



MONITORING TIMES

VOLUME 2 NUMBER 5

BRASSTOWN, NORTH CAROLINA 28902

SEPT/OCT, 1983

TRACKING THE GREAT STORMS

During late summer and early fall, a major climatic shift produces one of the most awesome seasons--that of the Great Atlantic hurricanes.

While the news media may report local weather affected by these storms, Monitoring Times readers may wish to tune in where the action is.

We would like to thank reader Eric Nilsson for his contribution of this list of frequencies used by the U.S. Coast Guard Naval Communications Station at Portsmouth, Virginia.

Station NMN provides regularly-scheduled broadcasts of major weather systems affecting the entire eastern and Gulf coasts of the USA. During hurricane season, these broadcasts provide up-to-the-minute status reports on the advancing storms.



U.S. COAST GUARD WEATHER BROADCASTS (upper sideband)
Time (GMT) Freq. (kHz)

Offshore

4428.7, 6506.4, 8765.4 at 0400z and 1000z

6506.4, 8765.4, 13113.2 at 1600z and 2200z.

High Seas

4428.7, 6506.4, 8765.4 at 0530z

6506.4, 8765.4, 13113.2 at 1130z and 2330z

8765.4, 13113.2, 17307.3 at 1730z

Traffic Handling

8465.4 8534.5 12664.5
12718.5 16976.0

Additional Freqs.

2666.0 2706.0 12422.0
16566.0 22099.0 22106.0

Reconnaissance Aircraft

381.0 MHz (AM)
383.9

TUNE IN ON THE WEATHER NETWORKS

by Dante Ventriere

Being an active amateur radio operator and SWL enthusiast, I'm always searching the bands for unusual and interesting communications. For me, some of the best listening can be heard in the summer during the hurricane and boating season.

You can tune in the Coast Guard on their well known VHF-FM frequencies and often good action can be monitored. You can also listen to NOAA hurricane hunters on 304.8 MHz.

From Florida and in Spanish, the Cuban Coast Guard can be heard on 2760 kHz AM, 24 hours a day. Their communications are between ships, patrol gun boats and the naval base.

Boat chases as well as search and rescue missions can be heard.

For those of us who

enjoy tracking storms, the U.S. Government provides continuous forecasts and related weather information on RTTY, VHF-FM, HF facsimile, shortwave, over telephone lines and direct from satellites.

These services are all free and available to anyone who knows how to use them.

The National Weather Service in Miami runs RTTY weather broadcasts (100 WPM, 850 Hz shift), including Tropical Depression, Storm and Hurricane Bulletins (freq. kHz):

--16440, 14853, 10950, 8130, 5925, and 3235 kHz (Airport weather summaries nationwide 2300-1200 UTC).

--18765, 13624, 8140, and 4061.5 kHz (Synoptic weather, five-digit code groups, for aviation and marine interests, 24 hours.)

--8105 and 3223 kHz (Worldwide weather summaries, statistics, storm

tracking and bulletins, in English.)

The U.S. Coast Guard also broadcasts tropical storm bulletins for marine interests. These broadcasts are HF, USB. The frequencies and times are as follows:

Frequencies
4430 6507.8 8766.8

Times (GMT)
0400 0530 1000

Frequencies
6507.8 8766.8 13114.6

Times (GMT)
1130 1600 2200 2330

Frequencies
8766.8 13114.6 17308.7

Time (GMT)
1730

FACSIMILE

If you own a facsimile recorder (available from Atlantic Surplus Sales, 3730 Nautilus Avenue, Brooklyn, NY 11224, 212-372-0349), you can receive complete weather forecasts and satellite pictures 24 hours a day.

Continued on page 14

MONITORING TIMES

GOES MONTHLY

There is good news for subscribers to Monitoring Times, the first publication written for serious listeners to the radio spectrum.

Starting with the January 1984 issue, Monitoring Times will be published monthly. (Present subscribers will receive their additional issues at no extra cost!)

The size of Monitoring Times will remain the same--at least 28 information-packed pages per month.

Authors are being notified to beef up their output to bring you even more authoritative, newsbreaking stories, new product frequency lists and much, much more.

Renew your subscription now! Don't miss a single issue!



MONITORING TIMES

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JOIN THE MONITORING NETWORK

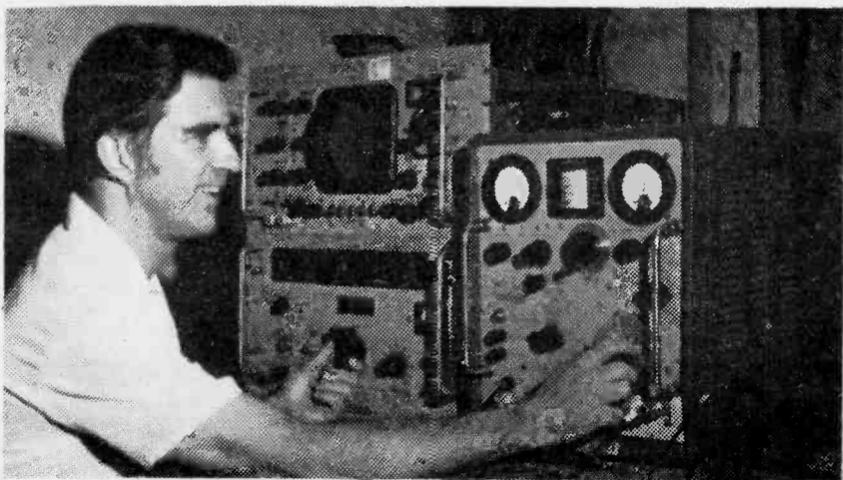
July 14, 1983 at 0100 UTC inaugurated the North American Monitoring Network. Initial callup was on 14316 kHz USB, but stations quickly moved to 7227 for better propagation of signals.

An average of a dozen or more stations are checking in at the time of this writing, with numbers increasing each week.

Topics range from discussions of new equipment and antenna designs to identification of unusual signals heard on the air. All frequency ranges are fair game.

Licensed amateurs are encouraged to call in and

FROM THE EDITOR



FREQUENCY FRONTIERS

...Will shortwave communications become a relic of the past?

Many listeners, aware of the mass migration of tactical communications to satellites, have expressed concern that shortwave utilities monitoring might be doomed to extinction.

Not so. If the past is an indicator of the future, there will always be alternative means of communications exchange, whether by hardwired systems, satellite relay, point-to-point RF or whatever.

Shortwave radio has its limitations (propagation, interference) but it also has advantages: it is extremely inexpensive, adapts well to portability and, with frequency agility, highly reliable.

Historically, there has always been a gradual trend higher and higher in frequency. The land mobile services have been the front runner in the trend.

But a quick tour of the HF spectrum reveals a well-entrenched concentration of services: broadcasting, navigational beacons, long-distance RTTY, CW and other services as well.

Radio communications is here to stay. Various services may come and go, flowing with a tide of popularity from one band to another, but the radio spectrum as a whole will remain a viable medium in the future and shortwave is an integral part of it.

shortwave listeners are invited to tune in and learn more about the excitement to be heard throughout the spectrum.

While the primary call-up will be 7227 kHz LSB, and alternate frequency of 7268 kHz will be utilized in case of interference.

Hopefully, net members will be inspired to install radio direction finding equipment to assist one major goal of the net: identify unknowns.

VIEWPOINT

I read with joy & thru many tears the PROFILES article in the July/Aug MT. John is a very precious & special friend & he treated the subject with a great deal of kindness toward the institution.

Family & friends are restricted in sending things to their loved ones. Everything must be approved & scrutinized & come directly from the manufacturer or publisher. Letters are read & things intended only for the inmate become staff gossip. Theft of inmates' few possessions is high & the thievery comes from both sides of the bar.

From the pittance the inmate earns he must buy everything he uses, from postage right down to the bar of soap on his sink. Sometimes there's a little left over for snacks, often overpriced & long past the expiration date code.

John is one of the lucky (?) ones. He has a small group of people who love him & support him. Many of the men never receive a visit or a card or letter. Bitterness, suspicion & depression are a way of life. The normally happy scene of father & child breaks the heart when children cling to their daddies in the visiting room. Before passing judgment on these men, put yourself in their place & see if you can bear it for even a moment & then multiply that by years or a lifetime.

John, I love you & always will no matter what the circumstances! Hang in there, Tiger.

(name withheld by request)

Dear Sir:

After reading the article written by John H. Demitt, K-0848 in your July/August 1983 issue of Monitoring Times, I must take issue on his comments regarding the penal system. Although it was not mentioned where the Rockview State Prison was located, it

is quite evident that Mr. Demitt is not quite satisfied with his accommodations.

If I may comment, there are always two sides to every story, and I feel that the Pennsylvania Bureau of Correction has their side also. I am not a spokesman for the Bureau of Correction, but I have been employed with them for over eighteen years and presently hold a security management position. And no, I do not work at the Rockview prison, which I might add is a minimum security institution.

I don't see why the readers would be disturbed and saddened that Mr. Demitt is in prison. He is no different than you or I; if we break the law, expect to suffer the consequences.

The cells are only as clean as the inmates keep them; it's their home away from home.

Prisons were not intended to be an offset of the Holiday Inn, and the employees are not servants to the inmates. The intention of the prison system, whether it be Pennsylvania or any other state, is to rehabilitate. And this can not be done unless the inmate is willing and has a positive attitude.

Whether it be the prison system or any other agency, private company, etc., nobody wants an embarrassing investigation. There is less violence in our prison system than in any large city in this country. Yes, we are quite overcrowded, and in light of that fact is why I make my last statement.

The security staff (Correctional Officers) do make rounds of the cell blocks throughout the night. He or she is making a check of the inmates with the three celled flashlight to insure that all the inmates are ok. The prison system houses some men and women with medical problems that require occasional attention, such as diabetes, epilepsy and many other medical ailments. These people must be monitored from time to time for their own well being.

I understand Mr. Demitt regarding the problem with his mail. Being short staffed as most state agencies are, everyone is capable of making a mistake when rushed to get the mail to the inmates before the work day ends. I'm not saying that the situation described by Mr. Demitt doesn't happen; it's a possibility.

-Continued on page 31-

THE LOWDOWN ON ELF

Part III

by Larry L. Ledlow, Jr.

In Part 2 of this series we discussed ELF transmitting antennas. Fixed transmitting antennas at these frequencies are enormous structures and require incredible amounts of power. The horizontal electric dipole antenna was the most suitable for fixed installations.

Mobile ELF transmitting antennas present severe size, weight, and power problems. At best ELF antennas installed in aircraft, for example, are severely limited to distance, and because of the very low data rate achievable at ELF, a mobile ELF transmitter offers few advantages over a line-of-sight VHF/UHF communications system. Of course, the ultimate advantage ELF has over ANY communications system is the ability to penetrate to significant depths water or earth.

ELF receiving antennas have special problems, although size and weight are usually not considerations. Receive antennas can be built to relatively small dimensions, but as we shall see, the problems to overcome can be just as limiting as those we encountered with transmitting antennas.

In Part 2 we introduced the idea of equivalent noise field (ENF). Basically, this is a measure of the sensitivity of a receiving antenna. The lower the ENF, the greater the sensitivity. At ELF it is more meaningful to speak in terms of ENF rather than gain, because the conventional antenna considerations most of us are familiar with at higher frequencies take on different meaning because of the enormous wavelengths (10,000 km) involved and the fact that the antennas may be surrounded by conducting media (e.g., seawater).

The atmospheric noise level at ELF is extremely high. This is but one problem of reception at ELF. Another significant noise problem is motion-induced noise.

Every time a wire or other conductor passes through a magnetic field an electric current is induced. The Earth has a magnetic field, and, believe it or not, every time we move tiny electric currents are generated in our rings, watches, ball point pens, and belt buckles (and you thought it was just spring fever). This normally causes no

problem.

At ELF, however, the range of radio frequencies overlaps the range of frequencies in the mechanical vibration spectrum. So, when an ELF receiving antenna vibrates due to mechanical movement of the supporting structure, signals are induced in the wires at ELF radio frequencies. These signals can be detected with an ELF receiver.

Various methods have been proposed to minimize antenna mechanical vibration, but the only one proven truly effective on mobile antennas is to make the antenna physically larger. And so we are back to the requirement of ELF antennas to be large structures.

Now we will examine several types of ELF receive antennas.

The first antenna we might consider is a vertical whip. We can imagine a vertical antenna consisting of a pipe or wire mounted vertically over a ground plane consisting of radials or wire mesh. It turns out that a length of a meter or so will work well to pick up atmospheric noise.

However, at ELF the antenna capacitance is only a few picofarads. This means that the input reactance can be hundreds of megohms. We need a very high input impedance at the receiver or preamplifier to match it.

As long as the weather is favorable, a vertical whip will work well. Unfortunately, rain or dirt will cause electrical leakage to the ground. This leakage is through an unknown and variable impedance, and we can get very significant changes in the antenna sensitivity.

Another phenomenon known as "precipitation static" occurs when snow or ice particles impact on the antenna. This phenomenon is a result of a transfer of electric charge from the antenna to the snowflake or ice crystal.

Still more noise is added to the system when the wind blows. Not only do we get vibration noise from the geomagnetic field, but while the whip blows around it changes capacitance with respect to the Earth.

In short, a vertical whip is a poor choice for ELF communications reception.

Loop antennas are mag-

(Continued on page 13)

MONITORING THE CIVIL AIR PATROL

by Mark W. Johnson

Thursday afternoon, April 7, 1983, Bob Grove was preparing a scanning receiver for an experiment in the Grove Enterprises laboratory. Suddenly, the distinct swept tone of an emergency locator transmitter (ELT) pierced the silence on the international distress frequency, 121.5 MHz. An aircraft was down.

A quick phone call to the Search and Rescue center at Scott Air Force Base confirmed the beacon; it had just been detected by the new Search and Rescue Satellite (SARSAT).

The Civil Air Patrol was placed on alert; jeeps and helicopters were immediately dispatched to locate and rescue the downed pilot.

The following article by Mark W. Johnson highlights briefly the history and, in more detail, provides exceptional insight into the day-to-day operation of this civilian adjunct to the United States Air Force.

Since its creation on December 1, 1941 the Civil Air Patrol has provided a valuable service to this country. From its inception until the end of World War II in 1945 the Civil Air Patrol flew virtually every day, performing a number of vital functions for an overtaxed military.

CAP crews flew spotting missions off the eastern and southeastern coasts looking for German submarines, occasionally dropping bombs and depth charges on them!

Other wartime services included search and rescue missions, cargo transport, towing targets for gunnery practice by anti-aircraft batteries, and flying night missions to train searchlight and radar crews in target tracking.

When the Civil Air Patrol was assigned permanent status as an Air Force auxiliary in 1948 it entered a new era. From this point on the CAP would provide benevolent and noncombatant services to the nation and to the USAF.

While the CAP is most well-known for the many search and rescue missions it flies each year, its personnel provide many other important services, including mercy flights and disaster assistance. Crews also stand ready to perform a

variety of civil defense and other missions.

Because of the diversity of its mission, the CAP relies heavily on an extensive communications network. This network makes wide use of the HF spectrum for training communications personnel, daily net operations and communications with the USAF. The VHF aeronautical band and some frequencies adjacent to the amateur two meter band are also used.

The United States is divided into eight Regions which are, in turn, made up of several states, each of which is called a wing.

The wings are further divided into sectors, groups, squadrons and flights, with squadrons being the basic operational unit (sectors and groups are not found in every wing).

Each CAP Region is assigned a primary and an alternate frequency in the 4 MHz band. These frequencies are used for the regular nets conducted by region and wing stations (see fig. 2).

Also in the 4 MHz band is the National Emergency Frequency, 4583.5 kHz, used for communications concerning affairs relating to official CAP business and emergency communications.

Two frequencies in the VHF aeronautical band, 123.1 MHz and 122.9 MHz, are also used by the CAP. The former is used only during actual search and rescue missions and the latter only during rescue tests and training missions.

In the VHF band 148.150 MHz is the primary simplex frequency. The output frequencies for CAP repeaters are 148.150 MHz and 149.925 MHz. The 148.150 MHz frequency is used on a national basis so it should be monitored closely.

Rounding out the CAP frequency allocations are those used for communications with the USAF. These are listed in Figure 3.

Since the CAP is an auxiliary of the USAF it patterns some of its practices after the military. One notable example is the tactical call signs used by each region and wing. Figure 4 shows the call signs used by the various stations.

The CAP operates daily nets within each of the eight regions, providing training for communications

(Continued on page 20)

- SCANNING ->

Editor's note: Lawrence Cotariu is a freelance writer for a number of hobby publications; his own hobby is listening in on the exciting world of scanner monitoring.

Let's hear Larry introduce one of the most fascinating articles we have yet run in the pages of Monitoring Times.

You are watching the late news or listening to your favorite radio station's hourly news broadcasts. A news story breaks in your area--a fire, a bank holdup or a number of other events that cause newsrooms of the broadcast media to begin bristling with an air of urgency.

The link between the incident and your TV or radio begins with the news desk at the station. The story is assigned to a news crew, usually comprised of a reporter, film or video crew and a small complement of engineers.

The assignment can be given out by telephone but usually is made through the use of their assigned VHF or UHF radio frequencies.

25.87-26.47	Old; seldom used now)
161.64-161.76	(30kHz channel spacing; search in your area)
166.250	
170.150	
450.050-450.925	(repeaters; search in your area)
455.050-455.925	(repeater inputs for above)
BROADCAST REMOTE PICKUPS (FM) (FREQUENCIES MHZ)	

Join with us as we look behind the scenes at some recent--and very exciting--headline stories.

"Are you getting any kind of handle as to the number of people being held hostage?" came the voice of the managing editor of the Chicago TV station. "City News is saying eight - four women and four men. Can anyone over there confirm this?"

An on-the-scene reporter was monitoring her portable VHF radio, anticipating her cue from the studio for her live report. "There is a hostage situation in progress in the Loop area of Chicago. It is at the German Consulate; WBBM's Diane Apt is on the scene of a report."

"A man and a woman are holding the German Consular in his tenth floor office. Police from Chicago and somebody from the German Consulate are negotiating for the release of the Consular. At this point, no shots have been fired. We will have more as it becomes available."

A nearby news reporter, watching every move in the consulate, telephoned his studio. A radio relay of his assessment was transmitted to the journalists at the scene.

"He sees two men. He sees three men. One in a sports suit with a pistol in his hand and stylishly dressed. Second man is shorter and his hair is fashionably cut. In his hand and attached to his chest is something that looks like a bomb! It has wires coming out. There is a third man. He is wearing a checked coat and it seems like he is holding a two-way radio. He may be in contact with some other people. There are five hostages he sees. Three women and two men. All of whom have been moved to a room on the northeast side of the building. People on the floor below have just been evacuated."

Throughout this episode reporters were telling their editors various things they were seeing. They have to get approval from their supervisors to put these items on the air. Many details were not broadcast, like the positioning of the police inside the occupied building.

No doubt the consulate had a TV or radio tuned in to the local broadcast stations during the siege. There is a fine line between the public's right to know and the airing of any material that would endanger the lives of the hostages.

"I'm standing on the steps of the Art Institute directly across the street from where the hostage drama has been unfolding. The situation is that there are seven people being held. The captures are reportedly by people claiming to be Croations. They claim to have explosives and their demands are not yet clear. One hostage was released in the last hour. The Chicago Police have set up a command post on the ninth floor, one

TUNING IN ON TV NEWS CREWS

by Lawrence I. Cotariu



below the Consulate. Several floors of the building now have been vacated but others have not. I could see people looking out of windows." This was another of many reports radioed in.

The story dragged on for ten hours. Then a voice alerted their reporters to go to the back of the building. They had a tip that something was about to happen. Then all radio frequencies rang out with the announcement: "The hostages have been freed! The terrorists have been transported from the rear of the Consulate to police headquarters."

.....

Aircraft Hijack in Progress

"Joey, break off from whatever you're doing and get over to the airport. There is a Northwest Orient plane on runway 22 that is being hijacked," came the newsroom voice of a Minneapolis, Minnesota news editor.

"Set up the mini-cam on Old Farm Road just west of the expressway. Prepare to go live."

"The police have set up a roadblock here and won't let any vehicles through," was the reply from Mobile 4.

"Find out who's running the show out there and we will get you in," the news producer barked.

"Joe, try to get ahold of the FAA's public affairs officer for an interview, will yah? Base out."

"Mobile 4 calling news. I have the FAA guy with me. When do we go on?"

"In thirty seconds. Take your cue from your two-way. Standby - four, three, two, one!"

"We are standing here with a representative from the Federal Aviation Administration. I have a few questions for you, sir. How many passengers are on board?"

"Almost 140 people plus

6 crew members."

"There have been reports that the hijacker is demanding release of some prisoners. Do you have any information on this?"

No, it's too new and I just arrived at the airport."

"The FBI is now negotiating between the tower and the aircraft. We will get back to you with more details in ten minutes."

Flight 293 from New York LaGuardia was enroute to Minneapolis when the pilot radioed that his plane was being captured over Wisconsin.

The plane now on the ground, a reporter described how he was watching a car on the runway when three men came out of it and headed for the plane. He described how these negotiators were under the belly of the aircraft and plugged into a jack that enabled them to communicate with the cockpit.

The two-way radio news radio came alive. "John, we understand that you were roughed up a bit."

"I'm fine, only got slugged in the stomach by an airport security guard. That comes with the territory," replied the spunky reporter!

The passengers were ultimately let off the plane in Minneapolis; then about midnight a reporter's voice crackled: "There is something happening around the plane. Could I go live?"

"Wait a minute and we'll notify the booth. Go ahead, Pete!" The mini-cams lit up.

"Just a few minutes ago, the Northwest Orient

jet has come to life. Its navigational lights have been turned on and now the cabin lights. Now, I hear the whining of an engine, now another. It is beginning to move. It's making a turn onto another runway.

(C)

TUNE IN THE AIR SHOWS

by Richard L. Kramer

Now it is speeding up and heading for a take-off. It's in the air, headed in an easterly direction. We don't know what its destination is."

The story was now moving out of Minneapolis but the station management wanted to follow this story on to its conclusion.

"Pete, the plane is heading for Kennedy in New York. Are you interested in being in a chase plane?"

"O.K., but what about accommodations for me and the crew?"

"You will stay at the hotel that is on the airport premises. Be at American flight 989 in fifteen minutes at gate K2. Got it?"

Within a few hours the news team and the commandeered plane touched down in New York City; an affiliate news team there picked up communications with Pete, whose walkie-talkie now came alive.

"John, the hijacker is walking down the stairs now. It looks like he is talking to someone from the New York police but I can't tell. I have binoculars but cannot see that clearly. He came down the steps with a person in civilian dress. Not a crew member. It could be his lawyer. The three men are standing having a conversation. Stand by, I'll move to a better vantage point. John, the drama seems to be over here at Kennedy International. The skyjacker has been put in a police car and they are taking him to police headquarters."

"Nice reporting, Pete. We'll play the tape on the air," came the compliment from the news director.

Covering the Pope

"Gibbie, can you line up anyone who has been baptized, married, or received communion by the Pope?" was the voice heard through the ear plug worn by the veteran anchorman. "Gibbie, you'll have to nod. Your microphone isn't opened."

"Standby remote. Dissolve remote. You're hot," were the instructions to the camera crew at the mass now being concluded by the Pope on the city's southside.

"Remote, can you shoot anything that is a symbol? Try a shot of a candle by the Altar. Give me a camera nod. Show me the wide crowd. Standby. Clear."

In a few minutes, the Pope's motorcade had embarked from one site and headed for Grant Park.

"Grant Park remote. Give me a camera nod if you can hear me. Just a double check."

"Wrap Gibbie; standby Hill." Cameras zoom out on Gibbie. "Hold remote camera. Ready; standby. Grant Park video is now hot."

It was November 1962 in Dallas, Texas. President John F. Kennedy's motorcade was just coming into view of the book depository. A Dallas TV station's news reporter was on his hand-held radio reporting what he was seeing.

"The motorcade is coming into view, rounding the corner onto Industrial Drive." Then, "I just heard two popping sounds--like gunshots. The motorcade is speeding up! Something is terribly wrong! Jackie is trying to climb out of the Presidential limousine onto the truck. A secret service agent is stopping her and pushing her back into the car."

The rest is history. ✓

OUTGOING

QSL BUREAU

SWL's and DXers will be interested in writing Bill Carney, Jr. about his new service designed to assist shortwave, medium wave and longwave listeners (not hams) in their QSL attempts.

Bill adds that he might add TV and FM DX'ing later if there are enough requests.

To use his service, listeners are requested to send reception reports to this address and enclose one airmail stamp for each ten reports. Each report MUST have the station's full address on it.

Reports collected will be forwarded once a month; you may wish to enclose an SASE or postcard if you wish confirmation of receipt of your reports. QSL's will come from the broadcaster.

For more information contact Bill Carney, 2660 Seven Mile, Pinconning, MI 48650. ✓

Memorial Day has passed by again along with the McGuire AFB Air Show for 1983. Despite some thunderstorms in the area at showtime, only a few demonstrations were cancelled.

The Canadian Snowbirds performed along with the Air Force Thunderbirds. KC-135 tankers refueled F-4's while C-141's dropped paratroopers.

C-141's, C-5's, a Marine helicopter, a Coast Guard Search plane, and an Army helicopter were on display.

Many frequencies were in use in the VHF-AM, UHF-AM, and VHF-FM bands. My CVR-1A performed flawlessly hooked up to my vehicle's Tri-band antenna.

A list of frequencies follows along with some scheduled performances by the Snowbirds and Thunderbirds.

