



MONITORING TIMES

With International Radio

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by Gayle Van Horn
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(Technical Topics)
- **Monitoring the U.S. Navy:
IDing & QSLing the Ships
Part II** by Mike Chabak
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Regency 1500 Handheld**

Weekend Warriors

Flying High With the Air Force Reserve

"Fill'er up. Do you take credit cards?"



*MT Takes You Aboard:
Monitor an Air Force
Refueling Mission At 35,000 feet!*

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TEN-TEC'S NEW RX-325 SHORT WAVE RECEIVER

TEN-TEC, America's premier producer of high quality amateur radio equipment, now brings the ultimate in design to short wave listening.

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FORUM

Following are excerpts from a well-written letter by Brent S. D. Taylor VE1APG of Doaktown, N.B., Canada. This month we share two of the subjects he raises in our Reader's Forum.

A Grove Monopoly?

We all know, not only do you produce *Monitoring Times*, but you also have a large printing, manufacturing, sales operation. As a publisher, I feel you have a responsibility to keep your publication as separate as possible from your other business interests.

I have seen many cases of Grove product promotion in what should be unbiased articles. A reader writing *MT* for advice on scanner antennas should not be pushed in the direction of a particular product such as the Grove Omni II, unless other products of the same type are given fair mention. Remember, these other products are advertised in *MT* by other businesses who are trying to make a living, too.

If *MT* was a newsletter distributed to customers of Grove for a small fee, then it would probably be OK...but, in my opinion, any arrangement should be as neutral as possible.

I also feel obliged to add that I have had nothing but good results in all of my dealings with Grove Enterprises. Your receptionists are the most courteous I have encountered, and I have nothing to say but good things about all of the Grove products and publications I have purchased to date.

Bob Replies...

Brent's comments are well taken. I pride myself in objectivity, yet recognize the short-sightedness that Brent points out. I'm sure that examples of his criticism will be found in this issue, although there was none in last month's (September) issue which I just scanned.

The "Ask Bob" (Technical Topics question and answer) column is the most vulnerable since it is the focus of equipment and accessory questions from our readers. We often ask manufacturers to send us samples of their products for our objective test and review; I am reluctant to recommend a product, even of an *MT* advertiser, that a manufacturer will not submit for testing.

We are critical, but not brutal, in our testing of products--including our own. In our August review of the PRE-3 Power Ant, I pointed out the lack of an interconnect cable, the use of F connectors requiring adaptors, the presence of AM hum in certain instances, and the vulnerability of such a preamplifier to intermodulation.

This honesty is apparently respected by our readers--so far, not a single PRE-3 has been returned by a dissatisfied customer.

There are many superb products on the market. We hear repeatedly of the Avanti 801 scanner antenna (but we've never seen one); the Channel Master scanner antenna can't be beat for its low band performance (we've tested that one); both Belden and Channel Master have a premium grade coaxial cable that edges out the Grove RG-6/U. The list could go on.

But this forum space will never resolve Brent's excellent observation; we will try to include more of Grove's competitors in our recommendations and offer this open invitation to manufacturers to contact us to arrange a free--and objective--review of their merchandise in the pages of *Monitoring Times*.

A Place for Hams

I want to comment on the new Ham Radio page. As an Amateur Operator myself, I think this feature is an excellent idea, (no...I'm not crying for more ham stuff, I think one page is just right). Some may not agree, but it is my opinion that Ham Radio and SWLing/Monitoring are coming closer together all the time.

With new equipment available, SWLs are now able to copy CW without having to learn the code. This, combined with RTTY reception capability, enables them to get a better feel for what Ham Radio is doing in the non-phone bands.

On the other side of the coin is the new generation of HF Ham gear. The big three manufacturers now routinely offer general coverage receivers incorporated into even their less expensive transceivers. Many hams I know are just now discovering that there is much more to SWLing than VOA, R. Moscow and AFRTS! I especially like Jean Baker's "Plane Talk!"

I propose that *Monitoring Times* promote the idea of an Amateur Radio Net devoted to monitoring. It would also serve the purpose of getting non-Hams to listen to the Ham bands for the net...maybe even sparking them on toward getting a ticket of their own so they could participate in the net themselves.

Most SWLers/Monitors don't currently have an interest in becoming

Amateurs because they don't hear any conversations they would like to participate in...but I'm sure they would become more interested in getting a ticket if they could be shown that there could be a meeting place where they could tune up and discuss their other radio hobbies with hams across the continent.

Believe it or not, most Hams don't know that they can tune-in to transoceanic ATC, ship to shore telephone, FAX, wire service RTTY, USAF and SAC, SAM 27000, drug smugglers and much more with the equipment most of them already have. Most hams who tuned across a net of the type I propose would surely stop and listen, at least for a while. Each hobby could be augmented by the other, with everyone benefitting.

I also think that it should not be a *Monitoring Times* project alone. Other clubs, publications and DX programmes should get involved and promote the concept. I am writing you with this because you are likely to have the best chance of pulling this off, being both a Ham and a monitor.

P.S. What about a good, regular propagation column?

Bob Replies...

About two years ago I did establish the *Monitoring Net*, a Tuesday evening amateur radio network aimed at swapping information about active frequencies, equipment and techniques.

The net was usually well attended, occasionally enjoying check-ins from as many as two dozen stations from around the country. Some participants were merely curious; others were very knowledgeable, imparting a great deal of wisdom to the listeners, many of whom would tune in and learn because they were not licensed to transmit.

But as time went on, I found that the burden of maintaining the net as the control station became unyielding; no one seemed willing to accept the responsibility of alternate net control. Eventually I closed down the net so that I could relax on Tuesday evenings after a hard day's work.

The concept of an amateur radio network is still quite viable; I have my transceiver and it's ready to go on any frequency. But I can't do it alone. I would welcome suggestions from our SWL's and hams.

...Bob WA4PYQ

Cover art by Owassa Graphics, Murphy, NC. Cover photo: Lead pilot of Hawkeye 11, Major Larry Young of 132nd TAC Fighter Wing, Iowa Air National Guard, approaches the boom of Happy 33, a KC-135 tanker. Other A-7 fighters wait their turn. Photos by Michael Perlman.

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Afghanistan

The new five year plan for the Democratic Republic of Afghanistan calls for a new radio center to be built in Kabul. A "noticeable improvement" in the quality of Radio Afghanistan's programs and 48 hours of broadcasts will be added. The facility, costing over 600 million dollars, will come from the government's development budget and a one million dollar credit from the German Democratic Republic.

Austria

Austria's daily English schedule is as follows:

- 0130-0200 UTC on 9770
(Sundays to 0230 UTC)
- 0330-0400 UTC on 9770
(Sundays start at 0305 UTC)
- 0430-0500 UTC on 5945, 6155, 11830
- 0630-0700 UTC on 6000, 6155, 9585
11845, 15410
- 1400-1430 UTC on 11935, 15415
(Sundays to 1500 UTC)
- 1500-1530 UTC on 6000, 6155, 9670
12015 kHz
- 1830-1900 UTC on 5945, 6000, 9725
15185, 15430 kHz
(Sundays start at 1805)
- 2130-2200 UTC on 5945, 6000, 9670

Australia

The Australian Broadcasting Corporation has a new Chairman. His name is David Hill, the former New South Wales state rail authority chief. Speaking to a New York-based Radio Australia correspondent, he said that the ABC is facing one of the most difficult financial years in its history because of likely cuts in the upcoming federal budget. About two weeks later the word came down: the ABC would lose 4%, dropping from 430 to 412.8 million dollars. Individual operating budgets within the ABC have not yet been determined. The Australian Broadcasting Corporation is the parent body of Radio Australia.

Bangladesh

Radio Bangladesh has been heard on a new frequency of 4910 kHz with English news at 1530 UTC, replacing 4890 kHz. (SCDX)

Brazil

Radio Bras now has a new head and a new goal: to change Radio Bras into a station designed to air the news and views of the government. Look for changes in program content on the station. Radio Bras can be heard in English at 0200 UTC on 11745 kHz. (See also "France") (BBCMS via RNMN)

Dominican Republic

Radio Clarin International, now represented by World Radio Network SA, says that it will shortly be on the air from 2200 to 0200 UTC on 11700. On Sundays the broadcasts will begin earlier at 1500 UTC. From 2300-0000 weekdays, listeners will be able to hear "Esto es Santo Domingo" then from 0000 to 0100 UTC the English version, "This is Santo Domingo" with the popular Rudy Espinal acting as host. Following that will be programs in Spanish and Portuguese for South America. According to Jeff White, Executive Vice President of World Radio Network, "We're hoping to expand rather quickly to a daily 1000 to 0400 UTC schedule. White also says that time is available on Clarin -- with new directional antenna -- to organizations and station's seeking Caribbean relays and "reaching the world." Those interested should write to him at World Radio Network, 332 Corey Avenue, St. Petersburg Beach, Florida 33706.

Ecuador

HCJB Radio, the powerhouse evangelical station in Quito, Ecuador, is secretly making plans to diversify its facilities out of Ecuador. Increasing instability and guerilla activity in the country is the motive. A new site has been chosen in Hawaii and the station will shortly seek a construction permit from the U.S. Federal Communications Commission -- possibly under a different name. The station has also made an agreement to build an antenna for the struggling KCBI in Dallas in exchange for several hours of airtime.

Fiji

The Fiji government has promised the nation's radio service that more money will be forthcoming once a new television service is introduced next year. No word if this means shortwave for Fiji, which is currently on AM and FM only.

France

The change in government in France has not only caused the cessation of Radio France International's transmitter swap with Radio Beijing, but now threatens the journalistic integrity of the station, according to a correspondent at RFI. Says the journalists: "[The government is asking us to] abandon all professional codes of ethics. ...we have 80 million listeners in five continents. If tomorrow we start

making propaganda radio...[then] a very big part of this audience will be lost." The government: "RFI is the journalism of opinion" and...the opinion is that of France. [When the President and Prime Minister, who do not agree on everything, cross our borders] they succeed in talking with a single voice. Couldn't RFI do the same thing?"

Prime Minister Jacques is less diplomatic, calling the journalists "pampered brats." The Communications Minister, himself no charmer, said some RFI journalists were "working with foreign powers against France" and described the station as "leftist" and "pro-Castro."

Iraq

Radio Baghdad has reorganized their shortwave service to Europe and the Americas. Transmissions to Europe in French are heard from 1800 UTC to 1900 UTC, German from 1900 UTC to 2000 UTC and English from 2000 UTC to 2200 UTC on 15120 kHz. Broadcasts to North America can be heard from 0000 UTC to 0200 UTC on 11750 kHz. Reception of the latter has been excellent.

Japan

Radio Japan is changing its English to Americas broadcast at 0400 UTC to 9595 kHz. The general service to Asia from 0800 UTC to 1430 UTC will be heard on 7140 kHz and the south Asian transmission 0400 UTC to 1430 UTC on 6080 kHz. Transmissions to North America from 0400 UTC to 0830 UTC will be on 9675 kHz and 1800 UTC to 2130 UTC on 9505 kHz. (SCDX)

Lebanon

Radio station King of Hope, operated by the U.S.-based High Adventure Ministries in southern Lebanon [See KVOH, USA] is broadcasting in English from 0600 to 0700 UTC on 6215 kHz and from 2000 UTC until 2300 UTC on 6280 kHz. (SCDX)

Mexico

XERMX, the international station of the Mexican Radio Institute, broadcasts daily in Spanish. During the mornings, the station uses 5985 and 11770 kHz; evenings on 9705, 15430 and 17765 kHz.

Monaco

Radio Monte Carlo's Arabic service can now be heard on 13695 kHz after 0600 UTC. 9795 kHz is still in use before that time.

Mozambique

Radio Mozambique's international service has returned to around 4865 kHz from 4753 kHz at 1700 UTC. (SCDX)

Netherland Antilles

You can hear English programming from Trans World Radio, Bonaire on the following schedule: weekdays from 1110 UTC to 1255 UTC on 11815 kHz. On Sundays the broadcasts are extended until 1332 UTC; Saturdays until 1405 UTC. The station can also be heard at night from 0300 UTC to 0400 UTC Tuesdays through Saturdays. On Sunday and Monday the broadcasts are extended to 0530 UTC. Try also for TWR Bonaire on your AM radio at 800 kHz.

Philippines

The English schedule for Radio Veritas Asia, operated by the Catholic church, is as follows: 1500 UTC to 0730 on 9540 kHz, 0200 UTC to 1430 UTC on 15255 kHz. All programs are targeted for Asia.

Solomon Islands

The Solomon Islands Broadcasting Corporation, which identifies itself as "Radio Happy Isles," broadcasts can be heard daily from 1900 UTC to 2030 UTC on 5020 kHz and from 2030 to 0730 UTC on 5020 and 9545 kHz and from 0730 until 1300 UTC on 5020. During the weekdays, the station briefly signs off the air between 0230 UTC and 0455 UTC. The station broadcasts in both English and pidgin with relays of Radio Australia, the Voice of America and the BBC's news as well as locally produced newscasts (0130 UTC, 0500 UTC, 3:30 am and 1100 UTC). (RNMN)

Surinam

Radio Surinam International is producing a 15 minute English newscast on 17755 kHz from 1:30 to 1:45 pm. Those programs are fed by satellite from Surinam to transmitters in Brasil. (RNMN)

Taiwan

The Voice of Asia has been providing some long distance reception of the -- until recently -- generally unheard station. Look for the station in English between 5:00 and 2200 UTC, followed by Indonesian from 6:00 to 2300 UTC on 7445 kHz and new 9845 kHz.

DIO NEWS WORLD RADIO NEWS

United States of America

Schedule for KVOH, the High Adventure Ministries station in Rancho Simi, California, valid until November 2, 1986:

0400 UTC to 0500 UTC on 9852.5
 0500 UTC to 0600 UTC on 9525
 0600 UTC to 0800 UTC on 6005
 1400 UTC to 1700 UTC on 11940
 1700 UTC to 2200 UTC on 17775
 2200 UTC to 0100 UTC on 15250
 0100 UTC to 0300 UTC on 11930
 0300 UTC to 0400 UTC on 9852.5

Meanwhile, KVOH engineer Paul Hunter says that transmitter manufacturer CSI has defaulted on delivery of the station's transmitters, causing a delay in sign on of the new facility. KVOH has, however, picked up a used, 19 year old RCA 100 kW transmitter from HCJB, Quito, Ecuador.

Schedule for KSDA, Adventist World Radio in Guam, valid until November 2, 1986:

0900 UTC to 1100 UTC on 11855, 15440 kHz
 1100 UTC to 1300 UTC on 15440
 1300 UTC to 1500 UTC on 9630 (alternate: 9820) kHz
 1500 UTC to 1700 UTC on 9770 (alternate: 9820) kHz
 1700 UTC to 1800 UTC on 9535 (alternate: 9820) kHz
 2100 UTC to 2300 UTC on 11965
 2300 UTC to 0200 UTC on 15115, 15335 kHz
 0200 UTC to 0400 UTC on 15115, 17840 kHz

English broadcasts can be heard at 0900 UTC and again at 2100 UTC.

The BBC Monitoring Service confirms the story originated in *Monitoring Times* that the *Christian Science Monitor* is indeed the organization that has purchased KYOI, Saipan.

Sneak Preview

Our European correspondents have alerted us to several new products which listeners may enjoy reading about. Some are imminent.

Kenwood will be announcing their R5000 receiver, an R2000 upgrade which is designed to compete with the leading ICOM R71A general coverage receiver. Expect its release early in 1987.

Toshiba will be presenting a "boom box" design, complete with cassette recorder as well as shortwave coverage.

The recently-improved Phillips (Magnavox) D2999 may have a poor BFO for single sideband reception but has excellent audio. An in-depth review was presented in our July *MT*.

Another Phillips product, the D1835 "Compass," also has a cassette recorder built in which is a

useful device for the shortwave listener.

Panasonic's RFB60 will be announced around the first of the year and will feature digital readout, keypad and rotary tuning, 36 channel memory, LCD display, and clock. Frequency coverage is 155 kHz-30 MHz AM and 87.5-108 MHz FM. Recommended retail is \$249.95 but discount prices should prevail.

The rumor mill surrounding the speculative release of a wide-frequency-range VHF/UHF scanner from Sony is unfounded according to Mark Viken, National Sales Manager of Sony Corporation. Sony will, however, be offering new shortwave receivers in 1987. Details will be made available through the pages of *MT* as soon as they are released.

Free HX1200 Modification

If your Regency HX1200 programmable scanner is plagued by "wandering birdies," we have good news for you. Although an excellent scanner, the HX1200 uses an oscillator to refresh the microcomputer chip and, even when it isn't supposed to be running, enough residual voltage is present that the unit continues to generate a minute (20 microvolt) signal.

The net result is that the

phantom signals occasionally hang up the receiver while in the scan mode, disappearing when the MANUAL button is pushed.

Regency has developed a cure for the malady and it is available free of charge to HX1200 owners. Simply send your HX1200, along with a letter of explanation about the "wandering birdie" fix to Regency Customer Service Department, 7707 Records St., Indianapolis, IN 46226.

FCC Promotes Automatic ID

The Federal Communications Commission is considering requiring manufacturers to include an "automatic transmitter identification system (ATIS)" in any transmitting equipment.

Much of the renewed importance of such a system has stemmed from the infamous "Captain Midnight" HBO satellite private caper; had the uplink transmitter been equipped with an automatic ID, the perpetrator would have been nabbed much sooner.

But there are other benefits of such an automatic "tag" on a transmission as well; let's take a look at some of the applications:

1. Deliberate interference to aviation during employer disputes;
2. False alarms from aircraft emergency locator transmitters (ELT's)--now at 97%
3. Intentional and unintentional marine radio jamming and false mayday calls;
4. Pilots using aircraft channels for "CB type" chatting;
5. Amateur radio repeater jamming;
6. Broadcast news gathering equipment disrupted by home entertainment electronics;
7. Intentional disruption of satellite communications;
8. Busy operational environments like McDonald's drive-through radio intercom;
9. Telemetry systems with automatic transmissions;
10. Stolen radio equipment.

An automatic identification system would save endless hours of work for FCC engineers who are

prevailed upon to find stuck microphones, satellite "double illumination," unidentified co-channel interference, unauthorized user, and abusive transmissions.

NOT A NEW IDEA

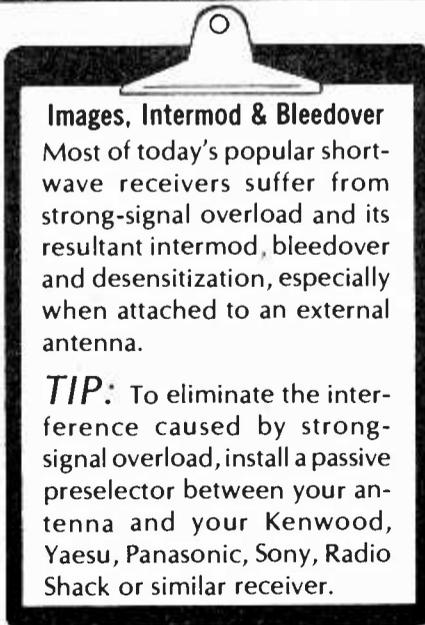
Over ten years ago the FCC suggested ATIS in their Docket 20351. Many services already utilize automatic identification such as marine selective calling (ITU regulations Appendix 39), marine digital selective calling (CCIR Recommendation 493-3), cellular landmobile (10 digit telephone number), and future designs for satellite emergency locator beacons (BCH code) as used by the COSPAS/SARSAT network.

MANY UNANSWERED QUESTIONS

The Commission has already proposed that satellite uplinks be equipped with ATIS by December 31, 1987, but what of other services? What type of ATIS should be universally standardized? How will this affect secure communications which require anonymity? How often should the ATIS be sent? What about older equipment; will it have to be retrofitted? Will the system be failsafe and tamperproof? Will the digital burst interfere with other digital transmissions taking place?

The FCC solicits comments from licensed users of the radio spectrum in various services. Refer to Docket no. 86-337 when you write: FCC Signal Analysis Branch, Room 744, 1919 M St., Washington, D.C. 20554.

Flash! Presstime update on the Privacy Act -- It's good news! See page 12



Images, Intermod & Bleedover
 Most of today's popular shortwave receivers suffer from strong-signal overload and its resultant intermod, bleedover and desensitization, especially when attached to an external antenna.

TIP: To eliminate the interference caused by strong-signal overload, install a passive preselector between your antenna and your Kenwood, Yaesu, Panasonic, Sony, Radio Shack or similar receiver.

Bob Grove's

EQUIP-tips



Tips from the expert on boosting the performance of your listening equipment

The Grove Minituner III is a shortwave/longwave performance booster which eliminates intermod, images, phantom signals and other products of strong-signal overload in the 100 kHz through 30 MHz range!
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Fly along with Voter 21 and Happy 33 as MT joins the

Weekend Warriors

by Michael Perlman

The Air National Guard. The Air Force Reserve. Also known as the "Weekend Warriors"; Until recently, the names had a derogatory tinge to them. These branches of the military were considered the backwash of the Armed Forces.

But no more. In recent years, the Reserve Forces have taken a more active role in the armed-services total-force concept. The Air Reserve Forces no longer use castoff equipment from the active forces; instead, they now have state-of-the-art equipment and use the same planes active-duty forces use. And they don't limit their flying to weekends. Reserve missions are flown any day of the week and often support active-force requirements as well as training.

I recently had an opportunity to fly training missions with the Air Force Reserve and the Illinois Air National Guard, both based at O'Hare Airport in Chicago. I flew an airborne cargo drop mission with the 64th Tactical Airlift Squadron of the 928 Tactical Airlift Group, Air Force Reserve, in a C-130A transport.

The National Guard flight was an aerial refueling mission in a KC-135E tanker from the 108th Air Refueling Squadron of the 126th Air Refueling Wing. I had a chance to listen to the radio procedures on both flights and study the radio setup on the tanker.

The KC-135 has three voice radios (one VHF and two UHF) and two radios that tune in to radio navigation beacons. The radios are located, along with other instruments, in an overhead console between the two pilot seats.

On all three radios, the frequency can be "dialed in" by turning knobs to set each digit (see photo). The two UHF radios (identified as "Comm 1" and "Comm 2") also have 20 preset frequencies that can be tuned in by selecting the correct channel. A small card mounted on the radio gives the preset frequency and channel.

Each crew member has a headset with earphones and microphone. Most communication while flying is on the headset--crew intercom as well as radio communication with the outside. Each crew position has a location to plug in the headset, a series of control switches and a selector knob (see photo).

The switches select what can be heard in the headset and the knob selects what the headset transmits on. A crew member can listen to any or all of the radios and intercom at

the same time if desired, but he can select only the intercom or one radio for transmitting.

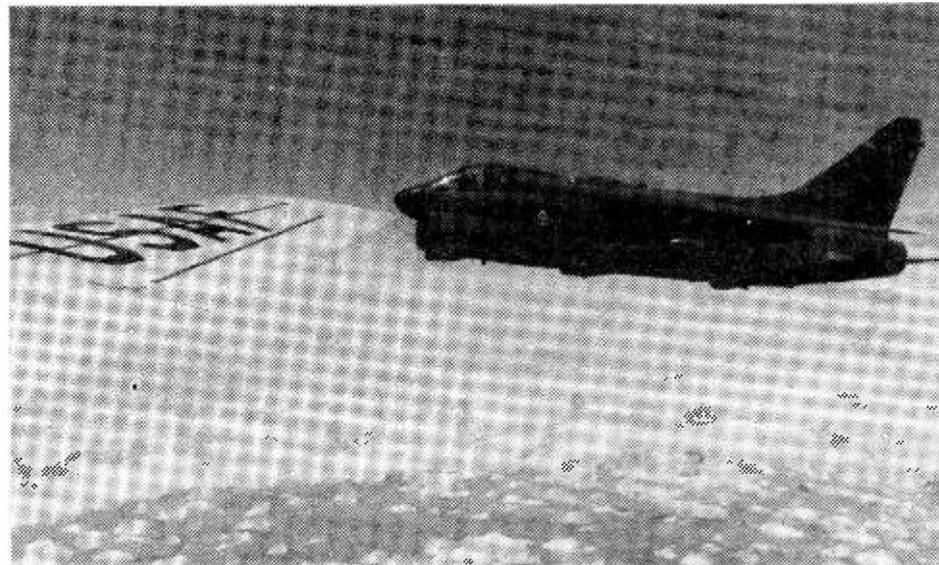
While each crew station has an additional push-to-talk switch, the pilot and co-pilot have a two-way "rocker" switch on the stick--one position for intercom and one for the selected radio. Frequently the connector box for headsets is at the end of a long cord to give the crew mobility within the aircraft.

TAKEOFF

Radio traffic for departure and enroute contact with control centers was on regular VHF channels; the UHF radios are reserved for contact with Air Force ground and air stations. Both the Air Guard and Reserve are based at a commercial airport (O'Hare) in Chicago; if they were leaving a military base, they would use UHF frequencies for traffic control (See frequency list).

Our mission was a two-plane flight. The pre-flight briefing established what the planes would be doing, gave frequencies, call signs, route information, etc. The mission was to airdrop cargo pallets at an Army Reserve training field in Wisconsin. There also was a navigation exercise enroute to the drop zone.

Because the C-130 is a slow, electronically unsophisticated cargo plane, the mission was flown at a low level (200 feet), taking tactical advantage of terrain, electronic



An A-7 fighter of the 132nd TFW (Tactical Fighter Wing) Iowa Air National Guard awaits its turn on the boom of Happy 33, a KC-135 tanker.

silence and slow speed. Navigation was visual--by locating landmarks in the terrain and following a course plotted on a specially-marked terrain road map. A typical checkpoint could be "two towers along the road near a railroad crossing."

RADIO SILENCE

Our C-130 was designated "Voter 21"; the second plane in the flight was "Voter 22." During the mission, there was no crew conversation on the radios except to keep in touch with air traffic control centers. The crews flew a predetermined route and any signals, such as for changing the lead plane, was given by a short buzz over the radio.

There was only brief contact with an Army ground control station before the actual drop, although even the drop could have been done with radio silence.

Dropping the pallets was done by simply opening the rear cargo door,

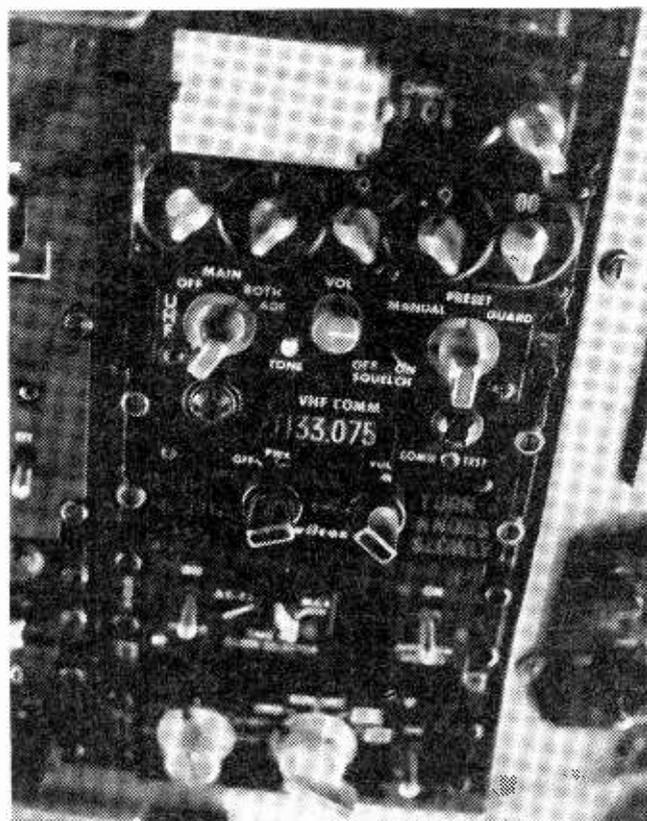
tilting the nose up and releasing the pallets. An extraction parachute helped pull the pallet out and helped it clear the aircraft. The cargo floated down to the drop zone with great accuracy, hitting the ground well within the allowable standard of several hundred feet of a smoke marker in the center of the drop zone.

THE RADIO COMES ALIVE

After the drop and navigation exercises, the aircraft rose to an altitude of several thousand feet and contacted the area traffic control center and O'Hare for a standard return to Chicago. The rest of the flight was "in the groove," just like any commercial flight, with tower control guiding it by course and altitude changes.

THE REFUELING MISSION

The KC-135 tanker departed O'Hare to refuel two waves (four planes each) of A-7 fighters from the Iowa



Radio console in KC-135 showing VHF radio and one UHF radio (Comm 2) with frequency card for pre-set UHF channels. All photos by Michael Perlman.



Navigator's crew position radio console (lower half of panel) on KC-135 showing toggle switches to select which radios/intercom to hear and transmission selector knob.

Air National Guard out of Des Moines. Our plane was designated "Happy 33." The fighter waves were designated "Hawkeye 11" and "Hawkeye 21."

The operations took place over a restricted military air exercise area in central Iowa. After refueling, one wave was to proceed to practice gunnery at a range in Wisconsin; the other wave was going to practice aerial maneuvers in the exercise area.

The departure from O'Hare was much like a commercial flight, climbing to 35,000 feet to reach our destination. The actual refueling would take place at 22,000 feet. During most of the flight, the plane was on autopilot with the course controlled by the navigator using radio navigation beacons. Only during the refueling, takeoff and landing were the pilots manually flying the plane.

We communicated with ground control, the tower and departure control on the standard VHF radio frequencies (see list); The only use of UHF was departure clearance on 384.9. After departure, we were controlled by the Chicago Center and eventually the Minneapolis Center which we kept advised of our progress and received clearance for the restricted area.

After reaching our destination, the UHF radios became more important. Comm 1 was tuned to 233.4 for direct contact with the aircraft. Comm 2 was tuned to another UHF frequency (I missed getting that one!) to listen to a ground controller who was vectoring the fighters up to us.

After the first wave arrived, Staff Sgt. James Miranda, the boom operator, made contact with the lead pilot (No. 1 plane) of Hawkeye 11 on Comm 1 frequency. Maj. Larry Young of the 132nd Tactical Fighter Wing of the Iowa Air Guard, the lead pilot, told Miranda the order in which the planes in his wave would refuel and their fuel requirements.

I learned that the running gag in the



Major Jim Robison, pilot of Happy 33, a KC-135 of the 126th Air Refueling Wing.



928th TAG (Tactical Airlift Group) C-130 "Voter 22" drops cargo over Wisconsin.

air refueling business is, "Fill'er up, check the oil, clean the canopy...and do you take credit cards?!"

THE THIRSTY PLANES ARRIVE

The other three planes in the wave waiting their turn flew in formation off the wing of the tanker. One at a time, they approached the boom and positioned themselves to receive fuel. The fuel intake point on the A-7 is on the top of the plane, behind the pilot's left shoulder.

Miranda "flew" the boom to the loading point, using Comm 1 frequency to give the fighter pilot additional instructions for positioning his plane. Maj. Jim Robison, the tanker pilot, also listened to this frequency to receive any information from the boom operator on flying the tanker.

The skill shown in this operation was so high that few instructions were needed. The positioning could have been done "radio silent," using hand signals and positioning lights on the rear of the tanker controlled by the boom operator.

The actual time on the boom was short. The fighters were only taking 500 pounds of fuel and the tanker could supply it at a maximum rate of 6,000 pounds a minute! Actual link

time for each plane was a minute or two because the transfer was not done at the maximum rate. Maximum capacity for the tanker is about 180,000 pounds of cargo fuel.

After the refueling was complete, Happy 33 returned to 35,000 feet, contacted Minneapolis Center and started back east "direct to O'Hare."

These two flights with the Air Reserve Forces convinced this ex-regular Air Force staff sergeant that the Reserve Forces are a fine group of professional military men and women. Many of the flight crew also

UHF (AM) PRESET FREQUENCIES

1.	236.6	11.	321.0
2.	348.6	12.	392.2
3.	275.8	13.	344.6
4.	390.9	15.	269.9
5.	255.4	15.	363.8
6.	337.4	16.	271.8
7.	269.5	17.	318.2
8.	290.2	18.	295.7
9.	311.0	19.	324.3
10.	384.9	20.	351.1

Reserve:
252.1 928th TAG command post

Air Guard KC-135 departure from O'Hare. Typical frequency changes:
384.9 Departure Clearance
121.75 O'Hare Ground Control
118.1 O'Hare Tower (north)
132.3 Chicago Center

are commercial pilots and navigators who fly for the military in their spare time. It makes for a lot of time away from home and family.

My thanks to Maj. John Wahlen of the 928th Tactical Airlift Group, Maj. Jim Robison of the 126th Air Refueling Wing, and the rest of flight crew of Voter 21 and Happy 33. They gave me an opportunity to take two fascinating flights, and I appreciate their willingness to share this exciting mission with me and other MT readers.

SHORTWAVE CATALOG

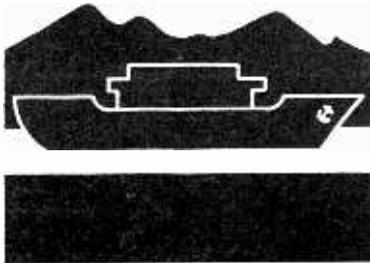
HUGE 70 PAGE

\$1.00

UNIVERSAL SHORTWAVE RADIO

1280 Aida Drive
Reynoldsburg, Ohio 43068
Phone: 614-866-4267

Send \$1.00
(or 3 IRCs)
RE FUNDABLE.



BANANA BELT

DXing

Gayle Van Horn



You are in the midst of a shortwave session. The time is 2300 UTC. Your copy of *Monitoring Times* and *World Radio Report* is nearby, the headphones in place, the radio on. Beside you sits a log book and a warm cup of coffee -- you're planning a night of DX. With any luck, you'll log a new country by morning!

As you spin the dials, the headphones fill with the sounds of beautiful marimba music and you're transfixed!

Shortwave broadcasting in Central America remains a challenge to listeners. Stations range from the low power 1,000 watts of Radio Belize to the 50,000 watts of La Voz de Nicaragua. For our trip, we start just south of Mexico.

Tuning the Land of the Quetzal

Just below Mexico, moving west to east, is Guatemala. This "beautiful land of the Quetzal" (the country's native bird and emblem) is where some historians believe the Mayan Empire began. Today, half the nation is still of Mayan descent. Other Guatemalans are Spanish.

One of the more interesting stations is Radio Tezulutlan, located in the mountainous highlands city of Coban. Nightly marimba music programs may be heard from 2000 to 0230 UTC and in the morning from 1100 to 1500 UTC on 4835/3370 kHz.

Broadcasting from Guatemala City, the capital and largest city in Central America, is Radio Cultural. Also known as TGNA (Telling the Good News Abroad), this religious station operates with a power of 10,000 watts, transmitting near the city of San Pedro Sacatepequez. Operating on 5955/3300 kHz in English and Spanish, their schedule is 1100 to 0700 UTC. Evening reception is better.

Two other religious broadcasters are TGMUA -- Union Radio -- which carries the Adventist World Radio programs in English and Spanish from 0030 to 0500 UTC on 6090/5980 kHz. La Voz de Nahuala broadcasts from 2100 to 0300 UTC and 1100 to 1400 UTC on 3360 kHz in Spanish.

Radio Nacional, "La Voz de Guatemala," is scheduled from 1100 to 0600 on Saturday and Sunday on 6180 kHz. Monday through Friday it can be heard 1100 to 0600 on 9760 kHz.

For an abundance of marimba music as well as the sounds of the ancient Mayas, try for the following three stations:

Radio Maya de Barillas
1030 to 1500 and 2200 to 0400 UTC on 3325 kHz

Radio Chortis
1100 to 1300 and 2100 to 0300 UTC on 3380 kHz

Radio Mam
2000 to 0000 on 4825 kHz

One Station Wonder

East of Guatemala lies the country of Belize. This sparsely populated country borders the Caribbean Sea along the eastern shore of Central America. Half of all Belizeans live along the east coast, a multi-racial society which speaks predominantly English, followed by Spanish, Indian and European dialects.

Until its name change in 1973, Belize was known as British Honduras. In 1981, the country gained its independence from Britain -- much to the dismay of the strongly protesting Guatemalans who had claimed Belize since 1821. Today, they claim only the southern fifth of the country.

Radio Belize is the country's only shortwave station and it broadcasts from Belize City. The transmitter of 1,000 watts is located in the capital city of Belmopan. Radio Belize comes on the air at 1100 UTC (Sundays at 1200) and broadcasts a delightful mixture of English and Spanish programs until 0510 UTC. The station usually fades in around 0000 or 0100 UTC.

Where's the Beef?

The Central Region of El Salvador forms the heartland of this rugged, volcanic land. The people -- three fourths of them -- live in the densely populated city of San Salvador, others out on the coastal range where coffee is grown. To the south is the Pacific Ocean and the commercial fishing port city of Acajutla.

But don't expect to hear much on shortwave from this troubled nation. Currently the one broadcaster, Radio El Salvador is operating only sporadically. There is no schedule at this time although occasional loggings on 9555 and 5987 have been made. For this reason, Radio El Salvador is a much sought after station among many listeners.

Mestizo Radio from Honduras

Named in Spanish for the deep waters off the north coast, Honduras is a tropical country that bases its economy on that long, yellow fruit known as the banana. Even despite this successful import, however, Honduras remains a poor country with little in the way of industry.

The people are of Indian and Spanish ancestry -- called Mestizos -- and cling tightly to their religious beliefs, both Catholic and Protestant. In fact, three of the five Honduran shortwave stations are religious. One of them is HRKX and it almost always is interesting listening.

One cold January evening in 1981, listeners in eastern North America were surprised to hear the first

All in the Family

The staff of *Monitoring Times* often considers itself a "family." But in the case of author Gayle Van Horn, the relationship is much more than emotional. Gayle, who wrote this month's feature on *Banana Belt DXing* is the wife of *MT* satellite columnist Larry Van Horn. A Navy wife, she has spent a good deal of time in front of the dials of her radio and presents a view of Central American broadcasting that's both refreshing and informative. We welcome Ms. Van Horn to the family of *MT* writers.

broadcasts of HRKX -- La Voz de la Mosquitia. Located three miles from Puerto Lempira in northeastern Honduras, HRKX broadcasts from a countryside accessible only by plane or boat.

Originally, the broadcasts were infrequent. But they offered a unique, hometown flair. There are live recitals by guitar strumming students, recitations by local people and one, during a live broadcast, listeners were amused to hear the announcer excuse himself to stomp on a scorpion and then return to the program.

In recent times, HRKX has returned to its infrequent schedule. It is plagued by equipment problems and right now, it is having trouble with a faulty generator. The station reported that it planned to return to the air in early fall of this year.

Mostly broadcasting in Indian dialects, the station can be heard on 4910 kHz between roughly 0000 and 0300 URTC and again from 1200 to 1400 UTC.

Two other religious stations broadcast from the "Banana Republic". HRVC, La Voz Evangelica, is on 4820 kHz from the capital city of Tegucigalpa in English and

LA VOZ DE NAHUALA
La Voz de Nahuala
Nahuala, Depto. de Solola
Guatemala, C.A.

From
GUATEMALA
"Beautiful land of the Quetzal"

Facts:
The Quetzal is the national emblem of Guatemala. This bird seldom survives in captivity, hence, symbol of liberty.
"If the Son (Christ) therefore shall make you free, ye shall be free indeed"
John 8:36

TRANSMITIENDO GRATAS NUEVAS ALEGRES
Telling the Good News Abroad

Frequencies:
730 khz
3,300 khz
5,955 khz
100.7 mhz FM

Spanish from 1030 to 0600 UTC and Radio Luz y Vida from San Luis from 2200 to 0400 and from 1230 to 1630 on 3225 kHz.

Though the current schedule is unknown, recent Honduran monitoring has indicated that La Voz de Junco is on 6075 kHz from 0100 to 0400 UTC and from 1100 to 1200. Radio Lux, a station broadcasting from the river valley town of Olancito, appears to be inactive at the moment. Previously, it was scheduled from 1230 to 0300 UTC in Spanish on 4980 kHz.

Sandinista! Sandinista!

Following the 1978 civil war in Nicaragua, the face of broadcasting in the country has changed. An example is the appearance of Radio Zinca.

It was during the Christmas holidays of 1979 that the station first came on the air from Bluefields. But the facts about the station's background are still something of a mystery.

What is known is that before the unrest in Nicaragua, a weak but audible signal was heard by listeners at about 1200 UTC on 6122 kHz. The station was called Radio Atlantico.

Radio Atlantico was managed by Mr. Raul Tinajero, who had plans to upgrade his 1,000 watt station to 5,000 watts. The station, with its slogan of "Progress of the Atlantic Coast is the Future of Nicaragua," had experienced moderate success. Unfortunately, shortly after Tinajero ordered the new 5,000 watt transmitter, civil war broke out and Nicaragua was plunged into collapse.

Unable to acquire the equipment he so desperately wanted -- perhaps because of the war -- he began to express his anti-Sandinista views on Radio Atlantico. And then Mr. Tinajero disappeared.

Shortly thereafter, Radio Zinca appeared on the air, broadcasting on

6120 kHz with new equipment and a boost in power. From then on, the station towed the Sandinista line.

Today, Radio Zinca is still active on 6120 kHz from 1100 to 0600 UTC with best reception between 1100 and 1200 and again from 0100 to 0300 UTC.

Of course, there is another station in Nicaragua, the powerful La Voz de Nicaragua, complete with powerful 50,000 watt transmitter and 0100 to 0500 UTC nightly schedule. It can be found on 6015/6100 kHz.

The Oldest Shortwave Broadcasters

Costa Rica boasts some of the oldest shortwave broadcasters in Central America. Known to listeners worldwide, the veteran of the bunch is TIFC, "Faro del Caribe." Utilizing five transmitters, the TIFC studios are three miles from San Jose, the capital city. Their distinctive slogan, "The Lighthouse of the Caribbean" is heard nightly on the following schedule:

0300 to 0400 UTC on 5055 kHz
in English
2300 to 0400 UTC on 5055/9645 kHz
in Spanish
1030 to 2000 UTC on 5055/6175 kHz
in Spanish

Radio Reloj, another old timer broadcasting from San Jose, can be heard on 4832/6006 kHz. Though Reloj operates 24 hours a day, best reception is in the morning and evenings.

Radio Casino in Puerto Limon has also been on the air for many years. Nightly English programming can be heard on 5955 kHz at 0500 to 0600 UTC. Spanish programming runs from 1100 to 0530 UTC on 5955 kHz.

Radio Rumbo from Cartago began broadcasting, compared to its older brothers and sisters, rather recently - in 1980. It can be heard in Spanish

TIFC

LIGHTHOUSE OF THE CARIBBEAN

FARO DEL CARIBE

"Let your light so shine before men, that they may see your good works, and glorify your Father which is in heaven". Matthew 5:16

"LIGHTING THE WAY TO LIFE"

"Iluminando el Sendero de la Vida"

We happily confirm your reception of TIFC, Lighthouse of the Caribbean.

