HF/SSB frequency; AM radio service can be supported on three hours prior notice. In addition, VHF/UHF frequencies are available for use within range of the airways station.

Airways stations can provide the following services:

~HF direction Finding (Bearings and Positions);

~Phone Patch for official communications, usually over the AUTOVON (Department of Defense AUTOmatic VOice Network) system;

~Clear/Secure (encrypted) radioteletype is available on request. The standard configuration used is MIL STD 188C, 100 wpm 850 Hz FSK, 2.0 kHz center frequency (SPACE 2425 Hz MARK 1575 Hz).

Thirty minute alerting is required for secure RTTY (plenty of time to crank up the decoder, eh gang?).

EAM BROADCASTS

Scheduled high priority Emergency Action Messages are made according to the schedule which will be found with the station frequency listings below.

Well, enough of the discussion. What we really look for in this fine publication are the numbers, right? So here goes.

The following list is keyed to the Command and Control Zones Chart.

The general voice call for any USAF Airways station is "MAINSAIL." Any station hearing the call "MAINSAIL" will respond and provide the requested service.

All HF listings are USB (unless shown AM); UHF is AM.

EUROPE-MEDITERRANEAN (Zones 11/12/14) 15015 (c) 13201 (a) 11176 (c) 9011 (a) 6750 (c) 5703 (b)

ATLANTIC (Zone 9/11/12) 13244 (a) 13201 (a) 11176 (c) 9011 (a) 6750 (c) 5703 (b)

CARIBBEAN - SOUTH AMERICA - AFRICA (Zones 8/13) 15015 (a) 13244 (a) 8993 (c)

GREENLAND - ARCTIC (Zones 5/10) 13201 (c) 6738 (c)

PACIFIC (Zones 1/2/3/4/5/6) 18002 (a) 13201 (a) 6738 (c)

INDIAN OCEAN (Zones 1/13/14) 23227 (d) (f) 18002 (a) 11176 (e) (f) 8993 (c) 6738 (b)

NORTH AMERICA (Zones 6/7/9) 18002 (a) 15015 (a) 11182 (c) 9014 (c) 6727 (b)

Remarks:

(a) Sunrise + 2 hours to sunset
(b) sunset to sunrise + 2 hours
(c) 24H
(d) 0200-1300Z
(e) 1300-0200Z
(f) Shared with Diego Garcia Tower

COMMUNICATIONS CONTROL ZONES AND STATIONS

1	Clark AFB, Phillipines
2	Andersen AFB, Guam
3	Yokota Air Base, Japan
4	Hickam AFB, Honolulu
5	Elmendorf AFB, Anchorage
6	McClelland AFB, Calif.
7	Scott AFB, Illinois
8	Albrook, Panama
9	MacDill AFB, Florida
10	Thule, Greenland
11	Croughton, England
12	Lajes Field, Portugal
13	Ascension Aux Air Field
14	Incirlik, Turkey

The Air Force Eastern Test Range (AFETR) can be used as a back up (alternate) to the AF HF/SSB Network. With a voice call "CAPE RADIO" they are available on 10780 primary and 20390 secondary.

Other call signs: You will probably hear aircraft requesting phone patches to any of the following Air Lift Control Centers:

ALASKAN ALCC	"DENALI"
EUROPEAN ALCC	"PHANTOM"
MAC COMMAND	"HILDA"
PACIFIC ALCC	"TONIGHT"
S. AM. ALCC	"RAYMOND 09"
21 AF OPERATNS	"FORMAT"
22 AF OPERATNS	"DISCARD"

BASES, FREQS AND SCHEDULES:

Here's the real meat. These are the latest published operating frequencies for the USAF airways stations. I'll list EAM and CAPSULE broadcast times.

By the way, "CAPSULE" is a general call to all MAC aircraft, containing up-to-the-minute operational instructions, including routine changes and the like.

Cont'd to p. 28

See p.3 for review of new Electra DX-1000!

MONITORING TIMES

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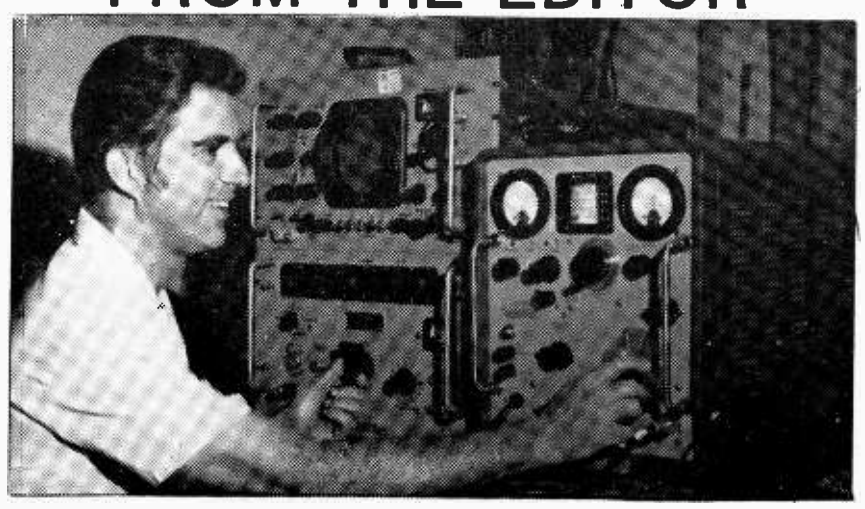
REMEMBER! "S.A.S.E."

We at Monitoring Times constantly receive letters from readers which begin, "Please send me everything you have on..."

As much as we would like to help, we are not a public library service. Letters received with a Self-Addressed Stamped Envelope will be answered.

And as always, my telephone line is open for pre-paid calls weekdays 1-5 pm Eastern (704-837-2216)...Bob

FROM THE EDITOR



Eavesdropping on Your Bank's Computer

One of the most aggravating sources of radio frequency interference (RFI) is the modern computer. Whether coming from a game chip, home computer or massive business computer, the barrage of broad-spectrum noise can be overpowering to the shortwave--and even scanner --listener.

The culprit is the square wave, a source of harmonic-rich radiating components which besiege the airwaves. Square waves are generated in numerous locations within the bowels of modern digital equipment.

Why has the FCC allowed this assault to continue? Primarily because it takes a lot longer for the wheels of legislation to turn than the wheels of industry which is grinding out computers like jelly beans.

While there have been recently-enacted regulations limiting RFI from home computers, industrial and business machines still radiate their interference undaunted.

With fierce opposition from manufacturers to any cost-increasing regulations, perhaps there is a way to force a cleanup of the airwaves.

Although the crass noise blight appears to be random in nature, it does have a pattern, composed of ASCII data. With most of the computer industry conforming, within limits, to certain language parameters in their data, perhaps a nearby receiver could recover these data, faithfully reproducing it on the screen of a home computer.

Just think of the pandemonium which would result from the knowledge that daily interbank transactions are being casually monitored by eavesdroppers. How about the local IRS office? Accounting firm?

What fun we could have with nearby military bases, proprietary research organizations and federal government installations.

Monitoring Times readers are always looking for new quarry for their listening posts; let's try the computer memory chip. Naturally, it won't be easy at first. Are we looking at serial or parallel data? Is the data stream from one computer's chip compatible with the I/O port of our computer? Will we need to store, buffer and reprocess these data before we can read the text?

How about it, MT readers...would you like to speed the wheels of legislation and have a little fun at the same time?

NEWS BREAK: Spy Numbers Broadcasts Originate in U.S.

An alert MT reader from New Mexico has just informed us that he was able to convince an official U.S. government direction finding installation to provide fixes on several "spy numbers" transmissions.

According to David Batcho, the commonly-reported female Spanish language voice transmissions were emanating from two locations, depending upon the number of characters in each encrypted group.

Four-digit transmissions all appear to be coming from the Washington, DC area while 5-digit broadcasts originate in Havana, Cuba as previously reported in Monitoring Times.

We would like to congratulate MT reader Batcho for his excellent detective work and invite him to share more details with our readers as the mystery continues to unfold.

and make the hobby sound like something out of a James Bond movie. There are others, and I count myself among them, who feel that all interested in the hobby should have an equal opportunity to information.

Norm Schrein

> > >< < <

Cont'd p. 3

VIEWPOINT

◆In the January issue of MT a reader expressed dismay at my lack of restraint in reporting Canadian frequencies. I must take exception to his reaction; I have invested a lot of time talking to various officials of the DOC across Canada.

You must remember that talking to any two government employees gives you two slightly different answers. It is only through persistence that some definite answers can be obtained.

The easiest answer any government official can give is, "NO!"; most people take that answer at face value.

With persistence the "no" can become a "maybe," and a "maybe" can become a "yes" in certain cases.

A case in point was my first attempt to get Canadian frequency information. First I contacted the DOC in Windsor and was told "NO."

Next, I found an RCMA member who had gotten the information; he told me how difficult the information was to obtain and that he was the only person in the US with Canadian information.

I was content to have him supply me with information until we disagreed on another matter and my source dried up.

It was time to be persistent. I contacted the DOC offices and Ottawa and found part of the information I wanted was available through them. The remainder of what I needed I bought through a private source. After all, I figured if one person in the US could obtain Canadian frequency information, so could I...and I did.

The feeling in the DOC is that much information will become available, including frequency information. They feel this is what the public wants. They also feel that the format will be in another form than microfiche, perhaps in hard copy.

I feel that my efforts in publishing Canadian frequency information, along with the Canadian government's feeling under their new Freedom of Information Act, should make more frequency information available to Canadians, not less.

There are groups of monitoring enthusiasts that want to keep secret listings

IN MEMORIAM

Larry Brookwell

At presstime we received word of the sudden death of Larry Brookwell, founder and president of the San Diego DX'ers Club, December 24, 1983.

Having passed his 80th year, Larry remained vigorously productive in his writing. His specialty was comparative tests of new shortwave receiving equipment and accessories, compiled in annual reviews.

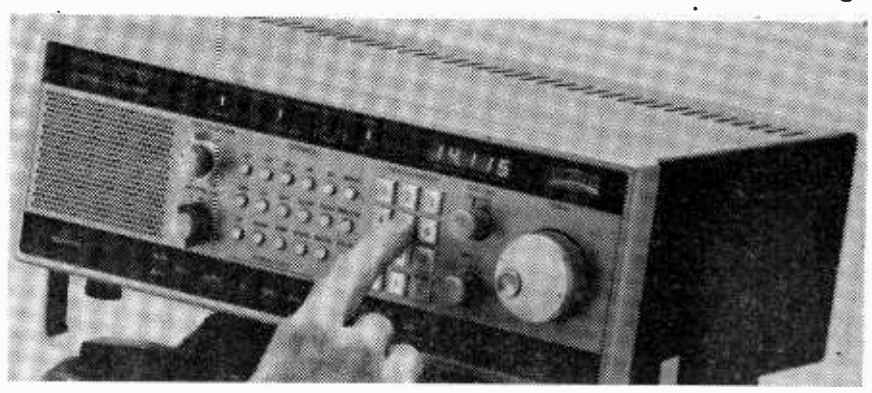
Larry's penchant for pointing out weaknesses kept manufacturers on their toes. His irascible style of writing reflected a wry wit, culminating with his recently-published autobiography, "Tail Gunner on a Superheterodyne."

Thank you, Larry, for your devotion in presenting the facts as you saw them to shortwave listeners.

Harold Ringgenberg

We note with sadness the passing of a talented artist, ardent monitoring enthusiast and MT illustrator, Harold Ringgenberg of Cincinnati, Ohio.

Ring unselfishly shared his talents in the pages of MT. His wit and enthusiasm will be missed by all of us.



ELECTRA DX-1000 SHORTWAVE RECEIVER

Obviously intended to compete with the eminently successful Kenwood R-2000, the DX-1000 has a number of similar features including 10 memory channels, dual tuning speeds, FM and squelch modes.

It does not have scan or search capability, although automatic down- or up-tuning may be accomplished by pressing a button.

The DX-1000 offers some improvements over many of its competitors including three selectivity bandwidths (12 kHz, 4 kHz and 2.7 kHz) which may be selected regardless of mode. Total frequency coverage is 10 kHz through 30 MHz (sensitivity is reduced somewhat below 150 kHz).

Frequency stability is extremely good, claimed to be 100 Hz per hour; we confirmed it. Tuning is accomplished by either direct-entry keypad or analog dial.

Readout is to one kilohertz and memory is good to one kilohertz; a fine tuning control allows infinite resolution between the 100 Hz step increments.

Although the DX-1000 has image and IF rejection of at least 70 dB, its high sensitivity results in susceptibility to intermod from strong in-band and out-of-band signals. The use of a preselector like the Grove TUN-3 Minituner is recommended when the DX-1000 is used with an outside antenna.

Alternatively, the front-panel attenuation control may be used to eliminate the intermod interference with a sacrifice in sensitivity.

Audio quality, an important consideration for international broadcast SWLing, is excellent; the tone control effectively skews bass and treble during its rotation.

The dual-position noise blanker allows a choice of time constants and rejects fast or slow pulse interference (i.e., electrical line noise or the Russian "woodpecker") on AM.

Synthesizer noise is quite prominent while tuning the receiver on AM as the 100 Hz steps interrupt the signal path, but this annoyance does not affect the performance of the receiver once the dial is set.

Overall, the receiver packs in quite a number of features for the shortwave listener and, while not a communications receiver in the strictest sense, the DX-1000 will provide reliable reception of all signal modes.

(DX-1000 retail $599.95; $499.00 from Grove Enterprises.)

VIEWPOINT from p. 2

(ed. note: Few articles we have published have drawn the comment that John Demitt's has relating to his incarceration at the Rockview penal institution.

One compassionate reader, a law enforcement officer, would like to share with fellow MT readers some perspectives which might clarify misunderstandings related to prison policies.)

◆An article appeared in the Dec. 83 issue of ___ (a club publication) which unjustifiably informed readers that books are not allowed to be sent to prisoners of correctional facilities. This is untrue in John's case; matter of fact, that is one of the few things John is allowed to receive.

Although it is too late for Christmas, I would greatly appreciate it if you would advise your readers that there are a few things which John is allowed to receive without prior approval of the authorities at Rockview:

Books, new or used (magazines must come from publishers directly)

Letters, greeting cards, QSL cards

Photocopies of articles if accompanying a letter

Money orders (personal checks not allowed, cash is contraband)

Photographs of people, places and things (Calendars not allowed)

As you can see, the list is not long. John's needs, in his own words, are few and simple and the one thing that John cherishes most is his mail from the outside world. A short letter from time to time would be so greatly appreciated, especially if someone has the occasion to go on a trip and would simply drop John a postcard from wherever his travels may take him or even a simple line or so in a letter once in a while to say, "Hello; how are you doing?". (Name withheld)

See p. 17 for John's address

◆I don't mean to be nitpicky, and Lord knows I've made some mistakes in writing, but I felt compelled to point out and try to correct some of the errors Rickey Stein made in his last RTTY column (Reading Russian RTTY).

DAET NASTROJKU--Last word literally means "For Tuning."

GODA/GODY--Actually declensions of the noun GOD. Means "Year", not "I am well."

HOROGO--OK spelling, but means "Good" not "Goodbye." Goodbye may be expressed DO SWIDANI or POKA.

KAK--Means "How" not "What" (RTO).

KREPKO/KREPKOGO--Declensions of adjective KREPKIJ, meaning "Strong" or "Firm" (or adverb, strongly).

REBOTA/REBOTU-Should actually be spelled RABOTA/RABOTU.

SROK--Meaning and spelling OK, but also means "Time Period."

TOLIKA--Should be spelled TOLXKO.

VELA'--First person of VELATX, meaning "To order," a little stronger than "to wish" (i.e., desire).

KONFERENCH--Should be spelled KONFERENCIQ (Conference).

PERSPEKA--Should be spelled PERSPEKTIVA (Perspective).

PROGRESSUC -- Think this should just be PROGRESS.

I'm no linguist by any stretch of the imagination, but there were too many boo boos for me to casually let slip past.

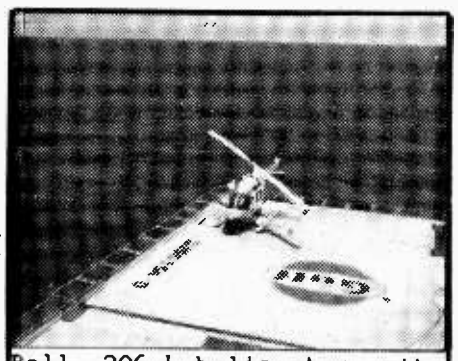
73's
Larry Ledlow, Jr.
Sykesville, MD

— SCANNING →

CHASING THE CHOPPERS:

Offshore Petroleum Communications

by Thomas Marcotte
Duson, LA



Bell 206-L helicopter sits on helipad of Gulf service platform.

Crank in 4550 kHz USB one day during daylight hours. What you'll hear is the world's largest civilian helicopter fleet's HF flightplan net from coastal Louisiana.

The Gulf of Mexico has several designated divisions such as Ship Shoal, Eugene Island, South Marsh Island and others.

Each area is subdivided into blocks 3 miles square with numerical identifiers. This is how oil companies refer to their leases.

These oil companies rely on Petroleum Helicopters, Inc. (PHI) to provide logistical support to the leases.

With thousands of offshore platforms to cover from New Orleans to Brownsville, this is an immense task.

PHI pilots rely on LORAN-C (100 kHz) and aero VHF (see chart) for flight planning, but when flights cross from one area to another (beyond VHF range), flight plans are relayed via HF on 4550 or 8070kHz. A list of call signs is given below.

Tango	Tenneco Oil
Super	Superior Oil
Gulf	Gulf Oil
Tex	Texaco
Wish	Michigan-Wisconsn
Alpha	Amoco
Guard	U.S. Coast Guard
M.S.	Mineral Mgt Serv
Robin	Sea Robin Pipelne
C.G.	Columbia Gulf
CITGO	Cities Service Co

A typical transmission might sound like this:

"Golf 41, Ship Shoal 154, Island 5, on the hour with four."

Roughly translated, this means that the ship departed SS154 for HI517, will be there on the hour with 4 passengers on board.

If a helicopter doesn't arrive, searches are begun immediately. Helicopters are so numerous over the open Gulf that you are never out of sight of one for very long.

Most helicopters are equipped with a Wulfsburg Flitephone 40 for VHF low comms. Frequencies start at 48.56 MHz FM to 49.58 with 20 kHz spacing.

Happy listening, MT readers!

PHI BASE FREQUENCIES

Louisiana Bases

130.50	Cameron
123.05	Local
129.1	Lafayette
132.00	"
132.00	Intracoastal City
122.7	Local
128.95	Morgan City
123.05	Local
128.95	Houma
130.50	Lake Charles
129.15	Leeville
129.10	New Orleans
129.10	Venice

Texas Bases

Enroute

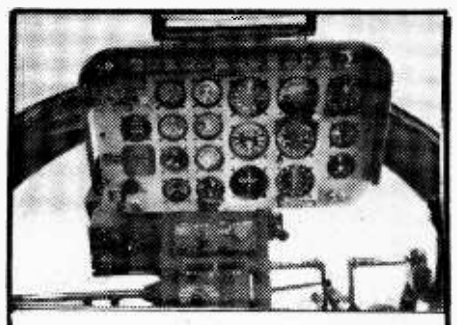
132.00	Port Mansfield
128.95	Rockport
129.10	Port O'Connor
128.95	Galveston
129.15	Sabine Pass

PHI OFFSHORE RADIO FREQUENCIES

131.35	Ship Shoal (SS154)
129.10	South Marsh (SM130)
129.35	East Cameron (EC272)
129.10	Brazos (Brazos A70)

VHF COMMUNICATIONS

121.5	Emergency
122.7	UNICOM
122.8	"
123.0	"
122.725	"
122.950	" With Tower
122.750	" Private Airfields
122.0	Enroute Advisory
123.6	Flight Service
122.9	Air to Air - All Aircraft
122.750	" " "
123.025	" " - Helicopters
123.050	Heliports



U.S. Coast Guard chopper instrument panel equipped with HF, VHF, LORAN-C and UHF communications.

MONITOR THE AMATEUR TELECONFERENCE NET

In the September, 1983 issue of MT we presented a comprehensive list of amateur 2 meter repeaters which are presenting the informative North American Teleconference Radio Net.

Two upcoming topics include:

March 8, 1984--Amateur Radio and the Law (0130 UTC Thursday evening local time)

June 14--Antennas (0030 UTC Thursday evening local time)

Hemisphere - wide rebroadcasts of the net may be possible on the OSCAR 10 satellite when in range on 145.957 MHz.

TUNE IN CANADA from p. 9

139.500	138.765	XJE 280	RCMP
139.590	138.885	" "	"
139.080		" "	"
139.215		" "	"
167.100		XJE 766	Triple A Business Serv. Ltd.
163.125	163.995	XLT 95	B.C. Ministry of Forests
163.335	164.025	" "	" " "
163.830		" "	" " "
163.890		" "	" " "
151.865		XMP 350	Dept. of the Environment
151.430	152.210	XMV 49	B.C. Dept. of Highways
152.210		" "	" " " "
142.245	152.245	XMW 470	B.C. Ministry of Highways
142.605	138.614	" "	" " " "
149.680		" "	" " " "
149.890		" "	" " " "
163.065	163.935	XMW 576	B.C. Dept. Lands,Forests&Water
163.125	163.995	" "	" " " " "
163.830		" "	" " " " "
163.890		" "	" " " " "
451.0375	456.0375	" "	" " " " "
452.2875	457.2875	" "	" " " " "
149.680		XMW 670	B.C. Emergency Health Svc. Comm.
149.890		" "	" " " " "
165.300		XOB 92	B.C. Hydro Authority
165.930		" "	" " "

BRANTFORD, ONTARIO FREQUENCIES

153.320		CJO 813	Baldwin Cartage,Ltd.
162.240		CJP 78	Union Gas of Canada
162.690		" "	" " "
163.575		" "	" " "
414.4625	419.4625	" "	" " "
414.6125	419.600	" "	" " "
414.9625	419.950	" "	" " "
414.9875	419.250	" "	" " "
152.030		CJQ 408	Jack Sheritt, Ltd.
160.845		CJT 441	Toronto Hamilton & Buffalo RR
161.265		" "	" " " "
161.505		" "	" " " "
160.995		CJT 448	" " " "
161.070		" "	" " " "
148.655		CJW 282	Brant County Civil Defense
148.685		" "	" " " "
153.710		" "	" " " "
153.830		" "	" " " "
154.070		" "	" " " "
154.830		" "	" " " "
154.070		" "	" " " "
169.740		" "	" " " "
153.350		CJY 287	Telephone City Broadcasting Co.
153.620		CKA 58	York Farms, Ltd.
168.405	164.385	VCL 929	PCO Services, Ltd.
451.850	456.8625	VCM 720	" "
167.505	163.725	VCN 405	Milton Chute Company
159.765		VCN 412	Savel, John
168.435	164.415	VCN 426	Chomos, Leslie E.
168.435	164.415	VCN 432	Mohawk Welding Supply, Ltd.

In Levis, Quebec, the Provincial Police operate station XJC 406 on 166.830. Also in Quebec City they can be found operating station XJC 204 on 167.010 (Metro), 167.040 (Metro), 171.075 (Detective), and 172.020 (Detective). It has also been reported that they operate the following frequencies in Quebec City, using a masking tone (apparently they feel these frequencies are somewhat sensitive): 411.3625, 411.4625, 411.5125, and 413.0125.

Finally a little bit of information on amateur repeaters in Quebec--.

146.940	146.340	VE2 RCR	Alma, PQ
146.670	146.970	VE2 RCA	Alma,PQ
146.850	146.250	VE2 RCM	Alma, PQ

Cont'd p. 32

PIRATE RADIO

by John Santosuosso

SCOTLAND:

The only way to hear a non-utility shortwave broadcast from Scotland is to log a pirate. Your chances of doing that before this winter DX season comes to an end may be better than you think.

Recently, Scotland's Radio Freedom International was heard here in Florida with a morning transmission on 15040 kilohertz. Although only 30 watts were used for this particular broadcast, the operator of the station claims that since August 1983 he has the capacity to run as high as 150 watts which would give him a good opportunity to make it to North America again.

Remember that, by necessity, most pirates must run irregular schedules. However, RFI tries to transmit on 15040 from 1000 to 1200 GMT the first and third Sundays of every month.

The station is an excellent verifier. Reports go to RFI, Dept. R, 67 Elm Row, Edinburgh EH74AQ, Scotland. RFI is an established broadcaster with ten years of experience.

Another Scottish pirate, Weekend Music Radio, is again conducting tests to North America during the winter months. Best time to try would be GMT Sundays between 0500 and 0800. Most likely frequencies are 6235, 6260, 6280, and 6930.

Reception reports can be sent to WMR, 42 Arran Close, Cambridge, United Kingdom. Weekend Music Radio responds to reports promptly.

This writer has never been fortunate enough to hear WMR, but it has made it to the East Coast of the United Sttaes and, on occasion, even into the Midwest.

IRELAND:

Ireland probably offers the only chance for West Coast SWLs to successfully log a Europirate. Radio Dublin, 24-hours a day on 6910, is well known in the eastern half of the country. When conditions are right it can be heard almost nightly.

Recently we learned that it has definitely been received in California. It runs 900 watts from a homebrew transmitter. We would enjoy hearing from any Monitoring times readers on the West Coast or in the Rocky Mountain states who do manage to hear Radio Dublin.

Actually, Ireland offers a DX challenge for pirate chasers all over the country. Dublin's Tony Donlon sends us the following information on those which have recently been transmitting on shortwave.

Look for Westside Radio on 6280 between 1000 and 1300. Mi Amigo Radio transmits on 6275 between 0900 and 1300. Capital Radio occasionally will be found on 6268 around 0830. South Dublin Radio on 6243 currently has no programs of its own but does relay other stations. Premier Radio will be found on 6317, while Radio Ireland is on 6293 from 0930 to 1300. Look for East Coast Radio on 6205.

All these stations normally broadcast Sundays.

Several of these stations, especially Westside Radio, have been heard in North America in past years. Others will provide you with some very elusive targets, but under the right conditions you just might get lucky. Let us know if you have any success hearing the Irish.

THE VOICE OF TOMORROW:

America's most controversial pirate, the Voice of Tomorrow, returned to the air again Thanksgiving night. The VOT has made several transmissions since its June broadcast, thus disproving the theory that it most likely was a one-time effort.

Although the FCC does know of this station, the operators have been careful enough to broadcast on a rather irregular basis, a tactic which tends to greatly increase the life of any pirate. The VOT may be with us for quite some time.

Currently, the VOT continues to broadcast on 6240 and 7410 kilohertz. Recently, the station also said it intended to use 1616 and 15040 kilohertz as well. If you are trying to log the VOT the best time to try is probably between 0000 and 0800 on GMT Sunday or around a major holiday.

