



# MONITORING TIMES

Volume 3-Number 4

BRASSTOWN, NORTH CAROLINA 28902

April, 1984

## U.S. NUMBERS STATION FOUND!

A MONITORING TIMES EXCLUSIVE

by Bob Grove

For more than 20 years, shortwave listeners have been puzzled by the mysterious broadcasts of numbers groups, read by a woman's mechanized voice, spoken usually in English or Spanish.

The absence of reliable direction-finding equipment among the hobby community, and the reluctance of the FCC to provide bearings, has proven frustrating to the inquisitive SWL.

But over the last year considerable light has illuminated these targets, spearheaded by MT researchers who don't give up easily.

German language numbers transmissions were discovered being beamed from a gigantic espionage installation in Nauen, German Democratic Republic (East Germany).

Five-digit Spanish and English numbers transmissions have been traced to Havana, Cuba on several occasions by FCC monitoring stations.

Suspicion continues that some of the endless-tape loop "kilo papa alpha two" transmissions emanate from the Yugoslavian Embassy in Ottawa, although no confirmation from Canada has come forth.

Fortunately for the monitoring community, several recent bearings taken by FCC engineers have been revealed to MT.

The target of these latest inquiries was the last remaining mystery: identification of the mysterious 4-digit English/Spanish transmissions reputed to be broadcast from within the United States.

When the FCC bearings were examined, the implication was indisputable: the signals on 9074 and 11532 kHz, classical loggings, were coming from the Washington, DC area.

Speculation ran high; were they from embassy row? The Pentagon? CIA?

One stalwart MT contributor was not standing still; skilled in monitoring and blessed with an analytical mind, he set out to find the transmitter.

His odyssey covered nearly one thousand miles and took dozens of hours--far from his home. But when he was through, his persistence had paid off.

Nestled in the rolling hillsides of eastern Virginia, a series of barbed-wire-enclosed military installations maintain a low profile to local residents who aren't sure just what they are.

On a hunch, our intrepid reporter, armed with an old car and equipped with a Kenwood R-1000 and short whip antenna, sat outside the gate of one of them just before the scheduled transmission of a numbers broadcast.

Tuned to 9074 kHz, a weak carrier could be heard on the receiver; was the transmitter being tuned up or was the signal too far away to sound strong? A few seconds more and he would know.

Suddenly, a paralyzing signal came on the air: "Uno, dos, tres..."--the familiar count began! This hidden installation, surrounded by dipoles and log periodic arrays, is the source of these elusive broadcasts!

ANOTHER SURPRISE

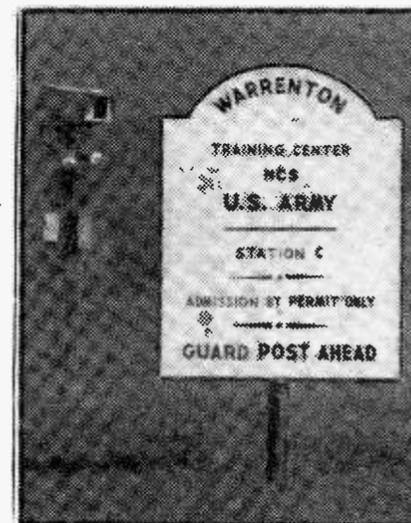
But the revelation to come was just as surprising. Off frequency, the key clicks of a powerful CW station could be heard. Carefully retuning his receiver dial, the inquisitive listener found a Morse signal tape booming in on 6925.5, 10637, 12022.5 and 15540 kHz along with the call sign: KKN50--officially assigned to the U.S. State Department, but unofficially suspected to be the Central Intelligence Agency!

But what is this installation? Who runs it? And for what purpose? The location is Remington, Virginia, just a few miles north of Culpepper on Route 651.

The sign on the gate reads, "WARRENTON TRAINING CENTER, NCS, STATION C, U.S. ARMY." If this was Station C, then where were stations A and B? Are there more? And who or what is NCS?

Continuing the auto tour of the Virginia countryside, our unflappable investigator discovered another site on Route 669 about 12 miles east of Culpepper.

The sign on this gate read, "STATION D, WARRENTON TRAINING CENTER." What sort of training? The mystery deepened. A similar halo of dipole antennas and a log-periodic antenna festooned this installation as well. A second transmission by KKN50



on 18525 kHz appeared to originate from here.

Stations A and B were discovered later to be in the same general area.

Subsequent telephone calls by MT to the U.S. Army Public Information Office, Pentagon and nearby military installations have turned up nothing. Either no one was willing to talk about it, or the personnel sincerely did not know the purpose(s) of the installations.

A telephone conversation to Robert Grimsland, Public Affairs Officer of the Security Division, Warrenton Training Center, was interesting but not informative.

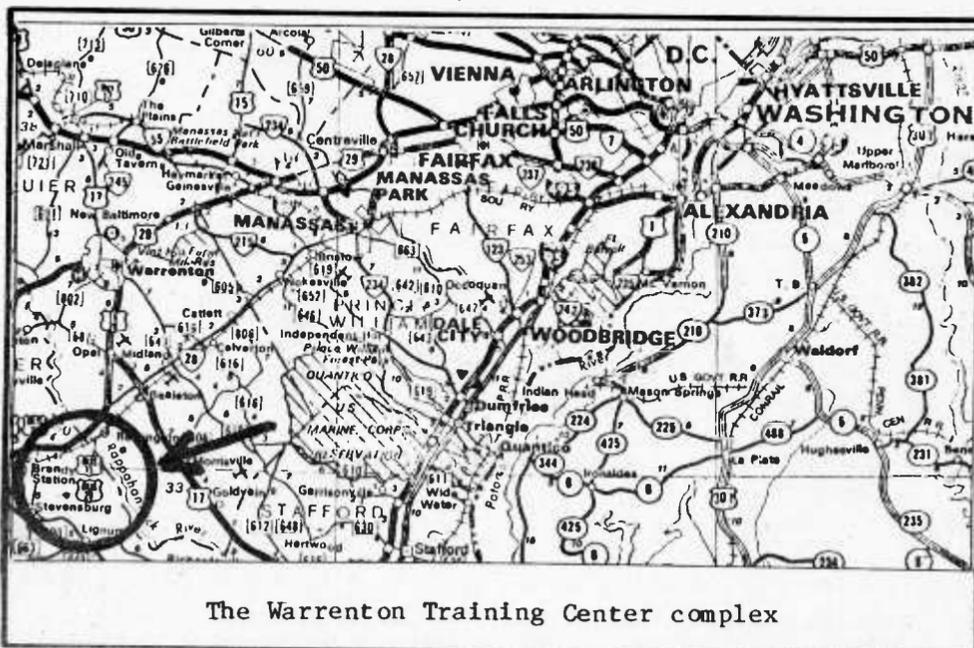
We asked, "Who are you training?" "What agency is responsible for the KKN50 tapes?" "What is the purpose of the numbers transmissions?"

In each case, Mr. Grimsland replied, "This is a closed and classified facility; I am not at liberty to discuss this. I suggest you call the Department of Defense Public Affairs Office."

But a recent publication finally came to the rescue: an article by James Bamford (author of "The Puzzle Palace," subtitled "Inside the National Security Agency, America's most secret intelligence organization") in the December 4, 1983 issue of the Washington Post Magazine.

NCS apparently stands for the "National Communications System."

IS THIS THE END OF THE LINE?  
(Continued on back page)



The Warrenton Training Center complex

# MONITORING TIMES

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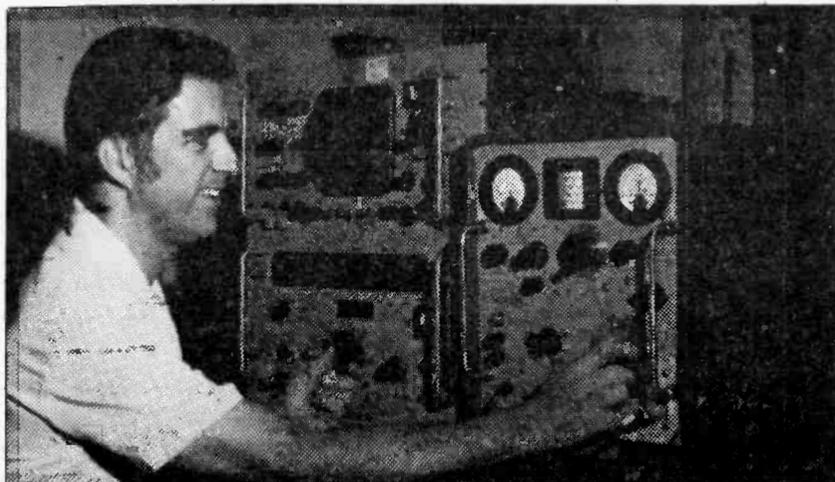
## REMEMBER! "S.A.S.E."

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



## "COME SEE US"

AT THE DAYTON, OHIO HAMFEST

April 27, 28 & 29 BOOTH #369

## GUEST EDITORIALS

(ED NOTE: The viewpoints expressed in these guest editorials do not necessarily reflect those of Monitoring Times, but are included to offer our readers perspective on delicate issues.)

### Charles Wick vs. the VOA

by Donald McCants  
 (104 Magnolia Street  
 Trussville, AL 35173)

It was recently revealed by the major U.S. news media that Mr. Charles Z. Wick, director of the United States International Information Agency, the parent organization of the Voice of America, had taped the telephone conversations between Mr. Wick and various senior Reagan Administration officials without these officials' knowledge or permission.

While the U.S. news media have covered the ethical questions about Mr. Wick's illegal taping of these telephone conversations and the making of the transcripts of these telephone conversations in violation of federal law, has anyone seriously considered the possible long-range effects on the credibility foreign governments and peoples place on the Voice of America?

One of the principal means that the United States government has had at its disposal for presenting its views and official government policies to people around the world since the World War II era has been the international shortwave radio service of the Voice of America. It is vital that

our government recognize the fact that it must place a much higher priority on updating and fully utilizing the facilities and personnel of the Voice of America to win the propaganda war against the Soviet bloc international broadcasters, led by Radio Moscow and Radio Beijing.

Now, what does all of this have to do with the case against Charles Wick? First of all, the Voice of America is the official broadcast arm of the United States International Information Agency, charged by Congress with the responsibility of presenting the United States government and its people to the other peoples and governments of the world in the best possible light. How will people around the world react when they learn that the director of the U.S. International Information Agency has been involved in patently illegal activities while performing in the official functions of his office?

It is reasonable to expect that the Radio Moscow World Service will take advantage of this latest revelation of a serious misdeed by a fairly high-ranking Reagan Administration official as yet another example of the supposedly-corrupt and exploitative nature of the capitalistic United States government. If the people of Third World nations have no way of being able to judge the accuracy and reliability of news broadcasts about events in the United States, they are wide open to lies, distortions, and disinformation put out by Radio Moscow concerning news events in the United States. Why give

Radio Moscow an unfair advantage in the war for the minds and hearts of men and women around the world?

Lastly, Mr. Wick, whether unintentionally or not, did a great disservice to the Voice of America by placing his own self-interest and personal security above the service and responsibility to the people and government of the United States that he is supposed to serve. A position of great power and authority carries with it great responsibility. It is this writer's judgment that Mr. Charles Z. Wick may have actually done much more damage to the United States and the cause of freedom around the world than he may have realized when he secretly taped his telephone conversations in Washington, D.C.

### Cane Field Morality

by David O'Brien

Straight faces were the order of the day in Jakarta (Indonesia) when the Cuban delegation attending the "Conference of the Ministers of Information of the Countries of the Non-Aligned Movement" publicly deplored the use some people make of the broadcasting airwaves.

After highlighting their principles in the struggle for peace, international cooperation, equality among nations, together with the struggle against imperialism, colonialism, neo-colonialism, apartheid, Zionism, and against all forms of aggression, the delegation still had enough breath left to fire a few shafts at western broadcasters and rounded off with a salvo against the establishment of Radio Marti.

Delivered with the fervor of a forty year old virgin who's just discovered sex and wants to share the knowledge, the delegation set themselves up as "having absolute respect for national information policies" saying that the hostile use of radio "makes dialogue impossible." Their formal statement "deplored the use of radio as an instrument of hostile broadcast of one state against another" and a "gross provocation."

While not directly naming Radio Marti--described as "a medium-wave radio station set up with the aim of broadcasting to Cuba"--it was described as "a dangerous precedent...aiming at

Cont'd p.10

# DISASTER COMMUNICATION

## — OPERATION SECURE

by Mark W. Johnson



### VIEWPOINT

I must take exception to the letter printed in the March 1984 MT. I wish to clarify some of the legal issues that the nameless correspondent raised in his comments concerning the "overhearing" of electronic conversations.

First, this area has been reasonably defined by both the U.S. Supreme Court and the law, contrary to what the writer concludes about the situation. The law enforcement agents attempted to inform the writer that any warrantless interceptions of these electronic conversations would be inadmissible in any criminal trial proceeding that may be initiated by prosecutors.

Section 605 of the Communications Act specifically prohibits unauthorized divulging of any type of communications. Applying this administrative law to the incident that the nameless correspondent relates is simple. These conversations are protected within the privacy act provision of the law.

A not so recent, but quite applicable legal decision was handed down by the U.S. Supreme Court in the Katz v. U.S. case, 389 U.S. 347 (1967). In this case, police had placed an extremely sensitive listening device on the roof of an enclosed public telephone booth. The device was strong enough to pick up both sides of the conversation that occurred within the confines of the booth even though the device was on the outside of the roof. The Court ruled that the listening method was a violation of Katz's fourth amendment protections concerning unreasonable searches and seizures, even though the police had not touched the internal circuitry of the public telephone.

In its decision, the Court held that although Katz was using a public phone to commit a crime, he was entitled to constitutional protection because of the "reasonable expectation of privacy" that was offered by the enclosed phone booth.

In the situation that the MT reader describes, his electronic actions were roughly the equivalent of

what the police officers in the Katz case did. Since the reader's electronic equipment is being used to amplify the telephone signals (whether sent via wireless or otherwise), the ruling in Katz classifies these actions as a search and these actions thus become subject to Fourth Amendment provisions in the Constitution.

Via the "fruit of the poisoned tree" doctrine set forth in Silverthorn Lumber Co. v. U.S., 251 U.S. 385 (1920), any evidence obtained as a direct result of an illegal search (such as any action taken by police as a result of listening to any of the reader's cassette tapes) is inadmissible in trial proceedings. This would include evidence pointing to offenses that have already been committed.

In no way should my letter be viewed as accusing the reader of deliberately violating these criminals' constitutional rights. Rather, I just desire to answer his cry for a legal definition specifying why his actions were illegal in the eyes of the law.

I, both as a police officer and a student of the law, share his frustration and anger over his reported series of events and I hope that the law will eventually catch up to these criminals.

As a thought to all MT readers, I suggest that if anyone happens upon such conversations on the radio-waves as this conscientious reader did, they should immediately contact the local or state police legal advisor or the local/state prosecutor to see what legal methods can be used to capture and successfully prosecute such individuals who engage in criminal activity over the airwaves. But, as a police chief once said, "We can't break laws to catch lawbreakers."

Matthew G. Vurek  
Bethesda, MD

>>><<<

In defense of "old versus new receivers," I must take exception with the statement made by Richard Arland in the March issue of MT. He seemed to think old tube type receivers would be the better bargain for newcomers. Having "walked both sides of the street," I disagree.

Over the years, I have owned and used Hammarlund's HQ-150, HQ-160, and SP-600 receivers, the Collins 75S-2 and the Drake R-4B. However, while fine receivers and I wish I had kept the R-4B, none of the above has given me the pleasure that my Kenwood R-1000 has since

Cont'd p.28

At 8:06 a.m. on 28 October 1983 a massive earthquake measuring 6.9 on the Richter scale rumbled through the mountains of central Idaho causing widespread damage and killing two young children on their way to school. Throughout the state people turned on their radios, televisions and scanners as they tried to find out what had happened. However, several hours passed before the first reliable reports came out of the affected area. The reason--disruption of available communications.

The disruption or loss of communications following a disaster is a problem that is anticipated by every emergency planner in the country. Most realize that telephone service will be unavailable during a crisis. Therefore some means of reliable radio communications is needed if disaster operations personnel are to keep in touch with their field units. Enter Operation SECURE.

SECURE is an acronym for State Emergency Capability Using Radio Effectively. This system is an outgrowth of the old Disaster Communications Service, formerly governed by FCC Part 99.

On 16 January 1980 the FCC adopted a Notice of Proposed Rule Making which revealed a need for medium and long-range communications capabilities that would allow states to establish communications between disaster sites and command centers. The intent of the adoption of the NPRM was to provide frequency capabilities which would allow reliable coverage over the distances involved. The result of this was the development of Operation SECURE, governed under Part 90, and the deletion of Part 99.

To provide the required coverage the FCC decided to use frequencies between 2 and 10 MHz instead of the 1.75 to 1.8 MHz range used by the old Disaster Communications Service.

Initially the FCC proposed to assign dedicated frequencies for disaster communications use to applicants. However, it soon became apparent that this procedure would not work due to the potential for interference which was based on the projected international use of frequencies below 10 MHz. Therefore, at the time of application the applicant

states which bands are needed and how many channels are required in each. The FCC then assigns those which are least likely to cause interference to other licensees from the available frequencies.

As originally developed the assigned frequencies could be used only for emergency communications and short periods of testing and training which could not exceed one hour per week. However, this rule has been amended to allow testing or the handling of administrative traffic for periods of seven hours per week or one hour per day. During the declared state of emergency the system may be used for extended periods, i.e., on a 24-hour basis, for example, during the course of the emergency.

Sixteen states are currently licensed under Operation SECURE but not all of them are operational. For example, Colorado and Wyoming are both licensed but the latter has no equipment while the former has some in place and conducts periodic tests. Other states, such as Louisiana, have used the system in actual emergencies. In April 1983 Operation SECURE was used to maintain contact between the new Orleans Civil Defense Office and the Office of Emergency Preparedness in Baton Rouge when flooding knocked out a main telephone switching station in new Orleans.

How well does the system work? Albert Bennett, State Communications and Warning Officer for Louisiana, assessed the performance of their system by saying, "...SECURE provides better communications to Civil Defense/Emergency Management agencies and thereby provides an increase in the capability of these agencies to save lives, reduce property damage and promotes faster response and recovery operations allowing disaster victims faster resumption of their normal pursuits."

While there is not a great deal of traffic on these frequencies they are worth monitoring; disaster can strike an any time.

#### FREQUENCY ASSIGNMENTS (USB)

##### FIXED/BASE/MOBILE

2326	2411	2414	2419	2422
2439	2463	2466	2471	2474
2487	2511	2535	2569	2587
2801	2804	2812		

Cont'd p.6



## Scanning the Interstates

by Jim Ferreira\*

Being the son of a truck driver gives me an excellent opportunity to monitor the scanner on the road. This article will deal with state/police frequencies and codes used in California, Arizona, Nevada, Oregon, Washington, Utah, Montana and Idaho.

### CALIFORNIA

Ch.Pair	Base	Mobile
Black	42.46	42.70
Blue	42.34	42.18
Brown	42.50	42.82
Copper	42.60	42.74
Gold	42.12	42.20
Grey	42.48	42.68
Green	42.54	42.24
Orange	42.88	42.66
Pink	42.44	42.76
Purple	42.40	42.16
Red	42.44	42.28
Silver	42.08	42.28
Tan	42.42	42.84
White	42.56	42.72
Yellow	42.52	42.30

California uses common 10-codes plus the following special purpose codes:

31	False info to officer
4000A	Unregistered Vehicle
40302B	Refusing to sign promise to appear
10851	Auto theft
10852	Tampering w/Vehicle
12500A	Unlicensed driver
14601	Driving on suspended license
20001	Hit&Run causing bodily injury
20002A	Hit&Run causing property damage
21453A	Running red light
21650	Driving on wrong side of roadway
21658A	Unsafe lane change
22348A	Exceeding max speed
22350	Unsafe speed
22450	Running stop sign
22500	Illegal parking
23103	Reckless driving
23109A	Speed contest
23109B	Exhibition of speed
23110	Person throwing objects at vehicles
23152	Driving while intoxicated
23153	Felony drunk-driving, injury involved
23222	Open liquor container in vehicle
23224	Person under 21 with open liquor container
23225	Driver w/open "

The only VHF(high) frequencies the CHP uses are 154.920 CLEMARS (California Law Enforcement Mutual Aid Radio System) and 154.905 for vehicular extenders (if you can't hear the mobile on

42 MHz, try 154.905 and you should hear him).

### ARIZONA

The only VHF frequency pair used statewide by the Arizona DPS (Department of Public Safety--Highway Patrol) is the following:

154.935 Base/  
155.190 Mobile

The Arizona DPS frequency-area plan is very unusual. I never know what frequency they will be on! The following are all active with the first two prime.

460.025 460.225 260.275  
260.300 460.325 460.400  
460.425 460.475 460.500

The Arizona DPS uses a standard 10 code and is very open on the radio.

### NEVADA

Nevada is usually not very busy; a standard 10 code is used here also.

F1	42.94	Statewide
F2	42.78	Winnemucca Disp
F3	42.56	Ely Dispatch
F4	42.88	Las Vegas Disp

All four of these frequencies are also in use throughout the state.

### OREGON

Oregon is one of my favorite states, loaded with activity for scanner listening.

F1	42.88	NW
F2	42.94	W. Central
F3	42.82	SW and Car-Car
F4	42.86	East
F5	42.56	Central
F6	42.90	Salem-Eugene
F7	42.92	Multnamah Co. (Portland)
F8	42.78	Air-ground
154.935	Portland area handhelds	
154.860	Salem & Bend area " "	
155.505	Medford area " "	
154.696	Klamath Falls Area " "	
154.905	Tilamook area " "	
42.44	Radar	
159.030	Intercity	

The Oregon Highway Patrol uses a special 12 code; they do not use any 10 codes. This 12 code is also used by City police, sheriff, etc.

### 12+

- .1 In service
- .2 Mobile going out of svc
- .3 Return to your office
- .4 Phone this office
- .5 Repeat message

- .6 Meet with \_\_\_\_\_
- .7 Motor vehicle registra.
- .8 " " " and owner
- .9 Check PVC status
- .10 Check for operators license
- .11 Please give description
- .12 Unable to copy
- .13 Prepare to copy
- .14 Relay following to statn
- .15 Locate for emerg message
- .16 Motor vehicle accident
- .16A " " " fatal
- .16B " " " injuries, no ambulance
- .17 " " " ambulance dispatchd
- .18 Dispatch ambulance
- .19 Dispatch tow-truck
- .20 Check for wanted/stolen
- .20A Can subject hear radio?
- .21 No record
- .22 Prior misdemeanor, NOT wanted
- .23 Prior felony, NOT wanted
- .24 Subject wanted (A-felony B-misdemeanor)
- .25 Similar subject record
- .26 Base station going out of service
- .27 Call by radio
- .28 Suspicious person
- .29 Disturbance
- .30 Reckless driver
- .31 Drunk driver
- .32 Same as .31
- .33 Drunk person
- .34 Resume normal ops
- .35 Abandoned motor vehicle
- .36 Illegal hunting
- .37 Advise road & weather
- .38 Switch to Ch \_\_\_\_\_
- .39 Attention all stations
- .40 Stand by
- .41 Your traffic
- .42 No traffic
- .43 Disregard previous transmission
- .44 Not used
- .45 Burglar alarm (location)
- .46 What is the telephone # of your station
- .47 Computer files unavail
- .48 " " available
- .49 Death investigation
- .49A Possible homicide
- .50 Message NOT radio traffic, handle by carrier
- .51 Radio repairs required
- .52 Radio tech. enroute to your station
- .53 Regular power out, ops on emerg power
- .54 Please count 1-5 and give voice check
- .55 Same as .54
- .56 No help available
- .57 Disabled motorist
- .99 Officer needs assistance

### WASHINGTON

Washington State police uses a number of frequencies both for point-point and point-mobile. The Washington state police use no special codes.

F1	155.970	Statewide
F2	154.770	Area Dispatch-Port Angeles, Kelso, Ellensburg
F3	155.580	Area dispatch-Seattle, Spokane
F4	155.520	Area Dispatch-Kennewick, Tacoma
F5	154.845	Area dispatch-Everitt, Yakima

F6	158.790	Fl rptr output
F7	154.680	Area dispatch-Vancouver, Okanogan, Seattle data
F14	155.850	" " - Chehalis
F15	154.665	" " - Bremertn
F16	154.695	" " - Hoquim
F17	154.935	" " - Mt Vernon, Ephrata, Wenatchee
F18	155.505	" " - Olympia
F19	154.920	" " - Olympia
FL	155.370	L.E.R.N. (Law, Enforcement, Radio Net) Statewide
FN	155.475	NLEEC (Nat'l law enforcement emergency ch. 154.755 Area dispatch-Bellingham

Cont'd p.13

### New Cordless Phone Frequencies

Citing the likely expansion of the AM broadcast band up to 1700 kHz and the poor match of bands presently existing in cordless phones (1.7/49 MHz), the FCC has released ten new frequency pairs for base/handset:

Ch 1	46.61/49.67
Ch 2	46.63/49.845
Ch 3	46.67/49.86
Ch 4	46.71/49.77
Ch 5	46.73/49.875
Ch 6	46.77/49.83
Ch 7	46.83/49.89
Ch 8	46.87/49.93
Ch 9	46.93/49.99
Ch 10	46.97/49.97

Pointing out that this ruling is interim only (five years expiration), new cordless bands will probably be established in other parts of the spectrum, possibly including 900 MHz.

### "Kitchen Coastals" on Increase

The Federal Communications Commission has expressed concern over the growing number of "kitchen coastals"--the use of ship radios and frequencies by land-based operators.

The FCC announced that it would be working with the U.S. Coast Guard in an effort to curb the violations which include profanity on the air as well as ignored call signs.

Congestion of VHF channel 16 (156.800 MHz), reserved for emergency and calling, is also a problem. During a recent survey in Boston Harbor, 693 transmissions were logged within two hours!

While fines of \$100-500 may be levied for the violations, the history of convictions is very low due to lack of enforcement manpower.

Thanks to MT reader Reed Darsey of Mobile, Alabama for sending us this interesting news item.

# PIRATE RADIO



by John Santosuosso

**"JUPITER":** Direct word has been received from the "Minority Association" of Philadelphia that they are responsible for the posting of labels in that city announcing broadcasts on 6250 GMT Sunday at 0500. The group claims it did, indeed, make several broadcasts before its transmitter, a Viking II, blew up. In fact they state this is the second such transmitter which has malfunctioned. As a result broadcasts have been suspended, but they expect to resume transmitting in the near future.

The "Minority Association" has the most unusual objective of any existing free radio station, in fact of just about any organization we have ever encountered. They declare that they obtained their ideas from the autobiography of the famous historian Arnold Toynbee and from the well known film "2001, A Space Odyssey."

It is their belief that science has the capability "to bring dead molecules of dead human bodies of all dead human beings of history, back to life on the gigantic planet of Jupiter!"