McGuire AFB - Air Show 83

FREQ.	BAND	USAGE
255.600	UHF	Tower, primary air show coordination
236.600	UHF	Tower, secondary
259.300	UHF	App./Dep.
363.800	UHF	App./Dep.
275.800	UHF	Ground control
395.900	UHF	App./Dep.
318.200	UHF	Traffic Advisory
290.900	UHF	App./Dep.
148.075	VHF	Ramp control
163.460	VHF	Security
163.560	VHF	Security
265.500	UHF	Atis
132.300	UHF-CVR	Canadian Snowbirds air/air
127.050	UHF-CVR	USAF Thunderbirds air/air
124.950	UHF-CVR	
286.700	UHF	F-4's opera-

tions, callsign FOX -- 139.600 VHF AF operations air/ground, air/air

US AIR FORCE THUNDERBIRDS

September

- 3-5 Cleveland, OH
- 7 Grand Forks AFB, ND
- 10-11 El Paso, TX
- 17 Hill AFB, UT
- 18 Peterson Field, CO
- 20 St. Joseph, MO
- 24 Davis Monthan AFB, AZ
- 25 George AFB, CA

October

- 1-2 Topeka, KS
- 8 Kirtland AFB, NM
- 9 Harlingen, TX
- 13 Corpus Christi NAS, TX
- 15-16 Lake Charles, LA
- 22 Norton AFB, CA
- 23 Mather AFB, CA
- 29 Holloman AFB, NM
- 30 Edwards AFB, CA

November

- 5 Homestead AFB, FL
- 6 MacDill AFB, FL
- 12 Tyndall AFB, FL
- 13 Patrick AFB, FL

While frequencies may vary from show to show, several VHF/UHF channels seem to be repeated. These may include the following:

- 118.1 Ground control
- 126.2 "Eagles" prop stunt planes
- 134.1 Parachutists
- 142.0 Air to air
- 241.4 Primary UHF
- 250.8
- 391.9
- 395.9

Additions and corrections for the Blue Angels and Air Force Thunderbirds would be appreciated. Send them to Bob Grove, Editor of Monitoring Times, Brasstown, NC 28902. ✓

FREE QSL'S?

MT reader George Primavera alerted us recently to the availability of a free QSL printing service offered by RCA as part of a promotional campaign of their

government systems division. For more information, write Tom Blueween, RCA Government Communications Systems, Mail Stop 13-4, Camden, NJ 08102. ✓



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BROADCASTING

PIRACY GOES POLITICAL

by John Santosuosso

June 19, 1983, will go down as one of the most controversial days in American pirate history. That was the date of the initial broadcast of a station calling itself the Voice of Tomorrow.

From a technical standpoint the VOT showed quite clearly it was not a bunch of "kids playing radio." Signal strength in many parts of the East and Midwest was quite good with superb audio quality.

The station also had the production facilities to modify its programs, changing the musical selections, which range from classical to rock, while maintaining the same editorial content.

In addition, a number of shortwave hobbyists received printed cards in advance of the transmissions inviting them to listen.

The VOT in its first broadcasts claimed a rather elaborate organization. While a Bristol, Virginia, mailing address was announced, the VOT claimed to have studios in Providence, Rhode Island, and a 2 kw transmitter in Baltimore.

Frequencies of 6240, 7410, 15100, and 15416 kHz were given, although only the first two appear to have been in use the weekend of June 19.

Perhaps the use of 7410 is particularly significant, since that frequency is also used by the Israel Broadcasting Authority. VOT claims that all of the American media are under Jewish control and that it is the only station free to proclaim the truth.

It also advocates a policy of white supremacy. Quite clearly, the VOT is not your typical hobby pirate!

Although England's Radio Enoch has for a number of years preached a right-wing political philosophy, the free radio movement as a whole has for the most part tended to avoid political involvement and seen itself as providing entertainment and the opportunity for personal creativity.

With the VOT we appear to have entered another era -- one filled with disagreement.

Other pirates have expressed a variety of views about the VOT. Some condemn it completely; others concerned about the right of

freedom of speech, have defended its right to broadcast while rejecting its philosophy. Still others have expressed concern that attempts by the FCC to close it down could lead to a massive crackdown against all pirate stations.

Now that the VOT is a reality, will other political pirates appear? The possibility cannot be ruled out. Careful monitoring of the "pirate bands" during the next several months may prove interesting.

If you want to try monitoring the VOT your best bet is to try the frequencies listed above weekends between 2200 and 0500 GMT.

IRISH PIRATES FIGHT BACK

The Irish government wanted all pirate stations in that country to leave the air by June 30. It closed two of the most popular, Sunshine Radio and Radio Nova, for a few days, claiming they were interfering with other radio services.

However, with only a few minor exceptions, the stations have not been intimidated and continue to broadcast.

Those living in the East and Midwest can still tune in one of the oldest and most successful of the Irish operations, Radio Dublin. With a homemade transmitter and a boost of power on April 1 to 900 watts, Radio Dublin often makes it to North America in the evening hours. Look for it on 6910.

Reception reports can be sent to Radio Dublin, Dublin 8, Republic of Ireland. The station is a good verifier. If the authorities do attempt to raid Radio Dublin they will have their work cut out for them; station employees recently anchored the transmitter in concrete to insure it would not be removed!

ENGLISH SPEAKING CLAND

The most exciting clandestine activity these days continues to be from Central America. Unfortunately, many SWL's avoid these stations believing they will not be able to understand the Spanish language broadcasts.

Actually, if you listen carefully for names of persons and places you will be amazed at how much information you can obtain from a broadcast in a language you do not speak.

If you want something
-Continued on page 11-

DX'ERS FAVORITES

by Roger N. Peterson

I have just returned from a trip to Great Britain where, among other things, I spent half a day with the people at the BBC. One of the questions I asked was when the BBC would once again have a DX program. (Some of you old timers may recall the BBC's "World Radio Club" one of the best of the DX programs in its day.) Their reply was that they already have a DX program in the form of "Waveguide."

Some purists would argue over whether "Waveguide" is a DX program or not. The World Radio TV Handbook defines a DX program as a "broadcast intended for the enthusiasts interested in the various nonprogramming aspects of radio reception."

From that standpoint, "Waveguide" fits but, as many of you who have listened to it know, the program is primarily concerned with frequency information solely about BBC broadcasts. In fact, the BBC billboards "Waveguide" as "how to hear us better."

The people at Bush House in London, state that they expect "Waveguide" to broaden out in the future and cover more than just BBC frequency news. In any case, if you are into BBC broadcasts, you'll want to tune in to "Waveguide" every week. Hear it on Monday at 0915 GMT on 21.660, 15.070 or 11.750 MHz; Tuesdays on 0100 GMT on 7.325, 11.75, 6.12 or 6.175 MHz; on Wednesdays at 0430 on 6.775 or 5.975 and at 1735 on 15.070, 21.71 or 9.515 MHz.

Regardless of your listening habits, the one DX program that you won't want to miss each week is Radio Canada International's "DX Digest." Ian McFarland, the

show's host, is an old timer on shortwave and has put together the best allround show for North American listeners you can find. It has a magazine format and usually features the wellknown Larry Magne to keep you up to date on the latest receivers, antennas and other shortwave equipment.

Every week, Glenn Hauser comes on with the latest in shortwave frequency news. Aside from some special interests you might have, this program will take care of 90% of your DXing information needs.

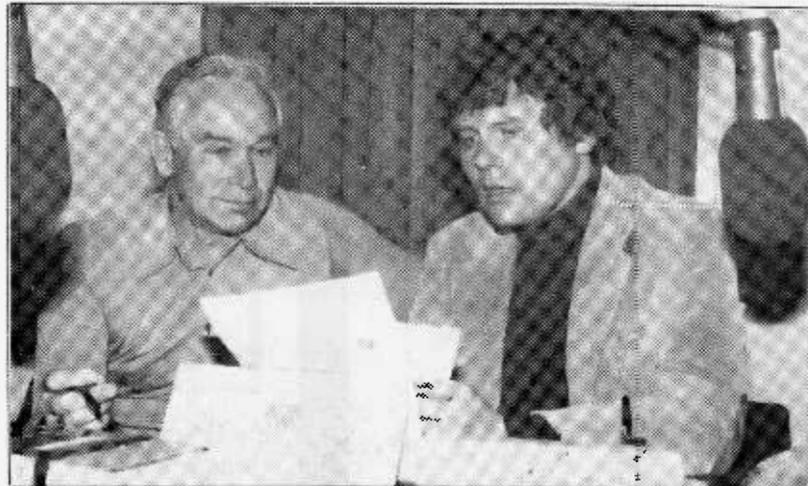
You can hear this program on Fridays at 2240 on 15.190 or 17.820; Saturdays 2135220 on 17.875, 17.820, 15.325, 15.150 or 11.945. Sundays at 1930 on 17.875, 15.325, 11.825. GMT Mondays at 0200 on 15.190, 11.845, 9.755, 9.535 and 5.960.

In second place among DX programs (as this author rates them) comes Radio Netherlands' "Media Network." This program is also a magazine format and features numerous correspondents from different parts of the world.

It's an interesting program to hear but lacks the up-to-date information for North American listeners that the Canadian "DX Digest" offers.

The problem with trying to please everyone throughout the world with one broadcast is that the listener in South Carolina usually hears different things on shortwave than his opposite number in South Korea.

It may be nice to know that a listener in Finland, for example, can hear some obscure USSR station clearly but the chances of a listener
-Continued on page 22-



Bob Thoman (left) and Bob Zanotti (right) are the hosts for the "Swiss Merry-Go-Round" DX program heard on Saturday mornings here in the U.S. It's one of the best on the air.

We'd like to give a special "Thank you" to Kenneth Jillson who responded to readers' pleas for California listings; in turn, we have included Kenneth's request for information in this month's "Information Please" column.)



Listener's log

CENTRAL CALIFORNIA SCANNER MONITORING

by Kenneth Jillson
Coulterville, CA

COUNTY SHERIFF

- 159.210 Stanislaus Co Ctrl
- 158.730 Stanislaus Co Ch2
- 158.865 Stanislaus Co Ch3
- 154.890 Merced Co Dispatch
- 154.920 Merced Co Ch2
- 153.995 Mariposa Co
- 184.920 Mariposa Co
- 39.800 Fresno Co Dispatch
- 39.880 Fresno Co Secondary
- 39.940 Fresno Co Dispatch Main
- 155.160 Fresno Co Pine Flat Dam
- 45.500 Fresno Co
- 45.660 Fresno Co
- 45.420 Tuolumne Co Disp.
- 46.020 Tuolumne Co Ch2
- 158.910 Monterey Co
- 159.090 Monterey Co
- 158.775 San Benito Co
- 45.320 Calaveras Co
- 39.420 Madera Co Dispatch
- 45.780 Madera Co
- 45.220 Madera Co
- 155.565 Santa Cruz Co
- 154.755 SanJoaquin Co Main
- 155.610 San Joaquin Co
- 156.210 Santa Clara Co
- 155.070 Alameda Co
- 155.280 Alameda Co
- 155.190 Contra Costa Co
- 155.310 Contra Costa Co
- 155.040 Contra Costa Co
- 155.640 Contra Costa Co Danville
- 155.490 Solano Co Main
- 154.860 Solano Co Vacaville
- 155.130 Solano Co
- 460.075 Kings Co
- 460.125 Kings Co
- 45.980 Sonoma Co
- 460.125 San Joaquin Co Tac
- 39.10 Stockton Dept. of Corrections

- 156.030 Fresno PD
- 155.415 Fresno PD
- 159.030 Coalinga PD
- 154.725 Atwater PD
- 155.685 Livingston PD
- 155.895 Gustine PD
- 45.740 Chowchilla PD
- 154.815 Dos Palos PD
- 159.090 Riverbank PD
- 460.300 Corcoran PD
- 460.200 Hanford PD
- 453.650 Vesalia PD
- 45.460 San Fran PD
- 45.095 San Fran PD
- 45.100 San Fran PD
- 154.755 Fresno City PD

CALIFORNIA HIGHWAY PATROL

- 42.420 CHP San Jose
- 42.500 CHP San Jose
- 42.400 CHP Napa
- 42.880 CHP Merced
- 42.560 CHP Stockton
- 42.520 CHP Stockton-Modesto
- 42.440 CHP Fresno-Coalinga
- 42.080 CHP Fresno
- 42.120 CHP Oakland
- 42.120 CHP Sacramento
- 42.340 CHP Blue Channel (Central Valley)
- 42.660 CHP Mobile Merced <42.880>
- 42.720 CHP Mobile Stockton <42.560>
- 42.300 CHP Mobile Stockton-Modesto <42.520>
- 42.280 CHP Mobile Fresno <42.080 & 42.440>
- 42.940 CHP to Nevada HP
- 154.905 CHP Stockton (extended)

CHP COLOR CHANNELS BASE & MOBILE PAIRS

See page 26 for CHIPS!

Color	Base	Mobile
Pink	42.44	42.76
Gold	42.120	42.200
Purple	42.400	42.160
Blue	42.340	42.180
Green	42.540	42.240
Silver	42.080	42.280
Red	42.440	42.280
Yellow	42.520	42.300
Black	42.460	42.700
Gray	42.480	42.680
Brown	42.500	42.820
Tan	42.420	42.840
White	42.560	42.720
Orange	42.880	42.660
Copper	42.600	42.740

CALIFORNIA TRANSPORTATION

- 47.100 Stockton to Merced
- 151.055 Fresno Control
- 47.200 Madera South
- 151.085 San Fran Broadway
- 151.085 Fresno
- 47.020 Walnut Ck-San Fran
- 47.060 San Fran
- 47.180 Salina-Santa Maria

CALIFORNIA DEPT FISH & GAME

- 151.325 DFG
- 151.430 DFG usually used in valley
- 151.415 DFG

CALIFORNIA DEPT OF FORESTRY

- 151.175 CDF San Andreas
- 151.460 CDF Mariposa
- 151.265 CDF Region Net
- 151.440 CDF Morgan Hill Region Net
- 151.400 CDF Morgan Hill
- 151.250 CDF King City
- 151.365 CDF Belmont
- 151.325 CDF SanLuis Obispo
- 151.340 CDF St. Helena
- 151.385 CDF Sanger
- 151.190 DCF Vesalia
- 151.145 CDF Alameda 66
- 151.355 CDF State Net
- 151.310 CDF Yellow Air Net
- 151.295 CDF Green Air Net
- 151.280 CDF Blue Air Net
- 151.220 CDF Red Air Net
- 151.370 CDF Felton

OFFICE OF EMERGENCY SERVICE & CLEMARS

- 154.710 Central CA Law Net
- 458.875 State Police
- 154.920 Clemars
- 158.790 Clemars
- 155.670 Clemars
- 460.025 Clemars Mutual Aid
- 154.680 CHP Orange
- 154.220 OES Kings Co Fire Net
- 154.280 OES Consolidated Fire Net
- 154.160 OES Black Hawk Net State Net
- 153.755 OES Local Govment
- 153.740 OES Local Govment
- 155.475 National Law Enforcement Net
- 453.875 State Police
- 460.450 State Police
- 39.140 Duell Vocational Institute

CITY & CO FIRE DEPARTMENTS

- 153.770 StanislausCo Disp
- 154.430 Stanislaus Co Ch2
- 154.130 San Joaquin Co No
- 154.070 San Joaquin Co So
- 154.400 Merced Co Dispatch
- 154.430 Merced Co Ch 2
- 153.890 Mid Valley
- 154.445 Mid Valley
- 154.310 Fresno City
- 154.280 Fresno City/Mid Valley <OES Fire Net>
- 154.130 Merced City
- 154.190 Turlock
- 46.480 Sonora
- 155.940 Modesto Ch1
- 154.145 Modesto Ch2
- 153.950 Manteca
- 460.125 Avenal
- 460.600 Kings Co
- 154.235 Alameda Co
- 154.385 Contra Costa Co Antioch

- 460.625 Stockton
- 460.575 Stockton
- 154.310 Tracy
- 46.48 Tuolumne Co <uses CDF San Andreas>

LOCAL GOVERNMENT

- 154.995 Stanislaus Co Road Crews
- 155.115 Stanislaus Co Agriculture
- 155.775 Stanislaus Co
- 45.080 Tuolumne Co Road Crews
- 155.295 Tuolumne Co Schls
- 462.620 San Joaquin Co Air Pollution
- 453.700 Stockton
- 155.920 Stockton Rd Crews
- 153.965 Newman/Ceres/Oakdale
- 155.235 Merced City Schools
- 453.275 Fresno City Buses
- 153.785 Livingston
- 153.875 San Benito Co
- 453.225 Stockton Metro Transit
- 458.225 Stockton Metro Transit
- 453.550 Modesto Pub Works
- 453.275 Turlock Pub Works
- 153.965 Ceres Public Works
- 153.965 Oakdale Pub Works
- 452.675 Modesto City Buses
- 155.175 Waterford School Buses
- 155.235 Denail School Buses
- 155.280 Hughson School Buses
- 155.175 Salida SchoolBuses
- 154.025 Sacramento Reclamation Dist.
- 154.025 Stockton

UTILITIES

- 158.205 PG&E Stockton
- 153.605 PG&E Fresno Tracy
- 153.560 PG&E Merced Madera Mariposa
- 153.470 PG&E Gustine
- 48.015 Turlock Irrigation Dist.
- 47.920 Merced Irrigation Dist.
- 153.680 Modesto Irrigation Dist.
- 153.440 PG&E Santa Paula Kings River
- 153.530 PG&E Vesalia
- 153.725 PG&E Delano
- 158.130 PG&E Modesto
- 451.300 Pacific Telephone
- 451.200 Modesto Del Este Water Co

RAILROADS

- 160.650 Santa Fe RR Road Channel
- 161.370 Santa Fe RR Yard
- 160.590 Sierra RR
- 160.335 Central CA Traction
- 161.325 Modesto & Empire Traction
- 453.975 Bart Yard
- 453.150 Bart Police
- 160.860 Bart Road Channel
- 161.550 So. Pacific RR Road Channel
- 160.380 Western Pacific Road Channel
- 160.260 Western Pacific Road Channel
- 161.460 Western Pacific
- 160.995 Western Pacific
- 161.475 Western Pacific
- 160.515 Tidewater Southern
- 161.415 Central CA Traction

160.890	So. Pacific RR Police also PBX	145.410	Mt Diablo
		146.880	Mt Oso
		147.945	Mt Oso
		444.375	Mt. Oso
MEDICAL SERVICES		443.475	Mt. Oso
463.050	Sutter Gen & Mercy Hosp (Stockton)	147.030	Mt Bullion
463.100	Sutter Gen & Kaiser Hosp (Stockton)	145.390	Black Butte
155.385	Stanislaus Medical Services	146.715	Sonora Pass
155.235	Doctors - Turlock Comm Hosp	MOBILE TELEPHONE	
154.385	Contra Costa EMS	162.000	Stockton Marine
46.32	Contra Costa EMS	451.350	Mobile Tel Stockt.
155.385	Scenic Gen Hosp	451.300	Mobile Tel Fresno
155.220	Memorial-Emmanuel Hospitals	152.690	Mobile Tel Modesto
154.310	Sonoma Co EMS	152.510	Mobile Tel Modesto
463.125	Merced Med Net	152.540	Mobile tel Manteca
155.400	San Joaquin Co Med Net	MILITARY	
155.295	Toulumne Co Med Net	163.460	Castle AFB Security
154.515	Sonora Ambulance Dispatch	164.175	Castle AFB Security
155.220	Doctors Ambulance Dispatch	173.585	" " Crash Crews
155.295	Modesto/Ceres Ambulance Disp	165.135	" " FM-6
155.160	Patterson Ambulanc Dispatch	146.152	" " Fueling
155.220	Turlock Ambulance Dispatch	148.155	" " Maintenance
155.295	Waterford Ambulance Dispatch	165.015	" " Bomber 1 & 2
Med Net 10 <462.9757>	used by Mariposa Co's J. C. Fremont Hosp	165.135	" " Maintenance
Med Net 6 <463.1257>	used on 3-5-83 on accident on Hwy 132 involving secret service accident	165.060	" " -McCellan AFB
		148.600	Presidio San Fran
		148.150	Civil Air Patrol Repeater
		163.4625	Mathis AFB (EAC)
BUSINESS FREQUENCY		STOCKTON AIRPORT	
462.575	CSAA Stockton	120.3	Tower
452.525	CSAA Fresno	125.1	Approach
152.270	Stockton Serv.Taxi.	134.375	Oakland Center
157.530	Stockton Serv.Taxi	LOS ANGELES AREA SCANNING	
152.390	Stockton YellowCab	contributed by Dick Ferreira	
152.330	Modesto Cab Co	PARAMEDICS	
152.350	Red Top Cab	155.34	Primary interhosp. emergency
460.925	Valley Burglar Alarm	155.28	Regional interhosp emergency
452.975	Modesto Bee	462.950	Dispatch 1
150.935	CSAA Tow Modesto	462.975	Dispatch 2
170.150	Radio KTRB	463.000	Med 1
166.250	KCEY/KMIX News Remote	463.025	Med 2
461.300	Tracy Taxi	463.050	Med 3
153.140	Gallo Wine Inter- plant	463.075	Med 4
452.975	Modesto Bee	463.100	Med 5
450.1125	KFRC-TV (Ch 3) helicopter	463.125	Med 6
		463.150	Med 7
		463.175	Med 8
NATIONAL PARK & FOREST SERV		LA COUNTY SHERIFF	
168.750	Stanislaus Nat'l Forest	39.36	Admin. "Adam"
171.400	Sierra Natl Forest	39.48	Car-car "Charlie"
172.650	Yosemite Natl For	39.24	Detectives "David"
164.935	US Forest Service Fire Net	39.72	East information/ tactical "Edward"
169.150	Yosemite Nat'l Park Air Tactics	39.60	helicopter-car "Henry"
		39.52	Command post "Mary"
		39.70	Surveillance "Sam"
		39.32	West information/ tactical "William"
		39.38	Jail security
		39.40	Field-car, P1 "Tac-5"
		39.26	Field-field, P2 ("k" unit tac)
		460.175	Wayside Honor Farm Castaic
COAST GUARD		470.6875	Countywide F1
157.070	Ch 21	470.9375	Detectives F2
157.100	Ch 22	470.7375	Detectives F3
157.150	Ch 23	470.7625	Emergency F4
157.175	Aux	470.8375	SW area F5
156.800	Distress	470.8625	Central area F6
156.300	Intership Safety	470.8875	Lakewood Sta F7
		470.9125	East area F8
		470.7875	Acces to SRC F9
		470.8125	North Area F10
AMATEUR RADIO REPEATER			
145.300	Mt Diablo		
145.350	Mt Diablo		

L.A. POLICE DEPARTMENT	
154.830	Tac 1, F9, KMA-367
154.770	Tac 2, F6, KGW-725
156.150	Tac 3, F24, KMA-367
54.920	Tac 4, CLEMARS
453.100	Tac 5, F25
506.5875	Rover 4 Simplex 4 Duplex 4
507.2625	Rover 5 Simplex 5 Duplex 5
506.8125	Rover 6 Simplex 6 Duplex 6
507.0375	Rover 7
507.0875	Rover 8 "Trigger" "Emergency"
155.190	Metro & SWAT KXQ 754
506.8375	Metro & SWAT (green)
122.750	Helicopter "75"
123.050	Helicopter "Alter- nate"
123.025	Helicopter
DISNEYLAND & KNOTT'S BERRY FARM	
151.655	Paging
154.570	Paging
154.600	
464.550	
464.825	
151.805	Movieland Wax Mu- seum (Anaheim) WRF786
461.100	Tom Reddin Securi- ty (Anaheim)
461.825	Burn International Security Service
460.550	LA Convention Ctr

edges from room to room, with as few right-angle bends as possible, may provide surprisingly good reception. Limiting factors are metal reinforcing in the walls, thick masonry, sheet metal, plumbing and wiring. Stay near outside walls.

Finally, an active antenna (several manufacturers offer them) may be called into service; locate it near an outside wall or in front of a window for best results. Good luck!

Q I live in a rural area. Will a preamplifier help my scanner reception?

Henry Ponder
Lawndale, NC

A Your first consideration should be your antenna and coaxial cable. Many excellent multiband scanner antennas are available, including those made by Antenna Specialists, Hy Gain, Channel Master and Grove Enterprises.

Coax can be tricky; use only low-loss cable with a high percentage of shielding (braid coverage at least 95%). Normally, Radio Shack cable does not qualify, nor does anyone's RG-58/U or RG-174/U cable.

Good cables (if low-loss) include RG-6/U, RG-8/U, Mini-8, RG-11/U and RG-59/U.

Now, the preamplifier. An indoor preamp such as the Grove ANT-4 (and others as well) will provide improvement at UHF, marginal improvement at VHF high band and no noticeable improvement on low band, especially when used with Bearcat scanners and similar high-sensitivity, low-noise receivers.

Better preamps are the antenna-mounted types such as the Grove PRE-1 Signal Amp (and others); their low-noise preamplification permits amplification of the weak signal before they are absorbed by the coaxial down-lead. The difference is remarkable at UHF and noticeable at VHF as well.

Be sure to choose a preamplifier with a published noise figure.

**IS YOUR
SUBSCRIPTION
RUNNING OUT?**

**CHECK THE DATE
AFTER YOUR NAME
ON THE ADDRESS
LABEL.**

**DON'T MISS
A SINGLE ISSUE!**

TECH TOPICS

(Continued from page 29)

Q While listening to cordless telephone base units in our area, I noticed strange signals mixed in. What are they?

Ralph Pulley
Baltimore, MD

A The cordless phones are allocated to the same portion of the spectrum (1.7-1.8 MHz) utilized by offshore navigational beacons.

These warbly sounds are what you are probably hearing.

Ralph shares some of his most productive frequencies with fellow MT readers: 1.685-1.69, 1.695-1.7, 1.705-1.71, 1.725-1.73, 1.745-1.75 and 1.755-1.76 MHz. Thanks, Ralph.

Q Living in an apartment, an external antenna is hard to come by. What are the minimum requirements for shortwave listening?