"JUPITER":

A Monitoring Times reader reports that posters have appeared in the Philadelphia area advertising a pirate which apparently identifies as "Jupiter" or "2001." The station says to look for its broadcast on 6250 kilohertz at midnight Saturday, probably 0500 GMT Sunday.

At the time this is written we know of no one who has been fortunate enough to hear this station. If you do hear it please let us know. You may have an historic first!

REALTOR RADIO:

A new type of radio transmission will probably be turning up in your neighborhood before long, if it isn't there already. Real estate agents are now using miniature transmitters with a range of a few feet up to perhaps as much as three blocks to describe the homes they have for sale.

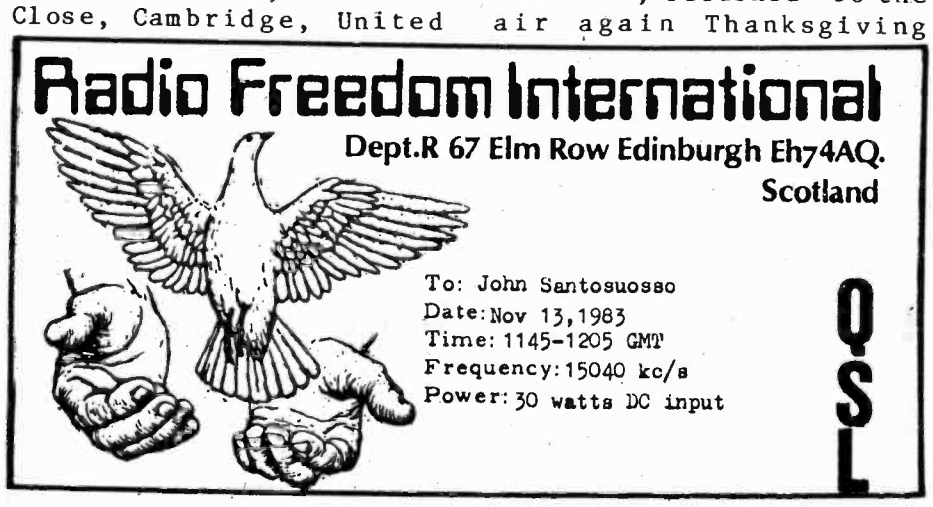
All a prospective buyer has to do is drive up to the home which interests him, park his car, tune his regular AM radio to the correct frequency, and listen. He will get a brief description of the house and lot, mortgage terms, and a phone number to call for further information.

The only transmitter noted so far in this area uses 1390 kilohertz. You might prepare your own QSL card and get the real estate agency to sign it. That would make an interesting souvenir, but be prepared for some suspicious looks! The average realtor probably isn't into QSLing reception reports!

POLAND:

In recent months there has been speculation as to whether clandestine Radio Solidarity was still broadcasting or not. there had been vigorous attempts by

Cont'd p. 7



PHOTOVOLTAICS: Solar Power Your Home or Rig

by Mark W. Johnson

During an emergency the ability to monitor the communications of the various agencies and services operating in the affected area is crucial to the safety and well-being of those living in the area. In most situations this ability is hampered by the disruption of commercial electrical power.

Some monitors have prepared for this contingency by adding emergency power sources such as batteries and generators to their stations. While these sources work well in some situations they have certain drawbacks that become apparent during long-term emergencies; namely, batteries run down and generators require fuel.

What then, is the solution? Photovoltaics.

The photovoltaic process, the process by which sunlight is converted directly into electricity without complex equipment, was discovered almost 150 years ago. Following years of experimentation and research this process is now being used to power a variety of devices ranging from toys to communications equipment to satellites.

Basically, this process involves the interaction of light with certain elements. When light strikes material such as silicon, electrons are set free. This movement of electrons is an electric current.

By treating silicon with certain chemicals this interaction is enhanced and a greater current is produced. When these treated pieces of silicon are made into solar cells and assembled into a solar panel, a device capable of producing about 17 VDC at 2 amps is produced.

A photovoltaic system is comprised of several parts including the array (solar panel) and balance-of-system components. This includes switches, controls, meters, power conditioning equipment, the supporting structure for the array and storage compnenets (batteries), if any. The solar panels are used to maintain the charge in the storage batteries.

For the communications monitor, a simple system with two or four panels and two storage batteries will work quite well. Not only will such a system provide a reliable source of power for emergencies, it will also provide power for day-to-day monitoring (see Figure 1 for typical specifications).

For the prospective user the most perplexing question to answer is how to choose a system that will meet his needs. By following a simple formula part of this problem can be alleviated.

The first step is to determine what devices are to be powered by the system. This might include one or more scanners, a communications receiver or other equipment.

Next, determine the power consumption in watts of each device. If this figure is given in amperes, multiply amps by the rated voltage to obtain the power consumption in watts.

Finally, multiply each power consumption figure by the number of hours the device will be used each day and add the totals together. This final figure represents the total load for the system per day in watts.

Once this figure is determined it can be used to select the proper system (see Figure 2).

How much will a photovoltaic system cost? Prices range from about $1300 for a system with two panels and two batteries to about $30,000 for one that will power an entire house. Figure 3 shows the cost breakdown of two systems.

Applications for a photovoltaic system are limited only by the imagination of the user. For most monitors the system will be used to provide emergency power to a scanner, communications receiver or both.

In some cases additional equipment such as amateur or CB transceivers may also be connected to the system. An example of a well-equipped station powered by a two panel system is seen in the shack of Paul DeNapoli, Communications Director for ENCON Corporation.

Paul's shack is comprised of a Panasonic RF2600 receiver, Regency and Sonar-Scan scanners, a President Model 10 transceiver, a Drake TR33 transceiver and a Heathkit SB101 transceiver, all powered by the ENCON Liberty 2 system.

The system contains two panels and storage batteries and provides 185 amp hours of storage at 12 VDC.

Note that all photovoltaic systems produce DC power, so any equipment that uses DC can be operated from one of them. By using an inverter it is also possible to operate AC equipment from the system.

The key to success with a photovoltaic system is common sense. With such an installation the user literally becomes his own power company. By monitoring power consumption and avoiding the use of devices which draw large amounts of power the user can maintain a regular schedule of monitoring and still have plenty of power for emergencies.

In a recent review by Lew McCoy for CQ Magazine it was determined that the Amcon I system from ENCON, the same as the Liberty 2, could handle a 15 amp load for about 10 hours steady.

For more information on this system see the April 1983 issue of CQ Magazine.

A major concern among monitors, especially those who are also involved in the survival movement, is the durability of the system. With commercially manufactured systems it is not unreasonable to assume a useful life of 15 years, with some estimates ranging upwards to 30 years. Compare this to the 3 to 5 year life expectancy of do-it-yourself solar panel kits.

Photovoltaic systems have two other characteristics that make them desirable. First, once they are assembled and erected they are virtually maintenance free. Second, they will produce electricity wherever there is sunlight. What better reasons for choosing a photovoltaic system!

See next page for suppliers and typical 2 panel system.

AMCON I

Array Peak Output:	64 watts
Array Current:	4 amps @ 16 VDC
Load Range:	192-384 watt hr./day
Storage Capacity:	2220 watt hours
	185 amphours @ 12VDC
Components:	2 SX100 photovoltaic panels
	2 renewable energy batteries

AMCON II

Array Peak Output:	128 watts
Array Current:	8 amps @ 16VDC
Load Range:	384-768 watt hr./day
Storage Capacity:	2220 watt hours
	185 amp hours @ 12VDC
Components:	4 SX100 Photvoltaic panels
	4 Renewable energy batteries

The cost of the Amcon I system is $1300 and for the Amcon II the cost is $2100.

FIGURE 1

EXAMPLE

Three DC flourescent lights are required to light your garage. Each light draws 3 amps @12 VDC for a total of 36 watts per light. The lights will be used for 2 hours each day. Therefore the total load on the system is:

3 lights x 36 watts x 2 hr./day + 216 watt hr./day

(The example is courtesy of ENCON Corporation.)

FIGURE 2

AMCON SERIES COST BREAKDOWN

	MONTH	WEEK	DAY
AMCON I--$1300.00			
One Year	$108.00	$25.00	$3.50
Five Years	21.00	5.00	.71
Ten Years	10.83	2.50	.17
AMCON IV--$5000.00			
One Year	$416.00	$96.00	$13.70
Five Years	83.00	19.25	2.70
Ten Years	41.00	9.60	1.35
Twenty Years	20.00	4.80	.68

The cost breakdown does not include the tax credits available from the federal government and most state governments.

FIGURE 3

PIRATE RADIO from p. 5

the authorities to shut it down, and the Solidarity movement itself appeared to be relying on underground leaflets rather than radio transmissions.

Lech Walesea himself gave the outside world one of the few clues on the status of Radio Solidarity which it has received in recent months. When informed that the Polish national radio had announced he was the Nobel Peace Prize winner, he remarked, "I'll only believe it when I hear it on our own sputtering radio."

So, at least as late as this past fall, Radio Solidarity appeared to be carrying on the struggle. We hope to have more information on this station in a future Monitoring Times column.

PHOTOVOLTAICS from p. 6

SUPPLIERS

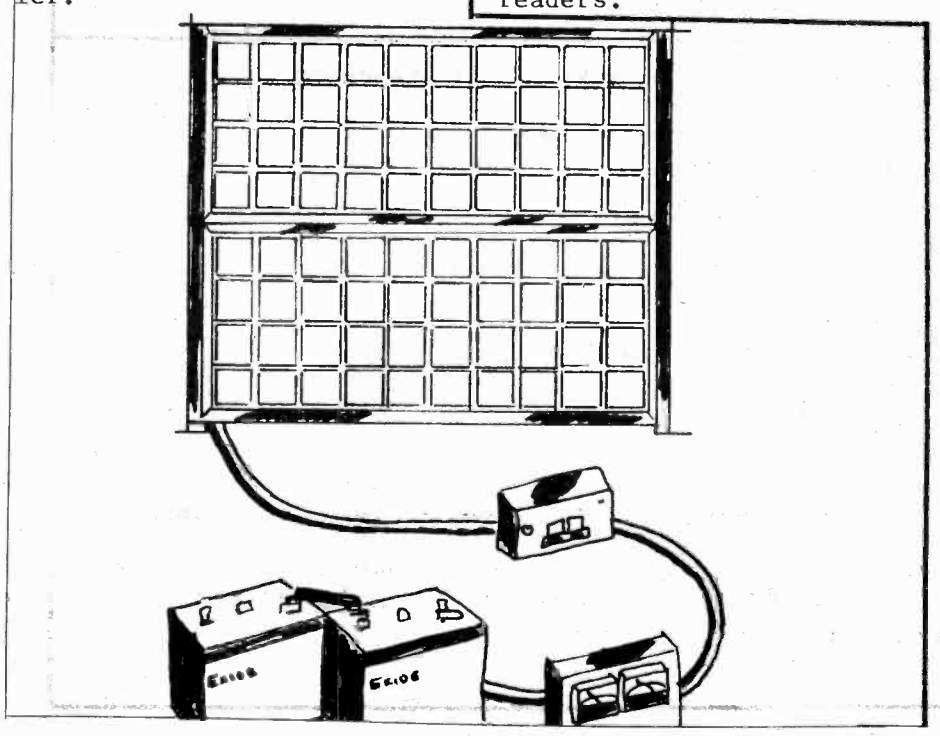
ENCON Corporation
27584 Schoolcraft
Livonia, MI 48150
Tel. 313/523-1850

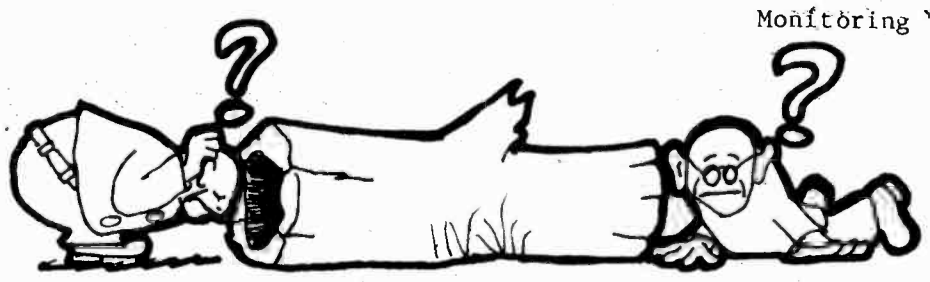
SOLAREX Corporation
1335 Piccard Drive
Rockville, MD 28050
Tel. 301/948-0202

Henry Radio
2050 S. Bundy Drive
Los Angeles, CA 90025
Tel. 213/820-1234
(Distributor for Arco prod)

Solar Power Corporation
c/o Lindberg Company
4163 Montgomery NE
Albuquerque, NM 87109
Tel. 505/881-1006

Typical 2 panel system. Shown are the panels, storage batteries, metering package and charge controller.





listener's log

ERRATA

Predictably, errors will creep into lists submitted by readers, and even into those lists carefully researched by us here at MT.

We would like to thank reader George Grotz for sending the following corrections to a list previously submitted by reader Kenneth Reitz and appearing in our January 1984 Listeners Log under Charlottesville, VA.

CORRECTIONS:

42.88	(delete)
154.66	(delete)
155.455	(delete)
159.165	Base to car
154.665	Car to car (also 154.695)
153.98	Louisa Co. rescue rptr. in
155.255	(should read155.205)
42.42	State police
42.56	" "
42.60	" "

ADDITIONS:

39.12	VA Dept. of Corrections statewide
39.44	Charlottesville PD
39.28	Louisa & Fluvana Co. Sheriff
39.18	Greene Co. "
39.62	Nelson Co. "
33.82	Orange, Louisa, Madison, Culppepper, Gouchland FD
39.54	All state/county law enforcement
46.26	Charlottesville FD F-2
155.235	Orange Rescue main channel
155.16	Blue Ridge Mt. Search & Rescue
155.955	District Rescue to hospital

Our thanks to reader Grotz for sharing these corrections with us and MT readers.

ROCKINGHAM COUNTY, NC

contributed by
Kenneth G. Galloway

453.700	Mutual aid
453.825	Sheriff Dept.
453.625	Reidsville Police
453.525	Eden Police
42.620	State Plice, base
46.460	Fire Dept.
155.220	F-1, Ambulance
463.050	MED-3
463.175	MED-8
46.520	City of Eden
46.40	Reidsville Fire Dep
46.440	F-2, Fire Dept.
42.780	State Police, Mobile - Base
160.950	Southern Railroad
155.190	Intercity
47.580	Rescue
43.140	Smith Construction
48.320	Duke Power Co.
153.200	Miller Brewery Sec.
153.095	Fieldcrest Trucks
155.340	F-3, Ambulance
155.280	F-2 Ambulance
453.925	Madison, Mayodan, Stoneville Police
463.100	MED-5
155.145	Schools
152.600	Telephone
143.900	C.A.P.
158.295	Fieldcrest Mill Sec
158.700	Paging
152.330	Taxies base
152.390	Taxies " & Mobile
162.400	Weather
42.580	SBI
48.30	Gas Co.

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ATLANTIC CITY SCANNING

contributed by
George Primavera
Cherry Hill, NJ

460.175	Casino Control
460.250	Commission
453.700	Expressway Police
453.900	" "
458.900	" "
154.025	Fire, F1 Dispatch
154.310	" , F2
154.415	" , F3
39.3400	Police, Beach Ptrl
155.130	", F1 Dispatch
155.010	", F2 Secondary
154.680	", S.P.E.N. 1
155.190	", F3 Access Info, (Cape May Courthse)
155.310	", F4: county-wide
155.415	", Investigations
155.475	", S.P.E.N. 2
155.730	", F6:Co.Intersystm
155.850	", same
460.150	", F1 Tactical
460.200	", same
460.325	", same
460.425	", F2 Tactical
460.525	", Data (1)
465.150	", same (2)
465.200	", same (3)
465.325	", same (4)
465.425	", same (5)
465.525	", same (6)
146.745	Am. Radio 2-meter repeater
146.985	" " " (Playboy)
156.090	County Sheriff

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SCANNER FREQUENCY LIST
BOZEMAN, MONTANA

contributed by
Lyndell Thiesen

LOW BAND	
39.500	Auto wrecker
39.560	Sheriff (input)
39.600	MSU Police
39.720	Belgrade Police
39.820	Sheriff (state)
39.880	Sheriff (local)
39.900	Fish & Game
39.920	Hiway Patrol
39.960	Sheriff (output)
39.980	Civil Defense
42.960	Main Mall Security
47.040	Hiway Maintenance
47.080	Hiway to Idaho
47.100	Hiway Dept(2nd)
47.160	??
47.200	Hiway to Idaho(2nd)
47.260	Hiway Dept(2nd)
AMATEUR	
146.760	Helena repeater
146.820	Bozeman phone patch
146.850	Great Falls
146.880	Bozeman repeater
146.940	Butte repeater
147.360	Billings repeater
HI BAND	
151.895	Belgrade 2-way
153.695	Montana Power
153.800	Ambulance
154.250	Bozeman Fire Dept.
154.445	Belgrade Rural Fire
154.650	Bozeman PD (Ch 1)
154.725	" " (Ch 2)
154.815	State Crime Control
154.920	Hiway Patrol(recv)
154.995	Gallatin Fire Cntrl
155.220	Doctors page
155.265	Bridger Bowl(Ski)
155.280	Hosp & Ambulance
155.340	Bozeman Deaconess Hospital
155.475	??
155.550	Hiway Patrol(tsmit)
155.670	Bozeman PD (Ch 3)
155.745	Sky Divers ROTC
158.130	Montana Power
158.160	same
158.245	Plant
158.250	Montana Power
158.545	Radio telephone
158.700	same
158.820	Bozeman Water Dept
159.960	Private aircraft co
161.100	Burlington North.RR
161.700	KBOZ Radio
162.400	Weather Serv.(Hlna)
162.550	Weather Service
164.125	Forest Serv.(rptr)
164.825	same
166.250	KBMN 2-way
169.125	Bridger Nat'lForest
172.725	Yellowstone Park
452.500	??

(Nice list, Lyndell!...ed.)

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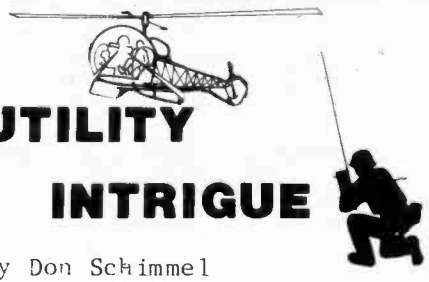
SNOWSTORM SCANNING IN MINNEAPOLIS

contributed by Jay Mathisrud

158.895	Mpls-St.Paul Airport Maint.-Snplows
121.900	Mpls-St.Paul Airport Ground Control
151.055	Minn DOT Maintnance Snowplows
453.225	City of Minn Street Dept - Snowplows



UTILITY INTRIGUE

by Don Schimmel

Hosting this feature of MT is a new venture for me and I hope that the column material presented each month will be of interest to you readers. As an introduction, I have been in various phases of communications for about 35 years. This period includes many years of SWL activities.

Initially, I was interested in SW broadcasting stations but then I became more and more interested in stations of the utility type with a particular yen for the out- of- the- ordinary transmissions.

The frequency covereage for the column will be roughly 2 MHz to 25 MHz, mainly CW but with the inclusion of some voice activity from time to time. Major emphasis will be on the interesting and unusual. In most cases, of course, this means the activities will be unidentified.

If any readers are able to make an identification of an item appearing in the column, please let us know and we will publish the identified activity in a subsequent column.

For those who are interested in the makeup of a typical SWL configuration, my receiving equipment consists of a KENWOOD R-600, KENWOOD R-2000 (a honey of a receiver) and a YAESU FR-101. My antennas are presently two long-wires, a vertical whip, and a dipole. Another dipole is undergoing repair work.

I have a home-made equipment rack which houses two antenna tuners (one home-made, the other a MFJ-959), antenna switches and antenna connectors. Auxiliary equipment includes a Radio Shack Cassette recorder and a MFJ SBF-2 SSB Filter. A Benjamin Michael 24 hour clock rounds out the present equipment complement.

All frequencies in the column are in kHz and all items are CW unless otherwise indicated.

Before listing this month's frequency items I would like to comment on an interesting activity which occured during the October/ November period. The Cuban Ministry of Foreign Affairs (as identified in the KLINGENFUSS "World Utility Frequency and Call Sign Guide") maintains a net on 13981 kHz with an additional operating frequency of 13925 kHz. CLP1 is the Havana call and CLP38 appears to be the call of the Surinam station. There are other unidentified stations which are apparently located at diplomatic posts around the world.

During the recent Grenada situation, the Cuban net was observed with the transmission of a propaganda circular for all stations. This circular purported to show that the Cuban contingent on the Island of Grenada was not composed of military personnel but rather representatives or advisors from various Cuban Government elements.

And now for this month's frequency notations, all received during the month of November:

FREQ KHZ	DATE/TIME	COMMENTS
6286	19/1220	BFF2 (CALL SENT OVER AND OVER. ALLOCATION IS PEOPLE'S REPUBLIC OF CHINA)
6995	26/0123	TRC4 DE AFA3MC (US AIRFORCE STNS)
7495	11/2258	5F GRPS WITH BT SEPARATOR AT VARIOUS INTERVALS.
9105	28/2357	CALLSIGNS TUN AND LEO. LEO MENTIONED 5300 KHX.
10089	28/2144	5L GRPS PROB SOVIET. USES 4 SPECIAL CHARACTERS. IM OE OT AA.
11148	28/2141	DE CTV (CALL TAPE-MONSATOR NAVAL RD, PORTUGAL)
12940	20/1308	CQ DE LZW. SWITCHING BETWEEN TAPE CALLING AND HAND SENT. (VARNA RADIO, BULGARIA)
12947	20/1316	ZRH QSX TAPE; CAPE (FISANTEKRALL) NAVAL R., REP SOUTH AFRICA
12961.3	20/1302	CQ DE LGW (SENDS LIST OF STATIONS AND QSX BANDS) (ROGALAND RDO, NORWAY)
13116	26/1241	4F GRPS. 3, 4, 5, 6, AND 7 SENT IN NORMAL FASHION. OTHER FIGS SENT CUT. (A D U N T FOR 1, 8, 2, 6, 0)
13235	26/1238	HWN CALL TAPE, PARIS (HOUILLES) NAVAL RADIO FRANCE

Cont'd p. 32

TUNE IN CANADA

by Norman H. Schrein

Welcome to another edition of the "Tune in Canada" column. The mailman has been pretty busy here lately delivering many requests for frequencies from all parts of Canada.

Many of you have written requesting frequency information from more than one city, and I am happy to check into the frequencies as time permits.

If there is a large list of cities, or the cities are very large in size, I would request that you remind me again what areas you are interested in after you see some of the information in the column.

In addition, you will be receiving a letter from me along with the information I have looked up for you. Some of that information will appear in this column as well, so that others will have the opportunity to share the information.

If you have no objection to my mentioning your name in the column, let me know and I will do so in future editions.

OTTAWA, ONTARIO FREQUENCIES

102.500		CBOFFM	Canadian Broadcasting Corp.
103.300		CBOFM	" " "
152.210		CGE 216	Bell Canada
152.450		CGE 216	" "
162.660		CGE 216	" "
451.600	451.6125	CHC 592	Canadian General Electric, Ltd.
464.775		CJN 829	Dibblee Construction Co.
148.990		CJW 872	Ottawa-Carleton Co. EMO
149.525		CJW 872	" " "
153.050		CJY 567	Canadian Broadcasting Corp.
106.900		CKOFM	Canadian All-News Radio, Ltd.
130.800		VAA	Department of Transport
139.320		"	" " "
149.215		"	" " "
451.075	456.0875	VCL 313	Eastern Air Condition & Heating
452.125		VCL 340	Christie & Walther Electronics
462.1625	467.1625	VCQ 844	Stern, Stuart M.
168.060		VCO 872	Julian Taxi Cab, Ltd.
167.880		VCP 722	Capital Coach Lines, Ltd.
152.240		VCR 99	Sam Young Electric, Ltd.
451.875	456.8875	VCR 995	Loretta Paving Co., Ltd.
451.225	456.225	VCS 809	Bell Northern Research
464.0125	469.0125	VCS 837	Capital Guard Service, Ltd.
151.715		VCT 272	BVH Communications, Ltd.
162.480		VCT 282	Capital Metro Taxi of Ottawa,Ltd
451.525	456.5375	VCV 471	Carsons Body Repairs, Ltd.
452.775	457.7875	VCV 489	Econo Heating Ottawa, Ltd.
451.600	456.600	VCW 212	May, Steven R.
29.960		VCX 201	Fines Flowers,Ltd.
462.675	467.6875	VCX 834	Purolator Courier, Ltd.
165.120		VCX 864	Foubert, William Joseph
167.460		VCY 516	Mackenzie Mercury Sales, Ltd.
451.475	456.5875	VCZ 634	Triangle Pump Services, Ltd.
30.580		VE9 XJ	Morrow Electronic Industries,Ltd

MINDEMOYA, ONTARIO FREQUENCIES

149.170		XLL 488	Ontario Ministry of Health
149.440		" "	" " "
149.470		" "	" " "
150.100		" "	" " "

LITTLE CURRENT, ONTARIO FREQUENCIES

152.600	147.860	CGE 26	Bell Canada
152.720	157.980	" "	" "
152.795	158.055	" "	" "
152.840	158.100	" "	" "
152.885	158.145	" "	" "
153.245	158.505	" "	" "
463.000	456.000	" "	" "
156.600		CJU 89	Canadian Pacific Railroad
156.800		" "	" " "
159.585		VCR 407	Ashley, Fred J.
167.580		VCT 805	Bailey, John F. MD
168.330		" "	" " "
42.060		XJC 22	Ontario Provincial Police
42.220		" "	" " "
173.550	170.370	" "	" " "
30.020		XKC 211	St. Joseph's General Hospital
148.930	143.955	XLS 326	Ontario Dept. of Transportation
164.610		" "	" " "
165.300		" "	" " "
143.805		XLS 357	" " "
143.865		" "	" " "
149.170		XNF 719	Ontario Ministry of Health
149.440		" "	" " "
149.470		" "	" " "
150.100		" "	" " "
413.6875	418.6875	" "	" " "
413.7625	418.7625	" "	" " "
413.8125	418.8125	" "	" " "
413.8375	418.8375	" "	" " "
413.8625	418.8625	" "	" " "
413.8875	418.8875	" "	" " "

Northwest Telcommunications, Inc. in Little Chicago, Northwest Territories operates station CZA 679 on the frequencies 152.810/158.070.