The organization does admit that before such unusual colonizers could be sent to Jupiter the planet's climate and atmosphere would have to be changed rather drastically. They believe that everyone should be encouraged to assist them in their work. Thus they have even requested the support of Russian dissident Alexander Solzhenitsyn for broadcasts to the Soviet Union! To reach domestic audiences they have presented their cause on Larry King's national radio show.

If really unusual broadcasters intrigue you then keep tabs on 6250. The "Minority Association's" address is Post Office Box 42672, Philadelphia, PA 19144.

**THE MAILBAG:** MT readers are reporting in with some excellent pirate loggings. Pennsylvania's Dan Rauch heard the Voice of the United States on 7410 and later 7430, January 29, beginning at 2049. We understand this station also identifies itself as the Voice of Democracy and when doing certain comedy skits as the Voice of Communism.

Hawaii's John T. Arthur shows us what can be heard from his Pacific QTH. On January 1 at 2200 he received the Voice of Laryngitis at 15050. January 8 brought New Wave Radio International at 0530 on 7399, while KFAT was heard January 22 at 0501 on 7432 kilohertz.

Here in Florida this writer had the Crystal Ship check in for the first time on January 29 at 0209 on 7420. Now why not send in your pirate loggings and let others know what can be received in your part of the country?

**DAYTIME PIRATE BAND:** A new pirate band seems to be developing in the vicinity of 15050 kilohertz. Considerable activity in that area has been reported in recent months. It is definitely worth checking, especially during daylight hours on weekends. During the afternoon of February 4 this writer managed to hear KQSB, the Voice of Laryngitis, and KQRP, all on 15050. Both the Voice of Tomorrow and Scotland's Radio Freedom International use 15040.

**COMPUTER BULLETIN BOARDS:** If you have access to one of these, it may be a source for pirate broadcasting schedules. We know of one now inactive West Coast FM pirate which successfully used this method to alert listeners to broadcasting times. The station reported it had a large audience as a result.

**SURINAME:** We have heard directly from Mr. Mohammad S. Nasrullah, of the Radio Department of the Council for the Liberation of Suriname, that clandestine Radio Frie Sranan is now on 6850 kilohertz. The schedule is 0100 to 0115 GMT with programs in Dutch, Sranan tongo, Hindustani, and Javanese. At the present time broadcasts appear to be on an irregular basis.

**LEBANON:** On February 7 Muslim militia forces seized control of West Beirut including the government radio and television facilities. In the south of Lebanon controversial Major Saad

Haddad died of cancer on January 14, according to a report on Israel Radio. Haddad occasionally made speeches over unlicensed King of Hope, on 6215, which he permitted to operate from his south Lebanon enclave.

The colorful Haddad was seen as a loyal friend of Israel by some and as a betrayer of the Arabs by others. Although he kept a firm grip on political power, economically his unofficial state was wide open to just about any kind of enterprise. A true pragmatist, his supposedly Christian army was manned largely with Muslims, and his animosity with the PLO did not prevent him from selling them gasoline or buying electricity in return.

Whether one approved of

his politics or not, it is difficult not to miss the Major. He was truly part of the enigma that is Lebanon. In the meantime, in the midst of all the chaos of that unhappy land, the King of Hope continues broadcasting as usual. Look for it signing on around 0400. Much of the programming is in English, and reports can be sent to the Arizim Motel, Metulla, Israel. The station is a good verifier.

**ITALY:** From Italy Dario Monferini sends us the latest information on the unlicensed stations in that country which are using shortwave. Radio Milano International transmits on 7295 and is also conducting tests on 9805 and 9810.

Cont'd p.10



## HIGH ADVENTURE BROADCASTING

Broadcasting from Free Lebanon  
P.O. BOX 7466 VAN NUYS, CALIF. 91409

Radio Station W O R D 945 AM "The Voice of Hope"

Shortwave Station K I N G 6.215 MHZ "The King of Hope"

TV Station H O P E Channel 12 "The Star of Hope"

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# MONITOR





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736RMT

73: Amateur Radio's Technical Journal, PO Box 931, Farmingdale NY 11737

# Logging 170 Meters

A guest article by Craig Healy (66 Cove St., Pawtucket, RI 02861)

ED. NOTE: Author Healy writes on a regular basis for LOWDOWN, a publication of the Longwave Club of America. His notes here reflect interesting intercepts in the 1600-1800 kHz spectrum.

This part of the spectrum is populated by naviga-

tional beacons, fishing buoys and CW identifiers of various descriptions. It is especially productive through the night when the vast majority of listening is done.

Let him know if you are interested in seeing more, and especially if you have some contributions of your own to add to his interesting loggings...Bob)

FREQ	TIME	DATE	TRAFFIC
1608	0217,0200,0223	11/27	D187 and dash
1612	0507,0511,0515	11/23	FRB
1613	0820	1/16	RAB, Guatemala
1615	1615	1/11	OR, New Zealand
1618	0739,0742	11/30	FC35 and dash
1620	0504-0507	1/5	SDT
1621.2	0818	1/16	UDT
1622	0819	1.16	KA83736
1629	0723,0733,0737	11/6	KA81226 fair
1635	0455,0503	11/7	U340 and dash
1635	0525-6	11/18	U287 and dash fair
1635	0528,0535	11/18	0221
1635	0531,0533	11/18	U445
1637	0536,0538	11/18	KA81184
1637	0536,0538	11/18	KA81192
1637	0457,0509	11/19	KA80084
1637	0503,0507,0510	11/19	C316
1637	0600,0607	11/23	FRB
1637	0657	1/17	KA80084
1637.6	0652	1/17	D381
1640	0540-7	11/19	KA83335
1641.5	0614	1/10	O450
1642	0525,0529	1/5	O384 and dash
1642	0526,0530	1/5	V443 and dash
1642	1528,0540	1/5	A183

## OPERATION SECURE from p.3

### FIXED ONLY

5135 5140 5192 5195-7477  
7480 7802 7805 7932-7935

The frequencies between 2326.4 kHz and 2812.4 kHz can be used for fixed, base or land mobile operations. All others can be used only for fixed operation.

### STATES LICENSED TO USE THE SYSTEM

Colorado	Nevada
Florida	New Jersey
Indiana	New Mexico
Louisiana	New York
Michigan	Ohio
Mississippi	Oklahoma
Montana	Texas
Nebraska	Wyoming

Not all of the states listed above are currently operational with Operation SECURE.

### SYSTEM PROFILES

#### FLORIDA

Six frequencies are assigned to various locations throughout the state: 2326, 2439, 2463, 5140, 7805 and 7932 kHz.

Call signs and locations are as follows:

KB26292 Statewide mobile  
KNFZ232 Inverness, FL  
KNFZ233 Starke, FL  
KNFZ234 Tallahassee, FL  
KNFZ235 Wildwood, FL

KNFZ236 Jupiter, FL  
KNFZ237 De Funiak Sprgs, FL  
KNFZ238 Miami (Coral Gables), FL  
KNFZ240 Statewide mobile (Thanks to reader Mark Cobbledick for Florida information.)

#### COLORADO

Equipment in Use: King Radio KMC-95 radios with King Tuners (1.8-30 MHz) with 9' steel whips and fan dipole antennas.

#### Frequencies Used:

MHz  
2.326 D&N; Interstate Coordination; F&M  
2.466 D&N; F&M  
2.471 D&N; F&M  
2.474 D&N; F&M  
5.135 D&N; F  
7.802 D ; F  
7.805 D&N; Interstate Coordination; F  
(D=Day; N=Night; F=Fixed; M=Mobile)

Colorado is in the process of cross licensing with New Mexico on 2.801 and 7.477 MHz which are their frequencies.

#### Call Signs:

KNDB975 Temporary  
KB29622 Mobile  
KNDB974 Base

#### LOUISIANA

Equipment in Use: Scientific Radio Systems SR-240 and Marconi CH 150S radios. The Marconi has an automatic

FREQ	TIME	DATE	TRAFFIC
1642	0655,0659,0701	11/15	and 0541
		11/18	NV43 and dash
1642	0703,0710	11/16	Q448
1642	0543,0545	11/18	L320
1642	0544	11/18	C447
1643	0448,0453	11/14	KA81194
1644	0558-0612	1/17	Tuned into sound similar to computer program being loaded from cassette. At 0603 it changed to the sound of a European police siren(hi-lo-hi-lo etc.) At 0607 it went into LGB-TLX brap braaaap brap(see last month).Also good 0534-0537 1/5. This is one of the wierdest things I've heard in this band.
1647	0514,0517,0520	11/14	FRB
1648	0443	11/19	KA83343 good
1649	0453	11/19	KA81192
1649	1609	1/22	Man in possible JJ or KK, multisyllabic so not Chinese
1649	0552,0555	1/17	KA81193 fair
1650	0712,0713	11/16	KA83345
1651	0325,0329	1/16	J320 and dash fair under Teledon
1659	0546-0555	1/5	Either RTTY on idle or a nav.station different from any heard here yet.Uses FSK. Fair, but deep fades.
1665	0544,0546	11/3	SV42 and dash
1665	0543,0551	11/3	KA83468
1665	0540-43	1/1	LAG fair, Ecuador, Lago Agrio
1691	0602-0603	1/18	RTTY
1697	0305	1/5	Cuba BC station (R.Cadena?)
1704	0537-0538	1/14	USB
1705	0506,0509	1/16	KA83758.Also 0610 1/18
1709.5	0629-0631		
1713	0530-0536	1/14	RTTY
1722	0604-0654	1/5,1/17	FF (not Canadian)
1729	0507-11	11/21	D7K and dash
1755	0505,0520	11/18	FUI3 and dash
1755	0505,0520	11/18	FUI3 and dash
1762	0522,0527	11/3	FRB
1768	0529-35	11/3	RTTY
1768	0500	10/7	NT beacon
1783	0526-35	11/22	30 pip-per-minute station noted again. AKA "water torture of the air." Format is that of a faucet dripping into a glass half full of water.Better format than some of my locals.
1783	0810-0816	11/30	Two separate and distinct 30 pip-per min. stations

antenna coupler. Mobile antennas are Anixter-Mark HW 8 top-loaded 8' whips with the HWM-22 super heavy duty cast iron mount. Base antennas are B&W 370-15-185 broadband units. The Hy-Gain H-4001 Portable Reel Tape Doublet antenna is also used.

An Alpha Model 76 linear amplifier is also used with the base station.

Frequencies Used: In the 2 to 10 MHz range with no specific frequencies listed in the information received.

Call Signs: None sent. Currently four stations licensed with plans to add additional stations by the end of the year.

(The information from Colorado is courtesy of David W. Holm, Communications and Warning Officer, and Albert Bennett, Communications and Warning Officer for Louisiana.)

**WANTED:**

## Feature Footage

Monitoring Times is embarking upon a new venture to bring the hobby of radio monitoring to readers world-wide through the mass media. A major educational materials publisher is interested in a pilot program and we are looking for raw news-feature footage on any format: 16 mm film; 3/4", 1" or 2" quad videotape (broadcast standard); foreign PAL or SECAM is acceptable, but NTSC is preferred. Please contact producer David Shogren, 25-7th Avenue SE, Osseo, MN 55369 to discuss reel, resume and rates.



## Listeners' log

### MILWAUKEE COUNTY SCANNING

Contributed by John M. Schneider  
Franklin, WI

- 37.76 Wisconsin Natural Gas  
42.22 State Patrol (mobile)  
42.38 State Patrol (base)  
45.24 Milwaukee Emergency Government  
151.265 Milwaukee Forestry Dept Rptr  
153.59 " Water Dept  
153.83 " Fire Dept (Walkie Talkies Fireground)  
153.98 " Co House of Correction (Franklin)  
154.07 W. Milwaukee Fire  
154.025 Mitchell Field Security, Fire, Administratn  
154.13 Milwaukee Fire Dept F-1 Fire Rptr  
154.22 Franklin, Greendale, Greenfield, Hales  
Corners, Oak Creek, S. Milwaukee, Cudahy,  
St. Francis Fire Depts.  
154.295 Statewide Fire Mutual Aid  
154.34 North Shore Fire Depts  
154.385 Milwaukee Fire Dept Rescue & Paramedic Rptr  
154.74 Greenfield Police J-1  
154.875 Milwaukee Co Sheriff Airport Security Rptr  
154.965 State Fair Police  
155.01 Bay Side, Glendale, Fox Point, River Hills,  
Shorewood, White Fish Bay Police Rptr F-1  
155.085 Greendale, Greenfield D.P.W.  
155.085 Greendale, Hales Corners Police F-2/ Green-  
field Police F-3  
155.19 UWM Police Repeater  
155.235 Curtis Universal Ambulance  
155.37 Point to Point (Police) Statewide  
155.445 State Patrol Base & F-2 (new freq.)  
155.475 Wispern (Statewide)  
155.49 Franklin Police F-3 mobile  
155.565 Brown Deer Police  
155.61 West Allis Police Rptr  
155.64 Milwaukee Police Tactical Squads Rptr  
155.67 Greendale, Hales Corners Police F-1  
155.67 Greenfield Police F-2/Franklin Police F-4  
155.715 Milwaukee D.P.W. Towing  
155.79 Franklin Police F-1 Rptr  
155.82 North Shore Police F-2  
159.150 Milwaukee Police Youth Aid Bureau Rptr  
159.195 Milwaukee D.P.W. Rptr  
159.225 DNR/Game Wardens Repeater  
159.12 Wauwatosa Fire Rptr (new freq.)  
158.79 Wauwatosa Police  
159.285 State Patrol Mobile (new freq.)  
166.250 WITI TV 6 News Vans Reporters  
169.150 United States Postal Police Rptr  
173.275 Milwaukee Journal  
450.1875 WTMJ TV 4 News Vans Reporters Rptr  
450.3125 WISN TV 12 News Vans Reporters  
155.31 New Berlin Police Rptr  
453.050 Muskego Police Rptr  
453.325 New Berlin Fire Rptr  
154.755 Racine County Sheriff Rptr  
155.595 Washington, Ozaukee Co Sheriffs Rptr  
155.13 Waukesha Co Sheriff base  
154.89 Waukesha Co Sheriff mobile  
453.100 Milwaukee Co Sheriff F-3 & F-4 Admini-  
strative, Alternate traffic, Squad to  
squad Rptr  
453.225 Milwaukee Co Sheriff F-1 Traffic Rptr  
453.250 West Milwaukee Police Rptr  
453.375 Milwaukee Co Emergency Government Rptr  
453.400 Milwaukee Police Pagers  
453.425 Milwaukee Co Sheriff F-5 Detectives Rptr  
50% DVP-used  
453.475 Milwaukee Co Buses F-4 Rptr  
453.500 Milwaukee Co Sheriff F-2 Field Coordination  
453.550 Franklin D.P.W. Rptr  
453.575 Milwaukee Animal Control Rptr  
453.675 Milwaukee Co Buses F-2 Rptr

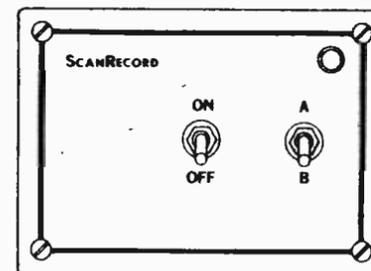
- 453.725 West Allis Fire Dept Rptr  
453.750 Milwaukee Co Buses F-3 Rptr  
453.775 Milwaukee Co Highway Dept Rptr  
453.825 West Allis D.P.W. Rptr  
453.850 Milwaukee Co Buses F-1 Rptr  
453.875 Milwaukee Co General Security Rptr  
453.925 Milwaukee Co Bus Supervisors Rptr  
453.950 Oak Creek, S. Milwaukee, Cudahy, St. Frances  
Police Rptr  
460.025 Milwaukee Police F-6 Tow Desk 10-66  
460.075 " P.D. F-1 Districts 1,3,5,7 Rptr 10-61  
460.150 " P.D. F-5 Special Situations,  
Squad to Squad Rptr, 10-65  
460.175 " P.D. (unknown use, NEW FREQ)  
460.225 " P.D. F-2 Districts 2,4,6 Base 10-62  
460.275 " P.D. Special Assgmt Squad Rptr  
460.350 " P.D. F-3 Wanted Checks Rptr 10-63  
460.375 " P.D. F-7 Detectives Rptr 10-67  
460.450 " P.D. F-4 Wanted Checks Rptr 10-64  
460.475 " P.D. F-8 Detective Wanted Checks Rptr 10-68  
460.500 " P.D. Vice Squad Rptr  
465.075 " P.D. F-1 Mobile  
465.225 " P.D. F-2 Mobile  
462.175 Motorola Rptr.  
462.575 Southridge Security Rptr  
462.950 N. Milwaukee Co City Ambulances Link to Hosps  
462.975 S. Milwaukee Co City Ambulances Link to Hosps  
463.000 Milwaukee Co Paramedic Base Main Channel  
463.025- Milwaukee Co Paramedic Base F-2 to F-8  
463.175  
463.425 Bell Ambulance Rptr  
463.900 RVS Cablevision Rptr  
463.950 Wisconsin Human Society shared Rptr  
463.975 Plankinton Mall Security Rptr  
464.325 Viacom Cablevision  
464.475 Paratech Ambulance Rptr  
464.850 Meda-Care Ambulance shared Rptr  
451.075 Wisconsin Electric Rptr  
451.150 " " "  
451.375 " " "  
451.475 " " "  
451.525 " " " South  
451.575 " " " South

(Very nice list, John...thanks for sharing with  
fellow MT readers!...Bob)

More on p.20

### While you were out... SOMETHING HAPPENED!

Now you can record all the scanner action that occurred while you were away for playback later. The Scan Record recorder coupler will automatically turn on your tape recorder when your scanner is receiving a message and route the audio from the scanner to the recorder.



The recorder runs only when a message is received. It does not run when the scanner is just scanning. This lets you record a lot of traffic on one tape. In addition to scanners, it will work with any receiver that has a squelch control.

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by Don Schimmel

**OPERATOR AIDS**

The "operator aid" discussed this month is from the publishers of the famous "JANE'S" series (JANE'S FIGHTING SHIPS, JANE'S INFANTRY WEAPONS, JANE'S ALL THE WORLD'S AIRCRAFT, etc.) I am referring to "JANE'S MILITARY COMMUNICATIONS 1979-1980". The book is very helpful in identifying the frequency capabilities of various equipment when the type of equipment in use is determined through either operator chatter or information gained from some other source.

The initial list price is indicated as \$95. However, this fine book is now again available for only \$14.98 from Publishers Central Bureau, One Champion Avenue, P.O. Box 1262, Newark, NJ 07101. Include \$2.40 for handling and shipping. The PCB Catalog Number is 391562.

Just prior to the equipment listings is a valuable compilation of acronyms and code names. These designators are freely used by both the media and military and unless an individual is currently involved in some phase of defense related work, it can be downright frustrating trying to sort out ADSCOM, APACHE, JUMP, MIRACLE, TCCF, etc.

The equipment listings commerce with sections for LF, MF/HF, VHF/UHF, Microwave and Tropospheric Scatter, Satellite, and then into such things as Line Communications, Data Transmission, Encryption, Facsimile, etc. This is followed by a section on Systems. A brief but informative technical word glossary is included at the end of the book as a complete listing of the AN numbered communications Equipment showing the number, type of equipment, user and Manufacturer. A manufacturers directory and detailed index complete the book.

**CUT NUMBER SYSTEMS**

Often encountered in CW traffic are messages where letters are substituted for numbers. This practice is commonly referred to as "CUT NUMBERS Transmissions." There are many of these systems in use. There are two main reasons for the utilization of such a system. First is the fact that

UTILITY LOG (CW unless indicated otherwise)		
kHz	DATE/TIME(UTC)	
2624	1/11 0212	"P" MARKER. AT 0213 INTO SOME TYPE OF VERY HIGH SPEED TRANSMISSION, THEN 4 GRPS BY HAND, BACK INTO HIGH SPEED AGAIN
2724	1/14 0142	5 CHAR GRPS LIKE ON 7428/7492KHZ
2777	1/29 0349	SAME AS ABOVE
2800	1/11 0221	4XZ (HAIFA NAVAL RDO, ISRAEL)
2808	1/11 0224	CCS (SANTIAGO NAVAL RDO, CHILE)
2858	1/11 0228	5 L GRPS. PROV SOVIET
2870	1/11 0239	T9VS. 5 CHAR GRPS
4422	1/14 1522	HOBNOB 36 DE HOBNOB 02.ENGLISH, MALE VOICE. TRANSMITTING DRILL, MSGS. MILITARY PRACTICE NET (LISTED IN GROVE'S SHORTWAVE FREQUENCY DIRECTORY)
4512	1/04 0148	6F GRPS, 5 GRPS IN MSG.
4550	1/11 0152	6F GRPS. OA PREV NOTED ON 13450 KHZ JUNE 19 1429Z, 13496 KHZ JUNE 11 1146Z, 13512 KHZ JAN 14 1233Z.
5390	1/14 0217	SPANISH PT
6252	1/07 1304	LIA (PREV HRD ON 7487/7492 KHZ)
6292	1/14 1820	WEATHER TFC
6988	1/14 1248	TRU
7211	1/11 2212	MIXED LTRS/FIGS
7302	1/11 2152	IDR3 (ROME NAVAL RDO, ITALY)
7434	1/14 0203	5F GRPS
13258	1/12 2044	SPANISH (MEXICAN MILITARY)
13311	1/15 1532	CLP 26/CLP 13/CLP1 (MINFORM AFFAIRS CUBA)
13390	1/21 1520	CUT NBR TFC (MINFORM AFFAIRS, CUBA)
13392	1/12 2225	USB (MILITARY/MEXICAN)
13424	1/25 2124	XIB83 (MEXICAN CALLSIGN)
13430	1/09 1244	4F GRPS
13512	1/14 1233	(6F GRPS.OA PREV HRD 4550 KHZ)
13905.6	1/14 1226	USB, VOICE MIRROR (PARIS)
13932	1/29 1240	CUT NBRS.
13965	1/14 1459	CLXW/CLXZ (CUBAN SHIPS)
13966	1/21 1234	USB, SPANISH MALE VOICE.CALLING COLEGA (WHISTLES)(SHIFTS TO 14450 KHZ AND CONTINUES CALLING) (PROBABLY DRUG SMUGGLERS)
13967	1/20 2049	PYB (BRAZILIAN)(PORTUGUESE TFC)
13985	1/09 1250	UNUSUAL GRPS
13990	1/15 1512	USB, MALES SPANISH CALLING PANMA
14520	1/04 2209	TWO TONES SENT OVER AND OVER

a given message can be transmitted in much less time; second is that the receiving operator does not have to learn all of the Morse code characters to be able to copy traffic directed to him.

Several inquiries have been received regarding the cut number breakout I had shown for traffic on two frequencies, 13981 and 13390 kHz, printed earlier in MT. There were some typographical errors in the letter/number equivalents given for that particular cut number system, corrected below.

The first system is in wide use. Notice all numbers except zero are sent in normal fashion. This particular system was in use on: 13430 kHz 11/28 1250Z 4FGRPS

1 2 3 4 5 6 7 8 9 0  
1 2 3 4 5 6 7 8 9 T

Here is one where the digits 4 and 6 are sent normal and all of the rest are sent cut. The traffic was in 4F GRPS.

1444kHz 3/17 0309Z C/S AEB  
6/21 1930Z " "  
10/22 1932Z " "  
13391kHz 12/17 1224Z NoCalls

1 2 3 4 5 6 7 8 9 0  
A U V 4 E 6 B D N T

An expansion of the previous system was noted in traffic of 5F GRPS on the following frequencies.

13426/36 1/22/83 1258 PYM DE XRT  
13441 3/15 0012 NO CALLS  
13435 6/13 2154 NO CALLS  
13435 6/19 1429 NO CALLS  
13459 6/30 1953 NR 504 W57 BT  
13116 11/26 1241 NO CALLS

1 2 3 4 5 6 7 8 9 0  
A U 3 4 5 6 7 D N T

The next one to be mentioned is one contained in the GROVE SHORTWAVE FREQUENCY DIRECTORY on page 87. The system is identified in that publication as being the system in use for 5F GRPS CW "Spy Numbers" transmissions coming from Cuba.

1 2 3 4 5 6 7 8 9 0  
A N D U W R I G M T

This system has been observed in use by some stations identified as Cuban. The identification was made per several Call Sign/Frequency publications. The

**THOSE CORDLESS PHONES...  
A little insight**

During the early years of cordless phones, 1975 to 1976, this new concept became a marketable product to revolutionize the telephone industry. In its early stages, citizen's band channels 2 and 3 were chosen to handle low power phones. These types were expensive and just experimental.

One company, Mura, produced a walkie-talkie version which worked on half-duplex leaving the base unit to transmit on 26.98, receiving on 49.86 MHz. The phone was vulnerable to interference from CBers.

Cont'd p. 26

rationale behind my assumption of the letter/number designation is given after the listing of the various systems.

13340 7/24 2330 5F GRPS, CLP13 DE CLP1  
13981 10/30 1809 5F GRPS, HAVANA IN HEADING OF PT  
13390 12/17 1222 5F GRPS, HAVANA IN HEADING OF PT MSG SENT BY SAME XMTR.

1 2 3 4 5 6 7 8 9 0  
A U W M I R G D N T

This last system was described in the Communications Confidential column of POPULAR COMMUNICATIONS, November 1983. The editor of that column had received a letter from an unidentified person who stated he was in a military monitoring unit and he was supplying some information concerning 5F CW cut number traffic heard on 4100kHz. He identified the traffic as being "illicit" and gave the following breakout.

1 2 3 4 5 6 7 8 9 0  
A U W M I R G D N T

Readers will note the system given in the GROVE publication does differ from the POPCOM version. My choice of the latter was based on the source stating he was currently involved in a military monitoring activity and therefore I thought the breakout he provided was possibly more up-to-date. In addition I speculated that the system in use for the so-called "illicit" traffic was maybe the same as the system observed in the "official" cut number traffic seen on the 13 MHz frequencies. Of course, this may not be the case at all. Perhaps some of our readers can shed some more light on this interesting but perplexing subject.

# TUNE IN CANADA



by

**Norman H. Schrein**

Since "Monitoring Times" has gone on as a monthly publication, the mail has increased two fold. There are many requests for Canadian frequency information from all over the country. I will do my best to fulfill all the requests, but patience is a must.

In an effort to conserve space, any frequency that is paired with another will have the second frequency shown on the next line, (followed by the letter "P"). Otherwise you can assume that the frequency is operated in the simplex mode.

The first bit of frequency information comes from Gilles Thibodeau. It is a listing of frequencies found in Quebec.