Con el mayor gusto confirmamos su recepción de TIFC, Faro del Caribe.

[Signature]
Program Department
Departamento de Programas

Box 2710

1.000 San José

Costa Rica, C. A.

Frecuencias:

1.075 Khz. broadcast band

6.175 Mhz. 49 meter band

9.645 Mhz. 31 meter band

5.055 Mhz. 60 meter band

97.1 Mhz. FM

[Signature]
Administrator
Administrador

on 6075 from 1100 to 0530 UTC. Other audible stations are Radio Impacto on 6150 from 1030 to 0600 UTC and Radio Columbia on 4850 kHz from 1030 to 0600 UTC.

Both Impacto and Columbia broadcast in Spanish and with the exception of TIFC, all other Costa Rican stations play a variety of music styles in both Spanish and English.

Panama

Panama is a small country with worldwide importance. Connecting two oceans, the Panama Canal cuts through the Isthmus of Panama, thus playing a key role in the world's transportation system.

In previous years, Panama matched its importance in the world with a thriving shortwave industry. Station H0F31, for example, on 9685 kHz, was owned by Panama's largest

network, Radio Programas Continental.

Back during those years, however, occasional "Yankee Go Home" feelings would arise over the Canal and whenever a surge of anti-Americanism occurred, it suddenly became difficult to QSL the Panamanian shortwave stations. Those shortwave enthusiasts who possess such verifications are indeed fortunate. Those of us not so lucky can only hope that someday Panama may reactivate their shortwave stations.

Turning off the Radio

So, another shortwave session comes to an end. The log sheet is filled with entries, indeed even a new country or two. From the Mayan culture of Guatemala to the troubled land of Nicaragua, the "Banana Belt" offers it all. On your next DX session, why not give Central America a try?! ■

LA VOZ EVANGELICA

AWR
Adventist World Radio

LATIN AMERICA

TGMUA TGMUB TGMUC

THE NEW FOX SCANNER RADIO LISTINGS DIRECTORY

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Alaska, State of Arizona, State of Baltimore, MD/Washington, DC Buffalo, NY/Erie, PA Chicago, IL Cincinnati/Dayton, OH Area Cleveland, OH Area Columbus, OH Area Dallas/Ft. Worth, TX Denver/Colorado Springs Great Lakes States	Detroit, MI/Windsor, ON Fort Wayne, IN/Lima, OH Hawaii/Guam Houston/Beaumont, TX Area Indianapolis, IN Area Kansas City, MO & KS Area Long Island, NY Los Angeles, CA Louisville/Lexington, KY Milwaukee, WI/Waukegan, IL	Minneapolis/Saint Paul, MN Nevada (State of)/E. Cent California Oklahoma City/Lawton, OK Orlando/Daytona Beach, FL Pittsburgh, PA Area Rochester/Syracuse, NY San Diego, CA Tampa/St. Petersburg, FL Toledo, OH Area
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REGIONAL DIRECTORIES
South Eastern United States

IDing and QSLing U.S. Naval Vessels...

Conclusion

by Michael Chabak

To assist in monitoring and QSLing, the following current roster of active and proposed USN/NRF/MSC vessels includes the ship name, type and hull number, radio call letters, MARS suffix, and the FPO mailing address.

A separate list, alphabetized by radio call letters and cross-indexed by MARS suffix is available for \$2 plus a self-addressed stamped envelope sent to *MT*, P.O. Box 98, Brasstown, NC 28902

QSLing...

As all U.S. Naval vessels can be reached via a CONUS FPO, envelope postage is the current U.S. first class rate. None of the vessels has an official QSL card/letter (except for a few MARS Afloat), so it is advisable to include a prepared card or letter accompanied by the proper postcard or first class letter postage stamp.

For those of you who do any utility QSLing, you know you must never repeat the specific content of any transmission in your reception report; just use buzz words and time lines such as: working, phone patch via, callup to, and so on.

If you're going to include a prepared form the basic data items you'll want to be filled in include vessel name, type/hull number, date, and signature. Depending on which category area you monitored and the Navy's own COMSEC restrictions, some of these very familiar data items may not be filled in: frequency, transmission mode, output power, time of transmission, location during transmission, and transmitter type. Of course for a well-rounded QSL, you'll want to obtain whatever information your little heart desires, but don't be too surprised if some data items are returned blank!...

Envelope Addressing...

We'll use the USS Nassau to illustrate. In all but the MARS transmissions, the format is:

USS NASSAU LHA-4
OIC- Communications
FPO New York NY 09557-1615

For MARS reception reports, the Navy frowns on your putting the vessel MARS call letters on the outside of your envelope. So, for MARS QSLing the format is:

USS NASSAU LHA-4
MARS Officer
FPO New York NY 09557-1615

Some of the ships have their own distinctive rubber stamp logo. It would not hurt to ask them if they, indeed, have a vessel seal and would stamp it on your card (on the address side so as not to blot out the data). For form letters, any available blank spot will do. This adds a nice touch of authenticity to your QSL. Otherwise, your QSL will have its postage stamp cancelled aboard the ship, and this cancellation will bear the vessel name, type/hull number and zip code.

Fleet Post Office Address...

The Navy has four gateway FPOs; the vessel roster list abbreviates these as:

NY - New York, NY
MI - Miami, FL
SF - San Francisco, CA
SE - Seattle, WA

In addition, each ship was given a zip code. The zips are assigned alphabetically by vessel name, pertaining to those reachable via that particular FPO gateway station. Vessels having more than a 600 crew members receive a specific zip code different from the alphabetical setup. Ships like Albuquerque, Ainsworth, Antares, and Austin all have the same NY 09564 zip, while carrier America has a NY 09531 zip code.

When the U.S. Post Office decided to implement a full nine-digit zip, four more numbers were added to the ship zip codes, specific for each vessel. If you don't know the specific gateway FPO and at least the five-digit zip code, the chances of your reception report reaching the ship is nil.

Mailing Address Realities...

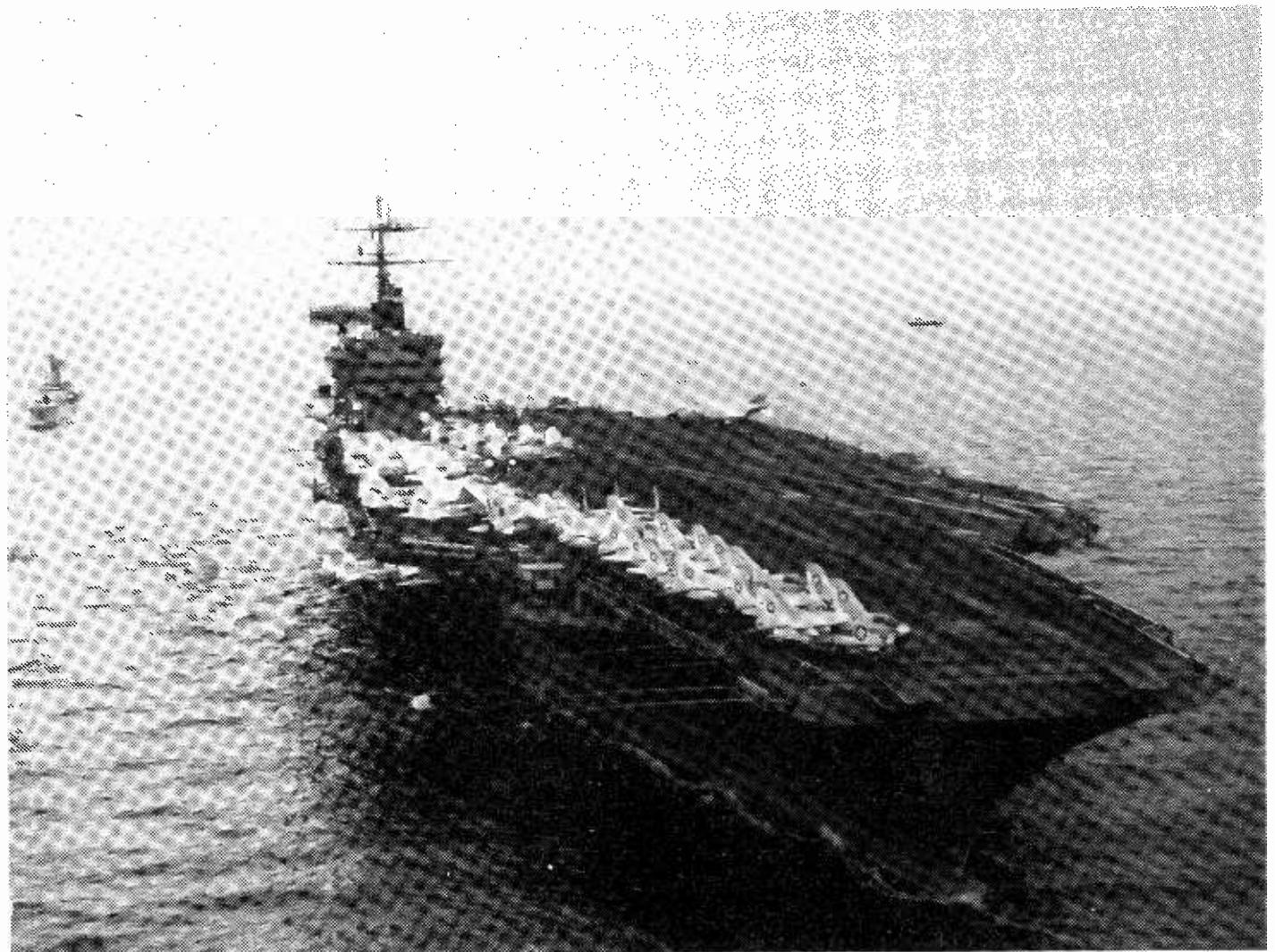
Ships can be and are reassigned to another fleet, destroyer/submarine

squadron, and so forth, which means they are likewise assigned a new home base and FPO address.

In addition, vessels continue to be commissioned or decommissioned, brought into or removed from active service. These changes are not extensive, so the bulk of the FPO data will be valid for some time to come.

USN/MSN/NRF* VESSEL ROSTER

Vessel Name	Type & Hull #	Call Letters	Mars Call	FPO Address	Notes
ACADIA	AD-42	NNZA	CWX	SF 96647-2530	
CHARLES F. ADAMS	DDG-2	NBJR		MI 34090-1232	
JOHN ADAMS	SSBN-620	NJQA		MI 34093-2009	
ADROIT	MSO-509	NCFR	CSR	NY 09564-1919	NRF
AFFRAY	MSO-511	NOAL		NY 09564-1920	NRF
AINSWORTH	FF-1090	NCQI	CUE	NY 09564-1450	
AJAX	AR-6	NWBC	CTU	SF 96642-2550	
ALABAMA	SSBN-731	NALA		SE 98799-2108	
ALAMO	LSD-33	NOQI		SF 96660-1721	
ALASKA	SSBN-732	NALK		SE 98799-	(A)
ALBUQUERQUE	SSN-706	NALB		NY 09564-2386	
ALGOL	T-AKR-287	NAMW		NY 09564-4081	MSC
ALTAIR	T-AKR-291	NRZA			MSC (B)
AMERICA	CV-66	NUSA	CRZ	NY 09531-2790	
ANCHORAGE	LSD-36	NGRQ		SF 96660-1724	
ANTARES	T-AKR-294	NPEJ		NY 09564-4080	MSC
ANTRIM	FFG-20	NRNA	CZT	MI 34090-1476	
APACHE	T-ATF-172	NIGP		NY 09564-4003	MSC
AQUILA	PHM-4	NVMZ		MI 34092-3411	
ARCHERFISH	SSN-678	NYUG		NY 09564-2358	
ARIES	PHM-5	NQAS		MI 34090-3412	
ARKANSAS	CGN-41	NARK	CZJ	SF 96660-1168	MSC
ASPRO	SSN-648	NKEE		SF 96660-2334	
ASSERTIVE	T-AGOS-9	NAFY			MSC (D)
ASSURANCE	T-AGOS-5	NDPY		SF 96660-4085	MSC
ATLANTA	SSN-712	NAYF		NY 09564-2392	
AUDACIOUS	T-AGOS-11	NJMR			MSC (D)
AUGUSTA	SSN-710	NAUG		NY 09564-2390	
AUSTIN	LPD-4	NEDO	COY	NY 09564-1707	
AVENGER	MCM-1	NAHC			-(C)
AYLWIN	FF-1081	NPHC	CUA	MI 34090-1441	
BADGER	FF-1071	NHDT	NZI	SF 96661-1431	
BAGLEY	FF-1069	NULQ		SF 96661-1429	
BAINBRIDGE	CGN-25	NJUL	CNP	SE 98799-1161	
BALTIMORE	SSN-704	NPIJ		NY 09565-2384	



Vessel Name	Type & Hull #	Call Letters	Mars Call	FPO Address	Notes
GEORGE BANCROFT	SSBN-643	NAAJ		MI 34090-2066	
BARB	SSN-596	NFCJ		SF 96661-2312	
BARBEL	SS-580	NAAD		SF 96661-3402	
BARBEY	FF-1088	NTBS	CTN	SF 96661-1816	
BARNEY	DDG-6	NDSD	NXJ	NY 09565-1818	
BARNSTABLE COUNTY	LST-1197	NUCU	CSK	NY 09565-1818	
BARTLETT	T-AGOR-13	NBAD		NY 09565-4004	
WILLIAM H. BATES	SSN-680	NGZG		SF 96661-2360	
BATFISH	SSN-681	NKIY		MI 34090-2361	
BATON ROUGE	SSN-689	NRIZ		NY 09565-2369	
DONALD B. BEARY	FF-1085	NQUB	NXB	NY 09565-1445	
BEAUFORT	ATS-2	NUOT	CQC	SF 96661-3218	
BELKNAP	CG-26	NNMU	CVA	NY 09565-1149	
BELLATRIX	T-AKR-288	NHLL			MSC (B)
BELLEAU WOOD	LHA-3	NBHE	CTZ	SF 96623-1610	
SILAS BENT	T-AGS-26	NNUD		SF 96661-4005	MSC
BERGALL	SSN-667	NMFB		NY 09565-2347	
BERKELEY	DDG-15	NAEH	CTG	SF 96661-1245	
BIDDLE	CG-34	NMYE	NXW	NY 09565-1157	
BILLFISH	SSN-676	NCZF		NY 09565-2356	
BIRMINGHAM	SSN-695	NUZF		SF 96661-2375	
BLAKELY	FF-1072	NPCD	CXL	MI 34090-1432	NRF
BLUEBACK	SS-581	NKFS	NZT	SF 96661-3403	
BLUEFISH	SSN-675	NTNM		NY 09565-2355	
BLUE RIDGE	LCC-19	NQHS	BLU	SF 96628-3300	
BOLD	T-AGOS-12	NIKY			MSC (D)
SIMON BOLIVAR	SSBN-641	NSRN		NY 09565-2060	
BOLSTER	ARS-38	NHEW	CTK	SF 96661-3201	NRF
BONEFISH	SS-582	NFMS	CQU	MI 34090-3404	
BOONE	FFG-28	NBON	CZN	MI 34093-1484	
DANIEL BOONE	SSBN-629	NUBC		MI 34090-2033	
BOSTON	SSN-703	NMUX		NY 09565-2383	
BOULDER	LST-1190	NCLZ	CRE	NY 09565-1811	NRF
BOWDITCH	T-AGS-21	NCSR		NY 09565-4006	MSC
BOWEN	FF-1079	NHTM	COJ	MI 34090-1439	
BRADLEY	FF-1041	NEDS	CQI	SF 96661-1403	
ROBERT G. BRADLEY	FFG-49	NRGB		MI 34090-1503	
BREMERTON	SSN-698	NZWW		SF 96661-2378	
BREWTON	FF-1086	NBCQ	CQS	SF 96661-1446	
BRISCOE	DD-977	NDIB	CVN	NY 09565-1215	
BRISTOL COUNTY	LST-1198	NQQY	CNG	SF 96661-1819	

Vessel Name	Type & Hull #	Call Letters	Mars Call	FPO Address	Notes
BRONSTEIN	FF-1037	NTVT	CPC	SF 96661-1400	
BROOKE	FFG-1	NBTE	CWK	SF 96661-1459	
JESSE L. BROWN	FF-1089	NCGP	CSS	MI 34090-1449	
BRUMBY	FF-1044	NERA	CZQ	MI 34090-1405	
BRUNSWICK	ATS-3	NRCN		SF 96661-3219	
BUCHANAN	DDG-14	NUOU		SF 96661-1244	
BUFFALO	SSN-715	NZEA		SF 96661-2395	
BUNKER HILL	CG-52	NNBH			-(D)
ARLEIGH BURKE	DDG-51				-(F)
BUTTE	AE-27	NWUO	CXI	NY 09565-3005	
RICHARD E. BYRD	DDG-23	NHSN	NXT	NY 09565-1253	
FRANK CABLE	AS-40	NGXQ	CUQ	MI 34086-2615	
JOHN C. CALHOUN	SSBN-630	NETV		MI 34090-2036	
CALIFORNIA	CGN-36	NKIN	CYF	SF 96662-1163	
CALLAGHAN	DDG-994	NDJC	CWL	SF 96662-1266	
CALOOSAHATCHEE	AO-98	NKJU	NXM	NY 09566-3016	
CAMDEN	AOE-2	NJSO		SE 98799-3013	
CANISTEO	AO-99	NJVJ	CXQ	NY 09566-3017	
CANOPUS	AS-34	NCAW		MI 34087-2595	
CAPE COD	AD-43	NCOD	COH	SF 96649-2535	
CAPELLA	T-AKR-293	NBXX		NY 09566-4079	MSC
CAPODANNO	FF-1093	NFVC	NXC	NY 09566-1453	
CARDINAL	MSH-1	NMRX			-(G)
CARON	DD-970	NOTC	CNJ	NY 09566-1208	
CARR	FFG-52	NCAR		MI 34090-1506J	
GEORGE WASHINGTON					
CARVER	SSBN-656	NOUC		NY 09566-2081	
CATAWBA	T-ATF-168	NCDS		SF 96662-4007	MSC
CAVALLA	SSN-684	NGYH		SF 96662-2364	
CAYUGA	LST-1186	NWZJ		SF 96662-1807	
CHAMPION	MCM-4	NOKB			-(C)
CHANDLER	DDG-996	NPES	CWT	SF 96662-1268	
CHARLESTON	LKA-113	NNHU	CNW	NY 09566-1700	NRF
CHAUVENET	T-AGS-29	NYGG	CQG	SF 96662-4009	MSC
CHICAGO	SSN-721	NCHI			-(H)
CIMARRON	AO-177	NHYF		SF 96662-3018	
CINCINNATI	SSN-693	NHPM		NY 09566-2373	
CITY OF CORPUS CHRISTI					
CLARK	SSN-705	NCCT		NY 09566-2385	
HENRY CLAY	FFG-11	NJJC	CYB	NY 09566-1469	NRF
CLEVELAND	SSBN-625	NWYU		MI 34090-2021	
COCHRANE	LPD-7	NVJD	CNM	SF 96662-1710	
COMFORT	DDG-21	NFIT	CQK	SF 96662-1251	
	T-AH-20	NCOM			MSC(I)

(Please turn to page 47)

NOTES FOR VESSEL ROSTER LIST

- (A) - Both due to be commissioned during 1986 and will be based at Bangor WA
- (B) - Exact status unknown
- (C) - New Mine Countermeasures class. MCM-1 to 5 expected to be commissioned, starting in 1986. Nine additional vessels of this class are proposed.
- (D) - Due to enter service during 1986
- (E) - Due to enter service in 1991
- (F) - The DDG-51 Arleigh Burke class is the first of 29 ships. DDG-51 is due to be commissioned in 1989. This series will be followed by 31 improved Arleigh Burke DDGs. When in service will replace the DDG-2 through 26 Adams class and the DDG-37 through 46 Coontz class vessels.
- (G) - MSH-1 Cardinal is the lead ship of a new minesweeper/hunter class. The Cardinal is due in service during 1987. 16 others are proposed.
- (H) - Have just recently or will enter service during 1986
- (I) - USNS Comfort and Mercy are being converted into hospital ship configurations. Comfort due in 1987 and will be Pacific based. Mercy due in 1986 and will be Atlantic based.
- (J) - Sailing frigate originally built in 1797. It is still listed as being in commission on the U.S. Naval Vessel Roster. Now docked at Boston Harbor, under the control of the Director of Naval History. The Constitution is taken out once a year, for a trip around the harbor, to air out its sails.
- (K) - Due to be commissioned in 1987
- (L) - Part of a new salvage ship class, now entering service
- (M) - Converted from ballistic missile submarines into (submarine) Amphibious Transports
- (N) - Due to be commissioned during 1990
- (O) - Converted self-propelled water barge. Currently used to conduct acoustic research for the Naval Mine Defense Lab. Mailing address is: c/o Port Canaveral, FL 32920
- (P) - Currently used to test submarine hull materials
- (Q) - Training carrier operating out of Pensacola FL. Will be retired in 1992 and replaced by the USS Coral Sea
- (R) - First of 11 multi-purpose amphibious assault ships. LHD-1 due in service during 1989
- (S) - BB-63 Missouri will be "recommissioned" during 1986
- (X) - Just about due in or not yet in service

USN A ship of the line, regular Navy
NRF Naval Reserve Force ships for training
MSC Military Sealift Command, civilian crew for logistical support or oceanographic research/survey

The following T-AGOR Oceanographic Research ships are not on the current vessel roster, but are active, temporarily "on loan" from the Navy for non-Navy research work. These are USN owned vessels under the technical control of the Oceanographer of the Navy. Manned by civilian crews they are operated by various universities or institutions. They include:

- T-AGOR-3 = ROBERT D. CONRAD - Lamont Geological Observatory of Columbia University
- T-AGOR-4 = JAMES M. GILLISS - University of Miami, FL
- T-AGOR-9 = THOMAS G. THOMPSON - University of Washington State
- T-AGOR-10 = THOMAS WASHINGTON - Scripps Institution of Oceanography
- T-AGOR-14 = MELVILLE - Scripps Institution of Oceanography
- T-AGOR-15 = KNORR - Woods Hole Oceanographic Institution
- T-AGOR-21 = GYRE - Texas A&M University
- T-AGOR-22 = MOANA WAVE - University of Hawaii

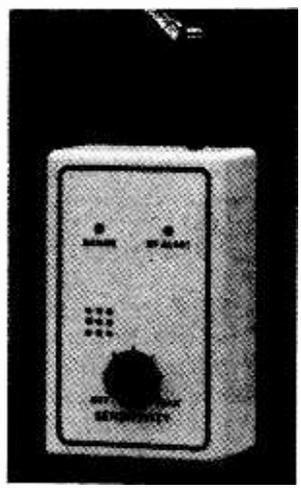
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FALL IN!

A Preview of Shortwave, 1986-87

By Mel Bendauer



The "Toughest Top Ten" promised for the October issue has been delayed in favor of two articles on what to expect this fall—new stations, frequencies, propagation and the best and worst bets in shortwave. "Tough" will get you yet in November.

Shazam! Quick as the bolt of lightning that used to flash above Captain Marvel's head in the comics, summer has vanished; the warm and lazy weeks evaporating into memories. The picnics and beaches, vacations and celebrations we all enjoy put the summer months into a shorter wavelength time frame which seems to speed it up and whip it past us all too quickly.

It has become something of a tradition for DXers and SWLs (except for those who DX the FM band and the TV channels) to slack off on their listening efforts during the summertime. There's too much else to occupy our time and besides, those activities are a good excuse to flee from summer's static on the shortwave bands.

But now that we have at least one foot back into fall, the listener cut from the traditional mold is probably beginning to spend a little more time back at the ol' World Compass 2000-X, relearning who is where on the dial. So, as you fall into a new DX "season" we are going to shake our crystal ball, peer deep inside and try to provide a few previews, possibilities and reminders as we watch the fake snow settle inside. Hopefully, some of the information will prove profitable to your logbook.

NEW CONDITIONS

First the good news. Fall brings with it a condition in which the higher bands won't support signals into the nighttime hours so the big international broadcasters will again slide down to the lower

regions of the shortwave spectrum. This will create more crowded conditions, more interference and less opportunity to hear home service stations -- stations that present the real DX -- in places like 49 meters. Sometimes, though, some good DX catches pop through "windows" created by the schedules of the bigger broadcasters.

Fall, on the other hand, means quieter conditions on those lower bands and improved reception from certain parts of the world. If you are hunting for stations in Indonesia or Papua New Guinea, remember that now is the best time to bag game in these areas. Try around half an hour or so before dawn for stations on 60 and 90 meters. As fall progresses, 60 meters will open up earlier and you should note reception of stations in Africa as early as 2000 UTC on the east coast. Fall is also a good time to snare those weak, out-of-band Latins and there are many of them to try for, especially in Peru.

You can expect a continued increase in usage of 13 Megahertz during the daylight hours this year. More and more stations -- in an effort to find smooth sailing in the more congested bands -- take to the open waters of these frequencies.

Activity on the 41 meter band has been increasing steadily and there's no reason to expect this to stop. If you haven't been surveying seven on a fairly regular basis, then your return to the dials will undoubtedly present you with a host of new signals to sort out.

NEW STATIONS, NEW FREQS..

The Arab world is adding new frequencies, new transmitters and increasing schedules faster than the trees are losing their leaves. Iran, Iraq, Saudi Arabia, Oman, Libya -- all are in the process of expanding their broadcasting systems although, so far, that expansion has brought little or not increase in English language broadcasting. The Arabic speakers seem almost as common on the dial as Radio Moscow's World Service!

All of the new Australian regional stations are now on the air and fall should provide improved opportunities to hear these, especially on the west coast. Check the frequency section of *Monitoring Times* for some of these stations.

Adventist World Radio-Asia should be on the air, with tests at least (frequencies also in the frequency section of *MT*). And then there's the *Christian Science Monitor's* new station (due to sign on in January: the experts say that not only will the station make its proposed sign on date but that it will turn the industry on its ear.) Then there's the long-proposed NDXE Global Radio from Alabama which has suffered yet another delay after delays of delays, pushing its sign on into what might seem like the next century.

NEW PUBLICATIONS

In the realm of publications, this DX season also shows promise. A new monthly shortwave publication called *World Radio Report* hit the streets this month. It is edited by *MT* broadcast editor Larry Miller and is available for \$18.00 a year from 3 Lisa Drive, Thorndale, PA 19372. It's a must for anyone who wants to stay really up-to-date with the ever changing world of shortwave.

With regard to annual publications, the torch this year seems to be passing from the *World Radio TV Handbook* to *Radio Database International*. *RDI*, more usable than the *Handbook* for finding you way around the shortwave broadcast bands, is far cheaper than the *WRTVH* as well -- some seven dollars goes in the pocket of the person who chooses *RDI* over the *Handbook*.

But publications -- whatever you choose to equip yourself with -- are tools that can help you pre-plan your DXing and listening, lining up frequencies, time and program information on the stations you are seeking. Pretend you're a Boy Scout and be prepared. It'll pay off in increased loggings.

PRESSTOP: Washington

- Your letters are working!

SCANNER BILL UPDATE

This time it's good news from Washington! We have it on reliable authority that the controversial Electronic Communications Privacy Act of 1986 has run into serious trouble.

As of September 11, 1986, the United States Senate postponed markup of the bill due to an unrelated conflict which developed on the Senate floor. It is possible that the bill will never make it through this session and could die before reaching the President for signature.

Regardless of its progress from this point on, a new draft from Senators Leahy and Mathias has encountered a proposed amendment from Paul Simon granting all three major concessions to the alternative ANARC (Association of North American Radio Clubs) proposal.

Most notably the following have been dropped:

- Six months imprisonment for cellular telephone monitoring;
- Prohibition against listening in on remote broadcast pickups.

ANOTHER ZINGER

On September 5th, 1986, the prestigious Washington Legal Foundation filed a petition with the Federal Communications Commission asking that all cellular radiotelephones be required to carry

the same labels as cordless telephones, warning users that their conversations were not private.

Needless to say, the powerful cellular telephone lobby is quite unhappy with the turn of events in Washington.

BUT IT DOESN'T STOP THERE!

A major syndicated Washington columnist, noted for his powerful investigative reporting, will disclose nationwide his findings regarding the "David and Goliath" struggle between ANARC and the cellular industry.

The columnist will point out that thousands of dollars in PAC money has been contributed to key figures in the privacy act campaign, including over \$10,000 to Patrick Leahy, champion of the Senate bill.

It may be premature to draw conclusions, but it would appear that the organized and professional presentation by ANARC has brought perspective and reason to the Senate floor. Their persistence and dedication is obviously pointing out that there is, indeed, a democratic process in our country, and the "little guy" does count!

MT salutes the professionalism shown by ANARC's Washington lobby and their key representative and spokesman, Robert Horvitz, in particular.

Got a friend who scans?

Why not make his day (or hers) and introduce him to *Monitoring Times* in a gift subscription?! There's no *Times* like the present!

What's HOT...and What's NOT... for the New Shortwave Season

by Larry Miller

Hot!

Radio France International. For investing heavily in the field of international radio. A station with an aggressive pattern of growth, excellent programs and much-improved standards of journalism.

Not!

Jacques Chirac. The new French Prime Minister is attempting to turn RFI into the propaganda laughing stock of the western world by having it "speak with one voice". Guess whose voice? Les Ondes, c'est moi!

Hot!

BBC World Service news. The best. Always was; still is.

Hot!

Radio Kiev. Radioactive hot. But not hot when it comes to journalism. "A slight oversight. We forget to tell you that a nuclear reactor ran amuck in our country and turned a good chunk of the republic into a radioactive wasteland. But who cares about small things? Bring on the music."

Not!

NDXE Global Radio. The ultimate "dog and pony show." Or perhaps more accurately, "dog and pony no show." The station spews PR into the airwaves but not over its own transmitters. Those are nowhere to be found. What it does do well is hawk cheap, garish NDXE souvenirs such as plastic license plates that look like cafeteria trays.

Not!

Anyone who bought NDXE souvenirs.

Hot!

WHRI, World Harvest Radio International. Reverend Lester Sumrall's new shortwave station from Noblesville, Indiana showed 'em how it should be done. Even if you're not religiously inclined, you've got to admire the way they put their station together -- first-rate from top to bottom.

Not!

The BBC for cancelling what may well have been the world's most listened to radio program, *Letterbox*. Let 'em eat news.

Hot!

The Sony Corporation. For producing the revolutionary ICF-2010. The future is here now.

Not!

The future is here now but it's not available in the United States. Not hot: The Sony Corporation. For not producing enough of the revolutionary ICF-2010 to meet US demand, causing dealers, distributors and the rest of us to line up for rationed radios like housewives outside a delicatessen in Romania.

Hot!

Saludos Amigos. HCJB's year-old "international friendship" program. Host Ken MacHarg's warmth and style bring together listeners from around the world in a unique, on-the-air pen-pal club.

Not!

English Service, RAI, Italian Radio. Beyond boring. Beyond Bad. The Italians simply don't care what they put out on the air. And it's a slap in the face to listeners around the world. Still one of the greatest embarrassments on the shortwave bands.

Hot!

Radio Database International. Finally, a professional, usable, accurate and affordable annual guide to the shortwave broadcast bands.

Hot!

Terry Colgan. Under ANARC's sharp, get-things-done Executive Secretary, the silly, pretentious and usually sleepy-eyed ANARC organization mattered, for the first time in years. Too bad, though. Colgan steps down in December. Some tough shoes to fill.

Hot!

WARC-87. The efforts of the US' Stanley Leinwoll and other innovative attendees may yet make this professional-level international radio convention a major step forward for international broadcasting.

Not!

The Electronic Communications Privacy Act. Can you say "c-r-i-m-i-n-a-l"? If you listen to your scanner, you may become one when this bill passes.

Not!

Anyone -- like AT&T -- who supported this outrageous bill. Show AT&T what you think of their efforts to ruin your hobby. Have your phone turned off.

Hot!

The Eavesdropper antenna. A rare commodity in today's junk-filled world. Well-built and affordable, it actually works!

Not!

Stations that answer all correspondence with the phrase, "Thank you for writing. We hope to hear from you again. Revolution or death!" but never get around to replying to your question. Many stations qualify for this dubious award, but the biggest offender, which broadcasts from Havana, Cuba, shall remain nameless.

Hot!

Dave Rosenthal. One of the best, most personable and enthusiastic broadcasters on the air today. Currently on Radio Earth with his *Skyline Astronomy* program, Rosenthal could undoubtedly make fly collecting sound interesting.

Attention Shortwave Listeners!

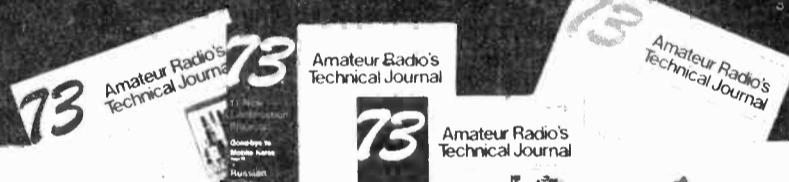
Don't forget to look for our annual shortwave survey in the November issue of *Monitoring Times*. It's your chance to vote for your favorite stations, broadcasters and programs. Remember, it's your chance to let the world know what you like and don't like on shortwave. So fill it out and send it in! *MT* -- we listen to you!

Radio West Sold

Grant Manning, who founded and managed Radio West of Escondido, California, for many years, has sold his company. The new owners, Steve and Sue Miller, have pledged continued support of the shortwave listening hobby and state that there will be no major changes in the products or services traditionally associated with the company.

As part of the purchase agreement, Grant Manning will make his services available to the new owners as a consultant for one year.

MONITOR



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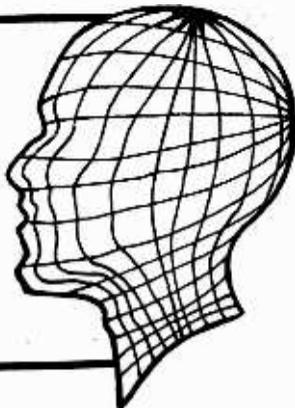
Station Profile

"ALMA"

Giantess of the Great White North!

by Martin C. Barry

*'A land of leaning ice
Hugged by plaster-grey arches of sky'*



Static crackled over the receiver as the operator at Alma Radio handles an emergency call. "I can hardly hear you sir, your signal is barely 1 on 5," she said.

The caller, somewhere in the vast, distant wilderness of northern Quebec, was trying to give her the phone number of an emergency bush plane service. A visitor to a hunting and fishing lodge was injured and hemorrhaging. An airlift was required immediately. It was a matter of life and death.

Cool, the operator continued to dial one phone number after another as best she could. The reception was so bad, though, that they all turned out to be wrong.

As a last resort, she called for a relay by anyone in better earshot. The message got across and the plane was dispatched.

This is not typical of transmissions heard on Alma Radio (CGD206), a point-to-point station serving the isolated and often barren expanse of Quebec's northland, but the incident illustrates the fact that overland HF radiotelephone can be dangerously unpredictable.

Wide Reception

Alma is a giantess among "utes" (utility stations) of northern Quebec; with a signal estimated at 500 watts PEP (peak envelope power) and a unidirectional antenna, no northern Quebec relay can rival her.

A former employee of a mining company near Schefferville described how, while in the bush, he worked Alma with nothing more than a modified 6-watt transceiver attached to a piece of longwire, achieving excellent results.

Alma Radio operates four channels: Channel 1 is on 3166 kHz; channel 2 is on 7465 kHz but is rarely used; channel 3 transmits on 5390 kHz carrying most of Alma's traffic; channel 4, on 5430 kHz, can be heard almost as often as channel 3.

Transmissions on Alma are simplex--both parties are heard on the same frequency; This can make for interesting monitoring, as compared to high seas duplex comms in which the SWL must switch back and forth between two frequencies.

Alma's range extends up to Ungava Bay during daylight hours; at night, however, it can be heard all over

Quebec, other parts of Canada and a large portion of the U.S. While Alma's transmissions will be heard under most conditions, distant northern stations may be weak or unreadable.

Bush Equipment

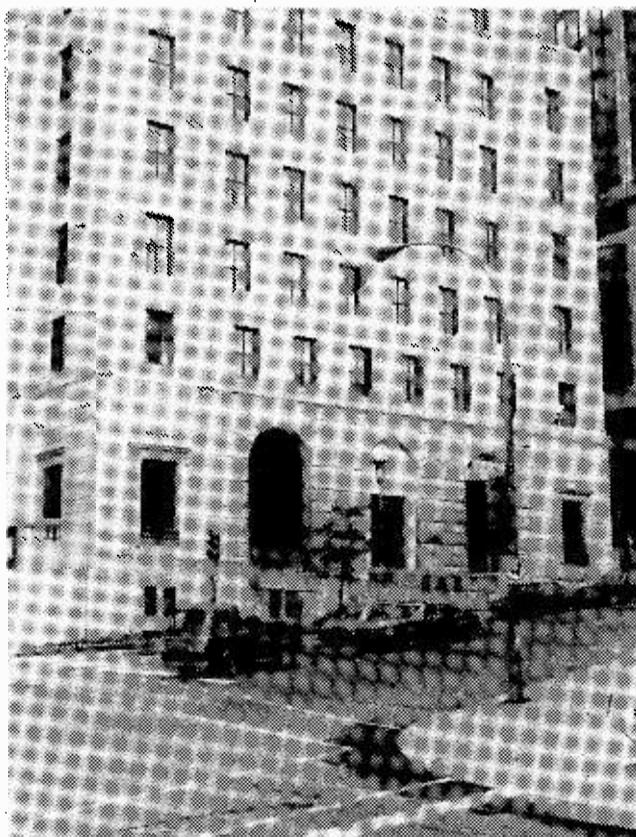
Although subscribers to Alma are free to use whatever gear they wish, the favored transceiver is a Marconi CH-25 which may be bought or leased.

With four channels from which to choose, operators still are plagued by QRN (static) as well as WRM (man-made interference) from long-distance aeronautical control stations. On one occasion, an aircraft was instructed by control to go to 6643 kHz. Foreign language interference also can be heard at the worst of times.

There are privacy compromises as well; in one instance, a caller was heard giving over the air the number sequence for his phone company charge card.

Remote Control Operation

It may come as a surprise to learn that Alma Radio is headquartered and operated from downtown Montreal. Anyone who has tried (like me) to QSL Alma without knowing this has had his correspondence returned from that town stamped "address unknown."



Montreal headquarters of Alma Radio, gateway to northern bush country communications.

The control room at Bell Canada's stately head office is linked by a combination of hardwire and microwave to the transmitter site just east of Lake St. John, a distance of about 500 miles. Until 1984, all operations were in Alma proper.

Mostly Routine

What are you likely to hear on Alma? Nothing terribly exciting; occasional business talk by mining companies; hunting and fishing lodges confirming reservations or requesting provisions from civilization maybe 800 miles south as the crow flies. But how about that for service? Groceries on your doorstep delivered via pontooned plane!

A Canadian SWL says he monitors Alma because he often hears exchanges by friends and relatives.

For the sportsman, perhaps most exciting of all communications are those heard in late summer and autumn, when hunters and fishermen call home, triumphantly reporting spectacular catches of game and fish. Listening to these transmissions can be the next best thing to being there!

A Hard Life in the Bush

As is the case with so many isolated areas rich in a natural resource, northern Quebec can be a place of boom and bust. Corporate towns spring up from absolute wilderness: homes, sidewalks, divided boulevards lined with halogen light standards, department stores. Probably not much different from a lot of towns you may have seen.

But these are in the middle of nowhere, almost always the only routes out by air or longhaul on a rickety railroad once a week.

If demand for the resource falls off, the company may find it has no choice but to pull out.

The transition is gradual. Some residents who haven't deep roots will leave almost immediately; others will linger a bit longer, hoping to get a better settlement from the former employer for homes which are fated to be razed anyway. Finally, only the diehards and Indians remain, a handful of people in a boarded-up ghost town.

The water is turned off, then the power and, finally, the phone lines are cut, leaving anyone behind dependent on the precarious moods of HF (high frequency--shortwave radio).

The last communications heard on Alma might be those of a demolition crew supervisor overseeing the town's bulldozing, after which it is seeded over and left to push up spruce trees. Then, task completed, radio silence. The land is returned to its natural state. Once-chartered streets are but memories for those whose heritage is there.

Such was the case of the community of Gagnon, Quebec, bordering Labrador, now erased from the map. Schefferville's fate currently lies in the balance.

NSAT

There is little doubt by now that overland high-frequency radiotelephone is as outdated as the party line. For the time being, however, there's no choice for the interior and far northern reaches of Quebec. Phone companies can hardly be expected to run lines hundreds of miles through wilderness for the sake of a few people.

The obvious solution is to replace the old system with satellite transceiving. The cost today to individuals, however, makes this almost impossible; furthermore, a satellite for this purpose still is in the planning stages.

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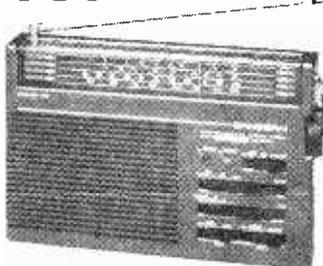
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THE EAVESDROPPER ANTENNA JUST \$55.00 POSTPAID

Our sale on the Eavesdropper has been so popular that we've decided to extend it. But for how long, we can't say. The 1986 World Radio TV Handbook says about the Eavesdropper: "The Best... Made the way an antenna should be." Only 40 feet long, the Eavesdropper comes completely assembled and ready to use. Constructed of heavy, 14-gauge antenna wire, it includes 100 feet of transmission line (to connect the antenna to your radio) and can be installed either outside or in. Specially tuned trap circuits bring you the best reception for whatever band you're listening to. Peak performance on 11, 13, 16, 19, 25, 31, 41, 49 and 60 meters. And it's made in the U.S.A.! Get the most out of your receiver with the best trap dipole antenna—the Eavesdropper! Not available outside North America.