SMITHERS, BRITISH COLUMBIA FREQUENCY INFORMATION

97.500		CBRSFM	Canadian Broadcasting Corp.
152.630	157.890	CGA 278	British Columbia Telphone Co.
160.375		CHB 440	Canadian National Railway
160.665		" "	" " "
161.205		" "	" " "
161.415		" "	" " "
121.500		VFS 6	Department of Transport
121.900		" "	" "
122.200		" "	" "
243.000		" "	" "
262.700		" "	" "
414.1125	419.1125	" "	" "
168.00		VGE 953	Walls Home Furnishings, Ltd.
157.440		VGE 963	Bulkley Valley Dist. Hospital
156.030		VGF 825	Collingwood Sales, Ltd.
153.470		VGF 849	Canadian Nat'l Telecommunication
159.630		" "	" " "
159.720		" "	" " "
160.140		" "	" " "
165.840		VGH 607	Telkwa Enterprises, Ltd.
165.690		VGL 877	Bulkley Concrete, Ltd.
162.270		VGM 611	Stoewinder, John
122.400		VXC 30	B.C. Ministry of Forests
129.250	163.995	" "	" " "
163.125	163.995	" "	" " "
163.830		" "	" " "
163.890		" "	" " "
455.7875	450.775	" "	" " "

Cont'd p. 4

by James R. Hay

With February being the month when many persons from the north migrate to the south to soak up the sun and warmer temperatures, perhaps this is a good time to suggest some frequencies for listening to stations in the south.

There are five stations in the Bahamas which may be heard on shortwave. In ssb Coral Harbour Radio (C6N55) operates on 2182, 4419.4, and 8740.6 kHz. Abaco Radio (C6X2) operates on 2582 kHz, Inagua Radio (C6L8) operates on 2182, 4419.4, 6221.6, 8294.2, and 12429.2 kHz.

Nassau Radio (C6N) operates with cw on 426, 500, 4220.5, 6376, 8441, and 12752, and in ssb (C6N2) on 2182, 2822, 2558 kHz.

In the Turks and Caicos Islands, Turks Island Radio operates using ssb using 2182, 2587, 2590, 2735, and 2738 kHz. Guadeloupe operates ssb on the following frequencies: 2170.5, 2182, 2255 kHz.

Barbados Radio (8PO) operates in cw on 484.5, 500, 6379.5, 8449.3, 12709, and 16947.6 kHz, and in ssb on the following frequencies: 2182, 2579, 2582, 2720, 2723, 2802, 2850, 4376, 8765.4, 8793.3, 13138, and 17353.8 kHz.

From Trinidad and Tobago, Tobago Radio (9YM) operates on 458, and 500 kHz, and North Post Radio (9YL) operates in cw on 476, 500, 6470.5, 8441, 12885, and 17184.8 kHz.

On single sideband 9YL uses 2182, 2735, 3165, 6516.8, 8810.2, 13190.9 and 17336.9 kHz.

Using ssb, Amoco Trinidad Radio operates on 2182, 2292, and 2398 kHz, and Melville Shipping Radio operates on 6210.4, 8281.2, and 12421 kHz.

Texaco Trinidad Radio operates on 2166, 2182, 2406, 2506, 2558, and 2638 kHz.

Finally, from Trinidad and Tobago, the Trinidad and Tobago External Communications Radio, Textrin Radio operates on 4136.3, 6213.5, 8284.4, 12421, and 16565 kHz.

From the Netherlands Antilles, just north of Venezuela, Curacao Radio (PJC) operates on 438, 487, 500, 4334, 6491.5, 8694, 13042.5, and 17170.4 kHz in cw. In ssb they use 2182, 2550, 4379.1, 8725.1, 13119.4, 17251.5 kHz.

Somewhat to the north of the Netherlands Antilles are the American Virgin Islands where St. Thomas Radio (WAH) operates using ssb on 2182, and 2506.

Puerto Rico, to the west, has three stations: Loiza Radio (WCT) operates in ssb on 2182, 2530; Ponce Playa Radio (KRV) operates on 2182 and 2385; and San Juan Radio (NMR) operates in cw on 466, 500, 8471, and 12700, and 16983.2.

San Juan Radio is a Coast Guard Station, and as such can provide some interesting listening.

From the Dominican Republic you may hear Santo Domingo Piloto Radio (HIG). Using cw it operates on 500, 4358, 8642, and 13087.5 kHz. Using ssb it operates on 2182, 2638, and 2738 kHz.

Aqua Marina Primera Piloto Radio (HIW) operates on 2182 and 2738 kHz using ssb; Boca Chica Piloto Radio (HIW7) can be heard using cw on 500 and 8641 kHz.

Puerto Plata Piloto Radio (HIW8) and Santo Domingo Piloto Radio (HIA) can also be heard on the same frequencies.

In addition to HIW, Haiva Piloto Radio (HIW20), La Romana Piloto Radio (HIW9), Manzanilla Piloto Radio (HIW12) and S. Pedro de Marcoris Piloto Radio (HIW19) all operate on 2182 and 2738 kHz.

Aqua Marina Primera Piloto Radio (HIW) operates on 2182 and 2738 kHz using ssb; Boca Chica Piloto Radio (HIW7) can be heard using cw on 500 and 8641 kHz.

From Haiti, Port au Prince Radio operates on 2182 and 2738 kHz using ssb. From Jamaica, Kingston Radio (6YI) operates using cw on the following frequencies: 458, 500, 3535, 6470.5, 8465, 13065, 16947.6 kHz. Using ssb, Kingston Radio is also on 2182, 2587, 2590, 3535, 4369.8, 4403.9, 6518.8, 8753 and 13172.1 kHz.

From Bermuda you may hear two stations: Bermuda Radio and Bermuda Harbour Radio. The former (VRT) uses cw on 426, 500, 4277, 6487.5, 8449.4, 12709.2, 16947.6; they also use 6503.5, 8714.5, 13073, and 17201.5 kHz. Using ssb they operate on 2182, 2547, 2550, 4385.3, 6512.6, 8768.5, 13159.7, and 17285.6 kHz.

Bermuda Harbour Radio (ZBM) operates using cw on 476 and 500 kHz, and with ssb on 2182 and 2582 kHz. Finally, from the island of St. Lucia, St. Lucia Radio uses ssb on 2182, 2327, 2381, and 2582 kHz.

THE CARRIBEAN ON VHF

For these readers who might be intending to take a VHF receiver south with them, or for those living where Caribbean stations might be heard on their VHF receivers, the following frequencies might be worth watching. For simplicity, I will only list the channel number, giving the actual frequencies at the end of the list.

Bermuda: Bermuda Radio (VRT) channels 16, 26, 28. Bermuda Harbour Radio (ZBM) channels 10, 12, 16, 27.

Bahamas: Grand Bahamas Radio (C6F2) channels 16, 27, Nassau Radio (C6N2) channels 16, 27. Nassau Harbour Control (C6V33) channels 6, 9, 16.

Guadeloupe: Pointe a Pitre Radio (FFQ) channels 16, 25. Basse Terre Port Radio, channels 12, 16. Pointe a Pitre Fort Radio, channels 12, 16.

Martinique: Fort de France Radio (FFP) channels 16, 26. Fort de France Port Radio, channels 12, 16.

Barbados: Barbados Radio (8PO) channels 16, 26. Barbados Pilot Radio, channels 6, 12, 16.

Trinidad & Tobago: North Post Radio (9YL) channels 16, 25, 26, 85. Pipdeco Radio, channels 9, 10, 12, 16. Texaco Trinidad Radio, channels 6, 8, 11, 12, 13, 16. Trinidad & Tobago Port Radio, channels 12, 16, 26. Trinidad Harbour Master Radio, channels 6, 9, 10, 11, 16, 68. Trimnor Radio (Trinidad Northern Areas Radio) channels 11, 14, 16. Trintoc Radio (Trinidad Oil Co. Radio) channels 11, 12, 13, 16. Port of Spain Pilots, channels 12, 16.

Netherlands Antilles: Curacao Radio (PJC) channel 25. Curacao Lighthouse, channels 6, 16. Saba Radio (PJS) channels 16, 27.

British Virgin Islands: Tortala Radio, channels 16, 27.

U.S. Virgin Islands: St. Thomas Radio (WAH) channels 16, 25, 28, 82.

Puerto Rico: Loiza Radio (WCT) channels 16, 26. Ponce Playa Radio (KRV) channels 16, 28. U.S.C.G. Base Radio Station, channels 14, 16, 22.

Dominican Republic: Santo Domingo Piloto Radio (HIA) channels 12, 16. Aqua Marina Primera Piloto Radio (HIW) channels 12, 16. Barahono Piloto Radio (HIW14) channels 12 16. Boca Chica Piloto Radio (HIW7) channels 12, 16. Haina Piloto Radio (HIW20) channels 12, 16. Manzanilla Piloto Radio (HIW12) channels 12, 16. Puerto Plata Piloto Radio (HIW8) channels 12, 16. S. Pedro de Macoris Piloto Radio (HIW19) channels 12, 16.

Haiti: Port au Prince Pilotes Radio, channels 11, 12, 13, 14, 16.

Jamaica: Jamaica Defence Force Coast Guard Radio (6YX) channels 10, 16. Kingston Radio (6YI) channels 16, 26.

\+ + +

VHF Maritime Channel frequencies:

Channel	Frequency MHz
6	156.300 MHz
8	156.400
9	156.450
10	156.500
11	156.550
12	156.600
13	156.650
14	156.700
16	156.800
25	157.250/161.850
26	157.300/161.900
27	157.350/161.950
28	157.400/162.000
68	156.425
82	157.125/161.725
85	157.275/161.975

Please address any correspondence regarding this column to: James R. Hay, 141 St. John's Blvd., Pointe Claire, P.Q., Canada, H9S 4Z2.

SATELLITE PUBLICATIONS

A common question we receive at MT offices is, "Where can I get more information on...?" Where satellites are concerned, Geoffrey Falworth (12 Barn Croft, Penwortham, Preston PR1 OSX, England) may be the encyclopedic source.

No fewer than four separate publications are released periodically by Falworth covering all aspects of orbiting objects.

SATELLITE NEWS: SPACE OBJECTS DIGEST publishes lists of all newly-catalogued space objects with their orbital data. Issued quarterly.

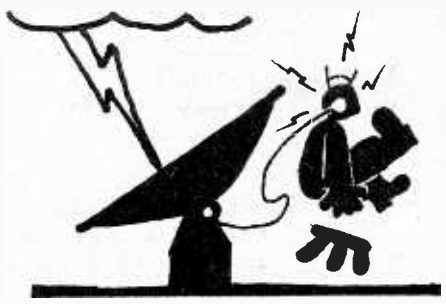
SATELLITE NEWS: MILITARY SPACE DIGEST concerns itself with military space activities including tests and hardware.

SATELLITE NEWS: SPACE OPERATIONS REVIEW concentrates on launching characteristics and monthly updates on synchronous and geostationary spacecraft.

SATELLITE NEWS: SPACE SYSTEMS DIGEST is a technical distillation of major spacecraft experiments with expert attention to detail.

For more information, write to the author at the address above, enclosing an IRC (international reply coupon) to offset his postage.

SIGNALS FROM SPACE



by Larry Van Horn

Editor's note: It is with great pleasure that we introduce our new Signals from Space editor, Larry Van Horn, an experienced editor of the Satellite Communications column with RCMA, a professional communications expert with the US Navy, an active amateur radio operator and an avid listener to the spectrum.

OSCAR!

Orbiting Satellite Carrying Amateur Radio represents the best way for beginners to start satellite monitoring.

So far there have been 10 OSCAR satellites built and launched for use by Amateur Radio operators around the world.

Currently there are two active OSCAR satellites in use. UOSAT-OSCAR 9 (UO-9) is an experimental (non communication) satellite built by the University of Surrey in England. UO-9 is a very sophisticated satellite that can be used for scientific and educational purposes.

The primary telemtry frequency is 145.825 MHz NBFM with a power of 450 milliwatts. This beacon can be heard on the simplest of equipment. I have used an ICOM 2AT Handheld transceiver with a rubber duck antenna with satisfactory results.

The data sources available to the 2 meter beacon are:

1200 baud ASCII telemetry
300 baud ASCII telemetry
110 baud ASCII telemtry
45.5 baud RTTY telemetry
Synthesized-speech (digitalker) telemetry
Spacecraft asynchronous interface
Earth imaging system data (CCD camera)

There is also a 400 milliwatt beacon operating on 435.025 MHz, the spacecraft's primary engineering data and high speed experimental data channel. This beacon is intended for advanced amateur ground stations, advanced scientific experimenters and the ground station's network.

There is also a phased reference HF beacon system for a propagation studies experiment on board. This experiment will be activated if problems with the stuck gravity gradient boom can be overcome.

Check the following frequencies in the HF spectrum for activity: 7.001, 14.001, 21.001, and 28.001 MHz.

This is a great satellite to practice tracking techniques on and the digitalker is a fantastic tool to decode telemetry in voice. The digitalker uses both male and female voices and is quite audible.

Reception reports of UO-9 transmissions can be sent to the following address for a QSL card. Address your reports to: Dr. M.N. Sweeting, UOSAT Control Centre, Dept. of Engineering, University of Surry, Guildford, Surrey GU2 5XH, England.

More information on UO-9 is available from the above address or AMSAT HQ's listed elsewhere in this column. Your editor also has a data sheet on UO-9 available for 25¢ and a SASE to cover reproduction cost.

* * * *

There are satellites transmitting in the HF spectrum which can be heard by the average SWL. These satellites represent excellent opportunities to practice tracking techniques. Check the following frequencies for Soviet satellite signals:

15008	Salyut Space Station telemetry
18060	Manned mission
19150	Old Photo Recon
19444	Military Salyut
19542	Cosmos telemetry
19954	Space tug telemetry (Cosmos 1443)
19989	Cosmos Photo Recon
19994	Cosmos telemetry
19995	Photo Recon
20004	Common Intercosmos
20008	Soyuz manned space-craft telemetry
10009	Early Chinese satellite frequency

The range from 29300 to 29500 kHz is rich in amateur radio satellite activity.

More information will be provided in later Signals from Space columns on these interesting satellites.

* * * *

Do you need satellite tracking software for that personal computer at home? Software is available for a wide variety of systems from the AMSAT software exchange.

For more information on AMSAT (Amateur Satellite, Inc.) and the software exchange write AMSAT HQ's at P.O. Box 27, Washington, D.C. 20044 or call 301-589-6062.

It's really hard to follow satellites without a good tracking program!

* * * *

COMSAT General recently announced that the U.S. Navy has contracted for an additional year of MARISAT UHF satellite services till October 1, 1984.

Developed, owned and operated by COMSAT General, MARISAT is the world's first maritime communications sa-

Cont'd p. 12

ATT Launches New Satellite Network

by Bruce M. Boston

Telstar 3 is the first in a series of satellites being built for the American Telephone and Telegraph Company.

Unlike other satellites being used by AT&T, the Telstar system is the first commercial communications satellite network owned and operated entirely at AT&T.

The satellite, launched July 27 from the Kennedy Space Center, will provide television, radio, voice and high-speed data communications within the continental United States, Alaska, Hawaii, Puerto Rico and the Virgin Islands.

Built by Hughes Aerospace, Telstar 3 will use hybrid of Traveling Wave Tube Amplifiers (TWTA) and Solid State Amplifiers (SSA) which will increase the earthbound signal strength.

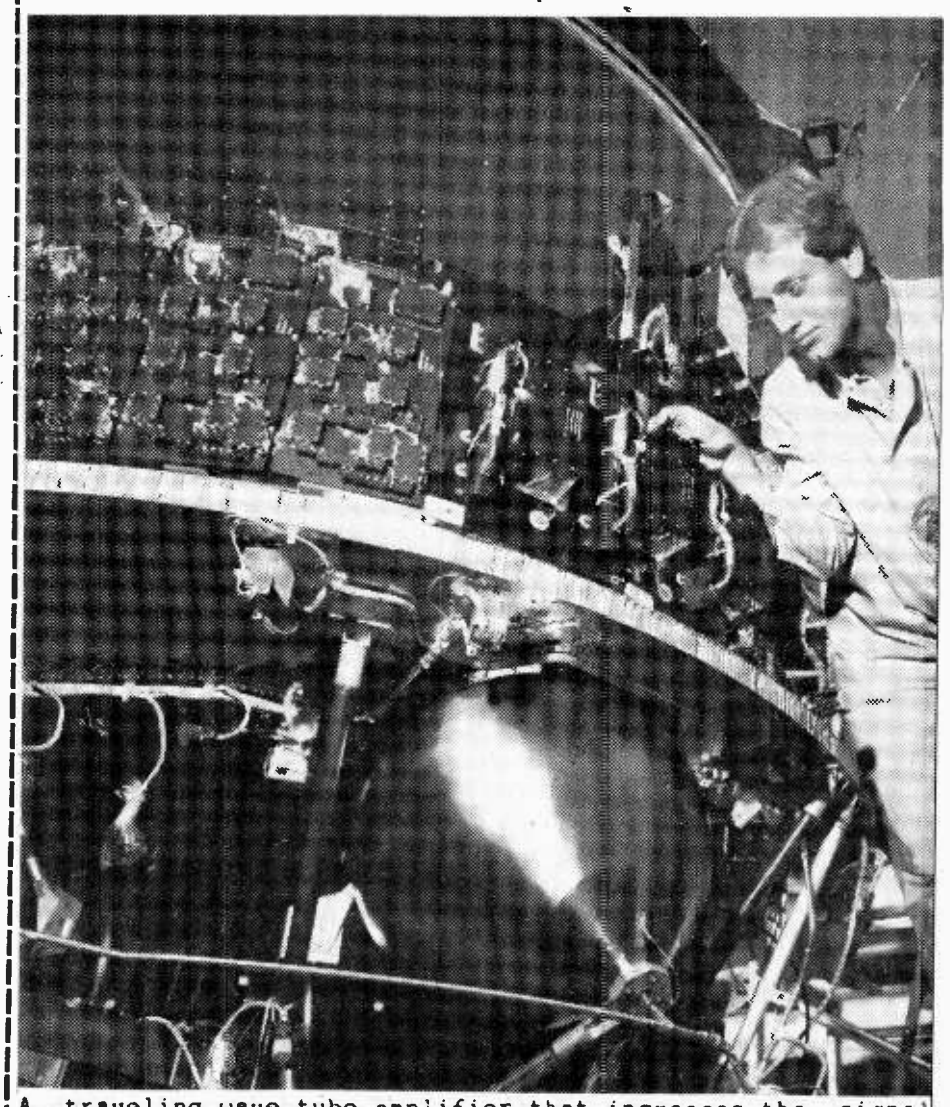
Existing satellites almost exclusively use the TWTA to boost signal strength. While the TWTA uses the satellite's solar generated power more efficiently, the SSA is more reliable and will last longer. Telstar 3 has an expected life of 10 years.

Telstar 3 is equipped with 18 Solid State Amplifiers and 12 Traveling Wave Tube Amplifiers. This arrangement allows AT&T more flexibility in choosing the amplifier best suited for a particular communications service.

Launched into a geostationary orbit on a Delta rocket, the new communications satellite will maintain its position at 22,300 miles above the equator.

Located at 96 degrees West longitude, Telstar 3 is designed to operate in the C band (3.7 - 4.2 GHz).

The second and third satellites in the Telstar system will be launched on the Space Shuttle. Those missions are tentatively scheduled for July 1984 and May 1985.



A traveling wave tube amplifier that increases the signal strength for its broadcast back to Earth is adjusted by a Hughes engineer. The amplifier is onboard Telstar 3, a communications satellite built by Hughes for AT&T. The satellite will also carry the new solid state amplifiers (left), which are expected to be more reliable and have a longer life. (Photo courtesy of Hughes Aircraft Company.)

"Los Numeros"

32444 69213 88816 52196 63811 94216

Havana Moon

Notice anything unusual about the cipher groups in the last issue of MT? The abundance of "doublets" and "triplets" were there just to get your attention.

The numbers--minus the additives--are very far removed from numbers that are generated in a random or pseudo-random manner. I simply jotted down groups as they popped into my head.

If you missed these groups in the last issue of MT, you'll find them repeated at the end of this column.

SAY WHAT?

Here's what the inviolate cipher text really said: "EVERY DAY YOU SEE MANY INTERESTING SHOWS ON TV." You may or may not agree with that statement.

I'll show you how it was done along about the end of this column. At about this same spot, you'll find a biliteral system that just might look familiar. You'll stand a very good chance of recovering the plain text from this biliteral goody.

KEEP OFF!

Don't count on using your portable computer next time you fly the friendly skies! Seems that some of the airline biggies think that these little devils just might wreak havoc with any radio frequency that might be in use during their flight, including those used for radionavigation.

It's equally interesting to note that the FAA--as of this writing--has not yet determined that portable computers can pose a threat to air safety.

RADIO MARTI

Very much a reality as some Cuban-Americans in the Miami area now being interviewed for positions with this newest voice.

My sources inform me that background checks are already underway on some Cuban-Americans to be sure they meet all the requirements for a security clearance.

Watch the spectrum heat up as Fidel and Radio Marti battle it out. You already know who the real winner will be.

THE CLASSIFIED AD

I never cease to be amazed at some of the goodies listed in that tiny type in the back section of most publications. One that really caught my eye was recently listed in the classified section of a major Southern newspaper.

Here's what you could buy: "COLLINS Shortwave receiver 75S1 with US Customs Crystals, $300. XXX-XXX."

Wonder how many phone calls from the FEDs this advertiser received?

AIRSHIP RADIO AND TV TECHNICIAN

Another newspaper recently carried a rather large help wanted ad for Airship Radio and TV Technicians. This Goodyear Tire and Rubber Company ad stated that a valid general radio telephone operator's license as well as a valid commercial vehicle (chauffeur's) license would be required for job consideration. Interesting combination.

THE INTERCEPTS

No shortage of intercepts but a shortage of space in this month's column. Worth mentioning, however, was a 5-digit Spanish transmission noted on 6229 kHz at about 0500Z on 11/25/83. Ran across this ultra-strong transmission while searching for a Voice of Tomorrow broadcast. Nothing heard out of the VOT during that time period.

INVIOLATE

97652	87246	63022	97556
88852	55990	83768	16253
55948	68729	73214	96502
33233	00233	56937	78235
88552	58504	31256	10142
85634	96143	16217	25750
99966	54924	83426	78253
19219	11272	12142	49995
36876	69893	54525	66897
21045	19836		

* * *

A	B	C	D	E	F	G
22/	39/	27/	30/	20/	33/	38/
H	I	J	K	L	M	N
21/	34/	28/	37/	29/	23/	40/
O	P	Q	R	S	T	U
45/	31/	32/	44/	41/	43/	24/
V	W	X	Y	Z		
35/	25/	36/	42/	26		

E	V	E	R	Y	D	A	Y	Y
20/	35/	20/	44/	42/	30/	22/	42/	42/
O	U	S	E	E	M	A	N	Y
45/	24/	41/	20/	20/	23/	22/	40/	42/
I	N	T	E	R	E	S	T	I
34/	40/	43/	20/	44/	20/	41/	43/	34/
N	G	S	H	O	W	S	O	N
40/	38/	41/	21/	45/	25/	41/	45/	40/
T	V							
43/	35							

TO CREATE CIPHER TEXT

E	V	E	R
97632	87211	63002	97512
+20	+35	+20	+44
97652	87246	63022	97556
Y	D	A	Y
88810	55960	83746	16211
+42	+30	+22	+42
88852	55990	83768	16253
Y	O	U	S
55906	68784	73290	96561
+42	+45	+24	+41
55948	68729	73214	96502
E	E	M	A
33213	00213	56914	78213
+20	+20	+23	+22
33233	00233	56937	78235
N	Y	I	N
88512	58562	31222	10102
+40	+42	+34	+40
88552	58504	31256	10142
T	E	R	E
85691	96123	16273	25730
+43	+20	+44	+20
85634	96143	16217	25750
S	T	I	N
99925	54881	83492	78213
+41	+43	+34	+40
99966	54824	83426	78253
G	S	H	O
19281	11231	12121	49950
+21	+41	+21	+45
19219	11272	12142	49995
W	S	O	N
36851	69852	54580	66857
+25	+41	+45	+40
36876	69893	54525	66897
T	V		
21002	19801		
+43	+35		
21045	19836		

BOTTOM ROW IS ROW THAT IS TRANSMITTED.

CAUTION: "Non-carrying addition" is used to obtain cipher text. "Non-borrowing" subtraction is used to recover plain text.

TO RECOVER PLAIN TEXT

97652	87246	63022	97556
-97632	-87211	-63002	-97512
20	35	20	44
E	V	E	R

and so on...

The above crypto-system is presented solely for entertainment purposes and should not be construed as a system being used by any government or military group.

BILITERAL SUBSTITUTION

Have a go at this one:

DNGWI TIWDT AWIRM NAWAW
GUARA WAWAU ITANM TIWDT
AWDTA WANAU ANGUA UARGW
AUMWD RMNDU AUAWG RDUGU
AWIUA

CLUES: Plain text begins with "F".

There's no way I'll spring for the Tecate and Big Mac for the correct solution to this one!

NEXT ISSUE

A somewhat revealing finding in regards to those 4-digit Spanish transmissions... A valid hint that might provide important clues as to the identity of those behind the 5-digit Spanish transimssion... A closer look at the inviolate and biliteral systems.

COMING MONTHS

Intercepts...The Postman Rings...Random Numbers.. The VOA revisited...Radio Marti...

Your cards and letters are eagerly solicited.

Time now for a Tecate and...

Adios,
Havana Moon

SIGNALS FRM SPACE **from p. 11**

tellite system. Each of the three satellites operate in three different frequencies: UHF for Navy services, and L-band and C-band for commercial shipping and offshore industries.

The MARISAT system first began providing communications services to the U.S. Navy (my boss) in 1976. Look for MARISAT activity as follows:

MARISAT F1 (Atlantic Region; 14.54 degrees west)
MARISAT F2 (Pacific Region; 176.84 degrees east)
MARISAT F3 (Indian Region; 72.49 degrees east).

Frequencies of the UHF downlinks are broken into 3 channels. Channels 1 and 2 consist of narrow bandwidth data channels centered at 254.150 and 257.550 MHz. The channel 3 transponder is a wideband repeater of 500 kHz centered on 249.100 MHz.

The majority of the traffic is encrypted, especially on channels 1 and 2, but occasional voice is audible in the clear on the wideband transponder.

Those equipped with L band capability might want to check out the 1537 to 1541 MHz range for commercial marine traffic. Jacque Costeau's Calypso has left the ATS-1 and 3 satellites in favor of the L-band MARISAT satellites as have over 2,000 other marine vessels.

* * * *

On March 26-28, 1983 the NOAA/NESS folks will sponsor a satellite users conference at the Hyatt Regency Crystal City in Arlington, VA. The conference is titled "NOAA's Environmental Satellites Come of Age."

The conference will detail a lot of information on NOAA and other weather satellites in use today.