**Freq MHz/Agency & Callsign**

- 158.970 E.Angus P.D. XJF 328
- 148.780 CivilDefense,East Angus/CJW 918
- 151.325 Hydro-Quebec, Magog XOA 54
- 151.805 " " " "
- 152.330 BellCanada, Thetford Mines/CGD 207
- 162.300 " " " "
- 162.660 " " " "
- 156.150 Verdun Fire Dept XJF 81
- 31.000 Montreal F.D. XJF 472
- 412.4375 " " " "
- 412.4875 " " " "
- 412.7625 " " " "
- 413.2625 " " " "
- 451.3375 Atomic Energy Can Gentilly/XLM 305
- 411.600 Lac-Megantic P.D. XJF 717
- 151.520 Canadian Prison, Cowansville/XLL 298
- 153.290 CFLS Radio Tfc, Levis/CJY 638
- 152.420 Bell Canada, Hull CGD 791
- 141.360 Prisoner Transport Waterloo/XMY 802
- 149.080 Canad.D.O.C./Sherbrooke/VGA 262
- 139.350 Pinkerton Sec., Montreal/XNX 432
- 47.040 PQ Nat. Resources, La Sarre/XMM 302
- 38.420 Canad.Nat.Parks XLI 39

The next list comes from the Brantford, Ontario area:

- 162.840 Grnd Vly Ready Mix Concrete/VCN 437
- 168.405 Byron, Paul James VCN 461
- 164.385 " " " (P)
- 166.800 Peter J. Vicano, Ltd VCN 478
- 165.150 Rutter, Bernard K. VCO 742

- 166.350 Revcen Co.,Ltd. VCR 30
- 167.940 Adams, Kenneth A. VCR 46
- 168.405 EarlCampbellGrains VCR 60
- 164.385 " " " " (P)
- 168.495 Kellam, Hugh D. VCR 67
- 164.475 " " " " (P)
- 167.580 Davis Fuel Co. VCR 91
- 164.295 AbcottConstruct. VCR 98
- 168.495 ListowellTransptLns VCR 200
- 164.475 " " " " (P)
- 29.980 House, Alan VCR 830
- 29.880 Schut Ltd Roelop VCR 863
- 27.640 De-Con Interiors VCS 871
- 27.980 Walsh, William VCS 905
- 167.535 Gar-Min-Dol Holdng VCT 371
- 163.695 " " " " (P)
- 162.660 Kaczur, Paul VCV 238
- 168.525 Roy, Gerry VCV 243
- 164.505 " " " " (P)
- 170.205 Cornell Construct. VCV 271
- 168.405 John Pignotta Real- ties/VCW 358
- 164.385 " " " " (P)
- 167.460 IntercityWeldngSupp VCV 366
- 163.680 " " " " (P)
- 42.160 Haggerty Bros Const VCV 413
- 29.840 Field, Donald VCV 240
- 415.5625 Brantford Twp, ON VCV 243
- 410.5625 " " " "
- 168.525 Brown, David H. VCV 248
- 164.505 " " " "
- 171.690 H.Boehmer&Co VCV 319
- 168.405 Bell City Brands VCV 569
- 164.385 " " " " (P)
- 158.625 Mike Varga Const. VCV 765
- 162.600 McMillan, Jack VCY 680
- 168.495 R.C.Craft, Ltd VCY 717
- 164.475 " " " " (P)
- 166.860 Woodley, Ken VCY 833
- 166.140 Williams, Joseph VCY 852
- 168.525 GarnetBiederman & Sons/VCZ 374
- 164.505 " " " " (P)
- 122.800 BrantfordFlyingClub VYE 85
- 123.300 " " " "

• That's all for this time. More frequencies across Canada next month. Until then--Good Monitoring.

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(\*Option 1 required for use in the AM mode)

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by James R. Hay

TUNE UP  
DOWN UNDER

If you want a challenge, try listening for ships and coast stations from Australia.

There are twelve stations located on the mainland and two on islands - Norfolk and Thursday Islands. Perth and Sydney carry the major high seas traffic. Six sideband frequencies are used by all fourteen stations: 2182, 2201, 4125, 4428.7, 6215.5 and 6512.6 kHz.

In addition 500 kHz cw is used at Rockhampton (VIR) and both 500 and 512 kHz are used at Adelaide (VIA), Brisbane (VIB), Broome (VIO), Carnarvon (VIC), Darwin (VID), Esperance (VIE), Melbourne (VIM), Perth (VIP), Sydney (VIS), Thursday Island (VII), and Townsville (VIT). Apart from these common frequencies the stations use others which follow:

Adelaide (VIA) 472, 4272.5 and 6463.5 cw; single sideband 2056, 4413.2, 8768.5 and 13181.4 kHz.

Brisbane (VIB) on cw 435, 4230.5 and 6351.5 kHz; SSB 2056, 4143.6, 4366.7, 4400.8, 8749.9 and 13187.6 kHz.

Broome (VIO) SSB 2182 and 2201 kHz; cw 440, 4323.6 and 6407.5 kHz.

Carnarvon (VIC) (same voice frequencies as Broome); cw 476, 4339.4 and 6407.5 kHz.

Darwin (VID) cw 445, 4272.5, 6463.5 and 8487 kHz; SSB 2056, 4400.8, 4413.2, 8749.9, 8762.3, 13181.4 and 13187.6 kHz.

Esperance (VIE) common frequencies already mentioned and 435, 4323.6 and 6407.5 cw.

Hobart (VIH) SSB 4143.6 kHz and others above.

Melbourne (VIM) 430, 4228.5 and 6333.5 kHz cw; 2056, 4366.7, 8749.9 and 13178.3 SSB.

Perth (VIP)- cw 484, 4229, 6407.5, 8597, 12994, 16947.6 and 22315.5 kHz; SSB 2056, 4366.7, 4400.8, 8734.4, 8749.9, 8762.3, 13178.3, 13187.6, 17242.2 and 22630.1 kHz.

Rockhampton (VIR) 4255.6 and 6333.5 kHz cw.

Sydney (VIS) cw 440, 476, 4245, 6464, 8452, 8521, 12952.5, 12979.5, 17161.3, 17194.4, 22474 and 22495 kHz; SSB 2056, 4143.6, 4369.8, 4407, 8722, 8805.7, 13107, 13193.8, 17236, 17260.8, 22602.2 and 22664.2 kHz.

Thursday Island (VII) 488.5, 4228.5 and 6333.5 kHz cw; SSB 4143.6 kHz.

Townsville (VIT) cw 420.5, 4255.6 and 6463.5 kHz; SSB 2053, 4143.6, 4366.7, 4413.2, 8768.5, 8784, 13107 and 13193.8 kHz.

While Australia is not the easiest place to hear, it is possible, and I hope that many of you will be able to hear these stations from "the bottom of the world."

\* \* \*

As you may have noticed, in the last few months when I have been talking about coast stations I give only the coast station transmitting frequency. The reason for this is that in the first place, most coast stations retransmit what they receive from the ship, and in the second place the coast station has a much higher power transmitter than the ship and generally they are much more easily heard. In a future column I will go into more detail on the channelization of the voice and telegraphy bands and offer some suggestions of where to look for the ships.

As always I welcome your comments, questions, and suggestions. Please address your letters to: James R. Hay, 141 St. John's Blvd., Pointe Claire, P.Q., Canada H9S 4Z2.

GUEST EDITORIALS from p.2

subverting the internal order (of Cuba)."

While these charges may carry some weight in countries where only one source of news is made available, they have a familiar, yet tired, ring to any shortwave listener familiar with the program content of Radio Havana or the other outfit with permanent relay facilities in Cuba, the world leaders in jamming broadcasting bands, Radio Moscow.

I guess when they banned most things in Cuba they must have included mirrors as well.



CW Traffic Lists  
from WOO

MT writer Bert Huneault shares this tidbit with fellow listeners. Coastal station WOO in Ocean Gate, New Jersey is transmitting CW traffic lists continuously with low power superimposed on its regular radiotelephone channels.

Listen on 8749.9 and 13107 kHz for the endless tape.

PIRATE RADIO from p.5

Radio Time, in the Florence area, operates on 7105. In the past, when broadcasting just above the 49 meter band, both of these stations were widely heard in the United States.

More elusive, according to Dario, is Radio Europe International, which broadcasts from the area of Imperia on the coast of the Genoa Gulf. The station apparently transmits with rather low power on an irregular basis on 9420 kilohertz.

THOSE NUMBERS: We are sure Havana Moon will have more information on the matter, but it is interesting to note that the January 1984 issue of "Omni" included a brief article on the numbers (see "Los Numeros" this issue).

Several years ago, while doing some research on the German numbers, I had occasion to write the ITU for information on call signs used and probably registered by German numbers stations. The ITU refused to release the information. It would seem likely that they do know something about these transmissions. ●

GOVERNMENT RADIO SYSTEMS  
Northern California

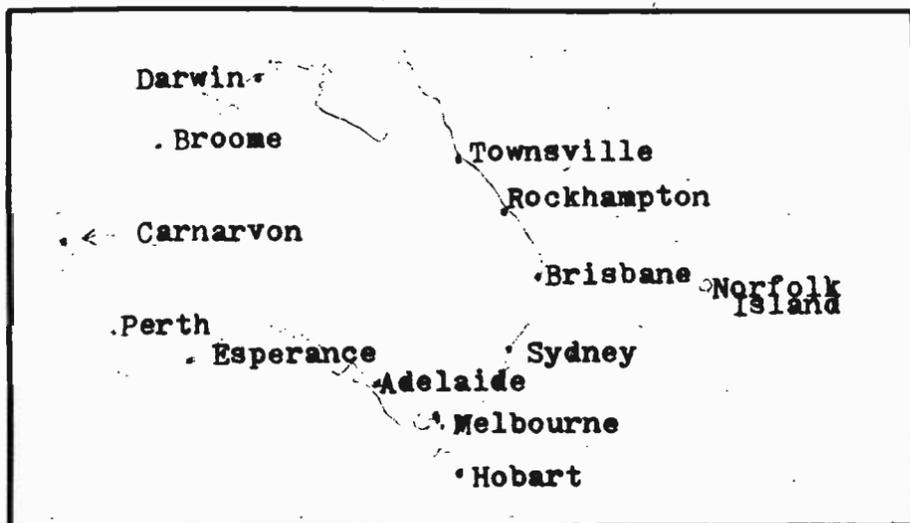
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# SIGNALS FROM SPACE



by Larry Van Horn

On December 18, 1981 the Soviet Union surprised the amateur radio community with the launch of 6 amateur radio satellites on one vehicle. RS3 through RS8 were launched from Pletsetsk, USSR on a C-1 launch vehicle.

RS3-RS8 utilize 2 meter to 10 meter transponders making these satellites easy to monitor with only a shortwave receiver. The satellites are all quite powerful by amateur standards. The downlink signal approaches power levels in the 1-2 watt range.

Soviet amateurs are limited to 5 watts of power in the 146 MHz range, therefore the RS satellites contain very sensitive receivers that have been optimized for low powered terrestrial stations.

While activity on these satellites has decreased since the launch of OSCAR 10, a number of amateurs continue to use the Radio Sputnik birds for communications when OSCAR 10 is not in range. These satellites carry several interesting features that are summarized as follows:

In general each spacecraft contains two beacons plus additional equipment.

Radio Sputnik 3 & 4 are experimental in nature; they do not contain transponders. Details of the experiments are not currently known.

Radio Sputnik 5 & 7 contain one transponder each, but no autotransponders.

Spacecraft telemetry is easy to monitor as Morse Code is used to give the satellites current health check to ground stations. Beacon frequencies for the RS satellites are as follows:

Satellite	0.5-1.5w	0.1-0.3w
Radio 3	29.321	29.401
Radio 4	29.360	29.403
Radio 5	29.331	29.452
Radio 6	29.411	29.453
Radio 7	29.341	29.501
Radio 8	29.461	29.502

The general transponders are all Mode A with non-inverting outputs. I have communicated as well as listened through these orbiting repeaters and signals are quite audible on my Panason-

ic RF-3100 receiver and Ameco preamp. For communication I am using an ICOM 290A multi-mode transceiver into a home brewed 6 element Quad antenna that can be turned in azimuth as well as elevation.

The communication transponders for the RS satellites are as follows:

Satellite/Passband	Uplink	Downlink
Radio 5	145.910-145.950 UP	29.410-29.450 DN
Radio 6	145.910-145.950 UP	29.410-29.450 DN
Radio 7	145.960-146.000 UP	29.460-29.500 DN
Radio 8	145.960-146.000 UP	29.460-29.500 DN

(UP=Uplink passband;DN=downlink passband)

Radio Sputniks 5 and 7 offer the licensed amateur operator a little extra fun with the autotransponder of Robots carried aboard. If you contact the satellite using the correct transmitting sequence, an onboard computer will acknowledge your call, assign you a serial contact number and store your call letters and contact number for later downlinking when queried by Soviet command stations.

Several amateurs have reported the receipt of RS5 and RS7 QSL cards via the Robot transponder contacts they have made. The following are the uplink and downlink frequencies up the RS 5 and 7 Robots:

Satellite	Uplink	Downlink
Radio 5	145.826	29.331
Radio 7	145.835	29.341

The following procedure should be used for contacting the Robot. When the Robot is active (calling CQ) send a few dits on the uplink frequency. If you hear your dits regenerated on the downlink you have captured the window which is 2 to 3 kHz wide.

Call the satellite (10 to 30 wpm Morse) using the following format:

RS5 DE N5FPW AR  
If you are successful Radio 5 will answer:  
N5FPW DE RS5 QSO NR 3VH  
OP ROBOT TU FR QSO 73 SK

Roughly translated: "N5FPW, this is RS5; contact is number 3VH, operator is a Robot. Thank you for the

contact! Best regards; end of message."

If the Robot only gets a partial message you may get a QRZ, QRM, or RPT. If the Robot wants you to slow down or send faster he will send either QRS or QRQ. I have found that clean, high-speed CW works the best.

The RS satellites represent the best way for monitors to get experience in listening to HF satellite comms. The satellites are also fun for the licensed ham with a minimum of cash for a satellite communication station. If you would like to try for a QSL card, send a reception report of the CW telemetry you monitored to: Radio Amateur Satellite Committee, Radio Sport Federation, Box 88, Moscow, USSR.

\*\*\*\*\*

This month I received one of the early copies of a new satellite reference for the beginner and experienced hobbyist alike, the new ARRL "Satellite Experimenters Handbook" by Martin R. Daviddoff, K2UBC.

Although the book contains material primarily for the amateur radio community, the information presented on orbital mechanics, weather satellites and TVRO satellites will be quite useful to all.

I highly recommend this book to all MT readers interested in learning more about satellite listening. The cost is very reasonable (\$10.00) and the book is available through the AMSAT headquarters, ARRL or your local amateur radio store.

\*\*\*\*\*

This month the mailman finally caught up with me and loaded me up with mail from some of the MT readers.

Stephen Padar in Florida wrote an interesting letter on his weather satellite receiving setup. Stephen receives fax pictures from the NOAA orbiting satellites as well as the Russian Meteor weather satellites.

Stephen has a 4 foot aluminum dish he is using with a down converter for the GOES geostationary weather satellites. He even sent along some pictures of some of the weather he has been watching from his impressive station. Thanks for the pictures, Stephen.

I would also like to thank Everett Wittig in Arizona and R. Michael Smithwick of California for their letters of questions and comments. Speaking of letters, if you have a question, comment or frequency information/intercept drop me a line at: Signals from Space, 1111 N. Carrier Pkwy, B-107, Grand Prairie, TX 75050. Please enclose a SASE if you desire a reply.

\*\*\*\*\*

As this column is being written, the Soviets have launched a three man crew to the Salyut 7 space station aboard the Soyuz 10 vehicle. Already activity has begun to spring up on normal Soviet space channels. I monitored Soyuz telemetry during the early orbits before docking on 20.008 MHz.

Several individuals have reported Soviet voice transmissions near 142.4 shortly after the Cosmonauts arrived on board the Salyut. They were basically carrying on routine communications concerning setting up the Salyut for their long duration mission. I will have more on this mission as the information becomes available.

## Free NASA Satellite Prediction Bulletins

FREE satellite orbit prediction charts are available from NASA. The following Amateur Radio satellites are available:

Satellite	NASA ID Number
Oscar 9	1981 100B
RS-3	1981 120A
RS-4	1981 120D
RS-5	1981 120C
RS-6	1981 120F
RS-7	1981 120E
RS-8	1981 120B
Oscar 10	1983 58B

In order to fully understand the bulletins, ask for the "Format Explanation of the NASA Prediction Bulletin." Also request the "Map Overlay Method of Hand Computing Station Predictions." This will show you how to determine viewing angles and times from your station.

Send your request to: R.V. Tetrick, Head, Project Operations Branch; NASA, Goddard Space Flight Center; Greenbelt, Maryland 20771.

Thanks to Carl S. Zelich, AA4MI, Merritt Island, Florida for contributing this item.

**“Los Numeros”**  
 32444 69213 88816 52196 63811 94216  
 Havana Moon



# Countdown on the Numbers Stations...It's only a matter of time

A Monitoring Times Exclusive

(Copyright 1984. All rights reserved, including the right to reproduce this article, or portions thereof, in any form, except for the inclusion of brief quotations in a club bulletin or review.)

**Part 1**

William Poundstone, in his new book, Big Secrets, (William Morrow) refers to "numbers transmissions" as the most interesting secret of all! You're not far from wrong, Mr. Poundstone.

Scot Morris, writing in the January issue of Omni, doesn't seem to have the answer to this secret(?) either.

And it's been stated that the FCC and ITU say that they don't know where these encrypted signals are coming from, the intended target areas, or even why!

It's also reported that the FCC and ITU would like some answers to these questions. It's even been suggested that the ITU and the FCC indicate that these mystery(?) broadcasters are unlicensed and in violation of international law!

High ranking FCC officials do not totally agree with some of these statements! The identity, locations and possible purpose of many of these broadcasters are no secret to the FCC or ITU!

One ranking FCC official says that some "numbers transmissions" have originated from the U.S.!

"...frankly I don't see what the big deal is about the 'number stations' ...and --uh --certainly, the only reason for this interest that you say is in the communications field are of the 'cloak-and-dagger'--the 'spy'--because you simply don't know what it is..."

KING HALL: FCC Signal Analysis

For friend and long-time associate Eric Conners, the month of February was quite eventful: he was able to gather semi-meaningful "numbers" information from

the FCC's Signal Analysis and Enforcement officials in just a matter of hours.

Eric (not his real name) has a natural talent for this type of information collection. He should -- he's had many years of experience on all levels.

Here are selected and edited portions of Eric's question and answer session with FCC officials. He refers to this session as a real "laid-back" conversation. Lots of cordiality and friendliness on both sides.

If errors exist, they are mine and not Eric's.

\*\*\*\*\*

King Hall (FCC Signal Analysis) was quite emphatic in his response about the recent Monitoring Times article about 5-digit and 4-digit Spanish transmission origination sites and the U.S. Government RDF station's involvement.

Hall said he questioned the accuracy of the statements contained in that Monitoring Times article. He went on to say that this was the first that he had heard about this event.

When further questioned about doubts on the accuracy of the RDF statement, he said that he was not aware of this particular RDF station providing any such information.

These--without question-- are rather confusing statements.

It must be pointed out, however, that Hall indicated that he had received one other call in regards to this RDF article.

He was obviously aware of Havana and Washington being named as transmitter sites before Eric entered into meaningful dialogue.

Hall also had some strong remarks about private citizens requesting RDF station assistance in obtaining "fixes" on "numbers" as well as other stations; he says, "No, not normally--we could not possible open the monitoring stations up to something of that nature. If we did, it would just be impossible to do our regular work..."

As far as the Omni article is concerned, Hall says that the "numbers"

statements are not entirely correct.

When pressed on these particular statements Hall said, "We in the FCC are not in that type of business. We are not, you know, into the intelligence field, so to speak. Our purpose is to monitor the radio spectrum to ensure that authorized users can operate free from interference and operate in accordance with regulations. Now, yes, we are all aware that there are these "numbers" type stations. Your guess is as good as mine or anybody's as to just what they are--it's not a two-way communication but a one-way type broadcast."

According to Hall it seems obvious (to him) that they are sending intelligence to some unknown point. He continues after a lengthy pause by stating that he does not know where that reception point is and really does not care. He says that it's none of his business and if the government of the country where the stations are located authorize it, then it's none of the FCC's business! There was some hint that these are authorized stations.

Another FCC source indicates that many of these "numbers" stations are duly registered with the ITU and are operating in accordance with international law. This source continues by saying that the FCC also knows the identity and location of many of these stations.

Hall continued his conversation by saying that there are a number of these stations in Europe, Central America and your guess is as good as mine as to what they are.

When Eric mentioned third-party RDF as indicating Southern Florida as a possible 5-digit transmitter site, Hall had a rather surprising comment. He said, "I feel rather confident that these signals are coming from Cuba and not Florida --but-- we (the FCC) would have to perform a RDF "fix" and so-forth to confirm that. Again, I'm sure we have done this in the past..."

Hall had no comment in regards to Eric's mention of strong and no-fade "numbers" transmissions monitored on the now dormant 3060/3090 kHz circuit just after 1800Z by several Florida monitors. This was a near daily event during the summer months of several years ago.

Monitoring Times readers are well aware that the above mentioned circuit is now very active on 3090/4030 kHz most of the day and evening. Signal levels are reported to be very high in Florida during daylight hours.

It's interesting to note that 4030 kHz is an active MARS frequency! Eric said that Hall paused for a very long time before expressing concern that no MARS stations had filed interference complaints with

Cont'd p.13

## CRYPTANALYSTS: A CHALLENGE

For more than 20 years four- and five-digit number groups have been broadcast throughout the shortwave spectrum to unknown recipients. Since the contents are encrypted, there is no way of determining the purpose of the transmissions.

An MT reader forwarded a typical text of one of the

messages, heard on 4670 kHz. The preamble contained the plain text spoken phrase, "Grupo 162", apparently referring to the number of groups in the text.

Anyone out there with a computer want to try his hand at deciphering this one?

All numbers translated from Spanish:

0522	3245	1547	6658	9745	5816	9156	6328	4522
8410	6140	6574	6470	5300	9721	6679	1622	3436
5645	9030	5414	0497	4479	1937	7321	5729	4624
5607	8753	0700	3058	1894	0711	9322	3109	2327
5115	5409	4516	7791	1510	2358	9042	6854	2927
2340	7908	2900	7538	2165	7568	3454	3996	0766
2125	1485	5875	2786	7731	2460	1822	6886	6880
4677	4264	0514	8967	9975	0683	3960	6830*	4596
6930	6869	9867	8900	7597	5955	0192	5612	5571
4524	4220	1307	8596	9118	7319	0440	8858	9474
1280	1326	0242	8937	4176	6989	1421	3604	4347
4008	2667	2845	2213	5110	1647	1645	0688	3960
5056	2932	5005	2065	5589	0950	5106	1462	8368
6944	5683	9195	4929	0907	1071	9806	6490	7940
0978	2299	3636	3277*	0435	9238	4450	8237	6597
5823	3984	9905	6560	9104	0491	7194	9487	2733
2345	1136	2069	8063	3645	8115	2260	7826	9751
8976	0365	7461	8454	5566	9404	6809	6626	3662

\*The number 6830 is possibly 3830, and 3277 is possibly 6277

**LOS NUMEROS from p.12**

the FCC.

Hall was continually asked if any 4 or 5-digit Spanish transmissions originated from the United States. He finally stated that he was not aware of any that do.

He would not be specific as to languages used by the European and Central American transmission sites that he had mentioned earlier.

"...in the past, some "numbers" transmissions HAVE originated from the United States..."  
 JOHN HUDAK: Chief, Signal Analysis Branch, FCC

John Hudak is not involved in the day-to-day operations as such (whatever that means). He's not at all familiar with the Monitoring Times RDF Washington and Havana disclosure.

Hudak, however, was able to provide us with much information that Hall -- apparently-- did not have access to.

He (Hudak) indicated that at one time, some "numbers" transmissions did indeed originate from the United States. He indicated that as he did not have his records in front of him that he was --at the time of Eric's conversation-- unable to remember the languages or frequencies used by those particular U.S. "numbers" stations.

It was strongly hinted, however, that they were government (Embassy?) operations and that these stations were operating in accordance with international law and that the ITU and FCC did indeed know the identity and location of some of these stations!

The "embassy" insert is mine and not that of Eric or Mr. Hudak. If these are embassy stations it's obvious that they are operating under diplomatic immunity!

It's curious, however, in this age of "hi-tech" communications why such an apparent "lo-tech" system would even be considered. The "numbers" transmissions can easily be monitored with the "cheapest" of the discount-store shortwave radios. I've done this very thing in many parts of the U.S. over the past few months. Dozens of transmissions were logged with ease with a radio costing less than a discount electric razor!

And that's not all: what about those 15 Hz interrupter tones noted by some monitors during Spanish

**SCANNING from p.4**

Washington Highway Patrol bases will use the following frequencies:

- F1 155.970 simplex
- F1 155.970 repr-receive
- F6 158.790 rptr-transmit
- FL 155.370 statewide
- FN 155.475 Nationwide

(They will also have area dispatch channels for their areas only)

transmissions? Ask your local phone company technician about these tones. Your local broadcast station engineer might be persuaded to explain just how transmitters can be activated by phone lines from distant sites. Program content can also be transmitted along these lines.

What about the possibility of some U.S. based transmitters being activated for "numbers" transmission purposes from a foreign source? If this is true, just who owns the transmitters?

And what about that Voice of America/"numbers" intermod(?) reported in earlier editions of Monitoring Times? Could this have been nothing more than a variation of the late Ma Bell's famous "cross-talk" that all phone users learned to love?

"...these 5-digit transmitter sites are indeed on the Cuban mainland! They are allowed to exist there because Fidel allows them to exist...they also exist in the United States..."  
 (quoted from a non-FCC source)

What's the meaning of this "cryptic" statement? What about the FCC and the notorious "Voice of Tomorrow?" What about those second RF sources that have been noted on some 5-digit Spanish transmissions?

And what about the FBI's involvement in these "numbers" matters?

**DON'T MISS PART II IN THE NEXT ISSUE!**

Adios,  
Havana Moon

A special thanks to Eric Connors. I owe you a couple of Tecates, Eric.

Also a very special THANK YOU to John Hudak and King Hall of the FCC. Your time, patience and kindness will not be forgotten.

Washington highway patrol mobiles will have the following frequencies.

- F1 155.970 Simplex
- F1 155.970 Rptr receive
- F6 158.790 Rptr transmit
- FL 155.370 Statewide
- FN 155.475 Nationwide

(They will also have local and bordering area dispatch frequencies.)

**UTAH**

Utah highway patrol uses numerous frequencies in the VHF high band.

- Ch 1 155.505 Statewide (no Ch 2)
- Ch 3 155.745 Car-Car
- Ch 4 155.700 State law net

One thing that is unusual about Utah Highway Patrol is that their frequencies are channelized by county.

- 155.310 Davis, Morgan
- 155.550 Pagget, Vintah
- 155.565 Garfield, Beaver, Kane
- 155.580 Salt Lake
- 155.595 Box Elder, Cache, Rich Juab, Millard, Sanpete Sevier, Wayne
- 155.625 Summit, Utah, Wasatch
- 155.655 Carbon, Emery, Grand, San Juan

Utah state police cars are white with a big yellow beehive on the door!