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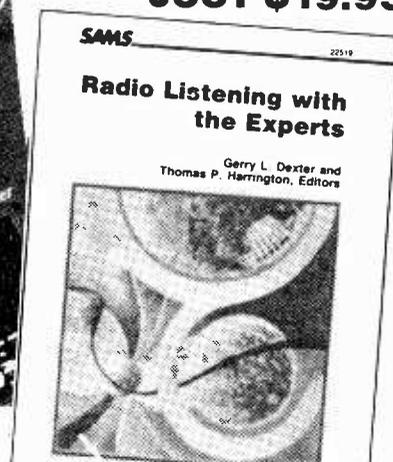
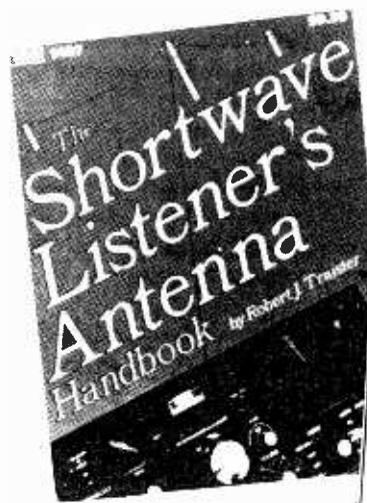
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On September 12, 1986, the first editions of the new, 1987 Radio Database International book will roll off the presses—and we'll be there to pick up your copy and mail it to you that same day. Radio Database International is the **ultimate** frequency guide to the shortwave bands and with its computer-generated graphics, high accuracy and reliability, it was the smash hit of '86. Reserve your copy today and get it first, fast from Miller Publishing. Just \$12.90.



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ACROSS THE BACK FENCE

Shortwave is the world's largest source of news. Across the Back Fence, by Gerry Dexter, examines the medium as a news source, looking at the sources used by international broadcasters, their accuracy and use of propaganda as well as comparing the output of several stations on a single day. In addition, you'll find stations, times and frequencies, for all the news you'll need to get a well-rounded view of your world. Just \$8.95 paperback.

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The World of Secret Government Agencies:



An interview with professional monitor Tony Jones

But there is hope on the horizon. Canadian communication authorities expect to launch in the next 5-10 years NSAT, a geostationary satellite that will fulfill almost all northern communication requirements, thus ending the various hitches and glitches of shortwave. Tentative launch date is 1990.

Aero Monitoring

Labrador and northern Quebec often have been called the "Land of Waiting." It is almost routine for bush pilots to wait, sometimes for days, while the weather clears. But when they're flying, here are some frequencies you may want to listen for:

- 4682.5 kHz (unid. user)
- 5147.5 kHz Labrador Mining, Schefferville, Squaw Lake base; 8:00am and 4:00pm EDT
- 5680 kHz Dept of Transport aero guide, Schefferville
- 5990 kHz (unid. bush plane service)

QSL'ing

Alma Radio will issue verifications for accurate reports and now may be just the QSL in the sunset years of one of North America's last overland shortwave phone relay stations.

Remember, though, that any citation of the transmission's actual message will only lead your report to the waste basket. The best approach is to mention you heard Alma Radio working a northern station (with its call letters if possible). A SINPO (signal report) might help and don't forget IRC's or mint stamps. Write to:

BELL CANADA
Alma Radio (CGD206)
1050 Beaver Hall Hill
Montreal, P.Q.
Canada H2Z 1S3

Suggested Reading

Fascinated by the North? Here's a short reading list:

Taqralik Magazine is all about the Inuit of northern Quebec. Available from Makivik Corp., 4898 de Maisonneuve W., Westmount, Quebec, Canada, H3Z 1M8.

And if you're really the daring type, up to challenging the "land of leaning ice," *Sailing Directions Arctic*, Vol.1 and *Sailing Directions Labrador and Hudson Bay Arctic Pilot* are both available, \$13.50 (Cdn.) apiece from McGill Maritime Services Inc., 401 McGill St., Montreal, H2Y 2G2.

NOTE: Excerpts quoted in this article are from American poet Hart Crane's "North Labrador."

Shortwave, as an industry, works on several levels. First, there are the hobby-oriented professionals who produce the publications, write the books, and provide you with the information you need to enjoy your radio listening. Add to this a few full-time, shortwave-only product manufacturers and distributors and you'll be able to count about ten people who work in the hobby full-time in the United States.

There are of course, thousands of other people working full-time in shortwave. There are journalists at the Voice of America in Washington, D.C., there are program producers at the private commercial operations and then there are the organizations who, of all those involved in the industry, take shortwave the most seriously.

These agencies, often departments of the U.S. government so secret that they are not even publicly acknowledged, see shortwave not as a way to pass a few leisure hours, but rather as a battleground. And on this ethereal battleground, signals between nations are given, threats made, information passed. And those that run the governments of the world want to be tapped in -- and tapped in securely -- to this source.

It is within these organizations that the real DXers and professionals reside. They are people whose names you'll never see in a club bulletin logging Radio Cultural in Guatemala. And despite the fact that they know the shortwave bands -- everyone and everything on them -- better than you know the way back to your house, they don't consider radio monitoring a hobby. It's a job.

One such person is Tony Jones.

Tony Jones won't talk about a lot of things. And he won't consent to be photographed. When you ask him certain questions, he'll hedge and change the subject. And while you'll probably recognize his name as co-editor of Radio Database International, that job is not his primary occupation in shortwave. In fact, Jones is the person primarily responsible for the amazing accuracy of Radio Database International, especially where transmitter site identification is concerned. For example, few people realized it -- but last year's RDI was the only publication ever to correctly identify the site of all of the transmitters in the People's Republic of China.

And Jones is one of a handful of professional monitors who report their findings on the shortwave bands not to a hobby club bulletin but to someone at the embassy of the government for whom they work.

MT: Where are you from?

Jones: I am a British subject with a Paraguayan passport working for neither.

MT: And you're a professional monitor?

Jones: Some people believe that.

MT: Who do you monitor for professionally?

Jones: Ahhh... Let's see. A government agency.

MT: What government agency?

Jones: I've worked for two competing US intelligence gathering agencies. One doesn't like me at the moment. Let's leave it at that.

MT: How did you get involved in professional monitoring? Did you start off as a hobby DXer? A good one who was "discovered?"

Jones: Actually, yes. I started DXing mediumwave back in '59 or so. And then I went up to shortwave some three years later. Larry Magne (publisher of Radio Database International) got my address in Paraguay and asked me to help him with some frequency monitoring back when he was working for the Israelis.

Through personal contacts with, uh, - how should I put this -- chance contact, with someone who worked for a government monitoring service, I was asked to do some contract work. And this led to other contract work with other agencies. I guess that's the best way to put it.

MT: Are you with "us" or "them?"

Jones: Hold on a second. (Puts down the phone.)

Jones: (Returning to the phone.) I monitor from a location about 30 miles south of Asuncion, the capital of Paraguay.

MT: And this is what you do as a full-time occupation -- monitoring the shortwave bands for a government.

Jones: I do some free-lance work for

Radio Canada and Radio Nederland, when I have the time.

MT: You're not really into the DX club thing. I never see your name in any club bulletins or that sort of thing.

Jones: I've never joined a DX club. I've DXed alone for years. I don't need to prove my successes to anyone.

MT: What does a professional monitor do?

Jones: First of all, you've got to monitor certain frequencies. These can be anywhere from six to twenty at a time, at certain times of the day. Usually, the days are flexible, but you'll be assigned a number of days to monitor the frequencies. Also, you're to monitor special transmissions on certain occasions. And two to four times a year, you have to do a complete, twenty-four hour band-scan. All the bands.

MT: That's what you do for Radio Database International, isn't it?

Jones: Essentially, yes.

MT: Can you make a living off this sort of thing?

Jones: If the people who employ you think you're good, yes. For the most part, the pay is not all that high, but at times the money can be considerable.

MT: What is the key to successful monitoring? Do you have to speak foreign languages? I know you can handle a few.

Jones: Well, I speak English and Spanish and I understand a reasonable amount of Portuguese, German and French as well.

MT: So that helps.

Jones: Obviously. It helps not only to understand what they're saying, but it helps me to work out where a transmission is coming from. You can tell by the accents.

MT: So what is the key to successful monitoring?

Jones: Basically, patience. I should think that you've got to work hard at the bands for a minimum of three years before you could even begin to think about professional monitoring.

MT: What do you mean by "work hard" at it? Does that mean quitting the full-time job at the factory and clamping the headphones on?

Jones: No, no. That means two or three hours, five days a week. You need to listen a lot so that you can identify the stations by their audio quality, the accents of their announcers, the language and things like that.

MT: In doing your monitoring for Radio Database International and the various agencies your work for, what was the most exciting thing you've noticed on shortwave over the past year.

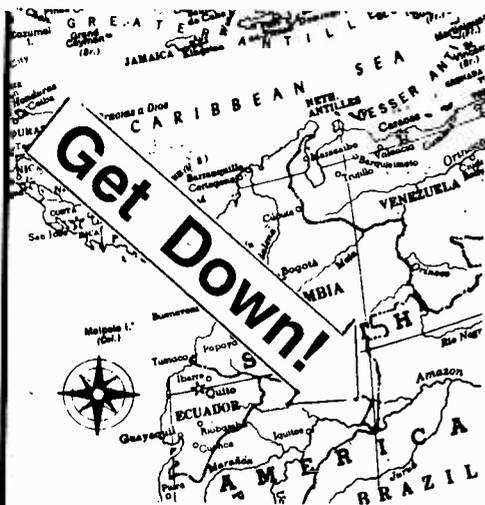
Jones: One thing that was a real heartstopper was when I noticed that every one of the local Chinese shortwave outlets had changed their schedules simultaneously. All over the country. That was frightening. Then I realized that China was on daylight saving time.

There are also a lot more stations going out of band this year. Without a doubt.

And when we finished the new statistics section of RDI, I was stunned. I never knew that Moscow used so many frequencies at the same time. It's absolutely massive spectrum usage -- almost 40,000 plus hours a week. Incredible. And what's more mind-boggling is that fact that the number two station -- the Voice of America -- lags behind with only 18,500 hours a week. A huge gap there.

MT: One last question. After putting in a hard day of monitoring, do you ever tune in the shortwave bands for enjoyment?

Jones: No. I listen to AM.



If you are fascinated by the stations on the international bands but somehow want more, then it's time to get down. Down on the shortwave bands. Down to the tropics.

For most people, the tropical bands are a mystifying, exotic jumble of foreign languages. There's little to hear if you don't speak, say, Spanish. And the signals can make even the most hazy international station sound like high quality FM. But if you're willing to do a little digging, the tropical bands can open a whole new world for you.

In a recent issue of FRENDX, Mike Harris offered this list to his readers. It's highly abbreviated but most can be figured out without too much difficulty.

So turn on your shortwave radio, hook up the antenna and **get down!**

- | | | |
|------|------------|----------------|
| 2340 | China | Fujian Front |
| 2390 | Guatemala | LV de Atitlan |
| | Mexico | Huayacocotla |
| 2410 | Brasil | Transamazonia |
| 2420 | Brasil | R. Sao Carlos |
| 2475 | China | Hangzhou |
| 2495 | Madagascar | Madagascaria |
| 2850 | DPR Korea | R. Pyongyang |
| 3200 | Libya | V. Great Arab |
| | Swaziland | TWR |
| 3205 | Brasil | Ribeirao Preto |
| 3212 | Mocambique | R. Maputo |
| 3220 | China | Beijing |
| | Papua NG | R. Morobe |
| 3222 | Togo | R. Kara |
| 3223 | India | AIR Simla |
| 3225 | Venezuela | R. Occidente |
| 3230 | RSA | SABC |
| | Peru | R. El Sol |
| | | Andes |
| 3240 | Swaziland | TWR |
| 3250 | RSA | SABC |
| 3251 | Honduras | Luz y Vida |
| 3255 | Liberia | LBS |
| | Venezuela | LV de el Tigre |
| 3260 | Niger | ORTN |
| | Papua NG | R. Madang |
| | Ecuador | LV Rio |
| | | Carriazal |
| 3265 | Indonesia | RRI Bengkulu |
| 3270 | SWA | SWABC |
| 3275 | Venezuela | R. Mara |
| 3280 | Ecuador | LV del Napo |
| 3285 | Belize | R. Belize |
| 3288 | Madagascar | Madagascaria |
| 3295 | SWA | SWABC |
| 3300 | Burundi | ORTB |
| | Guatemala | R. Cultural |
| 3310 | Bolivia | R. San Miguel |
| 3315 | Papua NG | R. Manus |
| 3316 | Ecuador | R. Pastaza |

- | | | | | | |
|------|---------------|----------------|------|--------------|----------------|
| 3320 | RSA | SABC | 4765 | Cuba | R. Moscow |
| 3325 | Guatemala | R. Maya | | Brasil | Relay |
| | Brasil | R. Liberal | | | R.Nat.Cruzeiro |
| 3330 | Rwanda | R. Rwandaise | 4770 | Nigeria | FRCN Kaduna |
| | Canada | CHU | | Venezuela | R. Mundial |
| 3331 | Indonesia | RKDT2 | | | Bolivar |
| | | Sukabumi | 4774 | Indonesia | RRI Jakarta |
| 3335 | Papua NG | R. East Sepik | 4775 | Bolivia | R. Los Andes |
| 3338 | Mocambique | R. Maputo | 4776 | Peru | R. Tarma |
| 3345 | Indonesia | RRI Pontianak | 4780 | Angola | ER do |
| 3346 | Zambia | ZBC | | | Kuando |
| 3355 | N. Caledonia | RFO Noumea | | Djibouti | R. Djibouti |
| 3356 | Botswana | R. Botswana | | Venezuela | LV Carabobo |
| 3360 | Papua NG | R. Milne Bay | 4785 | USSR | Baku |
| | Guatemala | LV Nahuala | | Colombia | Ecos |
| 3366 | Ghana | GBC | | | Combeima |
| 3380 | Malawi | MBC | 4789 | Indonesia | RRI Fak-Fak |
| | Guatemala | R. Chorits J. | 4790 | Pakistan | Azad Kashmir |
| | Ecuador | R. Iris | | Peru | R. Atlantido |
| 3385 | Indonesia | RRI Malang | 4792 | Ecuador | Sistema |
| | Papua NG | East New | | | Atalaya |
| | | Britain | 4795 | USSR | Ulan Ude |
| | French Guiana | RFO Cayenne | 4797 | Bolivia | R. Nueva |
| 3395 | Indonesia | RRI | | | America |
| | | Tanjungkarang | 4800 | Lesotho | RL |
| | Ecuador | R. Zaracay | | Ecuador | R. Popular |
| 3396 | Zimbabwe | ZBC | | | Indep. |
| 3607 | Japan | NHK Tokyo | 4803 | Bolivia | R. Santa Ana |
| 3815 | China | Beijing | 4805 | Brasil | R. Diff. |
| 3900 | China | Hailar | | | Amazonas |
| 3905 | Indonesia | RRI Banda | | Brasil | R. Itatila |
| | | Aceh | 4806 | Sao Tome | R. Nacional |
| 3915 | Singapore | BBC | 4810 | Galapagos | LV de los |
| 3925 | India | AIR Delhi | | | Galapagos |
| | Japan | NSB Tokyo | | Gabon | Africa #1 |
| 3930 | Transkei | Capital Radio | | Peru | R. San Martin |
| 3931 | Cape Verde | LV Sao | 4815 | Burkina Faso | R. Burkina |
| | | Vincento | | Brasil | R. Tabatinga |
| 3945 | Indonesia | RRI Denpasar | 4820 | Angola | ER da Huila |
| 3955 | UK | BBC | | Botswana | R. Botswana |
| 3958 | Falkland Is. | FIBS | | Honduras | LV Evangelica |
| 3965 | France | RFI | 4825 | Ecuador | R. Paz y Bien |
| 3975 | UK | BBC | | USSR | Vladivostok |
| 3990 | Liberia | VOA | | Guatemala | R. Mam |
| 3995 | BRD Germany | DW | | Brasil | R. Ed. |
| 3999 | Greenland | R. Gronlands | | | Braganca |
| 4000 | Cameroon | R. Bafoussam | 4826 | Peru | R. Sicutani |
| 4020 | China | Beijing | 4830 | Venezuela | R. Tachira |
| 4030 | USSR | Anadyr | 4832 | Costa Rica | R. Reloj |
| 4040 | USSR | Vladivostok | 4835 | Malaysia | Kuching |
| 4050 | USSR | Frunze | | Guatemala | R. Tezulutlan |
| 4060 | USSR | Kharkov | 4840 | Venezuela | R. Valera |
| 4250 | China | Beijing | | Kenya | Koma Rock |
| 4330 | China | Fujian Front | 4845 | Mauritania | MBC |
| | | St. | | Indonesia | RRI Ambon |
| 4460 | Peru | R. Norandina | | Bolivia | R. Fides |
| 4485 | USSR | Petropavlovsk | | Brasil | R. N. Manaus |
| 4500 | Australia | VNG | 4850 | Cameroon | R. Yaounde |
| 4607 | Indonesia | RRI Serui | | Costa Rica | R. Columbia |
| 4620 | China | Beijing | | Venezuela | R. Capital |
| 4635 | USSR | Dushanbe | 4853 | Yemen Arab | RR. Sa'an |
| 4680 | Ecuador | R. Nat. Espejo | 4855 | Mocambique | R. Maputo |
| 4682 | Bolivia | R. Paititi | 4860 | Peru | Chinchaycocha |
| 4697 | Bolivia | R. Riberalta | 4865 | China | Lanzhou |
| 4701 | Vietnam | Son-la | | Colombia | LV del |
| | | (presumed) | | | Cinaruco |
| 4719 | Indonesia | RRI Ujung | 4870 | Benin | ORTB |
| | | Pandang | 4875 | Bolivia | La Cruz del |
| 4725 | Burma | BBS | | | Sue |
| 4732 | Peru | San Juan de | | Brasil | RN Boa Vista |
| | | Caras | 4880 | RSA | SABC |
| 4735 | China | Urumqi | 4885 | Angola | ER do Zaire |
| 4737 | Mocambique | R. Maputo | | Kenya | V. of Kenya |
| 4740 | USSR | Afghanistan | | Brasil | Clube do Para |
| | | Relay | | Colombia | Ondas del |
| 4750 | Cameroon | R. Bertoula | | | Mata |
| 4753 | Indonesia | RRI Ujung | | Peru | Huancavelica |
| | | Pandang | 4890 | Senegal | ORTS |
| 4755 | Brasil | R. Educ. Rural | 4895 | Malaysia | Kuching/ |
| | Brasil | Dif. do | | | Sarawak |
| | | Maranhao | | Brasil | R. Bare |
| | Peru | R. Huana 2000 | 4900 | Ecuador | LV de |
| 4760 | Liberia | ELWA | | | Saquisili |
| | | Monrovia | | | |
| 4762 | Peru | R. Inca | | | |

U.S. Spy Flights Common Occurrence

The U.S. Air Force apparently conducts considerable aerial surveillance over Nicaragua in an effort to keep an up-to-date diary of the sequence of events in that strife-torn country.

While Captain Ricardo Wheelock, intelligence chief of the Sandinista Popular Army, says that as of mid-July the U.S. spy planes had flown 121 missions over the country, U.S. officials will only acknowledge the flights are taking place.

The planes are ostensibly equipped with photoreconnaissance, tactical, communications, and radio intelligence gathering equipment, the latter used for monitoring telephone, radio and telex communications.

frequency SECTION

LEGEND:

- * The first four digits of an entry are the broadcast start time in UTC.
- * The second four digits represent the end time.
- * In the space between the end time and the station name is the broadcast schedule.

S=Sunday, M=Monday, T=Tuesday, W=Wednesday
H=Thursday, F=Friday, A=Saturday.

If there is no entry, the broadcasts are heard daily. If, for example, there is an entry of "M," the broadcast would be heard only on Mondays. An entry of "M,W,F" would mean Mondays, Wednesdays and Fridays only. "M-F" would mean Mondays through Fridays. "TEN" indicates a tentative schedule and "TES" a test transmission.

- * The last entry on a line is the frequency. Codes here include "SSB" which indicates a Single Sideband transmission, and "V" for a frequency that varies.
- * Frequencies in bold are most likely to be heard regularly in North America.

We suggest that you begin with the lower frequencies that a station is broadcasting on and work your way up the dial. Remember that there is no guarantee that a station will be audible on any given day. Reception conditions can change rapidly, though, and if it is not audible one night, it may well be on another.

0000 UTC	[8:00 PM EST/5:00 PM PDT]			
0000-0015	Voice of People of Kampuchea	9693, 11938	0100-0200	
0000-0025	Radio Tirana, Albania.....	7065, 9760	0100-0200	
0000-0030	BBC, England.....	5975 , 6005 6120 , 6175 7325, 9410 9515, 9590 9915, 12095	0100-0200	
0000-0030	KGEI, California.....	15280		
0000-0030	Radio Berlin International..	6080		
0000-0030	Radio Canada International..	5960 , 9755		
0000-0030	M Radio Norway International..	9570, 9605	0100-0200	
0000-0045	Kol Israel.....	5885, 7410	0100-0200	
		7465, 9435	0100-0200	
0000-0050	Radio Pyongyang, North Korea	15140, 15160	0100-0200	
0000-0100	Armed Forces Radio and TV..	11790 , 15330 17715, 17765 21570	0100-0200	
0000-0100	All India Radio.....	9910, 11715	0100-0200	
0000-0100	CBC Northern Quebec Svce....	9625	0100-0200	
0000-0100	CFCX, Montreal, Canada.....	6005	0100-0200	
0000-0100	CFRX, Toronto, Canada.....	6070	0100-0200	
0000-0100	CFVP, Calgary, Canada.....	6030	0100-0200	
0000-0100	CHNX, Halifax, Canada.....	6130	0100-0200	
0000-0100	TEN Christian Science Monitor...	7365	0100-0200	
0000-0100	CKFX, Vancouver, Canada.....	6080	0100-0200	
0000-0100	KCBI, Texas.....	11910	0100-0200	
0000-0100	TES KSDA, Guam (AWR).....	15115	0100-0200	
0000-0100	TES KVOH, California.....	15250	0100-0200	
0000-0100	KYOI, Saipan.....	15405	0100-0200	
0000-0100	Radio Australia.....	15160 , 15240 15320 , 15395 17795	0100-0200	
0000-0100	Radio Baghdad.....	11750	0100-0200	
0000-0100	Radio Beijing, China.....	15445	0100-0200v	
0000-0100v	Radio Dublin International..	6910	0100-0200	
0000-0100	Radio Havana Cuba.....	6100 , 9740	0100-0200	
0000-0100	Radio Korea (South).....	15575	0100-0200	
0000-0100	Radio Moscow, U.S.S.R.....	7115 , 7175 7185 , 7400 9600 , 9720 9865 , 11845	0100-0200	
0000-0100	Radio Sofia Bulgaria.....	9700 , 11720	0100-0200	
0000-0100	Radio Thailand.....	9650, 11905	0100-0200	
0000-0100	Radio New Zealand Int'l....	11780, 15150	0100-0200	
0000-0100	RTL Luxembourg.....	6090	0100-0200	
0000-0100	Spanish Foreign Radio, Spain	6055 , 9630	0100-0200	
0000-0100	Voice of America.....	5995 , 6130 9455 , 9650 9775 , 11580 11680 , 11740 15185, 15205 15290, 15375 17740, 17820	0100-0200	
0000-0100	WHRI, Indiana.....	11770	0100-0200	
0000-0100	WRNO Worldwide.....	7355	0100-0200	
0000-0100	WYFR, Florida.....	9680 , 9715	0100-0200	
0030-0100	BBC, England.....	5975 , 6005 6075, 6120 6175 , 7325 9515, 9590 9915 , 11750 9830 , 9925 9870 , 11910	0100-0200	
0030-0100	BRT, Belgium.....	15155	0130-0200	
0030-0100	HCJB, Ecuador.....	15340	0130-0200	
0030-0100	(A) KTWR, Guam.....	3285	0130-0200	
0030-0100	Radio Belize.....	7205 , 9685	0130-0200 (W,A)	
0030-0100	Radio Kiev, Ukrainian SSR...	11790 , 13605		

0030-0100 (T-A)	Radio Portugal.....	9680		
0030-0100	SLBC, Sri Lanka.....	6005, 9720 15425 15145		
0030-0100	WINB, Pennsylvania.....	3300, 5955		
0045-0100 (M)	Radio Cultural, Guatemala...	7275		
0045-0100	Radio Korea World News Svc..	6080 , 9730		
0045-0130	Radio Berlin Intl.....	6015, 9605		
0050-0100	Vatican Radio.....	11845		
0100 UTC	[9:00 PM EDT/6:00 PM PDT]			
0100-0115	All India Radio.....	6035, 7215 9595		
0100-0115	Vatican Radio.....	6015 , 9605 11845		
0100-0120	RAI, Italy.....	9575, 11800		
0100-0125	BRT, Belgium.....	9830		
0100-0125	Kol Israel.....	5885, 7410 9435 9870 , 11910 6080 , 9730		
0100-0130	HCJB, Ecuador.....	15350		
0100-0130	Radio Berlin International..	7140, 9675		
0100-0130	Radio France International.	15235, 17810		
0100-0130	Radio Japan General Service.	7112v		
0100-0130	Radio Vientiane, Laos.....	15150		
0100-0145	Radio New Zealand Int'l....	6065, 9680		
0100-0145	WYFR, Florida.....	11855		
0100-0150	Deutsche Welle, West Germany	6040 , 6085 6145 , 9545 9565 , 11785 15425		
0100-0200	ABC, Perth, Australia.....	6030 , 11790		
0100-0200	Armed Forces Radio and TV...	15330 , 17765 21570		
0100-0200	BBC, England.....	5975 , 6006 6120 , 6175 7325 , 9515 9590 , 9755 9915 , 11750		
0100-0200	CBC Northern Quebec Svcs....	9625		
0100-0200	CFCX, Montreal, Canada.....	6005		
0100-0200	CFRX, Toronto, Canada.....	6070		
0100-0200	CFVP, Calgary, Canada.....	6030		
0100-0200	CHNX, Halifax, Canada.....	6130		
0100-0200	Christian Science Monitor...	7365		
0100-0200	CKFX, Vancouver, Canada.....	6080		
0100-0200	FEBC, Manila, Philippines..	15315, 21475		
0100-0200	KCBI, Texas.....	11910		
0100-0200	KSDA, Guam (AWR).....	15115		
0100-0200	TEN KVOH, California.....	11930		
0100-0200	KYOI, Saipan.....	15405		
0100-0200	Radio Australia.....	9535 , 9565 9770 , 15160 15240, 15320 15395 , 17715 17750, 17795		
0100-0200	Radio Baghdad, Iraq.....	11750		
0100-0200	Radio Belize.....	3285		
0100-0200	Radio Canada International..	5960, 9755		
0100-0200	(M) Radio Cultural, Guatemala...	5955		
0100-0200	TES R. Discovery, Dominican Rep.	6245v		
0100-0200	Radio Dublin International..	6910		
0100-0200	Radio Havana Cuba.....	6100 , 6140 6190, 9740 7115 , 7175 7185 , 7400 9600 , 9765 9865 , 11845		
0100-0200	Radio Moscow.....	12030 7130, 7315 11720		
0100-0200	Radio Prague, Czechoslovakia	5930 , 7345 9540, 9740 11990		
0100-0200	Radio Thailand.....	9655, 11905		
0100-0200	RAE, Argentina.....	9690 , 11710		
0100-0200	SBC Radio 1, Singapore....	11940		
0100-0200	Spanish Foreign Radio, Spain	6055, 9630		
0100-0200	Sri Lanka Broadcasting Corp.	15425		
0100-0200	Voice of America.....	5995 , 6130 9455 , 9650 9775 , 11580 11680 , 11740 11845 , 15205 15375		
0100-0200	Voice of Indonesia.....	9680, 11790		
0100-0200v	Voice of Nicaragua.....	6015v		
0100-0200	WINB, Pennsylvania.....	15145		
0100-0200	WHRI, Indiana.....	9680		
0100-0200	WRNO Worldwide.....	7355		
0130-0140	WRNO Worldwide.....	7430 , 9395 9420 9870 , 15155		
0130-0200	HCJB, Ecuador.....	9770		
0130-0200	Radio Austria International.	6025 , 6110		
0130-0200 (W,A)	Radio Budapest Hungary.....	9520 , 9835		

0130-0200	Radio Tirana Albania.....	7120, 9760		
0145-0200	Radio Korea.....	6480, 7275		
0200 UTC	[10:00 PM EDT/7:00 PM PDT]			
0200-0215	Vatican Radio.....	6145, 7125 9650		
0200-0225	Kol Israel.....	5885 , 7465 9435		
0200-0225	Radio Veritas, Philippines.	15195		
0200-0230	BBC, England.....	5975 , 6005 6120 , 6175 7325 , 9410 9515 , 9590 9915		
0200-0230	Burma Broadcasting Corp....	7185		
0200-0230	Radio Austria International.	6155		
0200-0230 (T-A)	Radio Budapest, Hungary....	6025 , 6110 9520 , 9835 12000		
0200-0230 (M-F)	Radio Canada International..	5960 , 9755		
0200-0230	Radio Korea World.....	7275, 11810		
0200-0230	Swiss Radio International...	6135 , 9725 9865 , 11925 12035		
0200-0230	Voice of Nicaragua.....	6015		
0200-0230	WINB, Pennsylvania.....	15145		
0200-0250	Deutsche Welle, W. Germany..	6035, 7285 9650, 9690 11945		
0200-0256	Radio RSA, South Africa.....	5980, 6015 9615		
0200-0300	ABC Perth, Australia.....	15425		
0200-0300	Armed Forces Radio and TV...	6030 , 11790 17765 , 21570		
0200-0300 (S)	CBC Northern Quebec Service.	6195		
0200-0300	Christian Science Monitor...	9745		
0200-0300	TEN GBC, Guyana.....	5950		
0200-0300	HCJB, Ecuador.....	6230 , 9870		
0200-0300	KCBI, Texas.....	11910		
0200-0300	TES KSDA, Guam (AWR).....	15115		
0200-0300	TEN KVOH, California.....	11930		
0200-0300	KYOI, Saipan.....	15405		
0200-0300	Radio Australia.....	15180, 15240 15395, 17715 17750, 17795		
0200-0300	Radio Belize.....	3285		
0200-0300	Radio Bras, Brazil.....	11745		
0200-0300	Radio Bucharest, Romania....	5990, 6155 9510, 9570 11810, 11940		
0200-0300	Radio Cairo, Egypt.....	9475 , 9675		
0200-0300 (T-A)	Radio Canada International..	5960 , 9755		
0200-0300	TES R. Discovery, Dominican Rep.	6245v		
0200-0300	(T-S) Radio Dublin International..	6910		
0200-0300	Radio Havana Cuba.....	6100 , 6140 9740		
0200-0300	Radio Japan.....	15420, 15195 17825		
0200-0300	Radio Korea, South.....	11810		
0200-0300	Radio Moscow.....	7115 , 7185 9600 , 9765 11845, 12050 15515 , 15425		
0200-0300	Radio Nacional do Brasil...	11745		
0200-0300	Radio New Zealand Int'l....	15150		
0200-0300	Radio Polonia, Poland.....	6095, 6135 7145 , 7270 9525, 11815		
0200-0300	Radio Thailand.....	15120 9655, 11905		
0200-0300	SBC Radio 1, Singapore....	11940		
0200-0300	Sri Lanka Broadcasting Corp.	6005, 9720 15425		
0200-0300	Voice of America.....	5995 , 6130 9455 , 9575 9775 , 11580 11675 , 11720 11950 , 15205 15375 , 15420		
0200-0300	Voice of Asia, Taiwan.....	7285		
0200-0300	Voice of Free China, Taiwan.	5985, 9680 11740		
0200-0300	WHRI, Indiana.....	9680		
0200-0300	WINB, Pennsylvania.....	15145		
0200-0300 (M)	World Music Radio.....	6910		
0200-0300	WRNO Worldwide.....	7355		
0200-0300	WYFR, Florida.....	11805		
0215-0220	Radio Nepal.....	5005		
0215-0300	Radio Berlin International..	6080 , 9730		
0230-0300	BBC, England.....	5975 , 6005 6120 , 6175 9515 , 9915		
0230-0300	CBC Northern Quebec Service.	6195		
0230-0300	Radio Netherland.....	6165 , 9590		
0230-0245				

frequency SECTION

0847-0852 (A) R. Pacific Ocean, Vladivost. 9500, 9620
9635, 9795
9810, 11710
11815, 11910
12010, 15260
15295, 17765
17815, 17850

0900 UTC [5:00 AM EDT/2:00 AM PDT]

0900-0905 Africa Number One, Gabon... 7200, 15200
0900-0915 BBC, London... 9410, 9510
9750, 12095
11750, 11860
15070
0900-0915 (S) Radio Austria International. 6000, 6155
11915
0900-0925 Radio Netherlands... 17575, 21485
0900-0930 Radio Australia... 5995, 6080
9580, 9655
9710, 11720

0900-0930 Radio Korea... 7275
0900-0950 Radio Pyongyang N. Korea... 9765, 11830
13650
0900-1000 ABC, Brisbane, Australia... 4920, 9660
0900-1000 (S) Adventist World Radio... 9670
AFRTS... 6030, 9530
9590
0900-1000 Deutsche Welle... 9690, 11945
15160, 15185
15205, 15320
17780, 17800
21560

0900-1000 FEBC, Manila... 11890, 21475
0900-1000 FEN, Tokyo... 6155
0900-1000 HCJB, Quito, Ecuador... 6130, 9745
11925
0900-1000 King of Hope, Lebanon... 6280
0900-0100 KNLS, Anchor Point, Alaska. 11850
0900-1000 Radio Afghanistan... 6085, 9590
15255, 17655
0900-1000 Radio Japan... 9675, 11875
11955, 15235
17810
9795

0900-1000 Radio Moscow... 9600, 11780
0900-1000 Radio New Zealand Int'l... 9685v
0900-1000 Radio Tanzania... 6055, 9505
11990
0900-1000 (S) SBC Radio 1, Singapore... 5010, 11940
Voice of Nigeria... 7255, 15120
15185, 17800
0900-1000 WHRI, Indiana... 7355
0900-1000 (S) WRNO Worldwide... 6185
0910-0930 (A) BRT, Belgium... 9880, 15515
0915-1000 BBC, London... 9760, 9750
11750
0930-1000 Radio Australia... 9580, 9655
9770

1000 UTC [6:00 AM EDT/3:00 AM PDT]

1000-1010 Voice of Kenya... 9665
1000-1030 Afghanistan... 6085, 9590
15255, 17655
1000-1030 Deutsche Welle, W. Germany... 7225, 9735
17765, 21600
1000-1030 Kol Israel... 11700, 13725
15640, 15650
17565, 17685
17815
1000-1030 Radio Australia... 9580, 9655
9770
1000-1030 (S) Radio Norway International... 9590, 15175
15185, 15230
1000-1030 Swiss Radio Int'l... 9560, 11745
11905, 15570
1000-1030 Voice of Vietnam... 9840, 12035
1000-1100 AFRTS... 6030, 6125
9530, 9590
9700, 11805

1000-1100 All India Radio... 11705, 11810
15320, 15335
17387, 17875
1000-1100 BBC, London... 6195, 9410
9740, 9760
11750, 12095
15070, 15280
21660
1000-1100 B.S. Kingdom Saudi Arabia... 11855v
1000-1100 CFCX, Montreal, Canada... 6005
1000-1100 CFRX, Toronto, Canada... 6070
1000-1100 CFVP, Calgary, Canada... 6030
1000-1100 CHNX, Halifax, Canada... 6130
1000-1100 CKFX, Vancouver, Canada... 6080
1000-1100 FEN, Japan... 3910, 6155
1000-1100 HCJB, Quito, Ecuador... 6130, 11925
1000-1100 KNLS, Alaska... 11930
1000-1100 Radio Dubai, UAE... 17775
1000-1100 Radio Honaire, Soloman IIs... 5020
1000-1100 Radio Moscow... 9600, 9795
13645, 13665
13680, 13705
15110, 15140
15155, 15225
15265, 15490
17625, 17645
17665, 17775
9600, 11780
6055, 9505
11990

0900-0905 WHRI, Indiana... 6910
0900-0905 (S) World Music Radio... 6185
0900-0905 (S) WRNO Worldwide... 11725, 15190
0900-0905 (S) Vatican Radio... 15120, 17780
0900-0905 (S) FEBA Radio, Seychelles... 7105
0900-0905 (S) TWR Monte Carlo... 5990, 6010
All India Radio... 6020, 6050
7110, 7250
9610, 11730
11850, 11935
9410, 9510
12095, 15070
11735, 15115
6120, 11755
15265
09630, 9715
11855, 17840
21705

0900-0905 GBC, Accra, Ghana... 3366
0900-0825 Radio Netherlands... 9630, 9715
0900-0825 Voice of Malaysia... 6175, 9750
15295
0900-0830 Radio Bangladesh... 11645, 12035
0900-0830 HCJB, Quito, Ecuador... 6130, 9745
9845, 9860
7255, 15185
0900-1000 Voice of Nigeria... 15120, 17795
0900-1000 (S) FEBA, Seychelles... 9880, 15515
0910-0930 (A) BRT, Belgium... 21810
6012
11750
0930-1000 AFAN, Antarctica... 9410, 9510
AFRTS Far East Network... 11750
0900-0900 BBC, London... 9410, 9510
0900-0900 CFCX, Montreal, Canada... 6005
0900-0900 CFRX, Toronto, Canada... 6070
0900-0900 CFVP, Calgary, Canada... 6030
0900-0900 CHNX, Halifax, Canada... 6130
0900-0900 CKFX, Vancouver, Canada... 6080
0900-0900 FEBC, Manila... 6030, 11890
21475
0900-0900 (S,A) FEN, Tokyo... 3910, 6155
0900-0900 GBC, Accra, Ghana... 3366
0900-0900 HCJB, Quito, Ecuador... 6130, 9745
0900-0900 King of Hope, Lebanon... 6280
0900-0900 KNLS, Anchor Point, Alaska. 11860
0900-0900 KTW, Guam... 11735
0900-0900 KYOI, Saipan... 15190
0900-0900 Radio Australia... 5995, 6080
9580, 9655
9710, 15395
11720, 17715
17750
1000-1030 Radio Earth (via Milan)... 7295
1000-1030 Radio Korea World News Svc... 7275
1000-1100 Radio Kuwait... 9750
6055, 9505
11990
1000-1100 Radio Pyongyang, N. Korea... 13680, 15160
15180
9670
1000-1100 RTE Portugal... 5010, 11940
1000-1100 SBC Radio 1, Singapore... 7105
1000-1100 TWR Monte Carlo... 11790, 15150
1000-1100 Voice of Indonesia... 7355
0900-1100 WHRI, Indiana... 6185
0900-1100 (S) WRNO Worldwide... 6000, 6155
1000-1100 Radio Austria Int'l... 11915, 15410
9700, 11755
1000-1100 Radio Beijing... 15440
1000-1100 Radio Prague, Czechoslovakia 11855, 17840
21705
1000-1100 All India Radio... 5960, 5970
5990, 6010
6020, 6050
6100, 7110
7125
9715
6130, 9745
11925
17575, 21485
9560, 11745
11905, 15570
6045, 6060
9580, 15395
1000-1100 Radio Netherlands... 17575, 21485
1000-1100 (S) HCJB, Quito, Ecuador... 9560, 11745
11905, 15570
6045, 6060
9580, 15395
1000-1100 Radio Australia... 6045, 6060
9580, 15395
1000-1100 (S) Radio New Zealand Int'l... 9600, 11780
Radio Prague... 6055, 9505
11990

0900-0905 WHRI, Indiana... 6910
0900-0905 (S) World Music Radio... 6185
0900-0905 (S) WRNO Worldwide... 11725, 15190
0900-0905 (S) Vatican Radio... 15120, 17780
0900-0905 (S) FEBA Radio, Seychelles... 7105
0900-0905 (S) TWR Monte Carlo... 5990, 6010
All India Radio... 6020, 6050
7110, 7250
9610, 11730
11850, 11935
9410, 9510
12095, 15070
11735, 15115
6120, 11755
15265
09630, 9715
11855, 17840
21705

0900-0905 GBC, Accra, Ghana... 3366
0900-0825 Radio Netherlands... 9630, 9715
0900-0825 Voice of Malaysia... 6175, 9750
15295
0900-0830 Radio Bangladesh... 11645, 12035
0900-0830 HCJB, Quito, Ecuador... 6130, 9745
9845, 9860
7255, 15185
0900-1000 Voice of Nigeria... 15120, 17795
0900-1000 (S) FEBA, Seychelles... 9880, 15515
0910-0930 (A) BRT, Belgium... 21810
6012
11750
0930-1000 AFAN, Antarctica... 9410, 9510
AFRTS Far East Network... 11750
0900-0900 BBC, London... 9410, 9510
0900-0900 CFCX, Montreal, Canada... 6005
0900-0900 CFRX, Toronto, Canada... 6070
0900-0900 CFVP, Calgary, Canada... 6030
0900-0900 CHNX, Halifax, Canada... 6130
0900-0900 CKFX, Vancouver, Canada... 6080
0900-0900 FEBC, Manila... 6030, 11890
21475
0900-0900 (S,A) FEN, Tokyo... 3910, 6155
0900-0900 GBC, Accra, Ghana... 3366
0900-0900 HCJB, Quito, Ecuador... 6130, 9745
0900-0900 King of Hope, Lebanon... 6280
0900-0900 KNLS, Anchor Point, Alaska. 11860
0900-0900 KTW, Guam... 11735
0900-0900 KYOI, Saipan... 15190
0900-0900 Radio Australia... 5995, 6080
9580, 9655
9710, 15395
11720, 17715
17750
1000-1030 Radio Earth (via Milan)... 7295
1000-1030 Radio Korea World News Svc... 7275
1000-1100 Radio Kuwait... 9750
6055, 9505
11990
1000-1100 Radio Pyongyang, N. Korea... 13680, 15160
15180
9670
1000-1100 RTE Portugal... 5010, 11940
1000-1100 SBC Radio 1, Singapore... 7105
1000-1100 TWR Monte Carlo... 11790, 15150
1000-1100 Voice of Indonesia... 7355
0900-1100 WHRI, Indiana... 6185
0900-1100 (S) WRNO Worldwide... 6000, 6155
1000-1100 Radio Austria Int'l... 11915, 15410
9700, 11755
1000-1100 Radio Beijing... 15440
1000-1100 Radio Prague, Czechoslovakia 11855, 17840
21705
1000-1100 All India Radio... 5960, 5970
5990, 6010
6020, 6050
6100, 7110
7125
9715
6130, 9745
11925
17575, 21485
9560, 11745
11905, 15570
6045, 6060
9580, 15395
1000-1100 Radio Netherlands... 17575, 21485
1000-1100 (S) HCJB, Quito, Ecuador... 9560, 11745
11905, 15570
6045, 6060
9580, 15395
1000-1100 Radio Australia... 6045, 6060
9580, 15395
1000-1100 (S) Radio New Zealand Int'l... 9600, 11780
Radio Prague... 6055, 9505
11990