For those interested in this field of satellite monitoring contact the National Environmental Satellite, Data, and Information Service/ National Oceanic and Atmospheric Administration, Washington, D.C. 20233

Cont'd p. 31

The RadioSpectrum: A Gift to the Weatherwise

Part II

THE MAFOR CODE

by Bert Huneault

In addition to warning transmissions, many VHF maritime stations broadcast marine weather forecasts on regular schedules (e.g. every six hours) or, in some cases, continuously.

In the Great Lakes area and St. Lawrence River system, these voice broadcasts are in a coded five-figure format referred to as the MAFOR code (MArine FORecast). This code presents wind and weather information in a very efficient, extremely concise form.

The forecasts are valid for a 24-hour period and are broadcast for Lakes Superior, Michigan, Huron, Erie and Ontario, as well as the St. Lawrence River.

If you've been hearing these five-figure groups on the air and wondered how to decode them, here is all the information you need. Following an initial statement of the effective date and time of beginning of the forecast period, the MAFOR code for each lake consists of a number of five-figure groups in the symbolic form $1GDF_mW_1$.

The first figure identifies the MAFOR code; it is always a "1".

The second figure (G) indicates the period of time during which the conditions described in the five-figure group are expected to persist; it is coded according to Table 1.

In the first five-figure group of a forecast, the period indicated by G begins at the time given in the initial date/time statement. In the second and succeeding five-figure forecast groups, the period indicated by G commences at the end of the period covered by the preceding group.

The third figure (D) indicates the direction from which the wind is forecast to blow. It is coded according to Table 2.

The fourth figure (F_m) represents the average wind speed, and it is coded according to Table 3.

The fifth figure (W_1) gives the expected weather, according to the code in Table 4.

Each MAFOR broadcast is followed by a synopsis of the major features of the current weather map, such as the positions and motions of high pressure centers and ridges, low pressure centers and troughs; as well as wind shift lines (fronts). These weather synopses are quite interesting, as they allow weather buffs to "track" weather systems with a fair degree of accuracy.

●●●●●●●

TABLE 1

G - Period of time covered by the forecast
0 - Existing weather conditions at beginning of forecast period
1 - Forecast valid for 3 hours
2 - Forecast valid for 6 hours
3 - Forecast valid for 9 hours
4 - Forecast valid for 12 hours
5 - Forecast valid for 18 hours
6 - Forecast valid for 24 hours
7 - Forecast valid for 48 hours
8 - Forecast valid for 72 hours
9 - Occasionally.

TABLE 2

D - Forecast direction of wind	
0 - Calm	5 - Southwest
1 - Northeast	6 - West
2 - East	7 - Northwest
3 - Southeast	8 - North
4 - South	9 - Variable

TABLE 3

F_m - Forecast speed of wind
0 - Beaufort number 0 to 3 (0 - 10 knots)
1 - Beaufort number 4 (11 - 16 knots)
2 - Beaufort number 5 (17 - 21 knots)
3 - Beaufort number 6 (22 - 27 knots)
4 - Beaufort number 7 (28 - 33 knots)
5 - Beaufort number 8 (34 - 40 knots)
6 - Beaufort number 9 (41 - 47 knots)
7 - Beaufort number 10 (48 - 55 knots)
8 - Beaufort number 11 (56 - 63 knots)
9 - Beaufort number 12 (64 knots & above)

TABLE 4

W_1 - Forecast weather
0 - Moderate or good visibility (greater than 3 nautical miles)
1 - Risk of accumulation of ice on superstructure (air temperature between 0°C and -5°C.)
2 - Strong risk of accumulation of ice on superstructures (air temperature below -5°C.)
3 - Mist (visibility ½ to 3 nautical miles)
4 - Fog (visibility less than ½ nautical mile)
5 - Drizzle
6 - Rain
7 - Snow, or rain and snow
8 - Squally weather, with or without showers
9 - Thunderstorms

Here is an example of part of a coded MAFOR broadcast, valid beginning at 0300 GMT, on a certain date. As you will see, MAFORs are very easy to decode.

Lake Superior: Gale warning 12646 19758 14755 12730

Lake Erie: 15820 12104

Translated into plain English, the above reads:

Lake Superior: for the first 6 hours of the forecast period (0300 to 0900 GMT) wind west at 28 to 33 knots, with rain; wind northwest 34 to 40 knots (gale force wind) with squalls (with or without rain showers or snow showers).

For the next 12 hours, wind northwest 34 to 40 knots with drizzle.

For the last 6 hours of the forecast period, wind northwest 22 to 27 knots; weather fair (visibility more than 3 miles).

Lake Erie: for the first 18 hours of the forecast period, wind north at 17 to 21 knots; fair weather.

For the final 6 hours of the forecast period, wind northeast, light (10 knots or less), with fog reducing visibility to less than 5/8 nautical mile.

●●●●●●●

As an example of VHF Great Lakes service, extended-range transmitting facilities at Leamington, Ontario (on Lake Erie), remotely controlled from Canadian Coast Guard radio station VBE at Sarnia, Ont., provide our local Windsor/Detroit area with continuous broadcasts on channel 83 (161.775 MHz).

These taped broadcasts include MAFOR, ship reports and Great Lakes Weather Bulletins (LAWEB). The latter consists of weather reports received from Canadian lighthouses, automated weather stations, as well as U.S. weather buoys and weather offices located adjacent to the Great Lakes.

These continuous broadcasts also include Notices to Shipping, e.g. reports respecting dangers to navigation.

For other areas in the Great Lakes region, readers can refer to the article "A History of Marine Radio on the Great Lakes" which appeared in the March/April 1983 issue of MONITORING TIMES; the article includes frequencies and weather broadcast schedules.

Two excellent books, RADIO AIDS TO MARINE NAVIGATION and SELECTED WORLDWIDE MARINE WEATHER BROADCASTS will be discussed in a future installment.

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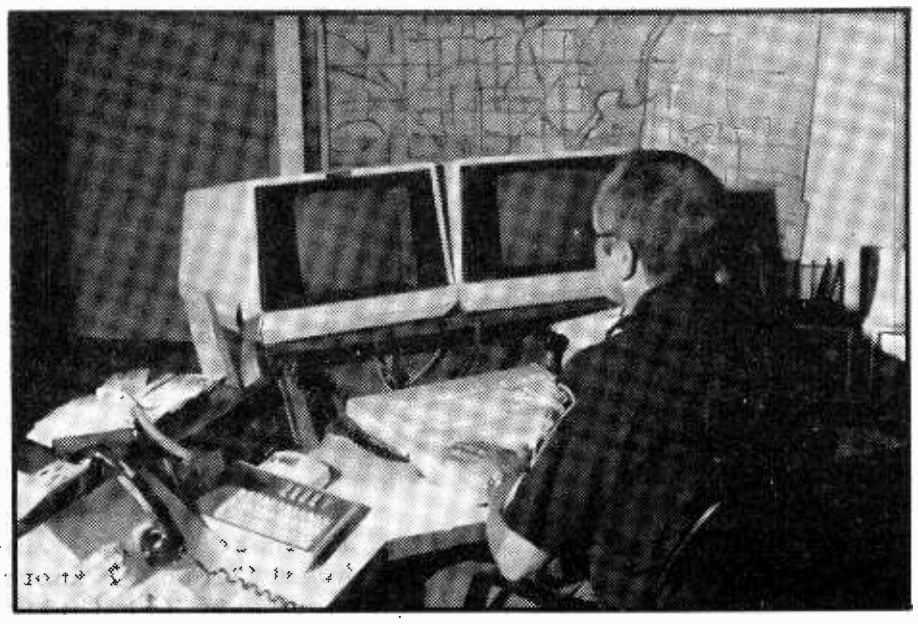
(Next month: HF Radio)

●●●●●●●●●●●●●●●●●●●

PROFILES MONTGOMERY CO (OH)

SHERIFF'S DEPT COMMUNICATIONS SYSTEM



by Norman H. Schrein

It is refreshing to know that in these times of many governmental agencies withholding information from their citizens, there are still agencies that are more than happy to discuss their communications systems. One such example is Ohio's Montgomery County Sheriff's Office, based in Dayton, Ohio.

Montgomery County is one of 88 counties in Ohio. Their Sheriff is an elected official running for office every four years. Currently, the Department is under the leadership of Tom Wilson.

Montgomery County consists of 465 square miles, over 881 miles of roadway, and 25 different police agencies. In addition to the 25 police agencies, another 325 emergency units are dispatched by the Sheriff's Communications Center.

In 1982 there were 701,466 calls for service that were processed through the Communications Center. In addition, there were 466,695 requests through LEADS (Law Enforcement Automated Data Systems). This number of requests placed Montgomery County 4th in the state as far as useage of the LEADS system is concerned.

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The current Communications Center was constructed at a cost of $75,000.00.

In the course of gathering the data for this report, I was able to speak to Inspector Richard Deal, who heads up the Sheriff's Communications Center. He was able to provide a greater understanding of the Communications Center.

The Dispatch Communications Center, located in the basement of the jail building in downtown Dayton, is also the EOC (Emergency Operating Center) for Civil Defense.

One of the things the Center does is send out warnings via radio and teletype to agencies in Auglaize, Champaign, Clark, Darke, Greene, Logan, Mercer, Miami, Montgomery, Preble, Shelby and Van Wert counties whenever there is a threat of severe weather in the area.

Those agencies, after receiving the information, activate warning sirens in their areas. This system is operated in cooperation with the local NOAA Weather Service Office located in Vandalia, Ohio.

Along the same lines, the Center is connected to the NAWAS system. This is a Civil Defense land line system that Center personnel can use to talk to other Centers across the U.S.--for example, weather bureaus and other EOC operators.

The Communications Center is also equipped with a teletype that will enable the deaf to communicate their requests and needs directly to Center personnel.

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One of the most interesting factors about the Communications Center is the Computer-Aided Dispatch (CAD). Inspector Deal explained that as soon as a call comes in it is assigned a master number. The master number will stay with that case from then on.

The number is based upon year, Julian date of the year, and the actual dispatch number of the 24-hour period. For example, 83-259-117 would mean 1983, the 16th of September, dispatch number 117.

After tne number is assigned and the dispatch is made, the car responds and takes a report. If more investigation is needed, the report would be sent to the Records Section for filing and retrieval. Then anyone wanting information could get it by entering the master number, name, address, or incident signal.

There are computer terminals (CRT's) in the Communications Center, Records Section, jail, property room, and Detective Section. All the CRT's are interconnected so a detective need not go to the Records Section to find out where to get a report, but may use the CRT there.

The advantage of the Computer-Aided Dispatch to the Road Patrol officer is as follows: an officer on a routine stop or FI (Field Interrogation) can relay the information to the Communications Center, and the information is fed into the computer.

If there is anything that the car or individual is involved in the information can be relayed to the officer on the street in a matter of seconds. In addition, information from the stop or FI can be fed into the computer.

Local warrants or past arrest records are also stored in the computer.

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I spoke to Wayne Van Kirk, Chief Technician for Montgomery County. He is in charge of all radio systems operated by the county government, including the Sheriff's Office.

The Sheriff's Department routinely operates two repeater systems and four simplex channels. The repeater stations handle the Department's main operations of dispatch and routine requests to the Records Section.

Radio dispatches are operated on 155.415/156.030 MHz ("A" channel). Routine requests to the Records Section and car-to-car communications are conducted on "B" channel (155.670/155.910 MHz). The remaining simplex channels operated are 155.565 (detectives, administrative personnel and car-to-car contacts) and 154.785 MHz (Jail Section and Civil SectionJ).

In addition to the Sheriff's Office operations on 154.785 MHz, the Montgomery County Building Security operates a third control point on this frequency. The building Security Department, which is not associated with the Sheriff, uses the radio to keep in contact with their security officers who patrol the various county-owned buildings.

155.370 MHz is used by both the Dispatch Center and

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BROADCASTING . . .

RADIO CANADA INTERNATIONAL REPLIES

by Hank Bennett

Several months ago I ran some comments on the QSL policy that had been established by Radio Canada International. This policy was for blank QSL cards to be sent out to everyone on their mailing list, filled in by the listener and returned to the station for verifying--if found to be correct--then mailed back to the listener.

It was my opinion that this procedure would enable many QSL collectors to obtain this particular QSL without really having to work for it since it would be a simple enough matter to fill in the details and hang it on the nearest available wall space without going through the due process of actually having it verified.

We have received a reply to this editorial comment from a friend of many years, Ian McFarland, Producer/Host of "SWL Digest" for RCI. Mr. McFarland explained in detail the reasons for adopting this policy and we shall, in turn, briefly describe it to you.

The bottom line was a matter of economics. In the past the station was verifying some 40,000 reception reports yearly and this task fell to the hands of six persons (including the supervisor) of the Audience Mail Department, all of whom had their hands full with normal day-to-day tasks.

This was at a time when the station issued three or four different QSL cards per year and, of course, everyone was interested in obtaining all of them. The business of verifying all of these reports just reached the point where it was getting out of hand.

It was decided, therefore, to go to a QSL card that would have no pertinent verficiation facts on it; a no-data QSL. This, then, would be as good as no QSL at all. However, before this policy was finally adopted, a decision was made to issue the present do-it-yourself type of QSL card, whereby the entire mailing list would receive a blank QSL card once a year. Each individual would assist the station by filling in all of the pertinent details, as based on his or her listening, and returned to the station for verifying.

Once the card had returned back to RCI it would be checked for accuracy and, if found to be correct, verified by a rubber stamping. This, overall, would reduce the workload of the Audience Mail Department by a tremendous amount and still give the listener the completed QSL card with the pertinent details.

Mr. McFarland went on to spell out some statistics concerning the number of QSL cards that had been returned for verifying. Based on the number that had been sent out, the return was only in the order of 13%. This could indicate, on the surface, the 87% of the listeners were not interested in obtaining the station QSL.

My own thought is that, without doubt, their mailing list is not made up exclusively of DXers; a goodly portion would have to be non-DXers and others who really know nothing of verifying. Therefore, the 13% of the returned cards could just as easily make up - as an arbitrary figure - perhaps 70% or more of the actual DXers on the mailing list. After all, QSL cards are basically for DXers anyway and the return of cards to the number sent out could theoretically be a favorable indication of the size of their audience.

Mr. McFarland's "SWL Digest" may be heard in the English North American Service on Sundays at 0100-0130 GMT (Saturday 2000-2030 EST) on 5960 and 11850 kHz (until the first week in March) and 5960 and 9755 kHz thereafter. On April 29th only the program will be aired during the 0000-0030 GMT time period.

Brain-Teasers

In our last column we put a number of brain-teasers to you and promised some answers this month. However, due to the inevitable lapse of time necessary between column preparation and having it appear in print, there just hasn't been time for any reader response. So we shall keep you in suspense a bit longer and meanwhile toss a few more questions to you for your consideration.

Many years ago the song "Good Night Waltz" was made famous by Ted Lewis and his Orchestra. A shortwave broadcast station used this particular version for its signoff theme. Name the station, location, and frequency.

Who remembers CJRC? Where was it?

A U.S. standard AM broadcast station used to use the slogan (and perhaps still does) "The Goodwill Station." An overseas broadcaster used to use the slogan "The International Goodwill Station." Give the names and locations of the two stations.

Who remembers "Radio Debunk"? Where was it, in all likelihood, really located?

What and where was W2XMN?

Certain stations in the U.S. at one time used callsigns such as W53PH. What kind of stations were these?

KGPD, KGPI, and KGPN were all on the same frequency but they were separated by many miles. Who and where were they? KGPX was another similar station but on a slightly different frequency.

Guatemala City once had a shortwave station on 6190 kHz with the callsign TG-2 and only 200 watts. We used to hear that one regularly in spite of the low power. Another well-heard Guatemalan was TGA with sister outlets TGWA, TGWB, and TGWC. They used to feature an afternoon concert by their Guatemalan marimba band. Does anyone recall the distinguishing feature of TGW's QSL card?

The BBC in London once had a North American Service on a very low frequency as shortwave goes. It was often well heard in the east and middle west and it's about the only non-tropical-area station that I ever heard in the so-called tropical frequencies. Frequency anyone?

That station with a ham radio type of callsign, TV1RL--where was it? A neighboring country also used callsigns that resembled ham radio callsigns. Locations anyone?

What U..S. stations once used a five-letter callsign? (That's all letters, no numbers).

Remember when the BBC Overseas Service used to have a separate callsign for each frequency? GSL, for example, was on 6110 kHz. GSD was assigned to 11750 kHz with a whole great big 20,000 watts! That was big power then!

Do the callsigns WARC and WAQW ring a bell with anyone? We logged them many years ago on 3372 1/2 kHz.

I have an old QSL in my files, according to my records (although I cannot locate the QSL at present) for W3XIR, Philadelphia, Pa., on 42,140 kHz. This was in July of 1940 during late evening. Does anyone recall what type of station this was? (I don't have a good answer for this one myself and memory has faded out).

One of New York City's big 50-kilowatt stations is now known as WNBC. Where were these call letters some 40 years ago?

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We'd like to remind our readers of our Monitor Registration Program. WDX has been in use since 1970 and in that time we have assigned call letter-type of certificates to thousands of interested hobbyists.

You can obtain full information for return postage from WDX Monitor Service, P. O. Box 3333, Cherry Hill, New Jersey 08034. This address is also the place to write for information on radio, or for your answers to our brain teasers.

We'd like to invite our readers to send in their own list of station stumpers but be sure that you also send along a correct list of answers for them!

Potpourri

We're pleased to announce that the American Short Wave Listeners Club enetered its 25th year in December. Formed in 1959, the club has made many friends and helped thousands of DXers since its inception.

We commend President Stewart MacKenzie on his many years of devoted service to the club and wish them well for the future. Any prospective members can write to the club for information at 16182 Ballad Lane, Huntington Beach, California 92649.

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With regret we must announce the passing of a recent venture, "SWAPS NEWSLETTER." This had been formed by John Kapinos of Shrewsbury, Massachusetts. Response to this venture was disappointing to say the least and Mr. Kapinos has stated that all funds received have been returned. He hopes to re-form this newsletter at a later date.

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RADIO EL SALVADORE INTERNATIONAL

Thanks to MT reader Bill Tyrrel for catching the first day transmission of Radio El Salvadore International. He heard English language programming on 11983 kHz.

Bill was tuning the 12 MHz coastal CW band when he accidentally overheard the transmission.

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One of our DX friends from years ago has reentered the hobby after a long absence. Reg T. Wilson,

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BROADCASTING. . .

ENGLISH LANGUAGE BROADCASTS

by Tom Williamson

Greetings to all our readers! This month we will take a look at a continent--Europe--to see what is available to the listener. But first, let us take a look at the subject of news broadcasts from around the world.

The comments which follow are, of course, to some extent a personal opinion; but backed up, I hope, with factual data! If you find points of disagreement... please write in with your view!

BRITAIN: BBC World Service. (See chart for selected times and frequencies)

As I commented last time, the BBC has made its reputation on the quality and style of its news services. Frequent bulletins of world-wide news items, backed up by analysis programs such as "Radio Newsreel" and "Twenty-Four Hours."

There are one-topic programs such as "The World Today" and "From our own Correspondent" and, on a lesser scale, the local viewpoint as expressed in "British Press Review" and "News about Britain."

It would be difficult to fault the BBC for coverage of world events with a fair and balanced outlook. They are free of Government interference, and have a huge array of correspondents to draw on from all over the world. It is this latter fact in my opinion which gives them the best service in the world.

If they do have a weakness it may be in coverage of Latin America since, historically, there have been fewer correspondents in this area than in others. But even this has improved in the last several years.

Another feature which is so important is the fixed style of broadcast: headlines first, then detail, then summary of headlines; all sections are clearly separated from each other so that after an item on the Middle East, for example, there is a pause before going on to, say, South America.

This style makes it easy to quickly pick up the main events in your mind. They introduce the news with a regular musical melody, "Lilliburlero."

U.S.A.: Voice of America. (See chart)

The venerable VOA has a fine and comprehensive news service, packing in a large amount of information. I find it less well organized than some stations, but very useful for detail.

They cover the Americas well and have a well-balanced outlook, though there has been considerable controversy about their government bias toward the news. VOA has some interesting news analysis programs but they are less extensive than those of the BBC.

U.S.A.: AFRTS. 1300 (15430/15330); 0200 (6030)

This is my favorite service for news from N. America. With their frequent selection of network news broadcasts from NBC, ABC, Mutual, UPI and Associated Press, you have a fantastic selection of news from many political viewpoints.

There are commentary items such as "Spectrum" and programs like "Capitol Assignment"...and even Jack Anderson! For sheer volume and spread of news reporting I find the AFRTS second to none, only the depth and quality of the BBC being superior (but that's a personal evaluation!).

HOLLAND: Radio Netherlands.

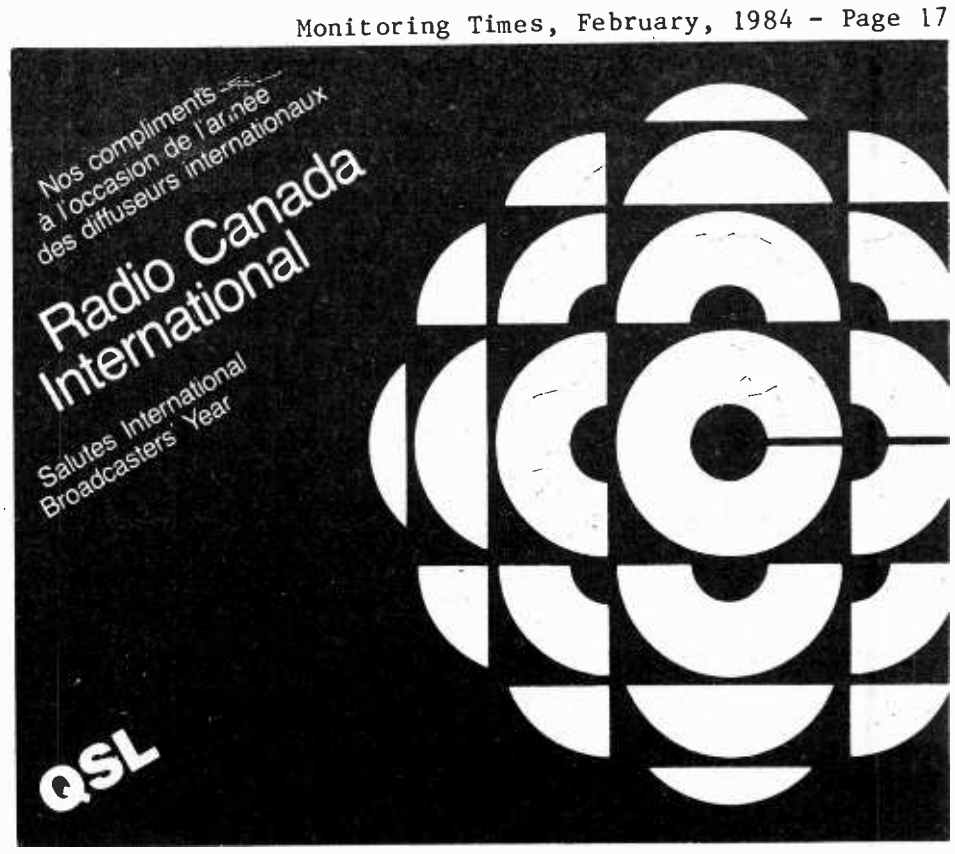
This incredible Dutch World Radio service is stunning, both in its consistency of signal and quality of news production. It is a relatively small scale operation with limited time operation (50 minutes a transmission) but the clear presentation of the news items and the "Newsline" program are models of efficient use of time and material.

Personally, I find a left-wing bias in the commentaries, heavy emphasis on the peace movement and a strong anti-apartheid attitude to South Africa. These are minor criticisms, however.

CANADA: Radio Canada International. 0100/ 0300/ 0400 (5960, 9755)

A good news service with special interest to Canadians living or vacationing abroad. In style, attempts to be independent in thinking, at least in relation to the U.S.A.! A little too much emphasis on Canadian affairs, perhaps, for the overseas listener, but less so than in the domestic CBC broadcasts.

Cont'd p. 30



GETTING MORE QSL'S - It's an Art!

by John H. Demmitt *

Most SWL's and DX'ers have thrilled in the delight of receiving attractive QSL cards from interesting and far away stations.

The holders of these cards should feel proud displaying their verifications because these cards represent long hours of hard work they spent listening through interference, heterodynes and static.

The "verie" also represents the dedication of the listener to furnish the broadcasting stations with much-needed information which allows broadcasters to make qualified decisions regarding frequency and program changes.

The average international broadcasting station usually requires at least 20 minutes of listening before they will issue a QSL. This does not mean you must list every single detail you hear during this period.

On the contrary, verie signers are usually assigned to other areas of responsibilities and they don't have time to read such detailed reports. They tend to lay such reports aside until they have more time.

Keep reception reports brief while including all the information the station requires. Pointing out several topics which were heard is enough to prove it was actually the station you heard and not another.

Make sure you cover several comments during at least a 20 minute period. This is the most important part of the QSL because it proves that you heard the broadcast.

Many honest reports end up in the waste basket simply because the listener used the wrong data. When you're DX'ing and reporting to international stations, forget your local time and date. Instead, think UTC!

0000UTC (GMT) is automatically the next day and that is the date you must use; otherwise the verie signer will be checking your program details against another log. Purchasing an inexpensive 24 hour watch will soon solve the confusion!

The frequency is a very important detail in a reception report as it tells the broadcasting station which frequencies are being listened to most often.

If you do note a frequency deviation, qualify your report by stating the receiver you used to measure it. Stating a frequency other than what the station transmits on may result in a lack of a QSL because someone at the station may assume you heard another station.

For that reason it's best to list the station's original frequency and then indicate the difference with a plus or minus.

Most stations will accept a SINPO report, but to make sure they understand it, write out the words. The little time spent doing this could result in more QSL's arriving at your QTH.

Although this in itself should qualify you for a QSL, there are other factors which will help assure your chances of getting a faster reply and perhaps some souvenirs.

Let the station know what you like about its programming. If you have suggestions or constructive criticism, feel free to offer it.

As you may be interested in the country you write

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PROFILES from p. 15

vehicles of the Sheriff's Department. This frequency, commonly known as "Intercity", is used for point-to-point communications between various police agencies within Ohio and adjoining states.

Mobiles can use the frequency to contact bases or mobile units from departments not using the Montgomery County Communications System.

The final frequency is 154.935 MHz, commonly known as LEEARN (Law Enforcement Emergency Radio Network). This is a state-wide frequency which is supposed to be used during disasters or similar emergencies. In practice it is used much in the same manner as 155.370 MHz.