Mary Deal
Dayton, OH

A Can you string a thin, unobtrusive wire from one window to another down the line? Twenty or more feet of length should do the job nicely.

Better would be to run it from the window out to a tree (insulate where it touches branches or metal), as high as possible and away from electrical wires.

Still, an indoor antenna run around upper wall

TUNE IN CANADA

by Norman H. Schrein

In the last column I gave a list of unidentified frequencies in the Toronto area. The identifications of those frequencies and call letters are given in the chart below.

TORONTO AREA FREQUENCIES AND CALL LETTERS

94.100	CBLFM	Canadian Broadcasting Corp.
401.7279	CF 346	Dept. of the Environment
166.080/163.050	CGD 364	Bell Canada
463.3625/468.3525	CGD 697	Bell Canada
463.175/468.1875	CGD 704	Bell Canada
152.350	CGD 273	Bell Canada
152.480/157.740	CGG 273	Bell Canada
152.510/157.700	CGG 273	Bell Canada
152.525/157.785	CGG 273	Bell Canada
152.540/157.800	CGG 273	Bell Canada
152.550/157.815	CGG 273	Bell Canada
152.570/157.830	CGG 273	Bell Canada
152.585/157.845	CGG 273	Bell Canada
152.615/157.785	CGG 273	Bell Canada
152.630/157.890	CGG 273	Bell Canada
454.600/459.600	CGG 278	Bell Canada
454.625/459.625	CGG 278	Bell Canada
454.650/459.650	CGG 278	Bell Canada
452.600/457.600	CGG 279	Bell Canada
453.550/458.550	CGG 501	Bell Canada
142.800/138.780	XJK 787	Peel Regional Police Force
153.905	XJK 774	Metro Toronto Dept. Ambulance

As it turned out Company Codes 900074 and 800745 did indeed belong to the telephone company, Bell Canada in fact. Some of the frequencies are used for mobile telephone conversations while others would be used for service and maintenance.

In response to the last column where I listed 154.070 MHz call sign XJH 384 for the Chatham Fire Department, I was reminded by several readers that this is the frequency used by the Ontario Fire Marshall's Office, and that all fire departments in Ontario have this frequency.

From the mail bag comes a letter from Ottawa, Ontario telling me that the Gloucester Fire Dept. operates on a repeater system, call sign XJH 497. The input frequency is 153.830 and the output frequency is 155.610. Also the Ontario Department of Highways' call sign XMN 98 operates on a repeater system with 158.76 being the input and 162.345 being the output.

After checking the DOC file I found that the Gloucester Fire Dept. is licensed as the Gloucester Twp. Fire Dept. and station XJH 497 is in Cyrville, ON. They also operate stations XJH 495 in Orleans, ON and XJH 496 in Leitrim, ON.

Finally, by way of reader Gilles Thibodeau, here is a copy of the Montreal Fire Department 10 codes:

- 10-1 Go Ahead
- 10-2 Repeat
- 10-3 Cancel

- 10-4 OK, Roger
- 10-5 In service
- 10-6 Off the air
- 10-7 Working fire
- 10-8 Help sufficient
- 10-9 Help, fully involved
- 10-10 Under control
- 10-11 Out 1 hour
- 10-12 2nd alarm
- 10-13 3rd alarm
- 10-14 4th alarm
- 10-15 5th alarm
- 10-16 Enroute
- 10-17 On scene
- 10-18 Investigating
- 10-19 False Alarm
- 10-20 Give your location
- 10-21 Give location of call
- 10-22 Service not required
- 10-23 Call by phone
- 10-24 Did you copy
- 10-25 Change Sectors
- 10-27 Not available
- 10-28 Alarm co. required
- 10-31 Water dept. required
- 10-33 Roads dept. required
- 10-34 Investigators required
- 10-35 Police required
- 10-36 Hydro required
- 10-37 GAZ officials required
- 10-38 Do you require gas
- 10-39 Radio check

That's it for this time. I encourage anyone who wishes to contact me in reference to material you may have for frequencies, call letters, radio codes, etc. not to hesitate to do so. I would be interested in any 10 signals you may have for your area. If you wish to write to me the address is: 1107 Sharewood Court, Kettering, OH 45429. The telephone number is (513) 298-5746.

I'll see all of our Canadian friends again next month!

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Converts Morse & RTTY (Baudot & ASCII) to video, and serial Baudot or ASCII for hard copy

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212 48th Street
Rapid City SD 57701
(605) 343-6127

Ham Radio Center
8342 Olive Blvd
St Louis MO 63137
(1-800) 325-3636

Electronic Equipment Bank
516 Mill Street
Vienna, VA 22180
(1-800) 368-3270

Michigan Radio
35628 Jefferson
Mt Clemens MI 48045
(313) 469-4656

INFO-TECH ELECTRONIC EQUIPMENT

Manufactured by
DIGITAL ELECTRONIC SYSTEMS, INC.
1633 Wisteria Court • Englewood, Florida 33533
813-474-9518

Gilfer Associates
52 Park Avenue
Park Ridge NJ 07656
(201) 391-7887

Universal Amateur Radio
1280 Aida Drive
Reynoldsburg OH 43068
(614) 866-4267

Global Communication
606 Cocoa Isles Blvd
Cocoa Beach FL 32931
(305) 783-3624

Grove Enterprises, Inc
Brasstown NC 28902
(1-800) 438-8155

ALBERTA AIRCRAFT FREQUENCIES contributed by

Gilles Thibodeau

COLD LAKE

Terminal	120.6	322.8	398			
Arrival	134.1	279.8	289.4	294.6	336.0	350.5
		378.5				
Tower	126.2	226.5	236.6			
Ground	212.9	275.8				
Departure	120.6	322.8				
ATIS	260.0					

Clearance

Delivery 120.6 322.8

Pilot to Metro

Service 344.6

Base Operations 340.2

CALGARY INTERNATIONAL

Communications 126.7 122.5 122.95 128.85 123.0 123.2

Arrival 215.9 283.9

Tower 118.7 236.6

Ground 121.9 275.8

Departure 119.8 255.1

Clearance

Delivery 121.3 260.2

ATIS 114.8 127.2

Gulf/Air Canada

Base 128.85(Military) 460.7

En Route Aircraft 130.175 131.775 135.050

EDMONTON INTERNATIONAL

Communications 126.7 122.5 122.0 123.0

ARR/DEP 120.5 363.8

Tower 118.3 381.2

Ground 121.7 275.8

Clearance

Delivery 124.1

International

Air Carrier 126.9(SELGA)

ATIS 114.8 128.0

VFR Advisory 126.0

VOR 114.8

VORTAC 117.6

Air Canada Base 460.7



by James R. Hay
BRITAIN REVISITED

The last issue of Monitoring Times contained a list of frequencies of the three stations in Great Britain which use frequencies on HF.

There are other medium and low frequencies which the British also use at their coast stations for working ships.

The frequencies in the 4 to 22 MHz bands are used mainly for ships on the high seas: the 2 MHz band is used for ships closer to the coast and for short to medium range communications.

The accompanying map shows the locations of the different stations. Portishead Radio is conspicuously absent; it is strictly a high seas station and does not carry coastal frequencies.

All stations use 2182 kHz and they will also reply to ships who call on 2381 kHz, replying back on 1792 kHz. This is a special arrangement which was made by the British government to cut down on crowding on 2182.

Stations which also use low frequency telegraphy are equipped as well with the international distress and calling frequency--500 kHz.

If you are looking for other British stations the following list will offer some help. All frequencies are in kHz: frequencies between 405 and 520 are cw and the rest are upper sideband.

GLV Anglesey	447	1792
GCC Cullercoats	441	2719
GKZ Humber	484	1869
GIL Ilfracombe	519	2670
GUD Jersey		1726
GLD Lands End	438	1841
GNI Niton	464	1834
GNP North Foreland	418	1848
GNE Oban		2740
GPK Portpatrick	472	1883
GND Stonehaven	458	1856
GKR Wick	431	1827

While there may be other frequencies in use, and there are other stations (such as those operated by Her Majesty's Coastguard) the above are the most likely to be heard.

In addition to the frequencies which were listed in the last issue, one was omitted: under GKE, 6495.4 should also be included so that the frequencies read;

4350.4, 6495.4, 8705.5, 13072, 17198, and 22561.



BRITISH COASTAL STATIONS

Collective Callsigns

When a ship wishes to call a coast station, it is usually a simple matter--the radio operator simply calls the desired station using the appropriate callsign. The reverse is also true when a coast station wishes to call a particular ship.

Things get a bit more complicated when a ship is not sure which coast station it wishes to call, or if a ship or coast station wishes to call a ship within a certain category, but does not know the name or callsign of that ship.

To answer the first problem, there are two solutions. On 'phone the call "any coast station" or "any Coast Guard station" can be used. On cw a special call sign is sometimes assigned to solve the problem.

An example of this is NCG which is a callsign assigned to all U.S. Coast Guard coast stations. Other examples are: IAAA, which is assigned to all Italian coast radiotelegraph stations; OVA, which is assigned to all Royal Danish Navy Coast Stations; and WAUS, which is assigned to all U.S. commercial coast stations.

To solve the problem of coast stations having to call a number of ships, the callsigns of all the ships can be used, or a collective callsign can be used, to which any or all ships which hear the call, and are part of the group of ships which the callsign encompasses, will reply.

Such calls are also sometimes used by vessels performing certain duties, where the actual ship changes periodically. Lightships on station are one example.

The light vessel has one callsign while it is on station, but once it leaves

its station it uses its own callsign, and the relief lightship uses the call for the lightship on station.

The International Ice Patrol uses the callsign NIDK when making broadcasts of ice conditions. This allows recognition that an ice report will be sent, and insures that the broadcast's origin is known without having to publish a list of all of the participating ships which are used.

Callsigns which would eliminate multiple calling, or which would allow vessels or coast stations to call a vessel without necessarily knowing its identity, would be as follows:

United States

- NERK US Navy ships
- KGMM Ships controlled by McKay Radio Telegraph
- KRCA Ships controlled by RCA Communications
- KSVS Ships of Mobil Oil Corp
- NUKO Ships copying Mercast broadcasts
- NADN U.S. merchant ships
- WGBC U.S. merchant ships
- WOFO Ships controlled by Ocean Gate Radio(WOO)
- WOOL U.S. ships on the Great Lakes
- WRCA Ships controlled by RCA Communications
- WUAA U.S. Army Transports

Canadian

- CGMP Royal Canadian Mounted Police vessels
- CGNS Royal Canadian Navy shp
- VCSS Ships of Imperial Oil
- VDDD Canadian merchant ships
- VGGG Canadian merchant ships

Other Countries

- CSAA Portuguese merch. ships
- DAAD Merchant ships of the Fed. Republic of Germany
- DAAZ " " "
- EHHH Spanish merchant ships
- FBBA French merchant ships
- GBMS British merchant ships
- GBXZ Royal Navy ships
- IAAC Italian merchant ships
- LMNO Norwegian merch. ships
- ONKA Belgian merchant ships
- OXXO Danish merchant ships
- PCAA Dutch ships
- PCHR Dutch ships responsible for relaying messages between Scheveningen Radio (PCH) and other Dutch ships
- SAHF Swedish merchant ships
- SWOL Greek merchant ships
- YTSV Yugoslav merchant ships
- 4XAA Israeli ships

While normally one does not hear these callsigns used very often, they are used occasionally. Normally they are used to call any ship within a category and within range; or, they are used from a ship performing a certain task, where the callsign is identifying the fact that the ship is performing that task, such as the International Ice

Patrol.

Those callsigns which are assigned to all ships which are controlled by a certain company are usually used to call those ships for whom that company supplies the radio officers.

* * * * *

In the future, I hope that my contributions to Monitoring times will be interesting and useful. In order to make this column as interesting as possible to you, the readers, I would like to know what you would like to read about.

Please send me any suggestions which you may have, or questions which you would like to see answered in this column. I will do my best to address those topics within the realm of maritime radio which interest you. I will also answer any questions which would be of interest, and share interesting loggings.

Questions, suggestions, and any interesting information should be sent to me, James R. Hay, 141 St. John's Blvd., Pointe Claire, P.Q. Canada, H9S 4Z2.

FREE CABLE TV?

Reader Robert Severance of Shoshone, Idaho sent us an interesting note which we would like to share with MT readers.

Many cable TV systems featuring Showtime and HBO scramble their signals by injecting a strong carrier between the aural and visual (sound and picture) frequencies.

While Monitoring Times does not endorse theft of services provided by legitimate TV cable program companies, the theory and simplicity of the defeat system is worthy of special note.

The home-brew notch filter is made by wrapping five individual sleeves of aluminum foil (12" Reynold's Wrap) spaced every few feet on a 25-foot length of TV twin lead.

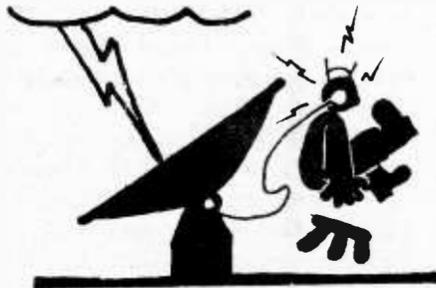
The twin lead may be laid out flat or even coiled up and hung out of the way; the twin lead is connected to the TV set antenna terminals without removing the existing cable hookup.

The far end of the twin lead is left unconnected. As a result, it behaves as a cluster of series-resonant traps of very high Q (selectivity).

Adjustment is made while watching a scrambled program and adjusting the aluminum wrappings one at a time for individually clarified picture and sound.

CAVEAT Readers are cautioned that unauthorized reception of pay TV signals is punishable by law.

SIGNALS FROM SPACE



HAM RADIO TO FLY ON STS-9

When Spacelab, an international scientific research facility, orbits the earth this fall on its first mission aboard STS-9, there will be more than one communications network in touch with its crew.

Dr. Owen Garriott, a NASA mission specialist astronaut and amateur radio operator, will use a handheld radio during part of his off-duty time to communicate with some of the thousands of "ham" radio operators around the world. Garriott's call sign is W5LFL.

All "ham" radio operations for STS-9 will be in the two-meter band. Transmission (downlink) will be

in the range 145.51-145.770 MHz FM; reception (uplink) will be in the range 144.91-145.47 MHz FM. Twenty kilohertz steps will be used on both transmit and receive.

Garriott will transmit on even minutes and listen on odd minutes.

The radio will be operated from the aft flight deck of the Space Shuttle orbiter Columbia, which is carrying the Spacelab in its cargo bay.

The transceiver itself will be a battery-powered unit capable of five watts of output. The printed-circuit antenna will be placed in the upper crew compartment window on the aft flight deck.

Garriott will wear the standard in-flight headset when operating the radio.

It is expected that low-powered earth-based transceivers with simple antennas will be able to work the shuttle.

"I look forward with great enthusiasm to brief conversations with as many of my fellow hams around the world as our work schedule will permit," comments Garriott, a ham radio operator since his teens.

OSCAR 10, the newest amateur radio satellite, was successfully launched into orbit June 16. Its orbit allows 16-17 hours per day of worldwide communication, 8-9 hours at a time in the northern hemisphere!

Strong beacon signals on 145.810 MHz are already being reported.

Mode B transponders respond to uplink frequencies between 435.025 and 435.175 MHz, repeating down in the 145.828-145.978 MHz range.

Mode L (CW/SSB only) uplinks on 1268.05-1268.85 MHz and downlinks 436.15-436.95 MHz (see related AMSAT article).

followed by high speed CW. Give this one a try around 0100 GMT.

LATE BULLETIN

Havana Moon has notified MT that Alpha 66, the Miami-based anti-Castro group, has resumed their pirate transmissions on 7040 kHz at 0100 UTC.

On a different note, MT reader Jim Buscher alerted us to the arrival of a pro-American, "The Voice of Democracy" on 7432 kHz at 0320 UTC July 19, 1983. At 0335 they announced a frequency change to 7465 kHz.

A call-in number was given and, as expected, it was a loop line in New York City.

YOUR HELP IS NEEDED

Over the months this column has attempted to keep Monitoring Times readers up to date on what is happening in the world of pirate and clandestine radio as well as other kinds of unusual transmissions which defy the typical classifications.

With the ever-growing circulation of Monitoring Times, undoubtedly there are many readers who have information which would be of help and interest to others who enjoy listening to these kinds of broadcasts.

Why not pool our knowledge and make the hobby more fun for everyone? If you want to remain anonymous that is fine; just let me know. But please send your contributions to me in care of Monitoring Times.

I'll be looking forward to hearing from you!

NEW CORDLESS PHONE FREQUENCIES

Several months ago Bob Grove, editor of Monitoring Times and president of Grove Enterprises, was commissioned to research a list of recommended frequency bands for extension of the cordless telephone services.

Now, under petitions from the Electronic Industries Association (EIA) and especially the Mura Corporation, the FCC has proposed a swath of interim frequencies for five years.

Ten duplex channels in the 46.6-47.0 and 49.5-50.0 MHz range would be authorized pending an amendment to the part 15 rules and regulations since this part of the spectrum is currently used by government (military) radio systems.

At present cordless phones are confined to the "wireless microphone" and 100 milliwatt CB walkie-talkie band, 49.83-49.89 MHz, and three discrete frequencies (1695, 1725 and 1755 kHz) just above the AM broadcast band.

TUNE IN ON THE AMSAT NETS

In a previous issue we mentioned the technological achievements of AMSAT, the Radio Amateur Satellite Corporation, a non-profit organization of highly-skilled amateurs, who have successfully put several satellites into orbit.

John J. Champa K8OCL, Senior Vice President of AMSAT and a Monitoring Times reader, has provided us with an up-to-date schedule of AMSAT informational networks of interest to listeners and

hams alike.

We reprint that schedule here along with other useful data forward by Mr. Champa, and extend to him and his organization our thanks and wishes for continued success.

Readers desiring further information including membership are invited to write AMSAT: PO Box 27, Washington, DC 20044.

Satellite	UPLINK (MHz)	DOWN LINK (MHz)	BEACONS (MHz)	PERIOD (Minutes)	INCREMENT (Degrees W)	INCLINATION (Degrees)	ALTITUDE (Kilometers)
A08 OSCAR	145.900-146.000 (Mode J) 145.850-145.950 (Mode A)	435.200 - 435.100 (Mode J) 29.400-29.500 (Mode A)	435.110 (Mode J) 29.401 (Mode A)	103.1640	25.7935	98.796	739
UOSAT A09	NONE	NONE	145.825 435.025 2401.000	94.643	23.659	97.475	535
RS-3	29.321 29.401	118.5195	29.7565	82.9606	1632.7
RS-4	29.360 29.403	119.3955	29.9757	82.9566	1666.0
RS-5 Robot	145.910-145.950 145.826	29.410-29.450 29.331	29.452 29.331	119.5544	30.0155	82.9590	1671.5
RS-6	145.910-145.950	29.410-29.450	29.411 29.453	118.7167	29.8060	82.9592	1641.5
RS-7 Robot	145.960-146.000 145.835	29.460-29.500 29.341	29.501 29.341	119.1962	29.9258	82.9568	1661.5
RS-8	145.960-146.000	29.460-29.500	29.461 29.502	119.7625	30.0678	82.9568	1675.3

SATELLITE OPERATING INFORMATION

SPECIAL NOTE: RS-3 through RS-8 are Russian amateur satellites. Data are as correct as possible.

NET NAME	DAY/TIME (UTC)	FREQ. (MHz)	NOTES
AMSAT Espanol	Sunday 1900	14.180	
AMSAT International	Sunday 1800	21.280	
AMSAT International	Sunday 1900	14.282	
AMSAT European 20m	Saturday 1000	14.280	
AMSAT UK 80m	Sunday	3.780	1015 Local Time Sunday
AMSAT Asia/Pacific	Saturday 2100	14.305	
AMSAT South Pacific	Saturday 2200	28.878	
AMSAT South Africa	Sunday 0900	14.280	
AMSAT South Africa	Sunday 1300	7.080	
SEASAT	Sunday 1300	7.280	
East Coast 75m	Wednesday	3.850	2100 Local Time Tuesday
Mid-American 75m	Wednesday	3.850	2100 Local Time Tuesday
West Coast 75m	Wednesday	3.850	2000 Local Time Tuesday
Australian AMSAT	Sunday 1000	3.680	
New Zealand V.U.S.	Wednesday 0800	3.850	
VHF NETS			
New York City 2m	Wednesday	144.400	2200 Local Time Tuesday
AMSAT Goddard	Wednesday	146.835	2100 Local Time Tuesday
Los Angeles 2m	Wednesday	144.144	2000 Local Time Tuesday
Los Angeles 2m	Daily	144.144	0730 Local Time Tuesday
AMSAT South Africa	Sunday 0900	145.650	
AMSAT UK 2m	Sunday	144.280	1930 Local Time Sunday

OSCAR (A08) OPERATING FORMAT	
Monday	Mode A
Tuesday	Mode A and Mode J
Wednesday	(Experimental Day)
Thursday	Mode A
Friday	Mode A and Mode J
Saturday	Mode J
Sunday	Mode J

Note 1. Wednesday (UTC) is for experimental use only. The beacons will be operating but the transponders should not be accessed.

Note 2. Format for operating RS Robots: "RS-5 DE W6CG AR". A typical answer will be: "W6CG DE RS-5 QSO No. 107 W6CG DE RS-5 QSO No. 107 DP ROBOT Y U FR QSO 73 SK".

Note 3. All Uplink and Downlink frequencies are UPPER sideband with one exception: the OSCAR 8 Downlink is LOWER sideband.

PIRACY

(from page 6)

easier, tune in the 0400 transmission of anti-Sandinista La Voz de Sandino on 6220. While most of the broadcast, which may last up to an hour, will be in Spanish, the final ten to fifteen minutes is often in English.

This station is controlled by the forces of Eden Pastora, the legendary Comandante Cero, who once was a Sandinista hero, but who now opposes his former comrades whom he feels have betrayed the principles of the Nicaraguan revolution.

Operating from Costa Rica, Pastora and his men may be the one anti-Sandinista rebel group with real credibility inside Nicaragua. However, so far Washington has refused to help him because he insists on being independent of outside control.

TRY 3644 KHZ FOR SOMETHING DIFFERENT

DXpert David Crawford alerted us to a station which is not a numbers station but appears to be something similar. It relays a local FM station (this writer heard it with music by Men at Work), although local IDs were not heard.

There may be considerable breaks when only an open carrier will be detected for many minutes. The relay may then return to be

"Los Numeros"

32444 69213 88816 52196 63811 94216

Havana Moon



Good news: the VOA incident is--for the moment--behind us. And what better time than now to take care of unfinished business. First on the list would be that "oh-so-caustic" National Security Agency (NSA) reply to a FOIA request regarding any available information about those numbers transmissions on the old kHz circuit. That's just about where it ended a couple of issues ago.

Here's a portion of what the "super-spooks" of Ft. Meade had to say:

"...The fact of the existence or non-existence of any specific intelligence information which might fall within the scope of your request is a properly classified matter..."

"In addition, this Agency is precluded by law from providing information on the specific results of its classified activities except to those persons authorized to receive such information. The President and the heads of departments or agencies expressly designated by the President may authorize the persons who can receive classified information. This agency has no information which indicates that you have been authorized to receive classified information concerning intelligence activities of the U.S. Government..."

WHEW!!!

A special thanks to those individuals who so kindly allowed me to examine and quote--with certain restrictions--from their FOIA files.

All have valid reasons for requesting anonymity.

THE INTERCEPTS

Friday 7/8/83 at 0238Z on 8420 kHz (in progress)--AM/YL with 5-D Spanish... 0300Z on 3090 kHz--MCW/alpha characters in groups of five. Repeat was on 4100 kHz at thirty past the hour. Normal repeat time for this circuit is fifteen past.

Saturday 7/9/83 at 0000Z on 3090 kHz--AM/YL with 5-D Spanish. The repeat was on 4100kHz at fifteen past. Also at 0100 and 0115Z. My sources tell me that this circuit is active with MCW and 5-D Spanish

most of the day and well into the evening.

At 0118Z on 9075//11532 kHz--AM/YL with 4-D Spanish MCW/alpha-numeric characters in groups of four with "Oh-so-slow-CW." Very slow CW is often as hard to copy as very fast CW. I record these guys at 1.2 cm and play 'em back at 2.4 cm. Easier for me to copy that way.

At 0128Z on 6861 kHz--MCW/alpha characters in groups of five. No repeat frequency found on this one.

On 4030 kHz at 0300Z (monitored on other dates on 4025 kHz)--AM/YL with 5-D Spanish with a repeat on 3085 kHz at thirty past. There's always "tape-drag" on this circuit! Guess the guys don't listen to their "off-the-air" monitor.

At 0330Z on 6840 kHz--More very slow CW with alpha-numeric characters in groups of four. Monitors are reminded that both four and five character groups have been monitored on these circuits in the past. Very curious from a crypto viewpoint.

At 0405Z on 6235 kHz--AM/YL with 3-D/2-D German. Some bulletins and one publication report this as being new! **NOT SO!!** They go back several years and have even been monitored in English.

On 11528 kHz at 0417Z--More very slow CW with alpha-numeric characters in groups of five.

At 0432Z on 7835 kHz--AM/YL with 3-D Spanish. This one has been around for several years. The digits are--in all probability--a code rather than a cipher.

On 3242 kHz at 0500Z--AM/YL with 5-D Spanish. Repeat was on 4027 kHz at fifteen past.

Wednesday 7/13/83--AM/YL with 5-D Spanish on 8842 kHz at 0115Z. A very clear and crisp transmission with a YL that I've never heard before. Beautiful pronunciation and same format as 3090/4100 kHz.

Wonder if this sinister (?) voluptuary of the spectrum looks as good as she sounds?

Readers are reminded that this is only a random sampling of the most interesting intercepts of the past few weeks. Space does not permit a complete listing of all intercepts.