0600-0700 Radio Moscow... 5905, 7175
7310, 7270
7300, 9490
9635, 9580
9755, 11770
11950, 12030
13605
11780
13650, 13680
11940
5020
9660
15230
15425
3990, 5995
6035, 6080
6125, 7280
9530, 9550
9670
6175, 9750
15295
6100
6910
6185
6065, 6080
7355, 7365
7400, 9455
9680, 9852.5
6140, 7155
9740, 9760
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15190, 17730
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9895, 11930
9570
6135, 7270
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5980, 7270
9585, 11900
9700, 11720
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7080, 9500
3985, 6165
9535, 9870
12030, 15430
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11940, 15250
15335, 17790
17805, 21665
11940, 15250
15335, 17790
17805, 21665
0700 UTC [3:00 AM EDT/12:00 AM PDT]
0700-0712 Radio Bucharest, Romania... 11940, 15250
15335, 17790
17805, 21665
0700-0725 Radio Tirana Albania... 9500, 11985
0700-0730 Burma Broadcasting Corp... 9730
0700-0730 BBC, London... 5950, 5975
6050, 7150
7210, 9510
15360
9535
11880v
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11780, 15150
6065, 7355
7400, 9455
11930, 13750
15340
9660
9680
15400
6005
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6030
6130
6080
11830
11850, 15350
3366
6205, 9745
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6280
6005
9555
15190
4890
5995, 9655
7295
9525
9675, 9735
11955, 15235
17810, 17855
9560
7290, 17590
17880
9655, 11905
5010, 11940
5020

0700-0800 VLM4 Brisbane, Australia... 4920
0700-0800 Voice of America... 3990, 5995
6035, 6080
6125, 7280
9550, 9670
0700-0800 Voice of Free China... 5985
0700-0800 Voice of Malaysia... 6175, 9750
15295
15120, 15185
17800
9620
6910
6185
11725, 15190
15120, 17780
7105
5990, 6010
6020, 6050
7110, 7250
9610, 11730
11850, 11935
9410, 9510
12095, 15070
11735, 15115
6120, 11755
15265
9630, 9715
11855, 17840
21705
0800 UTC [4:00 AM EST/1:00 AM PST]
0800-0805 GBC, Accra, Ghana... 3366
0800-0825 Radio Netherlands... 9630, 9715
0800-0825 Voice of Malaysia... 6175, 9750
15295
0800-0830 Radio Bangladesh... 11645, 12035
0800-0830 HCJB, Quito, Ecuador... 6130, 9745
9845, 9860
7255, 15185
0800-0830 Voice of Nigeria... 15120, 17795
0800-0845 (S) FEBA, Seychelles... 9880, 15515
0800-0855 (M-F) BRT, Belgium... 21810
6012
11750
0800-0900 AFAN, Antarctica... 9410, 9510
0800-0900 AFRTS Far East Network... 11750
0800-0900 BBC, London... 9410, 9510
0800-0900 CFCX, Montreal, Canada... 6005
0800-0900 CFRX, Toronto, Canada... 6070
0800-0900 CFVP, Calgary, Canada... 6030
0800-0900 CHNX, Halifax, Canada... 6130
0800-0900 CKFX, Vancouver, Canada... 6080
0800-0900 FEBC, Manila... 6030, 11890
21475
0800-0900 (S,A) FEN, Tokyo... 3910, 6155
0800-0900 GBC, Accra, Ghana... 3366
0800-0900 HCJB, Quito, Ecuador... 6130, 9745
0800-0900 King of Hope, Lebanon... 6280
0800-0900 KNLS, Anchor Point, Alaska. 11860
0800-0900 KTW, Guam... 11735
0800-0900 KYOI, Saipan... 15190
0800-0900 Radio Australia... 5995, 6080
9580, 9655
9710, 15395
11720, 17715
17750
0800-0900 Radio Earth (via Milan)... 7295
0800-0900 Radio Korea World News Svc... 7275
0800-0900 Radio Kuwait... 9750
6055, 9505
11990
0800-0900 (S) Radio Pyongyang, N. Korea... 13680, 15160
15180
9670
0800-0900 RTE Portugal... 5010, 11940
0800-0900 SBC Radio 1, Singapore... 7105
0800-0900 TWR Monte Carlo... 11790, 15150
0800-0900 Voice of Indonesia... 7355
0800-0900 WHRI, Indiana... 6185
0800-0900 (S) WRNO Worldwide... 6000, 6155
0830-0900 Radio Austria Int'l... 11915, 15410
9700, 11755
0830-0900 Radio Beijing... 15440
0830-0900 Radio Prague, Czechoslovakia 11855, 17840
21705
0830-0840 All India Radio... 5960, 5970
5990, 6010
6020, 6050
6100, 7110
7125
9715
6130, 9745
11925
17575, 21485
9560, 11745
11905, 15570
6045, 6060
9580, 15395
0830-0855 (M-A) Radio Netherlands... 17575, 21485
0830-0900 HCJB, Quito, Ecuador... 9560, 11745
11905, 15570
6045, 6060
9580, 15395
0830-0900 Radio Netherlands... 17575, 21485
0830-0900 Swiss Radio International... 9560, 11745
11905, 15570
6045, 6060
9580, 15395
0840-0900 Radio Australia... 6045, 6060
9580, 15395

0900-0905 Africa Number One, Gabon... 7200, 15200
0900-0915 BBC, London... 9410, 9510
9750, 12095
11750, 11860
15070
0900-0915 (S) Radio Austria International. 6000, 6155
11915
0900-0925 Radio Netherlands... 17575, 21485
0900-0930 Radio Australia... 5995, 6080
9580, 9655
9710, 11720
0900-0930 Radio Korea... 7275
0900-0950 Radio Pyongyang N. Korea... 9765, 11830
13650
0900-1000 ABC, Brisbane, Australia... 4920, 9660
0900-1000 (S) Adventist World Radio... 9670
AFRTS... 6030, 9530
9590
0900-1000 Deutsche Welle... 9690, 11945
15160, 15185
15205, 15320
17780, 17800
21560
0900-1000 FEBC, Manila... 11890, 21475
0900-1000 FEN, Tokyo... 6155
0900-1000 HCJB, Quito, Ecuador... 6130, 9745
11925
0900-1000 King of Hope, Lebanon... 6280
0900-0100 KNLS, Anchor Point, Alaska. 11850
0900-1000 Radio Afghanistan... 6085, 9590
15255, 17655
0900-1000 Radio Japan... 9675, 11875
11955, 15235
17810
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0900-1000 Radio Moscow... 9600, 11780
0900-1000 Radio New Zealand Int'l... 9685v
0900-1000 Radio Tanzania... 6055, 9505
11990
0900-1000 (S) SBC Radio 1, Singapore... 5010, 11940
Voice of Nigeria... 7255, 15120
15185, 17800
0900-1000 WHRI, Indiana... 7355
0900-1000 (S) WRNO Worldwide... 6185
0910-0930 (A) BRT, Belgium... 9880, 15515
0915-1000 BBC, London... 9760, 9750
11750
0930-1000 Radio Australia... 9580, 9655
9770
1000 UTC [6:00 AM EDT/3:00 AM PDT]
1000-1010 Voice of Kenya... 9665
1000-1030 Afghanistan... 6085, 9590
15255, 17655
1000-1030 Deutsche Welle, W. Germany... 7225, 9735
17765, 21600
1000-1030 Kol Israel... 11700, 13725
15640, 15650
17565, 17685
17815
1000-1030 Radio Australia... 9580, 9655
9770
1000-1030 (S) Radio Norway International... 9590, 15175
15185, 15230
1000-1030 Swiss Radio Int'l... 9560, 11745
11905, 15570
1000-1030 Voice of Vietnam... 9840, 12035
1000-1100 AFRTS... 6030, 6125
9530, 9590
9700, 11805
1000-1100 All India Radio... 11705, 11810
15320, 15335
17387, 17875
1000-1100 BBC, London... 6195, 9410
9740, 9760
11750, 12095
15070, 15280
21660
1000-1100 B.S. Kingdom Saudi Arabia... 11855v
1000-1100 CFCX, Montreal, Canada... 6005
1000-1100 CFRX, Toronto, Canada... 6070
1000-1100 CFVP, Calgary, Canada... 6030
1000-1100 CHNX, Halifax, Canada... 6130
1000-1100 CKFX, Vancouver, Canada... 6080
1000-1100 FEN, Japan... 3910, 6155
1000-1100 HCJB, Quito, Ecuador... 6130, 11925
1000-1100 KNLS, Alaska... 11930
1000-1100 Radio Dubai, UAE... 17775
1000-1100 Radio Honaire, Soloman IIs... 5020
1000-1100 Radio Moscow... 9600, 9795
13645, 13665
13680, 13705
15110, 15140
15155, 15225
15265, 15490
17625, 17645
17665, 17775
9600, 11780
6055, 9505
11990

frequency SECTION

2000-2030	Radio Polonia.....	7125, 7145	2100-2150	Radio Pyongyang, N. Korea...	6575, 9360	2200-2250	Voice of Turkey.....	7215, 9535
2000-2030	Radio Prague, Czechoslovakia	5930, 7345	2100-2155	BRT, Brussels, Belgium.....	11660	2200-2300	AFRTS.....	9560, 17725
2000-2030	Radio Yugoslavia.....	6100, 7240	2100-2156	Radio RSA, South Africa.....	5910	2200-2300		11790, 15330
2000-2030	Voice of Islamic Rep. Iran..	9022, 11930	2100-2200	AFRTS.....	7270, 9585	2200-2300	BBC, London.....	15345, 17765
2000-2030	Voice of Nigeria.....	7255, 11770	2100-2200		11775			21570
2000-2045	All India Radio.....	7160, 9665	2100-2200	All India Radio.....	15330, 15345			5975, 6120
		9755, 9910	2100-2200		15365, 15430			6170, 6175
		11620, 11865	2100-2200	BBC, London.....	17765			7325, 9590
2000-2100	AFRTS.....	11805, 15330	2100-2200		7412, 9665			9515, 9915
		15345, 15430	2100-2200		9910, 11620			12095, 15070
		17765	2100-2200	CFCX, Montreal, Canada.....	12095, 15070			6005
2000-2100	BBC, London.....	6175, 9410	2100-2200	CFRX, Toronto, Canada.....	15260	2200-2300 (M-F)	Radio Canada International..	6170, 7230
		9515, 12095	2100-2200	CFVP, Calgary, Canada.....	6005			11945, 15325
		15070, 15260	2100-2200	CHNX, Halifax, Canada.....	6070			11705
2000-2100	CBC Northern Quebec Service.	9625, 11720	2100-2200	CKFX, Vancouver, Canada.....	6030	2200-2300	Radio Havana Cuba.....	6480, 7550
2000-2100	CFCX, Montreal, Canada.....	6005	2100-2200	CKFX, Vancouver, Canada.....	6130	2200-2300	Radio Korea.....	7400, 9490
2000-2100	CFRX, Toronto, Canada.....	6070	2100-2200	Falkland Islands Bcast Svc..	6080		Radio Moscow.....	9610, 9720
2000-2100	CFVP, Calgary, Canada.....	6030	2100-2200	FEN, Tokyo.....	2380, 3958			9820, 9880
2000-2100	CHNX, Halifax, Canada.....	6130	2100-2200	KCBI, Texas.....	15260			11950, 12030
2000-2100	CKFX, Vancouver, Canada.....	6080	2100-2200	King of Hope, Lebanon.....	11735	2200-2300	Radio Pyongyang, N.Korea...	11735
2000-2100	CKZV, Canada.....	6160	2100-2200	KVOH, California.....	6280	2200-2300	Radio Sofia Bulgaria.....	15330
2000-2100 (M-F)	KCBI, Texas.....	11735	2100-2200	KYOI, Saipan.....	17775	2200-2300	Spanish Foreign Radio.....	5960, 6020
2000-2100	King of Hope, Lebanon.....	6280	2100-2200	KYOI, Saipan.....	9670			7105
2000-2100	KVOH, California.....	17775	2100-2200 (M-F)	Radio Baghdad, Iraq.....	7170	2200-2300	Voice of America.....	15185, 15290
2000-2100	KYOI, Saipan.....	9670		Radio Canada International.	11945, 11960			15305, 15415
2000-2100	Radio Kuwait.....	11675	2100-2200v	Radio Jamahiriya, Libya.....	15325			15580, 17740
2000-2100	Radio Moscow.....	11675, 11840	2100-2200		6155, 7195			17775, 17800
		17800	2100-2200	Radio Moscow.....	9635, 11815	2200-2300	Voice of Free China, Taiwan.	9955, 15440
2000-2100	R. Nacional, Equator Guinea	15106v	2100-2200 (M-A)	Radio Nacional Angola.....	12030, 12050			17845
2000-2100	Radio New Zealand.....	11780, 15150	2100-2200	R. Nacional, Equat. Guinea.	11770, 11840	2200-2300	WHRI, Indiana.....	9770
2000-2100	Radio Pyongyang, N. Korea...	6575, 7105	2100-2200 (F,A)	Radio Zambia.....	15425	2200-2300	WRNO Worldwide.....	9852.5
		9345, 9977	2100-2200	RTL, Luxembourg.....	9535, 7245	2200-2300	WYFR, Okeechobee, Florida..	11830, 11855
2000-2100	Radio Zambia.....	9505	2100-2200	Voice of Africa (Cairo)....	15106v			15055, 17750
2000-2100	Voice of America.....	15300, 15410	2100-2200	Voice of America.....	9505	2205-2230	Vatican Radio.....	21525
		15445, 15580	2100-2200		6090			6015, 9615
		17785, 17870	2100-2200		15375	2215-2230	Radio Yugoslavia.....	11830
2000-2100	Voice of Turkey.....	7215	2100-2200		7445 LSB			6100, 7240
2000-2100	WHRI, Indiana.....	15310	2100-2200	Voice of Asia.....	9760, 11740	2230-2300 (S)	CBC Northern Quebec Service.	9625, 11720
2000-2100 (S,A)	WINB, Red Lion, Penna.....	15185	2100-2200	Voice of Free China,Taiwan.	11760, 15205	2230-2300	Kol Israel.....	7410, 9435
2000-2100	WRNO Worldwide.....	15420	2100-2200	Voice of Nigeria.....	15410, 15445	2230-2300		9815, 9860
2000-2100	WYFR, Okeechobee, Florida..	9535, 11830	2100-2200	WHRI, Indiana.....	17800, 17870	2245-2300		11960, 12025
		11875, 15170	2100-2200	WRNO Worldwide.....	7445, 9845			6110
2000-2030	Kol Israel.....	7465, 9435	2100-2200	WYFR, Okeechobee, Florida..	15440, 17845	2230-2300 (S)	Radio Mediterran, Malta.....	7245, 9535
		11610, 12080	2100-2200		15120		Radio Nacional Angola.....	5995, 6135
2005-2100	Radio Damascus Syria.....	7455, 12085	2100-2200		7215		Radio Polonia.....	7125, 7270
2010-2100	Radio Havana Cuba.....	17885	2100-2200		9770	2230-2300	Swiss Radio International..	6190
2015-2100	ELWA, Liberia.....	11830	2100-2200		11705	2245-2300	All India Radio.....	6035, 7215
2015-2045	RAI, Italy.....	7235, 9575	2100-2200		9535, 11830			9595, 9912
		11800	2105-2200		11875, 21525			11765
2030-2100	Falkland Islands Bcast Svc..	2380 / 3958	2115-2145	Radio Damascus, Syria.....	9950, 12085	2245-2300	GBC1 Ghana.....	4915
2030-2100	IBRA Radio.....	6110	2130-2200 (T,F)	Radio Cairo.....	9805			
2030-2100	Radio Australia.....	6035, 6045	2130-2200 (S-F)	BBC Falklands Service.....	9915, 11820	2300 UTC	[7:00 PM EDT/4:00 PM PDT]	
		6080, 7215	2130-2200		12040, 15390			
2030-2100	Radio Beijing.....	9580, 9620	2130-2200	CBC Northern Quebec Service.	9625, 11720	2300-2330	BBC, London.....	5975, 6005
		6955, 7480	2130-2200	HCB, Quito, Ecuador.....	15270, 17790			6120, 6175
2030-2100	Radio Canada International.	9440, 9895	2130-2200	KGEI, San Francisco, CA....	15280			7325, 9410
		11945	2130-2200	Kol Israel.....	9009, 9435			9590, 9915
2030-2100	Radio Netherland.....	9540, 9715	2130-2200		9815, 9860			12095, 15070
		9695, 11740	2130-2200	Radio Austria International.	11960, 12080			15435
2030-2100 (M-F)	Radio Polonia.....	6095, 7285	2130-2200	Radio Australia.....	13725	2300-2330	Kol Israel.....	7410, 9435
2030-2100	Radio Portugal.....	9740, 11790	2130-2200		5945, 6000			9860
2030-2100	Radio Sofia, Bulgaria.....	9700	2130-2200	Radio Australia.....	9670	2300-2345	Radio Berlin Int'l.....	6080, 9730
2030-2100	Radio Tirana, Albania.....	7065	2130-2200		15150, 15160	2300-2330	Radio Canada International..	9755, 11710
2030-2100	Voice of Africa (Cairo)....	15375	2130-2200	Radio Canada International.	15395	2300-0000	Radio Japan General Service.	7140, 9645
2030-2100	Voice of Nigeria.....	11770	2130-2200		17795			9675, 11815
2030-2100	Voice of Vietnam.....	10040, 12020	2130-2200	Radio Prague.....	11945, 15150			15235
		15010v	2130-2200	Radio Sofia, Bulgaria.....	17820	2300-2330	Radio Sweden International..	9695, 11705
2045-2100	All India Radio.....	7160, 9550	2130-2200	Swiss Radio International...	6055	2300-2345	WYFR, Okeechobee, Florida.	15400
		9665, 9910	2130-2200	WCJB.....	11720, 15330	2300-2350	Voice of Turkey.....	6105, 7215
		11620, 11870	2130-2200		9590, 9885			9560, 9730
2045-2100	Vatican Radio.....	9625, 11700	2200 UTC	[6:00 PM EDT/3:00 PM PDT]	17795	2300-0000	4VEH, Haiti.....	4930
		11760, 15120	2200-2205	Radio Damascus, Syria.....	9950, 12085	2300-0000 (A)	AFRTS.....	11790, 15330
2100 UTC	[5:00 PM EDT/2:00 PM PDT]		2200-2207	Voice of America.....	11740, 15160			15345, 17765
2100-2105	Radio Damascus Syria.....	7455, 9950	2200-2210	Radio Sierra Leone.....	17730, 17775			21570
2100-2115	Radio New Zealand Int'l....	11780, 15150	2200-2215	Radio Tirana Albania.....	5980			9625, 11720
2100-2220	ELWA, Liberia.....	11830	2200-2225	Radio Yugoslavia.....	7065, 9480			6005
2100-2125 (S-F)	CBC Northern Quebec Service.	9625, 11720	2200-2225	RAI, Italy.....	6100, 9670			6070
2100-2125	Radio Beijing.....	9440	2200-2225		9710, 11800			6030
2100-2125	Radio Netherland.....	9540, 9715	2200-2225	All India Radio.....	15330			6130
		9695, 11740	2200-2230		7160, 9550			6080
2100-2130	Radio Finland.....	6120, 11755	2200-2230 (S-F)	CBC Northern Quebec Service.	9625, 9755			6160
2100-2130	Radio Australia.....	6080, 9580	2200-2230 (S)		11720			2380 / 3958
		9620, 15160	2200-2230	Radio Berlin International..	6125			15320
		15395, 17795	2200-2230	Radio Canada International..	5960, 9755			15250
2100-2130	Radio Bucharest, Romania....	6055, 7145	2200-2230	Radio Norway International..	9590, 9610			15405
		7195, 9690	2200-2230	Radio Vilnius, Lithuania SSR	7165, 7400			15160, 15240
2100-2130	Radio Japan General Service.	7140, 9675	2200-2230		9800, 11750			15320, 15395
		11815	2200-2245	Radio Cairo, Egypt.....	11860, 15100			17725, 17795
2100-2130	Radio Sweden International.	11845, 11955	2200-2245	WINB, Red Lion, Penna.....	9805			11700
2100-2140	Radio Havana Cuba.....	11725, 15300	2200-2250	Radio Jamahiriya, Libya....	6155			7140, 9645
2100-2150	Deutsche Welle, West Germany	6010, 7130						9675, 11815
		9675, 9765						15235
		11815						9640, 9665
								9685, 9800
								11790, 11875
								13605

frequency SECTION

2300-0000	Radio Korea, South.....	15575
2300-0000	Radio Moscow.....	7115, 7175 7195, 7400 9610, 9720 9735, 9765 9865, 12030 12050, 12060 13665, 15425 17850
2300-0000	Radio Prague, Czechoslovakia	15478 LSB 6055, 9630
2300-0000	Radio Pyongyang, N. Korea..	11735, 13650
2300-0000	Radio Sofia Bulgaria.....	11720, 15330
2300-0000	Radio Thailand.....	9650, 11905
2300-0000	RTL, Luxembourg.....	6090
2300-0000	Voice of America.....	9640, 11740 15160, 15185 15290, 17730 17740, 17820
2300-0000	WHRI, Indiana.....	11775
2300-0000	WRNO Worldwide.....	9852.5
2300-0000	WYFR, Florida.....	6300, 7485
2330-0000	BBC, London.....	11830, 11855 5975, 6120 6175, 7325 9590, 9915 12095
2330-0000 (S-F)	Radio Canada International..	5960, 9755
2330-0000	Voice of Vietnam.....	9840, 12035
2335-2345	Voice of Greece.....	9395, 11645
2345-0000	Radio Berlin Int'l.....	6080, 9730
2345-0000	Radio Korea, South.....	7275

The MT Monitoring Team

West Coast:

Mr. Gunner Danneels, WA
Jim Young, CA

East Coast:

Joe Hanlon, PA
Greg Jordan, NC

Midwest:

Rich Foerster, NE

Frequency updates from readers are also welcome and should be sent to:

Larry Miller, Frequency Coordinator
Monitoring Times
P.O. Box 691
Thorndale, PA 19372

All frequencies in this list have been heard by one or more MT monitors during July and early August.

Unadilla Sold

The Unadilla division of the Microwave Filter Company was recently sold to Antennas, Etc., of Andover, Massachusetts. Unadilla was a popular source of antenna supplies including balun transformers, coax switches and relays, and antenna kits.

The famous W2AU balun transformer, popular among hams for over two decades, was one of their products and was featured last month in the Experimenter's Workshop column.

Hobbyists wishing to contact Antennas, Etc. may write to them at P.O. Box 215BV, Andover, MA 01810 or phone them at 617-475-7831. The Unadilla product line is being continued without alteration.



GROVE'S USED EQUIPMENT SALE



All equipment subject to prior sale. Prices include 90 day limited warranty and UPS shipping. For charge orders, C.O.D., or to reserve equipment for 5 days pending arrival of payment call 1-704-837-9200. Send check or money order to

GROVE ENTERPRISES, INC.
P. O. BOX 98
BRASSTOWN, NC 28902

RECEIVING EQUIPMENT

(Cost is the lowest advertised retail price)

RADIO SHACK PRO 2020 PROGRAMMABLE SCANNER (30-50, 108-136, 138-174, 410-512 MHz); priority; whip, AC and DC cords, manual. Excellent condition. Cost \$279, sell \$169.

BEARCAT BC210XL SCANNER - very good with AC cord, whip, manual, and original carton. Cost \$225, sell \$119.

BEARCAT BC800XLT PROGRAMMABLE SCANNER - only two months NEW! Includes all original accessories and carton. Cost \$319, sell \$249.

YAESU FRG7700 GENERAL COVERAGE RECEIVER (100 kHz - 30 MHz) perfect except for slight paint mar on cabinet top. Cost \$399, sell \$249.

PANASONIC RF-4800 GENERAL COVERAGE RECEIVER - 530 kHz - 30 MHz AM/SSB, 88-108 MHz FM. Excellent, \$169.

REGENCY HX1200 HAND-HELD PROGRAMMABLE SCANNER - 45 channels, like new; flex whip, NICAD batteries and charger, carrying case, belt clip, original carton. Cost \$209, sell \$149.

REGENCY HX2000 HAND-HELD PROGRAMMABLE SCANNER with 800 MHz band; like new; includes flex whip, AC charger, carrying case, original box. Cost \$159, sell \$99.

BEARCAT BC-250 PROGRAMMABLE SCANNER, new with warranty. Cost \$269, sell \$199.

RADIO SHACK PRO-30 HAND-HELD PROGRAMMABLE SCANNER; excellent, with flex whip, NICAD batteries, charger, original box. Cost \$199, sell \$99.

BEARCAT BC-100XL HAND-HELD PROGRAMMABLE SCANNER. Excellent, has flex antenna, NICAD batteries and charger, leather case, no manual. Cost \$199, sell \$149.

BEARCAT THIN SCAN 6-CHANNEL PORTABLE SCANNER, excellent; with flex whip, belt holster, NICADS and charger, manual, original box and crystals for 42.06, 42.22, 153.89, 155.13, 155.34, 155.37 and 155.73. Cost \$149, sell \$59.

J.L. SX-400 WIDE SPECTRUM PROGRAMMABLE SCANNER - 26-520 MHz AM/FM continuous coverage with heavy-duty power supply; excellent with manual. Cost \$400, sell \$299.

ACCESSORIES

EYE-COM MICROFICHE READER, like new with manual and dust cover. Cost \$140, sell \$99.

MODUBLOX SRPK-01 SOLAR BATTERY PACK: 12.5 V, 10 AH capacity; 18 V, 0.45A solar panel; metered output/charge rate, rugged carrying case with leather cover, new condition with manual. Cost \$1500, sell \$750.

TEST EQUIPMENT, PARTS, TOOLS ALSO AVAILABLE. For complete list of receiving equipment, accessories, etc., please send self-addressed stamped envelope to Grove Enterprises, P.O. Box 98, Brasstown, NC 28902.

Products which Grove is interested in trading for

Bearcat BC300 scanners, Drake 4245 shortwave receiver, JRC NRD505 shortwave receiver, Uniden CR2021 shortwave receiver, Regency MX7000 scanner, Bearcat 100 scanner, Icom R71, NRD515 and Drake R7 or R7A shortwave receivers, Sony CRF330K shortwave receiver, Bearcat BC350 scanners, Bearcat BC250 scanners, Infotech M600 RTTY readers.

Call 1-704-837-9200 for a used equipment trade agreement if you are interested in swapping!



GETTING STARTED

Ike Kerschner
RD 1 Box 181-A
Kunkletown, PA 18058

RTTY READER ROUNDUP

History

Landline (wire) teletype had been in service many years prior to WWII; however, radioteletype was in its infancy and mainly in use by the military to keep in touch with ships at sea and overseas posts. Early equipment was not reliable and was plagued by breakdowns and garbled messages.

The military was quick to realize that radioteletype ("RATT," as they call it) was the answer to their need for accurate high speed communications. In addition it was easy to train an average person to use the equipment as opposed to training an operator in Morse code; so, in the late 1930's, they began a program to develop RATT to a high degree of reliability and by WWII had largely succeeded in this goal.

Obtaining a Machine

Demand for machines by the military, commercial news services and shipping companies was so great that it was almost impossible for an individual to obtain one. Not until after the Korean conflict did it become fairly easy to pick up an older teletype machine to experiment with.

The Army and Navy began to phase out the WWII machines in 1946 through the Military Affiliated Radio System (MARS). From this source radio amateurs all over the U.S.A. began to obtain machines and put them on the air to handle messages, both for the MARS and National Traffic System.

Hams soon learned it was fun to "ragchew" using radioteletype (called "RTTY" by them) and the new mode began to catch on. About 1965 it became possible to purchase new machines and machines being phased out by commercial services (fig. 1), and a few SWL's were able to get machines operating.

Additional Equipment Required

In addition to a teletype machine, the early experimenters needed a demodulator to convert the RTTY (Baudot code) to the electrical impulses required to operate their machines. A few lucky MARS members were able to obtain military



Figure 1
Model 33 Teletype Machine

demodulators but the bulk of the early RTTY'ers built their own.

Another very necessary item was paper--as many rolls of teletype paper as you could lay hands on because the machine ate it by the ton!

The third piece of equipment needed was a good stable receiver; if your receiver was not stable a steady hand was required to keep the RTTY station in tune to prevent garbled messages. Popular receivers among the RTTY group of the day was the Collins 51J series and Hammarlund Super Pro; they were heavy, ugly and expensive, but they were stable and accurate.

Difficulties

Early machines were restricted to one speed--60 wpm--which was OK as long as everyone used the same standard; but as stations in other countries came on the air different standards began to show up. A mechanically inclined individual could change a machine to read another standard and, with a few tricks, could copy two speeds on one machine, but the easier solution was to use a machine for each speed.

Another shortcoming of the early RTTY station was noise; even with the noise-reducing covers in place on a machine it still created a din that would drive a visitor out of the shack in short order, and two machines running could ruin a marriage faster than another woman!

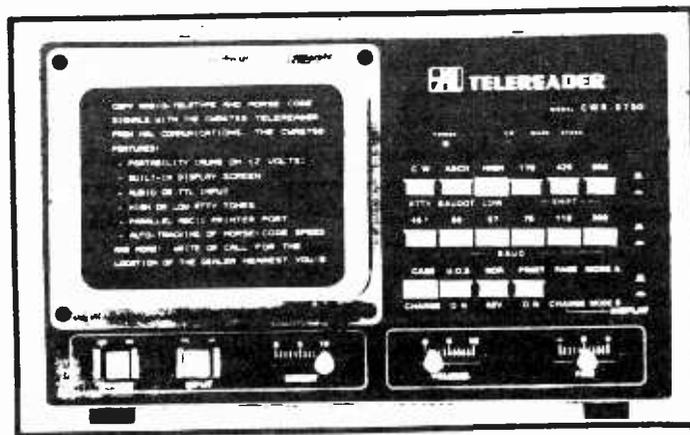


Figure 2
Hal 6750 Stand-alone TU

Comes the revolution...

Digital electronics brought the answers to many of the RTTY'ers problems. In the early 70's it was possible to purchase a stand-alone unit that would both receive and transmit RTTY, display the message on a video screen and produce no noise at all. The paper requirement was a thing of the past and the unit could transmit or receive any speed or standard.

Early stand-alone units were expensive, but as integrated circuits (IC's) began to replace discrete components, costs began to drop. Today it is possible to purchase a top-of-the-line unit for about \$500.00 (figure 2).

The advent of the home computer gave RTTY SWLing a real boost. If you have a computer it is possible to receive teletype signals for under \$100.00; in fact, for a few dollars more, you can purchase a unit that will both send and receive RTTY using your home computer.

Today's Radioteletype

Today there are several codes and standards for sending teletype (perhaps "teleprinter" would be more accurate) signals over the air. The most common is still the Baudot code; usual speeds for Baudot code are 60, 67, 75 and 100 wpm.

AMTOR (Amateur Teleprinting Over Radio) is a new form of RTTY that has been legal in the USA since 1983. AMTOR is rapidly gaining in popularity because it is error free.

A third popular teleprinter code is ASCII (American Standard Code for Information Interchange); this is the code that computers use to talk to each other.

Speeds of ASCII transmissions are quite high, with 100 and 300 wpm being normal, 600 and 1200 wpm are showing up, and some stations are sending speeds up to 2400 wpm. Higher speeds are possible but are not common on radio circuits.

What will I need to receive RTTY?

A stable receiver is the main requirement for receiving teleprinter signals. Given the speed that many teleprinter messages are sent at slight drift can cause large losses of text.

Next, you will need a terminal unit of some kind, either a stand-alone unit or an interface for your home computer. Stand-alone units are great, but rather expensive for the casual listener. The computer interface is the most popular among SWL's. Software for the computer will also be needed.

Total price for an interface and software should be about \$100.00. For this price you will be able to copy Baudot, ASCII and Morse code on your home computer. The basic system will let you copy news service, ship traffic, military, weather service and amateur radio RTTY signals. Options that are available are high speed ASCII and AMTOR this will add around fifty to seventy dollars to the basic price.

Of course, if you do not have a computer you will need to purchase one if you intend to go that route. This can cost from about \$350.00 up depending on the system you choose. Remember, though, that a computer will be a valuable addition to your home/shack and will do far more for you than receive RTTY signals.

One of the better buys in a computer for the SWL or Ham is the Commodore 64. I suggest this unit for several reasons; first is cost and second is the high number of interesting and worthwhile programs available. One difficulty with using a computer for copying RTTY is the fact that the computer may cause interference on some frequencies. Usually this is not a serious problem and can be eliminated easily.

I have been able to test three inexpensive RTTY systems that will be of interest to the newcomer. One is a stand-alone system the other two are computer interface units.

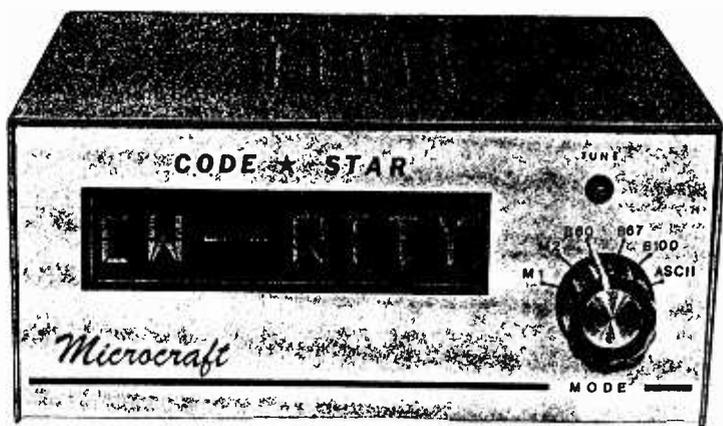


Figure 3
Microcraft Code Star

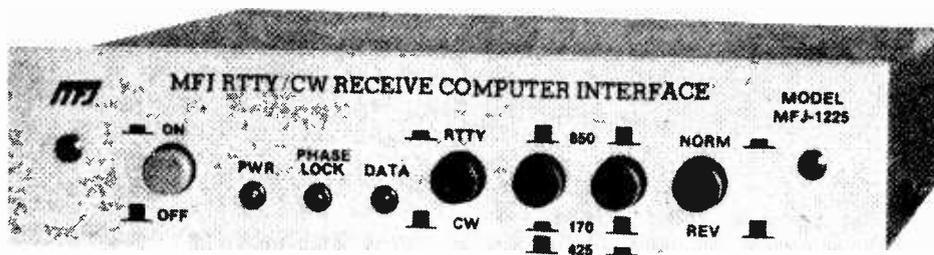


Figure 4
MFJ 1225 Computer Interface

Microcraft (figure 3)

The stand-alone unit is the Microcraft Code Star which copies Morse, Baudot and ASCII codes. The Code Star will copy Morse to 70 wpm, Baudot to 100 wpm and ASCII at 100 wpm.

The readout on this unit is via alphanumeric LED display and the message reads across the face of the unit much like the marquee on a theatre, appearing on the left and moving to the right. I found this a little difficult to adjust to. The gentlemen the unit belonged to said "it is not a problem after using the system for a few days."

There is an optional ASCII output port which will allow you to attach this unit to a model ASR 33 teletype machine for hard copy of the text.

I found the unit to be quite acceptable for RTTY use as long as signals were about S7. Morse code was also acceptable as long as signal levels were S7 or greater. I did not hear any ASCII signals using this unit.

At a price of \$129.00 in kit form or \$169.00 wired and tested, this is a nice way to get started. The optional ASCII output port kit sells for \$49.95 or \$69.95 wired and tested. Code Star is available from Microcraft Corporation, P.O. Box 513, Thiensville, Wisconsin 53092.

MFJ 1225 Computer Interface (figure 4)

If you own a computer, this little gem is for you. At a price of \$69.95 it will copy all speeds of RTTY (Baudot and ASCII) and Morse code. It does a decent job at signal levels down to S5. You will need software for this

unit unless you own a C64 (in which case software is included free).

Software will cost from \$20 to \$50 depending on the degree of sophistication you desire, Kantronics Hamsoft worked great on my Apple II+. The 1225 also does a remarkable job of copying Morse code. Available from MFJ, P.O. Box 494, Mississippi State, Mississippi 39762. Kantronics Software is available from EGE, Inc. Call 800-336-4799 for price and info.

Microlog SWL (fig. 5)

Here is a real gem; at \$64.00 this unit is designed for use with the Commodore 64, 128 or Vic 20. It comes complete with all cables and software is built in. Simply plug the unit into the game port on your Commodore, connect the cable and you are ready to copy RTTY.

I loaned this unit to four friends; one was a very experienced radio amateur, another was a new amateur and two were brand new SWL's. In no case did it take more than a few minutes to hook up. A half hour reading the instruction manual and they were copying RTTY. Everyone had about the same comment on this unit: "Terrific"! This device has many neat functions built into it such as a 128K character memory.

I was very pleased with the SWL's ability to copy all types of code



Figure 5
Microlog SWL RTTY Cartridge

signals and its performance on weak, noisy signals is outstanding. I recommend this unit highly! It is available from Microlog Corp., 18713 Mooney Drive, Gaithersburg, Maryland 20879.

One other useful item for the SWL who is getting into RTTY is the book Short Wave Directory by Bob Grove and available from Grove Enterprises, Inc., P.O. Box 98, Brasstown, North Carolina 28902. This book lists active RTTY frequencies between 1.6 and 30 MHz.

There is much more to be said about RTTY, and we will discuss this interesting subject further in a future column.

CONTEST

Would you be interested in entering an SWL contest? If so please write to me at the above address, let me know what you think about a contest and how you would like to see it run.

Presently, I am leaning toward a contest on the amateur radio bands only. Perhaps run the SWL contest in conjunction with the ARRL DX contest with SWL RULES similar to the rules for amateurs participating in the contest. This would leave out utilities and SWBC stations. If you have any ideas on how these services could be incorporated into a contest I would like to hear from you.

MT will sponsor the contest and offer prizes and awards to the winners.

That's all for this month, gang; keep the cards and letters coming. Please remember to send a self-addressed stamped envelope if your letter requires a reply. 73, Ike

L.A. Plans Comm Update

Negotiations have been finalized between the Los Angeles County Sheriff's Department and ElectroCom Automation for a \$58.8 million communications system. The new equipment will allow simultaneous networking of 55 channels over 44 radio sites to cover 21 sheriff stations. The service will assist over 7 millions residents of a 4000 square mile area.

To be completed in phases, the system should begin operating in about two and one half years, utilizing computer dispatch of 1659 128-channel mobile radios and 2210 64-channel hand-helds.

Mobile data terminals will be emphasized in the new design with eight dedicated frequencies. The new block of channels was made available by reassignment of UHF-TV channel 16 (482-488 MHz), receivable on standard high band scanners.

More Stations in Canada than U.S.

According to a Canadian federal government report, by 1979 Canada had more radio stations, including repeaters, than the United States--which has ten times the population!

Clear signals may be received at almost every residence in the country because it is the only way to reach people spread across a land with different languages, distant communities and whole regions distinct from others. (Martin Barry, Montreal)

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C.O.D.'s Acceptable

We welcome short, useful listening hints, tips on equipment use, hard-to-find sources, etc.; Let others profit by your hard-won experience!

Modify Your ICOM R7000 to Scan and Search Faster

Bob Parnass, AJ9S

This article describes how to increase the scan and search speeds of the ICOM R7000 receiver by 60% without noticeable performance degradation.

BACKGROUND

The front panel SCAN SPEED control on the R7000 receiver allows the user to adjust the speed of scanning and searching operations, as well as the rate at which the priority channel is sampled. Rotating the control counterclockwise decreases the speed, and rotating it clockwise increases the speed.

When the SCAN SPEED control on my R7000 (serial number 001400) was turned fully clockwise, the radio would scan a maximum of about eight channels/second, or search about eight increments/second. As the following table shows, the stock R7000 can scan about as fast as a Radio Shack PRO-30 or PRO-2003.

The scan rate of the R7000 is determined, in part, by a simple clock outside the microprocessor. The front panel SCAN SPEED rheostat and resistor R18 (and other components in the LOGIC UNIT) control the speed of this clock. The clock output is connected to what appears to be an input port on the microprocessor. The upshot is that we can affect the scan rate without affecting the other chores performed by the microprocessor.

The modification consists simply of soldering a 470,000 ohm resistor across the leads of resistor R18 on the LOGIC UNIT circuit board.

How was the value of 470,000 ohms chosen? Experimentation with different resistor values showed that for values both above and below 470,000 ohms, the R7000 scan rate decreases. Not having the R7000 Service Manual, I assume this can be explained by the firmware within the microprocessor associated with the scan rate input port.¹

Adding the 470,000 ohm resistor in parallel with R18, rather than just replacing R18, has a few advantages:

1. The modification is easily undone, returning the radio to stock condition.
2. The LOGIC UNIT board does not have to be removed, as would be the case if R18 was unsoldered from the foil side.

MAKING THE MODIFICATION

Accessing this circuit board is not difficult, and involves the same steps used when installing the optional Remote Controller or Speech units.

Use a towel to cover your work area to avoid scratching the R7000 cabinet. Unplug the R7000 from the AC line, and turn the radio upside down. Remove the bottom cover by removing the 12 screws holding it in place.

Remove the four screws holding what ICOM terms the "partition panel." Picture on pages 32 and 34 of the R7000 Instruction Manual show the partition panel. After removing this panel, the component side of the LOGIC UNIT circuit board is accessible.

Locate R18, a 270,000 ohm 1/8 watt resistor, near connector J5. You may wish to remove plug P5 from J5 temporarily if it gets in your way. Carefully solder a 470,000 ohm resistor in parallel with R18. I used a 1/4 watt resistor as it was the smallest on hand.

Reassemble the radio, connect it to AC power and antenna, and enjoy.

In the modified R7000, the scan and search rates are still adjustable using the SCAN SPEED control. With the control turned fully clockwise (maximum speed), the modified R7000 scans at about 13 channels/second and won't miss weak signals.

1. Perhaps the firmware polls the scan rate input port infrequently. Another possibility is that the scanning pulses interrupt the processor, and the interrupt firmware is limited in its ability to process frequent interrupts.

Another Report on the MX5000/7000 Speed Modification

Larry Wiland, Youngstown, OH

Having just made the modification to increase scan/search speed on my MX-7000 (as per the article by David Cook in the May 1986 issue of MT), I decided to try it on the MX-5000. It WORKS!

Having experimented with eight different-value resistors between 27K-ohm and 68K-ohm, the resistor which works the best (causes the very least microprocessor noise pickup; quiets the keyboard beep the most acceptably, and makes for the "smoothest" scan speed) is 47K-ohm.

This resistor also retains the scanner's memory for several hours in the event of a power loss. The radio scans all 20 channels in about 2-1/2 seconds, and gives a very acceptable search speed.

As the noise from the microprocessor is picked-up by the whip antenna which comes with the unit, merely connecting the radio to an outside antenna eliminates the noises virtually completely. Curiously, adding a 90-degree BNC adaptor elbow BETWEEN the chassis-mount antenna jack and the radio's little whip antenna decreases noise a bit also. Doing so locates the "stock" antenna slightly outboard of the radio, which may locate it far enough away from the microprocessor to make a difference.