As viewed from the patrol vehicle, the frequency set-up is as follows:

TRANSMIT	RECEIVE	CHANNEL
156.030	155.415	1
155.415	155.415	2
155.910	155.670	3
155.670	155.670	4
155.565	155.565	5
154.785	154.785	6
155.370	155.370	7
154.935	154.935	8
BLANK	BLANK	9
BLANK	BLANK	10

In addition to the above frequencies which are common to both the Communications Center and the mobile units, the Communications Center is also able to dispatch on 158.940 MHz, a simplex frequency used by the County Parks & Recreation Department. The Communications Center also dispatches the Box 21 Rescue Squad on 155.160 MHz.

In the future there are plans for the Communications Center to be able to dispatch on all county department frequencies, plus have a tie-in on Dayton Police frequencies in case of an emergency.

The Sheriff's Department also has the use of several hand-held units which can operate on the ATF (Alcohol, Tabacco, and Firearms) repeater. That pair in the Dayton area is 165.2875/166.5375 MHz.

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Now down to some specifics on the base stations used by the Sheriff's Department. "A" channel is a 330-watt General Electric Master Pro using a 5.25dB gain Phelps-Dodge (PD-220) antenna. This translates to an effective radiated power of 2400 watts.

The transmitter is located on the top of a water tank in Kettering (southeastern part of Montgomery County). The ground level at the antenna site is 1091 feet above sea level, and the tip of the antenna is another 125 feet above that.

"B" channel uses the sameequipment as does "A" channel, except that the antenna is directional to the northwest and is sidemounted on a tower which is not clear of the top of the water tank.

The "detective channel" (155.565 MHz) is located on the top of the jail building in downtown Dayton. Stand-by stations for "A" and "B" channels are located here, as well as a 50-watt Motorola Mocom 70 using a unity gain ground plane antenna on 154.935 MHz.

The Detective Section base station and antenna are the same as "A" and "B" channels, but the overall antenna location is quite a bit lower.

The base station used by Jail and Civil Sections (also Building Security) is a Motorola 300-watt station using the same type Phelps Dodge antenna as the other stations. It is located on the top of the eleven-story County Administration Building which is located about one block west of the County Jail.

Finally, the "Intercity" channel (155.370 MHz) is located on the top of a water tower in the southeastern part of the county. In fact, the station is just inside the county line of Greene County which adjoins Montgomery on the east.

The antenna is 144 feet above ground level; the base and antenna are the same combination as mentioned earlier.

In addition to the main transmitter site, there are six locations throughout the county which have remote receivers for "A", "B" and the detective frequency. All these are linked to a voting system and eventually the Communications Center via telephone lines.

Being a bit of a reception enthusiast, I asked Mr. Van Kirk how far the main dispatch channel has been heard. He told me that he was in Chicago, Illinois, inside a parking garage in the Loop during a severe thunderstorm and was able to hear the 155.415 MHz frequency on a scanner in his vehicle.

I am sure that the radio people would be interested in hearing from anyone who has heard the main dispatch channel at greater distances than mentioned here. The main channel is ID'ed every hour, call sign KNFG 818. Mobiles use the call sign KE 4818.

Sheriff's Office activities can also be monitored on 158.775 MHz, the county's tone and voice dial-up paging channel. Most detectives and administrative personnel carry Motorola pagers. That frequency is also used as a repeater output by the Communications Service personnel with the input frequency being 153.740 MHz.

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Montgomery County, like many other agencies, uses radio codes and signals in the routine course of dispatching vehicles to calls. As mentioned earlier, the Computer-Aided Dispatch system uses a signal code in the classifying of the various complaints. These same codes and signals are used in the routine dispatch of the officers:

00	RIOT
1	CRIMINAL HOMICIDE
2	RAPE
3	ROBBERY
4	AGGRAVATED ASSAULT
5	BURLARY - B & E
6	LARCENY (A) GRAND (B) PETTY
7	AUTO THEFT
8	ARSON
9	OTHER ASSAULTS
10	FORGERY & COUNTERFEIT
11	FRAUD
12	EMBEZZLEMENT
13	STOLEN PROPERTY
14	VANDALISM
15	WEAPONS - CARRYING
16	PROSTITUTION & VICE
17	SEX OFFENSES
18	NARCOTICS & DRUG LAWS
19	GAMBLING
20	OFFENSES AGAINST FAMILY & CHILDREN
21	D.W.I.
22	LIQUOR LAWS
23	DRUNKENESS
24	DISORDERLY CONDUCT
25	VAGRANCY
26	ALL OTHER OFFENSES
27	SUSPICION
30	ATTEMPT SUICIDE
32	PLANE CRASH
33	REPORT TO ADDRESS GIVEN
34	MEET CAR,UNIT GIVEN LOC
35	UNABLE TO ANSWER NOW
36	CALL H-QRTERS OR OTHER
37	CALL YOUR RESIDENCE
38	EMERG. NOTIFICATION
39	LOCATION
40	INHALATOR CALL
41	DROWNING
42	ADT/DAYTON ELECT DROP
43	FIRE
44	CAR ON SPECIAL ASSGNMNT --NO RADIO TRAFFIC
45	AMBULANCE NEEDED
46	JUVENILE COMPLAINT
47	INTER CITY TRAFFIC
48	EMERGENCY TRAFFIC
49	CANCEL LAST CALL/INFO
50	TROUBLE W/EQUIPMENT
51	LEADS DOWN,NOT AVAILBLE
52	CHOW
53	ACCIDENTS (A)PROP. DAM. (B)PERS. INJ. (C)PEDESTRIAN (D)CAR-TRAIN
54	SWITCH TO CHANNEL (CODE A,B,C,D,)
55	TRAFFIC VIOLATION
99	OFFICER IN TROUBLE
10-1	UNABLE TO COPY--CHNGE LOCATION
10-3	STOP TRANSMITTING
10-4	OK, CLEAR
10-5	RELAY MESSAGE
10-6	CARS STAND BY
10-9	REPEAT
10-28	REGISTRATION CHECK
10-29	FILE CHECK
1054	LIVESTOCK ON ROAD
1079	NOTIFY CORONER
1096	MENTAL SUBJECT
1097	NEIGHBOR TROUBLE
100	IN SERVICE
200	OUT OF SERVICE
101	TOW TRUCK NEEDED (CHANGE LAST NUMBER TO INDICATE NUMBER NEEDED)

MONTGOMERY COUNTY, OHIO DISPOSITION CODES:

A	ARREST MADE
B	DETAIL COMPLETED
C	CITATION ISSUED
D	DISPATCH CANCELLED
F	FIC CARD MADE
G	GONE ON ARRIVAL
H	HANDLED BY ANOTHER JURISDICTION
L	UNABLE TO LOCATE
N	NO REPORT
R	REPORT MADE
S	SUPPLEMENT REPORT MADE
U	UNFOUNDED
W	WARNING ISSUED

These signals are also used by many township police and fire departments operating in Montgomery County, Ohio, including Harrison Twp. Fire Dept., Huber Heights Police Dept., Miamisburg Police Dept. and Washington Twp. Fire Dept.

Ohio's Montgomery County Sheriff's Office uses a wide range of frequencies in its daily operations, and a variety of activity can be heard on these frequencies. They use an advanced communications system, and the county provides a full-time technical staff to take care of this equipment as well as the equipment of other county agencies.

The Sheriff's main dispatch frequency (155.415 MHz) is by far the busiest frequency in the area, and that is partly due to the size of the county and the 172 sworn officers that are using the system.

So if you are ever near Dayton, Ohio (or even Chicago during a thunderstorm for that matter) tune in to Ohio's Montgomery County Sheriff's Office. I assure you it is worth taking the time to listen!

COMPUTERS ON THE AIR
Conclusion

by John Edwards

Last month we saw how radio amateurs are using microcomputers to communicate with each other through on-air mailboxes. This month we look at the revolutionary world of packet radio.

Packet radio is a relatively new digital transmission technique, but one holding a great deal of promise. Unlike RTTY, which is mostly used on international shortwave frequencies, packet radio systems are primarily found on short distance VHF bands (approximately the same frequencies used by local police departments and taxi cabs).

But whatever this mode lacks in distance is more than made up for with technical sophistication.

As its name implies, packet radio works by sending data in a series of rapid digital bursts or "packets." Each packet consists of a 256 character transmission.

To send a packet message, the user turns on his radio, computer, and terminal node controller (the device that enables a computer to send and receive packet data).

After typing in a few commands at the keyboard, he sits back and listens to the electronic "chirps" that mean the message is on its way. At the receiving end, the message is automatically decoded at a friend's home and displayed on his video display.

If the message recipient isn't home, the message can either be stored in his computer's memory, or in a local club's mailbox.

Packet radio's biggest advantage lies in its error-correcting ability; if the receiving computer detects a mistake in the information packet delivered, it automatically tells the transmitting computer to repeat that information.

Not surprisingly, this feature makes packet communication an ideal medium for the transmission of computer programs and data.

Another plus is that dozens of packet users can share the system simultaneously, a definite advantage over mailboxes and telephone bulletin boards.

As it now stands, packet radio activity is relatively light. Most major cities have one or more organized networks, but finding an active system in spasely populated regions can prove difficult. One group pioneering activity in this mode is the non-profit Tucson Amateur Packet Radio Corporation (P.O. Box 22888, Tucson, AZ 85743).

Besides providing information and technical assistance to users and potential users, this organization also offers a terminal node controller and appropriate software.

Available only in kit form, the unit sells for between $200 and $300, depending upon system configuration. Packet users also need a VHF radio transceiver, costing another $300 or so.

Licensing Requirements

The greatest obstacle facing any prospective radio-computer operator is obtaining an amateur radio operator's license. To acquire a license, the applicant must pass a test proving knowledge of both Morse code and radio theory.

The test is presently written by the Federal Communications Commission; examinations are conducted by hundreds of local amateur radio clubs. Most clubs also offer a training course for a nominal fee.

To send VHF packet radio transmissions, you'll need to obtain a Technician-class (or higher level) license. Requirements for this license include a knowledge of the Morse code at a speed of five words per minute (really very slow) and some general knowledge about electronics and radio theory.

While not exactly a piece of cake, people as young as eight have managed to pass this test with flying colors. If you can figure out how to operate a personal computer, you should have no problem acquiring the knowledge for a ham radio license--if you're willing to devote the time.

Incidentally, the FCC has recently proposed dropping the Morse code requirement and establishing a separate license grade for computer users, but at press time the introduction of any such "Digital-class" license appears to be at least one or two years into the future.

The license needed to operate one of the long distance, shortwave mailboxes--the General-class permit--is somewhat more difficult to obtain. The license requires the same technical test as the Technician license, but calls for a 13 word per minute Morse code knowledge.

Other amateur licenses

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AMATEUR RADIO & THE GRENADA INVASION...the real story

by Fred Maia
Editor, W5YI Report*

(We would like to thank Frank Maia for permission to quote these excerpts from his excellent article in the November 15, 1983 edition of his publication.)

The chancellor of the Grenada St. George's Medical School heard a news report describing the invasion of the island of Grenada, West Indies. Concerned with the safety of hundreds of American students, he quickly telephoned Dick Zaretsky (WB2VGL/4) of West Palm Beach, Florida, with a request to establish contact with amateurs at the medical facility. They had previously arranged that Dick would go on the air in the event of trouble.

Dick hadn't operated HF ham radio since the early 1970's, but set up a station specifically to operate with Grenada in the event of an emergency. It was set up just the weekend before the invasion but due to a defective relay, couldn't be used. He arranged with WA2HOC/4 and WA2HOD/4 (James and Janet Nunziato of Jupiter, Florida) to assist with an HF link and via a 2 meter autopatch hooked Grenada into St. George's University in New York who had already been contacted by another amateur, K4DMK (Jack Mays of Folkston, Georgia).

Using the Nunziato's HF rig, Dick introduced himself to Mark Baratella (KA2ORK/4), a medical student, who recognized him from his previous involvement with the school. He told Mark that he had the New York line open to the University and would continue to keep it open. It ended up being a 36 hour phone call! Dick told Mark to drop the J3 suffix to facilitate communications.

Mark told Dick how he heard airplanes in the area. This was about 5:45 a.m. Tuesday morning, October 25th. A few minutes later Mark reported the shooting. Amateurs driving to work in West Palm Beach overheard a very interesting 2-meter net on the 147.885/285 repeater that morning as well as those listening to Mark on HF! The HF conversation remained on the two meter autopatch since the Nunziato's did not have a telephone in their ham shack.

Dick Zaretsky called the Department of State to relay to them a Radio Free Grenada transmission that he thought was coded concerning the "marriage of certain students that occurred at 6 a.m. that morning," the time of the invasion. None of the networks or news services knew anything about the invasion since there was a news blackout!

Reporters on the island had been taken off before the invasion and none were allowed in. The amateur radio hookup to Grenada provided the first news of it.

The Department of Defense apparently had gone to great pains to perform the invasion under cover of a news blackout and here was a ham radio eyewitness under a table with helicopters and gunfire overhead broadcasting it to the world! Needless to say, since the media was prevented from covering the invasion, radio, television and newspaper coverage of Mark Baratella's ham radio transmissions were followed very closely.

Within moments of notification of the emergency, amateur operators in key locations were activated. Special authorization (which is covered in Part 97.107) for amateur radio operation during declared emergencies was obtained through the help of Don Kay (K0IND, Delray Beach, Florida) and Jack Mays (K4DMK, Folkston, Georgia).

Because of the gravity of the situation, in-band and out-of-band frequencies were requested in order to secure the most interference free frequencies. The FCC in Washington granted the proper authorization within minutes of the request.

A vigil was conducted throughout different bands and frequencies authorized amateurs for the duration of the emergency. Due to radio wave propagation differences, it was necessary to utilize control operators at different geographical locations and frequencies.

Mark Barattella did a magnificent job of operating under incredibly adverse conditions. Emergency power was used during the greatest portion of the time. Refueling was a problem since their personal safety was imperiled every time they ventured outside the facility. The Grand Anse campus which housed 176 Americans did not have U.S. military protection from the beginning of the invasion until the actual evacuation.

Mr. Reed Clark, of the U.S. State Department, Grenada Task Force desk conveyed messages of great importance and received status reports from Grenada via amateur radio which was the only link between those 176 Americans isolated in a foreign country beseiged by war.

The State Department was particularly concerned that the Grenadian government in conjunction with Cuban advisers might hold the American students hostage. Evidence was found later supporting such a plan. Amateur radio kept the State Department aware of the status of the students.

At 4:10 p.m. EDT, Wednesday, the 26th of October, the students at the Grand Anse facility were evacuated by U.S. military helicopters. The actual Grenada emergency pertaining to amateur radio was then terminated thirty-six hours after its inception.

Bill Russell, FCC Director of Public Affairs in Washington, said that the State Department requested permission for voice operation in the code subband of the 20-meter band on Tuesday, October 25th. This was granted in the portion between 14.040 and 14.045 MHz. At night, out-of-band operation was granted to about six amateurs 1 kHz above the 40 and 80 meter bands due to interference.

One of these amateurs (K4MM Bill Miller of Fairfax Station, Virginia) told me that this interference was principally from American amateurs. There was, however, some QRM from Spanish speaking stations - Cuba and South America. One message came across in CW, "Yankee Go Home."

The amateur operation was called the Grenada Emergency Net by the net control, Don Kay (K0IND/4), once approval was obtained for other than standard amateur frequencies. Don Kay said he was in telephone contact with both the Department of Defense and the Pentagon during the crisis but he declined to discuss it further.

While it appears no FCC official actually gave specific permission for operation on 14.351 MHz when the operation returned to 20 meters, the FCC decided to allow the net to continue there. The logic by the net was that since out-of-band operation was authorized on 40 and 80 meters, it must be OK to operate 1 kHz above the 20 meter band, too.

HAM OPERATION IN AND OUT OF BAND

Bill Russell said that the State Department reported on the 14.351 MHz operation and the FCC said, "We don't care." The amateurs involved were told, "Just keep doing what you are doing because it is an essential service." They considered this as being authorized.

The FCC cancelled all authorization for phone use of CW subbands and non-amateur frequencies by radio amateurs on Wednesday, October 26th. On Friday morning, the FCC sent out the following electronic mail to all district Field Operations Bureau offices throughout the nation.

(Quote) "One of the objectives during the invasion of Grenada was to secure the campus of the medical school where a large number of American students were in attendance. Both the U.S. forces and the Cuban were trying to gain the same objective. An amateur station located on the campus was apparently the only point of communication with anyone at the school and because of this, the U.S. State Department requested a special authorization to use an amateur frequency to maintain contact with this amateur station to keep tabs on the situation at the school. Verbal authority was given for SSB use in the 14140 to 14145 kHz portion of the amateur band. This was later shifted to 7070 to 7100 kHz. Also by verbal permission. It appears that the authorization depended pretty much on what frequencies the Grenada station could work effectively without interference and would change accordingly. Ultimately the net ended up on 14351 kHz.

"While no special authorization was given for this out-of-band activity, the nature of the situation necessitated that it continue. For this reason, the Commission allowed the communications to continue and will take no enforcement action against those involved. Signed: Elliott Ours, Chief FCC Enforcement." (End Quote)

THE MEDIA AND THE GRENADIAN INCIDENT

There are many side ham stories to the invasion of Grenada. One of the more significant ones is the role that the media played. The Department of Defense invaded Grenada under an imposed news blackout but private amateur radio communication was permitted. Many reporters, not understanding amateur radio rules, couldn't comprehend why messages and private conversation with Grenada was allowable but not getting status reports from these same pri-

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RTTY/FAX

A RTTY PRIMER

Radioteletype (abbreviated RTTY or RATT) is encountered throughout the spectrum below 30 MHz. The majority of the transmissions will be 60 words per minute (amateur), 67 WPM or 100 WPM. 75 WPM, common in historical hard-wired teletype systems, is virtually absent from the airwaves.

The teletype signal consists of two tones, mark and space, each separated by nearly one kilohertz from the center carrier frequency.

Most listed frequencies are specified as the center carrier frequency, found by tuning in the RTTY signal and slowly reducing the pitch by turning the dial until zero beat (signal disappears below audibility) is found.

Conventionally, lower sideband is used during the tuning procedure, although upper sideband may be selected and the normal/reverse feature on the demodulator or reader simply toggled to the opposite setting.

A walk through the shortwave bands some evening will reveal a host of RTTY signals of various descriptions, fewer than half of which may be successfully decoded with conventional equipment. Nonetheless, we can view only one message at a time, and the sheer retinue of potential targets is massive.

The following list represents a brief look at a few RTTY signals we successfully retrieved here at MT recently. An explanation of the shorthand is in order.

QBF="quick brown fox" test tapes; WX=weather; Sp.=Spanish; de="this is".

The USIA (United State Information Agency) transmission emanates from VOA (VOice of America) installations and are rich in propaganda, making them interesting monitoring.

Naturally, these stations observe operating schedules and will not be on the air at all times.

All stations were received using a general coverage receiver and an Infotech M600A demodulator. However, even an inexpensive reader like the popular AEA MBA-RO could have been used successfully.

Freq. (carrier)	Speed/Shift		
4460	67/850	R	Sp. news
5946.5	100/850	N	Eng. Belize weather
6263	67/170	N	Radio Murmansk WX/symbols
7306	67/800	R	Sp.
9874.5	100/850	R	Eng. test tape
10147.5	50B/VAR	R	QBF de UBDAB
10482	50B/850	R	WX & Eng. air info
10982	100/	N	
14360	67/425	N	WX crypt
15595	100/850	N	QBF KRH51
16663.5	67/170	N	Russian telegrams
16767.8	TOR/170		
18167	67/425	N	Eng. passenger lists
18470	TOR/170		
18627	67/850	R	Prensa Latina Eng. news
22202	67/170	N	Russian
20714	67/	R	Cuban Embassy (diplo) (CW also)
19019	100/850	R	QBF

MORSE-RTTY READER PRODUCTS NOW ON THE MARKET

The computer industry has finally hit the hobby radio market with full force. Following is but a partial list of sources for computer peripherals to assist in the readout of radioteletype and Morse messages received over the air.

MT implies no preference in presenting any of these companies nor do we imply that the many who are not listed should not be considered. The names were chosen in a random fashion as representative of the marketplace.

CI-103 computer interface for VIC-20, Apple, TRS-80C, Atari, TI-99, Commodore 64. RTTY/ASCII, CW. Needs 12-24 VDC. $139.95 from Palomar Engineers, 1924 West Mission Rd., Escondido CA 92025 (619-747-3343).

MFJ-1224 computer interface for Kantronics software and others. RTTY/ASCII/CW on VIC-20, Apple, TRS-80C, Atari, TI-99, Commodore 64, others. Needs 12-15 VDC. $99.95 ($129.95 with software) from MFJ Enterprises, Box 494, Mississippi State, MS 39762 (800-647-1800).

Commodore 64/VIC-20 software package for 4-speed RTTY; compatible with HRA TU and MFJ-1224; with documentation. $19.95 tape, $22.95 disc plus $2 shipping from RAK Electronics, P.O. Box 1585, Orange Park, FL 32067-1585.

RM-1000 Radio Modem for CW/RTTY/ASCII on TRS-80, Atari, Apple, IBM-PC. Macrotronics, 1125 N. Golden State Blvd., Turlock, CA 95380. 209-667-2888.

TU for CW on VIC 20, PET, Commodore 64, Atari 800/400 and RTTY on VIC 20 Commodore 64. $124.95 wired, $6; kit, $10 board only. Add $2 shipping from Amateur Accessories, 6 Harvest Ct., R.D.7, Flemington, NJ 08822. 201-782-1551.

AIR-1 CW/RRTY for VIC-20 and Commodore 64. Includes ASCII. Plug-in ROM. $199 ($279 for TOR/AMTOR included) from Microlog Corp., 18713 Mooney Drive, Gaithersburg, MD 20879. 301-258-8400.

Wide array of plug-in ROM peripherals for RTTY/Morse ASCII/AMTOR from $69.95-$239.95. Advanced Electronic Applications, P.O. Box C-2160, Lynnwood, WA 98036. 206-885-8383.

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talent that can be an asset to the future.

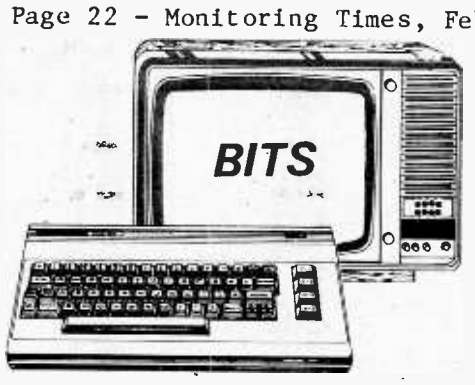
The operating system can enhance the computer but in some cases, since it is present in the system and can't be changed, you will have to see if it gives you the type of features and abilities you want from the computer.

Since you must be able to communicate with the operating system, its control language must be easy to use and understand, yet complex enough to get the job done. If it is not, then all the hardware and software will be useless.

The absolute minimum of RAM you should accept is 48K with 64K (or more) better. The more complex the uses the more RAM you will need.

Before you go to the stores and begin to shop around, do your homework. Find out what is the best you can find for the money you have. The final decision is up to you.

Feel free to address questions directly to me (P.O. Box 203, Roselle Park, NJ 07204) or on the air (3725 kHz).



HOW TO SELECT A COMPUTER

by Mike Edelson

Many of you have written to ask, "What should I look for in a computer?" Computers are very complex machines; there are many devices and subparts available. It is left largely up to you how much you want to spend and what you want your system to do.

Shop around; don't take anyone's word for what is good. In my wanderings I have visited many computer stores in the New York area and each seems to push one company's sytem over all others. You must be careful and decide for yourself.

KEYBOARDS

There are two main types of keyboards available, membrane keyboards (as found on the Atari 400 and TS1000/81) and touch response keyboards (full-stroke typewriter type). The membrane keyboard is the least expensive, least attractive and least used. Since its flush keypads sense temperature or pressure, it is possible to erroneously enter a character; it is even more possible to not enter anything if you try to type something in. It is slow and error-prone--not very useful if you do a lot of typing.

The touch-response typewriter-like keyboard is a better choice. It offers the most efficient typing method for entering data or programs into a computer. You can feel this keyboard as the keys depress. It allows for the speed and comfort that is needed when typing.

C P U

The heart of any computer is the CENTRAL PROCESSING UNIT (CPU). The CPU is the part of the computer that directs and controls all movement of data for processing; it handles some data storage before and after processing and it performs arithmetic operations and logical comparisons.

The CPU controls activities by the use of a clock which is measured in terms of the frequency at which it operates. The higher the frequency the faster the computer works; that is, the faster the CPU.

Try to get a system with the fastest CPU you can. If the CPU is too slow (under 4 MHz) it will take too long to do even the simplest programs.

Another consideration of the CPU is the size (capacity); the CPU must be able to store and handle enough data or it is of no use. CPU capacity is measured in BYTES or kilobytes (abbreviated "K").The larger the size the more data it can handle. While 16K may be enough for casual home and game use, at least 32K-62K is recommended for serious applications.

Memory chips are in two forms, RAM and ROM. RAM (Random Access Memory) is used for in-system storage and can be altered. ROM (Read Only Memory) cannot be altered as it is factory-fixed to store data or a program to be used. For instance, in some systems, the BASIC compiler or interpreter is stored in the ROM.

DATA BASE

Another area of concern is the type of mass storage. Some systems use cassette, other systems use floppy disks and even hard disks. Each has an advantage but all share the same disadvantage, they can be blanked out by a strong magnetic field.

The tape in cassettes can be damaged by heat, foreign matter or merely by use, but they are easier to get.

Floppy disks come in a number of sizes (5 1/4 inch and 8 inch typically); they hold more data and can be stored more easily because they are small and flat. While there are areas of the disks that are exposed through their protective dust jackets, they are small so it is easy to avoid touching them. Dirt can get in so it is best to keep them out of a dirty environment.

Hard disks have all the features of floppies but they also hold more data. With floppies we speak of data storage in terms of kilobytes, but with hard disks we speak of megabytes--millions of characters.

Another reason to go the disk route is that disks are random access devices. No matter where you start, you can get to any other place on the disk and access the data quickly. But with tapes (cassettes) you must always start at the beginning and work your way one record at a time until you have the data you want.

Such sequential access is good for loading programs or some data handling. Disks can also act in a sequential manner as well as their usual random method; this versatility alone makes disks the method to go.

INTERFACES

An interface is a connection between the computer and some other device(s). It can be a plug or a cable. The most important interface is the RS-232C, the logical and physical standard throughout the data communication industry.

This interface standard insures that no matter from whom you purchase equipment, all modems (for example) will function with all terminals or computers will function with all printers--but they must all conform to the RS-232C interface standard. Before purchasing any system, be sure that this interface is used or expansion may be difficult later.

The computers accepting RS-232C interfaces will be able to use Bell-103-compatible modems. Some may accept Bell 212A modems (a faster version of the 103). These modems are serial (data goes in one bit at a time as opposed to parallel which is a group of bits at a time).