THE INCIDENT

Remember the VOA incident that I've hinted about in previous issues? Here's what happened: on 3/25/83 at 0204Z on a frequency of 9268 kHz a YL with a 5-D English transmission was in progress when (for a few seconds) a VOA(?) newscast in special English was faintly heard in the background! I'm far from being convinced that it was a receiver idiosyncrasy.

ANOTHER INCIDENT--On July 16th at 0247Z on 8925 kHz, "Charlie India Oscar Two" with YL repeating continually. At exactly 0300Z the following was heard over the CIO2 transmission: ".his is the Voice of Ameri..."

I'm--well, VERY curious as to why a VOA ID would suddenly become mixed with the CIO2 transmission.

A CRYPTIC COMMENT--If you missed the July issue of SPEEDX, you missed Mike Chabak's cryptic comment at the end of his "Numbers/Beacons" section. Quote: "Note: Possible that MCW xmas on 3090/8873/9038 are US Navy traffic..." MTC

Perhaps some of us can persuade Mike to provide us with more details. This guy really has one fine column. I can't say enough good things about his ability.

A SNEAKY TRANSMISSION--Five digit German transmissions often monitored around 0100Z and 0200Z on 7405kHz. Sometimes hard to catch. Right between VOA and Radio Israel.

CONFIDENTIAL MEMO--TO: Voice of To-Morrow. I'm really hurt that I was not among the select few SWLs that was invited to hear your inaugural transmission. I've been told that--technically--the transmission was very good. I'm sure my editor would be happy to forward your next invitation.

AEROFLOT QSL--It just might be possible. Here's the address: Aeroflot - Soviet Airlines, Leningradsky Prospekt, 37, Moscow, U.S.S.R. You also might try Cubana at: Cubana de Aviacion, Calle 23, No. 64, La Rampa Vedado, Havana 4, Cuba.

A VALID REASON--Public Law 513, codified as Title 18, Section 798, United States Code states that it is a crime that's punishable by a fine of \$10,000 and a jail term of ten years to disclose classified information concerning American or foreign cryptosystems, the communication intelligence activities of the United States or any foreign government, or material obtained by the processes of communications intelligence.

WELL DONE--

A very B-I-G one to John H. Demmitt. John, you have far more friends than you could imagine. I'm very confident that the next deal of the cards will be a winning hand. Hang in there and keep the faith.

A RANDOM THOUGHT--Any discussion of "numbers" transmissions brings to mind the story of the three blind men examining the elephant, each finding a vastly different type of beast, depending on whether they felt the tail, flank or the ear.

NEXT ISSUE--The Russian on VHF Aero (He just might be a spy)...Comments from a Fed in regards to the intelligence community and the "numbers"...The inviolate cryptosystem..and--as always--last minute intercepts.

Adios,
Havana Moon

FINDING FEDERAL FREQUENCIES

Scanner enthusiasts often regard the distribution of frequency assignments as confusing and capricious. Actually, there is an order to it all.

The following list of frequency blocks found on most scanners is allocated to federal government users.

30.00-30.56	base/mobile
32.00-33.00	base/mobile
34.00-35.00	base/mobile
36.00-37.00	base/mobile
38.00-39.00	base/mobile
40.00-42.00	base/mobile
46.00-47.00	base/mobile
49.60-49.83	base/mobile
49.89-50.00	base/mobile
122.750-123.5875	air/ground
126.200	air/ground
134.100	air/ground
135.850	air/ground
135.950-136.000	air/ground
136.000-138.000	satellite downlink
138.000-144.000	base/mobile satellite downlink
148.000-149.990	base/mobile
149.900-150.000	satellite radionavigation
150.000-150.800	base/mobile
157.000-157.190	maritime
162.000-173.200	base/mobile
173.400-174.000	base/mobile
406.000-420.000	base/mobile

The Department of Defense is authorized to use any frequency in the spectrum on a secondary non-interference basis. For this reason, it is not uncommon to hear National Guard training operations in frequency bands used by FCC-licensees such as hams, public safety and businesses.

Virtually all low band (30-50 MHz) federal government usage is military, as is 138-150.8 MHz.

ELF

Continued from page 3

netic antennas. There are two kinds--air core and ferromagnetic core loops. The ELF loop is, in general, very versatile because of the ability to operate equally well above and below the surface of the earth.

Further, it requires no electrical connection with ground and is therefore suitable for use in aircraft. Unfortunately, mechanical vibration seriously affects loop antennas, and this is their primary disadvantage.

There are also several disadvantages of ferromagnetic core antennas in particular. One is that permeability of the materials used in the core cannot be determined accurately beforehand. (Permeability is a measure of how strongly a material will be affected by a magnetic field). Thus, a specific voltage sensitivity cannot be designed into an antenna. At best the antenna designer can only make conservative estimates and then, after assembly is completed, actual sensitivity measurements made.

Another problem is that by making the core long and thin to achieve good coupling with the signal field, we also allow for good coupling to the geomagnetic field. Subsequently, the ferromagnetic core loop may have a voltage sensitivity which varies with the amount of interaction with the geomagnetic field.

Another type of ELF receiving antenna is called the electrode-pair antenna--an insulated horizontal dipole grounded at each end. It is actually the receiving counterpart of the horizontal transmitting antenna discussed in Part 2. It is inexpensive, reliable, and easy to install. Unfortunately, the need for grounding makes this antenna unsuitable for airborne applications.

A magnetometer is a device for measuring magnetic fields. Three types of magnetometers have the necessary bandwidth and sensitivity for use in ELF communications reception: the loop antenna (already discussed), the optically-pumped magnetometer and the superconducting quantum interference device (SQUID).

The optically-pumped magnetometer is based on principles of atomic physics. When an atom is acted upon by a magnetic field, the electron energy is split into two sublevels. A combination of optical and radio frequency radiation can

bring about an imbalance of energy distribution of the electrons. A radio frequency magnetic field results in an electron transition causing radiation which can be observed.

Unfortunately, the optically pumped magnetometer is barely adequate in sensitivity for detecting atmospheric noise. The loop antenna is somewhat better suited for communications applications.

The SQUID magnetometer, on the other hand, has a great deal of sensitivity, and has attracted a great deal of interest in the search for a good ELF receiving antenna.

The heart of a SQUID is a small (several millimeters in diameter) one-turn loop of superconducting material (cooled to extremely low temperatures to provide zero resistance).

When compared to other ELF antennas, this loop is extremely small. However, the associated cooling equipment can be quite extensive--an obvious disadvantage.

The SQUID is also very sensitive to mechanical vibration problems, but researchers have undertaken attempts to minimize these problems. Despite the disadvantage of SQUIDS, this type of antenna has the low noise level needed to satisfy even the most extreme communication needs.

The extremely low frequency range presents many challenges to those who seek its advantages. It is part of the radio spectrum which has captured the interest of researchers since the earliest days of radio, yet it remains relatively unused because of its technical obstacles.

For readers wishing more information on the subject, a selected bibliography is included. Most of the material on ELF requires some technical knowledge if not an extensive background in physics and/or engineering.

If local public libraries do not have desired publications on hand, they may be able to borrow them from another library that does. A college library is more likely to have many more technical publications of interest to radio enthusiasts.

REFERENCES

- M.L. Burrows. ELF Communications Antennas, Institute of Electrical Engineers 1978.
- P.L. Bannister, et al. "Wisconsin Test Facility Transmitting Antenna Pattern and Steering

NEW ARRIVALS

Continued from page 23
general purpose ASCII terminal and as a microcomputer programmable in BASIC. The Model 100 features instant power-on access to five ready-to-use programs contained in 32K of Read-Only-Memory (ROM).

The display also offers a wide selection of European and graphics characters as well as dot-addressable graphics and includes a real time clock with time, day and date displayed.

The Model 100 can be powered by four "AA" batteries for approximately 20 hours of operation or by an optional AC adapter. The unit has built-in nickel cadmium batteries which maintain the computer's memory for up to thirty days even with the power turned off. These batteries are charged automatically from either the "AA" batteries or the AC adapter.

The TRS-80 Model 100 with 8K RAM (26-3801) is \$799.00 and a 24K RAM version (26-3802) is available for \$999.00. Either Model 100 can be expanded up to a total of 32K of RAM with the addition of optional 8K RAM additions (26-3816), available separately for \$119.95 (plus installation).

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J.R. Wait. "Historical Background and Introduction to Special Issue on ELF Communications," IEEE Transactions, Vol. COM-22, No. 4, 1974.

NRD-515

JRC Japan Radio Co., Ltd.



The JRC NRD-515 offers more features and performance than any other receiver in its class. Exceptional selectivity and stability make this an excellent radio for RTTY and FAX reception. Designed for the serious DXer who demands the best!



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Universal Amateur Radio
Fred Osterman - SWL Dept.
1280 Aida Drive
Reynoldsburg, Ohio 43068
Phone: 614 866-4267



WEATHER

con't from page 1

These broadcasts are F4, FM mode and can be received on your existing SW receiver on the following frequencies:

Frequency	Time
3357	2000-1400
4975	0000-2400
4271	0316-2300
8080	0000-2400
9890	0316-2300
10865	0000-2400
13510	0316-2300
16410	1400-2100

Location	Identity
Norfolk, VA	NAM
Norfolk, VA	NAM
Halifax, N.S.	CFH
Norfolk, VA	NAM
Halifax, N.S.	CFH
Norfolk, VA	NAM
Halifax, N.S.	CFH
Norfolk, VA	NAM

It's interesting to note that FAX reception is not limited to weather information; your shortwave receiver will copy commercial, military, and press services all using FAX as a mode of communication.

If you own a decent SWL receiver (won't easily drift off frequency), then you already own most of the equipment required. Grove's Shortwave Frequency Directory lists quite a number of FAX frequencies.

Alternatively, you can

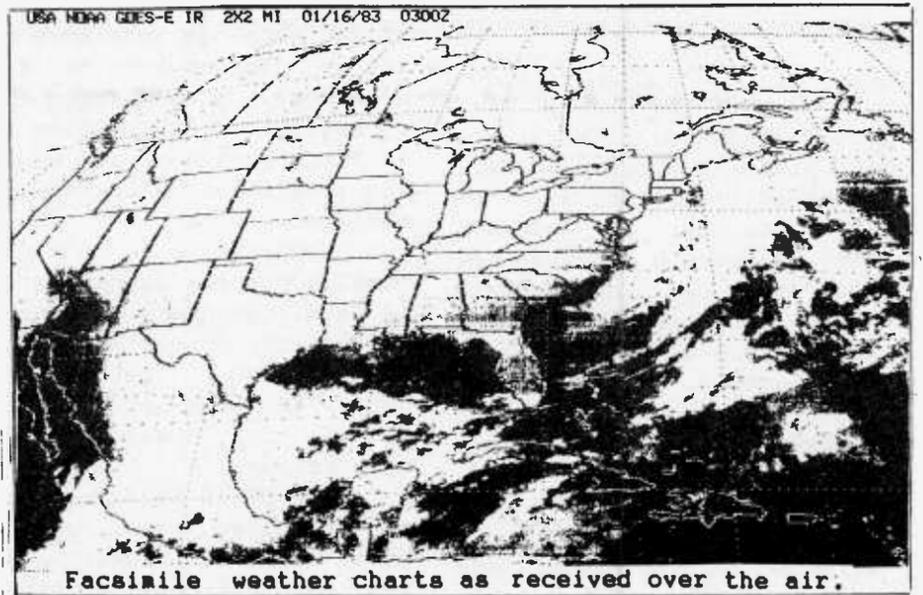
have a direct line to the National Weather Service installed in your monitoring post for a nominal fee, which you then simply connect to your facsimile machine for 24 hour reception of weather information and satellite pictures.

If you decide to go that route, call Tony Veith at the NOAA Office in Washington (301-427-7731) for simple government regulations, and Cinthia Key of AT&T Long Lines Office for installation details and costs (1-800-424-2939).

Complete information of WX FAX recording including additional frequencies can be obtained by writing or calling Atlantic Surplus Sales and asking for their free "Weather Fax Guide."

Perhaps most interesting of all is to be able to receive and print pictures of the world direct from the satellites in space.

The procedure is not complicated or expensive, but it is involved and beyond the scope of this article. What can be heard? The United States, Russia, Japan and other countries have weather satellites in geostationary and polar orbits directly over the equator at an altitude of some 23000 miles. Since the satellite doesn't move in relation to the Earth's sur-



Facsimile weather charts as received over the air.

face, it remains in the same apparent position in the sky as seen from Earth. A parabolic antenna is simply pointed for best reception and locked into place.

Polar-orbiting satellites like the NOAA-7 and some of the Russian birds have orbits that cross very close to the poles on each revolution of the Earth. At an altitude of 600 miles, the sensors scan the entire surface of the Earth in a 24-hour period. The sensors are sensitive to both visible light (daytime pictures) and infrared radiation (day or night pictures). The U.S. normally has two of these polar-orbiting satellites operating at all times. Currently, NOAA-6 on 137.5 MHz has discontinued sending pictures but NOAA-7 on 137.62 MHz still works fine. We expect NOAA-6 to soon be replaced with another of the same type.

Russia has two polar-

orbiting satellites which operate on 137.3 and 137.9 MHz. These are even easier to copy than the U.S. birds.

For additional information on weather satellite reception and how to get started, write to Atlantic Surplus for their free "Weather Fax Guide." Additionally, you may wish to obtain the "Weather Satellite Handbook" and "The New Weather Satellite Handbook" (both by Ralph Taggart) from 73 magazine book store (see ad this issue).

You may wish to monitor the weather satellite net that meets at 1900z near 14330 kHz USB Sundays in the amateur 20-meter band. And WIAW provides a daily RTTY satellite report of NOAA-6 and 7 at 0200 UTC on 14096.7 kHz.

Accurate weather tracking information surrounds us--if we just know where to look.

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N8RK

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General License Study Guide
by Timothy M. Daniel
N8RK

Learning rather than memorizing is the secret. This is not a question-and-answer guide that will gather dust when the FCC issues a new test. Instead, this book will be a helpful reference, useful long after a ham upgrades to General. Includes up-to-date FCC rules and an application form.
SG7358 \$6.95

Behind the Dial
by Bob Grove

This book explains, in detail, what's happening on all the frequencies, from shortwave up to microwave, including some of the secret stations of the CIA and FBI Surveillance, station layout considerations, antenna systems, interfacing, and the electromagnetic spectrum are included.
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by Dr. Ralph E. Taggart
WB8DQT

This revised edition contains all the information on the most sophisticated and effective spacecraft now in orbit. The book is also an introduction to satellite watching, providing all the information required to construct a complete and highly effective ground station. Not just ideas, but solid hardware designs and all the instructions necessary to operate the equipment are included.
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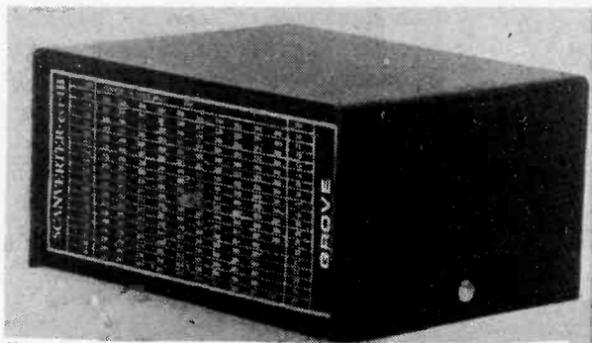
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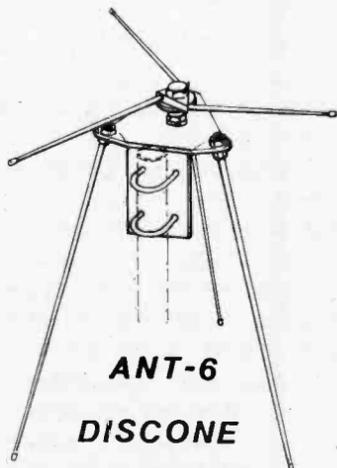
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see pages 16, 17, 18

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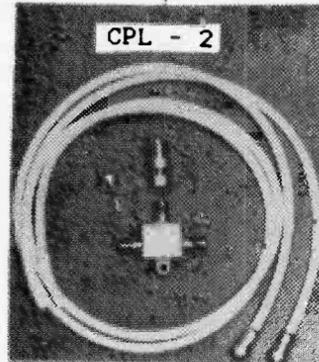
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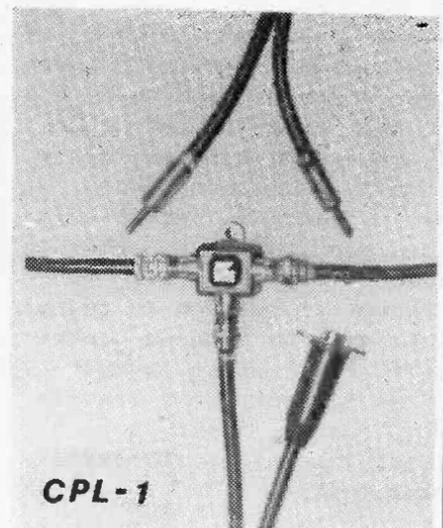
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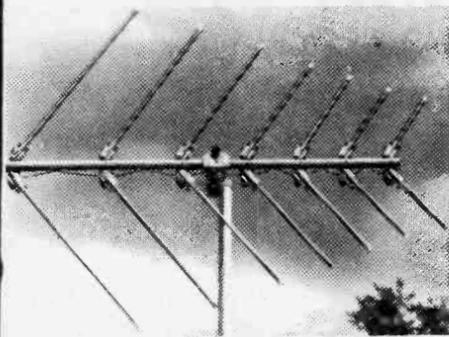
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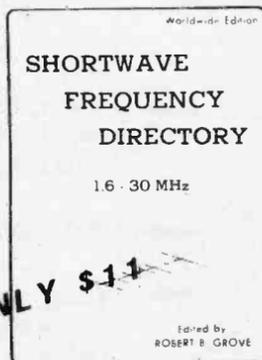
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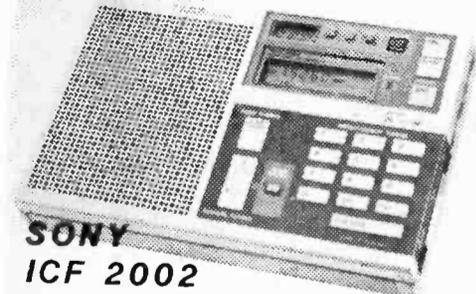
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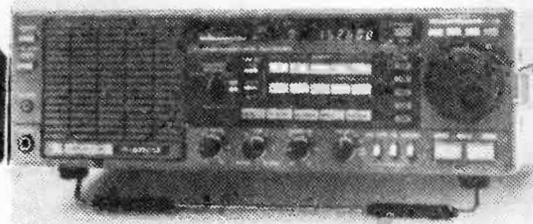
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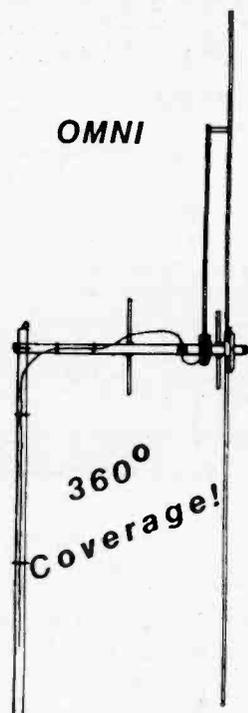
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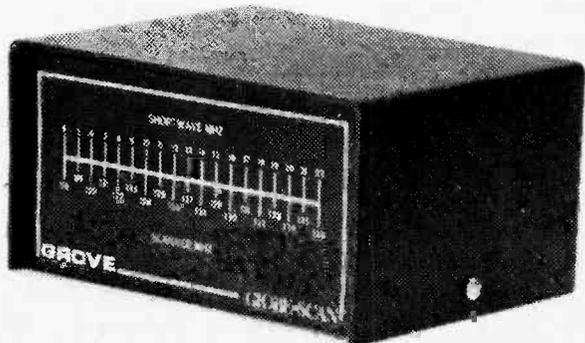


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by Michiel Schaay. This newest collection of RTTY frequencies and schedules is accurately compiled from official correspondence with the agencies themselves. Sorted by listening times and alphabetized by agency, thousands of worldwide press frequencies receivable on standard RTTY equipment are included: printed in English. Abbreviations (AP, UPS, ANSA, etc.) defined with full locations to help the listener identify his intercepts. **BOK 4 ~~\$11.95~~ only \$7**

BETTER SHORTWAVE RECEPTION

by William Orr & Stuart Cowan. 5th edition. Buying a shortwave receiver; how your radio receiver works; how to tune and adjust it for best performance; radio wave propagation; 9 efficient receiving antennas; how to hear foreign broadcasts, police, fire, aircraft, marine, weather, amateurs, business radio; VHF scanners; TV/FM DX; mysterious radio signals from outer space. 160 illustrated pages. **BOK 17 - ~~\$5.95~~ only \$4**

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by William R. Nelson, edited by William I. Orr. Most comprehensive, easy to understand, practical and up-to-date book on interference we have seen... Solve spark noise, TV interference, computer line noise, power line interference, encountered in reception. Convenient index and 178 full illustrations. A super collection of tried and true suppression techniques. **BOK 18 - ~~\$6.95~~ only \$6**

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A major step forward in informational exchange has been accomplished by US amateurs.

Through the use of repeater interlinking, hundreds of thousands of hams and scanner listeners are able to listen in on network transmissions dealing with amateur radio and related topics.

Over 100 repeaters in cities nationwide simultaneously carry the teleconference which features experts in their fields.

December 1, 1983 "Rip" Riportella, president-elect of AMSAT (Radio Amateur Satellite Corporation) will be the featured speaker; his topic--"The Amateur Space Program." The time will be 8:30 PM eastern.

Printed below is the most recent list of participating amateur repeaters across the nation. Monitor one near you!

CITY	STATE	FREQ.
ANCHORAGE	AK	147.090
MOBILE	AL	147.390
APACHIE	AZ	147.120
PHOENIX	AZ	147.240
TUCSON	AZ	147.090
KING CITY	CA	52.525
LOMPOC	CA	145.110
LOS ANGELES	CA	224.040
OXNARD	CA	146.880
PACIFICA	CA	439.750
SACRAMENTO	CA	145.190
SALINAS	CA	146.685
SAN DIEGO	CA	146.265
SAN JOSE	CA	146.760
SAN JOSE	CA	224.260
SAN JOSE	CA	224.600
SANTA BARBARA	CA	147.945
DENVER	CO	147.225
CHEROKEE	OK	147.900
OKLAHOMA CITY	OK	147.030
COLLINGWOOD	ON	146.790
GEORGETOWN	ON	147.735
HAMILTON	ON	145.490
LONDON	ON	147.180
SHELburne	ON	146.685
TORONTO	ON	147.060
TORONTO	ON	145.370
TORONTO	ON	224.980
BEAVERTON	OR	147.320
KLAMATH FALLS	OR	146.610
MEDFORD	OR	147.300
BLUE KNOB MTN.	PA	147.150
HARRISBURG	PA	147.470
PHILADELPHIA	PA	147.060
PITTSBURGH	PA	146.610
CHARLESTON	SC	147.270
GREENVILLE	SC	146.610
NASHVILLE	N	146.940
BEAUMONT	TX	145.470
DALLAS-FT WORTH	TX	146.880
HOUSTON	TX	145.450
SAN ANTONIO	TX	146.700
SALT LAKE CITY	UT	146.610
RICHMOND	VA	146.880
BURLINGTON	VT	146.850
SEATTLE	WA	145.330
SPOKANE	WA	145.430
MADISON	WI	146.760

SWL HEADQUARTERS

ELECTRONIC EQUIPMENT BANK THE NAME IN SHORTWAVE LISTENING

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Kenwood R-2000* \$499.95

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- Memory Backup
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- Programmable Band Scan
- 24 Hour Clock-Timer

Option 1—Mechanical Filter **\$95**
Option 2—RIT modification **\$35**

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Yaesu FRG-7700* \$499.95* Limited Quantity



FREE MU-7700 12 Channel Memory
FREE FRT-7700 Antenna Tuner
EEB's best buy now only \$499.95 with FREE MU-7700 and FRT-7700 tuner—a \$707 value.

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Kenwood R-600*



AM-SSB-CW Modes, noise blanker, 30 bands 200KHz to 30 MHz wide/narrow I.F. Filtering. Excellent performance at a budget price.
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NEW MARTINSVILLE	WV	146.940	DETROIT	MI	147.150	ROCHERTER-LOCAL	NY	146.790
DENVER	CO	448.250	GRAND RAPIDS	MI	147.765	CINCINNATI	OH	146.670
GLENWOOD SPGS.	CO	146.670	MINNEAPOLIS	MN	146.640	CLEVELAND	OH	146.760
GRAND JUNCTION	CO	449.200	KANSAS CITY	MO	146.700	COLUMBUS	OH	147.240
AVON	CT	224.780	KANSAS CITY NE	MO	146.430	DAYTON	OH	146.910
WASHINGTON	DC	147.210	ST. LOUIS	MO	146.670	EAST LIVERPOOL	OH	146.700
FT. LAUDERDALE	FL	146.790	JACKSON	MS	146.880	LIMA	OH	147.030
MELBOURNE	FL	146.850	FREDERICTON	NB	146.760	TOLEDO	OH	147.375
PALM HARBOR	FL	224.300	GOLDSBORO	NC	146.850			
PENSACOLA	FL	146.760	RALEIGH	NC	146.880			
ROSWELL	GA	145.470	KEARNEY	NE	146.910			
DES MOINES	IA	146.940	OMAHA	NE	147.000			
CHICAGO	IL	147.150	BRADLEY BEACH	NJ	145.110			
PONTIAC	IL	146.640	CATFISH MTN.	NJ	145.390			
WOODSTOCK	IL	145.410	CHERRYVILLE	NJ	147.375			
INDIANAPOLIS	IN	146.700	MT. HOLLY	NJ	147.150			
WICHITA	KS	146.820	ALBUQUERQUE	NM	146.940			
NEW ORLEANS	LA	146.760	RENO	NV	147.030			
BILLERICA	MA	147.120	BEACON	NY	146.970			
SHARON	MA	146.865	FARMINGVILLE	NY	145.310			
WINNIPEG	MB	147.270	LONG ISLAND	NY	147.375			
BALTIMORE	MD	147.105	NEW YORK	NY	145.450			
ANN ARBOR	MI	146.970	PLATTSBURGH	NY	147.150			

ICOM R-70*

Special purchase \$629.95
Save \$120.00

You have read the details on this revolutionary receiver. It's getting rave reviews.