I also tried a "rubber duck" antenna (off of a handheld scanner) with the "N-elbow," which also works very well and eliminates even more noise. Not only that, it makes the radio fit in a smaller area and look very "professional." Best results, of course, were with the outdoor antenna all-around.

Also, I should make note that it is possible to remove resistor R-6 completely from this radio, rather than to "jump across it and leave it in place." Doing so GREATLY eliminates RF which will still be very prevalent if you "jumper" it. Remove it and REPLACE it with the 47K-ohm resistor, as there is JUST enough room to get a soldering gun in there (unlike the MX-7000).

And it works, as I now own a wideband SCANNER instead of a scanning "boat anchor." I'm listening to my "new" MX-5000 as I type this letter.

(Grove Enterprises offers the Regency speed modification for the MX5000, 5500 and 7000 for \$29 including return UPS shipping...Bob)

Accurate Signal Level Readings on the R7000

One of our stalwart experimenters, Rene Borde, has taken the time to calibrate his ICOM R7000 receiver S-meter against standard signal levels in order to derive a chart for his reference. Rene shares this with fellow MT readers.

ICOM R-7000 S-METER READINGS (Standard Values)

S-Meter	Microvolts into 50 Ohms
1	0.2
2	0.4
3	0.8
4	1.6
5	3.2
6	6.4
7	12.6
8	25.0
9	50.0
9 +5 dB	85.0
+10	160.0
+15	270.0
+20	500.0
+25	850.0
+30	1600.0
+35	2700.0
+40	5000.0
+45	8500.0
+50	16,000.0
+55	27,000.0
+60	=50,000.0

S9 is equal to a steady signal input of -73 dBm

TABLE 1. Maximum Scan Rates of Selected Receivers

Scanner	Maximum Scan Rate (channels/second)
Kenwood TR-2600	1.2
Radio Shack PRO-30	8
Radio Shack PRO-2003	8
ICOM R7000 (stock)	8
ICOM R7000 (after modification)	13
Regency M400	13
Bearcat 20/20	15
Bearcat 300	15

ICF-2010 User Hints

Gary Bourgois WBE0H
429 Spring Street
Marquette, Michigan 49855

In an old *MT*, one of your reviewers said that Grove would not be carrying this set, and though he had never used nor listened to one, he made the comment that since the receiver's SSB reception had no fine tuning, but was dependent upon the synthesizer for frequency, the 100 Hz increments would not allow "natural" sounding reception of SSB.

I must say to this individual, "Hogwash!" I have had my ICF-2010 for five months now, and I can say it has the best sounding SSB I have ever heard. Indeed, I would compare it to AM for lack of distortion and smoothness.

One must remember that most utility stations are assigned frequencies accurate to 100Hz such as one of my favorites, 8291.1 marine simplex; only on rare occasion do I touch the knob to reset it 100 Hz either way if a station is off frequency. Never have I wished for any "finer" tuning. I make my living with audio, so if it sounds natural to these ears, it is natural.

I am a ham operator (WB8EOH) and have had *many* receivers over the years, but the SONY has become my favorite. It truly is a communications receiver that can be held in one hand. The convenience of the memory button layout, ease of the synchronous detector has spoiled me. I can't stand to listen to the selective fading distortion and heterodyne whistles present on my more expensive receivers. I take the set everywhere and find it does not "eat batteries" like the earlier SONY digital sets.

One thing that I have not seen mentioned anywhere is a "trick" that the synchronous detector is capable of. When you tune in an SSB feeder station (like VOA), instead of punching to USB or LSB to tune in the signal, the synchronous detector may be used to demodulate these signals to *perfect* audio signals. No distortion, no weird "sidebandy" sound, but perfect modulation.

Using the manual tuning knob, it is easy to switch between upper and lower sideband (indicated on the lock light), and when there are two programs present, either can be selected and the other **TOTALLY** eliminated. As a bonus, the signal contains full audio quality in the wide filter setting and, of course, **NO** selective fading or distortion.

These feeder stations are utility stations and free from interference. I

am listening to the VOA *Jazz Hour* now, and it sounds great received this way. Flick the set to upper sideband and the same frequency is playing a Russian language news broadcast. Too bad all radios don't have synchronous detectors, and the international bands switched to this type of modulation! It would immediately *double* the available frequencies.

A person lucky enough to own *TWO*

ICF-2010's can receive perfect AM stereo on any station that transmits in the KAHN standard. I have listened to stereo signals from over 800 miles on WQXR as well as WMAQ and WNBC using the ICF-2010 for one channel, and the ICF-6700W for the other channel (slightly mistuned to favor one sideband). Quality of stereo separation is surprisingly good.

I am one of those rare birds that

divides his monitoring time evenly between SWBC and UTES. Sixteen of my memory buttons are broadcasters, and 16 are utilities; how's that for an even split?!

I would like to hear from other ICF-2010 owners, perhaps to start a fan club devoted to this fine receiver and to share other tricks and techniques.



<p>ICOM R71A (HP)</p>  <p>High Performance World Class Receiver 100KHz-30MHz NEW!</p> <p>R71 (HP) High Performance. EEB has the reputation of excellence when it comes to R71A modifications. Many of our modifications are proprietary and not offered by any other source.</p> <p>EEB now offers a package deal including our most popular option, it's known as the R71 (HP) High Performance, and includes the following:</p> <ol style="list-style-type: none"> 24 Hour bench test. Realignment for optimum performance and 6 month warranty. COST \$40.00 Mechanical 2.4 KHz Filter replaces stock ceramic SSB Filter: improves SSB, ECSS, and Narrow sensitivity. COST \$95.00 Front End Upgrade - Improves Dynamic range (Plus) preamp enable below 1600 KHz. COST \$35.00 4 KHz Filter replaces stock 6 KHz wide filter: improves AM Selectivity. COST \$50.00 Audio output modification - increases audio output power, lowers distortion and widens audio bandwidth for pleasurable listening. COST \$35.00 AGC time constant change decreases slow time and increases fast time constant. COST \$35.00 Spike protection added, no need to spend \$30.00 for a wall plug-in spike protector. It's installed right inside where it is most effective. COST \$25.00 Final alignment and over-all check out. COST N/C Installation of ICOM options purchased with your NEW R71A. COST N/C <p>TOTAL COST OF THESE OPTIONS IS \$315.00 Purchase the R71 HP and SAVE \$115.00</p> <p>R71 HP (MF) Mechanical Filter. add \$200 R71 HP (XF) 8 Pole, 2.4 kHz Xtal Filter add \$250 R71 HP (XFS) Super 2.1 kHz Filter. add \$300 R71A 24 hour tested no mods. CALL</p> <p>FREE: One year Option-Purchase R71A from EEB (Call for Price) and you have 1 year to upgrade to the High Performance configuration.</p> <p>ICOM OPTIONS</p> <p>CK-70: DC Connector Kit for External 13.8 VDC Operation (DC cord incl) CALL CR-64: High Stability Oscillator. CALL EX-257: FM Unit. FM mode used only 29.5 to 30 MHz by amateurs. Some police. CALL EX309: Computer Interface Connector CALL EX310: Voice Synthesizer. CALL FL32A: CW Narrow Filter (500 Hz). CALL FL44A: 8 Pole Crystal Filter (2.4 KHz) CALL FL63A: CW Narrower Filter (250Hz). CALL RC-11: Infrared Remote Control. CALL</p> <p>FREE: ICOM options will be installed at no additional charge with purchase of NEW ICR71A. MEC-Commodore computer control Interface System. 705 Memories Auto Log. See our MEC Ads or call for more details. INTRODUCTORY PRICE \$199.95 EX309 Required (Not Included).</p>	<p>ICOM R-7000</p>  <p>Commercial Receiver VHF-UHF 25-2000 MHz NEW!</p> <p>Commercial quality scanning receiver. Same high quality as the world class R71A Receiver.</p> <ul style="list-style-type: none"> • 25-2000 MHz coverage • Precise frequency entry via keyboard or tuning knob • 99 Programmable memories • Scan-Memory-Mode-Select Memory-Frequency • 5 tuning speeds: 1, 1.0, 5, 10, 12.5, 25 KHz • Narrow/Wide filter selection • Memory Back-up • Noise Blanker • "S" Meter or center meter for FM • AM, FM Wide, FM Narrow, SSB, CW <p>Watch for ICOM full page Ads for more details. EEB engineers are developing options for the enhancement of the R7000 performance-computer control video output, filter options and more. Call or Write for details.</p> <p>SALE PRICE CALL (24 Hour Tested)</p>
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RADIO ACTIVITY

...information from the pages of **SPEEDX**

EDITED BY: **J. Speed Gray**
1260 Troon Court, S.E.
Grand Rapids, MI 49506-9732

Before getting on with the logging reports for this month, several comments are in order/ First, I am continually impressed at the on-going level of attention and dedication on the part of active SWL-DXers in the hobby. Since the first Radioactivity column last month, my mailbox has been visited almost daily by readers submitting loggings to run in this column. It reminded me of the days when I edited the Africa section column for SPEEDX. In addition, so many of the contributors were old familiar names. It's good to hear from you all!

Second comment: although I had not intended it so, this column will evolve into a loggings and QSL card report type activity. The station skeds, originally planned to be included, is obviously covered in greater detail by other sections of *Monitoring Times*; this is good, as it will permit more of my attention to be directed at loggings and QSL card reports.

Now, on to the good stuff, but I'll have a few closing comments at the end!

Loggings:

ANTIGUA:
2305 6175 BBC Relay: EE; World nx, service to Central America. Excellent (Hesch-PA).

AUSTRALIA:
0404 15425 VLW: sports coverage of wither Commonwealth Games or Australian sport, very bad QRM and weak signal. (8-6 Volz-IL).

Ed. Note: A correction from last month's column, thanks to Andrew Robins from neighboring Kalamazoo, MI. Andrew clarifies that we mentioned Prime Minister Fraser, when in fact Malcolm Fraser was defeated by the current Prime Minister, Bob Hawke. Thanks for your help with this, Andrew. Hope to hear from you in the future.

AUSTRALIA:
0135 9770 R. Australia: EE; intl nx, Good. (7-10 Price-PA)

BELIZE:
0410 3285 R. Belize: EE; US C&W mx w/YL DJ, ID w/address, and more mx. 444 (7-11 Van Horn-FL).

BRASIL:
0115 4805 R.D. Amazonas: PP; sports commentary - possibly soccer, ID and cmty. 434 (7-10 Van Horn-FL).
0202 11745 R. Nacional de Brasil: EE; nx. (7-10 Price-PA).
0230 11745 R. Nacional de Brasil: nx, sports, and pop mx. Gud signals. (7-21 Volz-IL).
0305 4845 R. Nac- Manaus: PP; Brassy ID w/stn promo, PSA, nx and sports briefs (is that like shorts? - ed). 444 (7-11 Van Horn-FL)
2310 6030 R. Globo: PP; stn promo, T/C, Brasil pops, annmcs and PSA. 433 (7-27 Van Horn-FL).

BURKINA FASO
0605 4815 R. Burkina: FF; Native Afro mx, then US mx, and stn ID. 343 (7-13 Van Horn-FL).

CAMEROON:
0515 5010 R. Garoua: FF; stn ID, long tx by OM. 333 (7-13 Van Horn-FL).
2200 9745 R. Yaounde: FF; Balafon IS, tone, ID annmcs and native mx. 333 (7-10 Van Horn-FL).

CANADA:
0153 6120 BBC Relay: EE; info abt mx festival in Britain, more mx. Good (Hesch-PA).

CUBA:
0140 5025 R. rebelde: SS; nx briefs, Cuban samba, T/C, ID w/pgm annmcs. 444 (7-10 Van Horn).

ECUADOR:
0120 4920 R. Quita: SS; SS pop vocals, T/C w/full ID and freqs, more SS pop vocals. 434 (7-13 Van Horn-FL).

GABON:
0540 4830 Africa #1: FF; FF pop vocals, ID at 0550 then more mx. 444 (7-13 Van Horn-FL).
1910 15475 Africa #1: FF; rock mx. Excellent 7-26 Price-PA).

GERMAN FEDERAL REPUBLIC:
0100 5280 Deutsche Welle: EE; feeder freq for NA Ser. Fair (7-24 Cline-IN). Ed note: nice rpt, Steve.

GHANA:
0550 4915 GBC: EE; chorus of rel mx, drums IS, EE ID, and nx of Africa, then ID. 444 (7-13 Van Horn-FL).
0600 4915 GBC: feature on agriculture and health, and then news. A nice signal. // to 3366 (8-6, Volz-IL).

HONDURAS:
0120 4820 LV Evang: SS; nx pgms, ID, EZL mx, ID and more mx. 434 (7-10 Van Horn-FL).
0358 3250 R. Luz y Vida: SS; stn promo w/full ID w/kHz closing annmt, NA, and s/off at 0400. 434 (7-11 Van Horn-FL).

IRAQ:
0300 11750 R. Baghdad: EE; mx. Excellent (7-11 Price-PA).

IVORY COAST:
1820 11920 RTV Ivorienne: FF; annmt, then US pops, some fading (QSB), ID at 1845 "Ivorienne," the more mx. 434 (7-20 Van Horn-FL).

MALTA:
0155 9545 Deutsche Welle Relay: EE; s/on ar 0155, nx abt Germany, service to NA. Good (Hesch-PA).

PEOPLE'S REPUBLIC OF CHINA:
1443 7770 CPBS-2 Beijing: CC; YL annr w/classical mx. This is supposed to be // w/11740 but this freq was not heard. (Blair-CA).

PEOPLE'S REPUBLIC OF KOREA - N. Korea:
0400 15140 R. Pyongyang: typical commie BS, but good strong signal! 444 (8-4 Wahlquist-CA).

PERU:
0045 6010 R. America: SS; Peruvian "vals" style mx, ID es annmcs in SS, more mx es ID at 0100. 323 (7-28 Van Horn-FL).
2320 5360 R. vision: SS; Peruvian "vals" style mx, ID at 2325, phone interview es sports cmty, ID again at 2345. 323 (7-27 Van Horn-FL).

SWEDEN:
1400 15345 R. Sweden: EE; Nordic nx. Good (7-11 Price-PA).

TOGO:
0527 5525 R. Togo: FF; Chime IS, Togolaise NA at 0530, ID w/freqs, hymn, annmcs and nx. 434 (7-13 Van Horn-FL).

UNITED STATES OF AMERICA:
0120 5525 R. Marti: SS; US pop vocals, SS pops, T/C, nx es ID, more EE & SS pops. 545 (7-8 Van Horn-FL).

USSR:
0205 7105 R.S. Rodina: RR; nx in RR w/excellent signal. (7-17 Price-PA).
0303 7165 Radio Kiev: nx and political cmty, QRM and poor propagation cndx. A tough one. (8-1 Volz-IL).
1710 13755 R.S. Rodina: RR; Russian rock mx (using real rocks, no doubt - ed.) Excellent (7-8 Price-PA).

VATICAN:
0310 6150 Radio Vatican: Test tx 0310-0330, and QRN from DW. Pgm was "The Church Today." (7-18 Volz-IL).

VENEZUELA:
0048 4980 R. Ecos del Torbes: SS; Pop SS vocals, T/C and ID, then Ven "vals" style mx. 444 (7-8 Van Horn-FL).
0125 4830 R. Tachira: SS; Venez. "joropo" style mx, ID w/annmcs, T/C. 433 (7-13 Van Horn-FL).
0320 4840 R. Valera: SS; Ballads, then US EZL mx, T/C, SS "vals" style mx, ID. 434 (7-11 Van Horn-FL).

QSL Card Section:

La Voix de La Renovation, or Radiodiffusion T.V. Gabonaise, B.P. 150 Libreville, Republique Gabonaise: November 18, 1985, frequency 15200, French language.

Societe Nationale de Radio-TV Francaise, D'Outre Mer, or Telediffusion de France, B.P. 332, Noumea, Nouvelle Caladonia: April 4, 1986, frequency 7170, time 0900.

La Voz del CID, Cuba Independiente y Democratica: June 18, 1986, frequency 9940, time 1400, language Spanish. Clandestine.

Contributors:

- Art Blair
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- Gayle Van Horn
Orange Park, Florida
- Carl Volz
Montgomery, Illinois
- Pete Wahlquist
Reseda, California

That's a wrap for another month. Thanks to the 10 dedicated souls who made this column possible; especially to Gayle Van Horn.

I welcome all loggings sent to me. Please make sure that frequency, date, time, station, country, program details, and signal report appear on each logging, as well as your name and state. The loggings must be complete to be of use in this column. Most of the shortwave clubs have available special logging forms which can be used to ease the process. It would also make my job easier.

In future months, I'll cover some of the abbreviations and terms used in this column for the benefit of those of you who are new to the exciting world of DXing.

For more logging reports, as well as numerous other informative columns, subscribe to SPEEDX, the club for active SWLs. For further info about SPEEDX, write to Mr. Jack Sanderson, SPEEDX Business Manager, 7738 East Hampton St., Tucson, AZ 85715-4212. Tell ol' Jack Speed sent you!

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AOSC Changes Address

The All Ohio Scanner Club has a new headquarters address: P.O. Box 2496, Springfield, Ohio 45501-2496. AOSC's treasurer, Dave Marshall, and other officers may be reached at that address.

Atlanta Braves Sprout Antennas

Next time you attend an Atlanta Braves game, you might want to carry along that hand-held scanner tuned to 49.825 MHz. Chances are you will hear first base coach Willie Stargil in a colorful inter-coach conference!

Needless to say, the communications carried on there are private, so you won't be able to brag about what you overhear, but it should add a little vitality to those slow periods!



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Features include simple raised button keyboard programming of the following frequency ranges: 32-50 MHz, 118-136 MHz, 144-174 MHz, 421-512 MHz. Vacuum fluorescent display, dim control, priority, count transmissions, non-volatile memory retains memory without power back-up, automatic search, scan speed control, automatic search, scan delay, lockout, service search, automatic squelch, crystal-less, digital clock, external speaker & tape jack, auxiliary equipment control, plus much more. Built inside the rugged metal cabinet. Includes AC & DC cords, telescopic antenna, mobile mounting kit, and one year factory warranty on the Bearcat 300 for only \$239.99 and \$7.00 shipping. (Optional extended warranty: 3 years \$35, or 2 years \$25.)

REGENCY HX1200

Digital programmable 45 channel hand-held Scanner. Frequency coverage 30-50MHz, 118-136MHz, 144-174MHz, 406-420MHz, 440-512MHz. Covers public service bands plus Aircraft. Has priority, search, lockout, scan plus much more. Package includes HX1200, AC charger/adapter, ni-cad battery, carry case, rubber antenna and 90 day factory warranty. Complete package only **\$216.99** (6.50 shipping) (3 year extended warranty only \$35.00, 2 year \$25.00)

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AD100U AC Adapter/Charger for 50 XL	12.95 ()
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REGENCY MA-256 Drop in charger for HX1000/1200	69.99 (3.50)
REGENCY R-1060 Programmable 10 chan. AC Scanner	94.99 (5.00)
REGENCY HX-2000 Digital Hand-Held	159.99 (7.00)
REGENCY MX-3000 AC/DC Digital Scanner	198.99 (6.50)
REGENCY MX-4000 AC/DC Digital Scanner	179.99 (7.00)
REGENCY MX-5000 AC/DC Digital Scanner	329.99 (6.50)
REGENCY MX-7000 AC/DC Digital Scanner	399.99 (7.00)
REGENCY Z-30 AC/DC Digital Scanner	129.99 (5.50)
REGENCY Z-45 AC/DC Digital Scanner	159.99 (5.00)
REGENCY Z-60 AC/DC Digital Scanner	178.99 (5.50)
Mobile Mounting Bracket for Z Scanners	5.99 ()
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REGENCY ACT-R-1 AC/DC Cryst. Single Channel	75.99 (4.00)
REGENCY RH-256 High Band Transceiver	399.99 (7.75)
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FANON PSK-1 AC Adapted for M8HLU	12.99 ()
FANON Slim-6 HLU Crystall Hand-held Scanner	98.99 (5.00)
FOX BMP-1060 AC/DC Digital Scanner	129.99 (5.50)
FOX Mounting Bracket for BMP-1060	9.99 ()
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Z30
30 Channel

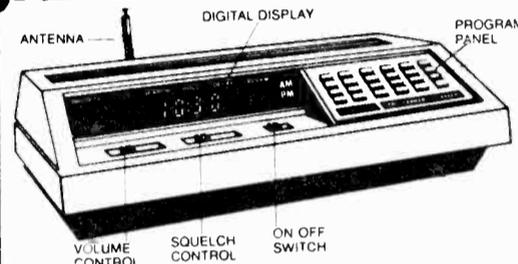
Automatic Programmable Scanner

Scanner World Special

\$129.99

(plus \$5.50 shipping each)

Optional Accessories:
Cigarette Lighter Plug RGMP C . \$4.95
Z Mobile Bracket — Special . . . \$5.99



The Regency Z30 is a compact, programmable 30 channel, multi band, FM monitor receiver for use at home or on the road. It is double conversion, super heterodyne used to receive the narrow band FM communications in the amateur, public safety and business bands: 30-50, 144-174, and 440-512 MHz. Size 10 3/4"Wx2-7/8"Hx8-3/8"D.

Sophisticated microprocess-controlled circuitry eliminates the need for crystals, instead, the frequency for each channel is programmed through the numbered keyboard similar to the one used on a telephone. A "beep" acknowledges contact each time a key is touched. The Z30 scans approximately 15 channels per second.

Any combination of two to thirty channels can be scanned automatically, or the unit can be set on manual for continuous monitoring of any one channel. In addition, the search function locates unknown frequencies within a band.

Other features include scan delay, priority and a bright/dim switch to control the brightness of the 9-digit Vacuum-Fluorescent display. The Z30 can be operated on either 120 VAC or 12 VDC. Includes one year warranty from Regency Electronics (optional 3 yr extended warranty only \$35, gives you a total of 4 yrs complete warranty or 2 yr extended warranty only \$25, gives you a total of 3 yrs complete warranty.)



\$159.99 (Plus \$7.00 Shipping each)

Digital Programmable 20 Channel Hand-Held Scanner with raised button keyboard for easy programming of the following frequency ranges: 118-136 MHz, 138-174 MHz, 406-512 MHz, 800-950 MHz (NOTE: This is the only hand-held portable scanner which will receive the 800-950 MHz range plus high band, air, and UHF). Features include priority, scan delay, memory backup, dual scan speed, channel lockout, jacks for external antenna and earphone. 90 day factory warranty, keyboard lockswitch, sidelit liquid crystal display for night use, program AM or FM mode, search or scan, size is 3" x 7" x 1 1/2". Complete HX-2000 package includes Ni-Cad rechargeable batteries, wall charger adapter, protective carry case, and rubber antenna. All for the low price of only \$159.99 plus \$7.00 shipping each. (Optional extended warranty: 3 years \$35; or 2 years \$25.)



\$179.99 (Plus \$7.00 Shipping each)

Digital programmable 20 channel scanner operates as a Base or Mobile unit or can be used as a portable with rechargeable Ni-Cad batteries included. MX4000 covers the following frequency ranges: 30-50 MHz, 118-174 MHz, 406-512 MHz, 800-950 MHz. Features compact size of 5 1/2" x 2 1/2" x 7 3/4", memory backup, scan delay, priority, dual scan speed, channel lockout, jacks for earphone and external antenna, keyboard lockswitch, one year factory warranty. Sidelit liquid crystal display for night use, program AM or FM mode, search or scan, reset button. Complete MX 4000 package includes telescopic antenna, mobile mounting bracket, mobile power cord, rechargeable Ni-Cad batteries, wall charger adapter. All for the low price of \$179.99 plus \$7.00 shipping each. (Optional extended warranty: 3 years \$35; 2 years \$25.) Optional cigarette lighter Plug #4000MPC \$4.99.

Bearcat 100 XL

\$199.99 (6.50 shipping) Handheld digital programmable, no crystal portable scanner. 16 channels, search feature, plus more! Frequency range: 30-50, 118-174, 406-512 MHz. Included in the package is a flexible rubber antenna, earphone, battery charger/AC adapter, 6 AA Ni-Cad rechargeable batteries and a heavy duty carry case. All for the low price of:

\$199.99 (6.50 shipping)
(3 year extended warranty only \$35.00, 2 year \$25.00)

REGENCY RH-256 B PROGRAMMABLE TRANSCEIVER

RH-256B Transceiver, 16 channel 12 VDC 2-way Radio fully programmable in tones for encode/decode, time-out timer, scan delay, 25 watts transmit power, priority, plus more. Frequency spread as shipped 152-158 MHz. Package includes mobile mike, bracket, mobile antenna, and all cables and instructions for installation. **Special package deal only: \$399.99** (7.75 shipping) (2 year extended warranty \$49.00 — 3 year \$69.00)

ORDERING INFORMATION

Call (518) 436-9606 to place orders by phone or mail orders to Scanner World, 10 New Scotland Av., Albany, NY 12208. Orders will be shipped same day received by United Parcel Service. Scanner World accepts VISA, MasterCard (COD shipments by United Parcel will be for cash or certified checks only). Mail orders with personal or business checks will be held 4 weeks for bank clearance. Orders with cashiers checks or money orders shipped same day received. Prices, specifications and terms subject to change without prior notice. If items are out of stock we will backorder and notify you of delivery date. All shipments are F.O.B. Scanner World warehouse in Albany, NY. We are not responsible for typographical errors. All merchandise carries full manufacturers warranty. Bid Proposals and Purchase orders accepted from Government agencies. Free full line catalogue available upon request. No minimum order. New York State Residents add 7% sales tax.

SHIPPING CHARGES

(*) Add (\$) per scanner, and \$3.00* for all accessories ordered at same time. C.O.D. shipments will be charged an additional \$3.00 per package. Full insurance is included in shipping charges. All orders are shipped by United Parcel Service. Shipping charges are for continental USA only. Outside of continental USA, ask for shipping charge per scanner.

Scanner World, USA

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Most orders Shipped Same Day Received!

Making Waves

AM DXing with

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

You may recall that last month I took Dr. Bruce Elving to task for what I consider anti-AM radio remarks which have appeared in his FM atlas. He promptly issued a rebuttal in his "FM News" column in the August 1986 issue of *UHF-VHF Digest* and was kind enough to provide me with more extensive thoughts as to how he and others feel about the future of AM radio.

First, Dr. Elving contends that the 50 kW clear channel stations with great coverage are exceptions. "Most AM stations," he says, "are the graveyarders, the Class III regionals and various daytimers and limited time stations. And many so-called full-time stations are restricted to

just a few watts pre- and post-sunrise or have to resort to directional antennae. With the class I-A channels being broken down, I am wondering even how many of those are left to render an AM-FM comparison even more meaningless?"

Dr. Elving also published an editorial in *Radio World*, an engineering trade journal, in which he postulates the "salvation" of AM radio through SCS (Subsidiary Communications Services) distribution through a nearby FM or TV station. Finally, he forwarded a copy of a *Radio World* advertisement placed by the firm, Texas, urging AM broadcasters and others to write to the FCC to

demand the adoption of one standard for AM stereo broadcasting to salvage what Texas (a manufacture of AM stereo transmission equipment) feels is a shaky future for AM stereo.

Gloom and doom! I'm sorry, but I'm just not ready to bury my AM radios and start DXing satellite TV transmissions just yet. I've said it before and I'll say it again: AM radio is in a state of transition. Although the medium may never command over 50% of the listening audience again, as a whole, it remains healthy, competitive and DXable.

I've had the opportunity to visit the most successful and profitable radio station in the United States and no, it's not on FM. It's not on a clear channel and it uses a directional, 5 kW antenna.

Although having been an O&O flagship for ABC has undoubtedly had something to do with it, KABC-790 Los Angeles seldom dips below

#3 in the local ratings in any time slot. Its success has little to do with technical considerations, either. Instead, KABC is a broadcasting outlet that talks to its audience, not at it. And that's the secret to retaining listeners, selling their demographics to advertisers and contributors, and keeping the station's cash flow healthy enough to allow it to stay on the air.

Whether a station is AM, FM, shortwave, stereo, overmodulated or QRN'd has little effect on a loyal listener.

On the other hand, the station that ignores the needs of its listeners will indeed find itself doomed and perhaps even off the air. At any rate, should I be completely wrong or hopelessly lost in my optimism, you'll still have a nice collection of QSLs and warm memories from the time you spent in front of your radio -- listening to AM.

TVRO Scrambling: Can it be broken?

by Bob Grove

The M/A-Com VideoCipher II descrambler is now the industry standard for HBO and other programmers as well. At \$395 it spells the difference between receiving and not receiving HBO, Cinemax and other channels by the nation's 1-1/2 million backyard dish owners.

Features of the model II include:

- Broadcast of local severe weather warnings;
- Messages to individual subscribers;
- Digital stereo output for subscription services;
- On-screen displays of signal strengths for some frequencies;
- Built-in call-out of program tuned in;
- Password control to prohibit unauthorized use;
- Built-in program lists and "help" instructions.

The sophistication of the M/A-Com unit has engendered industry suspicion that home data services are just around the corner for VideoCipher II owners.

HAS ANYBODY CRACKED THE CODE?

Black Box Solution (4014 Central Avenue, Hot Springs, AR 71913) claims to have cracked the VideoCipher technology. They did brisk business peddling their \$49.95 how-to manuals at the recent

SPACE (Society for Private and Commercial Earth Stations) exposition in Las Vegas.

Bill Meyers, a Black Box engineer, was quoted as saying that a working system could be built from the ground up for about \$90 worth of parts. Meyers continued by saying that rivaling systems like Oak and Orion could also be descrambled with their plans.

HOW EFFECTIVE IS THE SYSTEM?

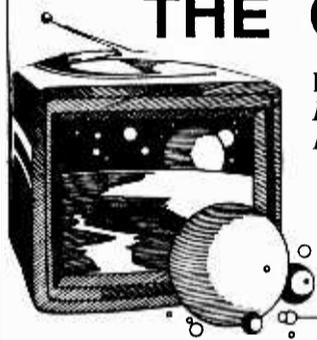
For the video, fine; but there's no audio. Black Box is still working on a sequel, *The Audio Solution*, to be made available for an addition \$24.95.

IS IT LEGAL?

In a prepared statement, Black Box representatives carefully ventured, "The use of the Black Box to decode scrambled TV signals may be illegal. We do not encourage anyone to violate federal law or FCC regulations." They refer to their manual as an "educational tool for those persons seeking technical information on the subject of TV scrambling."

At the present time Black Box Solution is under investigation by several agencies for their distribution of proprietary descrambling information.

THE OUTER LIMITS



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

Scott McClellan
P.O. Box 982
Battle Creek, MI 49016



Central America

Keep tuned to those frequencies between 6540 and 6580 kilohertz. Evenings you will usually hear what is one of the most famous of all clandestines, Radio Venceremos. However, what makes these frequencies so fascinating is the "cat and mouse" game Venceremos, which opposes the government of El Salvador, is currently playing.

The station can often be observed switching frequencies every few minutes as it seeks to avoid two music jammers. In addition, it has to evade a "black" or fake Radio Venceremos, which is probably run by the government of El Salvador. A conventional "buzz saw" jammer has also been heard in the area.

The present source of the jamming is not certain, but in past a salsa music jammer was located on a United States Navy destroyer, operating in the Gulf of Fonseca off the southern coast of El Salvador. By the way, it is not difficult to tell the black Venceremos from the genuine one. The black station is calmer, with a more "laid back" style of broadcasting.

Things They Tell Me

A couple of years ago, one still-active clandestine station had to leave the

air temporarily because its manager disappeared with most of its budget after he sold off some of the equipment as well. Yes, I know which one it is, but some things are best left unsaid.

It did not receive much attention in the North American press, but last spring the legendary "Commander Zero," Eden Pastora Gomez called it quits. Pastora asked for political asylum in Costa Rica after his Contra group, the Democratic Revolutionary Alliance (ARDE), joined the Nicaraguan Opposition Unity (UNO).

Pastora was a national hero in Nicaragua after he led a daring raid which captured dictator Somoza's National Palace and a number of leading government officials who were inside at the time. However, he later became disillusioned with the Sandinistas and threw in his lot with the Contras. He remained somewhat suspect with both Washington and much of the Contra leadership because his former Sandinista connections and his resistance to CIA control.

Pastora speaks excellent English and could often be heard in that language as well as Spanish on the clandestine La Voz de Sandino. He was one of the most colorful of all clandestine broadcasters, and whether one

agreed with his politics or not, he will be missed.

One of the most popular programs on anti-Castro Radio Marti is the weather forecast! More detailed than those on Cuban stations, they are highly useful to those fleeing the island, especially in small boats or rafts. The "Family Bridge" program, which transmits personal messages to Cuba from friends and relatives both inside and outside the country, also attracts a large audience.

And did you know that Captain Midnight, who received national attention when he overrode an HBO broadcast, actually made not one but two transmissions? That's what they tell me. But hey! We're talking about pirates! It's time to hear from North America's pirate expert, Scott McClellan.

The McClellan Report

The most enthusiastic pirate DXer I know of these days has to be Mace Twigg in Minnesota. We thank him for the following loggings.

Zeppelin Radio Worldwide was heard on 7423 kHz, from 0046 until sign off at 0130 UTC. The announcer, "Ze Count," played a good variety of music. The QSL address for ZRW is in care of P.O. Box 245, Moorhead, MN 56560 kHz.

After Zeppelin Radio signed off, The Voice of FUBAR signed on! Mace heard this station from 0105 until 0137 UTC, on 7423 kHz. They announced a phone number to call but he couldn't quite copy it due to high amounts of static. The program sounded very similar to the one heard the previous week.

Canadian Club Radio made an appearance on 7440 kHz from 0241 to 0401 UTC. Deejays Al and Ron gave the following address to QSLs: Box 140, 3090 Danforth, Toronto, Ontario, M1L 1V1, Canada. Mace lost the signal at 0401 due to heavy interference from an RTTY signal on 7442 kHz.

CFTN, a.k.a. TNFM, certainly makes its way into Mace's receiver often. He sent in an entire page full of loggings of this station -- nine loggings for July alone! The program each time consisted of rock music, and was found on various frequencies between 7373 and 7485 kHz after 0300 UTC. If CFTN continues at this pace, it won't be long before the authorities catch on and take action. This station is now using a new address: Dept. 16, Box 4276, Station A, Victoria, B.C. V8X BX8, Canada

Finally, we received a letter this month from the obscure pirate station that goes by the name of "KNRH." They use the unusual frequency of 11975 kHz in the 25 meter band. Power is limited to a couple of watts but they claim they "get out OK." They will also be using 11945 kHz as an alternative frequency. Station owner Rocco Gibraltar, claims that KNRH is on the air almost daily, so give them a

try. If you manage to hear them, they can be reached via P.O. Box 245, Moorhead, MN 56560. Listen for a format of "non-stop music with occasional IDs."

An Unusual FCC Test

As always, it is good to hear from Scott, and he will be back again next month. Now we have time for just one more item. This comes from Pennsylvania's John Demmitt. It concerns an unusual situation he encountered last May.

Way back on May 20 at 2004 (EDT), WCCS, 1160 kHz from Homer City,

PA, made an announcement that the FCC had requested all stations operating on 1160 kHz to leave the air for five minutes. They added that the FCC wanted to take measurements in an attempt to determine the source of interference. The station left the air and returned at 2010.

During the time WCCS was off the air, John could hear three other stations on the frequency, but a local thunderstorm made it impossible to identify them. He doubts that the FCC was able to complete their test, since not all stations did leave the air.

Could it be that the FCC's concern on 1160 kHz is the Cuban station, Radio Taino, which broadcasts tourist information in Spanish and English until 6:00 pm (EDT) sign-off? The Radio Taino transmitter is very powerful, and there has been some speculation that if Cuba ever did begin its "Radio Lincoln" in retaliation for Radio Marti, this is the transmitter it would probably use. There could be more interesting developments on 1160 kHz in the future. It is worth watching.

Hey, it's time to go again. Scott and I will be back next month! In the meantime, let us hear from you! ■

NEW! Lower Price Scanners

Communications Electronics™, the world's largest distributor of radio scanners, introduces new lower prices to celebrate our 15th anniversary.

Regency® MX7000-EA

List price \$699.95/CE price \$399.95/SPECIAL
10-Band, 20 Channel • Crystalline • AC/DC
Frequency range: 25-550 MHz, continuous coverage and 800 MHz to 1.3 GHz, continuous coverage. The Regency MX7000 scanner lets you monitor Military, Space Satellites, Government, Railroad, Justice Department, State Department, Fish & Game, Immigration, Marine, Police and Fire Departments, Broadcast Studio Transmitter Links, Aeronautical AM band, Aero Navigation, Paramedics, Amateur Radio, plus thousands of other radio frequencies most scanners can't pick up. The Regency MX7000 is the perfect scanner to receive the exciting 1.3 GHz, amateur radio band.

Regency® Z60-EA

List price \$299.95/CE price \$179.95/SPECIAL
8-Band, 60 Channel • No-crystal scanner
Bands: 30-50, 88-108, 118-136, 144-174, 440-512 MHz. The Regency Z60 covers all the public service bands plus aircraft and FM music for a total of eight bands. The Z60 also features an alarm clock and priority control as well as AC/DC operation. Order today.

Regency® Z45-EA

List price \$259.95/CE price \$159.95/SPECIAL
7-Band, 45 Channel • No-crystal scanner
Bands: 30-50, 118-136, 144-174, 440-512 MHz. The Regency Z45 is very similar to the Z60 model listed above however it does not have the commercial FM broadcast band. The Z45, now at a special price from Communications Electronics.

Regency® RH250B-EA

List price \$674.30/CE price \$329.95/SPECIAL
10 Channel • 25 Watt Transceiver • Priority
The Regency RH250B is a ten-channel VHF land mobile transceiver designed to cover any frequency between 150 to 162 MHz. Since this radio is synthesized, no expensive crystals are needed to store up to ten frequencies without battery backup. All radios come with CTCSS tone and scanning capabilities. A monitor and night/day switch is also standard. This transceiver even has a priority function. The RH250 makes an ideal radio for any police or fire department volunteer because of its low cost and high performance. A 60 Watt VHF 150-162 MHz, version called the RH600B is available for \$454.95. A UHF 15 watt version of this radio called the RU150B is also available and covers 450-482 MHz, but the cost is \$449.95.

NEW! Bearcat® 50XL-EA

List price \$199.95/CE price \$114.95/SPECIAL
10-Band, 10 Channel • Handheld scanner
Bands: 29-54, 136-174, 406-512 MHz. The Uniden Bearcat 50XL is an economical, hand-held scanner with 10 channels covering ten frequency bands. It features a keyboard lock switch to prevent accidental entry and more. Also order part # BP50 which is a rechargeable battery pack for \$14.95, a plug-in wall charger, part # AD100 for \$14.95, a carrying case part # VC001 for \$14.95 and also order optional cigarette lighter cable part # PS001 for \$14.95.

NEW! Scanner Frequency Listings

The new Fox scanner frequency directories will help you find all the action your scanner can listen to. These new listings include police, fire, ambulances & rescue squads, local government, private police agencies, hospitals, emergency medical channels, news media, forestry radio service, railroads, weather stations, radio common carriers, AT&T mobile telephone, utility companies, general mobile radio service, marine radio service, taxi cab companies, tow truck companies, trucking companies, business repeaters, business radio (simplex) federal government, funeral directors, veterinarians, buses, aircraft, space satellites, amateur radio, broadcasters and more. Fox frequency listings feature call letter cross reference as well as alphabetical listing by licensee name, police codes and signals. All Fox directories are \$14.95 each plus \$3.00 shipping. State of Alaska-RL021-1; State of Arizona-RL025-1; Baltimore, MD/Washington, DC-RL024-1; Buffalo, NY/Erie, PA-RL009-2; Chicago, IL-RL014-1; Cincinnati/Dayton, OH-RL006-2; Cleveland, OH-RL017-1; Columbus, OH-RL003-2; Dallas/Ft. Worth, TX-RL013-1; Denver/Colorado Springs, CO-RL027-1; Detroit, MI/Windsor, ON-RL008-3; Fort Wayne, IN/Lima, OH-RL001-1; Hawaii/Guam-RL015-1; Houston, TX-RL023-1; Indianapolis, IN-RL022-1; Kansas City, MO/KS-RL011-2; Long Island, NY-RL026-1; Los Angeles, CA-RL018-1; Louisville/Lexington, KY-RL007-1; Milwaukee, WI/Waukegan, IL-RL021-1; Minneapolis/St. Paul, MN-RL010-2; Nevada/E. Central CA-RL028-1; Oklahoma City/Lawton, OK-RL005-2; Orlando/Daytona Beach, FL-RL012-1; Pittsburgh, PA/Wheeling, WV-RL029-1; Rochester/Syracuse, NY-RL020-1; San Diego, CA-RL018-1; Tampa/St. Petersburg, FL-RL004-2; Toledo, OH-RL002-3. New editions are being added monthly. For an area not shown above call Fox at 800-543-7892. In Ohio call 800-621-2513.

NEW! Regency® HX1200-EA

List price \$369.95/CE price \$214.95/SPECIAL
8-Band, 45 Channel • No-crystal scanner
Search • Lockout • Priority • Scan delay
Sidelit liquid crystal display • EARMON Memory
New Direct Channel Access Feature
Bands: 30-50, 118-136, 144-174, 406-420, 440-512 MHz. The new handheld Regency HX1200 scanner is fully keyboard programmable for the ultimate in versatility. You can scan up to 45 channels at the same time including the AM aircraft band. The LCD display is even sidelit for night use. Order MA-256-EA rapid charge drop-in battery charger for \$84.95 plus \$3.00 shipping/handling. Includes wall charger, carrying case, belt clip, flexible antenna and nicad battery.

NEW! Bearcat® 100XL-EA

List price \$349.95/CE price \$203.95/SPECIAL
9-Band, 16 Channel • Priority • Scan Delay
Search • Limit • Hold • Lockout • AC/DC
Frequency range: 30-50, 118-174, 406-512 MHz. The world's first no-crystal handheld scanner now has a LCD channel display with backlight for low light use and aircraft band coverage at the same low price. Size is 1 3/4" x 7 1/2" x 2 1/2". The Bearcat 100XL has wide frequency coverage that includes all public service bands (Low, High, UHF and "T" bands), the AM aircraft band, the 2-meter and 70 cm. amateur bands, plus military and federal government frequencies. Wow...what a scanner! Included in our low CE price is a sturdy carrying case, earphone, battery charger/AC adapter, six AA nicad batteries and flexible antenna. Order your scanner now.