Printers also work this way--serial or parallel. If the device is serial, be sure it is plugged into a serial port and if it is parallel, plug it into a parallel port.

A serial printer prints one character at a time and a parallel printer gets a group of characters and then prints them. Many printers can work in either mode, changed by software or hardware.

Another desirable interface is the IEEE-488 (1978) standard, allowing you to connect devices like home burglar alarms or sensors to the computer. In some cases this bus (or "port") allows you to connect an analog-to-digital (A/D) converter to the computer to measure such things as temperature (analog). It converts an analog readout to a digital format the computer can understand.

Another interesting feature of many computers is a graphics capability. In this case, the computer can draw pictures, diagrams, charts, etc. It can enhance game enjoyment.

For the businessman it will make reports more interesting by using graphs, charts or tables. Some graphics displays can be in color and printed by a plotter or multicolor graphics printer. This may be a useful feature, but remember non-graphic displays can provide the data in numerical format just as well.

LANGUAGES

Today's home computers usually come with a version of the BASIC language. BASIC is not the only language. In fact, BASIC can be very cumbersome and in many cases, it can't do the job. Depending on your needs, explore other languages.

COBOL works well for those of us in business. PASCAL is a structured language and like all other structured languages, it has many attributes that will make it useful to just about any user.

If you are in the scientific or industrial (engineering) communities, you will want to be able to use FORTRAN. Literary, artistic and language professionals will find SNOBOL, PLATO or LISP to be very helpful languages to them.

While these languages are expensive, they can make life easier and allow us to get the work done faster and more efficiently.

There are many companies that market pre-written software for various purposes. This can be a very useful means of enlarging your capabilities and saves you the time and bother or writing a lot of software that you will need. You get what you pay for, so be careful, know who you are dealing with and what type of support they give. Shop around and find out what is the best.

OPERATING SYSTEM

The operating system is a group of programs whose purpose is the direction and control of the computer hardware operation. Many manufacturers have operating systems unique to their systems. There are other operating systems that work on most any computer.

While many machines use the CP/M operating system, there is another that is coming into use: UNIX with its language called C. It is said that anyone with knowledge of UNIX/C will have a

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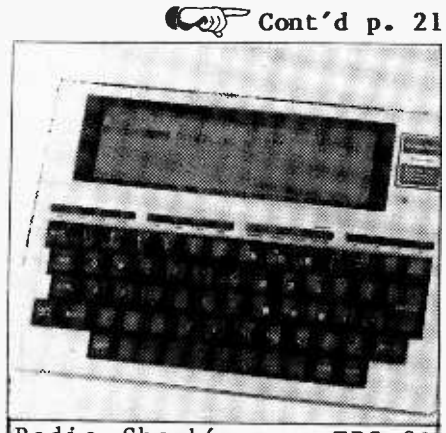


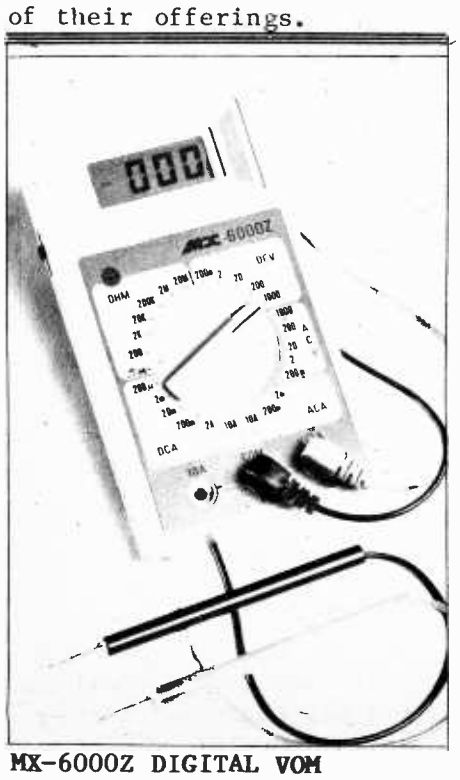
Radio Shack's new TRS-80 model 100 is a true lap portable computer.

BEHIND THE DIALS

MODUBLOX: A SPECTRUM OF PRODUCTS FOR THE PROFESSIONAL

Occasionally, we run into a new company which offers diverse products for the radio and electronics marketplace. Such a company is Modublox (Dept. MT, 2167 Calle Guaymas, La Jolla, CA 92037; Phone 619-456-0016).

The MX catalog offers an interesting cross section of useful products pertinent to our hobby and the electronics profession. Let's take a closer look at some of their offerings.



MX-6000Z DIGITAL VOM

There is probably not a single MT reader who would not agree that the most useful piece of test equipment to the hobbyist and electronics professional alike is the multimeter--the ubiquitous VOM (volt-ohm-milliameter).

The MX-6000Z not only offers all the useful functions found on standard analog meters, but it features improvements often lacking on competitive DVMs (digital voltmeters).

Securely transported in a handsome leatherette zipper case, the DVM offers bold half-inch LCD characters with excellent contrast. A set of flexible test probes, spare fuse and operating manual are included. A nine-volt battery must be supplied by the user.

The 6000Z sports 26 ranges with the following full-scale limits: DC amperes, 200 microamps - 10 amps; AC amperes, 2 milliamps - 10 amps; AC and DC volts, 200 millivolts - 100 volts; resistance, 200 ohms - 20 megohms.

Additionally, an audible continuity checker affords diode testing, a function commonly missing in competitive DVMs.

While a standard nine-volt alkaline battery will provide up to 800 hours operation (a "LO BAT" display will be read during the last 20% of life), an optional AC adaptor may be plugged in for bench use.

A compact, lightweight meter is fuse protected against accidental applications of overload on sensitive ranges.

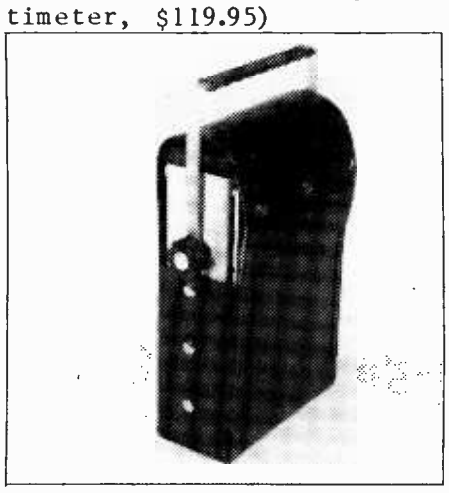
Rapid sampling time of less than one-half second assures rapid settling-down time for measurements. An overrange indication will alert the user when he has exceded the limits on a particular range.

The meter features autoreversing polarity, visibly signalling a "-" symbol ahead of the readout when polarity is reversed.

A nominal input impedance of 10 megohms assures minimum loading of sampled voltages.

The owners manual is quite useful, not only in acquainting the user with the proper use of the instrument, but in supplying excellent theory and calibration procedures as well.

(MX-6000Z digital multimeter, $119.95)

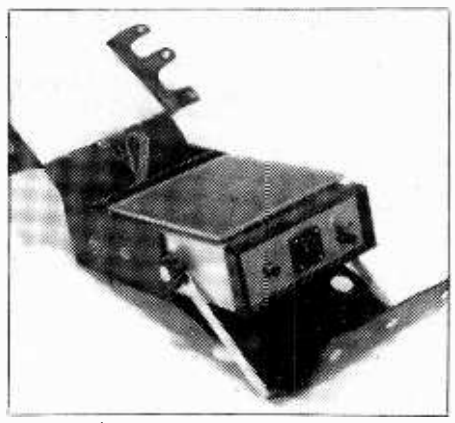


SRPK-01 SOLAR PORTA-PAK(tm)

Survivalists, paramilitary, government agencies and other no-compromise users will find the solar-charged power pack from Modublox attractive. It is presently being used in hot spots around the globe, including the Middle East, where remote communications are important.

The high-efficiency solar panel has a conversion efficiency of just under 20% and is provided by a leading manufacturer of NASA solar cells. The panel provides 18 volts and 450 ma. to the rechargeable gel-cells. The panel provides 18 volts and 450 ma. to the rechargeable gel-cell battery pack, itself capable of delivering 12.5 VDC, 10 AH (125 watt-hours) capacity.

Electronic internal regulation is protected by a magnetically -operated circuit breaker, resettable from the front panel.



A convenient tilt bracket/carrying handle allows the unit's integral solar panel to be tilted toward the sun for maximum conversion efficiency.

The unit comes complete with a heavy black leather case lined with sheepskin to protect the solar panel, and a six-foot cable for interconnection to the device being powered.

A rear storage compartment may be used for a lighting device or other accessories.

A zero-center scale meter reads charge/discharge rates up to 0.5 A. It is possible to use the unit for power while it is charging; the meter will indicate which function has the higher load current.

While the circuit breaker will trip at currents in excess of one ampere, this is enough current to run or recharge hand-held transceivers, CB mobile or base units and other low-power devices with operating powers of approximately five watts or less.

While the internal gel cells are capable of maintaining excellent shelf life, it is recommended that the unit be solar charged at least one day per month to maintain maximum capacity.

Weighing in at about 18 pounds, the compact portable solar-charged power supply is housed in a rugged die-cast aluminum cabinet and may be exposed directly to inclement weather (except for leather cover), freezing temperatures and high humidity tropical extremes without system degradation.

(SRPK-01, $1495)

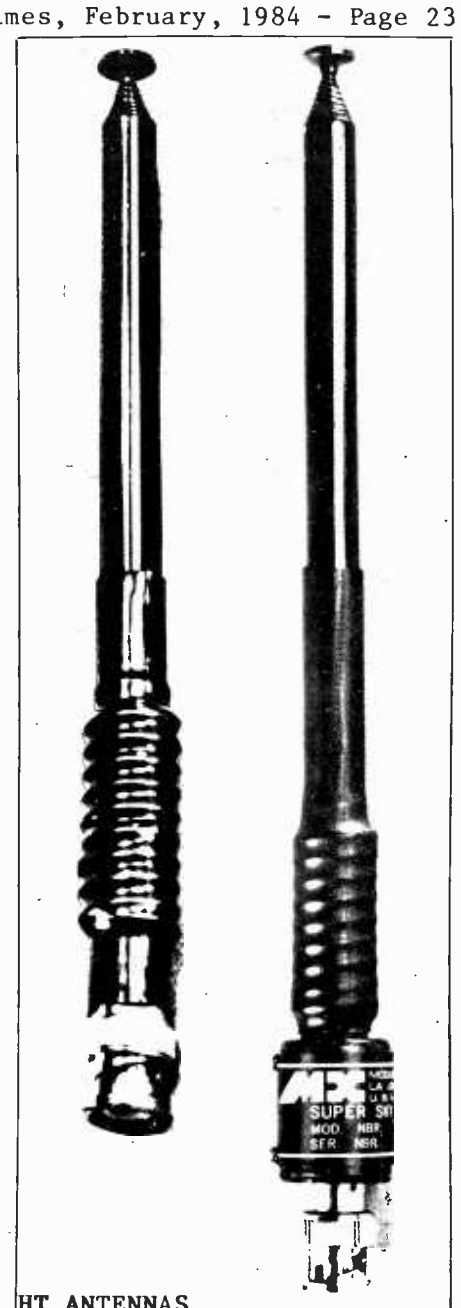
ACCESSORY NITE LITE

A plug-in gooseneck incandescent lamp is also available for the SRPK-01. Equipped with a mating banana-plug base, the Nite Lite plugs into the power receptacles of the Porta-Pak.

A low current bulb in a high-intensity configuration provides high energy efficiency for extended periods of use.

The base is stackable so that other equipment can be powered simultaneously with the Nite Lite. A switch on the light is provided.

(Nite Lite $75)



HT ANTENNAS

In an attempt to increase the range of our two-meter handie-talkie, we recently acquired two new antennas from Modublox.

Both antennas are 5/8 wavelength when extended, affording an additional 3 dB gain--as though your power was doubled--for extended range applications.

When compressed, the telescopic antenna is the length of a conventional rubber ducky and may be used for short-range communications.

The two antennas represent only a fraction of the products from Modublox, with a variety of connector configurations to fit all models of portable VHF and UHF radio systems.

Our review samples ("Sky Probe" SP-58-146 and "Super Sky Probe" SSP-58F) were very impressive--rugged and finished in proprietary black copper for low glare, low skin effect.

Originally designed for use by the United States Air Force, the Super Sky Probe was intended for improved digitally-scrambled voice communications and point-to-point perimeter guard applications.

It is tunable (by removing the label and accessing adjustment) across the band with a single setting representing better than a

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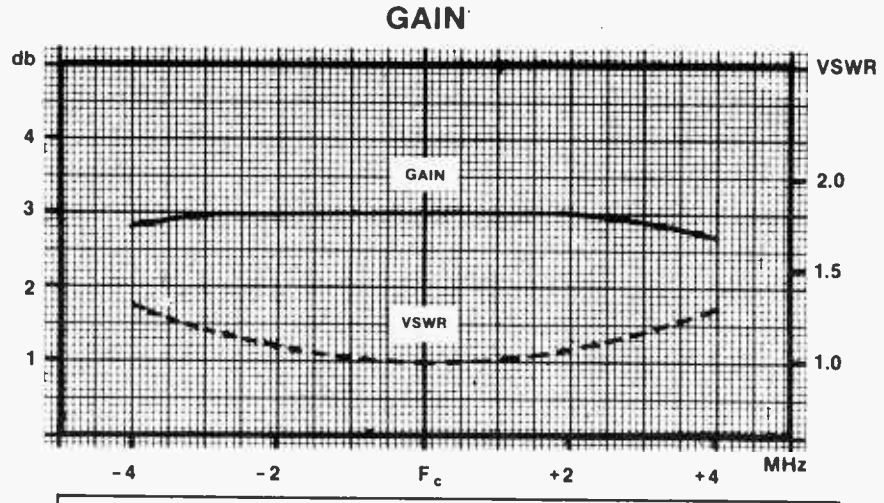
BEHIND THE DIALS from p. 23



Specifications:

*Frequency Range (Adj. Base Caps.)	110-174 MHz	
Impedance, extended	50 Ohms nominal	
Length, open (overall)	43.5 in. or 1105 mm.	
Length, closed (overall)	7.7 in. or 196 mm.	
Gain, extended	Over Stubby Duck	10Db.
	Over Standard Duck	6 Db.
	Over ¼ Wave	3 Db.
VSWR, extended	1.3 max	
Power rating	10 W max	
Net Weight	4.0 oz. or 114 gm.	
Weapons finish	Black copper**	
Connector	BNC and Screw-in***	

*Specify Freq. for factory tuning

**Proprietary MX finish, low skin effect

***Specify H.T. Make and Model for correct SSP-58F Model

1.5:1 VSWR over a 10 MHz bandwidth (1:1 at center frequency).

Saltwater immersion tests show the antennas to operate as new even after 30 days' exposure.

OUR TEST: Affixing the antennas alternatelyon a 1.5 watt two-meter handie-talkie, we found substantial improvement in signal reports when compared to a full quarter-wave whip. In some cases the difference was between not being heard and full intelligibility.

A comparison rubber ducky transmission could not even be detected.

While these premium antennas command a premium price ($25 and up), they guarantee a premium performance with a money-back warranty.

HP-8-1/4-SP HEADSET

The days of "cans," a pair of obtrusive, heavy headphones, are over. Recent advances in metallurgy have created samarium cobalt ("rare earth") magnets with tremendous flux densities which produce superb sound from a tiny membrane.

These lightweight headsets can barely be felt when worn, yet the volume and quality of sound is superb.

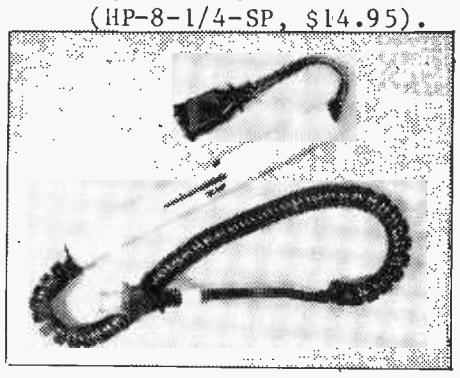
We tested the HP-8-1/4-SP on a Kenwood TS-430S transceiver; the resulting audio could not have been improved upon. Signals had a transparency to them, clean and undistorted.

Best of all, the headphones don't isolate the listener from others around him--you can easily hear others talking to you--yet the low sound level won't distract others in the room.

Although most useful for communications applications (they are monaural) their extensive frequency response (20-20,000 Hz) and high sensitivity (98 dB/mW, 1-3mW nominal input power) makes them suitable for hi-fi applications as well.

Extremely lightweight (1 ounce), the headset comes equipped with a standard 1/4" phone plug (1/8" available optionally).

(HP-8-1/4-SP, $14.95).



RFI-01 INTERFERENCE FILTER

The reduction of electrical interference from monitoring installations is a pain in the assembly.

Unfortunately, it may be conducted (power line) or radiated (antenna captured).

Power line conducted electrical interference is relatively easy to cure, but radiated interference is a beast; it may share the same frequencies as the stations to which you wish to listen. The receiver doesn't know the difference.

The RFI-01 is a power line filter; it consists of a pi-section ferrite rod inductance/capacitance combination designed to reduce conducted interference at frequencies above 1 MHz by 8-9 dB.

Resembling a pregnant power cord, the filter is directed toward the consumer market, intended for computer, CB and amateur applications.

Designed to pass 120 VAC @ 5A (600W), the little filter was invited to a lab test. We decided to test it with a Sony ICF-2001 by alternately plugging the Sony into a wall socket, then into the filter which was, in turn, plugged into the same wall socket.

Two powerful 20 megabyte hard disk computers were busy at work in our offices, so plenty of radio frequency interference was present.

Naturally, antenna-received interference remained, but on several frequencies (especially at the upper end of the shortwave spectrum) line-conducted noise was noticeably reduced.

Subjectively, the little device seemed to reduce interference about as well as a competitive unit costing more than 6 times as much!

While the RFI-01 will not solve all your RFI problems, it will help some. And in this age of massive interference, any relief is welcome. (RFI-01, $12.95)

NEW ARRIVALS

Nazi Propaganda Tape from WW II

A seventy-two minute recording of English language propaganda, featuring "Lord Haw Haw" and other notorious propagandists who peppered the airwaves during World War II has been released by a collector.

All material is unedited and of high audio quality...a unique opportunity for trivia and nostalgia buffs!

The cassette is $8.95 postpaid; complete information is available for an SASE sent to: Danrick Enterprises, Dept. MT, 213 Dayton Ave., Clifton, NJ 07011.

ESP Lightning Protection

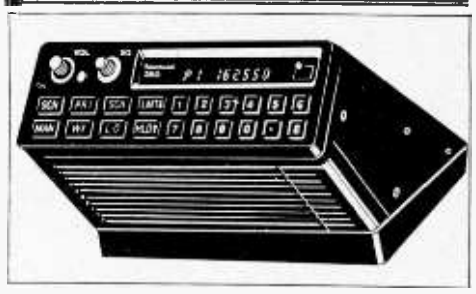
Solid state equipment is more vulnerable to voltage excursions found on power lines (transients and surges) and antennas (TV, ham, scanner and shortwave).

Electronic Specialists, Inc. (write: ESP, 171 S. Main St., Dept. MT, Natick, MA 01760) has recently released their TV-LS/CX lightning suppressor intended for VTR and TV antenna input circuits.

Utilizing gas discharge tube suppression, the device effectively short-circuits incoming voltages above 180 volts.

Equipped with F-type connectors, the unit should also provide effective protection for scanning and shortwave receivers as well with appropriate adaptors.

Cost is $24.95.



ELECTRA BC-260 SCANNER

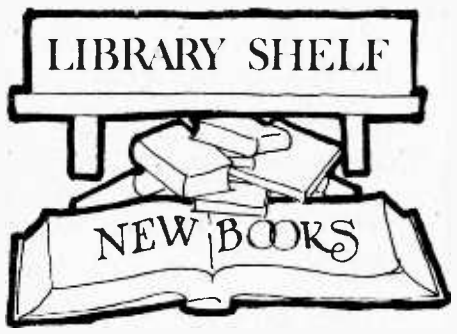
The new Electra BC-260 is intended for serious mobiles applications; a field test model was sent to Monitoring Times for our evaluation.

Reactions were mixed toward the new product. While it is compact, easy to operate and sensitive, there are only 16 channels of memory.

A dimming control allows continuous adjustment of the flourescent display brightness level, but even at full brightness sunlit conditions would make reading the display difficult.

The keypad is unconventional and takes some getting used to; during our familiarization period, the

Cont'd p. 29



GOVERNMENT MASTER FILE OF RADIO FREQUENCIES on microfiche from Grove Enterprises (80 cards representing over 160,000 frequencies. $25 from Grove Enterprises, 140 Dog Branch Rd., Brasstown, NC 28902).

In 1980 a new publication, the Federal Frequency Directory, edited by Bob Grove, was released to the public. This was the first time that the massive data bank of the Interdepartment Radio Advisory Committee (IRAC) appeared in print.

Two years later, Grove Enterprises secured an updated set of microfiche, even more massive than the first, listing frequencies, callsigns, agencies, transmitter and receiver locations, mode and power of U.S. Government radio installations using the spectrum 9 kHz to over 100,000 MHz.

Within days, the files were closed to further access and reclassified "confidential."

Now, this massive microfiche collection is available to serious monitors of the radio spectrum. Ideally suited to standard microfiche readers like the new Grove RDR4 ($169 plus $5 UPS), the comprehensive file is sorted first by ascending frequency, then agency, then location and so on.

With the conservative posture of the present administration, this collection is likely to remain the most up-to-date source of official frequency records for some time to come.

LISTENER'S LOGSHEETS (Pad of 34 sheets from Grove Enterprises, 8-1/2" x 11", gummed edge for tear-off, also drilled for looseleaf filing; $3.95).

Carefully designed to provide tabulation of important monitoring data, columns are captioned: FREQUENCY kHz/MHz; AGENCY OR SERVICE; LOCATION OR BEARING; CALL SIGN OR IDENTIFICATION; EMISSION MODE; SIGNAL QUALITY; TIME/DAY/DATE; ADDITIONAL INFORMATION.

Ruled columns and rows provide enough spaces for over 1000 entries.

TUNE IN THE WORLD by Kenneth D. MacHarg (111 pages, 8-1/2" x 11", softbound, $9.99 plus $1.50 US postage from Miller Publishing, Dept. MT, 424 West Jefferson St., Media, PA 19063) **<See AD on p. 27>**

Author MacHarg shows excellent insight into the philosophies of programming among some 70 international broadcasters of interest to shortwave listeners.

Easy to read and informative, TUNE IN is objective, presenting in a matter-of-fact style the basic programming concepts of Radio Moscow, BBC, Radio Havana, Voice of America, Voice of the Andes, Radio Canada Internatinal and dozens of other worldwide broadcasters.

Listen in to the voices from emerging nations, tirades from oppressive dictatorships, hard line propaganda from communist countries. MacHarg's new release is an excellent introduction to the wide horizons available to the shortwave listener.

MARITIME RADIO HANDBOOK edited by Michiel Schaay (104 pages, 8-1/4" x 11-3/4", softbound; available from Universal Amateur Radio, Dept. MT, 1280 Aida Drive, Reynoldsburg, OH 43068). This latest edition to the Schaay catalog of shortwave guides is directed toward the ship-to-shore enthusiast.

Arranged in order of UTC listening times, MARITIME lists dozens of worldwide coastal stations, complete with locations, callsigns, frequencies and mode.

Indication is also provided as to whether the channels are used for weather or traffic.

FREQUENCY DATA CORRELATION REPORT by Michael Esposito (22 pages, 8-1/2" x 11", softbound; $9.00 plus $.95 postage from Firecom Communications, Dept. MT, P.O. Box 61, New York, NY 10011).

Well documented among scanner listeners is the ability of the user to listen to out-of-band frequencies by tuning in "images" inside the normal scanner frequency ranges.

These images are a fault of all receivers, but may be put to good use when frequency range extension is desirable.

Since all conventional scanners utilize 10.7, 10.8 or 10.85 MHz as a common intermediate frequency, the tables are referenced to those listings.

The math is simple: Double the IF of your scanner and add that number to the frequency you wish to hear. For example, 418.600 MHz would be heard at 440.000 MHz on Regency and Radio Shack products, all of which use an IF of 10.7 MHz. Bearcats, on the other hand, use either 10.8 or 10.85 MHz.

The Esposito book is a tabulation of scanner settings in order to receive 406-420 MHz (federal government) for those who don't wish to go through the mathematics of computing the tables themselves.

SCANNER RADIO LISTINGS, KANSAS CITY AREA EDITION edited by Norman H. Schrein (109 pages, 8-1/2" x 11", softbound; $9.95 retail from Fox dealers or from Fox Marketing, Dept. MT, 4518 Taylorsville Rd., Dayton, OH 45424).

Consistent with the rest of the growing list of scanner directories from Fox, this latest entry is a quality publication, thoroughly researched for accuracy.

Cross-referenced by licensee (alphabetized), service, callsign and frequency, LISTINGS contains the most sought-after scanner quarry such as federal and local government, public safety, business and industry, aircraft and space, railroads, medical and many other catagories as well.

An assortment of ten codes is offered to enable the listener to better understand his intercepts...

PASCAL PROGRAMS IN SCIENCE AND ENGINEERING by Jules H. Gilder and J. Scott Barrus (339 pages, 6" x 9", softbound; $18.95 from Hayden Book Co., Dept. MT, 50 Essex St., Rochelle Park, NJ 07662).

Apple users with a scientific bent will rejoice at this new Hayden publication, written in USCD-compatible Apple Pascal.

A compendium of 112 programs written for students, scientists and engineers, PASCAL evolves from an introductory test on theory and algorithm through actual programming.

The first five chapters address mathematics and data analysis; the next two chapters treat basic electricity and electronics; the final six chapters examine programs for circuit design.

Of particular significance to radio engineers are programs for filter design and microstripline layout, especially critical at the higher frequencies.

Gilder and Barrus have done their homework, presenting an exhaustive accounting of useful programs for the technical reader.

LC FILTERS by Erich Christian (242 pages, 6" x 9", hardbound; from John Wiley and Sons, Inc., 605 Third Ave., New York, NY 10158).

Recently, a number of competent works have been written addressing the "black art" (or so it seems to many of us) of filter design.

Christian's work is directed toward the design, testing and manufacturing of inductance/capacitance filters for every imaginable application.

Beginning with chapters examining classical applications from the user's point of view, FILTERS continues ladder circuits, computer aided synthesis, networks and components, losses and delays, tuning and manufacturing.

Mathematical models are provided throughout the text for documentation of design parameters.

Indexed by topic, Christian's work could well provide virtually everything the design engineer would need to reference in LC development.