- Frequency Range 100KHz-30MHz
- Pass Band Tuning
- Notch Filter
- Fully Synthesized
- AGC Control Fast/Slow/Off
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The Best just got Better

EEB offers the upgraded R-70 SWL Receiver tailored to your needs:

- *Option 1— AM Wide/Narrow. Switch between AM 6KHz filter and the 2.3KHz SSB filter while in the AM mode.
- *Option 2— 2.3KHz Mechanical Filter. Replaces ceramic SSB filter to give much sharper skirt selectivity, wider dynamic range. \$95 installed
- *Option 3— 8 Pole Crystal Filter. Replaces 2.3KHz ceramic SSB filter—allows you to experience the full potential of this fabulous receiver. \$179 installed

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

All EEB modified R-70's are realigned for optimum performance.

*Free 90 day extended EEB warranty.

G.E. World Monitor II

SALE \$169.96

Best Buy under \$250



- 6 Bands 3.5 to 31 MHz-SWL-MW-FM
- World Power 120/220 V 50/60 Hz
- DC operation from internal batteries

• EEB test results show this receiver to be superior to many selling up to \$250. Physical layout and electrical specifications similar to the popular Panasonic RF-2900.



World Radio TV Handbook

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Sony Active Antenna

Our tests show the Sony AN-1 antenna equal to or better than other antennas costing twice as much and less susceptible to overload from strong signals.



Why pay \$159? **SONY AN-1 \$79.95**

COMING!

**Monitoring the men
and women from
MARS**

NOVEMBER!

CAP

(Continued from page 3) personnel and passing routine traffic among stations. Each net usually lasts about thirty minutes and uses lower sideband. Figure 5 gives the daily net schedules for each region.

Most of the communications monitored on the CAP frequencies is routine. However, when a search and rescue mission, civil defense operation or joint mission with the Air Force is underway, these frequencies come alive with traffic!

*For those who would like a more detailed copy of the CAP nets in their region, copies are available from the author at Box 251, Fairfield, ID 83327. Please enclose a business-size envelope and 40¢ in loose postage stamps to cover the cost of the copy and mailing.

REGION	PRIMARY	ALTER-NATE
Great Lakes	4602.5	4507.5
Middle East	4585.0	4467.5
North Central	4507.5	4585.0
Northeast	4464.5	4585.0
Pacific	4585.0	4504.5
	(Except AK, HI)	4582.0
	(AK, HI only)	4582.0
Rocky Mountain	4599.5	4602.5
Southeast	4467.5	4585.0
Southwest	4627.0	4630.0
All	2371.0	2372.5
	2374.0	2374.0
	4582.0	4585.0
	4585.0	26620.
Nationwide Repeater		
In	143.90	
Out	148.15	149.925

FIGURE 2

FREQ. KHz	REGIONS
7635.0 (USB)	1,3,4,5
7918.5 (USB)	1,2,3,5,6,7,8
14905.0 (LSB)	1,2,6,7,8
20873.0 (USB)	4

FIGURE 3

CAP REGION NETS (TIME:UTC)
Great Lakes Region-4602.5 0000-0230, 1330-1600, 2130-2400
Middle East Region-4585.0 0000-0200, 1230-1600, 2100-2400
North Central Region-4507.5 0000-0400, 1200-1600, 1800-1830
Northeast Region-4464.5 0000-0230, 1300-1700, 2130-2400

THOSE MYSTERIOUS STATIONS

Few articles bring as much comment from our readers as those dealing with unusual intercepts. One unusual network which has been observed during the daytime on 20586 USB has us puzzled. Anyone have any ideas on this one?

Reader Harry Weber

- Pacific Region-4585.0
0130-0630, 1450-?, 2130-2400
- Rocky Mountain Region-4599.5
0100-0400, 1345-1530,
1600-1800
- Southeast Region-4467.5
0000-0230, 1230-1400,
1430-1500, 2230-2400
- Southwest Region-4627.0
0000-0400, 1300-1430,
2300-2400

The above list includes region and wing nets, cadet nets, chaplain nets, weather nets and special activities nets. Subtract one hour during Daylight Savings Time.

FIGURE 5

(2605 W. 82nd Place, Chicago, IL 60652) has been trying to identify an interesting RTTY station, sending "RY" messages and "YBU" along with 5 character code groups.

The schedule for this unknown is 16458 kHz (1430 UTC), 18828 (1450) and 17611 (2200). We would appreciate any tentative ID on this phantom, and so would Harry.

Another reader informed us of an unusual numbers transmission. Immediately following an English language broadcast on Radio Korea Monday, May 2, 1983 on 9570 kHz (1000-1100 UTC), a Spanish 5-digit numbers transmission was apparently broadcast by the same transmitter!

Coincidentally, a VOA transmission began simultaneously on 9565 kHz, just 5 kHz away!

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ALL HOME

EXPERIMENTERS

How would you like to develop small projects in your own electronics workshop and get paid for it, too?

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CAP CALL SIGNS

NATIONAL HEADQUARTERS CAP

UNIT CALL	LAND HEADCAP	MOBILE HUBCAP	AIRMOBILE FLITECAP
KJ-9885			

CAP REGIONS/WINGS

UNIT CALL	LAND	MOBILE	AIRMOBILE
GREAT LAKES	GREAT LAKES	GREAT LAKES MOBILE	GREAT LAKES AIR
Illinois	RED FOX	YELLOW FOX	BLUE FOX
Indiana	RED FIRE	BLUE FIRE	GREEN FIRE
Kentucky	MIDDLE GROUND	WHIRLAWAY	JET PILOT
Michigan	RED ROBIN	WHITE ROBIN	BLUE ROBIN
Ohio	BLACK HAWK	GRAY HAWK	WHITE HAWK
Wisconsin	BADGER	SCOOTER	BUZZARD
MIDDLE EAST	MIDDLE EAST	MIDDLE EAST MOBILE	MIDDLE EAST AIR
Delaware	GABBY	VAGABOND	BARFLY
Maryland	PLANT	TUG	JET
Nat'l Capital	AERO	AERODYNE	AERONAUT
N. Carolina	RED DOG	BLUE DOG	MAD DOG
S. Carolina	KIDDIE KAR	SIDE KAR	BOX KAR
Virginia	BLUE FLITE	GREEN FLITE	RED FLITE
West Virginia	LOWLAND	OVERLAND	HIGHLAND
NORTH CENTRAL	NORTH CENTRAL	NORTH CENTRAL MOBILE	NORTH CENTRAL AIR
Iowa	CORNSTAT	BULLDOG	CYCLONE
Kansas	JAYHAWK POST	JAYHAWK BUG	JAYHAWK BAT
Minnesota	STAR FISH	DOG FISH	CAT FISH
Missouri	BLUE BIRD	RED BIRD	BLACK BIRD
Nebraska	WIGWAM	BUFFALO	MEADOWLARK
N. Dakota	BLACKFOOT	SILOUX	MOHAWK
S. Dakota	DACOTAH	MANDAN	CHEYENNE
NORTHEAST	NORTHEAST	NORTHEAST MOBILE	NORTHEAST AIR
Connecticut	NUTMEG	RAMBLER	ROCKET
Maine	PINETREE	PINEKARR	PINEAYR
Massachusetts	FREEDOM	PILGRIM	CLIPPER
New Hampshire	PROFILE	BOBCAT	SAUCER
New Jersey	ZIG ZAG	DOMINO	AIRCAP
New York	EMPIRE	TOMCAT	WILDCAT
Pennsylvania	KEYSTONE	ROLLING STONE	FLIGHT STONE
Rhode Island	RHODY	LITTLE RHODY	AIR RHODY
Vermont	PICO	MARBLE	MANSFIELD
PACIFIC	PACIFIC	PACIFIC MOBILE	PACIFIC AIR
Alaska	SOURDOUGH	MUKLUK	AURORA
California	WHITE BEAR	BLACK BEAR	BROWN BEAR
Hawaii	FIREBIRD	MOBILE	HIBOY
Nevada	NORTHWIND	YELLOW JACKET	RED SPIDER
Oregon	BEAVER FOX	BEAVER MUSKRAT	BEAVER BIRD
Washington	FIR	MAPLE	ASH
ROCKY MOUNTAIN	ROCKY MOUNTAIN	ROCKY MOUNTAIN MOBILE	ROCKY MOUNTAIN AIR
Colorado	PIKES PEAK	RED RIVER	BLUE RIVER
Idaho	MAGPIE	RABBIT	HORNET
Montana	FATHER	MOTHER	ANGEL
Utah	UNCLE WILLIE	UNCLE MIKE	UNCLE ABLE
Wyoming	KING	QUEEN	JACK
SOUTHEAST	SOUTHEAST	SOUTHEAST MOBILE	SOUTHEAST AIR
Alabama	GOLDEN ROD	HOD ROD	RAM ROD
Florida	SPARROW	CRANE	EAGLE
Georgia	RED STAR	WHITE STAR	BLUE STAR
Mississippi	MOCKINGBIRD	JAY BIRD	SNOW BIRD
Puerto Rico	PINEAPPLE	SUGAR	PAVA
Tennessee	BLUE CHIP	RED CHIP	GOLD CHIP
SOUTHWEST	SOUTHWEST	SOUTHWEST MOBILE	SOUTHWEST AIR
Arizona	THUNDERBIRD	GERONIMO	TOMAHAWK
Arkansas	DOGWOOD	RAZORBACK	DIAMOND
Louisiana	MAGNOLIA	MUSKRAT	PELICAN
New Mexico	PUEBLO	ZUNI	NAVAJO
Oklahoma	SOONER	OILWELL	GASWELL
Texas	EAGLE-NEST	GOLD EAGLE	BLUE EAGLE

FIGURE 4

GETTING STARTED IN RTTY

One reader's experiences on a shoestring budget

by Glenn Card

Have you ever tuned across the shortwave bands, heard the "tweedle--tweedle" of a RTTY signal and wondered what it was saying?

If you are really interested in finding out what those funny sounds are saying, you can almost name your own budget. I am not a radio amateur, not an electronics graduate, not rolling in money, but about seven years ago I did wonder what those sounds were saying.

At that time I had a surplus BC-603 receiver, operating off of a dynamotor, that tuned 2 to 18 MHz. I had just gotten hooked by the SWL bug and was collecting QSLs from all over the world.

As I tuned the bands the noise of the RTTY signals began to make me wonder what they really were contributing to world communications. By that time, I had only \$20 dollars in the BC-603, so I went to a Hamfest and invested another \$20 in a Cashion Electronics Demodulator, \$10 in a model 15 KSR teletype and \$5 in a loop power supply.

After connecting my new-found treasures, it took me about two months and three rolls of paper to copy my first radio teletype transmission!

At first my set-up would only "talk" in Spanish; fortunately for me my wife had taken some Spanish in high school and could at least tell me that those were real words on the paper!!

With that set-up I could copy 60 and 67 wpm by adjusting the range finder control. I remember the first time that I received the U.P.I.; it was the first English that I copied!

From there, I bought some other gears so that I could copy the 67 wpm better, and also tried 100 wpm. But it was impossible to keep the Model 15 in adjustment at that speed.

I also bought some 75 wpm gears, but to this day I have never copied any transmissions at that speed.

The next addition, or replacement, was a surplus R-392 receiver. Boy, what a difference that made! The receiver could be set and left without having to constantly retune it to keep the signal in the passband of the convertor.

Next came a surplus CV-89/URR8A convertor with a built-in scope. What a change that was over the Cashion Convertor!

Next, the Model 15 went for a Model 28R0 with a three-speed gearshift (believe it or not, \$100.00 at a Hamfest!). That set-up was really nice.

The whole point is that if you want to copy the RTTY signals, make up your want list to match your budget and go for it!!

The system that I now have is certainly not the ultimate, but it sure provides me with a lot of hours of pleasure. It consists of a Radio Shack DX-302 receiver, a HAL CWR 6700 tele-reader, and a Electrohome "9 monitor. All were purchased used, mostly from Hamfests.

For the antenna system, I am really lacking. I have a 70' long wire, and a verticle CB antenna, connected to a coax antenna switch.

To give you an idea of the stations that I have logged in the last 90 days I am enclosing my "catches". As you can see, it is a sizeable list!

If you have any questions, I would be happy to attempt to answer them if you enclose an SASE.

Glenn H. Card
602 W. Highland Drive
Middlebury, IN 46540

F. MHZ	GMT	SHIFT/BAUD	TRAFFIC
8.442	2346	850/75	TEST/EBA
5.925	0119	850/75	WEATHER
6.329	0133	850/75	WEATHER
9.889	24HR	850/75R	WEATHER CFH CANADA
10.136	1020	425/50N	TEST TNL96/TNL97
10.407	0115	425/50N	TEST QJH1
10.710	0101	850/50N	TEST
10.880	0101	425/75R	EE NEWS
10.950	113P	850/75	WBC WEATHER
10.971	0034	425/75	EE NEWS USIA
11.415	1420	850/50	WEATHER
11.693	1401	425/50N	TEST CLN329 HAVANA
12.175	1441	850/75	WEATHER
12.208	0051	850/50N	TEST PZP
6.975	0203	425/75	TEST
13.366	2029	415/50	TEST SYD
8.129	1515	850/75N	WEATHER
13.510	24HR	850/75	EE WEATHER CANADA
13.516	2307	850/50	SS ARA NEWS
13.736	338P	425/50	TEST SYD
14.498	2249	850/50	TEST
14.780	2125	850/50N	TEST NY
14.853	2318	850/75	WEATHER
14.875	1800	850/50	TEST NY
14.900	1455	425/50	EE NEWS CLN451 TASS
14.945	1507	425/75	SS HAVANA TEST
4.061	0114	850/75N	WEATHER WBC
7.093	0212	170/45.5	EE W1AW
15.818	1558	425/50	TEST CLN487 HAVANA
15.908	1726	425/50	SS AFP NEWS
16.105	1700	425/50	SS AFP NEWS
16.137	2015	425/50	SS TELEGRAMS
7.096	2226	170/45.5	EE BULLETIN BOARD
16.185	2247	425/50	SS AFP NEWS

16.203	2212	425/50	TEST
16.212	1645	850/50N	EE TELEGRAMS FROM HAVANA ITT
16.247	1810	425/50	EE NEWS LATIN AM. NEWS AGENCY
16.348	1955	425/50	EE NEWS RAO
8.139	1513	850/75N	NO.S WEATHER WBC
16.411	0023	425/50R	TURKISH NEWS TURKEY AA
16.424	2129	425/50	EE NEWS NIGERIA
16.440	2000	850/75	WBC WEATHER
16.638	2130	850/75N	EE NEWS USIA/ARF
7.406	2221	425/50	TEST HAVANA W/ITT
7.478	1427	425/75	EE NEWS
17.455	1734	425/50	5 NO. GROUP
17.555	1037A	425/50	EE NEWS MAP
18.194	2227	425/50	EE NEWS
18.242	1941	425/75	WEATHER
18.334	1442	425/50	EE NEWS NVN
18.542	2219	425/50	SS NEWS
18.696	1622	425/50R	SS/FF NEWS
18.765	1445	850/75	WBC WEATHER
18.765	1445	850/75	WEATHER
18.785	1630	425/50N	NEWS AEL ARGENTINA
19.866	1513	425/50R	SS NEWS TANJUG LAPRESNA
20.078	1546	425/50N	SS NEWS RADIO FRANCE INTER.
20.090	1500	425/50R	5 LETTER GROUPS
20.140	1923	425/50	SS NEWS MAP
20.313	1600	425/50N	SS NEWS AFP
20.318	1918	425/45.5	SS AFP NEWS
20.350	1113A	850/75	TEST NBA
20.472	1600	850/75R	TEST CINTA DE PREUBA CXR
20.641	247P	425/50	GROUP OF 5
20.786	1610	425/50R	FF NEWS MAP
21.880	1134A	425/50	22 PRESNA MINERE. NAMBIA
22.750	228P	425/50	HAVANA TO TANZANIA
22.914	1535	425/50N	FF NEWS
23.716	2025	425/50N	SS NEWS AFP
10.052	1542	USB	EE AVIATION WEATHER

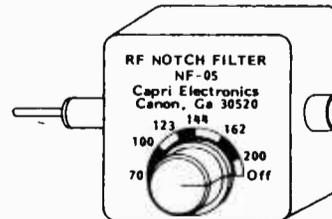


KNOCK OUT IMAGE INTERFERENCE

Now you can tune out strong interfering signals such as mobile phone, aircraft, FM, ham radio or weather band broadcasts and avoid front end overload in your scanner.

The Capri Electronics RF Notch Filter can be used with any scanner that has a Motorola type external antenna jack. No modifications to your scanner are necessary. Works with outside antenna systems as well as with the whip that comes with your scanner.

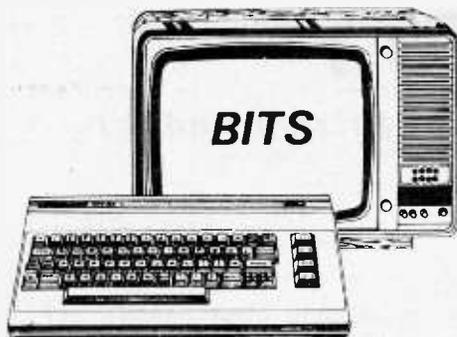
The easy tune, calibrated dial lets you move the notch to any interfering signal from 70 MHz to 200 MHz. The notch depth is 40 dB at 162 MHz and the VHF insertion loss is less than 1 dB (0.5 dB typical).



Your complete satisfaction is guaranteed. Order your RF Notch Filter today for only \$19.50 plus \$2.00 shipping and handling.

Mail and phone orders are welcome. Send check or money order or we can ship UPS COD. We also accept VISA and MASTERCARD. Please include your card number and expiration date. FREE CATALOG of scanner accessories will be sent on request.

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(404) 376-3712



by MIKE EDELSON

(Concluded from July/Aug)

In 1939 Howard Aiken of Harvard University built the first mechanical calculator. This machine was called the Automatic Sequence-Controlled Calculator (Mark I). It was completed in 1944 with the help of IBM engineers.

The Mark I used Jacquard-type tapes, a Hollerith Accumulator as the calculating element, and could perform the basic 4 calculations (addition, subtraction, multiplication, and division). It also offered a new feature: it could refer to tables of data and had an accuracy to 23 decimal digits and provided service for 15 years!

In 1943, J. Presper Eckert and J.W. Mauchly of the Moore School of Engineering at the University of Pennsylvania at Philadelphia started work on their ENIAC computer.

ENIAC was the first computer to use electronic components (mainly vacuum tubes) and used switches and a wired plug board to program the system to do operations. ENIAC was the fastest machine yet.

Mauchly's and Eckert's second computer was called EDVAC; this machine stored its program in an internal memory (unlike ENIAC). No external switch-sequencing of steps was necessary.

At the University of Manchester, in England, scientists had begun to work on the EDSAC and SEAC computers which were finished before EDVAC. SEAC was the first system to have a manual keyboard for direct input and a teletypewriter for direct output.

During 1946, John Von Neumann, at the Institute for Advanced Studies (IAS) at Princeton University, worked in conjunction with Mauchly and Eckert on a PARALLEL BINARY STORED PROGRAM strings of binary digits. The IAS computer was finished 6 years later (1952).

The first commercially available digital computer, UNIVAC I, was designed by Eckert and Mauchly when they were in business for themselves. Later their company would be bought by the Sperry Rand Corp.

DX'ERS FAVORITES

(Continued from page 6)

er in Front Royal, Virginia hearing the same program at the same time is probably remote. However, "Media Network" usually offers some usable information every week and I usually make a point of tuning for it.

You can hear it on Thursday nights on 9.590 and 6.165 at 0230 GMT or, if you live on the West Coast, on 9.715 or 6.165 at 0530 GMT.

A program just about as good is the "Swiss MerryGo-Round" from Swiss Radio International. This one features the "two Bobs" Bob Zannotti and Bob Thomann.

It is primarily geared to questions and answers and often results in some lively discussions about antennas, receivers or some other aspect of our hobby.

Hear this one twice a month on the 2nd and 4th Saturdays at 1315 GMT on 25.780 or 21.570; 1530 GMT on 21.570 or 17.830; 2145 on 21.520 or 17.850.

The computer was bought by the Bureau of the Census. UNIVAC I and a part of the Aiken machine are in the Smithsonian Institution as a permanent exhibition.

By the late 1950's the first generation of computers have ended; the second generation of computers replaced the vacuum tube with transistors. Tubes made computers large, expensive and somewhat unreliable (tubes can get hot!)

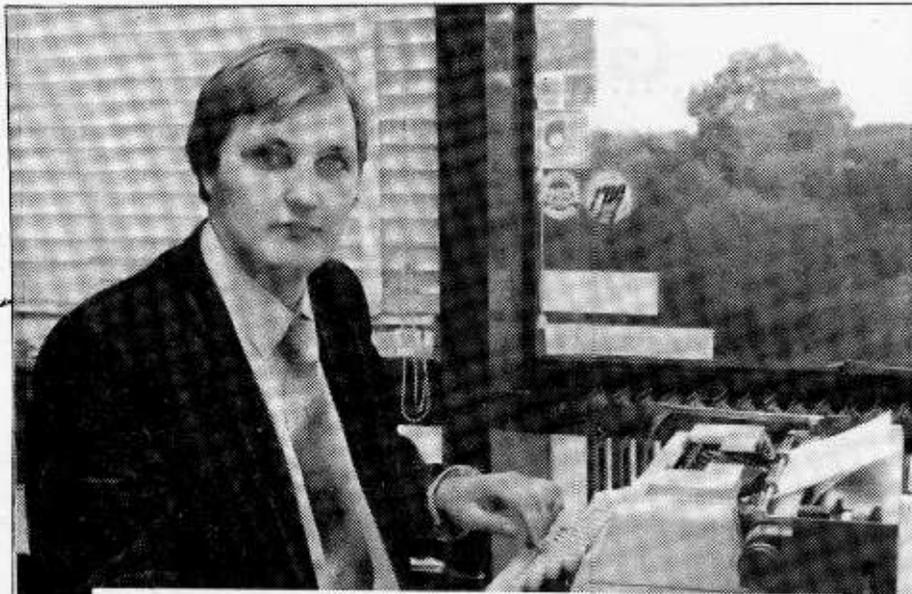
Second-generation machines removed these disadvantages, opening the computer up for other applications. We no longer need the space for air flow to dissipate the heat produced by the tubes; computers went from needing several rooms to one room.

In 1965 IBM announced its SYSTEM 360; this began the third generation (to quote the IBM advertisement at the time) which made extensive use of integrated circuits. This helped in lowering the cost and size of computers.

The fourth generation is less distinguishable from the third generation, depicted by large scale integrated circuit technology. Many actively-used components are now located on a single silicon chip the size of a pinhead.

Computers are smaller, less expensive and super fast. The computer has gone from a machine the size of a football field to the size of a file drawer.

We are in the mini- and microcomputer age of systems that are powerful and efficient.



Jonathan Marks is the producer of Radio Netherlands popular DX program - "Media Network".

Does the U.S. have a DX program? Sure it does and a good one, too.

Glenn Hauser broadcasts on Station WRNO in New Orleans every week. On Sundays hear it on GMT 02300300 (Sat. nite) on 9.705 and at 23302400 on 11.855.

While Glen uses his top frequency change items on his RCI broadcast, he still manages to have lots of good info for the shortwave listener on this additional program.

Glen does one other DX program almost every week. This is a tape edited for Austrian Radio, called "Shortwave Panorama." This is not a frequency change type of program but one where interesting tapes of broadcasts by interesting stations are heard.

This is on the air Sundays at 1235 on 15.165; 0435 (GMT Mondays) on 11.665 and 15.165 MHz.

Everyone has his favorite DX program and not all will agree with those I've mentioned above as being tops.

Radio Sweden has one of the good ones. In fact, "Sweden Calling DXers" is the oldest DX program on the air. It was founded by the famous "Dean of DXers," Arne Skoog way back in 1948 and is still going strong today.

Hear it on Tuesdays (GMT Mondays) at 0230 on 9.695 or 11.705 and at 2300 on the same frequencies. The program is now hosted by an American, George Woods and he does a pretty good job of it.

Another good program is on Radio RSA from Johannesburg. A good friend of mine, Pieter Martins, hosts this one and offers excellent information if you are at all interested in listening to African stations.

Hear it on Saturdays at 2100 hours on 11.900, 9.585, 7.270 and 5.980 MHz; also at 0200 (GMT Sundays) on 9.615, 6.020 and 5.980. Also listen Sundays at 0630 on

17.780, 15.220, 11.900 and 7.270.

Many people favor HCJB Ecuador and its DX Party Line program. This is primarily a frequency change program and one of its sources is SPEEDX, a SW Listener's Club.

They jump around on the clock quite a bit and the following times may not be up to date, but try them on Saturday at 0030 at 15.175 and on Mondays at 0700 on 9.720 and 11.835.

Dick Speekman, formerly of Radio Netherland's old DX program, "DX Juke Box," now broadcasts his DX news from Radio Australia on Sundays at 0612, 0810, 1612 and 2112 on 21.720, 9.570, 9.770, and 17.795. Also on Mondays at 0330 (usually best for Eastern N.A.) on 17.795.