**MONTANA**

Very few frequencies are used in Montana; those that are used are very active. Emergency vehicles, tow trucks, ambulances, etc. are able to talk to the Highway Patrol on Highway Patrol frequencies.

- 39.820 Sheriff's network
- 39.920 Highway Patrol
- 154.815 Highway Patrol Rptr
- 154.920 " " "

**IDAHO**

Idaho Highway Patrol uses mostly UHF. Standard 10 codes are used.

- 42.240 Highway Patrol
- 42.540 " "
- F1 460.100 State Police
- F2 460.200 " "
- F3 465.275 " "
- F4 465.400 " "
- 460.300 Detectives

- 460.100 State Police, Dis 1
- 460.200 " " , District 2
- 460.100 " " , District 3
- 460.200 " " , District 4
- 460.100 " " , District 5
- 460.200 " " , District 6

These frequencies were all monitored in late 1983 so they should be accurate. Any correspondence from MT readers is welcome.

\*2200 N. Parmelee  
Compton, CA 90222

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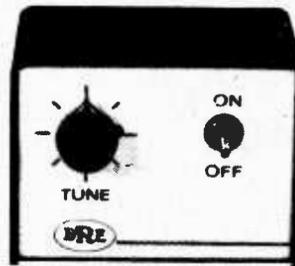
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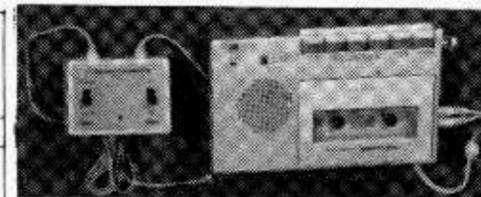
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INDEPENDENT  
NEWS  
WATCH

**A Service To The  
Broadcast Industry**

by Craig Wicks (1122 68th St. SE, Grand Rapids, MI 49508)

Americans are increasingly interested in World events and cultures. But, as most of us who listen to international broadcasts know, the window on our world can be all too small when examined from only one point of view. That's why Independent News Watch has provided broadcasters in this country with a unique alternative in world news coverage.

Independent News Watch presents news and information directly from the world's broadcasters. We regularly monitor English language transmissions from over fifty international shortwave stations. Selected items are electronically enhanced and then fed via telephone to our affiliates for rebroadcast. In addition, we listen in on the radio traffic of military, commercial, amateur, and regional public service stations, helping to keep us informed of breaking events.

Independent News Watch also produces a daily half-hour program featuring off-the-air segments as well as programming sent to us by various world broadcasters including China, Israel, Romania and the Soviet Union. Although news is the primary focus, music and informational programs are also provided.

Currently, our daily program is heard in Grand Rapids on WEHB (89.9 MHz FM). On GRTV, cable channel J/23, four programs each week are broadcast live through a remote from our studio. The cable television version premiered in November of 1982, and features shots of our monitoring facility, radio receivers, recording equipment, QSL cards, broadcasting antennas, pictures of sights worldwide and maps. The programs are not geared to the radio hobbyist.

We try to maintain an organized and efficient operation. Transmissions to be monitored are placed in a



Craig Wicks at his diversity reception studio in Michigan

weekly, one-page schedule covering twenty-four hours in half-hour blocks from Monday through Sunday. We receive many publications to stay on top of program and frequency changes, supplementing them by checking several SWL/DX programs each week. Most of this information is compiled on our computer.

Our antenna system includes a 200 foot cubical quad, and two each (North/South and East/West) of the following: 80 and 150 long-wires, inverted-V's cut for the 15, 17, and 21 MHz shortwave bands and, for VHF and UHF monitoring, three ground plane antennas and two discones.

All antennas are brought into the listening post with RG-59/U coax to an antenna patch panel. The panel consists of a 1/4 inch board drilled for as many cable television type "F" fittings as desired. Each receiver antenna input is also brought to the patch panel. By using short lengths of RG-59/U with "slipfits" (slide-on F connectors), any antenna can be used for any receiver. The antenna tuners are also on the panel.

Audio inputs and outputs are terminated in an audio patch panel. RCA type female "phono" jacks are mounted on a 1/4 inch board. Each receiver output has two jacks in parallel on the board to facilitate its use. All receivers, speakers, recorders, amplifiers, mixers, audio processors and other associated equipment are on this patch panel.

To improve the audio quality and reduce fading, we employ a method called

"diversity" monitoring. We feed two receivers tuned to the same program, with two differently-polarized antennas. By mixing the audio of these receivers we can smooth out the humps of fading.

Another method of "diversity" that we use combines the signals of two antennas through a CATV two-way splitter used in reverse. The two antennas are connected to the splitter's two outputs and the receiver is connected to the splitter's input. This method does not always work but it's worth trying, especially if you only have one receiver.

Let's follow a typical program from receiving off-the-air segments to their inclusion on Independent News Watch. After selecting the frequency and receiver/antenna combinations, the next step is recording. We use 1800 foot reel-to-reel tapes, recording one track (left or right) at a time rather than both. That way, twice the material can be stored on the same tape. We also record at 1 7/8 ips which results in twelve hours of programming for each tape.

Since we save all of the broadcasts that we record, we can cut our costs substantially. Incidentally, we never record an audio signal that has been processed. We always process after the program is recorded on the master tape.

Now that we have recorded the program on master, it has to be timed and processed. Processing involves sending the audio from the master tape through an audio filter, an equal-

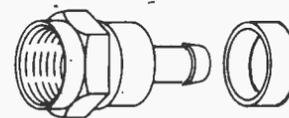
izer and then onto a cassette for final broadcast. We have found that to hear shortwave programming clearly on a television or radio speaker, the lower audio (bass) frequencies must be minimized. This is where the audio filter is very helpful, aside from removing heterodynes. We have also been experimenting with audio compression.

In its final form, Independent New Watch opens with our theme and introduction, greeting, and preview of the segments included. Each segment is credited to the station of origin at the beginning and end of the piece. We close with a look at tomorrow's program.

Independent News Watch has been serving broadcasters since 1979, helping to fill in the gaps in world news coverage. From the Hostage crisis, the Gulf war, or the attempted coup in Spain - to the Falklands conflict, the war in Lebanon, and the U.S. invasion of Grenada - Independent News Watch has provided important information and insight available nowhere else.

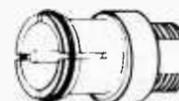
Inexpensive and efficient, F connectors provide excellent antenna line interconnect flexibility for frequencies well into the gigahertz range.

1



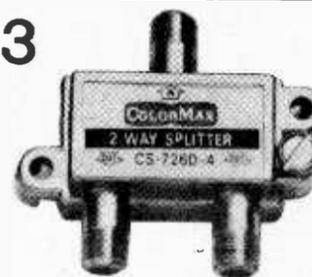
Adapts cable to 'F' series Crimp Ring included

2



Female 'F' to Male 'F' series

3



1. The ubiquitous F connector, crimp ring included.

2. Slip-on adaptor for rapid cable switching.

3. VHF/UHF splitter to operate two receivers from one antenna line, similar to Grove CPL-1 multicoupler assembly.

# The Radio Spectrum: A Gift to the Weatherwise

## PART IV

by Bert Huneault

### CANADIAN MILITARY AVIATION WEATHER (SSB)

The Canadian Military Aeronautical Communications system has a couple of frequencies dedicated to aviation weather broadcasts: 6753 and 15035 kHz (USB). Transmitters share these single sideband frequencies according to the following schedule: EDMONTON MILITARY transmits at H+20 (20 minutes past each hour); TRENTON MILITARY at H+30, and ST JOHN'S MILITARY at H+40.

These aviation weather broadcasts are very similar to the VOLMET broadcasts described in the previous section; they include terminal forecasts and hourly surface reports for airports of interest to Canadian Forces pilots.

Reports from **Edmonton** are for the following airports:

YED Namao (near Edmonton, Alberta)  
YVR Vancouver, BC  
YWG Winnipeg, Manitoba  
YQQ Comox, BC  
YOD Cold Lake, Alberta  
YCA Calgary, Alberta  
YRB Resolute Bay, NWT  
YCB Cambridge Bay, NWT  
YYQ Churchill, Manitoba  
YZF Yellowknife, NWT  
YXY Whitehorse, Yukon  
THU Thule, Greenland

For readers not familiar with Canada's Northwest Territories (NWT) and Greenland locations, the airports listed here and in the preceding VOLMET section can be located on a map at the following coordinates (latitude and longitude):

Frobisher Bay: 63-44N, 68-32W (on Baffin Island)

Cambridge Bay: 69-07N, 105-01W (on Victoria Island)

Resolute Bay: 74-45N, 95-00W (on Cornwallis Island)

Yellowknife: 62-28N, 114-26W (Great Slave Lake)

Sondrestrom Fjord: approx. 70N, 50W (Greenland)

Thule (USAF base): approx. 76-30N, 69W (Greenland)

Reports from **Trenton, Ontario** include the following airports:

YTR Trenton, Ontario  
YOW Ottawa, Ontario  
YYZ Toronto, Ontario  
YQB Quebec City, Quebec  
YBG Bagotville, Quebec  
YVB North Bay, Ontario

Reports from **St John's, Newfoundland** are for the following airports:

YAW Shearwater, Nova Scotia  
YZX Greenwood, N.S.  
YSU Summerside, Prince Edward Island  
YQY Sydney, N.S.

YQI Yarmouth, N.S.  
YJT Stephenville, Nfld.  
YYT Torbay (near St John's, Nfld)  
YQX Gander, Nfld  
NHZ Brunswick, Maine  
YHZ Halifax, N.S.  
YCH Chatham, New Brunswick  
YQM Moncton, New Brunswick  
YYG Charlottetown, P.E.I.  
YYR Goose Bay, Labrador  
YZV Seven Islands (Sept Iles), Quebec

These aviation weather reports can be copied down by means of the same symbols and abbreviations used for VOLMET reports. Note, however, that these military broadcasts include cloud types and amounts at the end of each station's report. The cloud abbreviations are as follows:

#### (a) Low clouds

CU Cumulus  
CB Cumulonimbus  
TCU Towering cumulus  
CF Cumulus fractus  
SF Stratus fractus  
ST Stratus  
SC Stratocumulus  
NS Nimbostratus

#### (b) Middle clouds

AS Altostratus  
AC Altocumulus  
ACC Altocumulus castellanus

#### (c) High clouds

CI Cirrus  
CS Cirrostratus  
CC Cirrocumulus

The fraction of the sky covered by each type of cloud is stated in tenths. For example, CU3 means 3/10 of sky covered by cumulus clouds; AS10 indicates 10/10 of sky covered by a layer of altostratus. Here, then, are a couple of examples of aviation weather reports broadcast by Canadian Military stations:

YYQ M28 5SW- -10/-12/3311/989/SC10

YQB 12 45 E90 200 15+ 15/8/2205/972/CF1SC3AC2 CS4

Decoded, these reports read:

#### Churchill, Manitoba:

measured ceiling 2800 feet, sky overcast, visibility 5 miles in light snow shower (flurry), temperature -10 and dew point -12 (degrees C.), wind 330 degrees at 11 knots, altimeter setting 29.89 inches, clouds stratocumulus 10 tenths.

Quebec City, Quebec: 1200 feet scattered, 4500 feet scattered, estimated ceiling 9000 feet broken, 20,000 feet overcast, visibility more than 15 miles, temperature 15 and dew point 8 (degrees C.) wind 220 degrees at 5

knots, altimeter setting 29.72 inches; clouds: cumulus fractus 1 tenth, stratocumulus 3 tenths, altocumulus 2 tenths and cirrostratus 4 tenths.

Note that the cloud types are always listed in increasing order of altitude, as is the case with the cloud heights and circular symbols near the front end of each report.

These hourly Canadian Military weather broadcasts can be picked up over many parts of Canada and the USA. Generally, 6753 kHz is best in the evening and at night. From my Great Lakes location, "Edmonton Military" comes in best on 15035 kHz in the afternoon.

If you are a weather buff and are familiar with cloud types, these reports will be particularly interesting to you. Because cold Canadian air masses often penetrate southeastward across the border into the USA, keeping an eye on these Canadian weather reports to the north and west will often give folks to the south and east a good idea of things to come, weather-wise.

Together with the VOLMET reports from Gander, New York and Oakland, these Canadian Military weather

reports give SWLs detailed meteorological information for over 60 different stations on our continent. Plotting this information on a map is an excellent way of keeping tabs on Mother Nature.

**NEXT MONTH: Marine weather SSB, FAX and RTTY**

## AMATEUR RADIO IN SPACE AGAIN

Although the worldwide amateur community was ecstatic over the superb publicity accompanying astronaut Owen Garriott's shuttle-to-earth ham radio contacts during his last flight, another on-board QSO is not in the foreseeable future.

Nonetheless, the Alabama Space and Rocket Center is sponsoring a "Getaway Special" (the name given to compact experimental packages) slated for a flight of the space shuttle Columbia this August.

Telemetry from several experiments including plant growth, metal processing and crystal growing will be relayed to earth on 435.33 MHz (a frequency used as an uplink to the amateur OSCAR 10 satellite), well within the listening range of earthbound scanners.

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# BROADCASTING...

## HANK BENNETT ON SHORTWAVE

Your editor has been receiving a number of reports concerning the usage of the old 1600-1800 kHz police band for the new cordless telephones. It's my understanding that the use of this band is temporary, at least until a more suitable band of frequencies can be obtained.

When the cordless telephones first came out, I didn't realize that radio frequencies might be involved that many of us could tune in; I certainly never dreamed that it would be that small band right in between the end of the standard broadcast band and the 160-meter amateur radio band!

I've been asked if it is legal to listen in on conversations that are probably being made by your neighbors. I presume that the secrecy act that protects the overseas telephone circuits would also prevail in this situation. It is completely legal in every sense for you to listen in on the conversations; you MAY NOT repeat ANYTHING that you have heard to any other person. That is the base of the secrecy act boiled down to a few words.

### A BIT OF NOSTALGIA

Back in the January and February issues we tossed a number of brainteaser questions out to you and the response that we've been getting has been a lot of good fun. As we prepare this column, it's obvious that not all of the responses are yet in, so we're going to hold off one more month on naming a winner.

In the last column we ran out of room before we had all the answers in for the January issue. The last question concerned the old but famous type 30 radio tub. Not too many of you came up with the right answer here. Bill Smith in Uxbridge, Massachusetts, particularly felt that we were referring to an old radio set that had a total of thirty vacuum tubes in it and, of course, he was thinking of the old but famous "30 Tube Custom Built Scott Philharmonic, The World's Finest Radio." This was made some 50 years ago at 4424 Ravenswood Avenue, Chicago, and we wonder what might be at that location nowadays.

We were referring, however, to the type 30 vacuum tube itself. I mentioned that it had long been a

favorite of SWLs who were ham-radio bound.

Years ago many SWLs used a small high-pitched buzzer with a six-volt battery and key attached for code practice. This surely served the purpose but it soon became more sophisticated to have a code practice oscillator that used a radio tube; this is where the old 30 tube came in. In a circuit that was about as simple as that in a crystal set, the 30 oscillator produced a much more soothing and realistic tone. This eventually led to a slightly improved version using, I believe, a type 71 tube.

We found while using the old buzzer that it had the ability to be received outside of our own radio shack. By simply loose-coupling an antenna to the buzzer it could be heard at distances of a quarter-mile or so! Another SWL up the street used to practice code with me in that manner.

The signal resonated very nicely in the area around 30 to 35 megahertz. Unfortunately, our local police department operated on 33.5 MHz and they soon got tired of the interference and called in FCC who shortly had a monitoring van in the neighborhood. That ended our two-way code practice!

Let's continue now with some more answers from the February issue. What station used the Ted Lewis version of "The Goodnight Waltz" as its sign-off theme? This was HRN in Tegucigalpa, Honduras on 5875 kHz. They used this theme for many years when they signed off around 2300 EST.

Who remembers CJRC? CJRC was once a shortwave outlet operating on 6150 kHz with 2000 watts from Winnipeg, Manitoba. I never logged it myself and it is, of course, long gone.

The U.S. standard AM station that once used (and perhaps still does) the slogan "The Goodwill Station" is WJR in Detroit. The international shortwave station that was once known as "The International Goodwill Station" was OTC in Leopoldville, Belgian Congo. We spent many pleasant evenings listening to their non-stop musical programs.

Who remembers "Radio Debunk"? This was a German propaganda station that was on the air, evenings, to the U.S. with just about every kind of verbal abuse that could be thought up. It operated during World War II in the 10-megacycle band (10,220 kHz?) in English, and was supposed to make the listener think that it originated from somewhere in the American midwest. I do not know an actual location; probably in occupied France or Nazi Germany.

What and where was W2XMN? This was Major Edwin Armstrong's first FM station located in Alpine, New Jersey. For many years the antenna tower, a massive array, could be easily seen for miles up and down the Henry Hudson Parkway along the Hudson River; the antenna itself was high atop the Palisades Mountains. I haven't been in that area for years. Does anyone know if it is still there?

What kind of stations once used callsigns such as W53PH? These were the forerunners of the present FM stations. The 53 indicated the frequency and the PH indicated the city.

Cont'd p.18

## DX'ING THE PACIFIC AM BROADCASTERS

by Bob Grove

West coast readers may wish to try their monitoring skills on a few (relatively) low power AM broadcast stations in the Pacific. The stations in Samoa, Guam and Hawaiian Islands may be heard 24 hours; thus, listeners may choose the best time to try to catch them when there is a minimum of co-channel interference.

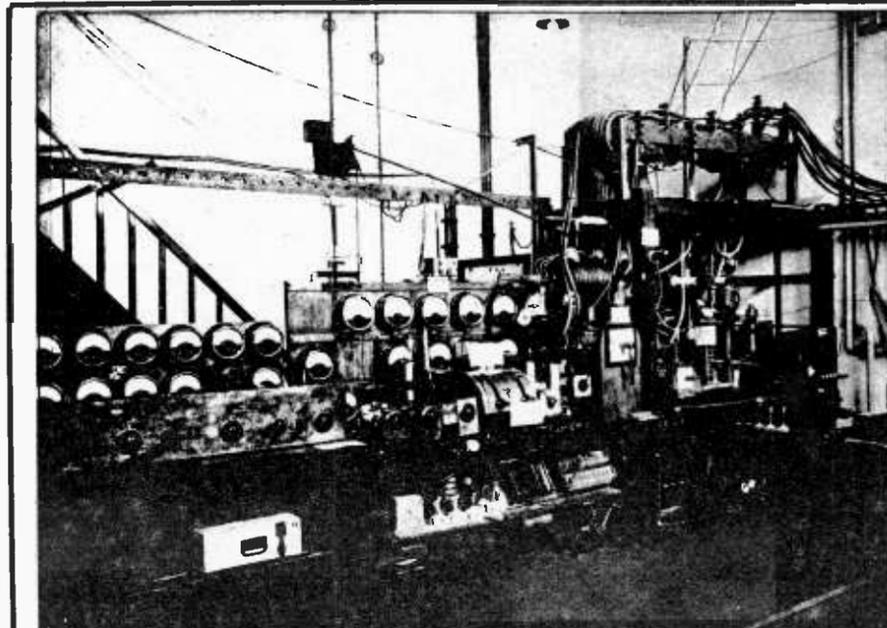
Pacific trust territories, however, are only on from about 6 AM to 12 PM, somewhat restricting their availability to listeners. Their greater distances and lower power makes them even more elusive.

Let us know how you do!

Station	kHz	Location (Lat, Long*)	KW
<b>AMERICAN SAMOA</b>			
WVUV	1120	14S, 171W	10
<b>GUAM</b>			
KGUM	570	13N, 144E	5
KTWG	800	13N, 144E	10
KUAM	610	13N, 144E	10
<b>HAWAII</b>			
KHLO	850	19N, 155E	1
KIPA	620	20N, 155E	1
KKON	790	19N, 155W	5
KPUA	970	19N, 155E	5
<b>KAUAI</b>			
KIVM	1350	22N, 159W	5
KUAI	720	22N, 159W	5
<b>MAUI</b>			
KMVI	550	21N, 156W	5
KNUI	900	20N, 156W	5
<b>OAHU</b>			
KDEO	940	21N, 158W	10
KAIM	870	21N, 157E	50
KCCN	1420	21N, 158W	5
KSSK	590	21N, 157W	5
KGU	760	21N, 158W	10
KHVH	990	21N, 158W	5
KIKI	830	21N, 158W	10
KISA	1540	21N, 158W	5
KKUA	690	21N, 158W	10
KLEI	1130	21N, 157W	10
KNDI	1270	21N, 158W	5
KOHO	1170	21N, 157E	5
KORL	650	21N, 158E	10
KPOI	1040	21N, 157W	5
KUMU	1500	21N, 157E	5
KZPP	1210	21N, 158W	1
<b>TRUST TERRITORY OF THE PACIFIC ISLANDS</b>			
KOROR(WSZB)	1500	7N, 134E	1
MAJURO(WSZO)	1440	7N, 171E	10
MOEN(WSZC)	1300	7N, 152E	1
PONAPE(WSZD)	1450	7N, 158E	10
SAIPAN(KJQR)	1350	15N, 145E	1
YAP(WSZA)	1480	9N, 138E	1

\*To closest degree

SEE PAGE 18 FOR MORE ITEMS OF INTEREST TO BROADCAST DX'ERS



The first PCJJ transmitter located in the Philips' Physical Laboratories at Eindhoven. This started operation in 1927, and was the same transmitter as "PCJ". The second "J" was often dropped by one of the announcers so as to make the letters stand for "Peace, Cheer and Joy".



# BROADCASTING. . .

## ENGLISH LANGUAGE BROADCASTS

by Tom Williamson

As I mentioned last month, reception conditions have become very touchy these last weeks due to high frequency fadeouts in the darkness hours. This situation continues to make it difficult for many international broadcasters to make themselves heard, and at times we are reduced to the 49 meter band alone (6 MHz) at night. This is obviously a very difficult problem since the radio spectrum is already overcrowded.

No easy solution is available, but the listener is advised to review the early morning dial as an alternative to some previously-audible time and frequency habit. Several European stations, for example, are now better heard around 1300-1500 U.T.C. as is HCJB in Quito, Ecuador.

A few changes have been made in our regular summary chart for the main broadcasters, including the BBC London. Please consult this to see if a new frequency gives good results in your area.

I urge you to write to me if there are other better channels in your area which are not listed here. All correspondence may be addressed to Monitoring Times.

This month we take up another subject, more specifically national or folk music.

While classical music presents certain problems to shortwave audiences such as loss of "continuity" in the music's development due to fading and distortion of the signal at times, most folk music is more rhythm-dependent. Hence--at least in your editor's humble opinion --it is better suited to the medium.

Shortwave can introduce you to a new world of musical culture; one can become an expert in any sub-variety such as Latin American music (my personal favorite) or Oriental music, and so on.

A little experience may make you into a "fan" of one type and, if so, you will be well equipped to visit your local record or tape store to look for some examples, and you will be able to avoid the "phoney" "Westernized" examples which, unfortunately, serve to mislead people as to how the real thing sounds!

I think it is a pity that many broadcasters ignore listener interest in

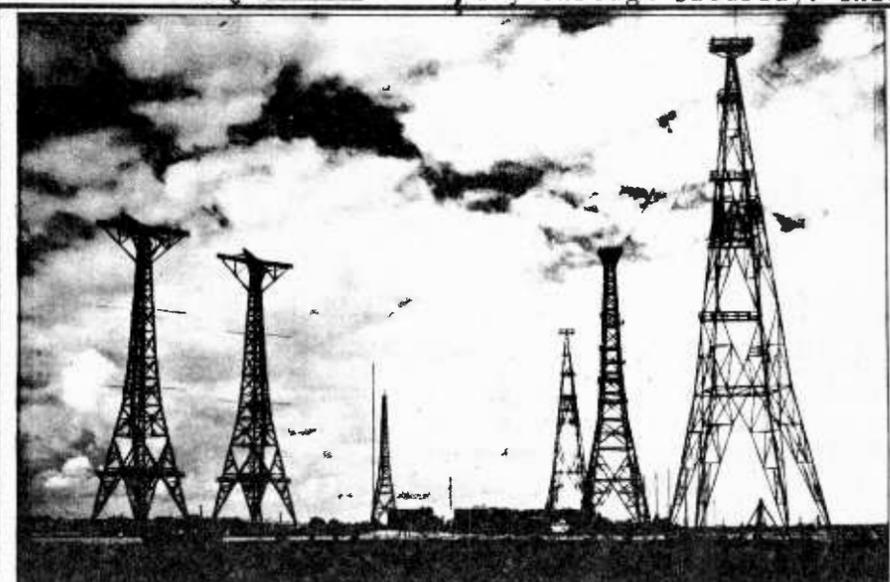
their national music to the extent that there are relatively few regular time segments allotted in their transmissions; rather, the music is used as "filler material" between spoken items. However, much music is presented in English language broadcasts between other items such as political commentaries. Several stations present segments of national music in their programs in the form of 10 to 15 minutes continuous playing, but this segment is unpredictable.

In the accompanying charts I have separated out the few stations that I am aware of who attempt to keep to a predetermined time for such broadcasts, and then those who use their music some time during the transmission schedule. This month's presentation serves only as an introduction and I hope to expand the material in the future.

Most of the selections here are from English-language broadcasts to North America, but a few items are included from other "beamed" transmissions that may be audible to us. A very few are included because they represent reliable signals and typical music of the region.

One such example is Libreville Gabon on 11940 kHz, with their big signal from the 400 KW transmitter at Moyabi. Although they only announce in French, I'm sure no one will have any problem in identifying the station. Their almost non-stop "hi-life" African dance

Cont'd p.20



A photo of the antenna park at Huizen taken around 1937. One the left are the two famous wooden rotating towers. They carry a beam antenna tuned to 9590 kHz. The wooden tower in the centre background was used as an omnidirectional dipole. The other towers were used to carry 19 metre services of PCJ, and the 16 metre service of PHOHI directed towards what is now Indonesia.

## LISTENING TO THE WORLD

by Roger N. Peterson

### A Program Guide to the BBC

If you spend time listening to programs on your shortwave receiver, the chances are that you are tuning into the BBC on a pretty regular basis. That's because, with the possible exception of the Voice of America, the BBC has more programs in English than any international broadcaster.

Ask the average listener why he tunes into the BBC and nine out of ten will probably say for the news. And for good reason. No one can match the BBC news coverage.

Last spring, while in London, I visited their new, ultra-modern newsroom with a staff that numbers over 100 and with the latest in electronic read-outs and other aides to modern communication.

News is fed into this giant machine by correspondents from all over the world, as well as by news agencies and the BBC Monitoring Service which records news broadcast by other stations in the world.

The regular BBC news programs are broadcast on the hour seventeen times a day. The chart below gives you the times and best frequencies to hear them.