Bearcat® 210XW-EA

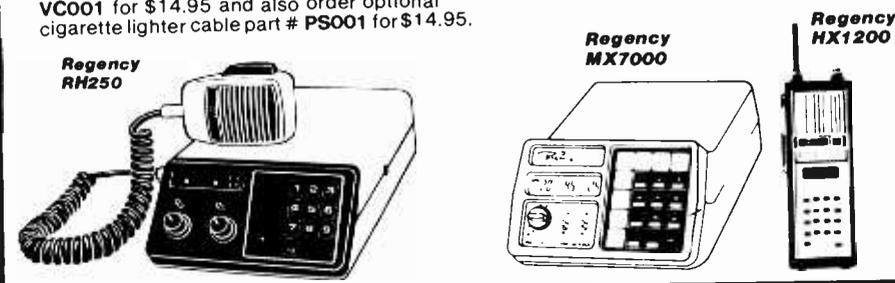
List price \$339.95/CE price \$209.95/SPECIAL
8-Band, 20 Channel • No-crystal scanner
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Frequency range: 30-50, 136-174, 406-512 MHz. The new Bearcat 210XW is an advanced third generation scanner with great performance at a low CE price.

NEW! Bearcat® 145XL-EA

List price \$179.95/CE price \$102.95/SPECIAL
10 Band, 16 channel • AC/DC • Instant Weather
Frequency range: 29-54, 136-174, 420-512 MHz. The Bearcat 145XL makes a great first scanner. Its low cost and high performance lets you hear all the action with the touch of a key. Order your scanner from CE today.

TEST ANY SCANNER

Test any scanner purchased from Communications Electronics™ for 31 days before you decide to keep it. If for any reason you are not completely satisfied, return it in original condition with all parts in 31 days, for a prompt refund (less shipping/handling charges and rebate credits).



NEW! Bearcat® 800XL-EA

List price \$499.95/CE price \$317.95
12-Band, 40 Channel • No-crystal scanner
Priority control • Search/Scan • AC/DC
Bands: 29-54, 118-174, 406-512, 806-912 MHz. The Uniden 800XL receives 40 channels in two banks. Scans 15 channels per second. Size 9 1/4" x 4 1/2" x 12 1/2".

OTHER RADIOS AND ACCESSORIES

Panasonic RF-2600-EA Shortwave receiver... \$179.95
RD95-EA Uniden Remote mount Radar Detector... \$128.95
RD55-EA Uniden Visor mount Radar Detector... \$98.95
RD9-EA Uniden "Passport" size Radar Detector... \$239.95
BC-WA-EA Bearcat Weather Alert... \$49.95
DX1000-EA Bearcat shortwave receiver SALE... \$349.95
PC22-EA Uniden remote mount CB transceiver... \$99.95
PC55-EA Uniden mobile mount CB transceiver... \$59.95
R1060-EA Regency 10 channel scanner SALE... \$329.95
MX3000-EA Regency 30 channel scanner... \$198.95
XL156-EA Regency 10 channel scanner SALE... \$129.95
UC102-EA Regency VHF 2 ch. 1 Watt transceiver... \$124.95
RH250B-EA Regency 10 ch. 25 Watt VHF trans... \$329.95
RH600B-EA Regency 10 ch. 60 Watt VHF trans... \$454.95
RU150B-EA Regency 10 channel UHF transceiver... \$449.95
P1405-EA Regency 5 amp regulated power supply... \$69.95
P1412-EA Regency 12 amp reg. power supply... \$164.95
MA256-EA Drop-in charger for HX1000 & HX1200... \$84.95
MA257-EA Cigarette lighter cord for HX1200... \$19.95
MA917-EA Ni-Cad battery pack for HX1200... \$34.95
SMMX7000-EA Svc. man. for MX7000 & MX5000... \$19.95
SMMX3000-EA Serviceman. for Regency MX3000... \$19.95
B-4-EA 1.2 V AAA Ni-Cad batteries (set of four)... \$9.95
FB-EA Frequency Directory for Eastern U.S.A... \$12.95
FB-W-EA Frequency Directory for Western U.S.A... \$12.95
ASD-EA Air Scan Directory... \$14.95
SRF-EA Survival Radio Frequency Directory... \$14.95
TSG-EA "Top Secret" Registry of U.S. Govt. Freq... \$14.95
TIC-EA Techniques for Intercepting Comm... \$14.95
RRF-EA Railroad frequency directory... \$10.95
CIE-EA Covert Intelligence, Elect. Eavesdropping... \$14.95
A70-EA Magnet mount mobile scanner antenna... \$35.00
A70-EA Base station scanner antenna... \$35.00
USAMM-EA Magmount VHF/UHF ant. w/ 12' cable... \$39.95
USAK-EA 3/4" hole mount VHF/UHF ant. w/ 17' cable... \$35.00
USATLM-EA Trunk lip mount VHF/UHF antenna... \$35.00
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Add \$7.00 shipping per scanner and \$3.00 per antenna.

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UTILITY INTRIGUE



Don Schimmel
516 Kingsley Road SW
Vienna, VA 22180

■ First of all I want to mention a note I received from Dallas Williams of Sedgwick, CO. Dallas pointed out that some of the UTILITY INTRIGUE RTTY loggings are about 2 kHz low. I must confess that the error is mine. I have several receivers and one of them has a non-digital readout.

Consequently, I forget every now and then to make an adjustment to the frequency reading when I have copied a target using that particular receiver. Sorry...

■ If you did not take advantage of the excellent buy on diskettes I told you about in the April 1986 column, it is too late now. I have been advised by Electrovalue Industrial, Inc., that this item has been sold out. If they should again make a similar offer, I will be sure to pass along the information to you readers.

■ A new entry in the diplomatic monitoring area has just been published. CRB Research has come out with "Guide to Embassy and Espionage Communications" by Tom Kneitel, reviewed in the September issue of MT. Due to the nature of the subject, some of the points in the narrative material are necessarily speculative, but this makes for interesting and thought-provoking reading. The volume also contains lists of frequencies in use for embassy communications by many countries of the world.

The book can be ordered from CRB Research, P.O. Box 56, Commack, NY 11725 for \$10.95 plus \$1.00 postage/handling in the U.S. and Canada and some MT advertisers.

■ I tuned into an interesting signal on 31 July at 0251Z on 4654.4 kHz; He was sending V's in CW, now and then would send DE OPOP, then back to the V's again. He apparently could hear the other end because he sent QSA 4/4 but kept on sending the V's and his callsign so I deduced the other end could not hear him. I searched around and did not find anyone I could match up with the 4654.4 transmission.

After several minutes of the above, he sent DE OP followed by a 5F group, DE OP, another 5F group, and continued this procedure with one or two 5F groups. After observing this for some 20 minutes, I got the feeling he was simply making with "key play," but who knows?

■ Many readers have requested information on various Morse code characters as sent by Russian stations. In reply to all such queries, here is a rundown on the Russian characters.

Russian Alphabet	Sent on CW as:	English Equivalent
А	A	A (father)
Б	B	B (bat)
В	W	V (vat)
Г	G	G (get)
Д	D	D (dog)
Е	E	YE (yet) or E (enter)
Ё	E	YO (yonder)
Ж	V	ZH (vision)
З	Z	Z (zebra)
И	I	E (beer)
Й	J	Y (yellow)
К	K	K (king)
Л	L	L (stool)
М	M	M (man)
Н	N	N (nut)
О	O	O (pot - almost aw)
П	P	P (pat)
Р	R	R (error)
С	S	S (sum)
Т	T	T (top)
У	U	U (moon)
Ф	F	F (fit)
Х	H	CH (Scottish loch or Ger. ach)
Ц	C	TS (mats)
Ч	- - -	CH (chair)
Ш	- - - -	SH (shut)
Щ	Q	SHCH (ashchurch)
Ъ	(none)	(silent; almost obsolete)
Ы	Y	Indeterminate vowel, usually A as in about
Ь	X	"Myakijznak" or soft sound; modifies preceding consonant
Э	- - - -	EH (any) or U (unite)
Ю	- - - -	YU (mute or few)
Я	- - - -	YA (yard)

Our thanks to Norm Talley, West Point, Georgia, for providing this fine chart of equivalent characters.

■ Four signals (carriers) were heard spaced 4 kHz apart at 13380, 13384 and 13388 and what appeared to be the main signal at 13376 kHz. This activity was heard on 28 July at 1325Z and was most unusual.

When the keying (high-speed) stopped, the signals disappeared on the three higher frequencies;

however, the carrier was still on the air on the 13375 kHz frequency. After a slight pause, the keying resumed and it was noted on all four frequencies again. My InfoTech M-600 indicated a baud rate of 150 but I was unable to get anything but garbage to print out on the screen.

After a brief period of keying, it was discontinued. The carriers on the higher frequencies were gone but the carrier on 13376 kHz stayed on the air for about one minute and then it also went down.

■ A string of Z separators was noted on 14823.1 kHz on 9 July at 1838Z. This RTTY station turned out to be CLP1, Havana, Cuba, transmitting to Maputo, Mozambique. Enciphered traffic was passed on RTTY at 45-425. At 1956Z Havana shifted to CW and told the other end to QSY 15040 but I did not hear anything on the latter frequency.

Another station sending a string of Z separators was intercepted on 13856 kHz on 17 July at 1157Z. This RTTY transmission was 50-425 and consisted of only RY's interspersed periodically with a string of Z's.

■ Although the signal was weak I believe I finally caught all the cut number characters being sent via CW on 13861 kHz which was active at 1839Z on 10 July. The cut number system appeared to be the following:

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

The traffic was being sent in groups of five characters. I stayed with this signal until it eventually faded out.

■ I ran across this sequence - BT 011 011 444 444 444 444 444 BT - on 14519 kHz on 12 July at 1932Z. The CW transmission was very fast, machine sent and at 1940Z went into traffic of 5F groups with the zero cut as letter T. He repeated the message once and went down at 1944Z.

A somewhat different single-letter beacon marker was picked up on 10646 kHz on 23 July at 1226Z. There were two separate "O" markers sent in CW, one being somewhat weaker than the other. The repetition rate of the weaker marker was somewhat faster than the stronger marker.

On 14 July at 0019Z a "U" marker plus message was seen on 10218.6 kHz. The transmission was as follows: UUU 07359 26830 98847 72748 UUU and then repeated.

A very strong station, shifting around in the 14661 kHz region on 21 July at 1909Z on CW, would periodically stop on a frequency and send OM OM QSA IMI, then move again a few more kHz and repeat the callup. He could usually be quickly traced to the new location because he kept the carrier on the air as he moved from one frequency to another.

The shifting back and forth continued for some time and, after sending QSY 114 AS, he moved down to 14686 but, after some V's, nothing more was heard. I think I will recognize him if I hear him again because he sure had a sloppy distinctive fist!

■ Several months ago I intercepted CW activity but lost the digital frequency readout due to a power outage. I finally found him again on 31 July at 1200Z on 13557.8 kHz. He was very weak but was sending digit groups in the following manner: 72 25521 would be repeated for approximately 4 minutes, then 43 67952 was sent for another 4 minutes. The pattern continued through his fadeout at 1305Z.

Free Catalog

A new Book Catalog, free of charge from the U.S. Government Printing Office, has many titles of interest to SWL's and of general interest. You can obtain your copy by writing to:

NEW CATALOG

Superintendent of Documents
Washington, DC 20402

In addition to receiving the above catalog, I also received some updated subject bibliography (SB) listings which contain publications of possible interest to readers of MT. For example: SB-158, Army Technical and Field Manuals, has a number of inexpensive "Guides to Spoken Language" available that, while they are not designed to make you fluent in the language, should help most people to understand a basic conversation.

Some of the other titles in this SB were "Handbook on Soviet Ground Forces" and "Map Reading."

SB-225: Ships, Shipping and Shipbuilding, is another listing; "Understanding Soviet Naval Developments" gives a rundown on the Soviet Navy's combat capabilities and includes a chart of Soviet major warship classes plus other ships including Soviet Submarines.

SB-263, United States Coast Guard, has several titles that will appeal to you readers who specialize on watching activities pertaining to shipping.

SB-272, United States Intelligence Activities, has titles such as "Military Intelligence, a Picture History"; "Role of Military Intelligence, 1965-1967"; and the "World Factbook, 1985," which gives a brief resume of each country of the world with maps. The information is current as of January 1, 1985.

There are numerous other lists and the index is also free of charge. You may be pleasantly surprised at the variety of useful pamphlets and books available from Uncle Sam.

July Loggings →



listener's log

Contributed by:

Peter Goubeaud
P.O. Box 83
Sewanee, TN 37375

Equipment used:

Drake R7 w/400' wire & tuner
Uniden CR2021 when two radios are used

ABBREVIATIONS

Commsta Communications station
pp Phone patch
wkg Working
w/ with
Wx Weather

JULY 1986 LOGGINGS

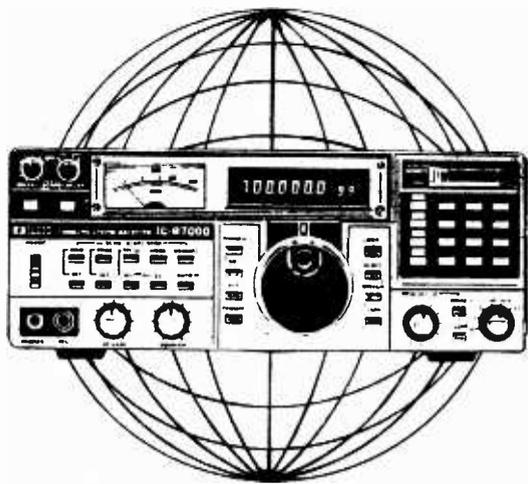
KHZ	DTOI	MODE/IDENTIFICATION/COMMENTS
323	270302	MCW/GTN (Georgetown - Washington Natl)
332	270300	MCW/DC (Oxon Hill - Wash Natl)/Beacon
340	270249	MCW/PQG (Woodbridge, VA)/Beacon
346	270252	MCW/IA (Chantilly, VA-Wash Dulles Intl, Tille)/Beacon
378	270254	MCW/GFG (Leesburg, VA - Municipal-Godfrey)/Beacon
385	270256	MCW/GAI (Gaithersburg, MD - Montgomery Co)/Beacon
4214.6	140325	HPP (Panama) DE JQLS (Japanese Ship) in CW with callup
4388	312352	USB/WOO (Ocean Gate, NJ)telling uniden station to go to another channel
5600	322346	USB/Santa Maria giving position report to uniden station
6576	312338	USB/Uniden aircraft wrkng San Juan PR giving position report
7474	302333	RTTY 50-425/DE TJK (Prob Doula, Cameroon) running RY's
8806	312341	USB/OM & YL conversing in Spanish
10218.2	131128	RTTY 50-425/RCC LA HABANA CUBA TESTING TO ITT WORLD COM NEWYORK 1234567890 RY'S
10326.2	120051	LSB/Announcement in English & French taht transmission is from stn in Paris, France, and is for circuit adjustment purposes
10527.3	120047	CW/5F grps/vy fast speedkey sending
10587	022231	CW/Ltr groups of diff lengths and spec charac AA OE OT IM
10782	092341	RTTY 50-425/Press items in Spanish from ADN (East German Press Service)
10803.9	120026	RTTY 50-425/PT Spanish, appears be stock prices in Argentina, followed by buy & sell exchange rates for various world currencies
10812	312343	USB/20M 'conversing in Spanish, YL enters net and they discuss expected arrival of engineer.
10852	100020	CW/5L grps with spec charac AA IM OE OT
10870	021225	CW/5L grps/FEMA
13400.8	111119	CW/vy weak sig with 5L grps with spec charac AA IM OE OT
13371.2	111122	CW/Diff length Ltr grps with spec charac IM OE OT AA
13526	121449	CW/VV DE CCS (Santiago Naval Rdo, Chile)
13581.9	161217	CW/VV DE EC3Y (Spain alloc)
13663.6	031115	RTTY 50-170/CQ DE 6VY41/6VU73/79 (Dakar, Senegal)/RY's
13676	102102	CW/876 876 876 1 (Rpts) This announces upcoming Number Brdcast
13726.6	031105	RTTY 50-425/Press in French
13768.2	111052	RTTY 75-425/Press in French
13778	191122	RTTY 50-425/QRA DE BCA95 (Prob Shanghai China) FY's
13791.6	031102	RTTY 50-425/DE SON279 (Warsaw, Poland) RY's
13848.1	111133	RTTY 50-425/THIS IS RADIO HAVANA TESTING TO ITT NY (RY'S & QUICK BROWN FOX)
13891	222108	CW/5F grps, automatic sent, cut zero as ltr T
13892	152102	CW/861 861 861 1 (Nbrs brdcast upcoming)
139821	171155	RTTY 50-425/Arabic text
13995	171153	RTTY 50-425/Press item in French re visit to France by Syrian Vice-Pres
14478	131936	RTTY 75-170/Army MARS tfc to addees in North Carolina
14617.2	111913	RTTY 50-425/Few grps sent on CW and then 5L grps sent on RTTY, after tfc sends RY's and CS Y7A54-59-75 (East Germany)
14620	171141	RTTY 50-425/TLgrps with HAV in heading
14638	011159	RTTY 50-425/QRA DE CLN (Havana, Cuba) QUICK GROWN FOX & RY's
14640	171219	RTTY 50-425/THIS IS RADIO HAVANA TESTING OT ITT NY (QUICK BROWN FX TAPE)
14640	171222	CW/OMZ (Prague, Czech) DE 7L1 (Czech Emb, Havana, Cuba) NOTE: This stn is right on top of the Havana RTTY sig
14641	131710	MCW/5F grps. Initial fig either 0, 3 or 4. Sends BT after every 10 grps and ends with BT 19091 BT BT AR. Down at 1715Z
14658	171224	LSB/SS-YL in conversation with unhrd stn conversing re implementing
14720.7	121930	RTTY 50-425/DE TNL (Brazzaville, Congo) RY's
14806.3	171202	RTTY 50-425/DE HGX51 (Budapest, Hungary) RY's and then into enciphered tfc
14809.6	101430	CW/Sending 5F grps to stn on 19638
14874	081343	RTTY 50-850/Appears to be another Havana Cuba link to ITT NY/Running QUICK BROWN FOX tape
14900	171149	RTTY 50-425/DE CLN451 (Havana, Cuba - TASS News Service outlet)/RY's
14911	121410	CW/5-charac grps, cut nbrs
14936.2	141829	RTTY 50-425/5UA (Prob Niamey, Niger) sending RY's
14944.6	121953	CW/Cub nbrs,hand sent/sounds like stn prev hrd today on 14911 kHz
17159	101832	CW/vy weak stn sending 4F grps with zero cut as letter T/QRM from IAR and PRO, both running markers
19144.5	091306	RTTY 50-425/HGX21 (Budapest, Hungary) DE KNY26 (Hungarian Emb, Wash DC)/RY's
19638.2	021228	RTTY 45-425/Enciphered transmission, shifts to CW & tells other end (unhrd) to QSY 19120/PT Spanish chatter

Would You Like a Utilities Logging Section?

It has been about a year since *MT* suspended its "Listener's Log" section, not because it wasn't useful, but because we didn't have the time to or room in *MT* to solicit and edit the submittals. Now, with our increased page count and considerably enlarged readership, we are considering reopening this column. We invite utilities listeners to

write in, expressing the types of entries they would like to see. Just for starters, we have included this month a fine list of loggings in the HF spectrum submitted by Peter Goubeaud of Sewanee, Tennessee. Using Peter's list--or even one of your own--let us know your interests and your recommendations for format.

DATE/TIME	FREQ	MODE	TRAFFIC
5/19	1455Z	4413.0	SSB Houston base to ship of So.America
5/20	1630	5696.0	SSB Commsta Boston wkg USCG planes
5/20	1700	5696.0	SSB Commsta Portsmouth wkg plane observing fire on island So. of Cape Hatteras
5/20	1710	5696.0	SSB Commsta Portsmouth w/Wx for area of fire
5/20	1845	11233.0	SSB Edmonton military wkg 6316 w/Ws and aero info
5/20	1925	11233.0	SSB Edmonton military wkg Rescue 806
5/22	1715	15015.0	SSB MAC3806 w/pp thru Scott - wkg format
5/22	1720	15015.0	SSB Grip77 wkg Scott AFB
5/22	1745	13270.0	SSB New York Radio w/aviation weather
5/22	1745	13270.0	SSB D tone Quebec to Trenton military (mechanical problem)
5/22	1820	11233.0	USB Canada military 84 wkg Trenton military w/comm check
5/22	0200	304 kHz	AM Aviation Wx for mid-south area
6/12	1850	5696.0	USB Commsta Miami and Portsmouth
6/13	1700	8864.0	USB New York aero radio /international flights
6/14	0213	6746.0	USB Halifax military w/aviation Wx
6/14	0215	6604.0	USB Volmet - aviation Wx - New York radio
6/16	1850	8722.0	USB Ship "Fairwind" w/radiotelephone to Sydney, Australia
6/17	1340	8746.8	USB Vessel "Lonestar" wkg WOM
6/17	0210	8743.7	USB Vessel "Tropicale" wkg MI
6/17	0225	8746.8	USB Vessel "Norway" wkg WOM
6/18	0140	4025.0	USB U.S. Army MARS wkg messages
6/18	0210	4467.5	USB CAP S.E. region
6/19	2300	8740.6	USB Vessel "Nordic Prince" working WOO same
6/19	2330	8746.8	USB WOM with vessel roll call and marine WX
6/20	1455	11243.0	USB "Sand Blade" working "Cathedral" - SAC
6/20	2100	6521.9	USB Various coastal sta wkg barges/Gulf of Mex & Mississippi River
6/22	1900	8749.9	USB WOO wkg vessel "Norway" same
6/22	2230	13125.6	USB WOM w/roll call for vessels w/traffic plus marine WX
6/22	2245	13131.8	USB WOO/vessel w/phone patch to NY (in Italian) same
6/23	1928	4087.8	USB WJG Memphis wkg tug & barges
6/23	1932	4087.8	USB WJG Memphis wkg tug "Mary Lou" at mile 860 North on Ohio Rv.
6/23	0210	2031.5	USB WDR Miami wkg vessel enroute to Bahamas
6/24	1545	11233.0	USB Trenton military wkg Bison 10
6/24	1600	9006.0	USB NASA traffic
6/24	1635	9132.0	USB NASA ESMC wkg ARIA 1 & ARIA 2 with countdown to launch; "Liftoff" - "1st motion 16:33:09 - on track & on course - green"
6/25	1950	4115.7	USB WFN Louisville wkg tugs w/misc traffic & barges
6/25	1955	8793.3	USB WOM - ICESUS II (vessel) w/phone patch same
6/25	0130	4593.5	USB Air Force MARS
6/26	2110	6577.0	USB New York wkg international air traffic
6/26	0140	11233.0	USB Trenton military wkg Milt. 86 w/payload info & Trenton Wx
6/26	0140	304.0	AM Aviation Wx for midsouth area - originates Nashville - CW "BN"
6/27	1745	11233.0	USB Trenton military skg Milt. 44 w/enroute Wx and arrival times
6/28	1435	5696.0	USB CG 2133 requesting phone patch w/Norfolk (rescue)
6/28	1445	5696.0	USB Norfolk (Dist. 5 operations) wkg 2133 - "Have targets of interest & covert operations"



Worldwide Scanning with Norm Schrein

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

AMERICAN NATIONAL RED CROSS

This month we are going to look into frequencies used by the American National Red Cross. This agency is called into action whenever there is a disaster and also provides for those in need on a day-to-day basis. Their services range from assisting a family who lost everything in a fire to providing transportation for senior citizens.

Beyond disaster relief, the Red Cross provides youth services, community and military services, transportation services, emergency resource bank, volunteer personnel and training, safety services, and nursing and health services.

The Red Cross is congressionally-mandated to relieve human suffering and need caused by disaster, to plan for the delivery of services, and to identify hazards in the community to prevent disaster.

Their volunteers are on call 24 hours a day, seven days a week, to meet emergency needs (food, clothing and shelter) of disaster victims, from single family fires to floods, tornados and blizzards. They are trained to manage shelters, assess damage, provide mass feeding, administer disaster health services, disburse emergency assistance to families, and maintain support functions such as supply, including management of a regional warehouse for disaster relief supplies.

The Red Cross has one main nationwide frequency (47.420 MHz). However, there are many instances in which additional or alternate frequencies are used. The following list will give you an idea as to the frequencies used by the American National Red Cross throughout the country.

The American National Red Cross uses 47.420 MHz as their primary local communications channel. This frequency is licensed to the Red Cross in the following locations:

Akron, OH
Alameda, CA
Albany, GA
Albany, NY
Albuquerque, NM
Alexandria, KY
Alexandria, VA
Allentown, PA
Alliance, OH
Amarillo, TX
Ames, IA
Anaheim, CA
Anchorage, AK
Anderson, SC
Angleton, TX
Ann Arbor, MI
Appleton, WI
Arlington, TX
Arlington, VA
Asheville, NC
Atlanta, GA
Augusta, ME
Aurora, CO
Bakersfield, CA
Baltimore, MD
Bangor, MI
Barling, AR
Barstow, CA
Bartlesville, OK
Bay City, TX
Baytown, TX
Beaumont, TX
Bedford, IN
Berkley, CA
Bethlehem, PA
Beverly, MA
Biloxi, MS
Binghamton, NY
Birmingham, AL
Bloomfield Hills, MI
Boise, ID
Boulder, CO
Bowling Green, OH
Bradenton, FL
Bridgeport, CT
Brighton, CO
Brockton, MA

Bucyrus, OH
Buffalo, NY
Burbank, CA
Burlingame, CA
Burlington, VT
Cambridge, MA
Camden, NJ
Canton, IL
Canton, OH
Cape May, NJ
Cedar Rapids, IA
Cedartown, GA
Chalmette, LA
Champaign, IL
Chardon, OH
Charleston, SC
Charleston, WV
Charlotte, NC
Chesapeake, VA
Chicago, IL
Cincinnati, OH
Claremont, CA
Clearlake, CA
Clearwater, FL
Cleveland, OH
Cleveland, TN
Coalinga, CA
Columbia, MO
Columbia, SC
Columbus, GA
Columbus, OH
Concord, CA
Conroe, TX
Conway, AR
Corning, NY
Corpus Christi, TX
Corsicana, TX
Council Bluffs, IA
Dallas, TX
Danvers, MA
Dayton, OH
Daytona Beach, FL
Decatur, GA
Decatur, IL
DeKalb, IL
Delaware, OH
Delaware City, DE

Denison, TX
Denton, TX
Denver, CO
Des Moines, IA
Detroit, MI
Dover, NH
Dubuque, IA
Dunkirk, NY
Durham, NC
Eagleville, PA
Easton, PA
El Paso, TX
Elizabeth, NJ
Elizabeth City, NC
Elizabethtown, KY
Elmira, NY
Elyria, OH
Eugene, OR
Evansville, IN
Everett, WA
Fairfax, VA
Fall River, MA
Farmington, CT
Fayetteville, AR
Ferguson, MO
Fernandina Beach, FL
Findlay, OH
Flint, MI
Fontana, CA
Fort Lauderdale, FL
Fort Myers, FL
Forth Smith, AR
Fort Walton, FL
Fort Worth, TX
Farmingham, MA
Fresno, CA
Fullerton, CA
Gaffney, SC
Galveston, TX
Geneva, IL
Glen Falls, NY
Glendale, CA
Gorman, CA
Great Falls, MT
Greensboro, NC
Greenville, SC
Greenwich, CT

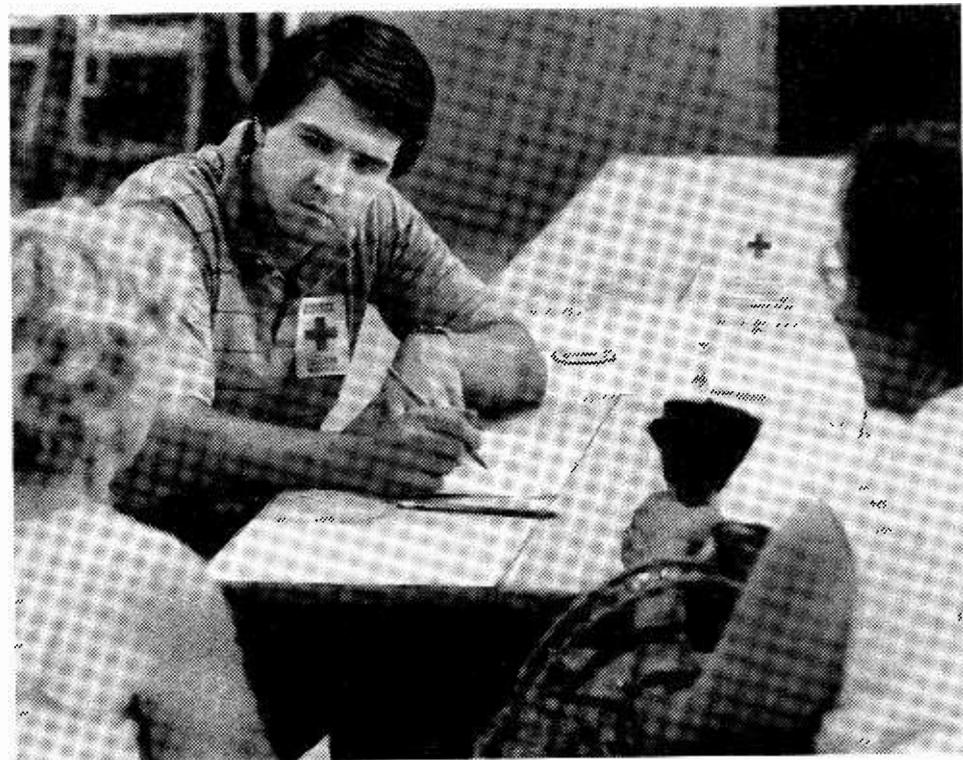
Gretna, LA
Guerneville, CA
Hamilton, OH
Hammond, IN
Hanford, CA
Harrisonburg, VA
Harvey, IL
Hayward, CA
Hemet, CA
Highland Heights, KY
Hixson, TN
Homestead, FL
Honolulu, HI
Hopkinsville, KY
Houston, TX
Huntsville, AL
Hyannis, MA
Hyattsville, MD
Idaho Falls, ID
Indian Hill, OH
Indianapolis, IN
Inglewood, CA
Ithaca, NY
Jackson, MS
Jackson, TN
Jamestown, NY
Jersey City, NJ
Joliet, IL
Joplin, MO
Kankakee, IL
Kansas City, KS
Kansas City, MO
Keene, NH
Kenner, LA
Kingsland, GA
Knoxville, TN
Lafayette, LA
Lake Arrowhead, CA
Lake Charles, LA
Lakeland, FL
Lakeport, CA
Lakewood, CO
Lancaster, OH
Lancaster, PA
Langhorne, PA
Las Cruces, NM
Las Vegas, NV
Laurens, SC
Lawrence, KS
Lawrence, MA
Lawton, OK
Leavenworth, KS
Lebanon, PA
Lees Summit, MO
Lexington, KY
Liberty, MO
Lima, OH
Lincoln, NE
Little Rock, AR
Livermore, CA
Lombard, IL
Long Beach, CA
Longmont, CO
Longview, WA
Lookout Mountain, TN
Los Angeles, CA
Los Gatos, CA
Louisville, KY
Lowell, MA
Lubbock, TX
Lynn, MA
Macon, GA
Madison, WI
Manchester, CT
Manchester, IA
Manitowoc, WI
Mansfield, OH

Marietta, GA
Marion, OH
Mariposa Ct., CA
Marrero, LA
Maryville, MO
Maryville, TN
Marysville, OH
Mason City, IA
Mayville, NY
Medford, OR
Memphis, TN
Meridian, MS
Miami, FL
Middletown, CA
Midland, MI
Midland, TX
Milford, CT
Millburn, NJ
Millersburg, OH
Moneola, NY
Minnetonka, MN
Mobile, AL
Monrovia, CA
Montgomery, AL
Mount Healthy, OH
Mundelein, IL
Muscatine, IA
Muskogee, OK
Napa, CA
Nashua, NH
Nashville, TN
New Albany, MS
New Bedford, MA
New Brunswick, NJ
New Haven, CT
New Orleans, LA
New Philadelphia, OH
New York, NY
Newark, NJ
Newhall, CA
Newport News, VA
Newton, MA
Norfolk, VA
Norman, OK
Northampton, MA
Nyack, NY
Oak Ridge, TN
Oakland, CA
Oklahoma City, OK
Olathe, KS
Olean, NY
Omaha, NE
Oneida, NY
Orange, TX
Orlando, FL
Oshkosh, WI
Ottawa, OH
Pacifica, CA
Painesville, OH
Palm Springs, CA
Palo Alto, CA
Panama City, FL
Paris, TX
Park Ridge, IL
Pasadena, CA
Pasadena, TX
Patchogue, NY
Pawtucket, RI
Pensacola, FL
Peoria, IL
Philadelphia, PA
Phoenix, AZ
Pikesville, MD
Pinyon, CA
Plainview, TX
Plattsburg, NY
Pleasant Hill, CA

Pomona, CA
Pontiac, MI
Port Arthur, TX
Port Clinton, OH
Port Jervis, NY
Portland, ME
Portland, OR
Portsmouth, VA
Pratt, KS
Provincetown, MA
Raleigh, NC
Ravenna, OH
Reading, PA
Redlands, CA
Redwood City, CA
Reno, NV
Richmond, IN
Richmond, KY
Richmond, TX
Richmond, VA
Riverside, CA
Roanoke, VA
Rochester, MN
Rochester, NY
Rock Island, IL
Rockford, IL
Rockville, MD
Roseville, MI
Running Springs, CA
Rushville, IN
Sacramento, CA
Saint Charles, MO
Saint Petersburg, FL
Salem, MA
Salem, OR
Salinas, CA
Salisbury, MD
Salt Lake City, UT
San Angelo, TX
San Antonio, TX
San Bernardino, CA
San Bruno, CA
San Diego, CA
San Francisco, CA
San Jose, CA
San Juan, PR
San Rafael, CA
Sanford, ME
Santa Clara, CA
Santa Cruz, CA
Santa Monica, CA
Santa Paula, CA
Santa Rosa, CA
Santee, CA
Santiago Peak, CA
Sarasota, FL
Savannah, GA
Schenectady, NY
Seattle, WA
Sebastopol, CA
Shreveport, LA
Shrewsbury, NJ
Sioux City, IA
South Bend, IN
South Portsmouth, KY
Spokane, WA
Springfield, IL
Springfield, MO
Wichita, KS
Wichita Falls, TX
Williamsport, PA
Wilmington, NC
Woonsocket, RI
Wooster, OH
Worcester, MA
Youngstown, OH



Red Cross volunteers respond to residents during a flood.



North Sewickley, PA, June 4, 1985 - A case worker assists victims of tornadoes which devastated western Pennsylvania, southwestern New York and eastern Ohio May 31, 1985.

The Red Cross holds licenses on 47.500 MHz at the following locations:

Alexandria, VA	Lynn, MA
Anaheim, CA	Madison, WI
Anaheim Hill, CA	Manitowoc, WI
Anchorage, AK	Nashua, NH
Angleton, TX	Newhall, CA
Barstow, CA	Ontario, CA
Beford, IN	Oshkosh, WI
Canton, OH	Palm Springs, CA
Dallas, TX	Pasadena, CA
Elyria, OH	Pinyon, CA
Evansville, IN	Redlands, CA
Fontana, CA	Riverside, CA
Fort Lauderdale, FL	Running Springs, CA
Fullerton, CA	San Bernardino, CA
Hammond, IN	San Buenaventura, CA
Hemet, CA	Santa Ana, CA
Holland, MI	Santa Paula, CA
Keene, NH	Van Nuys, CA
Kiel, WI	Ventura, CA
Laguna Niguel, CA	West Covina, CA
Los Angeles, CA	White Plains, NY

The Red Cross holds licenses on 47.540 MHz at the following locations:

Anderson, IN	Menlo Park, CA
Barstow, CA	Ontario, CA
Cleveland, OH	Palm Springs, CA
Daly City, CA	Pinyon, CA
Fontana, CA	Redlands, CA
Hemet, CA	San Bernardino, CA
Highland, OH	San Francisco, CA
Ithaca, NY	Santa Cruz, CA
Lexington, KY	

The Red Cross holds licenses on the following miscellaneous frequencies at the following locations:

Adrian, IL	464.625, 469.625
Amarillo, TX	155.280
Bedford, NY	462.675, 467.675
Bridgeport, CT	463.225, 468.225
Burlington, VT	155.235, 155.280, 155.340
Cambridge, MA	472.1875, 475.1875
Claremont, CA	154.515, 154.540, 154.570, 154.600, 154.625
Cleveland, OH	462.675, 467.675
Columbus, OH	155.220
Corona, CA	462.675, 467.675
Crestline, CA	462.675
Dallas, TX	462.675, 467.675
Detroit, MI	464.175, 469.175
Farmington, CT	43.000, 46.040
Flint, MI	43.000
Fort Collins, CO	155.220
Fort Dodge, IA	155.235
Fort Lauderdale, FL	155.160
Fort Myers, FL	45.920
Fort Pierce, FL	34.880

The Red Cross holds licenses on 47.580 MHz at the following locations:

Boston, MA	South Bend, IN
Dayton, OH	Tiffin, OH
Eaton, OH	Xenia, OH
Lafayette, LA	

The Red Cross holds licenses on 47.620 MHz at the following locations:

Hayward, CA	Rockville, MD
Mesa, AZ	Tollison, AZ
Richmond, VA	

The Red Cross holds licenses on 47.660 MHz at the following locations:

Anaheim, CA	Livermore, CA
Anaheim Hill, CA	Lowell, MA
Burlingame, CA	Newport, RI
Cambridge, MA	Pawtucket, RI
Columbus, OH	Providence, RI
Fullerton, CA	San Francisco, CA
Greenwich, CT	Santa Ana, CA
Hyannis, MA	Warwick, RI
Laguna Niguel, CA	Westerly, RI
Lancaster, OH	Woonsocket, RI

Galesburg, IL	468.375, 469.625
Grand Forks, ND	152.420
Green Bay, WI	35.120
Harrison, AR	463.775, 468.775
Hawaii	151.625
Highland, NY	462.100, 467.100
Hobbs, NM	463.625, 468.625
Holland, MI	47.720
IOWA	155.235
Jacksonville, FL	155.160
Kalamazoo, MI	43.800
Ketchikan, AK	155.205
Leavenworth, KS	461.225, 466.225
Lone Wolf, OK	462.800
Los Angeles, CA	462.675, 463.475, 468.475
Lubbock, TX	155.280
Lynn, MA	464.375
Macomb, IL	464.575
Manchester, CT	46.040
Manchester, NH	42.960
Michigan	43.800
Monmouth, IL	463.375, 468.375
Montana	155.175
Montrose, CA	463.475, 468.475
Nashville, TN	461.525, 466.525
New Berlin, WI	464.125, 469.125
New Orleans, LA	155.150, 155.265
Northridge, CA	462.675, 467.675
Omaha, NE	43.000
Philadelphia, PA	806.7625
Pittsburgh, PA	464.750, 469.750
Plainview, TX	155.280
Port Arthur, TX	156.575, 156.800
Portland, OR	463.900, 462.650, 462.700
Riverside, CA	462.675
Rotterdam, NY	461.075, 466.075, 462.150, 467.150
Rushville, IL	155.295
Saint Louis, MO	463.600, 468.600
Saint Paul, MN	155.235
San Angelo, TX	154.540
Santa Ana, CA	155.280, 155.340, 462.675, 467.675
Savannah, GA	155.265
Sherman, TX	461.425, 466.425
Sidney, OH	154.540
Tehachapi, CA	462.675
Thousand Palms, CA	462.675
Tulsa, OK	155.175, 452.250, 457.250
Valencia, CA	462.675, 467.675
Van Nuys, CA	462.675
Vernon, CT	46.040
Wabash, IN	154.540
West Covina, CA	43.000
Wichita, KS	462.175, 467.175

Until next time -- Good monitoring.

International Red Cross Emergency Network (Excerpted from Grove's Short Wave Directory)

Due to its humanitarian nature, the International Red Cross enjoys immunity during armed conflict. In turn, no military or strategic involvement is allowed. Language spoken on the airwaves must be French or English and in the clear (no encoding).

Emission will be CW or SSB with field portable stations transmitting 150 watts of power. Geneva base station power is 800 watts. Frequencies underlined are most commonly reported.

<u>3801.5</u>	13973	20815	<u>29701.5</u>
<u>6998.5</u>	<u>13998.5</u>	20942	
13915	<u>20735</u>	<u>20993.5</u>	
13965	<u>20753*</u>	27998	

*(primary)

Callsign	Location	Callsign	Location
APR88	Islamabad, Pakistan	JYL88	Amman, Jordan
CER88	Santiago, Chile	OAR88	Lima, Peru
CICR5	Luang Prabang, Laos	ODR88	Beirut, Lebanon
CPCR88	Asuncion, Paraguay	OER88	Vienna, Austria
CPR88	La Paz, Bolivia	PGA88	Delft, Holland
CRC88	Lome, Togo	SUR88	Cairo, Egypt
CX8CRU	Montevideo, Uruguay	S2C88	Dacca, Bangladesh
DKR82	Bonn, West Germany	TICR88	San Jose, Costa Rica
DUG88	Manila, Philippines	TDR88	Guatemala
EAR88	Madrid, Spain	VPR88	Nassau, Bahamas
HBC88	HQ Versoix, Switzerland	VWA510	New Delhi, India
HBC88A	Geneva, Switzerland	XUR88	Phnom Penh, Khmere Rep
HCR88	Quito, Ecuador	XWR88	Vientiane, Laos
HHR88	Port-au-Prince, Haiti	YKR88	Damascus, Syria
HICR88	Santo Domingo	YNCR88	Managua, Nicaragua
HJC88	Bogota, Colombia	YVPR8	Caracas, Venezuela
HPC88	Panama City, Panama	YSCR88	San Salvador, El Salvador
HRC8	Tegucigalpa, Honduras	4XR88	Jerusalem, Israel
HSR59	Bangkok, Thailand	4WA2	Sanaa, Yemen
ICRC1	Decca, Bangladesh	8PRC88	Bridgetown, Barbados
		9JR88	Lusaka, Zambia

MT

PLANE TALK

Jean Baker, KIN9DD
213 W. Troy Ave. 4C
Indianapolis, IN 46228

THE INDIANAPOLIS DOWNTOWN HELIPORT

The Indianapolis Downtown Heliport is located just east of the main downtown business district on the site of a former newspaper warehouse. As far back as 1969, there was a private area for landing which included a windsock, a yellow triangle and some concrete barriers that divided the parking area from the helicopter landing area which was owned by Conrail.