If you are interested in the Middle East, Israel Radio has a good program on Sundays at 2000 GMT on 15.585, 11.655 and 17.630. Also at 0200 on 7.410, 9.816 and 11.655.

These are the principal DX programs although there are others on the air from Spain, Belgium, Turkey, Poland, Portugal, Rumania, East Germany and Japan. However, most of them are just not worth tuning into for any useful information and simply do not compare with the programs reviewed above.

I'm sure someone will disagree and I'll get a letter or two on the subject! But then that's part of the fun of shortwave broadcasting and listening. It's what you like hearing that counts!

SUPPORT MT ADVERTISERS!

TELL THEM YOU SAW THEIR AD IN MT!

BEHIND THE DIALS

UNIDEN CR2021 and RADIO SHACK DX-400

Mourners of the passing of the Sony ICF-2001 will be pleased to know of its dual resurrection by UNIDEN and Radio Shack.

All the features of its forerunner, plus a few others, are present. Frequency ranges are 150-29999 kHz and 87.5-108 MHz.

While some of the weaknesses of the Sony are also still with us (intermod from strong signals; whip antenna remains connected when outside antenna is used; 8-hour battery life) a number of important improvements are worthy of note, including:

- Narrow/wide selectivity switch
- Built-in AC supply (12 VDC input or internal batteries, too)
- Knobs; no flimsy slide controls or thumbwheels
- Upright or flat posture; carrying handle
- All controls on front panel
- Selectable search increments (1 or 3 kHz AM/SSB; 50 or 100kHz FM)
- Hard rubber pushbuttons give positive feel
- 12 memory channels (6 AM/SW; 6 FM)
- Lower suggested retail price (\$299)



While an LED light bar is used on the UNIDEN, an S-meter is used on the Radio Shack.

In use the receiver gives excellent performance; frequency stability is solid; FM sound quality is transparent; overall sensitivity is exceptional, virtually undistinguishable from a Kenwood TS430S communications transceiver used in comparison.

While use of an outside antenna guarantees intermod interference from loud shortwave stations, an inexpensive passive preselector like the Grove TUN-3 tames the UNIDEN CR2021.

Even without the tuner, a flip of the "DX/Normal/Local" switch on the CR2021 will usually reduce or eliminate the phantom signals.

NEW SCANNERS... WHAT AND WHEN?

Recently, a mad rush of trade-show hype has whetted the insatiable appetites of listeners, but no follow-up seems to be imminent.

New scanners are due from Regency (7 programmables!), Radio Shack (PRO-2003 and PRO-30), Fanon-Courier (FTS-500, FTS-600), JIL appears to be out of business, and Fox says that their two new wide-frequency models are coming along.

Radio Shack's new PRO-30 (hand held) and PRO-2003 (base/mobile) feature extended frequency coverage (30-50, 108-136, 138-174, 380-512 MHz) but can not be tricked out of band.

The largest list of new scanners is that released by Regency Electronics of Indianapolis. No fewer than eight new products were announced at the summer Consumer Electronics Show in Chicago.

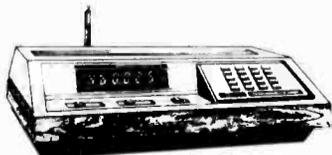
Heading the parade was a bevy of programmable mobile, fixed and hand-held programmables, some due for imminent release at this writing.

Of greatest interest to the serious listener will be the HX-3000 hand-held (\$449) and MX-7000 base/mobile unit (\$599.95).

The HX-3000 features continuous-coverage 25-550 MHz AM/FM coverage with 20-channel memory; the MX-7000 offers 25-1200 MHz coverage AM/FM, also 20 channels.

No information is yet available on performance in the 225-400 MHz military aircraft band and the units are not scheduled for distribution until late fall or early 1984.

Monitoring Times has been promised review samples of these new receivers as they become available; our findings will be reported in the next available issue!



MODEL Z10

A well-illustrated owner's manual (no schematic diagram) accompanies the receiver which is warranted for one year.

For more information, contact UNIDEN direct at 6345 Castleway Court, Indianapolis, IN 46250, or visit your nearest Radio Shack dealer.

NEW ARRIVALS

the company is attempting to find a Tijuana manufacturer to take over the expense of producing the sophisticated device.

Our recommendation would be for readers not to send any money to Comer Communications until the receiver is actually in production. We will notify our readers when we are so notified by the manufacturer.

RADIO SHACK MODEL 100 PORTABLE COMPUTER



Radio Shack has released a unique "go anywhere, work anywhere" computer that offers built-in software, built-in modem, a convenient full-size typewriter keyboard plus many more user-friendly features.

The Model 100 serves as a versatile Micro Executive Work-station which can function as a highly efficient desk organizer complete with appointment calendar, phone directory, address book and auto dialer operations as a personal word-processor, a

-Continued on page 13-



MODEL MX7000



MODEL HX3000

THE COMER R30K...A FOLLOWUP

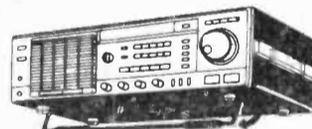
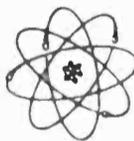
A product description in the March/April issue of MT brought a flurry of response from interested readers who wanted more information about the compact general coverage R30K receiver from Comer Communications.

Unfortunately, at this writing, the receiver still is not in full production. A letter from a representative of the company revealed that

GALAXY ELECTRONICS

BOX 1202-67 EBER AVE., AKRON, OHIO 44309

(216) 376-2402



KENWOOD R-2000
R-2000... 509.95



YAESU FRG-7700 439.95
High Performance All Mode Communications Receiver 150 KHz 29 999 MHz SSB CW AM/FM Digital readout LSI clock timer optional 12 channel memory with back up Selectable AGC memory fine tuning noise blanker variable RF attenuator built in speaker 120/240vac 13" w x 4" h x 9" d 13 lbs



BC 100
8 band, 16 channel, programmable pocket scanner, ac adapter/battery charger, case, rubber antenna earplug and [6] AA nicad batteries included, jacks for earphone, ac adapter/battery charger

288.49



KENWOOD R-1000
General Coverage Receiver 200 KHz 30 MHz 30 bands, each 1 Mhz wide 5-digit frequency display and analog dial 12 hour quartz digital clock & on/off timer three 17 filters 2.7 KHz (SSB/CW) 6.0 KHz (AM narrow) & 12 KHz AM (wide) Noise blanker built-in speaker three antenna terminals RF attenuator tone control recording terminal Remote terminal for access to timer on/off circuit & muting 120/240vac or 13.8 vdc with optional DC w/ 12" w x 4.6" h x 8.7" d 12 lbs

SCANNER REBATES 9-1 TO 10-15

SHORTWAVE RADIO

KENWOOD	
R-600 150 khz 30 mhz digital Rcvr.	349.95
R-1000 200 khz 30 mhz digital Rcvr.	419.95
R-2000 150 khz 30 mhz digital/Memory.	509.95
YAESU	
FRG-7700 150 khz 30 mhz digital Rcvr.	439.95
SPECIAL Purchase a FRG-7700 with the memory unit & get FREE Installation-MEM/UNIT.	144.95
YH-55 Headphones for shortwave Rcvrs	19.95
ICOM	
IC-R70 100 khz 30 mhz digital Rcvr.	649.95
IC-R70 FL-44 optional SSB filter.	144.95
PANASONIC	
RF-2200-8 band portable Rcvr.	179.95
RF-2600-6 band digital Rcvr.	199.95
RF-2900-5 band digital Rcvr.	239.95
RF-3100-31 band digital Rcvr *SPECIAL*	266.95
RF-4900-10 band digital Rcvr.	389.95
SONY	
ICF-2002 *NEW-NEW* CALL FOR PRICE QUOTE. *CALL*	
ICF-6500W portable shortwave Rcvr.	189.95
FREE UPS SHIPPING TO 48 STATES ON ALL ITEMS	

SCANNERS

BEARCAT	
BC-100 16 ch prog port. + \$20.00 REBATE	288.49
BC-150 10 ch prog. base + \$5.00 REBATE	169.49
BC-160 16 ch programmable, base unit	179.49
BC-200 16 ch prog. base + \$10.00 REBATE	188.49
BC-210XL 18 ch prog. base + \$15.00 REBATE	229.49
BC-20/20 40 ch prog. base + \$15.00 REBATE	289.49
BC-250 50 ch programmable, base unit	279.49
BC-220 20 ch prog. base AIR + \$15.00 REBATE	239.49
BC-300 50 ch prog. base AIR + \$50.00 REBATE	359.49
BC-350 50 ch prog. base AIR + \$50.00 REBATE	399.49
REGENCY	
D-100 10 ch programmable scanner, base	164.95
D-30 ch programmable scanner, base	189.95
D-810 50 ch scanner w/aircraft *SPECIAL*	259.95
R/1040 10 ch programmable scanner, base	135.95
M-100 10 ch scanner, mobile/base	209.95
M-400 30 ch scanner, mobile/base	239.95
ACT-720/A, 16 ch, 108-136, prog. *SPECIAL*	149.95
JIL-SX/200 16 ch, programmable, base/mobile, has 26.88mhz 108-180mhz 380-514mhz *SPECIAL*	324.95
FREE UPS SHIPPING TO 48 STATES ON ALL ITEMS	

Cordless Phones • CB Radios • Radar Detectors • Frequency Directories
• True Discount Prices & Free UPS Shipping To 48 States Picture Catalog \$1.00 Refundable.

TUNE IN ON EARTHQUAKES

by Lawrence I. Cotariu

On the night an earthquake hit Northeast Italy, I was listening to the BBC on 9.410 MHz; it was 1950 UTC, about 12 minutes before the main tremor hit.

Suddenly, I became aware of high-pitched, scratching noise in the speaker sounding like scrubbing a fine emery paper against glass. The phenomenon repeated at irregular intervals of about one or three seconds.

I first thought my transmitter had become defective, but the scratching noises were throughout the VHF range. I thought perhaps a thunderstorm was approaching, but lightning audible on FM would make listening almost impossible on AM shortwave.

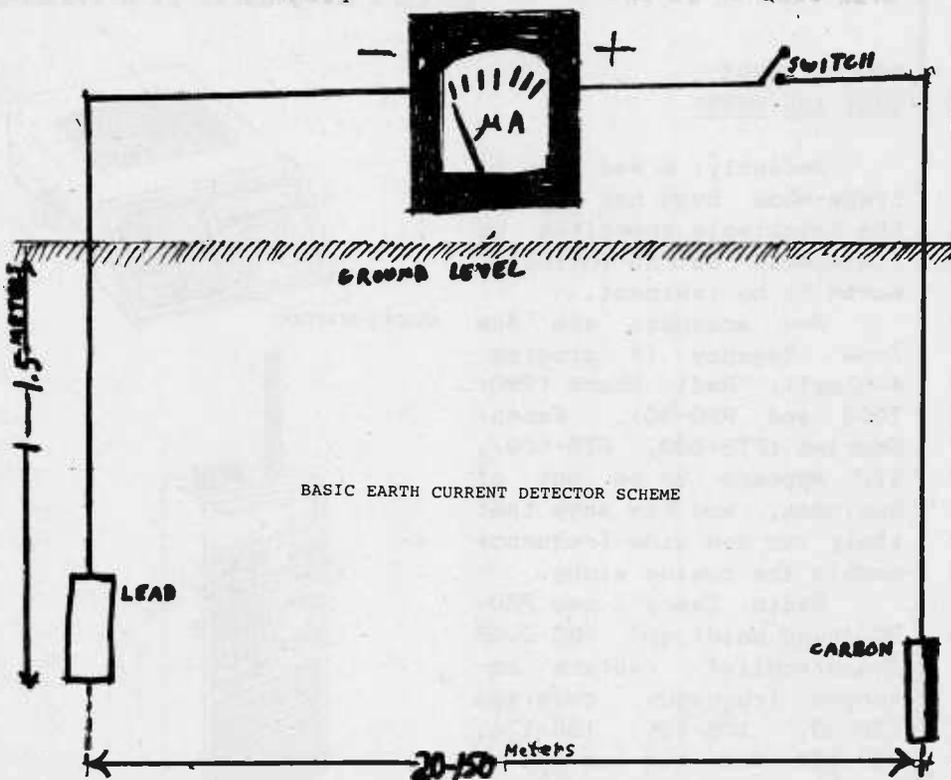
At 2000 GMT, the noise abated somewhat; at 2003 UTC I heard a noise from the adjoining room--a picture rattling against the wall!

Seconds later, the tremor struck which was strong enough to start the lamps moving and producing a somewhat uncomfortable feeling! Half a minute later, the whole family was out on the terrace, but nothing further happened.

Such was the substance of a letter in the May, 1976, issue of New Scientist from a listener in Switzerland. Was this interference due to changes in the electrical property of the ionosphere? Vit Kanevsky of the Soviet Union thinks that propagation can coincide with major fault zones at the edges of tectonic plates. The Earth's crust is made up of a number of these plates which are moving very slowly. At their edges earthquakes and volcanoes occur more commonly than elsewhere; just before an earthquake occurs, the magnetic field at the fault line becomes distorted. Many of us know that vibrations from earthquakes are detected by sensitive instruments and a growing number of people believe that rock stresses produce RF noise which affect propagation before an earthquake occurs.

SID

A sudden ionospheric disturbance seems to precede major earthquakes from a few hours to forty-eight hours. The buildup of stresses in the Earth's crust shortly before a quake may create a convulsion in the Earth's magnetic field, resulting in a sudden ionospheric disturbance.



A correlation between SIDs and earthquakes was first observed in 1948 by a radio operator at the Civil Aeronautics Administration Station at Pescadero, California. This station was the remote receiving site for the CAA Radio Facility at the San Francisco Airport.

The operator received radio teletype signals from Honolulu and radio telegraph transmissions from aircraft flying between Hawaii and California.

On rare occasions when contact was lost due to SID, it became apparent that there was a strong probability of an earthquake of moderate to major proportions somewhere in the world within forty-eight hours.

A SID completely interrupted 7 MHz contact with a station in Riverside, California and a subsequent California quake occurred about five hours later. Another 7 MHz contact with a station in Colorado was interrupted by a SID in June, 1979 followed by the Alaskan quake.

The coast guard Omega Navigational Stations record SIDs in order to offset their affect on their navigational system.

Loud persistent noises on the 14 MHz frequency one summer day in Chicago, Illinois were monitored. That midnight, the "windy city" had a moderate earthquake, centered on a little known fault line 30 miles southwest of the city. Blue flashes seen at the epicenter were subsequently explained as the release of electrical energy during the quake.

Reports indicate that radio signals go through changes when they pass over major fault lines in the world. The magnetic field of the planet may change

from the fault line up into the atmospheric layers, shortly before the fault jolts.

Scientists may find that the magnetic field of the Earth does change prior to any given quake detected by the MAGSAT satellite as it orbits the Earth measuring the magnetic field.

100,000 Chinese high school students have been measuring changes in crustal currents in order to try to predict earthquakes in that country. Perhaps MT readers who live near major faults would like to build such a device.

There are electrical waves under the ground; by monitoring changes in those waves, we may foretell the coming of earthquakes.

In the northern part of China, a young farmer set up an apparatus to foretell the coming of an earthquake. He chose two points about 20 meters apart and inserted into the ground (about 1 or 2 meters deep) a piece of lead in one hole and a carbon stick in the other to represent the negative and positive terminals of a simple cell.

Wires connected the electrodes to a microammeter. By reading the meter and charting the changes. He could apparently predict the coming of earthquakes through the changes in the ground voltage.

Wind and rain, thunderstorms, various climatic changes, magnetic storms, high tension wires and electrical machinery will disperse small amounts of stray electricity on the surface of the earth. This should be taken into account when monitoring the earth electricity gauge.

U.S.A.F. LOW FREQUENCIES

Many people are aware of USN use of LF/VLF frequencies, but not as many are aware of the USAF use of these frequencies.

The Strategic Air Command (SAC) has used low frequencies since 1968 as the "Survivable Low Frequency Communications System" or "SLFCS".

With powers of 110 kW, present ground stations are located at Silver Creek, NE on 48.5 kHz and Hawes, CA on 37.2 kHz.

These stations transmit in 3 modes. The first is 50 baud (71.4 WPM) reverse shift baudot RTTY with a very narrow (50 Hz) shift. This can clearly be copied on many 66/67 WPM RTTY devices.

Although often just RY's are transmitted, messages will be found identical in nature to the HF "Skyking" broadcasts.

The second mode used is a very slow 5.0 baud (7.1 WPM) reverse 50 Hz shift baudot RTTY. Messages in this mode are often mistaken as cw. RY's in this mode will sound like cw "VE ES" or "VESE". Usually messages are repeated at 7.1 WPM after being repeated several times at 71.4 WPM.

The third mode used is U.S.N. compatible 200 baud MSK. This cannot be copied by present hobbyist equipment.

The SAC and national E-4B airborne command posts also have low frequency capabilities.

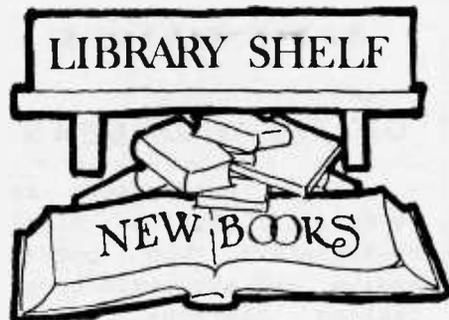
The U.S. Air Force has proposed a new system to be known as the Ground Wave Emergency Network (GWEN). The proposed system would have many stations piggy-backed on AM broadcast band station antennas and use a power of 1 kW in the 150 to 250 kHz range.

Used by the USAF and Civil Defense, the proposed system would have receivers with 16 to 25 channel capabilities. Tests in cw and ASCII have been made at Kirtland AFB, NM on 168 kHz and Belen, NM on 183 kHz. Although the 168 kHz station has run a QSL cw tape with address, it has never been known to QSL.

QUALITY PRODUCTS

FROM

GROVE ENTERPRISES



RADIO SCHOOL STEREO CODE COURSE (Cassette) by Grodon West (Four 90 minute cassettes; \$39.95 from Radio School, 2414 College Drive, Dept. MT, Costa Mesa, CA 92626).

Gordon West WB6NOA, former editor of S-9 and CB magazines, is well known for his amateur code and theory classes; now West offers a home study package for shortwave listeners and scanner buffs to familiarize themselves with Morse code.

The six-hour beginner course, recorded in stereo for additional tutorial impact, is designed to prepare listeners for entry-level amateur (novice class) code tests.

SHORTWAVE HOBBY EQUIPMENT REVIEW 1983 SUPPLEMENT AND UPDATE by Larry Brookwell (5-1/2" x 8-1/2", 65 pages, looseleaf; \$7 for four quarterly issues from International DX'ers Club of San Diego, Dept. MT, 1826 Cypress St., San Diego, CA 92154-1154).

Larry Brookwell has made an intense effort for the last several years to present objective, hands-on evaluations of new equipment of interest to the shortwave hobbyist.

Several volumes of supplements, equipment lists and other descriptive compilations are available; an SASE will bring a list.

FROM THE ARRL (American Relay League, Newington, CT 06111)

REPEATER DIRECTORY (5-1/2" - 8-1/2", 144 pages, \$2) This master directory of 29, 50, 144, 220, 420 and 1215 MHz repeaters includes all of US and Canada. Separate lists of bandplans and other useful data enhance this comprehensive publication, updated annually.

An excellent addition to the scanner listener's library as well as the VHF amateur operator.

THE RADIO AMATEUR'S LICENSE MANUAL (8-1/2" x 11", 190 pages, paperbound, \$4). Not intended as a quickie cookbook approach to a ham license, the ARRL license manual is a course in brief, intended to coach those already familiar with the basics in preparation for all upper classes of

amateur licensing, technician through extra.

Fully-illustrated chapters, arranged by license level; begin with a study outline, proceed through the intensive theory aspects and terminate with a sample test.

Separate chapters on rules and regulations include international regulations regarding amateur radio as well as a complete reprint of the FCC Communications Act and part 97 (amateur radio).

Very informative for the amateur-radio aspired listener.

EXPLORING ELECTRICITY AND ELECTRONICS WITH PROJECTS by John Edwards (5" x 8", 200 pages, paperbound, \$9.95). For the experimentally curious, EXPLORING guides its readers through a hands-on course in learning about electricity and electronics.

Liberally illustrated, EXPLORING admirably instructs in a tutorial manner without talking down to the reader. Chapters evolve naturally, from DC basics and magnetism, through AC, capacitance and resistance, semiconductors, test equipment, oscillators and several practical exploratory chapters on computers, space communications and even careers.

In retrospect, EXPLORING is primarily a practicum, intended to provide a broad understanding of the basics rather than depth. For those moderately curious about how electrons really behave, EXPLORING provides good reading.

LINEAR IC/COP AMP HANDBOOK--2nd Edition by Joseph J. Carr (#1550, 5" x 8", 356 pages, paperbound, \$13.95). Few integrated circuits have titillated the imaginations of designers as have operational amplifiers. Carr's new publication examines op amps from all perspectives, backed up with hundreds of diagrams, tables and other illustrations.

The HANDBOOK evolves intelligently, beginning with an introduction to basic types (inverting/non-inverting followers; differential amplifiers). Successive chapters examine typical applications problems and their solutions, active filter design (a very popular application of op amp IC's), instrumentation amplifiers and other circuits as well.

Appendices include specifications of typical op amps as available from their manufacturers. A collection of simple experimenter projects demonstrates the value

of these little marvels.

HANDBOOK is not an introductory-level cookbook; it presupposes mathematical competence and is not intended for beginners, although sample projects to demonstrate op amp principles are very simple.

* * * *

HEIL HAM RADIO by Bob Heil K9EID (6" x 9", 168 pages, paperbound, \$9.95 from Melco Publishing, PO Box 26, Marissa, IL 62257).

In 1982, Bob Heil was awarded the coveted "Radio Amateur of the Year" award; reviewing his new book, it's easy to see why.

Author Heil explains electrical and electronic concepts of communications in a straightforward, VERY easy to understand manner.

While some critics have cited errors and typos, they are to be expected in a first edition.

Subjects covered include antennas, audio processors (his specialty), mobile operation and problems, home workshop techniques, circuit components--active and passive, direction finding and many more.

Many home construction projects are included, simple to build and well-illustrated.

RECEIVER SHOPPING LIST compiled by Radio Netherlands.

With the bewildering array of portable and AC receivers now on the market for shortwave listeners, this free publication from Holland is welcome.

International models by Panasonic, Sony, Grundig, GE, Philips, Yaesu, Kenwood and many others are briefly discussed as to pros and cons for the wise shopper.

This 1983 edition available simply by requesting the Receiver List from English Section, Radio Netherlands (Attention Johnathan Marks), PO Box 222, 1200 JG, Hilversum, Holland. ...and two new swap sheets!

THE RADIO EXCHANGE (PO Box 486, Forest Lake, MN 55025) is a bimonthly listing of new and used gear with ads costing 20-80 cents per word, depending upon business or non-business, subscriber or non-subscriber. Display ads are available. Twelve issues for \$5, 24 issues for \$8.

THE SWAP LIST (Box 988, Evergreen, CO 80439) is free with a minimum 25-word ad prepayment (22 cents per word non-commercial, 55 cents per word commercial).

...and one old swap sheet!

THE YELLOW SHEET (HAM TRADER) (PO Box 356, Wheaton, IL 60187) is the most enduring of the barter publications. Editor A.L. Brand has been publishing it for over 15 years and doing a great job.

Send an SASE for a sample and mention Monitoring Times.

WHERE HAS WHITE'S RADIO LOG GONE?

White's Radio Log, popular for decades among shortwave broadcast listeners has disappeared from the magazine racks.

A note from the North American Short Wave Association (NASWA) indicates that this excellent publication may emerge again for \$3.95 plus \$1 shipping. Write Worldwide Publications, Inc, PO Box 5206, N. Branch, NJ 08876.

NASWA also has announced the availability of two other publications: NASWA Tropical Bands Guide 1983 (\$3 postpaid from George Sherman, Box 2284, Minneapolis, MN 08876); and

Tune In the World, A Listener's Guide to International Shortwave Radio by Kenneth D. MacHarg (special pre-publication price of \$7.95 postpaid from Global Village Press, PO Box 1345, Jeffersonville, IN 47131-1345).

For more information on NASWA and its publications, send \$1 to their headquarters at 46 Wildflower Road, Levittown, PA 19067.

FEMA SENDING ENCRYPTED CW

The Federal Emergency Management Agency (FEMA) has begun transmitting slow CW encrypted letter groups on several of its HF frequencies.

Most commonly reported on 14451.5 kHz, a typical transmission may look like: DE WGY908 SK TYPRM AFLSV ZHRKY KZSPT BXPID IKZTF SK.

WGY908 is the callsign of the Denver, Colorado FEMA regional headquarters. A phone call from MT to FEMA Washington headquarters confirmed the transmissions, but we were unable to learn their purpose.

A complete list of FEMA frequencies is found in Bob Grove's Shortwave Frequency Directory. (See page 16 for more information.)

PROFILES

A MONITOR'S LOG:
SUNDAY, JUNE 5, 1983
Contributed by Tim Day

TIME: 1745; FREQ: 460.200 MHz FM.

"Orange County to Eagle 44--please monitor 121.5. Norton Air Force Base says they are receiving an ELT signal from between Seal Beach and San Clemente as far out as Catalina. Norton AFB Civil Air Patrol is getting ready to mount a search."

"Roger. My BC300 says nothing on 121.5."

Shortly, the Coast Guard Auxiliary on 148.825 reports a plane down on San Clemente Island. The pilot is OK and the incident is being handled by the US Navy.

TIME: 1755;

I called 911 to report what I knew.