The BBC gives you much more in the way of back-up and feature programs which supplements their regular news. In fact, there are some 15-20 programs of this type on daily, several days per week or once a week. The best of these is "Outlook" which is on weekdays at 1515 and 1900 GMT, and 0115 Tuesday through Saturday. This

gives you an up-to-the-minute look at people, events and opinions together with the latest UK news, sport and weather.

There are a number of programs about British news and opinions plus four business and financial news shows. Perhaps the best of these is "Network UK" which looks behind the issues and events that affect the lives of people throughout the United Kingdom. There are three editions of this each week - Mon, Wed, Fri at 2100 and repeated Tues, Thurs, Sat at 0215, 0745, 1330.

But the news is just one of the good listening type programs you can hear on BBC. Want a laugh? Tune into a program called "Letterbox". This started out simply to be listeners' opinions on BBC programs but the presenters, Margaret Howard and her associates, insert a good deal of humor into their answers to the letters. It has grown to become one of the most popular programs offered by the BBC.

Interested in new products and inventions? Listen to "New Ideas". It's a radio shop window for British industry news of the latest products and inventions of particular interest to the householder and small businessman. Hear it on Saturday at 0530 or 2230, on Wednesday 1725 and on Thursday 1115.

Those of you interested in science will want to try "Discovery" - an in-depth look at scientific research. Hear it on Tuesday at 1000, Wed 0330 or Thurs at 1430. A program called "Science in Action" is heard Friday at 1615 and Sunday at 0915 and 2209.

Book lovers will want to try "Book Choice" on Sat 0540 and 1709; Mon 2225; Wed 0440, 2225 or Fri 1740 and 2225. Also "Good Books" on Sat 2015 and Sun 1315 or Mon 0215 and 0925. "Paperback Choice" can be heard Tues 0100 and 2125.

Music lovers have a wide choice on the BBC. Classical music can be heard on "Concert Hall" on Sunday at 1515. Another favorite is "The Pleasure's Yours" heard on Sunday at 0815 and 2115 and on Thursday at 1345. For lighter and "Pop" music, listen to "A Jolly Good Show" on Tues 1345, Wed 0030 and Thurs 2030, or the "Sandi Jones Request Show" on Sunday at 1345.

Cont'd p.22

Radio Nederland



# THE ULTIMATE SCANNER RADIO HAS ARRIVED.

Starting today, we're standing the scanner radio on its ear. Because we've forged ahead—way ahead—in radio frequency and digital technology.

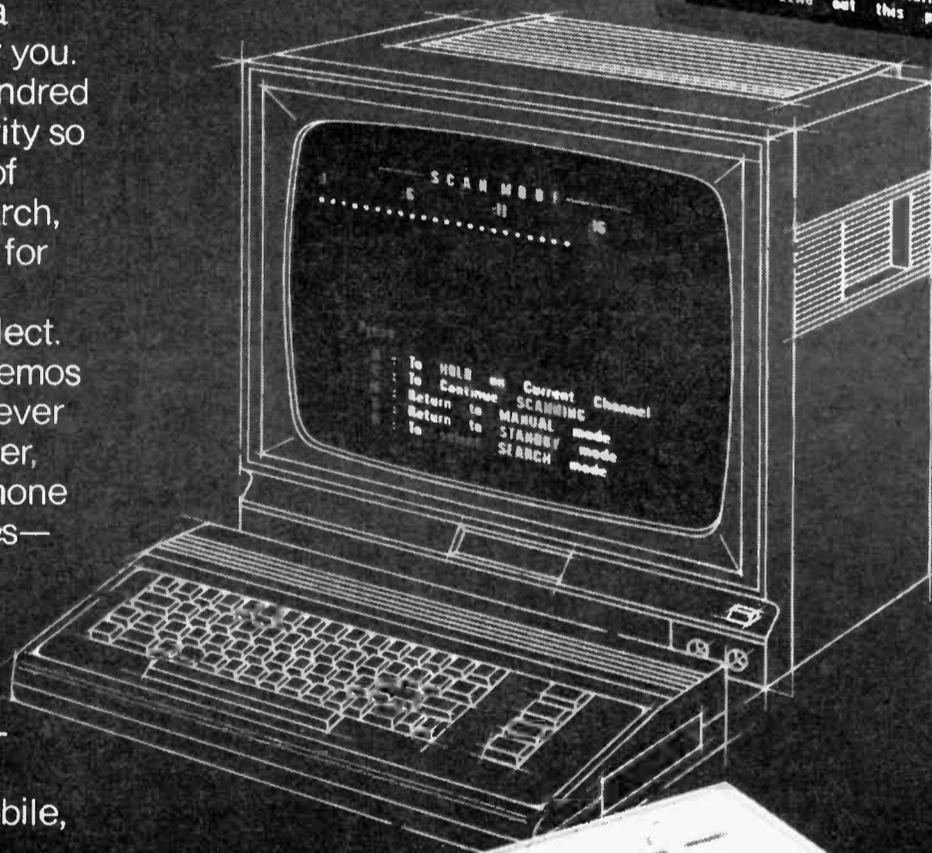
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And with automatic video memos you'll know more than you've ever known before. The channel user, special codes, jurisdictions, phone numbers, alternate frequencies—any information you've programmed is automatically displayed when the channel is active.

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## BEARCAT® SCANNERS

**Electra**  
Electra Company  
Division of Masco Corp. of Indiana  
300 East County Line Road  
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LISTENERS LOG from p.7

**HIGHWAY PATROL MONITORING  
IN THE EAST**

contributed by Dave Jones  
Dayton, OH

VA doesn't utilize aircraft  
for traffic enforcement!

**MARYLAND STATE POLICE**

- 39.100 F1 Statewide; air-  
craft W & Cntrl MD
- 39.140 F5 Annapolis
- 39.240 F8 Berlin
- 39.260 F2 Statewide; Air-  
craft E. MD
- 39.300 F3 Easton
- 39.320 F6 Rockville, Stev-  
ensville
- 39.340 F4 Hagerstown
- 39.400 F12 Fredrick

**OHIO**

- 45.02 F3 Statewide Inter-  
system; Aircraft,  
Radar, Turnpike\*
- 45.10 F4 Statewide Spe-  
cial Ops; Aircraft,  
Radar\*
- 154.710 Ohio Turnpike Com-  
mission-Ohio State  
Patrol (OTC-OSP)
- 155.370 OTC-OSP Interagency
- 155.685 OTC-OSP Rptr\*
- 155.790 OTC-OSP Rptr\*
- 156.090 OTC Maintenance  
Supervisor
- 156.135 OTC Maint. mobiles-  
maintenance Rptrs
- 158.985 OTC Maint. Rptr
- 159.165 OTC Maint. Rptr
- 159.150 OTC-OSP
- 159.210 OTC-OSP(supervisr?)
- 465.375 PSC Rptr(statewde?)
- 465.525 OSP Mobile relay  
equip-turnpike ops
- 465.550 OSP MRE Central OH

\*=Main activity on this Ch.

**PENNSYLVANIA**

- 154.755 PA State Police:  
Car-car, Aircraft
- 156.195 PA turnpike, input  
to 159.045
- 156.225 PA turnpike, input  
to 159.075
- 159.045 PA turnpike, Rptr-  
maintenance&police
- 159.075 PA turnpike, Rptr-  
maintenance&police

**VIRGINIA**

- 154.665 VA State Police:  
Car-car, N.VA (DC  
Metro)
- 155.460 " " " :mobile-base,"
- 159.135 " " " :base-base  
Rptr, " "
- 155.445 " " " :mobiles-base;  
I-95 Gtwn DC&Rich-  
mond; also I-81, I-  
64 Williamsburg to  
VA Bch KIC 410
- 159.165 " " " ; Base, base  
Rptr; same as above
- 154.665 " " " : car to car;  
same as above
- 159.000 " " " : Base, Rich-  
mond I-95/I-295;  
KIC365
- 158.985 " " " : Base I-64  
Richmond&Williams-  
burg
- 155.595 " " " : Base(located  
in Richmond) I-95 S  
of Richmond, I-64 W  
of Rchmnd

**SHORTWAVE AIR & SEA  
COMMUNICATIONS**

contributed by Gary Jewell  
Allentown, PA  
(MT reader Gary Jewell  
shares this neat little fre-  
quency file program printout  
which he has written for his  
home computer. Entries are  
in order of frequency (kHz),  
mode (USB), identification  
and file number.

Cross-referencing the  
file number, Gary has a more  
detailed list which includes  
date/time group of inter-  
cept, traffic heard and  
relative importance of the  
frequency.)

- VOLMET**
- 3485
- 4430
- 4722 RAF
- 5640
- 5641
- 6605
- 6754
- 10052
- 13271
- HS RT**
- 4422 CH04-22
- 4746 NOT LISTED
- 8216 CH08-08
- 8223 CH08-10
- 8238 CH08-15
- 8271 CH08-26
- 8723 CH08-02
- 8731 CH08-05
- 8793 CH08-25
- 8794 CH08-25
- 13145 CH12-15
- 17261 CH16-10

- CAP**
- 4466 NY F1 NET
- 4586 N CAROLINA
- MARINE SIMPLEX**
- 4067 ?
- 8291 8 ALPHA
- 8294 8 BETA
- 16588
- 16590
- 16593

- USCG**
- 5320
- 5692 AIR
- 5696 AIR
- USAF**
- 5700 DATA FEED
- 6751 MAC
- 6761 SAC QUEBEC
- 8747 SAC ALPHAI
- 8990 MAC
- 11179 SAC SM
- 11183
- 11243 ALPHAI
- 11246
- 11264

- AERO**
- 5574
- 5599 559ER
- 5616
- 5649
- 5673
- 8825
- 8918

- UNIDENTIFIED**
- 4067 MARINE SIMPLEX?
- 5690 8241 8257 8866 8966
- 8969 8974 11215 13977

ENGLISH BROADCASTS from p.17

rhythms may leave you feel-  
ing quite exhausted(!) and  
you will soon appreciate the  
connection between this  
music and that of the Carib-  
bean (notably Cuba, where  
the blend of African slave  
music and Spanish influence  
produced what is called  
"Afro-Cuban" rhythm.)

Fast rhythms like these  
are characteristic of the  
Latin American music of the  
Caribbean and coastal areas  
of the continent (termed

collectively MUSICA COSTENA  
in Spanish). We hear these  
melodies especially from the  
island republics like Haiti,  
Dominican Republic, Cuba and  
the coastal regions of  
Colombia and Venezuela.

Figure 1 presents a se-  
lection for your listening.  
Other selected frequencies  
are:

- TURKEY 9560
- BRASIL 15290
- SPAIN 17660 15395 11920  
9570 (Spanish)  
11800 9630 (Eng)

**NATIONAL MUSIC...selected fixed schedules**

- HCJB Quito "Music of Ecuador":Sun 0300/Mon  
1000/Thurs 0245/Fri 2145
- RADIO MOSCOW "Music Show":Sun/Tues/Sat. at  
0045-0245-0545-0745
- VOICE OF TURKEY "Turkish Music Explained":Thurs  
Ankara 1200-1300/2200-2300
- ISRAEL "Music from Israel":Mon 2230/0100
- BRASIL Radio Nacional "Sunday Special":0215
- SPAIN Spanish Foreign Radio (Madrid):Musica  
de Espana 1200, Nuestra Musica  
1300 (Weekdays to Europe; times for  
North America not known.)

FIG. 1

**NATIONAL MUSIC..recommended stations for typical  
styles, heard during English broadcast periods (ex-  
cept as noted).**

- AFRICAN rhythms: Gabon AFRICA NUMERO UN 11940  
(French only)
- ORIENTAL MUSIC: Radio Beijing 11860; 9860  
Radio Cairo 9805 ; 9475  
Voice of Free China (WYFR relay)  
5985
- EUROPEAN FOLK MUSIC:Radio Tirana 7070/7120/7300/9750  
Radio Portugal 6060/6075  
Voice of Greece 9865/9420
- LATIN AMERICAN MUSIC:  
Andean: R. Nacional del Ecuador 15350  
(a new transmission, around  
2200-2300,Span only)  
Musica Costena ("Tropical"): R.Havana(Cuba)  
R.Clarin(Dom.Rep.) 11700  
Ecos del Torbes(Venezuela) 4980  
(the latter two have occasional  
English announcements)

FIG. 2

**ENGLISH BROADCASTS/Principal stations/Sel Schedules**

- BRITAIN:BBC 1200/1300 21660 15215 11775 6195 5965  
2300/000 9590 9515 7325 6175 6120 5975  
0200-0600 9515 7325 6175 6120 6005 5975
- U.S.A:VOA 2200 15600 15580 15445  
000/0200 17730 15205 11740 9650 6130  
5995
- S.AFRICA:R.RSA 0200 11730 9615 5980
- R.AUSTRALIA 1100/1200 9580 6040 5995  
0200/0300 17795 15320
- ISRAEL 0000/0230 11655 9815 7410
- ECUADOR HCJB 1200/1530 17890 15115 11740  
0030/700 15155 11910 9745 6095  
(Selection)

FIG. 3

# RTTY/FAX

## FACSIMILE LOG 1984

by Mike McCloskey

(MT reader Mike McCloskey has a seven-acre antenna farm and a variety of high quality military surplus receivers with which he monitors facsimile broadcasts from around the world.

We are grateful to Mike for sharing his list of verified loggings and would appreciate our readers sending in corrections and additional loggings for a proposed facsimile directory which we will make available in a few months. Please send your facsimile listings to Bob Grove, Monitoring Times, P.O. Box 98, Brasstown, NC 28902.)

☆☆☆

Several years ago, as I scanned through the HF spectrum, I would run across pulses which I assumed were some kind of time station like WWV. I never could figure out the various tones which were associated with the pulses, writing them off to some kind of encryption or data. It wasn't until about 1973 when my outfit, the 149th Mobile Comm Sq (now the 149th Combat Comm Sq, Air Nat'l Guard), obtained an MSQ-10 weather intercept van and I discovered that those pulses and tones were actually facsimile transmissions!

To me facsimile is an extremely fascinating, but neglected, part of SWling, due in part to the high cost and/or difficulty to obtaining a facsimile machine. Most fax transmissions are at 120 scans per minute, but there are still a lot of stations out there (especially Soviet) which transmit at 60 and 90 scans per minute. Also there are

photofax picture transmissions (UPI, AP, ANSA etc.) and newspaper (Japanese and Russian) which are transmitted at 60 scans.

Unfortunately, there are few companies which sell facsimile machines with variable scanning rate capability. Old military surplus machines are available, though often hard to find. My particular machine is a AN/UXH-2C which I have refurbished.

I've whiled away hours on end copying weather maps from all over the world, AP & UPI photofax, Japanese and Soviet newspapers, and some strange transmissions which I have not been able to figure out yet!

I find it interesting to have an idea of what the weather will be like anywhere in the world, and I especially enjoy checking out our local weather people for accuracy. Then there are the photofax transmissions of pictures which appear one or two days later in the local papers. These, coupled with the various news services, give me a better view of the world situation than the local limited services can.

Another useful thing about facsimile is that you learn from it. I have surprised myself by forecasting weather one or two days in advance, both locally and worldwide. I have also begun to recognize certain characters which appear in Japanese and Soviet papers. I am considering taking a couple of courses in these languages!

So you see, as I said, it's a fascinating side of SWL, and you'll have many hours of enjoyable SWling ahead.



(All frequencies copyrighted by Monitoring Times - 1984)

FREQ	CALL	LOCATION	SCAN/MIN	OP TIMES
2122	NPM	Hawaii(USN)	120	
2179.5	NPM	Hawaii(USN)	120	
2554	NPN	Guam, Mariannas Is	120	0900-2200
2618.5	GFE 25	Bracknell, Gt Britain	120	1800-0600
2815		Moscow, USSR	60/90/120	1800-0510
3253	VRC 3	Frogisher NWT, Canada	120	6/1-10/15
3280		Tashkent, USSR	60/90/120	H24
3289.5	GFA 21	Bracknell, Gt Britain	120	H24
3357	NSS	Norfolk, VA (USN)	120	
3365	JMJ	Tokyo, Japan	120	
3377.5	NPN	Guam, Mariannas Is	120	0900-2200
3622.5	JMH	Tokyo, Japan	120	
3650		Madrid, Spain	60/120	
3695.8		Hamburg, Germany		
3713		Rota, Spain		
4014	ZRO 5	Pretoria, S. Africa	120	1730-0300
4037.5		Stockholm, Sweden		
4047.5	FTE 4	Paris, France	120	1930-0600
4235		Monsanto, Portugal		

4247.85		Northwood, Gt Britain		
4268	CKN	Esquimalt, BC, Canada	120	
4271	CFH	Halifax, Nova Scotia	120	2200-1000
4298		Kodiak, Alaska		
4344.1	NMC	San Francisco, CA	120	0100-1500 0700-2300
4445		Novosibirsk, USSR	90/120	1140-2350
4475		Novosibirsk, USSR	120	1140-2350
4495.5	CKN	Esquimalt, BC, Canada	120	
4505	KWAS	Washington, DC to Azores		
4516.7		Panama Canal Zone	60	H24
4526	SUU 36	Khabarovsk, USSR	90/120	H24
4562	KWAS	Cairo, Egypt		
4610	GFA 22	Washington, DC to Azores		H24
4777.5		Bracknell, Gt Britain	120	1800-0600
4793.5		Rome, Italy		
4802.5	KWAS	Washington, DC to Azores		H24
4975	NPM	Hawaii (USN)		
4975	NPN	Guam, Mariannas Is		0900-2200
5037.5	NSS	Norfolk, VA (USN)		
5090	KVM 70	Honolulu, HI	120	3215-0106
5100		Tashkent, USSR	60/90/120	
5127	AXM 32	Melbourne/Canberra, Aust		
5185	LRO 69	Cairo, Egypt		
5206		Buenos Aires, Argentina	120	
5210		Rota, Spain		
5285		Novosibirsk, USSR	120	1140-2350
5335		Tashkent, USSR	60/90/120	H24
5355		Moscow, USSR	60/90/120	H24
5405		Novosibirsk, USSR	90/120	H24
5405	JMJ 2	Tokyo, Japan	120	
5525	BAF 6	Beijing, China	120	
5745	KWAS	Washington, DC to Azores		H24
5755	AXI 32	Darwin, Australia		
5817.5	KWAS	Wash, DC to Azores		H24
5850	OXT	Copenhagen, Denmark	120	0030-1005
5865		Wellington/Auckland, New Zealand	120	0600-1800
5915	ZLZ 20	Wellington/Himitangi New Zealand	120	
6330	CFH	Halifax, Nova Scotia	120	2200-1000
6436		Northwood, Gt Britain		
6460	NPN	Guam, Mariannas Is		0900-220
6492.35		Northwood, Gt Britain		

FREQUENCY FILE TO BE CONTINUED NEXT MONTH!

# Multimode Video on the 6060

by Gerry Gore

Now that you have your RTTY system up and running, and have purchased a frequency list of all the known stations in the universe, you're ready to do some serious RTTY work.

As you try tuning in different signals that sound like RTTY you notice that nothing readable is showing up. No problem. You read in the instruction sheet that if you had bad copy simply invert your signal. Well, maybe; but don't count on it!

You could have guessed the speed wrong. So you start all over again at a different speed. Finally, just when you get everything going well and start to get good copy, it's not in English!

You move up the band a bit and find another good signal. You try "inverted" on the T.U. (tuning unit or demodulator), then all the different speeds, inverted

## LISTEN TO WORLD from p.17

If you like listening to plays on radio, try "Play of the Week" on Sun at 1830, repeated Mon at 0030 and 1200. "Radio Theater" is heard on Sun at 1915 and Sat 0030 and 1330.

Finally, don't forget Alistair Cooke's "Letter from America" which is heard on Sun at 0545, 1115, 1645 and 2115. It's one of the best programs on shortwave.

The above is just a smattering of what's available from London. If you like the BBC programs you should subscribe to "London Calling" - a monthly program that gives you all of the forthcoming shows. It costs about \$13 per year. You can get a sample copy free by writing to the British Broadcasting Authority, 630 Fifth Avenue, New York, NY 10019.

Another way you can keep up with BBC programming is to listen to a program called "Look Ahead". It previews programs for the day and can be heard daily (ex Suns) at 0940 and Mon-Fri 1943. Another program, called "In the Meantime", is on at better times for many of us - Thurs 2120, Fri 0150 and 1115. This tells you what is new on BBC programs.

Finally, you ought to check on a program called "Waveguide" which is all about BBC frequency changes and alterations. Mon 0915, Tues 0100 and Wed 0430 and 1735.

again. Still nothing is working. There must be something wrong with that guy's RTTY signal!

It's about right here that the newcomer to the hobby will start asking himself a few pointed questions. Did I buy the right book? Is my equipment working OK? Well, chances are you're probably OK on both accounts provided you have seen good copy at some point.

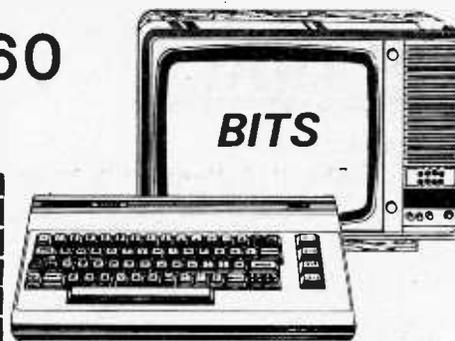
If you have been doing your copying with one of the programs written for the ham bands, you probably wish the program could do other things instead of transmit. For instance, wouldn't it be nice if the computer could tell you what speed the RTTY signal is? Or how about the ability to determine if you're dealing with a signal with no stop or start bit? This could also be used to see if the signal is "right side-up" (normal mark/space) like we want it. Putting in bit inversion would also seem a good thing to do.

What if we could display the received signal on a computer screen? If we could do that it would be worth our time and effort.

Most people who have computers have probably tried their luck on the computer bulletin board. Most of these have a MENU mode and an EXPERT mode. The EXPERT mode makes it nice and easy to use without wading through all those menus just to change something. This is of particular interest for a SWL-RTTY program due to the above-mentioned problems.

A new era is here for the SWL-RTTY hobbyist. All the functions mentioned above have been implemented into the Radio Shack 32K TRS-80C Color Computer. This is the first home computer to use the 6809 processor chip.

 Cont'd next page



by Mike Edelson

## The Coleco Adam Computer

This month I will review the new ADAM computer system. ADAM is manufactured by Coleco; it is sold as a single package and cannot be expanded. Its memory size of 80K is fixed and cannot be expanded. While this is fine to start with, the time may come when 80K is not enough, but it can't be altered. If you are looking at the ADAM system, consider whether you'll ever need more than 80K of RAM.

ADAM comes with a built-in word processor program. While this program is good, it is not powerful. It lacks the sophistication of such word processing software as WORDSTAR or SCRIPTS-IT. If you want a system for word processing, consider one of the other available systems.

ADAM has its own printer. This printer is of the daisy wheel type (the print element is a wheel shaped like a daisy). Its printing speed is 100 words per minute which is considerably slower than the printers available for any other system. Most printers work at hundreds of characters per second and up. So the fact that this machine is printing at 100wpm makes it very slow, about as fast as a professional typist.

Data storage is in the form of cassettes; there is no provision to add disks to the system. While cassettes do have some storage advantages, disks are better as they can store more data and are more efficient (see my previous article on HOW TO BUY A COMPUTER).

This now leads me to comment on the one true fatal flaw in the ADAM system: the absence of any of the standard protocols or hookup jacks (RS-232, IEEE-488, etc.) This would mean that you cannot buy other devices to add on to the ADAM-computer. ADAM cannot communicate with other computers, either.

ADAM is a good concept, a total computing-system-in-a-box for about \$700, but remains a fancy game-playing system (it does have joysticks). It could be useful as a first system or to teach children how to use a computer, but for any other purpose it is a far cry from acceptable. ADAM is a toy.

\*\*\*\*\*

I recently received a letter from someone who is using an APPLE II; he wanted to know if there is a device or program to make his printer more efficient. Since efficiency is measured in different ways, I am going to guess at what he means.

Most home computers can do only one thing at a time, either computing or printing. But wouldn't it be nice if the printer could be printing while the computer is computing? This can be done using a device called a print buffer, a peripheral device that connects between the computer and the printer. It accepts chunks of data going to the printer from the computer and stores them up until the printer can get to them. This means that the computer can be doing one thing while the printer is doing a print run.

The device can be of some help if you do a lot of printing and computing and need to speed both areas of activity up. The way the buffer works makes it seem as if the computer is always computing, but it is taking some time to communicate with the buffer which, in turn, communicates back and forth between the printer and computer.

I would also like to ask you for feedback. I am considering offering to my readers a generalized course in programming; you will learn to program by writing programs from directions I will provide. If there is enough interest in this, I can begin as early as next month. Please write me if such a course is of interest.

As always, your comments, questions, criticisms, etc. are always welcome; feel free to write me at P.O. Box 203, Roselle Park, NJ 07204. ●

A GUIDE TO BBC WORLD NEWS BROADCASTS						
TIME (GMT)	BEST FREQUENCIES (MHZ)					
0000,0200,0300	5.975	6.005	6.12	6.175	7.325	11.75
0400,0500,0600	5.975	6.12	6.175			
0700	5.975	6.175	9.510			
0800,0900	9.510	15.070	21.71			
1100,1300	59.65	6.195	11.775	15.070	15.215	21.71
1600,1700	9.515	9.74	15.070	15.260		
2000,2200	5.975	6.175	11.75	15.26		
2300	5.975	6.12	6.175	7.325	9.915	15.26

Frequencies effective as of Feb 1984. Look for a few changes in the spring. The above frequencies are, for the most part, effective for other BBC programs at the hours shown.

# BEHIND THE DIALS

## MIDWEST MOBILE MONITOR ANTENNA



The selection of an appropriate antenna for mobile scanner operation is every bit as critical as that for a base (fixed) location.

Several tri-band mobile antennas are on the market, some good, some bad. And price is not always the criterion.

Recently, we had the opportunity to field test a new entry, the MON-32 from Mid-West Electronics (Dept. MT, 228 Fassett St., Toledo, OH 43605) and we were impressed with what we saw (and heard).

The MON-32 consists of a 36" vertical element with a decoupling trap (lowband loading coil) approximately midway. A 17-foot length of RF-58/U cable and mating Motorola plug are included.

The antenna is entirely factory-preassembled on a strong six-pole magnetic base and the suggested list price for the package is \$38.81.

Designed for 25-50, 130-174 and 450-512 MHz applications, the actual VSWR measurements are impressive: 1.5:1 @40 MHz; 1.12:1 @160 MHz; and 1.02:1 @480 MHz. It is unusual for a manufacturer to publish VSWR measurements with monitor antennas due to their usual poor matching. This was a refreshing exception.

The basic whip antenna unit is available separately as the MON-3 (\$21.96) for custom installations; it has a standard 3/8 x 24 thread. A trunk lip mount antenna assembly is available as the MON-30 (\$38.81). Either trunk or magnetic mount may be ordered with a base spring for an additional \$3.33.