DESIGN OF CRYSTAL AND OTHER HARMONIC OSCILLATORS by Benjamin Parzen and Arthur Ballato (454 pages, 6" x 9", hardbound; from John Wiley and Sons; see address above).

This new opus from Wiley could well have been subtitled, "Everything You Ever Wanted to Know About Oscillators."

It was a challenge preparing this review to pore over the pages, looking for omissions of pet circuits; the book is very complete!

Whether you are a serious experimenter with technical background or a professional circuit designer, OSCILLATORS has a great deal to offer.

Beginning with a tutorial piece on basic concepts, the work gradually moves on through properties of semiconductors and piezolectric resonators.

Familiar and not-so-familiar oscillators are examined in depth, with emphasis on stability, bias, harmonic generation or suppression, and impedance transformation.

Parzen's work is not intended as a cookbook for experimenters; rather, it is a comprehensive compilation of oscillator design parameters of import to the design engineer.

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GETTING STARTED

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AUTHOR'S CREDIT

Last month we neglected to include the name of MT author John Demmitt who provided the column feature, "Determing Exact Frequencies."

This month we are pleased to introduce Rich Arland, an informed writer whose familiarity with military communications makes his contribution particularly well suited to MT readers.

HOW TO SET UP A RADIO LISTENING POST Part I

by Richard H. Arland
WPE7BYR/K7YHA

Having lived a nomadic lifestyle for the last eighteen years, I consider myself one of the world's foremost authorities authorities on how NOT to set up a radio shack/listening post. I have set up stations in the Far East, Europe, an island in the midle of the Atlantic, and quite a few stateside locations.

All of the stations had drawbacks and shortcomings of one kind or another. No shack is ever "just right." There is always room for improvement. Not only do different people have widely diverse ideas on how to put a shack together, no two SWLs/DXers/hams have the same operating requirements.

The purpose of this article is to help the beginning SWL (yes, there are still a few of us Shortwave "Listeners" around) in planning his/her first shack and to assist the veteran DXer/Monitor in improving the operating location.

The ideas, concepts, and hints/kinks contained in this article have worked for me. I hope to promote an intelligent approach to assembling a radio shack so all radio enthusiasts can increase their enjoyment of the hobby.

PLANNING ON PAPER

The VERY first step in setting up or revising an operating location is to plan, PLAN, P-L-A-N. A great place to start is by listing (on paper) all the individual objectives which you wish to accomplish with your monitoring post.

Some things to include on the list are: frequency spectrum you wish to monitor (HF, VHF, MW, etc.), type of operation (BCB DXing, VHF/UHF public service channels, SW DXing, etc.), proposed location of shack and antenna farm (include the types of antennas you'll need), equipment on hand and the gear you will need to buy. In general, list everything you want to do and how you plan to do it.

As stated before, no two DXers/Monitors will have the same requirements or preferences. Planning will define the specific requirements you wish to incorporate into your shack, so be specific.

Don't fall into the trap of planning to monitor everything from DC to light. It is better to start small and PLAN for growth later, than to go "whole hog" and not accomplish your basic goals.

Once the requirements have been mapped out, it is time to get serious about where you plan to physically locate the shack. General rules are: ground floor or basement locations are superior to second/third floor locations (mainly from a standpoint of grounding and feedline access).

The location should be away from noisy areas of the household (i.e. kids, TVs/stereos, etc.). The shack should have an exterior window for ground/feedline access as well as natural lighting and ventilation.

Face it, nobody appreciates the "lived-in" look that a shack takes on except a dyed-in-the-wool DXer. So, the ability to close off the shack area is desirable. This allows you some privacy, keeps the kids out of the gear (out of sight, out of mind) and makes a big hit with your spouse when 300 of your closest friends drop by for Sunday brunch.

POWER AND GROUNDING

Now that the location has been selected (and hopefully approved by your spouse) it's time to think about power requirements. These will differ considerably between installations. There is nothing worse than not having enough AC outlets in the shack.

The casual SWL will be able to get by with a single 110 Volt outlet whereas the "Big Gun" ham DXer will need multiple 110 Volt outlets PLUS one or more 220 Volt outlets for the linear amp. Most of us fit somewhere in between.

Extra AC power outlets can be obtained in several ways. A multiple outlet strip that plugs into the wall outlet and provides three to six 110 Volt sockets is one solution. These outlet strips are convenient but should not be used to power high current items.

A better solution, for those remodeling or building new is to add between four and six double recepticals in the proposed shack area as part of the scheme. These outlets must be fused at the main power distribution panel for the house. Insure all ground pins on the outlets are connected to a good Earth ground.

Speaking of grounds, this is probably the most overlooked area in setting up a good shack. Grounds are important for safety reasons, and they form the basis for a good antenna system. Basically, there are two types of grounds: DC and RF. A good DC ground offers protection to the operator by insuring that, in the event of an equipment malfunction, lethal voltages are conducted to ground via the equipment ground cables and NOT via the operator!

RF grounds provide a counterpoise or RF reflective surface which increases antenna efficiency. A good DC ground may or may not offer a good ground at RF and vice versa. Some second or third floor shacks with long ground cables are effectively insulated above DC ground.

"Ground" rules for good grounds are: keep all DC ground runs as short as possible. Insure they terminate in several ground rods, pounded into the earth at intervals, near the shack. This provides much more surface area and a much lower resistance than only one ground rod.

DO NOT rely on cold water pipes, radiator pipes or ground pins in AC outlets to provide a DC ground. Proper equipment grounding, cabling, ground rod placement, soil treatment (to enhance ground conductivity near the grounding rods), etc. are discussed in the ARRL Antenna Handbook and the Radio Amateur's Handbook.

PLOT YOUR ANTENNAS

Without a doubt, antennas are the most important part of the shack. As much or more planning should go into the antenna system as goes into the rest of the installation. There is very little use in spending thousands of dollars on receiving equipment only to compromise on the antenna farm.

One method which works well is to use graph paper to plot a scale layout of your QTH and surrounding lot (as viewed from above). Once this has been done, scale distances can be measured to nearby objects, antenna orientation can be optimized for the desired coverage areas and the shortest feedline routing can be laid out. It is amazing how you can develop a really effective antenna farm using this system.

It all comes down to PLANNING. Do your homework thoroughly. "Feel out" the neighbors and lay on a generous helping of good P.R. NOW is the time to find out about those "funny" zoning regulations (not after the antennas are already erected). Plan it, research it, and avoid embarrassment and added work later on.

NEXT MONTH'S CONCLUSION: More on Antennas, Equipment and Feedlines.

COMPUTERS ON AIR from p. 19

include the Advanced and Extra-class permits. Neither of these licenses conveys additional digital privileges.

Further Information

If the brave new world of wireless networking interests you, help is no further than a letter away. The American Radio Relay League (225 Main Street, Newington, CT 06111), founded in 1914, is the national non-profit organization representing U.S. amateur radio operators.

For a self-addressed stamped envelope the ARRL will supply you with the name of a local club that administers training classes and license examinations.

The best place to look for information on radio equipment and software is in one of the major ham magazines. 73 Magazine (80 Pine Street, Peterborough, NH 03458) is an excellent source of radio-related computer material, as is the ARRL's QST Magazine.

If you're a CompuServe subscriber, you'll certainly want to check into HamNet, an amateur radio special interest group.

Under the generous auspices of system operator Scott Loftesness, this SIG is an almost inexhaustible database of licensing information, equipment for sale, technical tips, and news bulletins. If you have a problem, you'll always find dozens of friendly helpers eager to lend a hand. Just type GO HOM-11 at any page prompt.

And welcome to the world of computer radio!

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EXPERIMENTER'S WORKSHOP

BUILD A 225-400 MHZ BEAM

Henry Ponder
Rt. 1, Box 394A
Lawndale, NC 28090

For the avid experimenters who enjoy experimenting with antennas, I have an interesting homebrew project to share with you.

I developed an interest in this type of experimentation back when I built my first crystal set. Now that I am a licensed "ham" my interest lies in all types of communications, especially utility transmissions. To those of us who cannot afford to buy one of the better commercial antennas like the Grove Scanner Beam, this project is appealing. I only have about $16.00 invested in my antenna and yet have a reasonably good, inexpensive 225-400 MHz beam.

My reception of military aircraft has increased at least 30% over that from my previous ground plane; I am located about 75 miles from the nearest military installation. I now monitor "LOBO Base" (Cherry Point, NC, Marine Air Station) approximately 260 miles from my monitoring post.

The antenna is only 20 feet above the ground; I plan to raise the antenna another 20 feet, and add a mast-mounted pre-amp. This should give me optimum reception.

I use a Grove Scanverter into a Bearcat 220 scanner, a sensitive combination.

I cannot emphasize enough to use a low-loss coax like the RG-6/U; it is available from Radio Shack by the foot and from Grove Enterprises.

For construction of the beam I used 3/4" by 80" aluminum tubing from an old camping tent support frame. Conduit can be used, but it is much heavier.

For the elements I used the aluminum wire available from Radio Shack; it is very easy to work with. If you happen to have an old CB "droopy" ground plane antenna or TV antenna lying around, these can supply rigid elements.

For the insulator on the driven element, I glued two 1/4-inch-thick pieces of plexiglass together with "Super Glue." Two holes are drilled in the edges of two opposite sides of the plexiglass (see diagram). These two holes are for inserting the driven elements.

The size of the holes depends on the size of your element rods. They should be drilled .005 to .010 under the size of the rods you are using to allow for a tight fit. The depth of the two holes is 3/4 inch.

The driven element is in two pieces, each 9 inches long. The plexiglass insulator is 4 inches square. Two small holes are drilled in the middle of the insulator for attaching the insulator to the boom.

A small hole is drilled in one end of each driven element; attach the center conductor of the coax to one screw, and the shield braid to the other screw.

Mounting of all elements (with the exception of the driven element) may be made by drilling holes through the boom. Be sure they are on exactly opposite sides and about .010 under the size of the elements you are using. After all elements are inserted, take an ice pick or punch and crimp the edge of each hole to prevent movement of the elements.

Don't forget to mount the antenna in a vertical plane (elements pointed up and down as shown in the illustration). The shorter elements are in the forward direction, facing the signal.

If anyone has any suggestions for the improvement of the beam, or any experiences with it, I would like

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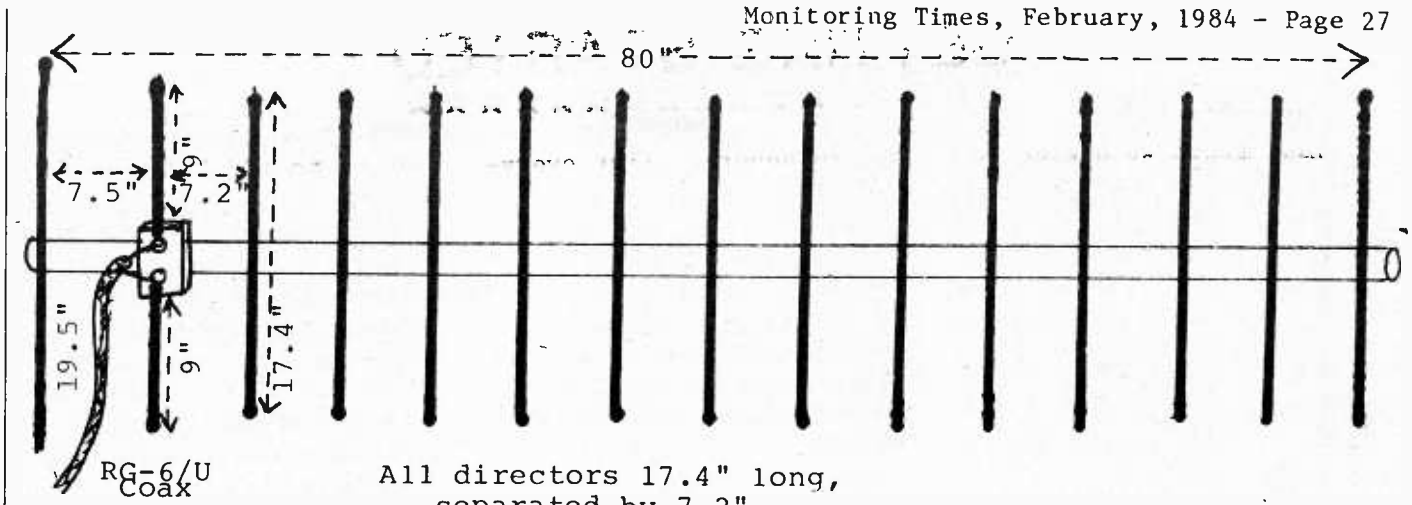


225-400 MHZ BEAM ANTENNA

RECEIVER PROTECTION FROM TRANSMITTER OVERLOAD

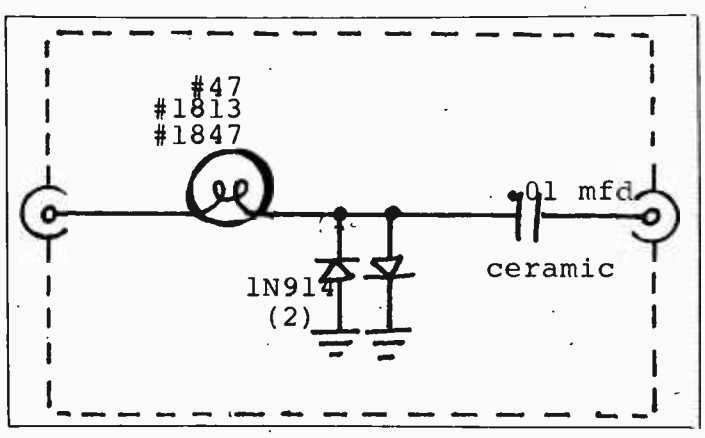
A MT reader passed on to us this interesting circuit designed to protect the delicate solid-state preamplifier in your shortwave receiver from burnout when a nearby transmitter is activated.

The circuitry is built into a small aluminum mini box using appropriate connectors for your shortwave antenna circuit.

HOW DOES IT WORK?

Basically, the circuit utilizes three stages of protection. First, the two cross-polarized diodes limit low levels of RF. Secondly, high RF levels cause the bulb filament to glow, then burn out, opening the circuit from further signal passage.

The capacitor isolates the antenna circuit from any DC or low frequency line voltage components which might be present.



TUNE IN USAF from p. 1

Also shown will be frequency watch schedules.

ALBROOK, PANAMA
Primary Guard Panama and Central America
18019 (1400-2400Z) 15015 (1200-0200Z) 11176 (24H) 8993 (24H) 6683 (0000-1400Z) 5710 (0200-1200Z)
(AM) 15015 6730
(UHF) 349.4
EAM No times listed
CAPSULE H+25, 55

ANDERSEN AFB, GUAM
Primary Guard Honolulu CTA/FIR from 165 degrees to 130 degrees E.
18002 (2200-0700Z) 13201 (24H) 11176 (24H) 8967 (24H) 6738 (0700-2200Z)
(AM) 13215 8967
(UHF) 292.1
EAM H+23
CAPSULE H+20, +50

ANDREWS AFB, MARYLAND
VIP traffic code 6 and above
13247 (1200-2400Z) 9018 (24H) 6756 (24H) 4721 (2400-1200Z)

ASCENSION ISLAND
15015 (0800-2000Z) 13244 (1000-1800Z) 11176 (1800-1000Z) 8993 (24H) 6753 (2000-0800Z)
CAPSULE H+15, +45

CLARK AIR BASE, PHILLIPINES
Primary Guard Manila CTA/FIR
~Manila FIR (N & E sector)
18002 (1) 13201 (2) 6738 (3)
~Manila FIR (W sector)
23227 (4) 11176 (5)
~Indian Ocean (6)
23227 (7) 11176 (8)
(UHF) 349.4 (9)
EAM H+53
CAPSULE H+25, +55
key to CLARK frequencies:
(1) 2200-1200Z inbound secondary
(2) 24H primary
(3) 1200-2200Z inbound secondary
(4) 0200-1300Z
(5) 1300-0200Z
(6) includes all of Indian Ocean area, W coast of Africa, Asian subcontinent, Singapore, Thailand and the Arabian Sea.
(7) 0200-1300Z shared with Diego Garcia Tower
(8) 1300-0200Z shared with Diego Garcia Tower
(9) shared with MAC OP

CROUGHTON, ENGLAND
Primary Guard Shanwick CTA/FIR
13201 (0800-2100Z) 11176 (24H) 9011 (0500-2300Z) 6750 (24H) 5703 (2100-0800Z) 3067 (2300-0500Z)
(AM) 11226 6757
(UHF) 382.5
EAM H+08
CAPSULE H+00, +30

ELMENDORF AFB, ALASKA
Primary Guard Anchorage CTA/FIR
13201 (24H) 11176 (24H) 8989 (24H) 6738 (24H)
(AM) 1126 5710
(UHF) 349.4
EAM H+43
CAPSULE H+15, +45

HICKAM AFB, HAWAII
Primary Guard Honolulu CTA/FIR to 165 degrees E.
18002 (1900-0400Z) 11179 (24H) 8964 (24H) 6738 (0400-1900Z) 3144 (0600-1700Z)
(AM) 13215 8967
EAM H+43
CAPSULE H+00, +30

INCIRLIK AIR BASE (ADANA) TURKEY
15015 (24H) 13215 (24H) 11176 (24H) 6738 (24H)
(UHF) 376.2
EAM H+18
CAPSULE H+10, +40

LAJES FIELD, PORTUGAL
Primary Guard Santa Maria Oceanic CTA/FIR
13244 (1000-2100Z) 11226 (1000-2100Z) 8967 (24H) 6750 (24H) 4746 (2100-1000Z) 3081 (2100-1000Z)
(AM) 13215 8967
(UHF) 349.4 Shared with MAC COMMAND POST
EAM H+38
CAPSULE H+05, +35

LORING AFB, MAINE
Secondary Guard New York & Gander CTA/FIR's
18002 (1200-2400Z) 9014 (2400-1200Z)

MacDILL AFB, FLORIDA
Primary Guard Gander, Miami, San Juan, New York and Houston CTA/FIR's
~GANDER FIR
18019 (2)(7) 13244 (2)(7) 11179 (1)(7) 8989 (3)(5) 5688 (4)(6)
~NEW YORK FIR
13244 (2)(7) 11246 (1)(5) 11179 (2)(7) 6750 (3)(6) 4746 (4)(6)
~HOUSTON FIR
11246 (1)(5) 8993 (2)(5) 6750 (3)(6) 4746 (4)(6)
~MIAMI/SAN JUAN FIR
13244 (2)(3) 11246 (1)(5) 8993 (2)(5) 6750 (3)(6) 4746 (4)(6)
(AM) 13210 8967
(UHF) 292.1
EAM H+58
CAPSULE H+20, +50
key to MacDILL frequencies:
(1) Primary day
(2) Secondary day
(3) Primary night
(4) Secondary night
(5) 24H
(6) 000-0900Z
(7) 0900-2400Z

MacCLELLAN AFB, CALIFORNIA
Primary Guard Oakland CTA/FIR
18002 (1600-1400Z) 15031 (1600-0400Z) 11239 (24H) 8989 (24H) 6738 (0400-1600Z) 4746 (0400-1600Z)
(UHF) 292.1
EAM H+13
CAPSULE H+10, +40

SCOTT AFB, ILLINOIS
Primary station for Command Control and phone patches in Communications Control Zones 6/7/9
15015 (1400-0200Z) 11182 (24H) 9014 (24H) 6727 (0200-1400Z)
No EAM schedule published
Echoes CAPSULE traffic upon receipt

THULE AIR BASE, GREENLAND
Primary Guard Sondrestrom CTA/FIR
13201 (slight delay in answering) 8967 6738
(AM) 13215 5710
(UHF) 292.1
EAM H+28
CAPSULE H+15, +45

YOKOTA AB, JAPAN
Primary Guard Tokyo and Naha CTA/FIR
18002 (000-0900Z) 13201 (2100-1000Z) 11236 (24H) 8967 (24H) 6738 (0900-2400Z) 4747 (1000-2100Z)
(AM) 13215 5710
(UHF) 292.1
EAM H+03
CAPSULE H+05, +35

So there you have a list of the primary frequencies and schedules for the USAF Airways net. Bob Grove's "Shortwave Frequency Directory" contains an extensive listing of frequencies used by these and other air bases.

* * *

Here are a few other frequencies for you from Alaska:

Kullis Air National Guard Base at Anchorage International maintains its OPS/COMMAND POST guard on 4898 kHz USB; air to ground communications are conducted on 134.5 and 292.4 MHz. Their call sign is "CAMPER."

The Alaska Air National Guard has just taken delivery of a fleet of brand new C-130's, which they fly on airlift missions all over the world.

The FAA in Alaska maintains an HF/SSB net to provide flight service to aircraft that might be out of range of an air band station. Six stations make up the network, located at Flight Service Stations in Barrow, Kotzebue, McGrath, Cold Bay, Cordova and Ketchikan.

The net operates on 2866 kHz and 5631 kHz.

NORTH PACIFIC

And last but not least, how about the International A/G frequencies?

Anchorage International, Tokyo, Cold Bay, Point Barrow, Resolute Bay NWT and Khabarovsk USSR are on 17904, 13294, 10048, 5628, and 2932 kHz for international airways traffic.

BROADCASTING from p. 16

formerly of Fawley, Hampshire, England, is very anxious to locate a number of old friends. He is now living at 39 Campbell Street, Scarborough, Queensland 4020, Australia.

A letter has been received from John Redman, Overseas Program Manager for the Far East Broadcasting Company, Box 1, Valenzuela, Metro Manila, Philippines 2627. He informs us that Dick Chase has been appointed as Frequency Manager for the Manila operations.

Dick will be pleased to receive any monitoring and reception reports. If any of you have problems on matters pertaining to frequency management, he will be glad to assist you.

Mr. Redman also passed on the information that FEBC operates 29 transmitters and broadcasts in more than 90 languages and dialects.

It is the aim of the station to continue a broadcast service of spiritual value and real integrity in the highest tradition of excellence. The station presently operates at 2300-0000 on 21515 and 15450 kHz., 0000-0500 on 21515 and 15305 kHz., 0500-1000 on 21515 and 11890 kHz., and 1300-1600 on 15440 kHz.

Let's add this one to our long list of weird antennas. Robert Brett Curtiss - WDX3W - of Philadelphia writes that he obtained an old paperback book spin rack from a news distribution company and mounted it atop a trailer he owns out in the country. He reports that it is very effective, especially for reception of Central and South American stations.

Other unusual antennas are made from Slinky toys, bedsprings, metal dounspouts and metallized roof edge flashings. And for you apartment dwellers where the landlord says "NO OUTSIDE WIRES!" you can always put up various lengths of aluminum wrap either over or under the wallpaper.

All we can say is "If you haven't tried it, don't knock it. You might be surprised!"

With recent events in the Sea of Japan area, you can bet these frequencies will have a lot more position reporting on them...!

That's all for now, but I will be bringing along more Alaskan frequencies for MT readers in the future.

Good DX, everybody!

☆☆☆

TECHNICAL TOPICS

Q I have a need for a small wireless FM microphone. Do you know where I can purchase them?

Mike Mehrdad
Columbia, MO

A License free FM (88-108 MHz) wireless microphones are widely available from mail order specialty houses and Radio Shack, whose toy 60-2109 ($6.95) and tie-clip 33-1076 ($19.95) work quite well considering their low cost.

Surveillance type "bugs" are also available at considerably greater cost from specialty manufacturers like AID (Ft. Lauderdale), Bell and Howell, KEL, Tracer and others. They advertise in law enforcement magazines.

+-+-+-+-+

Q Our local police department is switching to computer aided dispatch; all I hear is the beep of the code. Will my scanner become obsolete?

Christopher Smallman
Liverpool, NY

A You are probably listening to the Syracuse UHF police channels. They use a Motorola MODAT system, a simple, minimal keyboard which the arriving officer presses to signal his ten-code reply rather than use a longer voice transmission at his descretion.

No, your scanner won't become obsolete; voice is also used on those channels!

+-+-+-+-+

Q On December 12, 1983 I heard the VOA at 1900 UTC on 21485 kHz ID, "This is WTOP" which is a Washington, DC commercial broadcaster on 1500 kHz. Is there an explanation?

Matthew Williams
W. Henrietta, NY

A I called the VOA program director's office who, in turn, checked both the producer's and engineer's logs for that time. None showed that ID.

What probably happened was a "cross-patch", an accidental selection of audio feed from WTOP rather than from the normal source of station ID.

+-+-+-+-+

Q While listening to low band on my scanner, I sometimes hear a woman's voice give the call letters "KCA712 Boston" on several frequencies at once, usually repeated every half hour. Can someone explain these transmissions?

RWL
Stoneham, MA

A The FCC requires licensees of two-way radio stations to announce their callsigns on a periodic basis. In your example, KCA712 is licensed to the Massachusetts Bay Transit Authority on 44.46 MHz. The fact that you are hearing it at several places at once on your scanner may be attributed to two possible causes: you may be located close enough to one of their 500 Watt transmitters for your scanner to be overloaded by the signal; or you may be experiencing "intermodulation," whereby their signal is "mixing" with other local signals, producing spurious emissions on other frequencies which are received by your scanner.

Changing antennas may help; usually, the use of the small attachable whip provided with your scanner is recommended to keep signal levels down to a reasonable level. If you must use an outside antenna, a directional beam pointed away from the powerful transmitter will help--if you can find one! Since the interference is received only every half hour, you may prefer to live with the minor inconvenience.

+-+-+-+-+

Q While listening to our local ambulance service on 155.400 MHz, I hear them use coded expressions like "C code," "R code," and so on. What do they mean?

BGF
Hallowell, MN

A Most agencies use some type of encoding for voice transmissions. This is done for two reasons: privacy and speed. It is understandable that with the vast numbers of hobbyists listening in, many agencies feel sensitive about divulging openly their business so they assign alpha-numberic designators to common situations. The most famous of these is "10-4", meaning "O.K." or "message received."

Many different ten codes, and other voice codes as well, are used throughout the western world. The APCO code and Sheriffs' Association code are among the most widely accepted.

Contact the local service who uses the code in question; many agencies will cheerfully supply you with a copy of the code as an effort toward good public relations! If not, a local hobby radio store will probably have a copy on file. And finally, a number of hobby monitoring publications print these lists within their pages.

BEHIND THE DIALS from p. 24

stiff feel resulted in a number of accidental double-strike entries.

Backlighted keys will be invaluable during night-time programming. Wider frequency coverage (30-50, 138-174 and 406-512 MHz) makes the 260 very attractive.

While the scan rate is adequate, search speed is much slower than on previous models.