A moment later the scanner came alive again. "Orange County to Eagle 44; the downed plane has been taken care of by the U.S. Navy; no assistance needed."

Soon thereafter, my telephone rang. It was the Orange County sheriff's office calling to thank me for reporting what I had heard! They had verified my report with the Coast Guard and Norton AFB.

(Nice listening catch, Tim! And congratulations on your responsiveness and civic concern as well!...Bob)

WHERE HAS SHUTTLE GONE?

Disappointed listeners continue to call Monitoring Times during space shuttle missions to find out what happened to the old HF and UHF astronaut voice downlinks.

Sad to report, short-wave SSB communications support is now virtually extinct, confined to occasional short-range booster recovery vessel and chase aircraft use. Try 10780 kHz USB for Cape call-in; occasional frequency updates are announced there.

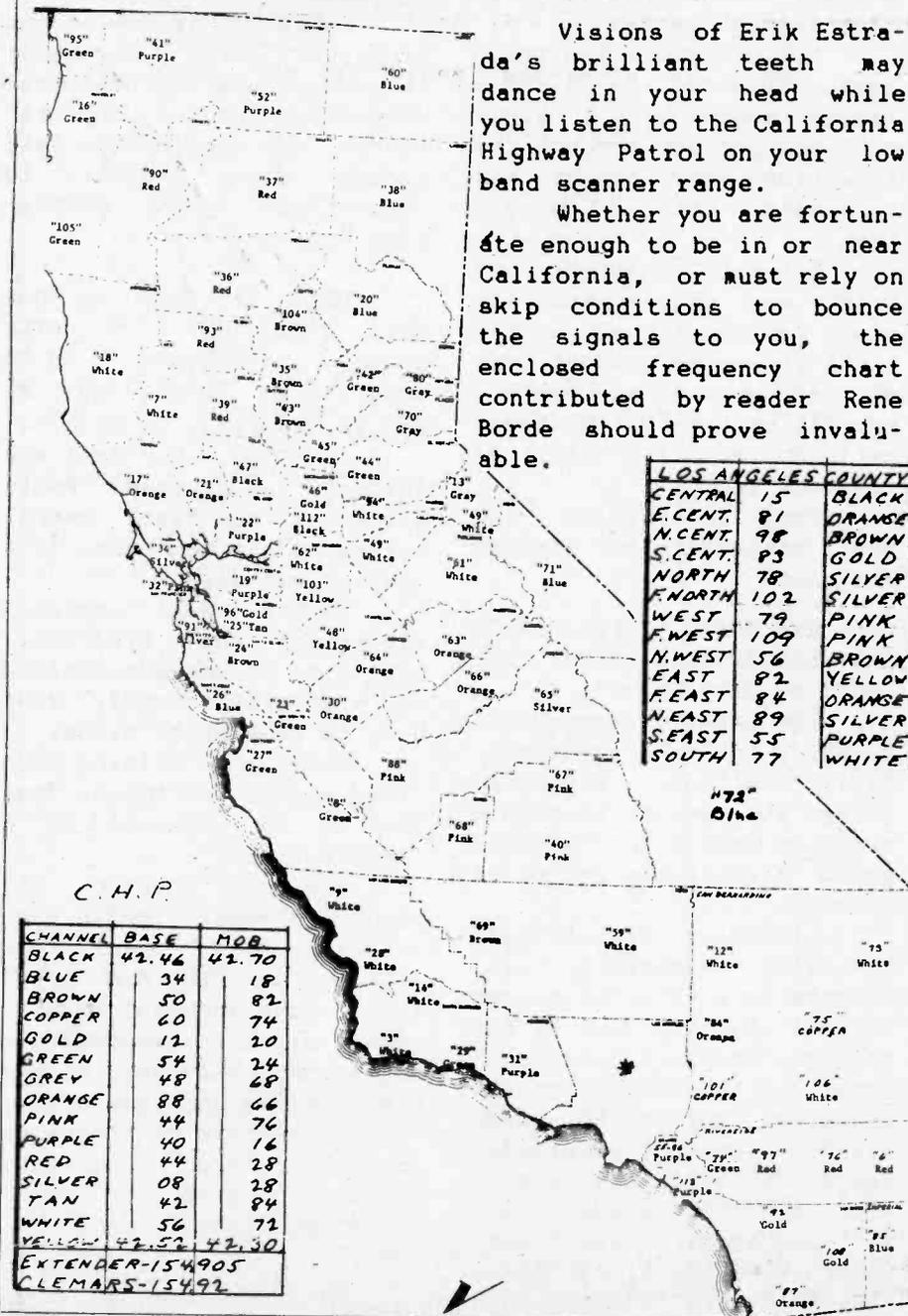
The familiar 296.8 and 259.7 MHz voice air to ground frequencies are also largely abandoned, reserved for emergency use in case the primary s-band systems give trouble.

S-band? Yes, up in the 2000 MHz region. More specifically, 2217.5 and 2287.5 MHz (100 watt voice and telemetry), and 2250.0 MHz (10 watt voice and televi-

TUNE IN CHIPS

Visions of Erik Estrada's brilliant teeth may dance in your head while you listen to the California Highway Patrol on your low band scanner range.

Whether you are fortunate enough to be in or near California, or must rely on skip conditions to bounce the signals to you, the enclosed frequency chart contributed by reader Rene Borde should prove invaluable.



RADIO PIRATES ON THE HIGH SEAS

While our readers may be familiar with the pirate broadcasters who operate medium and shortwave broadcasting stations without benefit of license, another breed of pirate exists.

In international waters, boaters often relax their discipline, operating under false identification in order to establish communication with stateside stations.

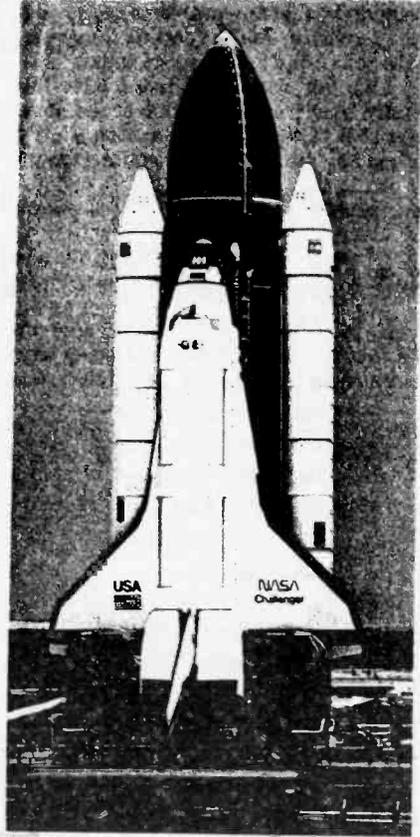
While ship-to-shore frequencies commonly see this kind of abuse, the amateur radio frequencies also have their share. Two networks reportedly rampant with this type of illegal operation include the UK Maritime Net (14303 kHz 1800 UTC daily) and the Water Gypsy Net (7085 kHz 1300 UTC Sundays).

Not quite as obvious are the occasional users of the Caribbean Maritime Mobile "Beenies Net" (7240 kHz 1130 UTC daily).

Legitimate amateur radio operators have a hard time trying to separate the licensed hams from the pirates, leading to some interesting predicaments on the air.

The likelihood of monitoring these transmissions successfully with unsophisticated hobby-type equipment is small. Bold attempts at converting multipoint distribution system (MDS) pay-TV converters and antennas have been tried, but we have yet to hear from successful experimenters.

The ham radio rebroadcasts are made available by



a special temporary authorization (STA) of the FCC. At Cape Kennedy, the transmissions could be heard on the Spaceport Amateur Radio Club two-meter repeater, 146.94 MHz during STS-7.

For those fortunate enough to be within range of Cape Kennedy, listen for shuttle rebroadcasts on 171.150 on high band, and 115.7 or 117.8 MHz on the aircraft VOR band.

If all else fails, MT readers can hear the voices of the astronauts direct by dialing 1-900-410-6272 at a cost of fifty cents per minute!

COSMONAUT COMMUNICATIONS

Just as with US space missions, the Russians have a communications network for mission support.

Most frequently reported by listeners are transmissions in the 19900-19998 kHz range, just below 20 MHz WWV.

Occasionally, transmission just above 20 MHz will also be heard, most notably from 20003-20084 kHz, with considerable activity previously reported on 20005 and 20008 kHz, often CW and telemetry/data.

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 prepaid calls weekdays 1-5 pm Eastern (704-837-2216)...Bob

Recent Russian manned satellite mission communications were monitored on 142.420 MHz FM (voice), 19.954 MHz (continuous telemetry) and 20.008 MHz (intermittent telemetry).

Scanner enthusiasts may also strike paydirt listening to 121.75, 142.417, 142.40, 142.60, 143.144 and particularly 143.625, widely reported with FM voice on previous missions.

A detailed list of frequencies used for space communications is found in the Shortwave Frequency Directory by Bob Grove.

EXPERIMENTER'S



WORKSHOP

BUILD A VOICE UNSCRAMBLER-- Part 2

by Jon E. Zalac

(Last month, MT presented construction details for a speech-inversion voice descrambler.

This month we learn where to get parts and how to make final adjustments).

Use and Setup

After the circuit is built, check for wiring errors before applying power. If you are convinced the circuit is wired properly, attach an 8 ohm speaker to the switch. Rotate R17 and R16 to mid position. Apply power. You will notice a slight squeal coming from the speaker. Adjust R17 for minimum sound. (A slight squeal will be present; this is normal.)

If you have an oscilloscope, attach one lead to ground and the other lead to pin 12 of IC1. Adjust R17 for minimum amplitude. This control is a null or balance control for IC1. Once set, it never needs readjustment.

Plug in the descrambler to your scanner's external speaker. In one position the switch will pass normal sound. When a scrambled voice is received, throw the switch and rotate R16 until the scrambled voice is clear. You will be able to understand the voice, but it will not be as clear as you and your friend talking. This is normal.

Several communities in the Pittsburgh, PA area use this method of speech security; it is the cheapest system available and very effective. For fun, tune to a NOAA continuous transmission, flip the switch and listen to the voice. You have now "scrambled" the speech!

BUILD THIS HIGH PERFORMANCE SCANNER ANTENNA

MT reader Bob Skwirak of Wayne, Michigan shares with fellow readers this month his unique monitor antenna. Assembled from pieces of a broken CB antenna, the element cluster shows excellent wide frequency characteristics according to its inventor.

Bob started out with a storm-damaged Radio Shack 21-901 1/4-wave CB antenna (quite possibly elements from a damaged TV antenna would work as well if an experimenter were to build the antenna from scratch using various aluminum hardware).

Salvaging the base piece and coax connector, he trimmed the lengths of the radial and top elements as shown in the accompanying sketch. The only part he had to buy (\$1.50!) was the horizontal cross bar--an 18 inch length of 7/16" aluminum channel.

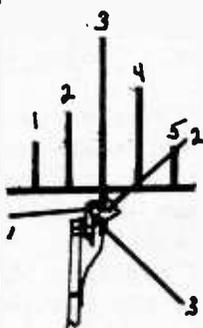
Starting at the center of the bottom side of the channel, Bob then drilled five 7/16" holes, equally spaced at four inches separation. The elements are all inserted into the holes, supported by the sides of the aluminum channel.

The center element (number 3 in the sketch) protrudes about an inch below the channel; the remainder are flush with the bottoms of the holes. They are all firmly anchored to the walls of the channel with one inch screws and nuts after drilling holes through the channel side walls and included elements.

The number three element is secured to the center post insulated original mount by self-tapping screws, as was the original element. This supports the entire cluster.

Bob insulated the entire antenna from his metal mast by using leather from an old belt, but the antenna should work fastened directly by its integral clamp to the mast.

And, so says the inventor, he enjoys excellent performance on VHF high and also, low, UHF bands and even the 225-400 MHz military aeronautical band! Give it a try and let us know your success!



RADIAL LENGTHS

- 1----13 INCHES
- 2----18 INCHES
- 3----15 INCHES

ELEMENT LENGTHS

- 1----7 INCHES
- 2----9 INCHES
- 3----19 INCHES
- 4----11.5 INCHES
- 5----6 INCHES

4 INCHES BETWEEN ELEMENTS

SCRAMBLE EVERYTHING?

Recently, reader Lou Ferrill sent a news clipping from the Chicago Tribune (1/28/83) regarding the use of speech scramblers.

The article related the promotional efforts of Motorola to saturate the land mobile market with Digital Voice Protection (DVP) systems.

Since that manufacturing division of Motorola is Chicago (Schaumburg) based, it is a good market indicator of how universal the

technique is used.

The article quotes Motorola officials who admit that the major users of DVP (and other scrambling techniques as well) are the military, law enforcement and intelligence agencies. This is predictable.

While the DVP technique is virtually unbreakable (roughly one billion trillion to one odds to decode) it is expensive--about \$1000 for each radio so equipped.

While Motorola has made a pitch to equip fire departments with the costly system, efforts have been unsuccessful. Chief Edwin Nelson, director of fire communications for Chicago, calls the suggestion for encoding "ridiculous".

Confidential communications are handled by telephone or teletype links between the fire stations.

A similar reply comes from William Miller, communications chief of the Chicago Police Department. "We respond so quickly we don't need DVP. We have actually made arrests of burglars who have radios tuned to our frequency."

Fewer than 2 percent of that department's 4,000 portable radios are used for coded messages. Miller went on to say that involved citizens often phone in corrections and additional information to calls which they intercept on their scanners.

The simplest form of encryption is speech inversion, in which the entire voice pitch range is inverted or turned topsy turvy.

It is relatively simple to decode using an identical device at the scanner. Dozens of manufacturers of such decoders have come and gone on the hobby scene over the last several years. All hobby-type speech decoders are of the speech inversion variety.

The DVP system, on the other hand, is virtually impregnable to unauthorized monitoring with its 2.36 x 1021 possible codes. The correct sequence is punched up on a touch-tone pad by the user.

GROVE TO SPEAK AT MIDWEST TEACHERS CONVENTION

Bob Grove, editor of Monitoring Times and president of Grove Enterprises, will be conducting seminars on listening at the Mount Vernon Conference October 27 and 28 in Mt. Vernon, Illinois.

Area residents may wish to contact Andy Finn at the Southern Illinois Educational Service Center in Benton for further information.

PARTS LIST

RS = Radio Shack

JE = Jameco Electronics

- C1, C4: 1 MFD, 16V electrolytic capacitor (JE)
- C2: 4.7 MFD, 16V electrolytic capacitor (JE)
- C3, C9: .047 MFD, 100V capacitor (RS Cat. No. 272-1068 - DO NOT SUBSTITUTE) (JE Cat. No. MY.047/100)
- C5, C8: .1 MFD, 16V ceramic capacitor (JE)
- C6: 100 MFD, 16V electrolytic capacitor (JE)
- C7: 220 MFD, 16V electrolytic capacitor (JE)
- C10: 10 MFD, 16V electrolytic capacitor (optional, part of IC4) (JE)
- D1: IN5239B, 9.1V, 5% Zener diode (IN4739 OK, RS)
- IC1: MC1496P 14 pin balanced mixer (JE or Grove Enterprises)
- IC2: LM566 Phase-Locked loop (JE)
- IC3: LM386 audio amplifier (RS or JE)
- IC4: LM380N 2 watt audio amplifier (optional) See text. (JE or RS)
- R1, R2: 10 ohm 1/2 w resistor (RS/JE)
- R3, R4, R10: 1500 ohm 1/4 w resistor (RS/JE)
- R5, R8, R9, R11: 1000 ohm 1/4 w resistor (RS/JE)
- R6: 10K ohm 1/4 w resistor (RS/JE)
- R7, R12: 2.2K ohm 1/4 w resistor (RS/JE)
- R13: 680 ohm 1/4 w resistor (RS/JE)
- R14: 150 ohm 1/2 w resistor (RS/JE)
- R16: 5K ohm carbon pot (RS/JE)
- R17: 100K ohm trim pot (JE TR11-100K)
- S1: DPDT toggle switch (RS/JE)
- SPKR: 8 ohm speaker (RS/JE)

NOTE: Capacitors may be a higher voltage rating.

Jameco Electronics
1355 Shoreway Road
Belmont, CA 94002
(415) 592-8097

LEBANON UNDER SIEGE

by Vito A. Echevarria

This year, there has been as much change in Lebanon's shortwave radio as there has been volatile politics.

Amidst multi-national troops in Beirut, Christian Phalange troops feuding with Druze Moslems in the Chouf Mountains and PLO guerillas fighting among themselves, Lebanese shortwave stations endure this and more.

During the past eight months of monitoring Lebanese stations, I came up with this profile of Lebanese stations:

Radio Lebanon

The official government station was not widely heard on 5980 kHz (0355-0805, 1615-2005 GMT) or on 9545 kHz in North American, where Radio Lebanon re-started its North American service in April, due to the high interference from Deutsche Welle's strong relay transmissions in Antigua.

But from May onward, Radio Lebanon moved its transmission to 11955 kHz, where its North American service in Arabic, English and Spanish has been well heard from 0200-0330 GMT.

One can hear the latest world and regional news as well as various kinds of music, from Lebanese pop to Frank Sinatra.

Voice of Lebanon

I first heard this 15 kw station, owned and operated by Gemayel's Christian Phalange Party on December 24 (Christmas Eve), on its frequency, 6550 kHz at 0430 GMT with amazingly good signals (S10-443).

Arab and American pop music and "Jingle Bells" in French was played, then talks by a French-speaking female announcer.

Little did I realize at the time that this broadcast was coming from Voice of Lebanon, mainly because of its low transmitting power, until other DXers reported it in Review of International Broadcasting.

Voice of Lebanon was heard signing-on at 0405 GMT with a music box tune, then "River Kwai March" followed by the Lebanese anthem. Then came a time check with two tones and ID and program in either Arabic or French.

The program usually consisted of pop, Lebanese and sometimes classical piano music as well as the news at 0415. The station would usually fade-out past 0503 GMT, although in one case the station was heard from 2110 to sign-off at 2120 with the Phalangist anthem.

Reception is best during the winter.

Voice of Hope

This religious station, heard on 6215 kHz, is operated by an American religious group, High Adventure Broadcasting. Based in Van Nuys, California, Voice of Hope transmits "from Free Lebanon," (actually land held by Major Saad Haddad's Christian Militia) and normally operates from 0400 to 2310 GMT mostly in English (and Arabic at 0600, 1000, and 1400 GMT) with gospel programs and country music.

During the Israeli invasion of Lebanon, the station expanded its schedule to 24 hours a day and even increased its transmitting power from 10 kw to 50 kw.

Due to adjacent single-sideband QRM, this station has had poor reception in North America even with the increased power.

Voice of Arab Lebanon

This Lebanese clandestine is operated by the Independent Nasirite Movement, a pro-Moslem sect based in Beirut. First reported by the Australian Radio DX Club in February, it transmits mostly in Arabic on 6204 kHz from 0400 to 2050 GMT.

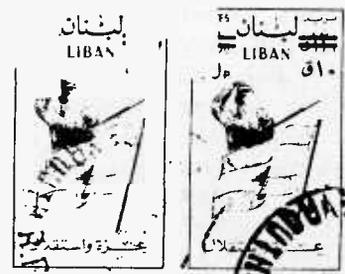
Due to strong signals from Radio Tirana and Vatican Radio, this station is very difficult, if not impossible, to log. Radio Netherland's "Media Network" program on July 7 stated that Voice of Arab Lebanon is also heard on 6233 kHz.

Voice of the Great Homeland; Voice of the People's Revolution

Another pro-Moslem Lebanese clandestine, this one is different because it does not transmit from Lebanon; in fact, its frequencies - 15235 kHz and 17930 kHz - are Libyan; DXers may assume that Qadaffi set up this clandestine as an instrument against Lebanese unity.

Broadcasting from 1900-2000 GMT, the station, first reported by DXer Richard E. Wood in Saudi Arabia, is best heard in the U.S. on 17930 kHz with this ID heard many times: "Huna al Idhaat ul Saut ul Watani al Kebir, Saut ul Thawrat ul Shaabiyah."

Patriotic Lebanese songs, Arab music and political talks and fanfare in Arabic with fanatical Muslims shouting occasionally in the background abound. Like its adversary, Voice of Lebanon, this station makes for some interesting listening.



Military Stations in Lebanon
Although not reported in America yet, Italian DXer Fabrizio Magrone of Play-DX club in Milan has reported in Review of International Broadcasting that much military activity from UNIFIL troops stationed in Lebanon have been heard on SSB.

Irishbat, Harris Base, heard on 19560 kHz at 1430 GMT in English, IDing as "37" with Ireland station "0". Also heard on 19710 kHz at 0900 GMT.

Fijibat, Lakeba Camp, IDing as "Bravo 8", English traffic with "31" or 3DV31 Army Suva at 1100 GMT on 20712 kHz.

Italcon, Beirut, IED26 on 19325 kHz at 1530 GMT with traffic from Italian troops in Lebanon with IED21 (Centro Interforze, Rome).

Norbatt (Norwegian Battalion), UNIFIL troops station in Ebel el Zackrie, Lebanon (Callsign: LBL1) with traffic to JXA Army Oslo on 19330 kHz at 1400 GMT.

I advise DXers who want to monitor these Lebanese stations to do so right away. If and when Lebanon comes to order, the government of Lebanon will most likely close down these radio stations as fast as it can!

DISNEYLAND RADIO

For the past couple of years, the Sound and Security Departments at Anaheim, California have been planning for the installation of a new communications system. The new system is now in use.

"In the old system," explained Ike Isaacson, Manager of Security/Fire, "we didn't have exclusive use of the radio frequencies. You could listen to your radio and pick up transmissions from trucking companies, Palm Harbor Hospital and a lot of other things."

The new system uses higher frequency UHF chan-

nels and consequently, there isn't the problem of overcrowding.

From a technical standpoint, this new system is far superior to the old one. When someone transmits, it's received at the station on the roof of Snow White's Scary Adventures. The signal is amplified and then retransmitted throughout the Park.

The old system is not gone yet. Some areas have been upgraded using the low power frequencies. The small beepers haven't been affected.

DISNEYLAND

CH	Freq	Color	Service	Call
1	464.6375	RED	Emergency	KA8146
2	464.4625	BLUE	Security	KA8146
3	464.4875	GREEN	Operations/Park Lot	KA8146
4	464.4125	ORANGE	Maintenance	KA8146
5	464.5125	YELLOW	Special Events	KA8146
6	464.7675	WHITE	Telephone	KA8146
7	462.5750	PURPLE	County Wide Repeater	KA8146

Special Events (Parades, Fireworks, Filming)

154.570	Maint/Subs/Shows	KC7032
154.600	Security/Fence Patrol/Autopia/KC7032	
	Outdoor Foods/Monorail/Steam Trains	
154.625	Paging	KY4709

TECHNICAL TOPICS

edited by Bob Grove, WA4PYQ

Q I haven't the foggiest notion of how to achieve ECSS tuning with my receiver. Can you send me an "A,B,C" description of EDCC tuning?

J. Malcom Ross
Shavertown, PA

A Actually, exalted carrier sideband tuning is no particular trick at all. Simply select the AM station of interest and switch the receiver to SSB mode. Then adjust the tuning dial until the heterodyne (whistle) goes lower and lower, finally disappearing.

At that point gently adjust the tuning dial until the speech or music sounds natural. That's it. Simple?

The advantage of ECSSB is that you reduce the bandwidth needed to receive the signal, thus reducing interference from adjacent frequencies. Good luck.

Q 1) In "The Grove All-Band Dipole," on p. 24 of your May/June '83 MT issue, are those "egg" insulators shown in the diagram, between the short and long antenna legs, and also at the ends of the antenna?

2) Also, are any particular wire gauges recommended for the antenna itself or for the 300-ohm twin-lead leadin, whether for SWL use or for transmitting?

3) If one wanted to try a half-size antenna (22/45 ft. legs), would the length of the 300-ohm twin-lead leading also be halved, to 24-1/4 ft.?

Dave Knezetich
Joliet, IL

A 1) Yes, those are egg insulators, used conveniently to isolate the dipole wires at the center and also the end.

2) Virtually any gauge wire, insulated or uninsulated, stranded or solid, aluminum or copper will work.

3) I suspect that if one halved the dipole, the length of the feed ribbon would remain the same. Only an experiment will reveal the actual answer. Please let me know what you find out!

Q Are there any full-coverage 150 kHz-300 GHz receivers on the market? What's on those higher frequencies?

K. Bharvaney
Brooklyn, NY

A Some specialized surveillance and countermeasures test equipment receivers have enormous frequency ranges, but none of

which I am aware has that much range.

Raytheon (as have many other military contractors) has their "Tempest" receiver, capable of continuous coverage from 100 Hz-1GHz (1000 MHz) and costs nearly \$100,000.

Spectrum analyzers and panoramic receivers are also available with wide frequency range, usually 1-1000 MHz or so, with some surveillance receivers capable of slightly greater upper and lower limits, but none covers the entire electromagnetic spectrum.

What's up there? Under 50 MHz, signals are capable of skip (ionosphere bounce) propagation over thousands of miles; at high frequencies, range becomes progressively shorter.

The highest frequencies used for routine land mobile services are 806-960 MHz. Above that, communications tend to be "fixed"; that is, point-to-point from permanent installations.

Directional beam antennas are used, even parabolic "dish" reflectors, to confine the pattern of the signal to a prescribed location.

Above 1 GHz, bands are very wide and modulation methods may be complex. Multiplex is common, with many simultaneous conversations, data links and teletype messages handled on one center frequency, separated by special receivers with sharp IF filters to select individual swaths of intelligence.

An example of this mode is the telephone company repeater towers which dot the countryside; another is TV satellite traffic.

With time, more and more manufacturers will be offering receiving and converting equipment to enable the listener to home in on these presently-evasive higher frequencies.