### OUR TEST

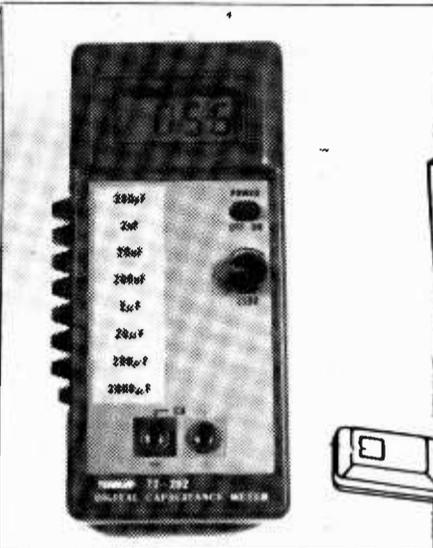
A Bearcat 220 was mounted on the seat of a pickup truck; the MON-32 stuck to the roof of the cab. A competitor's reference antenna was attached to top of the rear truck sidewall, midway back.

After several select frequencies were checked in low, aircraft, high and UHF bands, the antennas were switched in position and the same frequencies were tested

again.

The Mid-West MON-32 was consistently better than the competitor.

In fact, about the only criticism we could find would be to recommend more adhesive to hold the magnet in place; it came loose on our sample and had to be re-glued. No problem.



## DIGITAL CAPACITANCE METER FROM MCM

How often have you wished you could confirm the rating of a capacitor? Measured the actual setting of a variable capacitor? Determined the range of a trimmer capacitor? The digital capacitance meter from MCM will do all of these.

Boasting an accuracy of 0.5% and 0.1 pF resolution from 1 pF to 1999 uFd, the hand-held meter is lightweight and inexpensive.

Operating from a nine-volt battery, the flexible meter needs only a half second to sample before displaying its measurement on a large half-inch LCD display.

A front panel fine adjust allows zeroing of the display for precise measurement, guaranteed by a crystal time base. The unit comes with a set of plug-in alligator clips and a one-year warranty.

### OUR TEST

Eager to sample some unknowns in our salvage bin, we carried our little meter up to the engineering department and secured a handful of capacitors from the parts drawers.

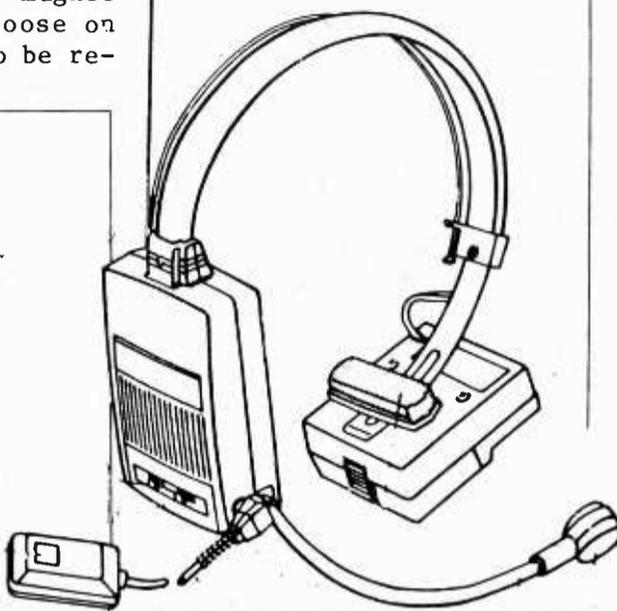
Several disc and mylar capacitors of various suspicious values were selected and plugged into the waiting meter. Immediately, bold characters informed us that some were properly marked, some were not.

Obviously, in critical production requiring accurate capacitance or matched values, the MCM meter would be invaluable.

(Digital capacitance meter #72-040, \$59.80 from MCM Electronic, Dept. MT,

858 E. Congress Park Drive, Centerville, OH 45459-4072. Free catalog of products and components, phone toll-free 1-800-543-4330).

## TECH TALK PERSONAL RADIO COMMUNICATOR



Recently, a number of clever two-way headsets have emerged on the hobby market with impressive range. We decided to sample a pair of these, the PRC-2 "Tech Talk" (\$69.95 per unit; from Advanced Videotech, P.O. Box 122, Dept MT, Southampton, PA 18966).

Operating from a standard nine-volt battery, the miniature transceiver utilizes a short whip antenna for communications between two mating units, paired for any one of five standard license-free channels in the 49.83-49.89 MHz low power band.

The versatile headset radios are equipped with VOX (voice-activated transmit) for hands-free operating such as necessary during antenna erection and coordination with ground personnel, hunting and hiking, paramilitary maneuvers and other applications limited only by the imaginations of the users.

An optional (but included) push-to-talk remote switch allows manual transmit/receive control when VOX operation is not practical. Alternatively, the push-to-talk feature may be activated by a pushbutton on the headset.

A call feature permits the transmission of a loud attention-getting tone if the headset has been removed but is still on "receive". A two-position Lo/HI volume switch permits the unit to be operated in high ambient noise environments as well as normal background use.

### OUR TEST

Soliciting the cooperation of a precocious 12-year-old is never a problem

when there is a new product to be tested here at MT!

Adjusting the headsets from comfort, we took off for the woods. Solid communications in excess of 1/4 mile were realized and, under ideal line of sight conditions, about 1/2 mile might be anticipated.

The voice-activated transmitter required normal speaking volume (no whispering!) with the lips quite close to the mouthpiece. A short delay before activating takes some getting used to, similar to the early days of VOX amateur radio operation, which leads to the irritating habit of starting "...Ahhh..." before each transmission.

The padded earpiece afforded comfort and the lightweight headset was no burden. Audio clarity was distinct and the FM mode provided dependable low-noise communications.

## DX'ING

### THE CANADIAN NORTHWEST

An anonymous contributor shares these HF catches with fellow MT readers:

4425 Caron Diamond Drilling, Mayo, NWT/CJP 516

4501 Dept of Indian & North Affairs, Frobisher Bay, NWT/XLM 564

4603 Aquitaine Co of Canada, Frobisher Bay, NWT/XNR 687

Some participants on these nets still operate in AM mode, while most use single sideband. These are rare catches, excellent quarry for the dedicated DX'er!

Long-term monitoring of these frequencies will reveal an expansive point-to-point network in the Canadian outback!

### MULTIMODE VIDEO from p.22

With that chip the TRS-80C can at present copy and display: RTTY, weather satellite facsimile, CW, slow scan TV, as well as provide other (normal) computer functions. For those that worry about operating systems, I believe there are now four different ones implemented on it (FLEX, OS-9, CPM and its own).

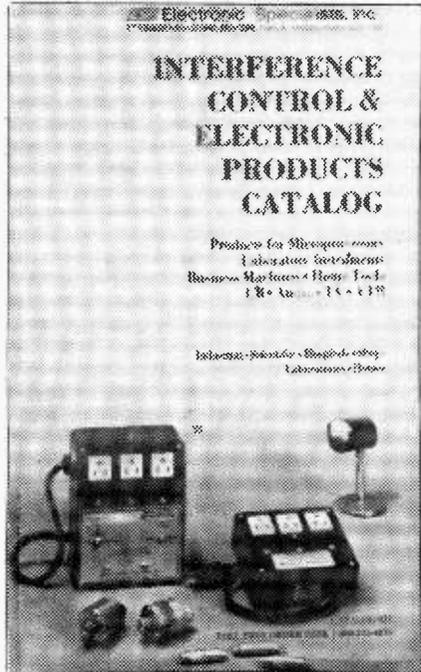
If you are interested in copying any of the modes mentioned on the Color Computer drop me a line and I'll be happy to fill you in on what it takes and how to do it. HAPPY SWL'ING! ●

Gerry Gore  
7023 Castleridge  
San Antonio, TX 78227

# NEW ARRIVALS

## ESP EQUIPMENT PROTECTION CATALOG

A new 40 page catalog from ELECTRONIC SPECIALISTS presents their line of communication equipment protective and interference control products, including isolator, power line filter/suppressors, voltage regulators and MODEM surge suppressors. Request catalog 831. (Electronic Specialists, Inc., Dept MT, 171 South Main Street, Natick, Massachusetts 01760; phone: (800) 225-4876.



### A GLANCE AT THE INTERNATIONAL SCENE

All of us have had the pulse-quickening experience of seeing promotional literature in magazines designed to attract our attention, only to discover that the merchandise is not really available.

Let's take a closer look at some interesting equipment on the international scene along with addresses of where to write for more information.

### FDK POCKET SYNTHESIZED VHF MONITORS

Two new synthesized single-frequency monitors from FDK International Corporation (10-2 Kaji-Cho 2-Chome, Chiyoda-Ku, Tokyo, 101 Japan) offer aircraft and high band choices.

The RX-40 allows 141-180 MHz reception in 2.5 kHz steps with adjacent-channel rejection of 70 dB.

The ATC-720SP is for 118-136 MHz AM aircraft applications and provides 25 kHz steps. Both receivers are dual conversion super-heterodynes, supplied with rubber ducky antennas.

With wholesale prices in distributor quantities in the \$100-\$150 range, retail prices of \$200-\$300 should be expected.



### ESKA POCKET SHORTWAVE RECEIVERS

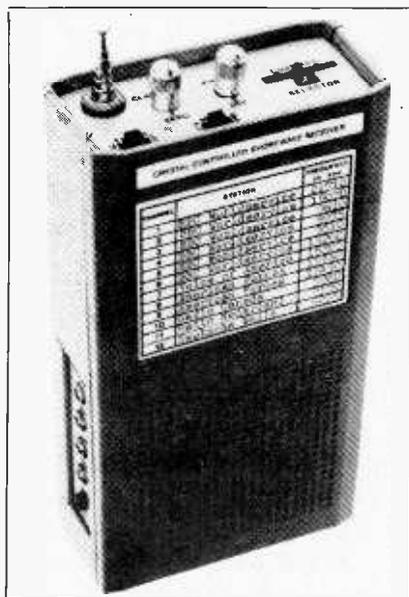
Crystal controlled, these multichannel AM/SSB receivers are ideal for the listener who demands top performance and portability on a small number of fixed frequencies.

Typical applications include foreign broadcast monitoring, international corporate communications, government/military personnel and other serious short-wave users and monitors.

Flattering reviews of the receivers have appeared in the 1983 and 1984 editions of the World Radio TV Handbook.

Available in 12 or 24 channel models, AM-only (RX12B or RX24A) or a 12 channel AM/SSB version (RX12S), the receivers retail in the US in the \$90-\$135 range.

Made in Denmark, their exclusive importer in the States is Gilfer Shortwave, Dept MT, P.O.Box 239, Park Ridge, NJ 07656.

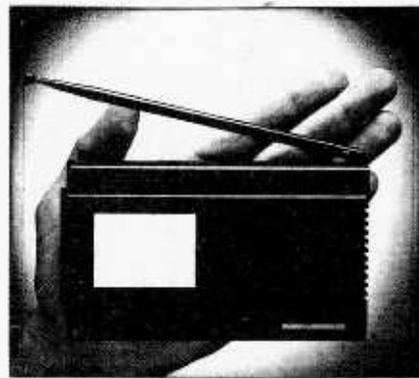


### SINCLAIR POCKET TV

Flat screen technology has never looked better than on the new Sinclair flat screen TV. Unfortunately, it has never been more elusive, either! Recent correspondence with the factory (Sinclair Research Limited, Stanhope Rd., Camberley, Surrey GU15 3BR, England) regretfully informs us that the product will not be seen

in the U.S. for some time to come.

When it finally arrives, pricing should be an attractive \$150 or so.



### DATONG WOODPECKER BLANKER

The infamous Russian "woodpecker" continues to harangue and harass short-wave listeners and communicators worldwide. But there is hope. Recently a small number of enterprising souls have introduced synchronized

blankers to clip out the irritating pulse noise.

The model SRB2 from Datong of England is available in the U.S. for about \$150 from AR Products, P.O. Box 62, Birmingham, AL 48012.

Tech specs look good; externally connected, the unit is capable of sampling the interference from the audio, then gating off both the audio and the antenna input for optimum effectiveness in eliminating the pulse.



## The Regency MX5000:

### HOW WELL DOES IT WORK?

While we await an evaluation sample of the new MX5000 programmable scanner from Regency, field reports are starting to trickle in from new owners of the extended-frequency-range product.

By way of review, the MX5000 is the first general-coverage (25-550 MHz) programmable scanner. It utilizes up-conversion to reduce in-band images. In spite of the enormous frequency range, it features only 20 memory channels.

The MX5000 is actually a private-labeled Japanese (AOR Corporation) AR-2001, in European distribution since late 1983.

Our reporters inform us that the unit has acceptable sensitivity (although not as good as some competitive units), but hears its own synthesizer noise when used with its indoor whip antenna (probably due to excessive radiation through the plastic cabinet.)

The problem does not exist with an external antenna which is coupled, incidentally, by a BNC con-

ductor. Finally, a manufacturer has recognized the futility of trying to use Motorola jacks at UHF!

There is no hold feature when searching; the listener must manually break squelch in order to stop the search sequency. When the search resumes, it starts from the beginning frequency again, rather than where it left off. The slow scan speed (about three channels per second) does not meet stated spec (five per second).

An audible beep signals each press of the keyboard; the loudness of the beep can not be adjusted externally and may become distracting.

Modes receivable across the entire frequency range are AM, wide FM and narrow FM.

Many scanner enthusiasts are still awaiting the arrival of the prematurely-announced MX-7000 and HX-3000 scanners. Sources close to the industry say that the wait may be agonizingly long, perhaps to the end of the year; perhaps never.

Time will tell.

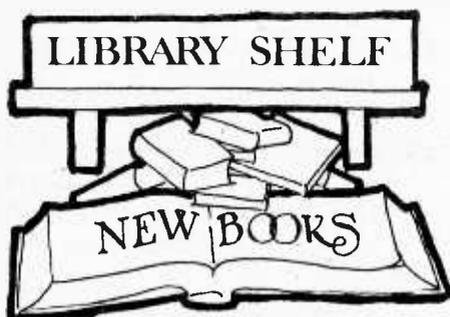
### A BEARCAT KIT?

Word has reached Monitoring Times that Electra has agreed to offer one of their scanners in kit form through Heathkit, a legendary producer of high quality kits for the electronics hobbyist.

Details were lacking at press time, but it is assumed that the unit will probably be one of their present programmables.



Regency MX-5000



**AIR AND METEO CODE MANUAL** by Joerg Klingenfuss (208 pages, 6" x 9", soft-bound).

For the RTTY enthusiast puzzled by the symbols encountered on weather broadcasts, Klingenfuss' new manual is the consummate reference.

Ever wonder why all those transmissions begin "ZXZX" and "NNNN"? Klingenfuss will tell you.

Nowhere in the public publications has such an enormous mass of RTTY translation been printed before. Sections include METAR, PILO, SHIP, SYNOP, ARMET, AIREP, synoptic code translation, indexes of observing stations, location identifiers and much more.

An absolute must for the RTTY monitoring enthusiast. Available from Universal Electronics, Dept MT, 4555 Groves Rd., Suite 3, Columbus, OH 43232.

**LIST OF SPECIAL RTTY AND CW ALPHABETS AND CODES** by Joerg Klingenfuss (Sixth edition, 52 pages, 8-1/2" x 11", stapled list).

Profusely illustrated, LIST explains all aspects of RTTY monitoring from both a technical and linguistic approach.

Cyrillic, Arabic, Japanese, Greek and Hebrew keyboards are covered as are the RTTY and Morse code equivalents of the characters heard in transmission.

An extensive glossary of terms encountered is included making this publication the definitive source on RTTY/Morse monitoring characteristics.

Available from Universal Electronics (see above address).

**MARITIME RADIO HANDBOOK** by Michiel Schaay (102 pages, 8-1/2" x 11", stapled list).

Unquestionably, one of the allures of shortwave listening of the utilities (non-broadcast) type is tuning in on ship-to-shore telephone conversations. The voyeurism in all of us finds the temptation of overhearing a private conversation too strong to resist!

While books like Grove's fast-selling Shortwave Frequency Directory offer comprehensive lists of these stations, Schaay's new

publication presents them in a time of day format.

Obviously, at any given time, some frequencies will be more likely intercepted on the air than others. Many of these private correspondence stations change their schedules seasonally or by time of day in order to optimize a more efficient use of their personnel and equipment based upon propagation of signals.

Beginning at 0000 UTC, **HANDBOOK** lists call signs, names and locations, modes of transmission (RTTY, SSB, CW), nature of transmissions (weather, storm warnings, traffic, etc.) for dozens of coastal stations worldwide.

Available from Universal Electronics (address above).

**SCANNER RADIO LISTINGS, ORLANDO/DAYTONA BEACH EDITION** edited by Norman Schrein (132 pages, 8-1/2" x 11", softbound).

Unquestionably the largest and most exhaustive directory yet done by Schrein, this Central-east-coast Florida edition is loaded with essential monitoring information of interest to scanner listeners.

Unlike competitive public-safety-oriented frequency directories, Schrein's series includes business/industrial, ham repeaters, aircraft and boats, news media, railroads, federal government, satellites and other users of the VHF/UHF spectrum as well as police and fire agencies.

An innovative bilingual (English/Spanish) introduction is included to entice the South Florida Hispanic population; it will be interesting to see if the effort proves effective.

Listings are cross-referenced by agency or service (alphabetical) and call sign. Available from Fox Marketing, 4518 Taylorsville Rd., Dept MT, Dayton, OH 454-2497 (phone 1-800-543-7892).

**THE LORDS OF TREASON** - Cassette (edited and narrated by "Doc" Schwartzbard; \$8.95 including US shipping from Danrick/Soundevents, 213 Dayton Ave., Clifton, NJ 07011).

This unsettling tape is a collection of off-the-air transcriptions made of broadcasts from Germany by traitors William Joyce ("Lord Haw Haw") and Fred W. Kaltenbach ("Lord Hee Haw") during World War II.

Aimed at British and American listeners to demoralize them with Nazi rhetoric, quality of the transmissions varies from excellent

to fair, depending upon the propagation at the time they were recorded.

Particularly soul-wrenching is the transition of Joyce's spirit from arrogant and assured in the initial broadcasts, to defeated--perhaps drugged--in his final broadcast as Berlin fell. His parting words, "Ich liebe Deutschland; Heil Hitler! Farewell" is a fitting climax to the 90-minute tape. He was hanged by the British shortly after.

This is one of several collector tapes offered by the vendor, all recorded on high quality Sony tape. For a complete list send an SASE with your request to the vendor at the address shown above.

**EDISON CYLINDER RECORDINGS** - Cassette (produced by L.G.Mendershausen, P.O. Box 21-5005, Sacramento, CA 95821). Collectors of musical memorabilia will revel in this catalog of offerings from a bygone era.

All selections are recorded on quality TDK cassettes with Dolby technique, assuring optimum quality. At only \$.75 per selection (five minimum per order) the enjoyable foray into the past is most affordable. Send an SASE for your free catalog.

With nearly a thousand

selections to choose from, you may choose from classics, pops, opera, vaudeville and more. Return with us now to those thrilling days of yesteryear...

**Coming next month...**

The American Radio Relay League (ARRL) is the foremost spokesman for amateur radio worldwide. Many of their publications are directly applicable to listening as well as transmitting.

Next month MT will feature a representative cross section of books from the League, reviewed first hand in terms of applicability to MT readers. In the meantime, readers are urged to send for a free catalog of publications from the ARRL Bookshelf, American Radio Relay League, Dept MT, 225 Main St., Newington, CT 06111.



TO BE REVIEWED NEXT MONTH

## Miller Publishing

### Tune In the World

Kenneth MacHarg

Ken MacHarg is a 25 year veteran SWL. He is regularly heard on HCJB's "DX Party Line." And now he is the author of an exceptional book that profiles some 70 shortwave stations. Each profile is packed with facts on the station's history, programming, personalities and facilities. Plus articles on SW news, music, drama and more. It's the listener's guide to international SW radio.

### NETHERLANDS WORLD BROADCASTING

ROBERT HASLACH

Everytime there's a poll on SW listening, Radio Netherlands comes in right at the top. It's the most popular and progressive station on the bands and its roots date back to the 1920s. Former Radio Netherlands announcer and producer Robert Haslach traces those roots with a scholar's eye for detail. The result is a fascinating story that every serious student of SW will want to read.

### The Shortwave Book

L. Miller & K. MacHarg, editors

Whether you're a brand new SWL or a seasoned veteran, you'll find one of the best overviews of the SW hobby in The Shortwave Book. It's intelligent, non-technical and comprehensive with articles on topics from jamming to clandestines, radio clubs to history and programming. And it's written by experts like George Wood, Andrew Steele, John Santosuosso, Ken MacHarg and many more.

Each (paperback) book \$9.99 plus \$1.50 postage (outside the U.S., \$2.50 postage). Checks or money orders in US\$ or their equivalent to Miller Publishing, Dept. MT, 424 West Jefferson St. Media, PA. 19063 USA. PA res. add 6%. Dealer inquiries invited.



# GETTING STARTED

☆☆☆☆☆☆☆☆☆☆☆☆☆☆

Occasionally, we are reminded that many of our readers are learning about electronics as they become acquainted with communications. Such a reminder came the other day in the form of a letter from MT reader Greg Buggy.

He wanted to know a little more about two basic concepts which many might take for granted: AM and FM, and kilohertz and megahertz. Thanks, Greg, for sharing your curiosity with other MT readers.

All radio waves are electromagnetic in nature, vibrating at a rate which is measured in terms of the number per second passing a point in space. The fundamental unit is called the "hertz" (cycles per second).

Since the vast majority of these vibrations (frequencies) are in the thousands or millions per second, they are given more widely unit prefixes such as "kilo" (1000) or "mega"

(1,000,000). Since there are 1000 thousands in a million, 1000 kilohertz (kHz) equals 1 megahertz (MHz).

Thus, when you see a shortwave frequency listed as 15400 kHz, it could have been written 15.400 MHz. Similarly, the 540-1600 kHz dial on your car radio could also read .540-1.6 MHz.

There are two basic ways we can impose intelligence (information or sound) on a signal: vary its signal strength (amplitude modulation or AM) or cause its frequency to vibrate back and forth (frequency modulation or FM).

A 1000 Hz tone will cause the carrier wave (unmodulated signal) to vibrate (modulate) 1000 times per second, either as FM or AM depending upon where in the transmitter's circuit we inject the audio.

With frequency modulation, we typically feed the audio to the oscillator; with amplitude modulation we

## control the amplifier stages of the transmitter. Wavelength/Frequency Conversion

A common source of confusion to shortwave listeners is the interchange of "meter band" with frequency in "kilohertz"; both express a measurement of the radiated wave from the transmitting antenna.

Since a radio signal is actually composed of an expanding series of energy "pulses", we can measure those pulses either in terms of the number of them passing a point in space per second (frequency) or the distance spacing each successive pulse (wavelength).

In any case, there is a constant which allows rapid calculation of either measurement once the other is known. Since radio waves travel the speed of light--300,000,000 meters per second--frequency in megahertz times wavelength in meters equals 300 (or, F kilohertz times wavelength in meters=300,000).

This is why amateur

radio bands are designated by meters as shown in these examples: 40 meters (7.25 MHz); 10 meters (30-MHz) and so forth. The same rule applies when designating the frequencies and wavelengths of the international broadcasters.

We would like to thank Radio Canada International for their help in preparing the following comprehensive list of frequencies and their wavelength equivalents as often announced on the air.

### CORDLESS PHONES from p.8

Today a number of manufacturers provide lines of cordless phones with many functions. Some units include inaudible guard tones to deter interference from other units. The codes include an eight-bit code which can provide 256 possibilities and some types use a three-range frequency change.

Pirating has become popular; clandestines will drive around another part of town listening for either a dial tone or carrier which will provide an opportunity to charge up bills to another party. When the cordless phone is placed on the base unit, no one else can use your line, but some types do not have this security. Listen for multiple dial-tone activations on base frequencies; this could be a pirate trying to access a phone. The industry standard frequencies are listed below but due to overcrowdedness lately variations may begin to occur.

CHANNELS	HANDSET (MHz)	BASE (MHz)
1A or 1	49.83	1.69
7A or 2	49.845	1.71
13A or 3	49.86	1.73
19A or 4	49.875	1.75
25A or 5	49.89	1.77

Although some scanner buffs may not hear the 40 MHz handset they can still hear the base which transmits both sides of the conversation.

It's often possible to receive the second harmonic of a cordless phone base unit in the 3.4-3.5 MHz range. The signal received on the second harmonic may be actually stronger than on the fundamental!