In 1979 the Indianapolis Airport Authority obtained the property and turned it into a public use landing site, thus entering the Heliport into the National Aerospace Program making it available for federal funding.

Next, they went to the county government and got a height zoning put into effect, which meant that on the approach/departure fans, buildings cannot be built above a certain height. They knew that once the project for a downtown heliport were made public, property owners might try to block them because of noise. These business and property owners were soon pacified once they realized that the heliport would bring business, not drive it away!

In 1982, the Indianapolis Airport Authority entered the competition for the FAA national prototype demonstration heliport project and, in 1983, was one of four cities selected. This will be a pilot project for some 25-30 heliports around the country by the year 2000.

Operations

The working plan is to give the heliport all-weather operating capabilities 24 hours a day. An Automatic Weather Observation System will give real-time weather at the heliport site. It is similar to an ATIS in that it continually broadcasts the weather, ceiling height, visibility, and other conditions that pilots must be aware of. However, this information that is given is taken right on-site, and it is updated every minute.

An ATIS is updated every hour (or sooner if there's a significant change) and a human has to make the tape, plug it in, then change it when necessary. The new real-time system is continually updated by itself (with the help of a computer) to give pertinent weather information to helicopter pilots who are landing on or departing from the heliport. It

broadcasts on a discrete frequency of 124.025 (see table below).

It is hope that the installation of a microwave landing system will be completed by December of this year, even though the helicopters are not yet equipped.

Operations at the Indianapolis Downtown Heliport have been averaging between 750 and 1,000 per month; By the year 1990 the FAA hopes to reach their projected goal of 15,000 per year, but it looks as if this figure will be reached before then.

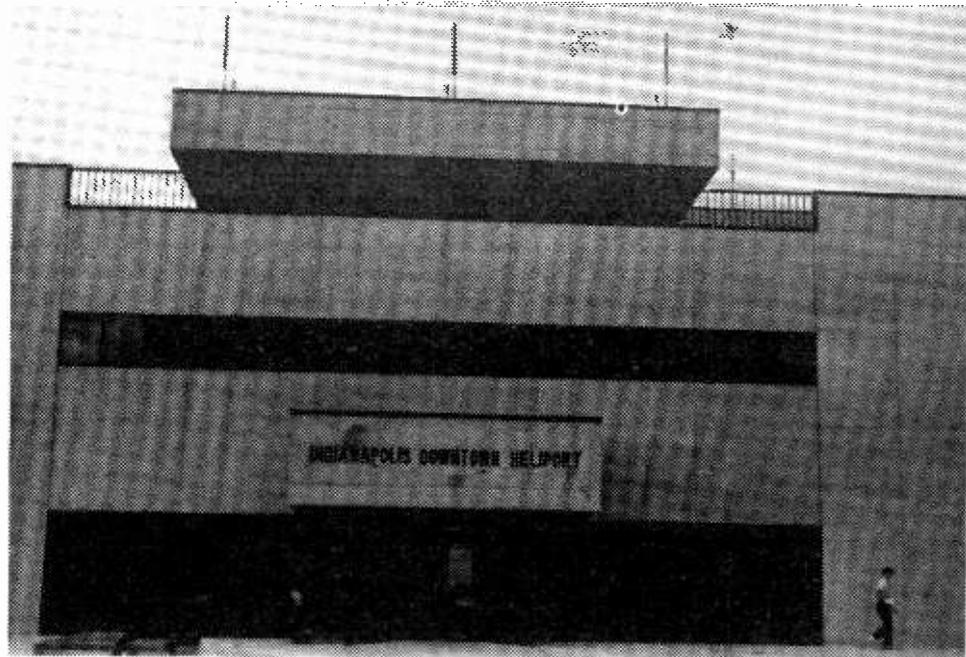
Since there is no control tower, the helicopter pilots use a UNICOM frequency (123.05) and sometimes 122.8 as backup. The pilots usually call when they are about five miles out and get an advisory for landing; The pilot is also told where he will be parking once he had landed and asked what he may need in the way of fuel, lodging and other requirements.

As the heliport is outside the Indianapolis International Airport Air Traffic Control Tower's control zone, they do not have to report to the tower's controllers. Also, at 2000 feet and below, they are considered outside the TCA (Terminal Control Area) within this sector.

Sixty-five percent of all helicopter traffic operations are private, mostly

HELICOPTER/GROUND FREQUENCIES	
123.050	122.900
123.300	123.500
123.075	122.825
122.900	
HELICOPTER AIR-TO-AIR	
123.025	

The above frequencies are the most commonly used by helicopters. However, you may find others that are also used in your particular location. If you have a search/scan capability on your scanner, program the low end at 121.6 and the high end at 124.000. Then let it scan and check out the various frequencies on which it stops scanning. You may find quite a few which helicopter pilots utilize that I do not have listed. Write to me and let me know!



Above: Front Entrance of Downtown Heliport; Below: Reception Desk at the Heliport *All photos by A. Dale Spurgeon



corporate aircraft. Ten percent are military in nature and twenty-five percent are emergency medical services such as Lifeline. Other include radio and TV traffic-reporting helicopters.

Since the heliport does maintain 24-hour, 365-days-a-year service, the medical capability provides a tremendous advantage to one of the largest hospitals in the area which is about one minute's flying time from the heliport. If the EMS helicopter is on a back-to-back run, they can unload at the hospital, come in to the heliport to gas up, then take right off again without having to coordinate at all with ATC (Air Traffic Control) out at the airport.

The National Guard and Reserve units are the main military users of these facilities. They come in from as far away as Columbus, Ohio, and use the Indy Downtown Heliport as a refueling point. Since this facility also has an instrument approach resource, the pilots can receive additional training.

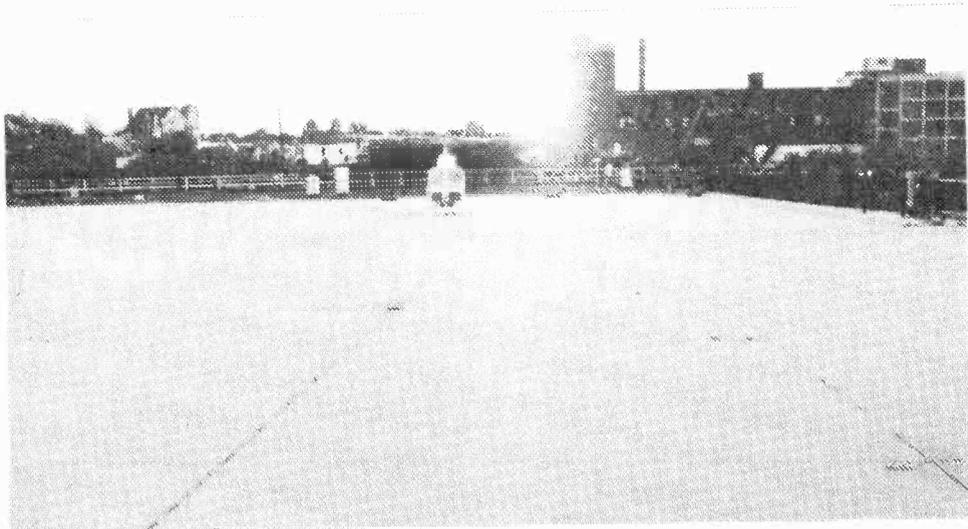
Other facilities at the heliport include a rooftop restaurant where I watched the helicopters approach and depart while eating; office space

and secretarial services for out-of-town executives; limousine service and a courtesy van; an on-site conference room with catering services; a pilot's lounge and flight planning room; and maintenance facilities which are quite extensive with all of the latest state-of-the-art tools.

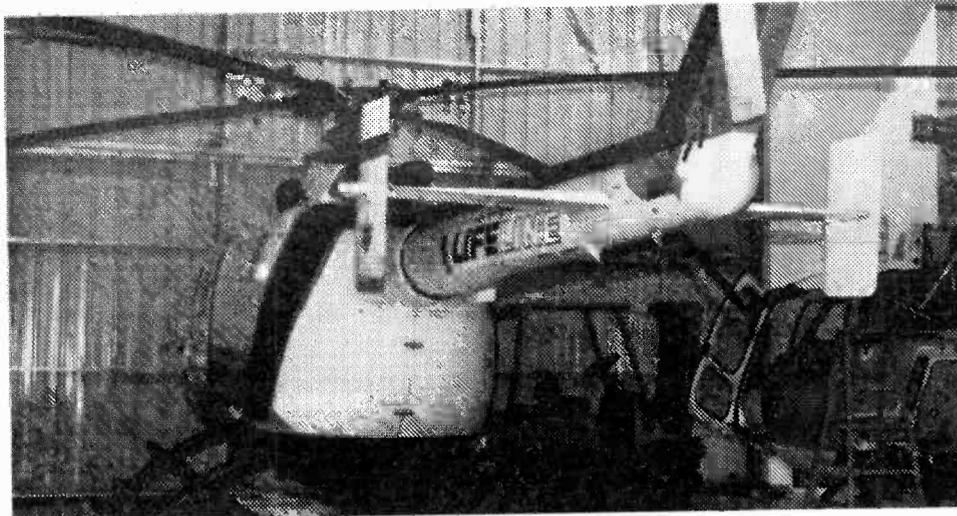
NOTES FROM THE HANGAR

Lambert Huneault (Ontario, Canada) wrote to me about a new game that he'd picked up for his Commodore 64: KENNEDY APPROACH. He says that it's about the closest thing to being in an Air Traffic Controller's position that you can imagine. It puts you in the seat of an Approach Controller as the monitor screen becomes the controller's radar scope, and you can see the aircraft moving from the moment that they appear on the edge of the screen (handoff from ARTCC) until touch-down on the runway. You use the keyboard and joystick to communicate instructions to pilots.

Bert says the program includes "the best voice synthesis that I've heard on my computer so far." You even hear the brief squelch tail between



Landing Site at Heliport



Medical Services Helicopter in Maintenance Bay

pilot and controller conversations!

Another reader (who wishes to remain anonymous) reports that the Boston ARTCC (Air Traffic Control Center) has acquired seven sectors' worth of airspace from the New York Air Traffic Control Center.

The new sectors cover an integral part of the Boston Center, New York Center and New York TRACON (Terminal Radar Control) airspace.

The airspace transfer involves approximately 16,000 square miles and extends the Boston Center's



About the Article

I interviewed Mr. Vic Bandini, Vice President of Operations for the Indianapolis Downtown Heliport, for this installment of "Plane Talk." Mr. Bandini is also a pilot who holds ratings for several different types of aircraft which include Commercial, Multi-engine, Instrument, Helicopter (Rotocraft Commercial/Instrument), and CFI. He is a Viet Nam Veteran.

Mr. Bandini graciously allowed us full access to the heliport's many and varied facilities and departments. Shortly after this interview, I accepted employment with a company just a few blocks from the heliport, where I enjoy sitting on the patio, eating my lunch and watching the helicopters going in and out of the heliport.



Vic Bandini
Vice President of Operations

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 - Scan
 - 24 hour clock
- A.C. Adapter AC9W Optional



SONY ICF 4910

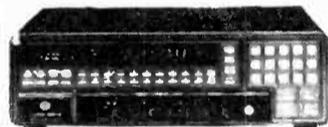
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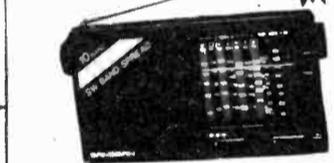
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jurisdiction to a point south of Kennedy airport and just east of Wilkes Barre, PA. Approximately 35 additional airports will come under Boston Center's control. See the accompanying table for the new sector frequencies.

Readers who are in the listening vicinity of Boston Center should have been able to pick up aircraft flying through these new Boston Center frequencies as of July 12, 1986. Looks like the controllers at Boston Center are going to have a real increase in their workload. The reader who wrote to me with the above info did not state whether Boston gave up any airspace to an adjoining center in exchange for the new that they received.

That's all for this month. The next installment of PLANE TALK will be one that you don't want to miss: I will be doing an on-site interview with the Manager of Air/Ground Operations for ARINC's SAN FRANCISCO facility, so watch for this in the December issue of MT. Until then, 73s and out. ■

NEW BOSTON CENTER FREQUENCIES

SECTOR	Name	VHF Freq	Location	UHF Freq	Location
04	IGN	135.55	Shelton	343.8	Shelton
05	SWF	133.1	Kingston	256.9	Kingston
06	PWL	128.1	Shelton	269.2	Shelton
17	SARDI	133.3	Calverton	269.4	Calverton
18	HTO	134.45	Sayville	385.6	Sayville
19	CMK	132.3	Shelton	306.3	Shelton
20	BDR	134.0	Shelton	317.7	Shelton

MT'S FAMILY OF WRITERS

Jean Baker

Jean Baker, like so many MT columnists, has a distinguished professional background quite apart from her intensive hobby experience of radio monitoring. Born in Chicago and educated in Cleveland, Ohio, Jean's formal training has been in executive personnel recruiting, holder of a life designation as a Certified Personnel Consultant.

Her lifelong interest in aviation as well as her regular visits to major air traffic control centers has provided Jean with an unusually good background in aeronautical communications.

Jean has been MT's "Plane Talk" columnist since early 1985; she is also Aviation Editor for the All-Ohio Scanner Club (AOSC), former Aero Editor of "Global Flashes" (Radio Communications Society of the World; now disbanded), author of "Hi-Jinks" (a comic verse booklet on aviation communications), and an Honorary Air Traffic Controller.

While continuing to write for MT, Jean is also working on a book concerning the technical aspects of monitoring HF and VHF radio



communications.

A graduate of George Rogers Clark College and Indiana Vocational Technical College, Jean's hobbies also include computer technology, ham radio and shortwave broadcast DX'ing of the Pacific region.

CONGRATULATIONS, DON DENEUF!

A name which has appeared in thousands of articles for decades in hobby and professional journals is that of Donald K. deNeuf. MT has shared many of his insights into the history of radio and electronics through the years and will continue to do so.

We are pleased to announce to our readers that Don will receive the coveted Ralph Butcher Memorial Award from the Radio Club of America at a banquet this November to be held in New York City.

The citation reads: "For his many documentations of radio history thru numerous articles he has written over the years".

A fitting tribute to a writer of many talents.

WESTERN UNION -- The Infamous Despot?

by Don deNeuf, WA1SPM

As late as 1894 the International Typographical Union at congressional hearings in Washington complained that there was "a tremendous bar in the way of starting newspapers--it being virtually impossible to launch a daily without the consent of Western Union...any paper attempting to

assert its own individual opinion as against the Western Union would suffer for it."

During the late 1860's several bills in congress proposed government construction of wire lines between Washington, New York and Boston. Others called upon the government to purchase all telegraph lines in the country.

G. C. Hubbard, a Boston attorney and promoter, proposed to "slay the Western Union dragon" by organizing a telegraph company to be called the "Postal Telegraph Company" which would operate all the lines in the nation under government auspices.

President Grant's first postmaster-general, Cresswell, was strongly in favor of a government ownership (with, of course, the U.S. Postal Service handling it). He said that to destroy rivalry, Western Union "did not scruple to use any device which the strong can employ against the weak...the time is not far distant when WU will be without a substantial competitor in the conduct of the telegraph business, which despite its enormous growth over the last seven years is still in its infancy."

Congressman C. A. Summer of California, the persistent worker for the postal or government operation on the telegraph made a scathing address in San Francisco in October 1875 denouncing Western Union.

Beginnings That Made History

Western Union's history began on April 1, 1851--seven years after the first telegram was sent--when a small group of Rochester (NY) businessmen organized its parent company, the New York and Mississippi Valley Printing Telegraph Company. The company started with 550 miles of wire and the right to use a telegraph printer invented by Royal E. House.

The House machine, resembling a small piano, was the first telegraph instrument to print actual letters, numerals and punctuation marks instead of code symbols. It was an important beginning, for the House printer established the basis

for today's high-speed, automatic printing telegraph machines.

When Western Union began there were fifty different telegraph companies in operation. There was no interconnection of lines--messages were physically transferred from one company to another and rates were as high as \$20 for a single telegram.

During its first five years the company acquired eleven other lines operating in the five states north of the Ohio River. In 1856 the Company's name was changed to Western Union which was suggested by Ezra Cornell, pioneer line builder, who later helped to found Cornell University.

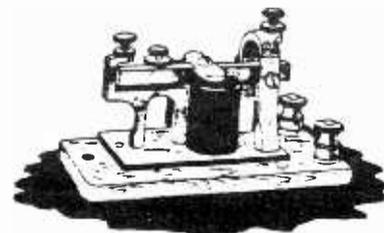
Western Union completed the first continental telegraph in 1861. The nation was divided in civil war. The only fast communication with the far west was by Pony Express which required as long as ten days to carry mail and telegrams from the telegraph's western terminal at St. Joseph, Missouri, to Sacramento, California.

Experts warned it would take ten years to build a 2000-mile wire across the western plains and mountains; instead, with teams building from east and west, the job was completed in less than four months.

When the strands of wire were joined at Salt Lake City on October 24, 1861, the Pony Express went out of business. Edward Creighton, the surveyor and line builder, later helped to establish Creighton University at Omaha.

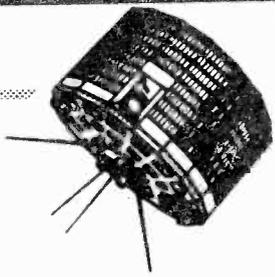
A little known historical fact is that Western Union's early activities led to the purchase of Alaska by the United States. Shortly after the Civil War, WU sought to link the U.S. with Europe by building a 16,000-mile land wire through Western Canada and Russian America (now Alaska), across the Bering Strait and through Siberia.

The project was abandoned when the trans-Atlantic cable was successfully laid in 1866; however, while negotiating for permission to build a wire line through Russian America, Western Union president Hiram Sibley urged the purchase and, in 1867, the United States bought from Russia what is now Alaska--the 49th state--for \$7,200,000, about two cents an acre, probably the greatest land bargain in history!



FAX FACTS

G. P. Mengell
2685 Ellenbrook Drive
Rancho Cordova, CA 95670



FACSIMILE -

the science of sending pictures by radio or wire

This month we begin a new column to distribute news and information about terrestrial and satellite facsimile transmissions that you can monitor, including press photos and weather maps and charts. With your input--letters, questions and suggestions--we will cover frequencies, FAX machines and sources for them, facsimile gems and dogs, receiving devices for shortwave, APT and WEFAX, and antennas. Later, satellite picture interpretation and a short weather primer will be discussed.

All articles will be written in plain language; equations and acronyms will be kept to a minimum, or definitions will be included. Our focus will be to help MT readers set up weather FAX stations with a minimum amount of difficulty.

Contrary to many rumors, there is no difficulty associated with setting up satellite WX (weather) systems; no rotators are necessary and very seldom is a dish required. In short, I think we are all in for a good time with this column. I invite correspondence and inquiries.

The past month my company - APT Associates - was involved in setting up a weather satellite receiving station at the Space Sciences Academy at Stanford University in Palo Alto, California.

We installed four machines: one for the polar orbiter (Tiros); another for the Geostationary WX satellite (GOES); one for shortwave interpretive support from WWD in La Jolla; and one in reserve. We also employed a Wrasse video FAX terminal to supply "real time" spacecraft views to screens on the Space Station Simulator that was used at the Academy.

Most programmable scanners will permit you to monitor APT (automatic picture transmitting) satellite frequencies: NOAA 9 - 137.620 MHz; NOAA 6 - 137.500 MHz; USSR Meteor Sat - 137.3, 137.850, 137.400.

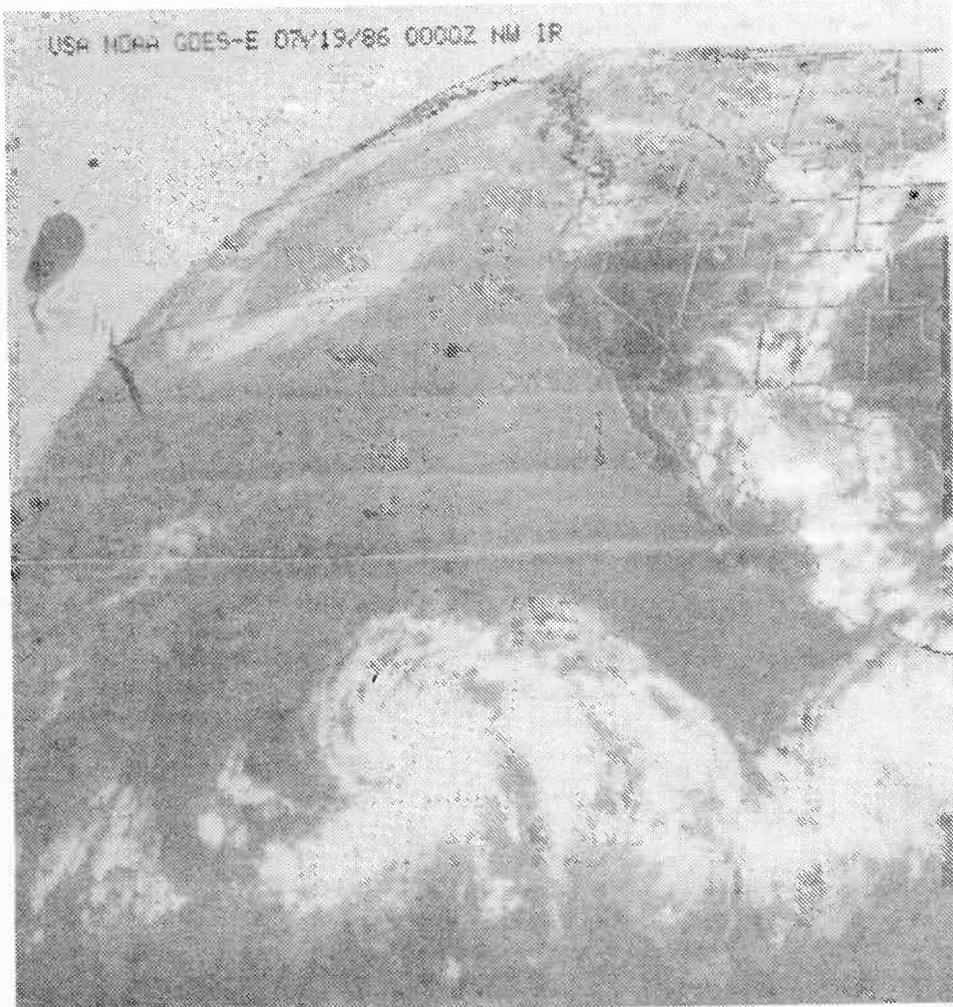
All the above run at 120 scans per minute with the exception of the 137.400 frequency which is recently reported to be at 240 scans. The geostationary satellites operate at



1691 MHz and provide day and night coverage of the world. It is divided into GOES imagery, European Space Agency's Meteo satellite, and mosaics of combined TIROS passes over many areas of the world.

NEXT MONTH: Setting up the APT/GOES facsimile station -- the equipment and where to get it. Any and all suggestions welcome. I can be reached at 916-364-1572. No collect calls, please!

Considerably reduced in size from the original, these NOAA weather maps are excellent examples of the kind of weather monitoring possible with facsimile receiving equipment. Space prohibits showing the receiving station our columnist describes, so look for it next month. Obviously Mr. Mengel comes to us with considerable expertise, and we thank him warmly for filling a long-standing lack of facsimile coverage.



SIGNALS FROM SPACE

Larry Van Horn
160 Lester Drive
Orange Park, FL 32073



• Those *MT* readers that are keenly interested in happenings in space are not alone; several groups specialize in space related activities. My list of organizations is by no means complete. *MT* readers knowing of others are asked to drop me a line via the column masthead address above.

The group that has probably received the most attention in these pages over the last three years is AMSAT (Radio Amateur Satellite Corporation), home-based in Washington, D.C.

Primarily an amateur radio organization, this group provides the leadership in building and launching amateur radio satellites for the worldwide amateur radio community.

You do not have to be an amateur radio operator to join AMSAT and money from dues goes directly into services and financing future satellites. AMSAT's monthly journal distributed to members has been on rocky roads lately, but I feel that the worst is almost over and members now receive the *Amateur Satellite Report*. I have taken this fine publication for the last several years now and that alone would be worth membership in AMSAT.

For more information on AMSAT, write: AMSAT, P.O. Box 27, Washington, DC 20044.

• Another organization you might look into is the International Satellite Society which distributes the *World Satellite Journal*. Members' activities have included receiving telemetry and voice transmissions from Salyut 7.

For \$10.00 the group sells a popular computer program in the form of a "Transportable Basic" satellite tracking program. This will help newcomers in tracking satellites for either visual or radio observations.

The address for the ISS is: International Satellite Society, P.O. Box 670, Oxford, Ohio 45056.

• For those *MT* readers who would like to try their hand at tracking satellites visually, there are two fine organizations you might consider joining.

The artificial satellite section of the British Astronomical Association is headed by Howard Miles. Beginners receive instructions and charts. For more information write to: Howard Miles; Lane Park, Pityme, St. Minger; Wadebridge, Cornwall PL27 6PN; England.

If you do not live in Europe and want to work with a group a little closer to home, Jim Hale has organized the Amateur Satellite Observers group. This small and informal group still has a way to go to become a U.S. version of the BAA, but you will not be disappointed in its coverage.

Jim redistributes NASA orbital elements for bright objects in a monthly data letter to members and also discusses visual sightings by himself and others. Objects such as spy satellites, those that appear to be in decaying orbits, tumbling in an unusual manner, or breaking up, get special attention.

For more information, send Jim a SASE and a small donation to: Amateur Satellite Observers, c/o Jim Hale, HCR 65, Box 261-B, Kingston, Arkansas 72742.

• While on the subject of visual satellite tracking, those of you interested in the subject will find the book *Observing Earth Satellites* by Desmond King-Hele indispensable. Desmond's book is the reference on the subject and should be available at your local book store.

• While not a formal group per se, active monitors should not overlook CompuServe (if equipped with a computer and modem). *Sky and Telescope* has an electronic news service. In addition there is also a CompuServe SpaceForum special interest group that exchanges computer programs and information.

• Weather satellite enthusiasts have a group of their very own. Raul Alvarez publishes a journal for weather satellite buffs called *Worldview*. Environmental satellite users can write to the following address for more information: *Worldview*, c/o Raul J. Alvarez, 2512 Arch Street, Tampa, FL 33607.

• While not devoted to actual monitoring of satellites, the United States Space Education Association (USSEA) covers space and spacecraft operations from a layman's point of view. This organization has been around for several years now, and is devoted to public awareness of space through its journal *Space Age Times*.

Membership in USSEA for hardcore space junkies is a must. For more information write: United States Space Education Association, International Headquarters, 746

Turnpike Road, Elizabethtown, PA 17022.

• Finally, a plug for a group which supports the youngsters. President Reagan's Young Astronaut Program is very important in getting more of the students in school interested in space and the sciences. Materials to help students realize studies in these areas are provided to schools which have organized chapters. I encourage parents to get active with this program and help organize chapters in your local schools. The kids are the future.

For more information contact: Young Astronauts Program, P.O. Box 85432, Washington, DC 20036.

When writing to the all of the above groups, please mention that you read about it in *MT's* "Signals from Space."

• *MT* reader Jeff Wallach has informed me that his Datalink RBBS is now the central clearinghouse for notices and messages related to NOAA WEFAX data per a recent conversation with Robert Popham of NOAA/NESS. This is a great BBS for satellite information, Keplerian data and satellite frequencies. The number for this BBS is 214-340-5850.

• Things are moving a little slowly around here with the western world's satellite launching capability at a standstill. As most of you know in addition to the STS-51L disaster, the unmanned program of all the western nations has ground to a halt due to several major launch failures.

The failures included two Titan 34D rockets carrying DoD military payloads, a Delta rocket failure carrying a GOES weather satellite, and ESA's Ariane rocket carrying an Intelsat communications satellite.

In the meantime, the Russians have not sat still; They have continued their very ambitious space program and next month SFS will look into what they have been up to and the frequencies they are doing it on. We will also feature several *MT* readers' reports on their Soviet space monitoring efforts.

Finally I would like to thank all of the *MT* readers that showed up for the first ever *General Satellite Listening Forum* in August at the Jacksonville Hamfest. It was a real pleasure meeting all of you and getting the chance to share information on monitoring satellites.

I have been invited back next year and I hope to meet many more of you. Who knows, maybe I will meet a few more of you at the Orlando, Florida, Hamfest next year. 'Til next month, 73's to all. ■

MT MONITORING POST

Proud of your monitoring post or ham shack? Then this is your column--Send your photo and a brief description to Monitoring Post c/o Bob Grove or Larry Miller and see yourself in print!



Juan Illa seated at his listening post in Miami, Florida. His equipment: Kenwood R-2000, Grove MiniTuner-3, Palomar Engineers Ferrite Loop

Antenna, Allied FM receiver A-2589, Hallicrafters receiver R-274D/FRR, and Kantronics Mini-Reader.

HAM RADIO

Mike Mitchell, Jr, W7WHT
P.O. Box 20279
Seattle, WA 98102-1279

Keeping an Ear on Amateur Radio

When I read recently that Bob Grove wanted to include a ham column in *Monitoring Times*, I was delighted for several reasons.

First, whether they realize it or not, all hams are also SWL's. Clearly, before they are licensed it's all they can legally do. And after they're licensed, it's what they do first in order to make contacts!

Second, many hams are also SWL's in that they listen to other bands for all the same reasons that non-ham SWL's do. They like the excitement, the challenge, the education, and the entertainment it provides.

Third, most non-ham SWL's occasionally or regularly listen to the ham bands as a part of their overall SWL activities. Hams use many different modes and are involved in many interesting activities that the average SWL also finds interesting.

Fourth, many hams were non-ham SWL's who, after listening to the ham bands, decided they wanted to talk as well as listen and studied for their license. They realized that they could increase the enjoyment they gain from their favorite hobby by adding a key and/or microphone and a transmitter to their collection of communications equipment.

Fifth (and finally), *MT* is a very high quality communications publication which encompasses the total spectrum of the hobby and contains something for every enthusiast (not to mention communications professionals). It is a natural extension of its editorial coverage to provide an amateur radio column for its audience.

This column will cover all areas of amateur radio, operationally, technically and historically. I intend that it will also be a participative endeavor on the part of the readers. Your letters and comments will always be welcome.

From the SWL's standpoint, our column will cover the many modes, moods and activities of hamming in an educational and entertaining manner. The intended result will be to increase your enjoyment of this fascinating facet of SWLing. Of course, I won't mind inserting a little humor from time to time, too!

Speaking of including an historical perspective in this column, how many of you know or recall that 1986 is the

100th anniversary of the discovery of the "radiation" of electromagnetic waves through space?

While it's true that in 1865, Dr. Mahlon Loomis (a dentist) demonstrated "induction" by flying two kites 18 miles apart and moved the needle on a galvanometer by connecting them to coils buried in the earth (he was another follower of Nutty Ben no doubt. You remember Nutty Ben don't you? He was that crazy fellow who flew kites in thunderstorms!), that was by induction, not radiation.

Transmission of the waves through space utilizing a "resonator" of induction coils and spark gaps was demonstrated by Heinrich R. Hertz (his last name has a familiar ring to it, doesn't it?) in 1886 and, eventually, this led to all of us being involved in SWLing, hamming and the like.

If you really want to get deeply into all this, read 200 Meters and Down by Clinton B. DeSoto which is published by the ARRL. He does a fine job of covering the early days of the discovery and development of wireless transmission as well as the early days of amateur radio.

By the way, Dr. Loomis does have his place in history assured even if his induction work didn't get very far off the ground (pardon the pun); he coined the word "aerial."

Another follower of Nutty Ben, one Guglielmo Marconi, threw caution to the winds and electrified the world when he made the first reception of a wireless signal across the Atlantic (from England) by utilizing a 400 foot vertical aerial held aloft by a kite! No wonder we think of hams as being a windy bunch.

In modern times, perhaps the biggest ham/SWL event had us once again looking to the skies as Owen Garriott, W5LFL, spoke to us from space. We've come a long way from flying kites!

In those early days, SWLing was the same as hamming. There were no laws so anyone who could build a receiver could listen and anyone who could also build a transmitter could "talk"--strictly a telegraphy affair utilizing a spark gap.

During the period from 1900 to 1910, the initial International Radio Laws were formulated (1903) and we saw

the inventions of the "Fleming Valve" (diode tube) (1904), the "deForest Audion" (triode tube) (1905), the "Poulsen Continuous Wave Arc" (telephony) (1906), and the "Pickard Silicon Detector" (crystal detector) (1906).

In 1908, a fellow by the name of Hugo Gernsback started a little magazine called *Modern Electrics* which had a lot to do with crystallizing the growth of hamming and SWLing, and their survival when the first radio laws were imposed upon the citizens of the U.S.

His publishing company still publishes technical magazines and books--*Modern Electrics* is now called *Radio-Electronics* magazine and is still going strong 78 years later!

Amateurs and SWL's lead the way in this period by building tuned circuits while the government and commercial interests were still making do with the inferior untuned circuits. Their equipment was also often of higher quality and higher power than the government/commercial stations, and they could transmit wherever or whenever they wished.

But alas, all this freedom of action was not to last; as governments will, ours passed a law in 1912 which addressed amateurs and licensed their stations. They even actually tried to outlaw amateurs, SWL's and

listening to government and non-broadcast commercial stations! (sound familiar?), but cooler heads prevailed and the initial difference between hamming and SWLing was legislated.

For several years compliance with the law was very loose and many unlicensed amateurs (SWL's?) continued to operate as they previously had.

It was quite a while before the laws were truly enforced and this was finally brought about by the "Great War"--"The war to end all wars" (Since then we have learned to number them!).

A big factor in those early days were the radio clubs. By 1910, they were the "in" thing to do and, while every sizable town had one, only a few became major forces in the radio hobby. The Radio Club of America in New York, the Newark Radio Club, and others became the beacons for SWL's and the American Radio Relay League was the same for hams.

Hugo Gernsback started the Wireless Club of America which was free and signed up tens of thousands of members (most of whom subscribed to *Modern Electrics* of course!). These clubs, along with the necessities of war, organized and legitimized hamming and SWLing.

ham radio Amateur Radio's State-of-the-Art Publication



Try a subscription to Ham Radio Magazine for one year for just \$19.95. SAVE \$3 off the regular Ham Radio subscription rate of \$22.95 and \$10 off the newsstand price.

Ham Radio gives you more technical articles and the very best technical articles of the Amateur journals. Transmitters, receivers, antennas, as well as state-of-the-art design theory and practical articles. Ham Radio has got it all! In May there's our annual Antenna Issue — chock full of all kinds of antenna design ideas and projects. November brings the Receiver Issue — the very latest in receiver technology for the Radio Amateur. Many consider these two issues alone worth the price of a year's subscription.

And there's more! Monthly columns by: Joe Carr, K4IPV on the ins and outs of repairing and troubleshooting your radio; Bill Orr, W6SAI on antennas and antenna technology plus a lot more; noted HF/VHF operator and DX'er Joe Reisert, W1JR's world of VHF and UHF technology; Ernie Guerri, W6MGI on new trends in electronic technology; our own investigative reporter, Joe Schroeder, W9JUV with Presstop, your inside view to what's going on in the world of Amateur Radio; and noted government propagation expert Garth Stonehocker, KØRYW on propagation.

There's even more — but you'll have to get a subscription to find out what it is.

Fill out the coupon today and send it in before you miss another issue! Remember — you not only get Amateur Radio's finest magazine, you also SAVE \$3.00 off the regular rate.

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(HAM RADIO, cont'd)

As you can clearly see, SWL's and hams were (and still continue to be) interacting elements of this multifaceted subject called electronic communications.

We will continue this historical commentary about hams and SWL's next month discussing technical improvements, interference, traffic handling, ARRL, and the RADIO LAW.

In our present world, gone are the "simple" days of the crystal detector and the like. We now have a mode for every mood or interest and it's usually controlled by a microprocessor! This is especially true for those of you who listen to ham radio.

AMTOR, packet, RTTY, spread spectrum...where will it all end? Well, if you are one of those who has added a computer or other special reception equipment to your

monitoring post or ham station, it will end up in your ears (or eyes if you have a printer or video monitor).

As this column progresses, we will be looking at the various modes of modern hamming, the resources available to you regarding those modes, and the equipment necessary to participate in them, both as an SWL or as a ham.

We will also try to keep you on top of those upcoming ham events which are of special interest to listeners as well as doers. We will not be a replacement for the various general and special interest ham magazines and newsletters, but we will provide a unique perspective by covering the ham news with an understanding of the SWL's interests and needs, too.

So stay tuned to this same column, same magazine, next month when we will return to those golden days of yesteryear and the present by keeping an ear on amateur radio. Start those cards and letters coming!

WHAT'S NEW?

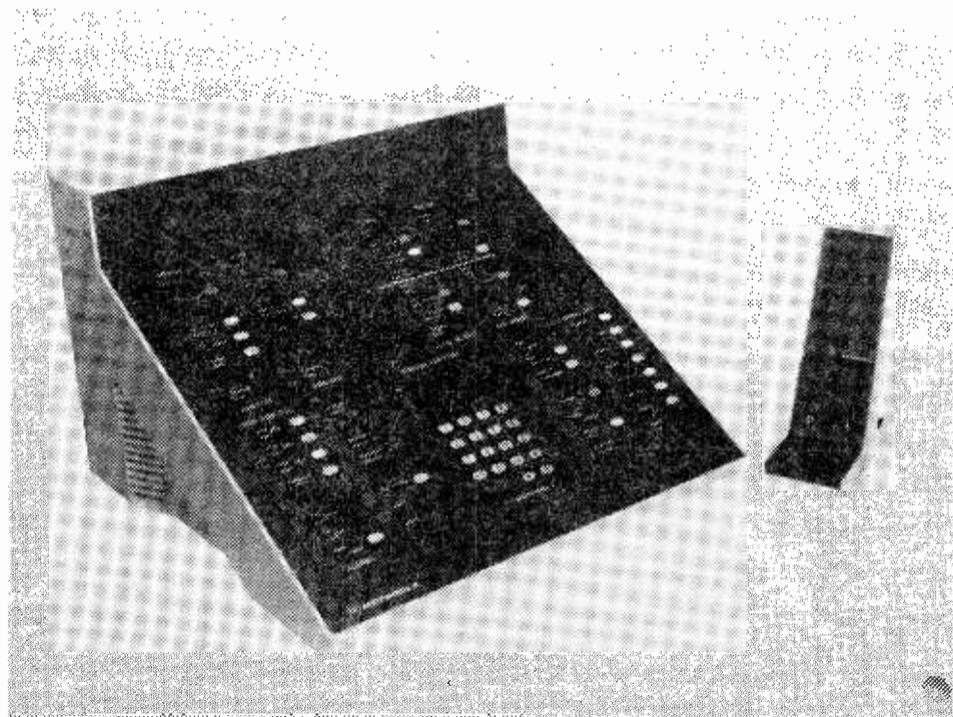


Desktop Control Console from Motorola

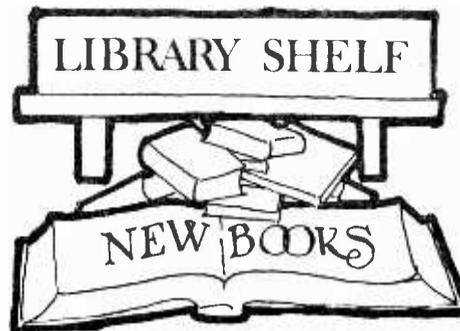
Motorola's Communications Sector has introduced the DISPATCHER 8 channel control console. Measuring slightly more than one square foot, this microprocessor-controlled console offers eight channel capability for viewing of background information such as resource status displays, maps, utility power distribution grids, or airport runways.

Other features include: control of up to eight single-frequency conventional base stations; continuous self-diagnostic testing; selective channel groupings in any of three memory locations; three independent and simultaneous patches without interrupting normal dispatching; five different multiple signalling formats; and pre-programmed paging (format, number and channel).

For more information on the DISPATCHER 8 channel control console, contact Barbara Bennett, Motorola, Inc., Communications Sector, SH-5, 1301 E. Algonquin Road, Schaumburg, Illinois, 60196.



Motorola's Dispatcher 8 Channel Desktop Control Console



CANADIAN TABLE OF FREQUENCY ALLOCATIONS (\$5.75 in Canada, \$6.90 other countries; six-ring binder \$4.50 Canada, \$5.40 other countries)

Measuring 4-3/4" x 6" and consisting of 213 pages, this 1986 edition of the Canadian Department of Communications contains the most recent revisions of the ITU (International Telecommunications Union) administrative radio conferences.

Readers should be aware that this is not a table of assignments to specific licenses, but a general guide to allocations throughout the spectrum--which services get which chunks of spectrum, 9 kHz through 275 GHz.

Available from the Canadian Government Publishing Centre, Supply and Services Canada, Ottawa, Canada, K1A 0S9; order catalog number CO 23-1-1986E.

NEWSLETTER OF INTEREST

- If you are a scanner enthusiast and living in the northeast states, *Northeast Scanning News* may be of interest. Editor Les Mattson has now issued his fifth issue, eight pages of scanner news and insights.

Les' latest issue is packed with interesting sidelights, frequencies and news stories sent to him by his subscribers. Request a free sample by mail: Les Mattson, Northeast Scanning News, 212 West Broad Street, Paulsboro, NJ 08066.

WEATHER SATELLITE HANDBOOK, Third Edition, by Dr. Ralph E. Taggart, WB8DQT (8-1/2" x 11", spiral bound, approximately 165 pages; \$12 plus \$.50 postage U.S. and Canada, \$2 postage worldwide)

Ralph Taggart's name has become synonymous with amateur weather satellite reception through his articles in 73 magazine over the years and his two previous editions. Now his long-awaited update is available.

Chapters include an overview of operating satellites; receivers, antennas and displays; accessories and test equipment for the home monitor; satellite locating methods; and commercial sources for equipment, parts and supplies. Quality of printing varies from chapter to chapter, as previously published (but still current) articles are reprinted and newer material, composed on a computer, was printed in dot matrix.

The procedure of photoreducing illustrations, charts and tables makes some of the material hard to read, but it is still sharp and, with some squinting or magnification, is perfectly legible.

But the proof is in the pudding, and this new edition is packed with solid information guaranteed to get the beginner--and experienced--satellite weather buff on the right track.

Custom Clock Kits

Want to assemble your own timepiece? The following importers and manufacturers offer excellent catalogs at remarkable savings for those home craftsmen who enjoy a weekend project.

Precision Movements
2024 Chestnut St.
P.O. Box 689
Emmaus, PA 18049

World Clocks, Inc.
1233 Knapp Dr.
Clearwater, FL 33575

Cas-Ker Co.
P.O. Box 14069
Cincinnati, OH 45214

Klockit
P.O. Box 629
Lake Geneva, WI 53147

In addition to clocks and clock kits, some of these companies also offer sundials, weather instruments and novelty items as well.