Q I recently bought a Sony ICR 4800 for portable use. I noticed some fading on the SW bands. Thinking that there could not be much of a "ground" chassis on this little wonder, I then lined the carrying case, bottom and back sides with aluminum foil. Great! This gives the "ground" you need to prevent fading.

One word of caution: when lining the back side, do not let this foil-ground shield touch the antenna. Makes sense, doesn't it?

Steve Jeske, NOCRS
Plymouth, MN

Clever idea, Steve! I wonder if other readers have

similar discoveries?

Q Will the Grove CVR-2 Globescan work with a portable radio that tunes the aircraft band?

James P. Cripps
C. Islip, NY

A While the CVR-2 Globescan will work with your receiver (provided it has an external antenna jack for use on the 118-136 MHz aircraft range), the plastic cabinet of your receiver makes it particularly vulnerable to oscillator pickup from the CVR-2 and I suspect you would probably hear a large number of images (spurious signals which shouldn't be there).

The CVR-2 works well with a programmable scanner; I'd sooner have you try that.

Q Where can I get an extra-long-time recorder to use with my scanner?

(No name)

A Try suppliers of telephone answering equipment. One such company, The Answerline Associates (124 W. Lincoln Ave., Mt. Vernon, NY 10550) has a recorder with 10 hours per cassette and even includes computerized voice-clock logging for only \$299 (model CPC25A). Tell them you read about it in Monitoring Times!

Q I wish to convert my 9 volt AM BC band radio to receive 5.4-16 MHz.

Can I add inductors or

condensers to the tuning condenser?

Kevin Neal
Flippin, AR

A The procedure would involve removing a number of turns from both the ferrite antenna bar and the shielded oscillator coil so that both would be tracked by the tuning capacitor on the new frequency band.

Even if done properly, the receiver would be vulnerable to images and intermod due to its low-cost design for receiving local AM broadcasters.

Q Which is better for shortwave reception, a trap-tuned dipole or a random wire and tuner?

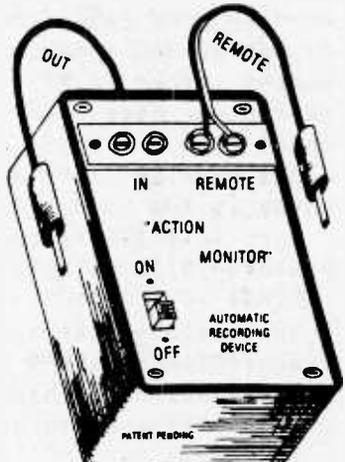
C. Anthony Eck
Los Lunas, NM

A 1) A trap dipole favors certain international broadcast bands at the expense of other frequency ranges (manufacturer's choice, not yours!); and

2) The trap antenna still permits strong signals from other bands to cause interference on your receiver, a malady easily corrected with a simple, inexpensive preselecting tuner like the Grove TUN-3 Minituner. And you can still choose which bands you want to hear!

-Continued on page 8-

**MT GOES MONTHLY
JANUARY, 1984!**



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HELPFUL HINTS

EXTEND THE FREQUENCY RANGE OF THE BC-100

MT reader Run Tull of Whitehorse, Yukon shares an interesting discovery with fellow listeners. He has found a frequency-extending program for his Bearcat 100 which provides excellent reception from 50-53.4 MHz and 361-406 MHz in addition to the normal ranges of his scanner.

Readers should note that the following program sequence will allow the appearance of total 50-406 MHz coverage, but the tuned circuits of the scanner will not actually track the displayed frequencies.

While all frequencies between those two limits will be shown, they are algorithms only; that is, the microprocessor dutifully commands the LCD readout to show the frequency sequence, but the receiver does not actually work between the extended limits described above.

For 50-406 MHz search
 PRESS: 49 LIMIT 50 LIMIT
 SEARCH HOLD MANUAL
 PRESS: 406 LIMIT 405 LIMIT
 (shows "ERROR")
 PRESS: SEARCH HOLD LIMIT
 (down) SEARCH

For 30-512 MHz search
 PRESS: 30 LIMIT 31 LIMIT
 SEARCH HOLD MANUAL
 PRESS: 512 LIMIT 511 LIMIT
 (shows "ERROR")
 PRESS: SEARCH HOLD LIMIT
 (down) SEARCH

MORE FREQUENCIES ON THE BC-300

In the past, Monitoring Times has brought you several frequency-extension programs for various scanners, including the popular Bearcat 300.

Recent experiments with this receiver have shown that the VHF high band may be extended to search 174.000-174.645 using the following program:

Close squelch (no hiss)
 Select any channel
 Enter any low band (30-50) or aero band (118-136) freq.
 Press: 472.8, LIMIT, LIMIT
 Open squelch (no hiss)
 Press: SEARCH, ENTER
 Close squelch (no hiss)
 BC-300 will now search upwards from 174.000-174.645, then jump to 420.425 and continue.

STORE OUT-OF-BAND FREQUENCY
 During the search routine, press HOLD on desired frequency
 Close squelch (hear hiss)

Press: SEARCH, ENTER, 1, LIMIT

Open squelch for 3 seconds, then close (signal or hiss must drop out; remove antenna if necessary)

Frequency will now be entered into memory
ALGORITHMS ONLY

Several readers have sent in programs which display odd frequencies on the readouts of their Bearcats; in most cases these are algorithms -- microprocessor commands which obediently result in numeric displays, but not received signals. They are simply too far out of the oscillator range for the receiver to continue working.

One such routine for 174.000-189.680 MHz follows:
 Open Squelch (hear hiss)
 Enter any high band (144-174), aero band (118-136) or low band (30-50) frequency on channels 1 and 2
 Press: Any frequency between 472.8 and 512.0, LIMIT, LIMIT

(Or press: 39.2, LIMIT, LIMIT for 15.68 display)

(Or press: 30.925, LIMIT, 31, LIMIT, MANUAL, SEARCH for 52.525)

Press: MANUAL, SEARCH, ENTER, 1, LIMIT

Close squelch (no hiss) for 3 seconds, then open
 Frequency will be displayed, but no signal will be received

HEAR 136-144 MHZ

A simple method of extending the receiving range of the BC-300 appeared some months back in MT; it is reprinted here for reference:

Close squelch (no hiss)
 Enter a low band (30-50) or aero (118-136) frequency
 Press: 157.6, LIMIT, 165.6, LIMIT

Open squelch (hear hiss)
 Press: SEARCH, ENTER
 Close squelch (no hiss); BC-300 will now search 136-144 MHz

(NOTE: This search range may be adjusted by proportionately adjusting the search limits.)

ENTERING 136-144 MHZ INTO MEMORY

Close squelch (no hiss)
 Enter low band (30-50) or aero (118-136) frequency into any channel

Add 21.6 to your desired frequency between 136 and 144 MHz and set both search limits to that frequency

Open squelch (hear hiss)
 Press: SEARCH, ENTER
 Close squelch (no hiss)
 Press: 1, LIMIT
 Open and then close squelch
 Frequency will now be in memory

At this writing, we are unaware of any other out-of-band programs for the BC-300; reader contributions are welcome. So far as we know, Radio Shack programmable scanners can not be extended by any keyboard routine.

Simple programs for extending the frequency coverage of scanners are eagerly sought by MT readers; we invite you to share your findings with us.

NEED A TECH MANUAL ON YOUR USED GEAR?

We have just learned that there is one in-depth source of technical manuals for ham and SWL gear, including schematics.

For information, send a SASE and your request to HI, Inc., Box 864, Council Bluffs, IA 51502-0864.

HELP DESIGN A NEW PRODUCT

Nothing is more useful to a manufacturer than feedback from customers. Do users of the popular Grove Enterprises Scanner Filter find the UHF (400-500 MHz) band an essential feature, or would you rather have low band (30-50) MHz included?

What are the ideal frequency ranges which you would like to have covered by this eminently successful dual-band notch filter?

And how about the ANT-4 Power Ant? Is the gain control really important, or do most of you crank the unit up full and leave it there? Would a simple high/low switch as utilized on the PRE-1 masthead preamplifier be adequate? Perhaps unnecessary?

Since it is inadvisable to tamper with success, we would like to know what improvements would be desirable before making any changes.

Please send any comments to Bob Grove, president of Grove Enterprises, 140 Dog Branch Rd., Brass-town, NC 28902 or call him at 1-704-837-2216.

THE CIA WANTS YOU

The Central Intelligence Agency has been engaged in a media-wide campaign to lure qualified communications personnel into its ranks.

The primary calling is for men and women to work in the SIGINT (signal intelligence) field.

Salaries begin in the \$15-18,000 range and include full government benefits.

Qualifications include US citizenship, good health,

UNLOCKING THE BEARCAT 250 IN TEN EASY STEPS

by Richard J. Ward NG6O

Before we start, set your 250 scanner to "Slow Scan Speed," select any channel; press "Aux" and "Store" to erase any stored memories on this channel which will prevent this scheme from working!

OK, your Bearcat is now prepared under anesthesia and we can proceed with the operation.

For example: I want to search down from 146 MHz. Set search limits 146 to 147 MHz; start search (up); manufacture "Birdie" by opening squelch...Good, you're doing fine!

Search should now be stopped (it doesn't matter where) by opening the squelch. Now press "Lock-out", "Aux" then "Recall" buttons (Isn't this fun?).

Enter a new limit between 30 and 50 MHz; say, 34 MHz (don't forget to press limit) Now press "Recall" knob (counterclockwise).

Next, press search "Down" button and your Bearcat will automatically step down to and below 144 MHz. If you want to enter into memory 145 MHz, when the frequency readout nears 145 MHz, turn the squelch knob clockwise, stopping the search...The exact frequency can now be stepped to manually, using the "Up" and "Down" buttons. Find 145 MHz.

If you now press "E" for entry into the Bearcat memory, the display will read "error"...So how, you ask, can this be put into a memory??

With the squelch open, and the frequency desired displayed (in this case 145 MHz) turn the volume control OFF!! Wait a few seconds and turn it back on...Your frequency should still be displayed! Eureka, your out of band frequency is now entered into memory!

desire to travel (the first dozen years or so may well be spent overseas), and should include one or more of the following: proficiency in Morse/non-Morse, voice collection disciplines, signal analysis or equipment repair.

Interested readers may wish to contact the Company by sending a letter and resume of training, skill levels and related qualifications plus date of availability to:

Personnel Representative, Department A, Room 821, PO Box 1925, Washington, DC 20013.

VIEWPOINT

Continued from page 2

The telephones the inmates use are not monitored unless the authorities acquire a court order. The law is quite specific in this area, and the telephone company will not tap a telephone just at a request.

The only newspapers, magazines and books that are sent to the "censorship committee" are the items containing information regarding the manufacture of explosives, incendiaries, weapons or escape devices. Also, instructions regarding the ingredients of or manufacture of poisons or drugs, and writings which advocate violence, guerrilla warfare, etc. Without going into it any further, I believe you get the intent of the regulations.

I simply find it hard to believe the staff refused to permit Mr. Demmitt his electronic publications in the prison out of ignorance to the electronic field. Just because we work in the prison setting doesn't mean we are ignorant to many other fields. I, along with working in a prison, am a licensed amateur radio operator and have many other interests besides.

One must remember, although Mr. Demmitt may have good intentions, there are many inmates in the prison system that do not. That's where security comes into play; we must treat one as the other.

In writing this letter, I have attempted to keep an open mind and understand where Mr. Demmitt is finding fault with the prison system. Not being in prison before, I am able to see that Mr. Demmitt might take offence to our regulations. He is just going to have to bite the bullet and bear with it.

In the one last paragraph written by Mr. Demmitt, he states how to rig or how he rigged a homebrew shortwave set while working on an employees TV set. I see that Mr. Demmitt has become prison-wise in that he has abounded himself from the prison regulations to suit his own ends.

Kindly keep in mind, the prison system is riddled with very dangerous inmates and security must prevail above all. Let's also keep in mind that the Rockview prison is a minimum security prison, so the crime that Mr. Demmitt (committed) isn't all that bad or the system would have put him in a maximum security prison.

Corrections Officer III
(Lieutenant)

As a police officer for 15 years, I thought your Profiles article on John H. Demmitt was good. I have enjoyed his previous articles; please encourage him to continue. How about a letter campaign to the Warden at his prison or the department of corrections, especially from federal, state and local law enforcement officers, explaining the lack of "security breach" a general coverage receiver would be in the hands of an inmate such as Mr. Demmitt?

Although we are from two separate sides of the book, he seems dedicated to serving his sentence and is only looking for a way to spend those long lonely hours.

John F. Henault
Abington, MA

(Readers wishing to write John Demmitt directly may address him at Box A K-0848, Bellefonte, PA 16823)

Just received Vol 2, No. 4 (July/August 1983). I have several comments to make that may be helpful for some of your readers.

I am Director, Intruder Watch, Region 2, I.A.R.U. (North, Central, & South America). On page 2 you mentioned a network of monitoring amateurs. The Intruder Watch program would certainly be interested in this provided we stick to reporting non-amateur signals appearing in the amateur bands. Particularly those in the exclusive amateur bands. If you wish more information about I.W. I can supply it. As for joining the network, I suspect this will be an individual decision but it certainly might provide a good base for exchanging I.W. information if that is part of the intent.

On page 15, 3rd column, the writer asks for information about CW characters "AA", "OE", "IM", "OT", etc. These are Russian Cyrillic alphabet letters. "AA" is "YA", "OE" is "CH", "IM" is "YU", and "OT" is "SH" which are portions of the Russian language converted to English equivalents. This typewriter cannot actually put the real Russian symbols in but there are a number of International Morse code differences in letter meanings. The writer of that letter may have been listening to any one of a number of Russian radio circuits. The U.S.S.R. runs circuits on many frequencies with Cyrillic code transmissions.

Page 24, bottom of column 4. The writer asks

CLUB CORNER

ASSOCIATION OF DX REPORTERS

The Association of DX Reporters is a general interest club whose membership runs the gamut from beginners through old-timers, from all over the U.S. and Canada and overseas.

Subjects covered include: SW/MW/LW/TV/FM broadcasting, HF/MF/LF utilities, amateur, and QSLing.

A monthly bulletin, the DX Reporter, is published (sample available for \$1.00 from Association of DX Reporters, 7008 Plymouth Road, Baltimore, MD 21208).

Annual membership dues (including bulletin) is \$15.00, first-class mail, U.S. and Canada.

Reuben G. Dagold,
Publisher, ADXR

TESLA COIL BUILDERS ASSOC.

For those of us who marvel at the dancing flames of high voltage electricity, this club perpetuates the art of construction of high voltage demonstration equipment.

Association head Harry Goldman spearheads the group and offers a variety of topics via his publication, TCBA News, issued quarterly.

Membership is \$16 per year; single issues of the TCBA News are \$5 from TCBA, RD3 Box 181, Glens Falls, NY 12801.

HANDICAPPED EDUCATIONAL EXCHANGE

about Kata Kana code transmissions. Many of the Japanese amateurs communicate in Kata Kana. They can be heard in many amateur bands when it's open from Japan. All you need to copy is learn Japanese and Kata Kana and it turns out to be mostly amateur talk!!

Finally a suggestion for some SWL's. Listen for Radio Moscow on 7265K daily from 1230 UTC when they tune up (Programming starts at 1300 UTC till 1700 UTC). Of particular interest is the test tones R.M. uses prior to the programming. 5-second tone then 5-second silence. This is to keep the frequency busy so that "those dirty hams" won't louse up our broadcast to the West Coast of North America. Which by the way is illegal. No broadcaster in either region 1 or 3 is supposed to transmit INTO region 2 under the international treaties. Naturally R.M. don't observe the treaty they signed!

Good wishes for your continued success.

M.L. Gibson, W7JIE
Renton, WA

Designed as a clearing-house for information on technology for the handicapped, HEX lists sources of hardware and software as well as conferences and seminars of interest to its specialized clientele.

Interested readers may call up the computerized bulletin board and use any MODEM with Baudot or ASCII capability. The number is 301-593-7033.

For more information contact Richard Barth, 11523 Charlton Drive, Silver Spring, MD 20902. Voice-answered telephone number is 301-681-7372.

GOLDEN GATE COMMUNICATIONS ASSOCIATION

San Francisco Bay area scanner enthusiasts would do well to look into this new organization which specializes in local frequencies, guided tours of radio facilities and publishes a newsletter with very up-to-date information of interest to scanner listeners.

Dues of \$12 entitle members to the newsletter. Contact Editor James A. Zuchellie, PO Box 1861, Modesto, CA 95353.

VIENNA MEDIUM WAVE NEWS

Editor Gerhard Butow provides a monthly mimeographed collection of worldwide broadcasting stations reported on the air, featuring extracts from many club bulletins as well as official sources.

For more information send an IRC to the editor at Handelskai 214/10/22, A-1020 Vienna, Austria.



MILITARY QSL POLICY

Many SWL's enjoy getting confirmation of their intercepts directly from the transmitting agencies themselves. While occasional security complications may prohibit the verification of certain proprietary transmissions, the general Air Force policy is to issue QSL cards (AFCS form 2) to anyone who submits a QSL request.

Encharged with the general QSL responsibility is the HQ Air Force Communications Service, Scott Air Force Base, Illinois 62225.

We would like to thank MT reader Melvin Pratt for forwarding the documentation of this Air Force directive, AFCS Regulation 100-83, so that we might share it with fellow listeners.

STOCK EXCHANGE

Note: Monitoring Times assumes no responsibility for misrepresented merchandise.

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

A Talking Clock? COSMO. perfect condition. Sale \$67.00. M. Collier, Apt. 214, 1500 Crescent Circle, Lake Park, FL 33403.

Bearcat 100: in mint condition, 1 year old; \$200 plus shipping w/manual in original carton. (Complete). J.H. Trachier, 7300 N. 51st Ave. H-111, Glendale, AZ 85301. 602-939-8084 evenings.

FOR SALE, Grove Globescan, CVR-2 with 12 v adaptor, approx. 35 hours on unit. First \$35.00 postpaid. L.D. Ferrill, 1057 Berwick, Waukegan, IL 60085.

Canadian D.O.C. microfilm that identify frequencies and services including Govt. services. Also Bearcat 200 scanner working base and mobile. For more info send a SASE to Gilles Thibodeau, 3653 Montcalm St., Lac-Megantic, Quebec G6B 2H8 Canada (819) 583-1817 after 5 hrs. PM.

DRAKE 160-10M station, R-4C w/noise blanker, extra 250 CW and 1500 RTTY filters, 13 crystals; T-4XC, AC-4 PS, MS-4 speaker; Shure 444 microphone. Asking \$725.

GE 2 meter progress line mobil transceiver, accessories, TT pad. Asking \$50.

GLB channelizer model 400B, 144-148 MHz in 5 kHz steps (used with GE unit above) Asking \$120.

Scanner Bearcat 101, 16 channel, programmable, 115 VAC. Asking \$170. Teletype - Model 28KSR 60 WPM, pick-up only. Asking \$190.

All equipment is operable and clean. Dave Carberry, 845 Long Cove Rd., Gales Ferry, CT 06335, (203) 464-0225.

DRAKE SSR-1 synthesized general coverage 0.5-30MHz solid state receiver. With manual and antenna. Mint. \$185. Mr. P. Besantmatthews, 5230 Medical Center Drive, Box 35728, Dallas, TX 75235.

Canadians: Kenwood R600 receiver with Infotech M-600 RTTY decoder, both excellent, \$1000. John Ryan, Al-cove, Quebec, 819-459-3506.

YAESU FR-101S - All Amateur Bands, 6 and 2 meter converters installed, four SWBC bands, noiseblanker, 2.4 KHz selectivity, condx mint - \$290 including shipping. Gus Stellwag, 117 Edgewood Drive, Orangeburg, NY 10962. 914-359-0769.

HAL ST-5000 RTTY demodulator and DS-2000 keyboard, original boxes, manual, along with cables. Will sacrifice. Make offer (616) 676-1491 or Tom VanKuiken, 1108 Paradise Lake Dr., Grand Rapids, MI 49506.

ARE YOU INTERESTED IN ENGLISH LANGUAGE TRANSMISSIONS ON SHORTWAVE? If yes, then

INFORMATION PLEASE

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

WANTED: Any State Office of Emergency Services (OES) frequencies; also federal frequencies. Kenneth Jillson, PO Box 462, Coulterville, CA 95311.

MONITORING SCANNER FANS: I am gathering material for a book depicting mobile scanning/monitoring set-ups. This book will picture and describe all types of vehicles with multiple scanner, mobile radio (commercial and amateur) police, fire, rescue, special agent, auxiliary units, and antenna systems and switchers. Unique and well-equipped base stations will also be accepted. If you would like your station to be considered for inclusion in this book, please send me a good quality, black and white 8 x 10, (other accepted) picture with a detailed description of your station and monitoring activities, along with your name, address, and telephone number, to:

Danny Jones - K4TNV
3217 Ridgecrest Drive
Rocky Mount, NC 27801
Phone: 919-443-6681 (after 6 p.m.) 977-5220 (days)

NOTE: Your submission of a picture and description will serve as a release for publication without guaranteed remuneration. Submissions will be returned if return postage is included. All

the International Listening Guide is for you. For information send 30¢ to International Listening Guide, PO Box 3434, Littleton CO 80161, USA (North America only). Shortwave listeners outside of North America, please two IRC's for information on International Listening Guide.

HEAR FRENCH "FREE" RADIO! 90 min. cassette samples six "pirate" FM stations in Paris. High-fidelity recording. Fascinating! \$5.00 postpaid, Magic Media, Box 695, Amherst, MA 01004.

Pirate broadcasters, numbers stations, clandestines, mystery transmissions, drug smugglers, and Euro-pirates are some of our interests. If you share them, join the Association of Clandestine radio Enthusiasts, an ANARC associate club. Information for SASE. Sample of our monthly bulletin, \$1.00. Yearly membership, \$8.50. A+C+E, PO Box 452, Moorhead, MN 56560.

For Sale: Radio Shack DX-160 shortwave receiver, manual, good condition; \$125/best offer; Charles Foxx, 2932 Myrtle Avenue, Norfolk, VA 23504; (804) 623-0362 (nights after 0215 UTC).

YAESU FRG-7 receiver AM-CW-USB-LSB .5 to 30 megs in mint condition w/book. Shipped free, \$220 money order or cashier's check. Herman Hovey, 2432 S. Grand Ave., East Springfield, IL 62707.

WANTED: A used receiver capable of copying weather satellites in the 137 MHz region. Send description and asking price to Shane Mayor, 1229 Walter Mill Rd., Forest Hill, MD 21050.

submissions will be notified of publication date.

GREENPEACE NEEDS HELP FROM MONITORS. Greenpeace, the militant -- and highly successful -- preservationist ecology group which has brought an end to white seal pup killing as well as slaughter of the great whales, is appealing for monitoring assistance.

Listeners with information about frequencies and modes used by pirate and treaty-violating Japanese whaling fleets are requested to send information to Greenpeace Radio, 435 Utah Street, San Francisco, CA 94110.

Additionally, such information sent to Monitoring Times will be printed for our readers.

BC-300 and SX-100 (JIL) internal frequency conversion methods wanted. Please write Ken Klimasewski N1KK, 18 Paradise Lane, N. Scituate, RI 02857.

Canadian frequencies to swap, all areas including federal government in Montreal and Quebec City. Send your list and give equipment used for monitoring. Gilles Thibodeau, 3653 Montcalm, Lac-Megantic, Quebec G6B 2H8 (ph. 819-583-1817 after 6 pm).

WANTED: a computer program for a VIC 64 to receive radio facsimile weather and news photos and charts at 120 and 240 RPM facsimile. Can you help me in this specialized area? Richard Clothier WA7GFD, Rt. 4, Pocatello Creek Rd., Pocatello, ID 83201.

I wish to build a solid state converter to receive FM on my AM ANECO R5 .5-54 MC receiver so I can receive the PS low band. Any suggestions welcome. Kevin Neal, Route A, Box 221A, Flippin, AR 72634.

WANTED: Information on how to make Kenwood TS930S transceiver general coverage on transmit (for legitimate purpose!). Justin Ware, Box 20, 3208 Cahuengo Blvd. West, Hollywood, CA 90068.

Can anyone out there service my BC-101 scanner? George Duna, 26 Quensel Court, Lake Grove, NY 11755.

ADDRESS INCORRECT?

NOTIFY MT
CIRCULATION

MILLER, H. E. *
11205 1ST ST. N. E.

SEATTLE

3/ 1/84

WA 98125

MILITARY MONITORING

YIELDS

REAL EXCITEMENT

MT reader Tom Holleran of Niantic, Connecticut wrote our offices that he has been hearing a great deal of UHF military dogfight training communications near New London.

AWACS aircraft (see front page, July/August MT) and fighters were in hot tactical combat simulation and receivable at distances of up to 200 miles with a Grove Scanner, Bearcat 300 scanner and a simple ten-inch group plane antenna.

Frequencies used during the exercise were 290.5, 235.2, 292.8, 228.7, 283.6, 336.7, 251.8, 297.7, 261.7, 282.5 and 235.1 MHz.

We appreciate Tom's sharing this listening jackpot with our readers.

MORE CW INTRIGUE

Monitoring Times reader Don Shimmel shares a couple of corrections in his "CW Intrigue" entries in the July Listener's Log (page 15).

- 13383 MLU is Gibraltar
- 14444 should read "Spanish language; gov't traff
- 7492 should read "Previously heard 1402Z"

Don shares some additional recent listening tips with fellow MT readers:

- 4328, 0252Z Japanese plain text in Romanji (Roman letter version of Kata Kana)
- 13350, 2314Z Official Cuban gov't traffic.

Several CW transmissions never give callsigns; try 7611, 14411, 13554 kHz. In some cases Russian Cyrillic characters (AA, IM, OE, OT) will be heard, giving some hint as to origin.

Thanks, Don, for sharing these interesting catches with fellow listeners!

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