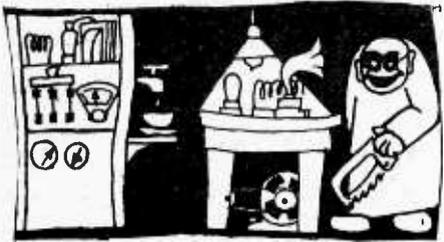
If anyone has additional information concerning cordless phones I may be reached at the address below:

"Bootlegger #351"  
P.O. Box 9034  
Silver Spring, MD  
20902-0991

### FREQUENCY (KILOHERTZ/METRES) CONVERSION CHART

49 M		41M		31 M		25 M		19 M		13 M		16 M	
KHz	METRES	KHz	METRES	KHz	METRES	KHz	METRES	KHz	METRES	KHz	METRES	KHz	METRES
5950	50.42	7100	42.25	9500	31.58	11700	25.64	15100	19.87	21450	13.99	17700	16.95
5955	50.38	7105	42.22	9505	31.56	11705	25.63	15105	19.86	21455	13.98	17705	16.94
5960	50.34	7110	42.19	9510	31.55	11710	25.62	15110	19.85	21460	13.98	17710	16.94
5965	50.29	7115	42.16	9515	31.53	11715	25.61	15115	19.85	21465	13.98	17715	16.93
5970	50.25	7120	42.13	9520	31.51	11720	25.60	15120	19.84	21470	13.97	17720	16.93
5975	50.21	7125	42.11	9525	31.50	11725	25.59	15125	19.83	21475	13.97	17725	16.93
5980	50.17	7130	42.08	9530	31.48	11730	25.58	15130	19.83	21480	13.97	17730	16.93
5985	50.13	7135	42.05	9535	31.46	11735	25.56	15135	19.82	21485	13.96	17735	16.93
5990	50.08	7140	42.02	9540	31.45	11740	25.55	15140	19.82	21490	13.96	17740	16.93
5995	50.04	7145	41.99	9545	31.43	11745	25.54	15145	19.81	21495	13.96	17745	16.93
6000	50.00	7150	41.96	9550	31.41	11750	25.53	15150	19.80	21500	13.96	17750	16.93
6005	49.96	7155	41.92	9555	31.40	11755	25.52	15155	19.79	21505	13.95	17755	16.93
6010	49.92	7160	41.90	9560	31.38	11760	25.51	15160	19.78	21510	13.95	17760	16.93
6015	49.88	7165	41.87	9565	31.36	11765	25.50	15165	19.78	21515	13.95	17765	16.93
6020	49.83	7170	41.84	9570	31.35	11770	25.49	15170	19.77	21520	13.95	17770	16.93
6025	49.79	7175	41.81	9575	31.33	11775	25.48	15175	19.77	21525	13.95	17775	16.93
6030	49.75	7180	41.78	9580	31.32	11780	25.47	15180	19.76	21530	13.95	17780	16.93
6035	49.71	7185	41.75	9585	31.30	11785	25.46	15185	19.76	21535	13.95	17785	16.93
6040	49.67	7190	41.72	9590	31.28	11790	25.45	15190	19.75	21540	13.95	17790	16.93
6045	49.63	7195	41.70	9595	31.27	11795	25.43	15195	19.74	21545	13.95	17795	16.93
6050	49.59	7200	41.67	9600	31.25	11800	25.43	15200	19.74	21550	13.95	17800	16.93
6055	49.55	7205	41.64	9605	31.23	11805	25.41	15205	19.73	21555	13.95	17805	16.93
6060	49.50	7210	41.61	9610	31.22	11810	25.40	15210	19.72	21560	13.95	17810	16.93
6065	49.46	7215	41.58	9615	31.20	11815	25.39	15215	19.71	21565	13.95	17815	16.93
6070	49.42	7220	41.55	9620	31.19	11820	25.38	15220	19.71	21570	13.95	17820	16.93
6075	49.38	7225	41.52	9625	31.17	11825	25.37	15225	19.70	21575	13.95	17825	16.93
6080	49.34	7230	41.49	9630	31.15	11830	25.36	15230	19.70	21580	13.95	17830	16.93
6085	49.30	7235	41.47	9635	31.14	11835	25.35	15235	19.69	21585	13.95	17835	16.93
6090	49.26	7240	41.44	9640	31.12	11840	25.34	15240	19.69	21590	13.95	17840	16.93
6095	49.22	7245	41.41	9645	31.10	11845	25.33	15245	19.68	21595	13.95	17845	16.93
6100	49.18	7250	41.38	9650	31.09	11850	25.32	15250	19.68	21600	13.95	17850	16.93
6105	49.14	7255	41.35	9655	31.07	11855	25.31	15255	19.67	21605	13.95	17855	16.93
6110	49.10	7260	41.32	9660	31.06	11860	25.30	15260	19.67	21610	13.95	17860	16.93
6115	49.06	7265	41.29	9665	31.04	11865	25.28	15265	19.66	21615	13.95	17865	16.93
6120	49.02	7270	41.27	9670	31.02	11870	25.27	15270	19.66	21620	13.95	17870	16.93
6125	48.98	7275	41.24	9675	31.01	11875	25.26	15275	19.65	21625	13.95	17875	16.93
6130	48.94	7280	41.21	9680	30.99	11880	25.25	15280	19.65	21630	13.95	17880	16.93
6135	48.90	7285	41.18	9685	30.98	11885	25.24	15285	19.65	21635	13.95	17885	16.93
6140	48.86	7290	41.15	9690	30.96	11890	25.23	15290	19.64	21640	13.95	17890	16.93
6145	48.82	7295	41.12	9695	30.94	11895	25.22	15295	19.64	21645	13.95	17895	16.93
6150	48.78	7300	41.09	9700	30.93	11900	25.21	15300	19.64	21650	13.95	17900	16.93
6155	48.74			9705	30.91	11905	25.20	15305	19.64	21655	13.95	17905	16.93
6160	48.70			9710	30.90	11910	25.19	15310	19.64	21660	13.95	17910	16.93
6165	48.66			9715	30.88	11915	25.18	15315	19.64	21665	13.95	17915	16.93
6170	48.62			9720	30.86	11920	25.17	15320	19.64	21670	13.95	17920	16.93
6175	48.58			9725	30.85	11925	25.16	15325	19.64	21675	13.95	17925	16.93
6180	48.54			9730	30.83	11930	25.15	15330	19.64	21680	13.95	17930	16.93
6185	48.50			9735	30.82	11935	25.14	15335	19.64	21685	13.95	17935	16.93
6190	48.47			9740	30.80	11940	25.13	15340	19.64	21690	13.95	17940	16.93
6195	48.43			9745	30.78	11945	25.12	15345	19.64	21695	13.95	17945	16.93
6200	48.38			9750	30.77	11950	25.11	15350	19.64	21700	13.95	17950	16.93

# EXPERIMENTER'S



## WORKSHOP

### A \$10 BROADCAST BAND LOOP ANTENNA

by Bruce K. Opitz

How would you like to put together an antenna for the broadcast and longwave bands that's as good as those expensive loops for under \$10.00???

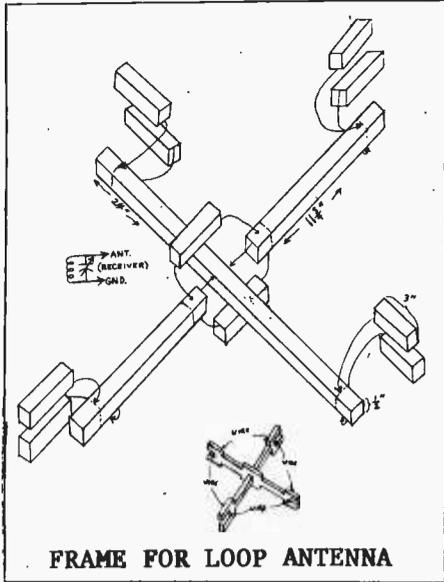
I live in an apartment in a high rise, so an antenna is a problem. When I bought my Kenwood R-1000, I also acquired a Yaesu FRA-7700 indoor active antenna which has performed well on the shortwave bands. I tried using it for broadcast band and found I got poor results with almost no reception below 1000 kHz. Next I tried stringing about twenty feet of wire around the ceiling of my shack and got slightly better results. I could pick up local stations but not as well as my \$9.95 AM radio from Radio Shack!

I decided maybe I ought to think about investing in a loop antenna. At Electronic Equipment Bank in Vienna, VA, Scott (WR4S) told me something I might like to try first: a loop antenna that would cost less than \$10.00 in parts.

The diagram is almost self explanatory. The needed parts are:

- 7 feet of 1/2" square wood dowel
- 160 feet hook-up wire
- 1 variable capacitor, 365 pf (or thereabouts)
- Some nails, solder and cord or string

Cut the wooden dowel into one 2 foot length, two 11 3/4 inch lengths and ten 3 inch lengths. Assemble the frame by forming a cross from the 2 foot section and the two 11 3/4 inch sections. Use two of the 3 inch sections to attach the three long sections together. I used a total of 12 nails (6 per side) so that I would have sufficient stability. I put the 2 nails, which went into the center section, at an angle so they would fit better. The other eight 3 inch lengths formed Y's at the end of the four cross bars. Again, I used 4 nails (2 per side) so that the sections would not rotate.



Believe it or not, the hard part was over! Leaving around 5 feet or wire free, I wrapped the wire around the frame using the Y's to hold the wire. I used 22 turns.

I soldered one end of the wire to the rotor lug of the capacitor, and the other section of wire to the other lug (stator) of the capacitor. I tied the wire together with cord near the four cross bars.

A loop or cord about 5 to 6 inches long around the wire held the antenna up. I put a picture hook in the center of the window and I have my antenna hanging there. Attach the wire from the capacitor stator lug to the terminal on the back of your radio marked "MW Antenna." Attach the other end of wire (rotor) to the terminal marked "Ground." You are ready to go.

How well did it work? I live in Washington, D.C. and following are some loggings I got clearly right away!

- 1560 WQXR New York, NY
- 1210 WCAU Philadelphia, PA
- 1190 WDWO Fort Wayne, IN
- 1110 WBI Charlotte, NC
- 1100 WWWE Cleveland, OH
- 1060 KYW Philadelphia, PA
- 750 WSB Atlanta, GA
- 760 WJR Detroit, MI
- 1520 WKBW Buffalo, NY
- 1040 WHO Des Moines, IA
- 1030 WBZ Boston, MA
- 1020 KDKA Pittsburgh, PA
- 800 CKLW Windsor, Ontario
- 840 WHAS Louisville, KY
- 970 WWL New Orleans, LA
- 1530 WCKY Cincinnati, OH

For under \$10.00 in parts, you can use a capacitor from an old radio and wire and wood you have lying about, thereby cutting the cost to nothing. You apartment dwellers can improve your medium and long wave reception. The antenna will be directional, so you might wish to experiment with its location. As the guy in the electronic parts store said, "The worst that can happen is that you'll end up with a lifetime supply of hookup wire!"

- All 1/2" Wood  
 1 - 24" long  
 2 - 11 3/4" long  
 10 - 3" long

## A DX'ERS VERTICAL

by Larry Jones  
 808 E. Albert St.  
 Pampa, TX 79065

The antenna that I am about to describe is intended for the serious DXer. It will capture DX signals, though it will be noisy during the summer months. But for winter time long-haul DX, it performs.

A large soft drink bottle is placed in a hole with enough of the bottle above the ground so that a telescoping TV mast pole can be placed on it and not touch the ground at any point.

The TV mast pole has a self-tapping sheet metal screw started in it about one inch from the end that is to be on the drink bottle.

The mast is raised one section at a time after being placed on the drink bottle; this will require the help of three or four willing helpers to hold tension on the guy wires which are to be placed on each section of the mast. The more guys the better.

The guys should be attached securely to the top of the pipe with a hose

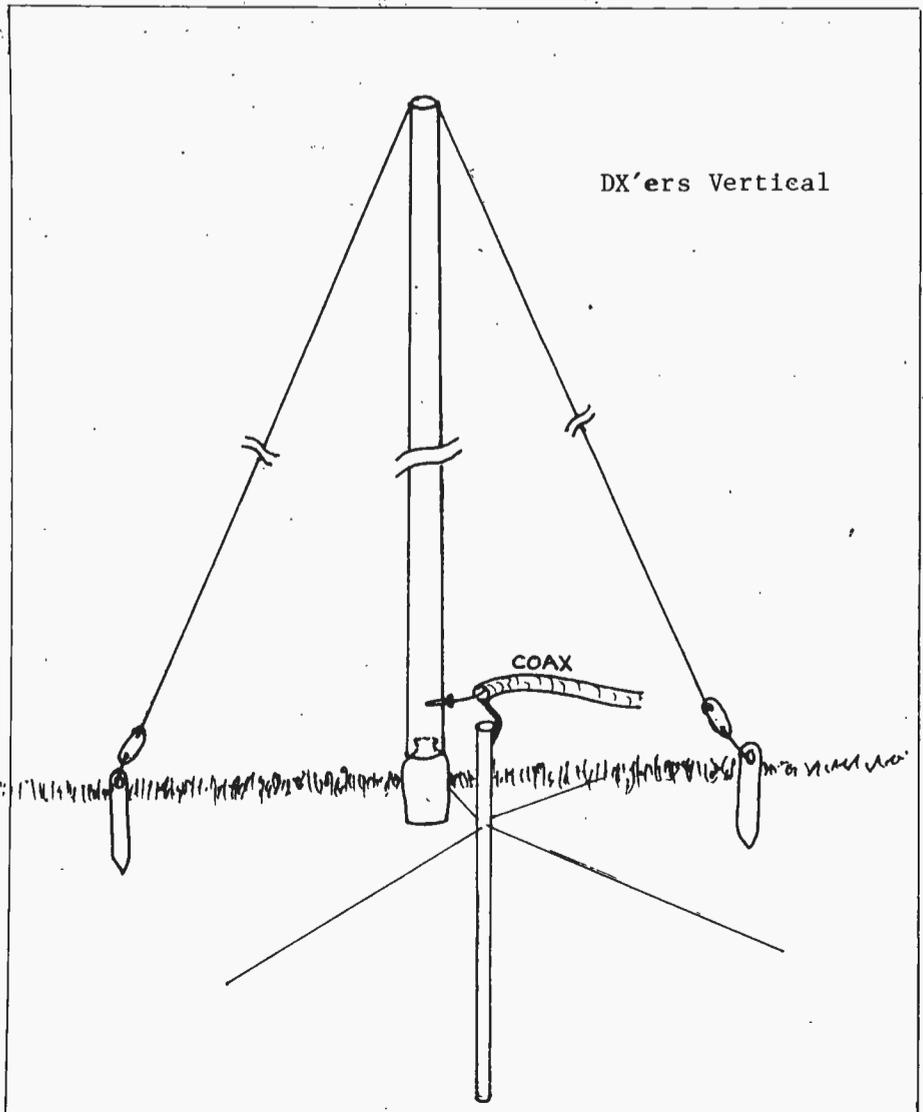
clamp and be of good galvanized wire, attached to an insulator on the lower ends so that they are insulated from the ground as they are part of the antenna. Do not break the guy wires with insulators because they act as top hats for the antenna.

A copper ground rod is driven down beside the soft drink bottle the antenna is now standing on. The center conductor of the coax is connected to the sheet metal screw that has already been inserted into the antenna mast; the shield is connected to the copper ground rod.

A mast height of thirty to forty feet is suggested. A few more feet may be obtained by taking a mobile whip and securing it to the top section of the mast with a couple of stainless steel hose clamps.

Wire (any size and kind will work as long as it has continuity) is secured to the copper ground rod. The wires (the more the better) are run out from the ground rod like the spokes of a wheel. Make them as long as you can and put down as many as you can. It does not hurt if you bury them an inch or so under the ground, or if you bend them around obstacles that are in their path (houses, trees, etc.).

I hope you will enjoy the DX. I know you will enjoy writing down on your QSLs that the antenna you are using is a homebrew vertical!



VIEWPOINT from p.3

buying it on the used market from an individual ham last year.

Why? The old tube radios cannot compare with the modern digital-readout general coverage receivers. The one kiloHertz readout would be much less confusing for a newcomer. With a good station list, such as the World Radio-Television Handbook, the newcomer can jump right into the broadcast SWL/DX world with great rewards by knowing the station he seeks or the country he wants to hear is either coming in on frequency or it isn't.

Living in a high noise environment, the noise blanker on my R-1000 has saved many an evening of DXing for me, while I never found the old automatic noise limiters on the old receivers of any value.

With all the talk about tuning AM broadcast stations in the exalted carrier single-sideband mode, this is nothing new to radio amateurs. I have used the technique for years, but the R-1000 far outshines the old Hammarlund, National and Hallicrafters receivers I have used in the past. Stability, which is lacking in many of the old receivers, combined with selectable sideband and a good product detector (non-existent in the "oldies") makes the difference.

On the other side of the coin, the tube radios were not as sensitive to front-end overload and seldom, if ever, were stations found where they were not supposed to be. Naturally, microprocessor noise, as I notice in my Sony ICF-2001, was non-existent since there were no microprocessor circuits in the old tube receivers.

But much can be said for the sensitivity of the solid-state radios. In past years, with tube rigs, I have had to pre-amplify my tube radios to maintain sensitivity specifications, especially on the high-frequency HF bands. I have never found any drop off in sensitivity (with the right antenna) in the two solid-state receivers that I own.

It certainly is true that bargains can be found on the used market when looking for tube-type receivers, but caveat emptor! While I purchased my ICF-2001 new at a discounted price, the value received in the purchase of my R-1000 was outstanding. With the R-2000 now Kenwood's top

general coverage receiver, bargains are to be had with the R-1000 if one is patient. With the new ICOM IC-R71A just coming on the receiver market, no doubt in the months ahead bargains will be found when looking for the obsoleted IC-R70.

Look carefully when buying a used communications receiver. Better yet, save your pennies and call Bob Grove to have him send you a new one. There's nothing like a spanking, shiny brand-new DX machine to place on your monitoring desk!

Don Brewer  
N.Little Rock, AR

>>><<<<

It's fairly easy to find out what is going on in Cuba without personally getting involved by monitoring a schedule on the 20 meter amateur band.

VE1KG and CO2JA have a sunday schedule at 2200 UTC on 14, 104 kHz ssb. They both seem to be in the TV broadcasting industry.

CO2JA uses all Soviet cameras with almost 700 lines resolution. All tech manuals are in Russian and translating to Spanish is very difficult. They use all Soviet monitors which all work good. You can only adjust brightness and contrast and no one can fool with the color like they do in Canada. They use four cameras in the studio for news and other programs. They have one large mobile unit with a power plant attached. Other mobile units can park almost anywhere. Most of the video recording is on 3/4" cassettes but on big events 1" to 2" tape is used.

Other interesting things to monitor are radio telephone conversations from the SS Norway, one of the largest cruise ships in the Caribbean. Best reception after dark. The guests are off the ship in the daytime visiting the Islands. Frequencies, 6013 and 6031 kHz USB.

Ed Westcott W4UVS  
Oak Ridge, TN

>>><<<<

"Havana Moon" was interested in times and frequencies for reception of the number "spy" stations on the West Coast. Here are my recent loggings:

Dec 18/83-17.320 MHz at 1813 hours UTC: 5 digit sequence in Spanish by a male.

Jan 1/84-16.425 MHz at 1834 hours UTC: 5 digit sequence in Spanish by a female.

Yours truly,  
M. W. Ney  
Victoria, B.C.

Really pleased to see your publication growing in quality and quantity! Enjoyed the latest issue, but most, the article on Xtal Radios. For those interested in getting started I recommend a book called "Radios that Work for Free." The book was \$3.95 from Whole Earth Access, 2990 Seventh St., Berkeley, CA 94710; an excellent book for the beginner. Price may have gone up, but will still be worth it.

Enclosed find a check for a three year extension for myself and two gift subscriptions.

Paul Bowman  
Gustavus, AK

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As a new subscriber to Monitoring Times, I find that it is generally an excellent publication. However, by devoting nearly two pages of text to the Montgomery County Sheriff's C.A.D. system, I believe you wasted valuable space that could have been directed at a topic of more general interest...the information it contained was certainly dysfunctional for me...and probably 99% of your national subscriber base.

In order to remain successful, you have to appeal to readers through subjects of wider interest, e.g.: more (and tougher) equipment reviews, federal government HF/VHF/UHF frequencies/activity, possibly a competition (like Road & Track) of the JIL vs Bearcat vs Regency vs Brand X or the Xony ICF-2002 vs Panasonic vs Grundig---and call it "Which Portable Receiver is Really Best for the Traveling DX'er?"

Tell us about the new Icom R-71A, conduct a reader poll on what we would like to see in future scanner or shortwave products--and publish the results (now you become interactive and can use the data to fine tune an already good publication), discuss the impact of Motorola's DVP on casual scanner monitoring of the F.B.I., but please...don't use valuable space for an in-depth technical look at "regional" (and outdated because this was an early CAD system) news. It is really dull

copy. How about a serious look at the N.S.A.!

Regards,  
Robert T. Crotinger  
Pittsford, New York

>>><<<<

I enjoyed your recent articles on "Air Force Communications" and "AWACS." I would, however, like to point out a small discrepancy that might have been misleading to some readers. In both articles, you included a picture of the E2 "Hawkeye" which is a Navy Airborne Early Warning and strike control aircraft. Although it performs some missions that are similar to AWACS, that title is usually used to refer to the Air Force's E3 "Sentry" which is properly identified as the Airborne Warning and Control System aircraft.

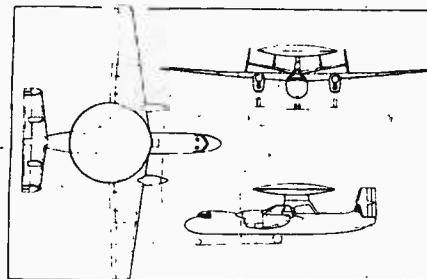
These are small points indeed since the contents of your articles were excellent. Keep up the good work.

Bob Dodt, Jr.  
Triangle, VA

P.S.: I'm neither Air Force nor Navy--just an interested Marine!

GRUMMAN E-2 HAWKEYE (USA)

Carrier-borne airborne early warning and fighter control aircraft

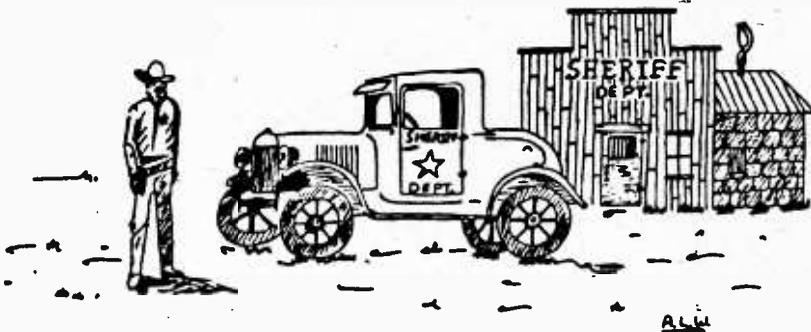


(And I thought no one would notice! Boy, was I wrong. Thanks to sharp-eyed readers like Bob Dodt and about 6 million others, my phone and mail have been quite busy!...Bob)

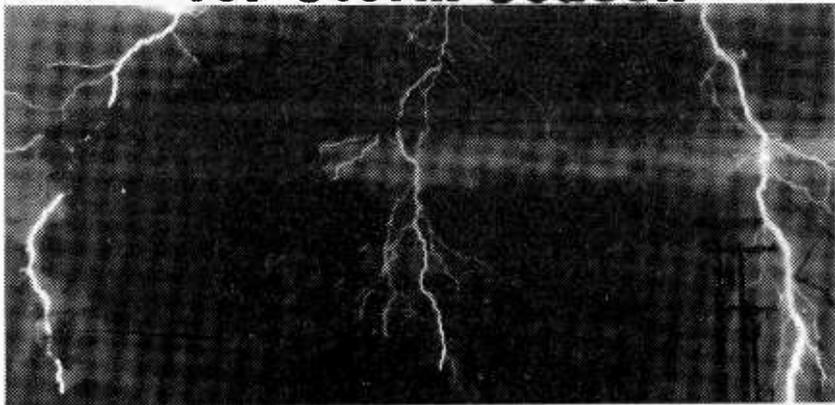
>>><<<<

I am a Deputy Sheriff in West Texas in county with more cows than people and my SWL helps me "keep in touch." I have always thought the world would be a lot better place if more people would quit talking so much and just listen!

SWL-DX till it Hertz!  
Mike Pinkard  
Garden City, TX



# HELPFUL HINTS for Storm Season



LIGHTNING HINTS

(Photo-Fla Power & Light Co) lightning. Generally speaking, lowering the antenna a few percent down the mast will result in no measurable loss in reception; just be sure to space the antenna at least 1/4 wave out from the mast, farther if possible.

During storm season radio equipment is vulnerable to lightning strikes, both direct and indirect. High voltage transients (spikes) may come in via the antenna or AC power line.

### ANTENNA PROTECTION

Nothing will protect equipment from a direct lightning strike. If you leave your equipment unattended during storm season, disconnect the antenna plug from the equipment.

But a few hardware precautions are better than none. If your outside antenna is mounted on a metal mast, be sure that mast is well-grounded.

The mast may be inserted into actual ground several feet, or a number of heavy-gauge wires run from the base of the mast into individual ground rods may be substituted or, better yet, added to the buried mast. (See Fig. 1)

Consider lowering the antenna from the top of the mast to a point below the tip of the mast, thereby giving the mast the preferred jolt from a stroke of

The broadcast industry has learned a few tricks of its own. A coil consisting of about ten turns of coax, 12" in diameter, before it runs into the dwelling, functions as a choke to oppose the inrush from a lightning stroke.

Additionally, passing the coax through a ten-foot length of metal conduit at the wall of the dwelling, grounding the equipment-side of the conduit, acts as a waveguide to oppose the surge. (See Fig. 2)

### POWER LINE PROTECTION

A number of low-cost transient protectors are now available on the consumer market. Most of these are built around metal oxide varistors (MOV's) which effectively short circuit when presented with voltage above a predetermined level.

Cont'd next page

# TECHNICAL TOPICS by Bob Grove

**Q** I have a Yaesu FRG-7 communications receiver and a Sinclair ZX81 16K micro-computer. I am looking for a low-cost RTTY terminal unit and ZX81 software to permit me to use the microcomputer for displaying RTTY transmissions.

(William Wingate, Apt. 201 1002 McKenzie Ave., Victoria, BC, Canada V8X 4B5)

**A** Can any of our readers help with this one?

**Q** Can you tell me more about the "UBIX" computerized information at Universal Amateur Radio?

(E.T.O'Grady, Staten Island, NY)

**A** The Universal Bulletin Board Exchange is provided as a public service by Universal, an MT advertiser. Information includes DX tips, new/used equipment specials, etc. For more information write directly: 1280 Aida Drive, Reynoldsburg, OH 43068 or call 614-866-4267.

**Q** Anyone out there have a frequency file program written for a Commodore 64 computer?

(Steve Johnson, Collins Communications, MS 423-100, 3200 E. Renner Rd. CS7, Richardson, TX 75081)

**A** Someone out there is bound to have one. How about sharing it with Steve? And while you are at it, how about a copy for us here at MT? Additionally, anyone have a frequency file for the Radio Shack Color Computer? That would be another popular item.

**Q** Can you compare the Kantronics and AEA computer patches? Is the Infotech M600A really worth its greater cost...Why doesn't it read Morse faster than 60 WPM?

**A** Many companies offer excellent quality interfaces

and patches at this time. The AEA CP-1 is considered excellent; its metal cabinet provides superior shielding over the Kantronics models I and II which are housed in plastic cabinets, but provide good copy.

Don't overlook HAL M-100 and M-200 which feature and LED scope display for centering in mark and space tones.

While the M-600A is capable of Morse speed copy of at least 80 WPM, fast Morse begins to resemble noise and accuracy begins to suffer on any demodulator. As a matter of interest, commercial Morse encountered on the shortwave band is rarely more than 20 or so WPM.

The M-600A is the most advanced RTTY/Morse/ASCII/TOR demodulator on the market. It costs more because it does more.

**Q** Are there commercial sources of frequency lists for various ranges other than the hobby publications? (James Voigt)

**A** Private sources of frequency files include: DDC Data Service (1114 - 21st St.NW, Washington, DC 20037: 202-452-1419); International Telecommunications Union (Place des Nations, CH 1211 Geneva, Switzerland); Action Radio (Box 221, Charles Town, WV 25414: 304-725-8357). Additionally, we will be offering the complete FCC master file in another couple of months.

**Q** I have three questions: (1) How can I reduce broadcast-band interference on my Sony ICF-2001? (2) Can I hear aircraft communications as far as 35-40 miles? (3) What happens if I replace the CB crystals in my walkie-talkies with ham crystals?

(Roger Arnoux, Belley, France)

**A** (1) Probably nothing if you have already tried rotating the radio to null out the interfering station. You need a more selective receiver and preferably a rotatable loop antenna as well for satisfactory BCB DX'ing.

(2) Absolutely, although you will hear far more airborne transmissions than ground (tower). With a good outside antenna, reception for 100-200 miles is common with aircraft.

(3) You will probably get a visit from the authorities. However, it is technically feasible that if you stay within one or two megahertz of the CB band you probably could use the rig without retuning.

A grounded waveguide around the incoming coax line can reduce the danger of lightning damage to inside equipment.