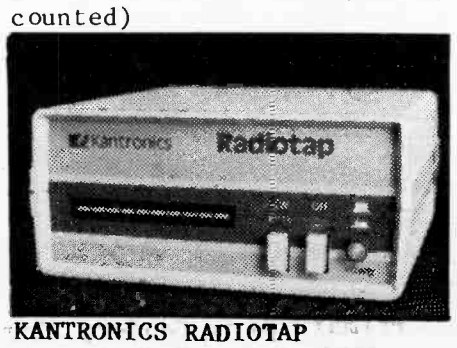
Tight squelch operation is dependable with excellent sensitivity to marginal signal strengths.

Audio clarity is quite good; the speaker is front mounted and audio circuitry is voice tapered.

While some multiplex whine and AC hum were barely audible, none interfered with reception.

The compact styling, businesslike appearance and high performance of the new BC-260 will make it appealing to serious mobile monitors of the land mobile services.

(BC-260 $399.95 suggested retail; widely discounted)



KANTRONICS RADIOTAP

The age of computerization of listening has arrived. Like it or not, digital techniques have invaded the analog art of radio.

Actually, digital communications have been with us for a long, long time. Morse code is really a digital technique with its two states, on and off. Radioteletype similarly shares its information with a mark/space pair.

Recognizing the possibilities of enhancing communications, several manufacturers have come to the front with RTTY/MORSE readers employing digital technology.

Most recent, and very affordable, is the "Radiotap" from Kantronics (Dept. MT, 1202 E. 23rd St., Lawrence, KS 66044). Compact and extremely user-friendly (as the computer linguists say), the inexpensive interface is presently designed to permit a marriage between your general coverage receiver and a Commodore VIC-20 or 64 personal computer.

Total keyboard control permits the listener to quickly type up the mode of interest: M for Morse, R for RTTY, A for ASCII and so on. Simple? You bet. Even bit inversion may be automatically decoded as every possible bit combination is scrambled by the computer, scrolling in front of the viewer in a manner that permits him to visually choose the corrected text.

An unusual "scope" feature allows the measurement of signal timing, permitting the user to custom-adjust the baud rate for non-standard values.

OUR TEST: Connected to our Kenwood TS-430S transceiver and a Commodore 64 (borrowed from Electra for a test of their new Compuscan!) we proceeded to tune in a CW (continuous wave; Morse code) signal.

Immediately, the Radiotap latched on, displaying perfect copy on the Grove MNTR-1 video monitor. Similar results were forthcoming with RTTY.

The Radiotap also has a built-in filter allowing selection of either CW or RTTY for interference reduction on crowded bands.

Our conclusion was that the little unit provided good performance and was extremely simple to use with its accompanying ROM cartridge.

(Kantronics Radiotap, $199.95)

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Q Many frequencies I would like to hear on VHF high band and UHF are listed as having four decimal places (163.4125, etc.); programmable scanners only accept 3 decimal places. What gives?

DC
Portland, ME

A When you enter "163.4125" into most programmable scanners, the circuitry will automatically round off your entry to the nearest 5 kHz (163.410 or 163.415 MHz). Since this is only 2.5 kHz away from the actual transmitting frequency, it is totally within the "passband" (receivable channel width) of any scanning receiver. While it would be possible to manufacture a more expensive scanner which would allow the four-place frequency entry, there would be no detectable difference in signal reception.

EXP WORKSHOP from p. 27

to hear from you.

PARTS LIST

1 3/4" OD x 80" aluminum tubing
1 2"x4" block of plexiglass or other suitable insulator
1 75 ohm TV balun
enough aluminum stock for thirteen elements, 17.4" long

HELPFUL HINTS

Selectable Band Antenna

by Jon E. Zalac

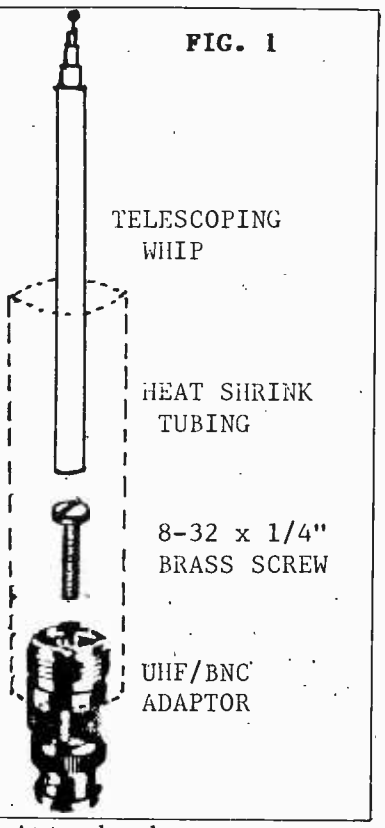
How about an antenna accessory for your hand-held scanner? This accessory can be used on the new Radio Shack PRO-30 and the redesigned Bearcat 100 because both of these hand-held scanners have BNC connectors on them--something we've been waiting for!

If you don't mind something different, look at Figure 1. Using a collapsible rod antenna surpasses the rubber duck antenna because the rod antenna can be adjusted to resonate at a particular frequency or in the middle of a frequency range.

Assembly is easy. Obtain an antenna that is around 52" long when extended. Solder the bottom of the antenna to the top of the screw shown. You may have to file a little from the head for a flat surface.

Insert the screw/antenna into the UHF connector as shown; it will be a very snug, tight fit. Just what we want. Use heat shrinkable tubing as shown to add greater support to prevent wobble at the point where the screw is inserted to the UHF connector.

FIG. 1



Attach the antenna to the scanner and place the scanner on a flat surface. With the antenna fully extended you'll notice it may want to tip over because of the length of the antenna. That's why we want the scanner placed on a flat surface or in a place that it won't be knocked over.

Now refer to the chart provided. The chart will give you, in inches, the length of the antenna for a particular frequency at a certain wave length.

Let's say you want to monitor 45.520 MHz. Just divide 1385 by 45.520, adjust the antenna for 30.5" and you now have a 1/8 wave length antenna. A 1/4 wave length antenna for 45.520 MHz is 60.85" which is too long for your antenna attached to your hand-held scanner.

A 1/2 wave length antenna at 154.725 MHz is 35.8" and a 5/8 wave length antenna at 453.100 MHz is only 15.28". Let's say you want to monitor 450-470 MHz. The middle of this frequency spread is 460 MHz. A 5/8 wave length antenna at this frequency is 15.05" long.

The antenna can be used to transmit as well as receive and with all parts it should cost around $10.00. That's cheap compared to a fixed range rubber duck that costs more than $10.00 and you're stuck with one fixed range! With the rod antenna you can vary the length to suit your needs.

WAVELENGTH	FORMULA
5/8	$\frac{6925}{MHz}$ =in.
1/2	$\frac{5540}{MHz}$ =in.
1/4	$\frac{2770}{MHz}$ =in.
1/8	$\frac{1385}{MHz}$ =in.

ENG BROADCASTING from p. 17

Has some small maddening inconsistencies...such as reporting weather temperatures one day, then leaving them out the next.

U.S.S.R.: Radio Moscow World Service. (See Europe list)

Stated by some to be modelled after the BBC, these broadcasts are, to say the least, very frequent!

The style may be "BBC"...but the content certainly is NOT! Better than in previous years, the heavy propaganda line can still bore a listener very quickly.

The commentary programs are sometimes more interesting; at least they give a good idea of the Soviet political "line" on any topic mentioned. Certainly a consistent service, they seem to operate on the principle of throwing out enough channels that something always must be audible somewhere on your dial (Ever try counting the 7 MHz frequencies in use?)! By comparison with Moscow, the other communist countries - Hungary, Bulgaria, Czechoslovakia, Poland, etc...are poor fare (see below).

CUBA: Radio Havana. 0100-0400 (6090); 0330 - 0900 (9525, 11760)

The news broadcasts from the so-called "Free Territory of America" have one distinct advantage. Mixed in with the propaganda are many unique news items from Latin America, not easily picked up elsewhere. Of course you have to decide how much is true, but they do seem to have a good idea of political (and guerilla) activities in the Latin world. Otherwise (I think), they are inferior to Moscow.

AUSTRALIA: Radio Australia. (See chart)

The ABC overseas service operates a fine news network with good style and accurate comments. Especially important is their coverage of Asia and the Pacific. I venture to suggest that you will not find information on these regions anywhere else; or, if you do, in much less detail. A major snag is the limited time and frequency of their service.

ISRAEL: Kol Israel. (See chart)

The IBC gives a good service of news broadcasts but with limited regional coverage, naturally heavy on the Middle East countries. In the present political climate this is an important service and helps one understand the Israeli viewpoint.

EGYPT: Radio Cairo. 2200 (9805); 0200 (9475)

What should be an interesting counterbalance to Israel gets lost in an awful technical service with poor signals, inadequate frequency coverage and some terrible announcers. 'Nuff said! If you can hear them - quite interesting.

FRANCE: Radio France International. (See Europe list)

Paris gives us some typical gallic inconsistency! While almost ignoring the English-speaking world, they turn out a really crackerjack one-hour show, "Paris Calling Africa." Excellent detailed news of the African countries and well worth listening to (including the music!).

SOUTH AFRICA: Radio RSA. (See chart)

The famous bird-chirping interval signal provides an easy guide to the RSA frequencies and signal strength, and introduces the news programs.

A good service but limited in coverage, naturally to Africa. Also --how

- Cont'd p. 32

EUROPE IN ENGLISH: Selected Broadcasts

COUNTRY	TIME:FREQUENCY (kHz)
ALBANIA	0000-0400:7070/7120/7300/9750
AUSTRIA	0130-0330-0430:5945/9770
BELGIUM	0030-5910; 1400:17610
CZECHOSLOVAKIA	0200:5930
GERMANY, W.	0100:6040/6085/6145/9545; 0500:5960/6130/9545/9690
FRANCE	1600:15300/15315/17620/21580/21595/21620
FINLAND	1200-1500:15400
GREECE	0130/0430:9420/9865
ITALY	0000:9575/5970
HOLLAND	0230:9590/6165; 0530:9715/6165
PORTUGAL	0300:6060; 0530:6075
SPAIN	0000:9630/11800; 0500:9630
SWITZERLAND	0145:9725/6135; 0430:11715/9725; 1315:21570
SWEDEN	1400:17860; 2300:11710
USSR	0000-0600:6115/7100/7115/7165/7185/7215/9750/9760/11790 Etc...;1400:17880/17810/15455/11840 Etc...
VATICAN	0500:6015/9605

ENGLISH BROADCASTS: Principal Stations, Selected Schedules

COUNTRY/ STATION	TIME U.T.C.	FREQUENCY kHz
BRITAIN:BBC	1200/1300	15215 11775 6195 5965
	2300/0000	11750 9915 9590 7325 6175 5975
	0200/0300	11750 9515 7325 6175 5975
	0500/0600	9510 6175 5975
U.S.A.:VOA	2200	15600 15580 15445
	0000/0100/0200	17730 15205 11740 9650 6130 5995
S. AFRICA:RSA	0200	11730 9615 5980
AUSTRALIA:R. AUSTRALIA	1100/1200	9580
	0200/0300	17795 15320
ISRAEL	0000-0230	11655 9815 7410
ECUADOR:HCJB	1200-1530	11740/15115/17890
	0030-0700	9745/& 6095/11910/15155 selection

(This is not intended as a complete list of all available transmission times and frequencies, but rather as a projected "best-bet" for more consistent reception, based on monitoring results.)

CLUB CORNER

Last issue we listed several CB club publications which were still healthy following the gradual de-emphasis of the CB service.

One publication which may be of interest to serious CB'ers is "The Eleven-Meter Times & Journal," edited and published by Bill "Doctor Rigormortis" Cheek.

EMTJ specializes in CB pirates and "Freeband" radio. A complimentary copy is available by writing to P.O. Box 10723, Edgemont Station, Golden, CO 80401.

GRENADA INVASION from p. 20

vate citizens. Some were furious to put it mildly.

The FCC Private Radio Bureau and the ARRL went over this many times with various radio, TV and newspaper reporters. They were told that they could re-transmit live anything they wanted to since Section 605 (secrecy provisions of the Communications Act) did not apply to amateur radio. The media was prohibited from acting as a Third Party (even though these privileges existed for one day) if they were gathering news reports.

Jim McKinney, Chief of the FCC Mass Media Bureau, said that broadcasting was a professional use of amateur radio and specifically outlawed. He prohibited broadcasters from using amateur radio as a news gathering tool, a remote news pick up medium or to conduct interviews that would be broadcast over other than the amateur service. He cited limitations in the rules about rebroadcasting from another service.

Furthermore, the broadcast stations were directed to advise the FCC how they had used ham radio in their news broadcasts. The media had trouble understanding that CB radio could be used as a news communications medium, but not amateur radio. Some said the administration obviously had something to hide and that the Constitution guaranteed Freedom of the Press and Speech.

Bill Miller (K4MM), one of the main U.S. participants during the crisis, said he got a call from a CBS reporter who wanted to do a live interview via amateur radio. "I practically had to hang up on him he was so arrogant," Bill said. "I told him point blank I wouldn't do it! He kept on and on. 'USA Today' (a national newspaper) was here most of the day. The TV people wanted to come out here and I said 'Be my guest.' They wanted to do it live and I said 'You won't be able to do anything live when I'm on the air.'"

All across the country, radio and TV stations were showing ham operators listening to or participating in the Barattella communications. In all fairness, there was little else they could do. It was a major event and the news media was frozen out.

NBC'S ROY NEAL (K6DUE) ON MEDIA INVOLVEMENT

"I think maybe that we are in time to think about some rule changes with the FCC to permit us to be a further service during emergency conditions. It is about time that somebody looked at us as 'the service' and I am using that word very carefully because it is the fundamental concept on the basis of which we are licensed - as a service to mankind.

"There was supposed to be no news coverage of the Grenada invasion. Well, here is one amateur station - actually there were two... the second guy was Don Atkinson... who got tired of reporting after the middle of the first day... but here was a station defeating the whole purpose of all the security. The news media was totally frustrated... absolutely irate being censored out of a major story by the Defense Department.

"Immediately, Fred, as a newsman I will tell you this. The first thought you have is 'What are they trying to hide.' And in this case, what were they trying to hide during the invasion. You must realize that here you have a kid that goes to medical school. He is neither a trained or qualified reporter. He is the link with the whole world...

"Mark (Barattella) was being quoted worldwide against his own requests not to be. He several times said, 'I don't want to be questioned on any of this, I'm just providing information here'... so the whole thing is wrong. It was wrong conceptually... it was wrong in fact... and it remains wrong in my book. It put too much pressure on the kid who did very well.

"To say that he was a link for the State Department... come on! The State Department has direct links to the Commander of the troops in the field. Think about it. They are working through the National Security Council. They work from the war room in Washington that has the finest communication in the world. Field commanders have been known to pick up handi-talkies and using satellites they can talk to Washington from Vietnam. We don't need amateur radio to provide the State Department a necessary link for that kind of operation."

GRENADA 2-METER REPEATER BLOWN UP!

A subsequent report filed from the Carribean by Herb (KV4FZ) five days after the invasion said...

"The friendly forces learned that there was a potential for a hidden camp and some underground bunkers in the vicinity of the 16/76 repeater site. They did a search and destroy mission in the hills near the repeater on Grenada.

"A rifle grenade was hurled into the repeater building and the repeater blown up. The 16-76 machine is no more. The villages around Grenada relied almost solely on this amateur repeater for communications which is now non-existent. Health and Welfare messages are now piling up at various ham shacks and can not be distributed via the Coconut Telegraph - the 16/76 machine.

"A number of people in the United States are now working to replace the repeater. The Coconut Telegraph currently is being manned by runners to get traffic distributed to the various villages. There are no other 2-meter repeaters on Grenada."

INTERFERENCE TO GRENADA LINK

I wondered why it was necessary to operate telephony on amateur CW spectrum and out-of-the-band with Grenada. I asked Bill Miller, K4MM, the main link between amateur radio and the State Department about this:

(K4MM) - "Because of interference. There were a half a dozen idiots questioning our use of the frequency. They put music on, they would swish their VFO's back and forth. We could understand the Cubans doing it, of course. But more than the majority were Americans. Some of them when we were out of band were coming in wanting an authorization to join. I had two or three phone calls wanting me to authorize them to come up. I said we don't need help."

(W5YI) - "Were you asked by the State Department to get specific information?"

(K4MM) - "When Reed Clark (State Department Grenada Task Force) wanted certain information they would tell me. Mark would also give me information to pass. I did not hear from the Department of Defense. Don (KOIND - Net Control Station) did, however.

(W5YI) - "Did you talk to the FCC?"

(K4MM) - "I talked to the Watch Officer in Washington. The FCC Chairman (Mark Fowler) was also involved. Basically the way the thing was put to me on the phone was that 'There will be no citations.'"

☆☆☆☆

*(W5YI REPORT: $18 for 24 semi-monthly issues; P.O. Box 10101, Dallas, TX 75207. Sample $1.)

SIGNALS FRM SPACE from p. 12

tor registration information.

AMSAT INFORMATION AND NEWS NETS

REGION	DAY, UTC	FREQ KHZ
ESPANOL	SUN 1900	14.180
INTERNAT'L	SUN 1800	21.280
INTERNAT'L	SUN 1900	14.282
EUROPEAN	SAT 1000	14.280
UK	SUN (1015 local)	3.780
ASIA/PACIF	SUN 1100	14.305
S. PACIFIC	SAT 2200	28.878
S. AFRICA	SUN 0900	14.280
S. AFRICA	SUN 0900	7.080
SEASAT	SUN 1300	7.280
F. COAST	WED (2100 local Tues)	3.850
MID-AMERIC.	WED (2100 local Tues)	3.850
W. COAST	WED (2000 local Tues)	3.850
AUSTRALIAN	SUN 1000	3.680
NEW ZEALAND	WED 0800	3.850

VHF NETS		FREQ MHZ
NEW YORK C.	WED (2200 local Tues)	144.400
GODDARD	WED (2100 local Tues)	146.835
LOS ANGELES	WED (2000 local Tues)	144.144
LOS ANGELES	DAILY (0730 local Tues)	144.144
S. AFRICA	SUN 0900	145.650
UK	SUN (1930 local)	144.280

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Next month we'll take a look at the most sophisticated Amateur Radio satellite ever, AMSAT-OSCAR 10, as well as recap the STS-9 Ham-in-Space mission of Dr. Owen Garriott, W5LFL plus other interesting frequencies, tips, hints, equipment and comments.

QSL'S from p. 17

to, members of the station's staff may be interested in your country. Send them a viewcard or a brochure of your community. Your thoughtfulness will usually be rewarded.

Be sincere and honest when making out your reports. If the station is located in a poor country include some IRC's to help

Cont'd p. 32

STOCK EXCHANGE

Note: Monitoring Times assumes no responsibility for misrepresented merchandise.

SUBSCRIBER RATES: $.10 per word, paid in advance. All merchandise must be listening related. Ads for Stock Exchange must be received 30 days prior to publication date.

PANASONIC RF2200 needs whip, otherwise excellent condition. $60.00.//MAGNAVOX PHILLIPS A1999 AM FM LW SS Bands Mint $150.// AUTCK Qf 1 Audio Filter $50.//ICOM R-70 $590. Joe Coleman, 157 Walton Pl., Lansdowne, PA 19050. 215-626-3376.

* * * *

FOR SALE: New AEA MBA READER in original box with instructions. Power Adapter, Cable, Stand, "World Press Service Frequencies". $200.00. Call 419-332-9666 Evenings.

* * * *

PANASONIC RF4900 - 10 band communication receiver. Perfect condition - used one year. Original carton and manual. $240 I pay UPS. Mark (714)825-7596 call evenings or weekend.

* * * *

FOR SALE: INFO-TECH M-200-F. Must sell. Mint condition. $300/or best offer. UPS included. MICROCRAFT RTTY Reader $80. Brian Stauffer, El Cielo Libre Weather Services, 1631 Kains, Berkeley, CA 94702. (415)527-3951.

HAMMARLUND SP-600 shortwave receiver, many spare parts, working condition; Charles McWilliams, Box 7809, Miami, FL 33155 (305)661-6783.

* * * *

Computerized Scanner and SWL LOG BOOK for Timex/SINCLAIR and TI99/4A. Approved by the All Ohio Scanner Club (see Jan.-Feb. Newsletter). $10.50 PP. 10% discount to any club member. Enclose copy of newsletter with order. SASE for information. Ken, KC4UG, Box 586, Vernon, AL 35592.

* * * *

PANASONIC RF-3100 Perfect condition - still under warranty. $225 includes UPS shipping. (703)941-5944 before 3 PM EDT.

* * * *

FOR TRADE: REGENCY Digital Flight Scan (excellent) and BEARCAT 100 (Fair). Will trade for Bearcat 250 and Bearcat II, III or IV Crystal Scanner. Other trades considered or will sell both units for $300.00. Richard Stedman, 45-611 Willow St., Springfield, MA 01103 (413)739-5999.

* * * *

Selling new ICOM GC-4 WORLD CLOCK. Offers to P. Besant-Matthews. Box 35728, Dallas, TX 75235 (214)638-9940 daytime.

* * * *

SCRIPTOMATIC AUTOMATIC MAILING MACHINE. New desktop model handles thousands of letters, magazines or other mailable forms. Cost $6000; sell only $2500 including postage and insurance from Monitoring Times.

* * * *

INFORMATION PLEASE

MONITORING TIMES WILL PRINT AT NO CHARGE (AS SPACE PERMITS) ANNOUNCEMENTS AND QUESTIONS OF A NON-COMMERCIAL SERVICE NATURE.

I am looking for anyone in the USA to exchange tape recordings (cassette) of any subject, i.e. Aircraft, Shipping, Local PD and other Public Services, Radio Stations, etc. W.E. Harland, 192 Ock Street, Abingdon, Oxford, OX14 5DR, England.

* * * *

WANTED: Schematic and service info for SBE Opti-Scan. F.X.Barnes, P.O. Box 24704, Los Angeles, CA 90024.

* * * *

I would like to know FCC Frequencies of the following in North Carolina: WFMY & WXII Greensboro & Winston-Salem copter & news dispatch; Rockingham County and Iden Detectives.//I have BEARCAT and RADIO SHACK crystals I would like to trade. Kenneth Galloway, P.O. Box 3533, Eden, NC 27288.

* * * *

Wanted: Technical manuals, schematics, etc. for Navy RBS-2 receiver and AN/ARN-7 radio compass receiver. Wm.Van Lennep, P.O. Box 211, Pepperell, MA 01463 (617)433-6031.

* * * *

Want to swap law enforcement patches, badges and door emblems? Jim Sutton, 2508 E. Lake Rd., Livonia, NY 14487.

UTILITY INTRIGUE from p. 8

13266	09/2120	VCS HALIFAX CG RADIO, NS, CANADA
13279	16/1957	HPU DE ORS (REPEATS OVER AND OVER, ORS IS QSA 5 PLUS.HPU IS PANAMA ALLOCATION BUT QRS IS UNIDENTIFIED)
13395	28/1245	6F GRPS, VERY SLOW
13420	16/1852	PORTUGUESE NAVAL TFC. (PROB CUA69 WHICH LOCATED LISBON (ALFRAGIDE) PORTUGAL)
13430	16/1905	HRL4 DE HRL3 (HONDURAS CALLSIGNS) SPANISH PLAINTEXT. SHIFTED TO 15621 KHZ. MENTIONED 11130 KHZ AS ANOTHER OPERATING FREQ.
13431	28/1250	4F GRPS. ALL FIGS SENT NORMAL EXCEPT ZERO WHICH SENT CUT AS T.
13449	26/1424	54 DE 01 -R- 240345Z -GR21 BT (TEXT OF 4F GRPS) SENT MSGS OF 15, 21 AND 20 GRPS.
13460	28/1535	6F GRPS, VERY SLOW SENDING
13955	17/0013	CLP8 DE CLP1. ALSO CALLED CLP10. (THIS APPEARS BE ANOTHER FREQ OF CUBAN MINISTRY OF FOREIGN AFFAIRS)
13978	16/1729	SUNA SUNA SUNA DE XRN XRN K
14555	26/1431	5L GRPS. PROB SOVIET. USES FOUR SPEC CHARACTERS OE OT IM AA.

TUNE IN CANADA from p. 4

146.760	146.160	VE2 RYE	Amos,PQ
146.880	146.280	VE2 KH	Amqui,PQ
147.210	147.810	VE2 RBB	L'Assomption, PQ
146.700	146.100	VE2 PR	Baie Comeau, PQ
146.910	146.310	VE2 RAT	Baie St-Paul, PQ
146.940	146.340	VE2 OM	Belair, PQ
146.700	146.100	VE2 ASU	Buckland, PQ
146.820	146.220	VE2 IN	Carlton, PQ
147.120	147.720	VE2 RCC	Chicoutimi, PQ
146.760	146.160	VE2 IU	Chicoutimi, PQ
146.880	146.280	VE2 ES	Chicoutimi, PQ
147.360	147.960	VE2 RDM	Coaticook, PQ

This ends the column for this time. Keep the requests coming in and I will try to answer them as soon as possible. For me that may mean a month or so.

You can contact me at: 1107 Sharewood Court, Kettering, OH 45429. The telephone number will be changing soon, and I will give that to you as soon as I know. Until next time --- Good Monitoring ---

QSL'S from p. 31

pay part of the expense.

When reporting foreign language broadcasts make them out in the language you heard the broadcast. Foreign language reports are available from some of the major DX clubs such as SPEEDX and FRENDX.

Be polite when requesting your QSL and you'll find your efforts will be rewarded as you find your mailbox loaded with QSL's and souvenirs.

* As always, I enjoy hearing from my readers. Send your correspondence to me at Box A K0848, Bellefonte, PA 16823. Please enclose an SASE for replies.

ENG BROADCASTING from p. 30

shall I put it--"optimistic" from the Government point of view!

Some interesting news commentary programs such as "Africa Review"; but, frankly, for African news I would prefer Paris or VOA.

CHINA: Radio Beijing. 0000-0300 (9860, 11945)

The Chinese news service is always interesting, with a somewhat different communist viewpoint on many world affairs. Heavy on Chinese news at times, and usually none too strong a signal. Naturally, biased in respect to Taiwan!

ECUADOR: Voice of the Andes. (See chart)

The pioneer missionary station HCJB has among its many varied programs a limited, but excellent, news service. Especially good are its items on Latin America, an area usually poorly covered by other stations. Also of interest is the program "The Week in Review."

FINLAND: Radio Finland. (See Europe list)

Helsinki's voice to the world has set for itself the task of informing us of events in the Scandinavian region, and it does this very well. Compared to Sweden, Denmark, and Norway I think they have the best program.

"Northern Report" should keep the listener well informed of news and views in this part of the globe.

ALBANIA: Radio Tirana. (See Europe list)

I only include this here to remind you of what the archtype old-style communist broadcaster can sound like! Unless you are entranced by production statistics and the intricacies of congratulatory messages from one communist dignitary to another, this may induce sleep!