FIG. 2

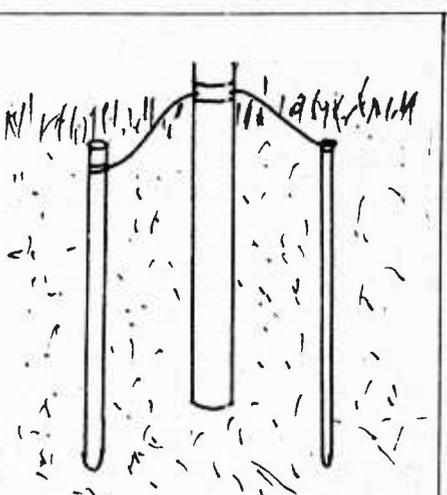
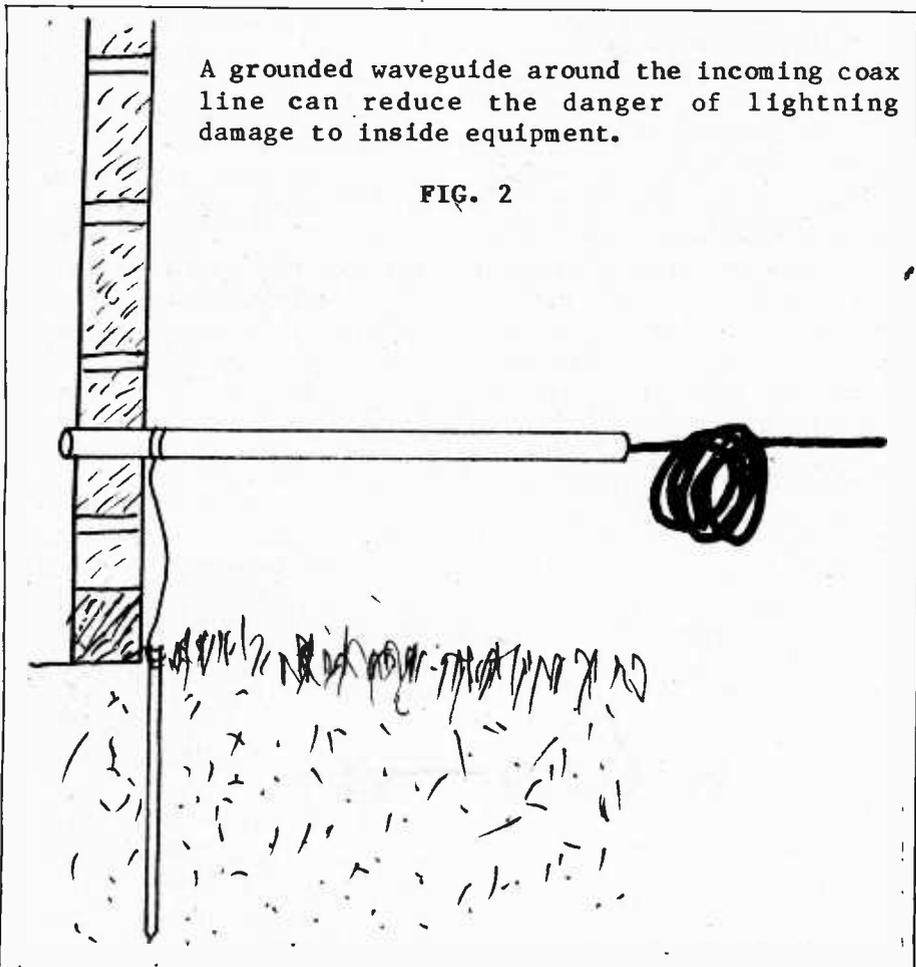
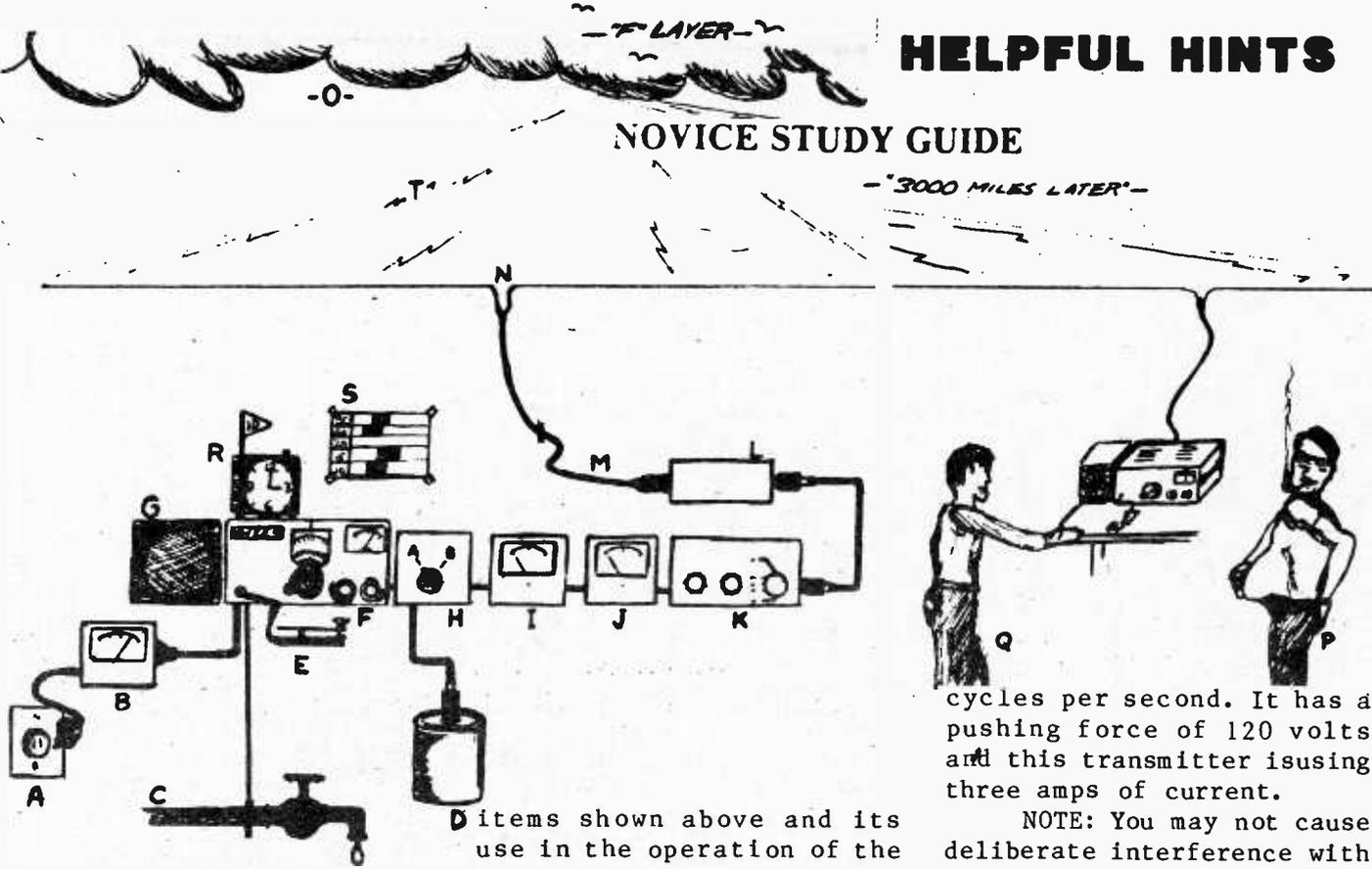


FIG. 1

Grounding the mast may offer some lightning protection.

# HELPFUL HINTS

## NOVICE STUDY GUIDE



### WANT TO GET YOUR HAM LICENSE?

Recent deregulation of the amateur radio examination procedure by the FCC makes it easier than ever for a hobbyist to take an amateur radio exam. There are five levels of license: Novice, Technician, General, Advanced and Extra, each featuring higher levels or theory and increasing code speed (5, 13 and 20 WPM).

Although anyone can enter at any level, it is common for the beginner to enter at the introductory Novice level to get on the air quickly and build his experience.

Now, local licensed amateur radio operators are authorized to give the tests at certain examination points registered with the FCC. Contact a nearby ham for more information; if you don't know any, you may wish to consult the library. Perhaps a veteran CBER knows a local ham who can help.

Essentially, any amateur radio exam consists of two parts: the Morse code test (usually given first) and the theory test (written). A passing grade is 70%.

We are grateful to Bill Ellis WB6USB, president of Murphy's Radio Class (4119 Sepulveda Blvd., Culver City, CA 90230) for providing the following sample Novice theory test with answer key. It provides excellent insight into what the prospective examinee might expect.

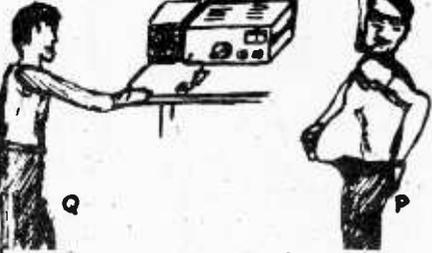
### NOVICE STUDY GUIDE

This is an "all purpose" novice amateur radio station. You should become familiar with each of the

items shown above and its use in the operation of the station.

- A. Wall socket providing 60hz @120 vts @3 amps
- B. Volt Meter - measures the 120 volts from wall
- C. Cold water pipe to attach ground connection on receiver
- D. Dummy load for off the air tune ups to minimize interference
- E. Morse code key - A1.CW (interrupted waves)
- F. Novice transceiver - which is limited to 200 watts output
- G. Speaker lets you hear low audio frequencies
- H. Coaxial switch between dummy load and antenna
- I. Watt meter measures 200 watt novice maximum output
- J. VSWR meter measures reflected waves in coaxial cable
- K. Antenna tuner for matching radio output to antenna
- L. Low pass filter to keep harmonics from radiating
- M. Coaxial cable (shielded transmission wire)
- N. Antenna (which is 468/Fmhz long)
- O. F layer where waves are reflected for long distance
- P. Control operator of any station authorized to talk to you
- Q. Third part to whom you may communicate if an agreement exists to allow it
- R. Clock with ten minute timer that buzzes you to identify your station
- S. Novice frequency charts showing 80/40/15/10 meters as the only frequencies that you may transmit on and restricts use of CW/A1 (Interrupted waves) for novices
- T. Radio waves which are high in frequency and will therefore radiate

NOTE: Wall socket provides electricity which changes direction at 60



cycles per second. It has a pushing force of 120 volts and this transmitter is using three amps of current.

NOTE: You may not cause deliberate interference with other stations during your operation, and should minimize it with tune-ups on the dummy load.

**BE PREPARED FOR THE SAMPLE TEST COMING NEXT MONTH!**

### CONNECTING TWO SCANNER ANTENNAS TOGETHER

(...Don't do it!)

A common question posed to us at Grove Enterprises is, "How can I connect my two scanner antennas together for better reception?" Generally speaking, the best answer is, "You can't!"

More specifically, if the two antennas are designed to receive the same frequency ranges, they can add their respectively-received signals only when the signals are "in phase"; that is when the vibrating waves arrive simultaneously on the transmission line to the receiver.

This situation occurs when the antennas both face the arriving wavefront simultaneously and the two feedlines from each antenna are the same length. The result is "constructive interference"; that is, the signals add together their relative strengths.

If the signal strikes the two antennas at different times, or if the interconnecting cables are of different lengths resulting in the signal voltages combining "out of phase", they will partially or fully cancel one another.

Add to this dilemma that the addition of a second identical antenna, no matter how high gain the antennas are, will only increase signal strengths by a maximum of 3 dB (half an "S" unit), actually closer to

only 2.5 dB in practical installations.

It is far more practical to erect the best single antenna that you can afford and add a preamplifier to extend the receiving range.

So why do commercial users bother to put up two antennas in the first place? For one thing, it can sharpen up the directivity (beamwidth) of the signal; for another, it is a simple way to double the apparent output power of the attached transmitter (a 3 dB increase in output signal).

Theoretically, if two receiving antennas for widely-divergent frequency bands (i.e., high and low band) are interconnected, the phasing problem should not exist (assuming that neither antenna is capable of responding to signals heard on the band the other is designed for). Unfortunately, since virtually all antennas will have some response at undesired frequencies, cancellation on some frequencies (as well as enhancement on others) is bound to occur.

While this relationship is predictable in theory, it varies with frequency and is unwieldy to try to compute for every frequency.

### STORM SEASON from p.29

Most commercial varistors designed for 120 volt lines fire at about 140 volts, thus protecting any equipment on line from high voltage transients.

MOVs are available for a variety of applications, from inexpensive, base-plug protectors to units for the main distribution panel, protecting the entire dwelling.

### LIGHTNING ARRESTORS

Years ago it was common practice for TV sets and outdoor - antenna - equipped radios to utilize spark arrestors on the downleads. They are still available, but not as common.

For coax lines, the "Blitz Bug" type gap suppressor is useful for tube-type equipment which is more voltage tolerant, but for sensitive solid-state equipment, modern gas-discharge types are recommended.

While all of these measures will provide improved resistance to nearby lightning strikes, nothing will withstand a direct hit. Disconnect all antenna lines from equipment if there is a chance of lightning activity in your area.

## CLUB CORNER

### ARMED FORCES DAY CERTIFICATE

To celebrate the observance of Armed Forces Day, the United State Air Force Museum in Dayton will, for the second time, host the operation of an amateur radio special event station.

Participants will operate under the callsign K8DMZ from 1400Z to 2200Z Saturday, May 19. Amateur radio operators will work primarily in the General Class phone segments of 75, 40, 20 15 and 10 meters with periodic excursions to the Novice subbands. FM and SSB operation on the 144, 220 and 432 MHz bands is also planned. The specific frequencies to be used will depend upon existing band conditions. To commemorate the event, the Museum will issue a special certificate for each two-way contact.

### TUNE IN SUN-DAY

The Florida Solar Energy Center (FSEC) of the State University System of Florida and the Indian River Amateur Radio Club will celebrate SUN DAY on May 5 and 6, 1500Z to 2200Z. 5,880 photovoltaic 4 inch diameter solar cells will provide for heating, cooling, cooking and Amateur Radio operations during this public event, SUN DAY.

W4NLX/4 will operate on SSB 7.240, 14.240, 21.370 and 28.518; CW 7.040, 14.040, 21.040 and 28.003; FM 146.28/88. A beacon will be on 1296.05 MHz.

For all Short Wave Listeners (SWL) and Amateur Radio Operators, "The Solar Collector", a quarterly high technology newsletter is available free, ON REQUEST. Also, a multicolor certificate is available. Send a business size SASE to: FSEC, 300 State Road 401, Cape Canaveral, FL 32920.

### CHANGES AT ALL OHIO SCANNER CLUB

Due to a heavy work load and neglect to his family, Jerry Callam has made a decision to step down as president-editor of the All Ohio Scanner Club.

The new president is Dave Marshall, 50 Villa Rd., Springfield, OH 45503. His assistant will be Dave Jones, 1043 Princewood Ave., Dayton, OH 45429.

Dave Marshall should be sent all materials for the newsletter. All other club related data should be sent to Dave Jones including dues, problems with not receiving newsletters and general club information.

Jerry wishes to thank members who have helped in the past three years with the club, plus the editors who have made the AOSC from a 2-page newsletter to its present size.

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(SEE PAGE 18 FOR  
DETAILS OF ANARC  
ANNIVERSARY BROAD-  
CAST)

NEW YORK DX ASSOCIATION specializes in all forms of DX (DC through light!!); especially DX in a large city (antennas, leases, landlords, interference). Sample newsletter (April issue) due out 3/27/84; send 25c or 2 IRC's.

Nex meeting March 9, 1984. Please write to: NYDXA, 4103 Fort Hamilton Pkwy, Brooklyn, NY 12219, Attn:Greg Baker, Secretary (212)853-1427 6-9pm only.

DX Hotline: (212)981-4866, Updated 7pm each night.

>>><<<  
We here at SCANGEEK are planning to start a new publication for the radio monitor. It will be a quarterly newsletter covering the DC metro area.

I am writing to ask if it would be possible to obtain a mailing list from you of all your subscribers in VA, MD and DC.

Jim Buscher  
P.O. Box 26066  
Washington, DC 20001  
(Our subscriber lists are kept confidential. Readers who would be interested in Jim Buscher's new publication "SCANGEEK" may wish to contact him directly...Bob)

>>><<<  
The North Area Repeater Association will sponsor the state's largest swapfest and exposition for amateur radio operators on Saturday June 2 at the Minnesota State Fairgrounds in St. Paul. Free overnight parking of self-contained campers on June 1. Call wide area repeaters 25/85 or 16/76 for directions. Exhibits, booths, giant outdoor flea market, and prizes. Admission \$4. For more information or dealer inquiries, write Amateur Fair, P.O. Box 857, Hopkins, MN 55343; or call (612)420-6000.



# ANARC

Association of  
North American Radio Clubs

## 20<sup>th</sup> ANNIVERSARY

1964-1984

## Project ELF Ordered to Stop

A UPI story cites an environmental impact study as a cause to cease construction of the US Navy Project ELF, an extremely Low Frequency (76 Hz) transmitting facility at Clam Lake, Wisconsin.

U.S. District Judge Barbara Crabb stated that an EPA study completed in 1977 was insufficient for the project, first proposed in the 1960's as Project Sanguine, later called Project Seafarer, but all intended for communications with submerged submarines worldwide.

The permanent injunction was levied January 31,

1984 and ordered a halt to all construction of the sister facility in Upper Michigan (Marquette) as well as further work at Clam Lake.

A number of conservationist groups were jubilant over the victory, as was Wisconsin governor Anthony Earl. Environmentalists had feared genetic damage from the transmission and also weakening of U.S. peace-keeping credibility due to the installation of this nuclear-hardened system.

Thanks to George Primavera for sharing this item with fellow MT readers.

1984

## ARRL REPEATER DIRECTORY



### REPEATER DIRECTORY



Hear ham radio operators in action! The ARRL Repeater Directory lists, by location, over 6,000 Amateur Radio repeater stations and their frequencies where you can listen-in on everything from casual conversations to real emergency communications. Who knows, maybe you will catch the Amateur Radio bug! The 1984 Edition is only \$2.00 (In quantities of 5 or more, \$1.75 each.)

Enclosed is my  check  money order in the amount of \$ \_\_\_\_\_ for \_\_\_\_\_ copies of the 1984 Repeater Directory

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# STOCK EXCHANGE

## PERSONAL

NOTE: Monitoring Times assumes no responsibility for misrepresented merchandise.

SUBSCRIBER RATES: \$.10 per word, paid in advance. All merchandise must be non-commercial and radio-related. Ads for Stock Exchange must be received 30 days prior to publication date.

For Sale: YAESU FRG 7 receiver. GILFER MOD, Battery Pack. Counter Output, 12V Output. Mint \$250.00. BEAR-CAT 250 Scanner - Mint. \$235.00. Jerome Brent, 98-01 67th Ave., Rego Park, NY 11374.

\*\*\*\*\*

DRAKE R-7 like new with 4 filters. Perfect condition with manual. Retail \$1,400 without filters. Asking \$1,000 firm, money order, UPS shipping. Alan Plotnick, 77 Woodlawn St., Hamden, CT 06517; (203)281-3915 No collect calls.

\*\*\*\*\*

K500 REGENCY 40 Ch. Scanner. Excellent condition \$175.00. DX 160 REALISTIC Shortwave, very good condition \$75.00. TRAM D201A CB Base 40 Ch. Excellent \$575.00. Cashiers check or money order. Thomas Young, 1308 Drew Ave., Greenwood, SC 29646; (803)229-6918.

\*\*\*\*\*

## COMMERCIAL

\$25 payment must accompany ad. Send 2 1/4" wide x 2" long camera-ready copy or we will type copy (35 words maximum).

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\*\*\*\*\*

YAESU FRG-7/GILFER filter kit. Never used. Mint. \$225. Evenings:(703)221-8344.

\*\*\*\*\*

MILITARY RADIO GEAR turns me on--I particularly crave more German, Japanese WW2 gear for my collection. Also UK#18, 21, 48, Canadian RCAF AR-6, US gear except no post-1945 FM/VHF. SELL: CENTURY-21 \$150, SHACK DX-302 digital \$135, NAVY TCS transmitter, extras, \$50. Send SASE for my sell/trade list. Hugh Miller, 11206-1 NE, Seattle, WA 98125.

\*\*\*\*\*

# INFORMATION PLEASE

MONITORING TIMES WILL PRINT AT NO CHARGE (AS SPACE PERMITS) ANNOUNCEMENTS AND QUESTIONS OF A NON-COMMERCIAL SERVICE NATURE.

WANTED - Any information on the Radio Swan operation, especially as it related to the Bay of Pigs invasion. All information will be greatly appreciated. I am doing research for an article on this station. Please sent it to: Mark W. Johnson, P.O. Box 251, Fairfield, ID 83327.

\*\*\*\*\*

Can anyone tell me who owns the antenna farm just west of Miami on the east side of Route 27, just north of the intersection of Route 41? And how about the one west of the Miami bypass tollroad at Interchange S.W. 152? Are they for WOM? Zel Eaton, 904 E. Wall, Kirksville, MO 63501.

\*\*\*\*\*

Aren't there any YL's out there who are into shortwave listening? I have swapped a number of photos and letters from male CB'ers and hams, but no young ladies (of any age!). I would appreciate any operating position photos from YL's and will be happy to exchange same. (Arnold Feldman, P.O. Box 700, Jessup, MD 20794)

\*\*\*\*\*

Would the person I traded radios with and who called one evening I was out please either call me back or write. I misplaced your address when I moved. Jim Broadbent, 127 Birchbrow Ave., North Weymouth, MA 02191.(617)335-4441.

\*\*\*\*\*

Info wanted: Would like to hear from anyone who has researched the sensitivity ratings of various portable

FM broadcast receivers for best DX reception--including walkmans and car radios. Steve Sorman, P.O. Box 30363, St. Paul, MN 55175.

\*\*\*\*\*

Would like to correspond with anyone having any information on the Hellschreiber transmissions or printers. I understand that one or two are in operation in the U.S. Also does anyone have any practical conversion information on transistorising a BC 453 Command receiver? All letters will be answered. Richard Hope, VK3DLJ, 53 Seymour Road, Elsternwick, Victoria, 3185, Australia.

\*\*\*\*\*

Can a Xerox 4001 Telecopier be converted to FAX? I need a schematic for it (4001). Can your readers help? Frank Young, 725 Booker, Little Rock, AR 72205.

\*\*\*\*\*

Anyone having knowledge of any correctional institution that allows their inmates to use shortwave receivers please contact Robert Leary at 696 Fouse Ave., Akron, OH 44310.

\*\*\*\*\*

Would like to contact readers in state of Maine for frequency check and others for frequency exchange in Canada and USA. Gilles Thibodeau, 3653 Montcalm, Lac-Megantic, Quebec, G6B 2H8, Canada

\*\*\*\*\*

Would like to correspond with military hams, SWL's. I'm going to Vicenza, Italy in May. Would like to buy a novice transmitter. Can I operate from Italy with a Novice license? Ed Hutton, 1300 Pettus St., Dothan, AL 36301.

\*\*\*\*\*

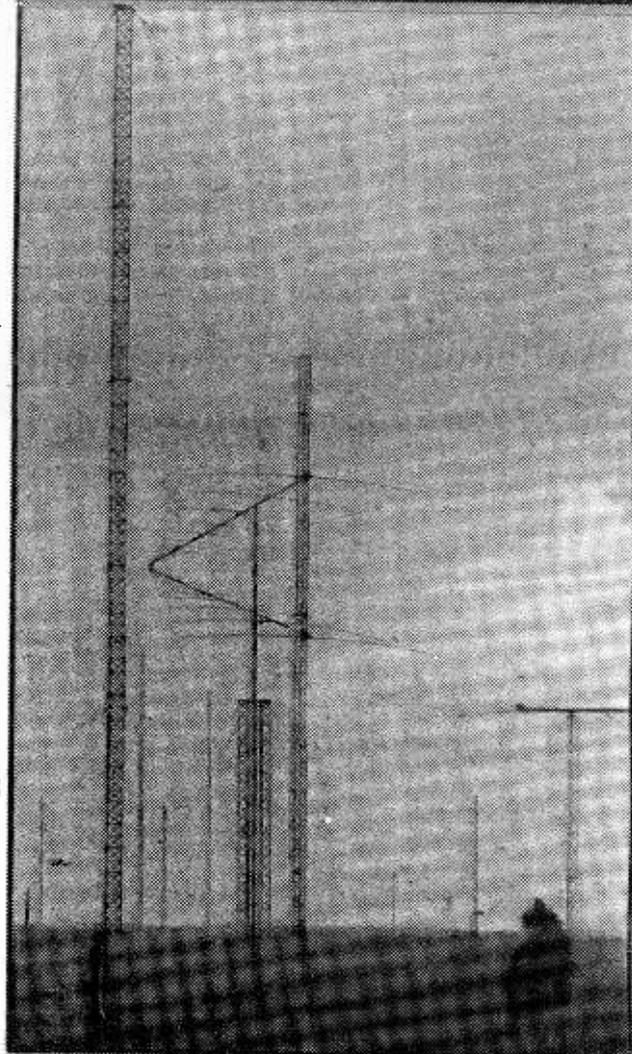
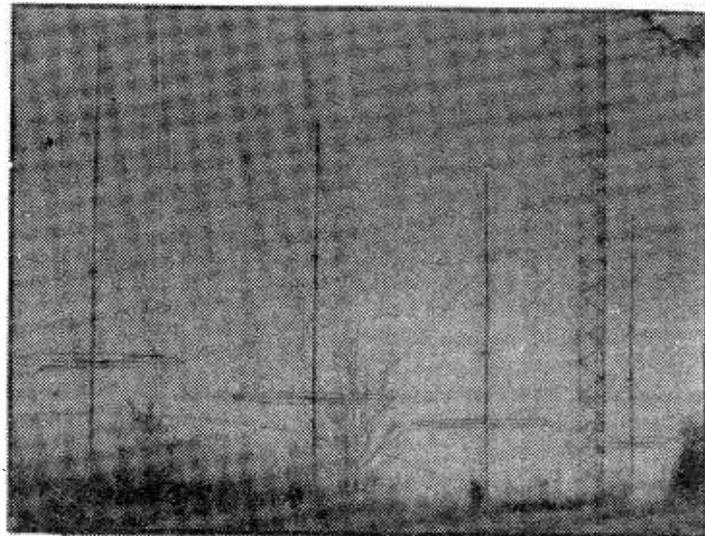
## NUMBERS STATION from p.1

Now that the origin of the U.S. numbers stations has been determined, that part of the mystery has been solved. Yet questions continue to linger: are these transmissions merely routine quizzes ("Agents, pick up your pencils") or do they constitute actual communications to distant points?

What is the connection between the four-digit U.S. transmissions and the five-digit broadcasts ostensibly from Havana? Or could it be Guantanamo Bay?

Is our curiosity a harmless pursuit of inspired hobbyists, or are we intruding into an area where we should not tread?

Perhaps someone else will come in out of the cold and tell us.



(All photos courtesy The Washington Post Magazine)

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