From Russia with Love --

The Selena B-215

by Jeff White

Executive Vice President, World Radio Network

I was rather surprised when a Western company promoting Soviet-made shortwave receivers gave me one for review purposes. After all, I'm just a shortwave broadcaster; I don't know anything about technical matters.

However, I do have some experience with Soviet-made products. When I lived in the southern Caribbean a few years ago, I owned a Lada automobile. The Lada is the Soviet imitation of the Fiat. It's rather crude looking (my 1979 model could have easily passed for a 1959) and totally devoid of luxury. But the thing always ran real well, and gave me very few mechanical problems. In fact, the only time it gave me trouble was when it wouldn't start one day. But the situation was easily remedied by an aggressive mechanic who beat on the starter with a wrench for fifteen minutes. You see, the Lada is built like a tank.

I also own a Zenit 35 millimeter camera, which I bought in Europe. It, too, is devoid of gadgetry but it could easily survive a fall from a second story window.

So it is with the Selena B-215 shortwave receiver. It is basic, crude but well built. And it's a portable -- if you can call 8.6 pounds "portable." (Not including six D-cell batteries!) The Soviets will simply not be outdone by Barlow Wadley for the honor of heaviest shortwave portable.

For me, the Selena B-215 is a bit nostalgic. It brings with it memories of the Japanese multi-band portables that I had when I first started listening to shortwave in 1972. The main difference is that the Selena weighs like a portable refrigerator. As for coverage, there is longwave, AM, FM and five shortwave bands (16, 19, 25, 31 and 49 meter bands). Note, however, that the 49 meter band somehow extends high enough

to include the 41 meter band, too.

The Selena B-215 is no DX machine and, as it is intended for export to Europe, does not cover the tropical bands. The controls are labeled in English and sign language, and mine came with an instruction manual in Russian and English. Even without the manual, anyone of reasonable intelligence should be able to figure it out.

The '215 doesn't come with a warranty of any sort but then again I don't suppose there are many Selena-authorized dealers outside of the Soviet Union. And the idea of air freighting one of these monsters back to Moscow would probably strip your bank account down to zero in ten seconds flat. As a practical matter, though, like the Lada, the Selena B-215 is so well built that it isn't likely to need all that much work.

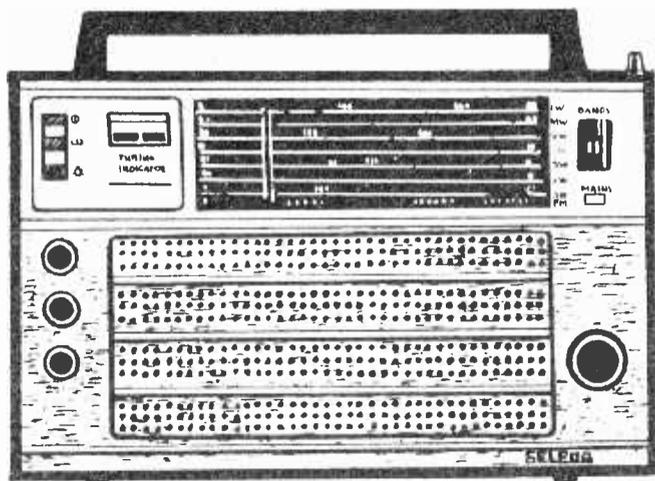
The Selena in Action

Now, let me mention some of the features of this non-heir to the Sony ICF-2010. The tuning controls are a bit crude and the dial runs from right to left (low end to high end) instead of the traditional left to right system. Needless to say, the frequency readout is not digital.

Western-made batteries work fine in the Selena and it can also be run off AC power, although it is designed for 220 volts and comes with the two-round-pin European style plug on it. This can be dealt with easily enough in North America by making a trip to your local Radio Shack store and purchasing a voltage converter and adapter. The radio also comes with a record jack, a few extra fuses and an earphone.

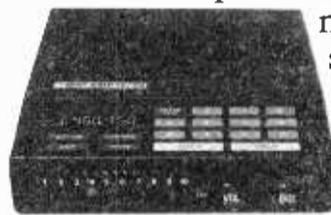
I must say that I was startled when I first turned on the radio. The first station I heard was -- appropriately

⇒



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enough -- Radio Moscow with near local AM quality. The second frequency I heard was Radio Moscow. And the third, the Radio Moscow World Service. In fact, I began to suspect something strange until I heard the Voice of America booming in nearby. Actually, the Selena has a good speaker and a very nice sound. A built-in whip antenna is well-matched to the unit, and it does a nice job of reception inside my office without any external antenna.

The only annoyance with the Selena B-215 is the way you turn it on and off. You pull the plug. The on-off switch only works with the batteries.

But seriously, folks...

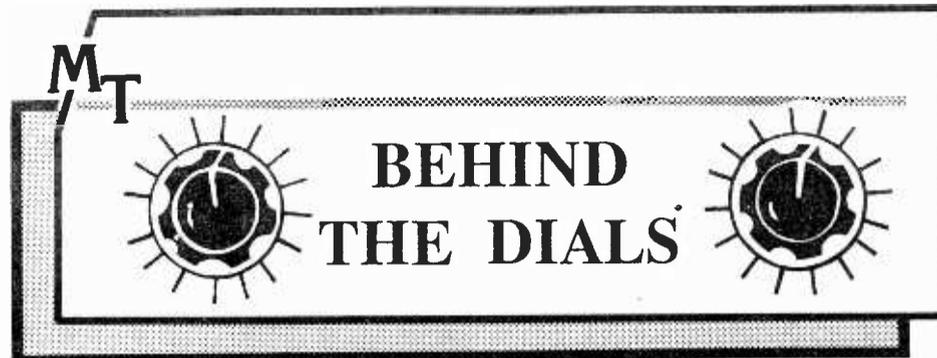
Now for the real question. Why would anyone want to own a Selena B-215? The technology employed is about 15 years behind the Sony 2001, for example. And it's not the ideal radio for the beginner. But it is a nice supplement for anyone who already has a decent shortwave receiver. It has a nice appearance, nice audio fidelity, and good multi-band coverage.

But the main reason why someone would want one of these testimonies to Soviet technology is simply as a showpiece -- a conversation piece. Almost everyone who comes into my office asks me about it, and it gives me a chance to give a shortwave demonstration. And people are naturally curious to see what kind of products the Soviet produce and they are impressed when I tell them I have a Russian radio. (It says "Made in the USSR" right on it.) I guess it's really the old "be the only one on your block to own product 'x'" syndrome. But there really is something exciting about owning a Soviet-made receiver.

The Selena B-215 is not available at stores in North America, or from North American mail order companies. There is, however, a firm in Belgium which sells the radio and ships it to addresses throughout the world. The price is \$US199.00, payable by U.S. personal check or international money order. The address is Radio Mail, P.O. Box 93, B-1060 Brussels 31, Belgium.

So order today and fifteen years from now you'll still be able to say that you own the latest in Soviet technology!

Jeff White is Executive Vice President of World Radio Network, a Dominican-based company that owns and manages shortwave broadcast properties. Regular equipment reviewer Larry Magne is taking a well-deserved vacation after completing the 1987 Radio Database International book.



THE REGENCY HX1500

With the number of features now on hand-held programmable scanners, it is difficult to imagine what additional features could be added; Regency, however, has found a new--and useful--twist.

The HX1500, now in stock at dealers around the country, has 55 channels of memory. The neat twist is that those channels may be grouped in any quantity in four banks (or scanned totally).

For example, suppose you want to group your listening quarry into fire, police, paramedic, and federal government. Not only would you need different numbers of channels for the various services, but some frequencies would be used in common for mutual aid (fire and medical for example).

We might, for example, reserve channels 1 through 10 for exclusive fire use, 11 through 18 for frequencies common to fire and paramedical, and 19 through 27 for police. By placing channels 1 through 18 in bank 1, and 11 through 27 in bank 2, the overlapping banks would pick up any EMT activity associated with either fire or police responses.

The combinations are, of course, endless, limited only by the imagination of the user.

Electronically, the HX1500 is identical to its predecessor, the HX1200--with one notable exception: The infamous "wandering birdie" which would stray into various channels and stop the scanning sequence for a few seconds, has been eliminated in this new Regency radio.

Frequency range is wider than advertised; the following chart is typical of those units tested at Grove Enterprises prior to shipping.

- 24.700-59.995 MHz (FM)
- 118.000-136.000 MHz (AM)
- 136.000-175.995 (FM)
- 406.000-519.995 MHz (FM)

The low frequency range will actually allow synthesizer programming down to 20 MHz, but the alignment procedure will reject the entry. Besides, the reception mode in that

Regency's HX1500



range is FM and virtually all activity found below 25 MHz will be AM or SSB.

With the devaluation of the American dollar in the face of the rising Japanese yen, it would be logical to expect that, since the new HX1500 is sold for the same price as its predecessor, something must have been compromised; fortunately, the compromise was not in quality or performance, but in accessories.

The earlier HX1200 included batteries, wall charger/adaptor and leather case. These are all available at extra cost for the HX1500. Since the new model uses standard AA size NICAD cells, the owner might as well stop by Radio Shack and purchase 8 number 23-125 units at about \$2 each--probably the lowest price around.

The charger/AC wall adaptor is another matter, however; the unit for the HX1200 and 1000 will work, but must be ordered separately. A number of universal charger/adaptors are available from dealers, but must be capable of providing 10 volts at 50 milliamps (approximately), negative polarity.

We have been testing the units with the new Grove ACC20 universal adaptor and it works well. We set the adaptor at 9 volts, negative polarity.

The HX1500 comes with a flex antenna, belt clip and earphone. It is the same physical size as the HX1000 and 1200 and fits in the same aftermarket holsters (like the Grove ACC26).

Other features of the 1500 include slow/fast scanning/search rates of 7 or 13 increments per second, delay, search hold, priority, channel lockout, keyboard lock, top-panel rescanned button, and display illumination. □

TenTec RX325 Price Hikes

The long-awaited TenTec RX325 general coverage receiver has been subjected to one more slight delay before introduction and will undergo a price increase. Engineers will be removing or modifying a sub-panel to prevent binding of the pushbutton keys.

TenTec has withdrawn the factory-direct introductory price; the receiver will now retail for \$699 with discounting expected around the \$600 mark. The receiver should reach the market by October first.

Regency MX7000 Makes Reappearance

The popular MX7000 programmable scanner from Regency Electronics, halted in production some months ago and now badly on back order, should be on dealers' shelves in November.

According to a Regency spokesman, initial pricing on the reintroduction should be the same as when it was discontinued last spring, although a price increase could be in the future picture.

Table with columns: Vessel Name, Type & Hull #, Call Letters, Mars Call, FPO Address, Notes. Lists various naval vessels and their specifications.

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Advertisement for GALAXY ELECTRONICS featuring ICOM R-7000 and JRC Japan Radio Co., Ltd. products. Includes images of the receivers and detailed pricing information.

(NAVY, cont'd)

Table with columns: Vessel Name, Type & Hull #, Call Letters, Mars Call, FPO Address, Notes, Vessel Name, Type & Hull #, Call Letters, Mars Call, FPO Address, Notes. Lists various naval vessels and their specifications.

Vessel Name	Type & Hull #	Call Letters	Mars Call	FPO Address	Notes
RENTZ	FFG-46	NGSR		SF 96677-1500	
CLAUDE V. RICKETTS	DDG-5	NDRO	CUD	NY 09586-1235	
HYMAN G. RICKOVER	SSN-709	NHGR		NY 09586-2389	
RIGEL	T-AF-58	NQSI	CVY	NY 09586-4051	MSC
L. MENDELL RIVERS	SSN-686	NNTS		MI 34092-2366	
ROANOKE	AOR-7	NAMU		SF 96677-3029	
ROARK	FF-1053	NOUR	CQA	SF 96677-1413	NRF
SAMUEL B. ROBERTS	FFG-58	NSBR			(-X)
ROBINSON	DDG-12	NBZO	CPJ	SF 96677-1242	
JOHN RODGERS	DD-983	NYQL	CXD	MI 34092-1221	
WILL ROGERS	SSBN-659	NAUE		NY 09586-2090	
THEODORE ROOSEVELT	CVN-71	NNTR			(-D)
RICHARD B. RUSSELL	SSN-687	NGEM		SF 96677-2367	
SACRAMENTO	AOE-1	NMDF	COC	SE 98799-3012	
SAFEGUARD	ARS-50	NRUD			(-L)
SAGINAW	LST-1188	NGKO	CVU	NY 09587-1809	
SAINT LOUIS	LKA-116	NHNT		SF 96678-1703	
SAIPAN	LHA-2	NHOV	CSW	NY 09549-1605	
SALT LAKE CITY	SSN-716	NSLC		NY 09587-2396	
SALVOR	ARE-52	NLNB			(-L)
SAMPLE	FF-1048	NJOM	CYN	SF 96678-1408	
SAMPSON	DDG-10	NZXF	CSY	MI 34093-1240	
SAN BERNARDINO	LST-1189	NPPU	CWR	SF 96678-1810	
SAN DIEGO	AFS-6	NNCD	CSU	NY 09587-3035	
SAN FRANCISCO	SSN-711	NRPU		SF 96678-2391	
SAN JOSE	AFS-7	NIBV		SF 96678-3036	
SAND LANCE	SSN-660	NDFY		MI 34093-2340	
SANTA BARBARA	AE-28	NDXU	CVD	MI 34093-3006	
SARATOGA	CV-60	NJRS	COU	MI 34078-2740	
SARGO	SSN-583	NEIH	NZE	SF 9667802303	
SATURN	T-AFS-10	NADH		NY 09587-4052	MSC
SAVANNAH	AOR-4	NFUF	CUR	NY 09587-3026	
SCAMP	SSN-588	NGYC	COP	NY 09587-2306	
SCHENECTADY	LST-1185	NFIC	CPY	SF 96678-1806	
SCHOFIELD	FFG-3	NFHK		SF 96678-1461	
SCOTT	DDG-995	NJSP	CZY	NY 09587-1267	
SCULPIN	SSN-590	NZTM	CRI	NY 09587-2307	
SEA DEVIL	SSN-664	NUBL		MI 34093-2344	
SEAHORSE	SSN-669	NYHD		MI 34093-2349	
SEALIFT ANTARCTIC	T-AOT-176	NTYT		NY 09587-	MSC
SEALIFT ARABIAN SEA	T-AOT-169	NFKQ		NY 09587-	MSC
SEALIFT ARCTIC	T-AOT-175	NQST		NY 09587-	MSC
SEALIFT ATLANTIC	T-AOT-172	NIKA		NY 09587-	MSC
SEALIFT CARIBBEAN	T-AOT-172	NIKA		NY 09587-	MSC
SEALIFT CARIBBEAN	T-AOT-174	NKRV		NY 09587-4057	MSC
SEALIFT CHINA SEAS	T-AOT-170	NHAR		NY 09587-	MSC
SEALIFT INDIAN OCEAN	T-AOT-171	NGKY		NY 09587-	MSC
SEALIFT MEDITER-RANEAN	T-AOT-173	NMHT		NY 09587-	MSC
SEALIFT PACIFIC	T-AOT-168	NENC		NY 09587-	MSC
SEATTLE	AOE-3	NABN		NY 09587-3014	
SEAWOLF	SSN-575	NBWY		SF 96678-2300	
SELLERS	DDG-11	NIUZ	NXZ	MI 34093-1241	
SEMMES	DDG-18	NGMV	CUL	MI 34093-1248	
SENTRY	MCM-3	NSNF			(-C)
SHARK	SSN-591	NOKM	NZS	NY 09587-2308	
SHASTA	AE-33	NRNC		SF 96678-3009	
SHENANDOAH	AD-44	NBIO	CYC	NY 09551-2540	
MARVIN SHIELDS	FF-1066	NKSG	CYO	SF 96678-1426	
SHREVEPORT	LPD-12	NADY	CVL	NY 09587-1714	
SIDES	FFG-14	NJHS		SF 96678-1472	
SIERRA	AD-18	NAOD	CRC	MI 34084-2505	
SILVERSIDES	SSN-679	NJVE		SE 98799-2359	
SIMPSON	FFG-56	NRWS		NY 09587-1510	
W.S. SIMS	FF-1059	NWSS	COS	MI 34093-1419	
SIOUX	T-ATF-171	NJOV		SF 96678-4063	MSC
SIRIUS	T-AFS-8	NPGA	CXR	NY 09587-4064	MSC
SKATE	SSN-578	NBVJ		SF 96678-2301	
SKIPJACK	SSN-585	NZHX	CRT	NY 09587-2305	
SNOOK	SSN-592	NTHG		NY 09587-2309	
SOUTH CAROLINA	CGN-37	NLVQ	CSF	NY 09587-1164	
SPADEFISH	SSN-668	NKPZ		NY 09587-1164	
SPADEFISH	SSN-668	NKPZ		NY 09587-2348	
SPARTANBURG COUNTY	LST-1192	NTGS	CSB	NY 09587-1813	
L.Y. SPEAR	AS-36	NASO	CVJ	NY 09547-2600	
SPHINX	ARL-24	NJPZ		NY 09587-2625	
SPICA	T-AFS-9	NMJG		SF 96678-4066	MSC
SPIEGEL GROVE	LSD-32	NAAR	CSD	NY 09587-1720	
CLIFTON SPRAGUE	FFG-16	NCAS		NY 09587-1474	NRF
SPRUANCE	DD-963	NDQV	CUO	NY 09587-1201	
STALWART	T-AGOS-1	NCJE		NY 09587-4077	MSC
WILLIAM H. STANDLEY	CG-32	NTJZ	CWD	SF 96678-1155	
STARK	FFG-31	NHPA	CYJ	MI 34093-1487	
STEIN	FF-1065	NDKB	CTA	SF 96678-1425	
STERETT	CG-31	NUKJ	CQN	SF 96678-1154	
HENRY L. STIMSON	SSBN-655	NTOR		MI 34093-2078	
BENJAMIN STODDERT	DDG-22	NHMC	CPZ	SF 96678-1252	
JOSEPH STRAUSS	DDG-16	NZSR	CND	SF 96678-1246	
STUMP	DD-978	NFBS	CRG	NY 09587-1216	
STURGEON	SSN-637	NKTS		MI 34093-2329	
SUMTER	LST-1181	NZGW	CYD	NY 09587-1802	
SUNBIRD	ASR-15	NUTA		NY 09587-3210	
SUNFISH	SSN-649	NCWJ		MI 34093-2335	
SURIBACHI	AE-21	NZXU	CZC	NY 09587-3000	
SWORDFISH	SSN-579	NMVH		SF 96678-2302	
SYLVANIA	AFS-2	NMYU	CZL	NY 09587-3031	
TALBOT	FFG-4	NZWD	CRJ	MI 34093-1462	
TARAWA	LHA-1	NLHA	CTJ	SF 96622-1600	
TATTNALL	DDG-19	NIBD	COO	MI 34093-1249	
TAURUS	PHM-3	NHCN		MI 34093-3410	
TAUTOG	SSN-639	NOID		SF 9667902331	
TAYLOR	FFG-50	NJJT		MI 34093-1504	
TECUMSEH	SSBN-628	NCNE		NY 09588-2030	
TEXAS	CGN-39	NTEX	CUG	SF 9667901166	
THACH	FFG-43	NJST		SF 9667901498	
THORN	DD-988	NOPQ	CXT	MI 34093-1226	
TICONDEROGA	CG-47	NTIC	CYG	NY 09488-1158	
MAHLON S. TISDALE	FFG-27	NMST		SF 9667901483	
TOWERS	DDG-9	NISS		SF 96679-1239	

Vessel Name	Type & Hull #	Call Letters	Mars Call	FPO Address	Notes
TRENTON	LPD-14	NEDG	COW	NY 09588-1716	
TREPANG	SSN-674	NHDM		NY 09588-2354	
TRIPOLI	LPH-10	NWQU	CNA	SF 96626-1645	
TRIPPE	FF-1075	NJEC	CSP	MI 34093-1435	
TRIUMPH	T-AGOS-4	NIDN		SF 96679-4084	MSC
TRUCKEE	T-AO-147	NLFI	COL	NY 09588-4068	MSC
TRUETT	FF-1095	NHDB		NY 09588-1455	
TRUXTUN	CGN-35	NTYL	CPM	SF 9667901162	
TULLIBEE	SSN-597	NAFQ		NY 09588-2313	
TUNNY	SSN-682	NIKS		SF 9667902362	
RICHMOND K. TURNER	CG-20	NRKT	CVF	MI 34093-1144	
TUSCALOOSA	LST-1187	NBMZ	CQZ	SF 96679-1808	
UNDERSOOD	FFG-36	NGWU		MI 34093-1491	
VALDEZ	FF-1096	NIDC	CUK	NY 09590-1456	NRF
MARIANO G. VALLEJO	SSBN-658	NWGG		MI 34093-2087	
VALLEY FORGE	CG-50	NVFP		SF 96682-	(-D)
VANCOUVER	LPD-2	NVAN	CTO	SF 96682-1706	
VANDEGRIFT	FFG-48	NAAV		SF 96682-1502	
VEGA	T-AK-286	NYMZ		MI 34093-4070	MSC
VINCENNES	CG-49	NVIN		SF 96682-1169	
VINDICATOR	T-AGOS-3	NODF		NY 09590-4083	MSC
CARL VINSON	CVN-70	NCVV	CWY	SF 96629-2840	
VIRGINIA	CGN-38	VNYA	CNX	NY 09590-1165	
VOGE	FF-1047	NZXQ	CVQ	MI 34093-1407	
VON STEUBEN	SSBN-632	NGMA		MI 34093-2042	
VREELAND	FF-1068	NMAP	NZK	MI 34093-1428	
VULCAN	AR-5	NEQB	CUJ	NY 09548-2545	
WABASH	AOR-5	NNIK	CQE	SF 96683-3027	
WACCAMAW	T-AO-109	NHNF	CXP	MI 34093-4072	
WADDELL	DDG-24	NHQB	CQO	SF 96683-1254	
WADSWORTH	FFG-9	NASW		SF 96683-1467	NRF
WAINWRIGHT	CG-28	NGHX	CXZ	MI 34093-1151	
GEORGE WASHINGTON	CVN-73	NNGW			(-E)
WASP	LHD-1	NRHY			(-R)
DANIEL WEBSTER	SSBN-626	NNYZ		NY 09591-2024	
WHALE	SSN-628	NSIG		NY 09591-2330	
WHIDBEY ISLAND	LSD-41	NNWI		NY 09591-1729	
WHIPPLE	FF-1062	NYND	CWM	SF 96683-1422	
WHITE PLAINS	AFS-4	NOLI	CQW	SF 96683-3033	
WICHITA	AOR-1	NHPV		SF 96683-3023	
WILKES	T-AGS-33	NTRI		NY 09591-4073	MSC
WILLIAMETTE	AO-180	NVTS		SF 96683-3021	
JACK WILLIAMS	FFG-24	NNJW	CYM	MI 34093-1480	
HENRY B. WILSON	DDG-7	NFZT	CTD	SF 96683-1237	
WOODROW WILSON	SSBN-624	NVRI		MI 34093-2018	
WORDEN	DG-18	NQRA	CNL	SF 96683-1142	
WYMAN	T-AGS-34	NWEQ		NY 09591-4073	MSC
HARRY E. YARNELL	CG-17	NCOK	COV	NY 09595-1141	
YELLOWSTONE	AD-41	NJAG	CVV	NY 09512-2525	
YORKTOWN	CG-48	NYKN	CYT	NY 09594-1159	
YOSEMITE	AD-19	NARV	NXN	MI 34083-2510	
JOHN YOUNG	DD-973	NVVQ	CPW	SF 96686-1211	
ZEUS	T-ARC-7	NVTM		SF 96687-4076	

Requiem for the Dispatcher

The days of monitoring 2-way taxicab chatter are numbered. A Toronto cab company is spending \$1.2-billion on a system that will give 400 drivers instant access to digitally-displayed information, such as where the fare is located, customer's name, nearest major intersection, even whether the address is valid.

Calls keypunched into the system can be answered in an average five minutes, compared with a peak period average of 30 minutes, and will eliminate completely the need for a radio dispatcher.

Manufactured by Gandalf Technologies Inc. of Ottawa, the dispatch system is touted as the most advanced in the taxi industry. (Martin Barry, Montreal)

Another Mystery: the Letter Beacons

Monitoring Times, Popular Communications and many club bulletins have carried articles on the single letter high frequency beacons (SLHFB), endless repeated Morse transmissions of letters like "K," "P," "O" and so on occurring on various frequencies throughout the short-wave spectrum.

The FCC has fixed one of these, the "K" beacon, as being in Khabarovsk, USSR; an earlier beacon, the letter "W," is no longer heard, but was determined to be near Havana, Cuba.

A more thorough article, with frequencies, is contained in Bob Grove's popular Shortwave Directory.

"Cymbal" Crashes on Suspicious Vehicles

When reporting a suspicious vehicle, it is often difficult to anticipate all of the descriptive questions which might arise when offering your observations to the police. Law enforcement agencies

frequently refer to the acronym, "CYMBAL," as a mnemonic (memory) device.

Simply translated, C-Y-M-B-A-L stands for color, year, make; body, and license.

"Mysterious Net" Solved

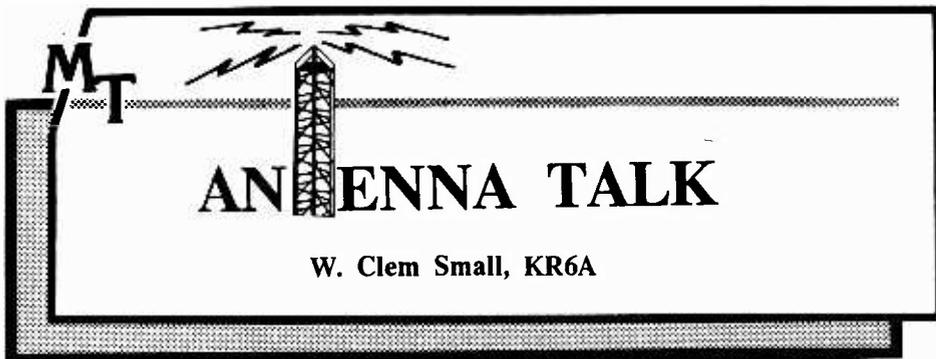
The Federal Communications Commission has informed *MT* that the mysterious CW network reported by Don Schimmel in his December 1985 "Utility Intrigue" column has been positively identified.

Don heard a variety of Morse transmissions, some with broken English, on various frequencies in the 11 MHz aeronautical band. The FCC looked into these as a result of numerous complaints registered by legitimate aeronautical users on such frequencies as 11300 and 11355 MHz.

After extensive radio direction finding efforts, it was determined that the transmissions were coming from Taiwanese fishing fleets off the Azores and in the Caribbean.

A typical transmission in broken English could also contain the oriental character - followed by four numerals which would be the latitude and longitude of the craft.

We appreciate the information shared by the FCC for *MT* readers.



Receiving Preamplifiers:

Give Your Signal a Boost

Last month we looked at ways to maximize the signal output of the antenna. This month let's consider what happens to that signal as it begins its trip through the circuits of your radio receiver. Interestingly enough, this process will lead us right back to a consideration of the virtues of effective antenna utilization.

Weak Signal Performance

If your receiver is like most receivers built today, its block diagram will more or less resemble that of figure one. Note that the signal, as it is delivered from the antenna to the receiver, first encounters what is called the "RF amp" (radio-frequency amplifier) which not only amplifies the incoming signal but

determines the signal-to-noise performance of the receiver.

Sometimes the RF stage is omitted and the antenna's signal is fed directly to the converter stage. In this case, the converter stage determines the signal-to-noise performance. In either case, the active receiver stage which the signal first encounters as it leaves the antenna must utilize a low-noise circuit or the performance of the receiver will be noisy when attempting to receive weak signals.

Almost any receiver can do a fair job of receiving strong signals without adding noise to them, but the well-designed sets show their superiority when it comes to listening to weak

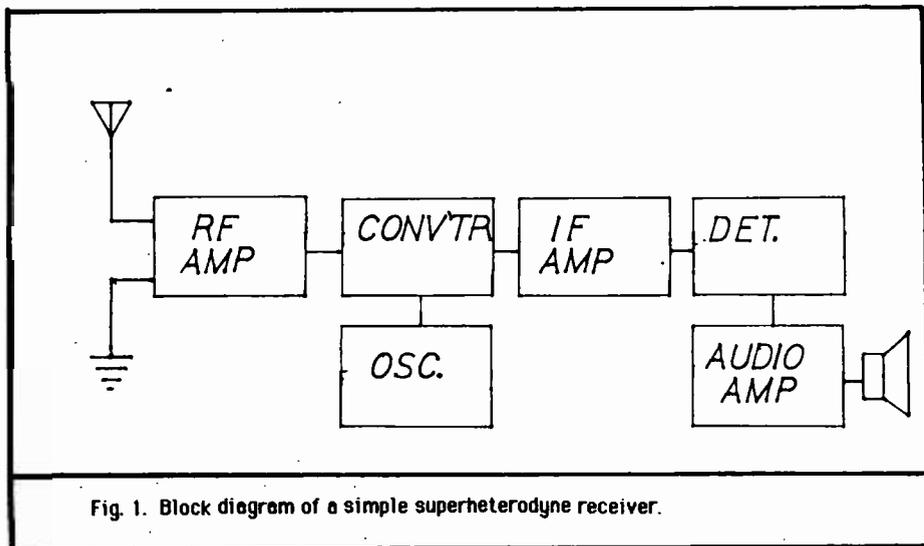


Fig. 1. Block diagram of a simple superheterodyne receiver.

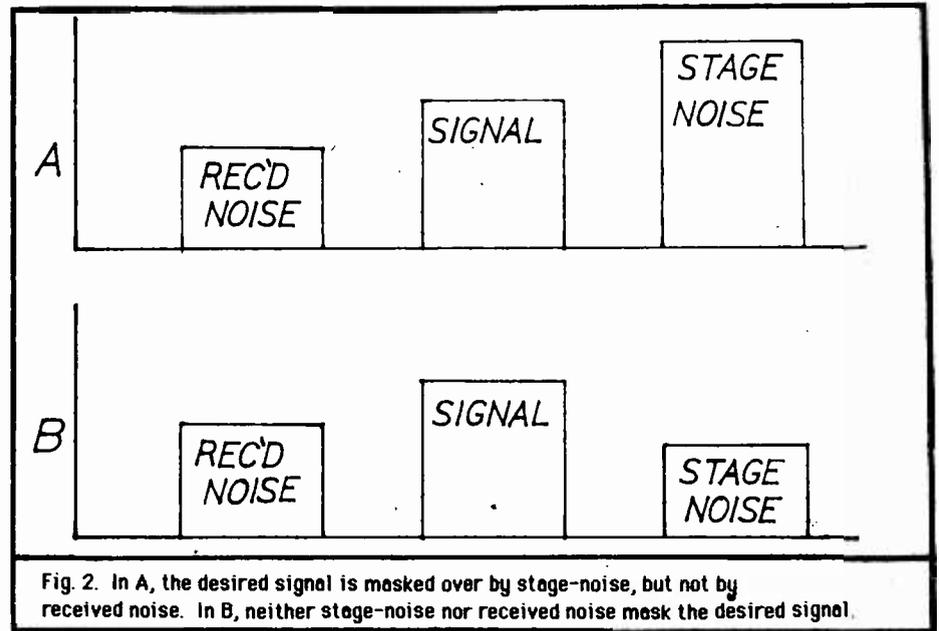


Fig. 2. In A, the desired signal is masked over by stage-noise, but not by received noise. In B, neither stage-noise nor received noise mask the desired signal.

signals. Less well-designed sets (usually less expensive sets or older models) will not be able to dig the weak stations out of the noise as well as those with a quieter first stage in their circuit.

Received Noise Versus Receiver Noise

The signal which the antenna feeds to the receiver includes not only radio signals but all of the atmospheric noise which was received by the antenna as well. We can't actually do very much about the noise which comes in one the antenna. There are noise limiters and blankers which provide some help with certain kinds of noise at times, but the basic random noise which accompanies the signal from the antenna remains a factor with which we must somehow deal (see figure two).

In figure two we see a signal as it comes from the antenna to the receiver, compared to the electrical noise which accompanies that signal from the antenna. We can call this latter type "received noise." Note that an additional noise is contributed by the first stage of the receiver: "stage noise." The overall electrical signal with which the receiver must deal, then, is composed of the desired signal, received noise and stage noise.

Since we can't do much about the received noise which accompanies the signal from the antenna, it is obvious that, if we are to hear weak signals, they must be received with enough strength to be heard above that noise, and if we also add to that received noise a significant amount of receiver-generated stage noise, then the weak signal has a very tough time of it.

Figure 2A shows the masking of a weak signal by too high stage noise. In 2A, the desired signal is above the level of its accompanying received noise, but the high stage noise masks it over. The signal is uncopyable.

Figure 2B shows the desired signal and noise levels in a receiver which has a low-noise first stage. There, the weak signal level is high enough above both the received noise and the stage noise to make satisfactory copy. The advantages of a low-noise first receiver stage are obvious. But how do we tell when we could profit from a lower-noise first stage for the receiver we happen to be using?...

When Do We Need a Preamp?

If we have a low-noise first stage in the receiver, its gain amplifies the received signal to a high enough level that subsequent stage noise contributed by the receiver does not mask the signal. This means that we can take a noisy receiver and add a low-noise first stage to it and improve its weak-signal performance.

A preamplifier is actually a first stage which can be added, modular style, to the antenna input jack of a receiver.

But before you decide to purchase a preamplifier, you must decide if your existing receiver's first stage ("front-end") is already low-noise. It won't help to add a low-noise preamplifier to your receiver if it already has the benefit of a low-noise front end.

If your first stage is already low-noise, adding another low-noise stage ahead of it won't make it a lower-noise receiver; you'll simply get the same low noise performance instead of from the original front-end of the receiver--a waste of your time and money!

If you suspect that your receiver's weak signal performance is not up to par, try the following test: Turn on the receiver and tune it to a spot on the highest frequency band where you hear no signals, just background hiss. Now remove the antenna connector and notice the change, if any, in noise which occurs as you disconnect and re-connect it.

If your receiver stage noise is lower than the noise coming in on the antenna, you should hear more noise when the antenna is connected. If disconnecting the antenna makes a noticeable difference in the noise output, you have a receiver front end which is appropriately quiet (low-noise) for weak signal reception on the frequency at which you make the test.

If your receiver has several bands, it might be worth your time to test it on all bands for weak signal reception; weak signal performance of a receiver can change significantly from band to band.

Poor Location

If you have more than one receiver available for the frequencies you monitor, you may want to compare their weak signal performance on the same antenna. If you get less-noisy, weak-signal performance with one receiver than with the others, a preamp will likely help those with more noisy performance.

If your monitoring post or radio station is in an electrically noisy location, a quiet receiver is no big advantage. The received noise will be the limiting factor in weak-signal reception.

Antennas as "Preampifiers"

If you are dissatisfied with the weak signal reception of your receiver, consider installing a different antenna as an alternative to adding a preamplifier. If the antenna-disconnect test described above didn't show more noise with the antenna connected than without it connected, it could be because the antenna wasn't effectively capturing much signal, noise or anything else. A more effective antenna will often do wonders for weak signal reception.

Antennas can be made directional, allowing not only signal gain for stations in the desired direction, but eliminating much of the received noise coming from directions not favored by the antenna.

In Favor of Antennas

The use of a more effective antenna as an alternative to a preamplifier helps elevate the desired signal above the receiver stage-noise and reduces received-noise: a preamplifier only reduces the stage-noise. If a directional antenna is desirable for your needs, this noise reduction can be quite a bonus.

Additionally, if you use the antenna for transmitting, both the gain and the directionality are present for your transmitted signal as well as for your reception. And a better antenna will not generate intermod interference from strong signal overload; a preamp will!

Small wonder that knowledgeable operators, technicians and engineers have long told us that attention given to the choice of an antenna pays more dividends than any other factor in station design!

Even if you don't have a problem with weak signal reception, improving your antenna is often a worthwhile move for more effective listening.

In Summary:

Preamplifiers are not a cure-all for problems with weak-signal reception; in some instances they are a waste of time and money. On the other hand, if you have a receiver with a noisy front end, a preamp may be just the thing to help your weak signal reception.

But don't overlook the possibility of upping your station's weak-signal performance by improving your antenna system. In some situations an improved antenna system may have more to offer you than a preamplifier.

RADIO RIDDLES

Last Month's Radio Riddle: Last month I asked why, when using a field strength meter, we are often advised to move the meter a few wavelengths away from the antenna to get our most accurate reading? In addition, I told you that the answer has to do with the presence of two different fields near the antenna, and that the two fields in question are not the electric and the magnetic fields.

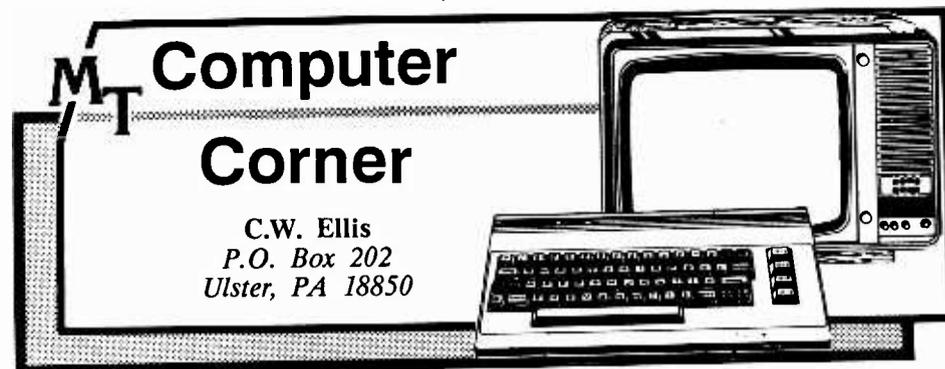
Well, the two fields are the induction and the radiation fields. If we get too near the antenna, we are likely to be measuring the induction field rather than the radiation field which is the one we want to assess in order to measure radiation of electromagnetic waves.

Another reason for taking measurements at a distance from the antenna is that, if we are too close to the antenna during measurement, our bodies and the instruments we are using at the time may electrically interact with and de-tune the antenna.

And, from a safety standpoint rather than a technical one, let's not forget about the radio frequency burns which you can get from standing too close to an operating antenna when significant power levels are involved!

This Month's Radio Riddle: We have discussed various sources of radio-frequency noise in this month's column. The topic of concern for this month's radio riddle is another noise source with a fascinating past, as well as an interesting present. If you don't already know about it, you may be pleasantly surprised when, next month, we give the answer to: What is "cosmic noise" or "cosmic static," and how was it discovered?

So, for now 73, see you next month. ■



Micros for Communications

Part II

Last month we took a look at what a microprocessor actually does and how we might find a use for one in a communications environment. This month we shall cover some of the support chips used to interface the micro to the outside world. These chips are usually referred to as "glue chips," as they serve to glue the major components of a system together.

We mentioned briefly the ROM (read only memory); now that we have a place to store instructions and can read a set of switches, what do we do with the data?

Most microcomputers have some amount of RAM (random access memory); whatever is stored in RAM disappears when power is shut off, but ROM contents are not lost on power-down and are available for the micro as soon as power is re-applied (no one has, as yet, figured out where the data goes when the RAM is turned off!).

Getting Started

Most personal computers use some form of ROM to get the computer up and running after the power switch is flipped. Some run extensive diagnostics on the machine before control is turned over to the user. These diagnostics usually are located in ROM, and a power-on reset forces the micro to the starting address of the diagnostics.

Once the code contained in the ROM (appropriately called micro-code) is executed, control is turned over to whichever program was loaded from an external source. This program code was loaded by some of the ROM code in a process called "bootstrapping."

The name arose from the practice of putting a small amount of code into a non-volatile memory such as ROM and allowing this small amount of code to make some hardware checks. If the checks were OK, a somewhat larger portion of code was loaded into memory and allowed to execute. The process is akin to "pulling oneself up by the bootstraps"; hence, the name.

In practice, the name has been shortened to "boot" and usually refers to loading the operating system into the machine and turning

control over to the operator. The ROM accomplishes this on the IBM PC (and most clones) by going to one of the first tracks on the diskette and blindly loading the code written there.

The PC takes it on faith that the code being loaded is, in fact, the operating system. The only checking done is to verify that the correct code has, indeed, been loaded. If this checks out, the balance of the code is loaded and control is turned over to the user.

On the bootable IBM diskette are two files, "IBMBIOS" and "IBMDOS." They are unique in that the operating system will not normally list them when a list of the files on the diskette is presented. These files are said to be "hidden" (There are other attributes to these files, but that story is too long for this month's column).

If these files are missing, a message is given to the operator telling him or her that the diskette is not bootable. If you have ever seen this message and wondered why some diskettes will boot and others will not, this is why.

Where to put it

Now that we have a way to load code from an outside source, we need a place to put it. Incidentally, a diskette is not the only way to get the code loaded. Many inexpensive machines load programs from cassette tape or, going back far enough, paper tape.

Some machines have entire operating systems built into ROM. Portable battery-operated computers are often built this way. Power up an IBM or compatible PC without a diskette in the drive and the result is usually the BASIC operating system - running entirely out of ROM.

The code is loaded into RAM--"random access"--meaning that we can go to any memory location at any time and read the contents. Some examples of non-random access would be tape, diskette, etc. Reading data from tape, for example, requires moving the tape from one spot to another to get to the required data, going to all the data in between before reaching the desired data.

→

(COMPUTER CORNER, cont'd)

RAM memory typically comes in only two varieties - static (SRAM) or dynamic (DRAM). DRAM is the most widely used because it is cheaper and holds more data in a given physical package than the SRAM.

Because it is dynamic, a DRAM must be "refreshed" periodically, a job normally done by the microprocessor. This is a disadvantage because while the micro is refreshing memory it cannot be executing commands. Fortunately, the refresh cycle takes only a very small amount of time compared to the code executed between refresh cycles. It is only when the DRAM size becomes large that more and more time is used by the micro to refresh memory.

Talking to the Outside

Now we have a micro, a ROM memory to get things started, and RAM memory to load our code into, we are ready to talk to the outside world. We can do this by extending the bus (main communication line)--one for addresses and one for data. But since the busses must drive many I/O (input/output) loads, we use a bus driver chip to buffer the micro output.

The buffer allows the micro to indirectly drive many chips that make up the memory and the I/O devices. Reading or writing to a disk drive, for example, is a matter of addressing the drive, using the address that we assign to the diskette. This address is usually decoded from the address bus by standard TTL chips - ANDs, ORs, etc.

But what if we had a way to take data directly to and from the I/O without the micro seeing it? All the data eventually winds up in memory, awaiting the micro to do something with it. So, let's give the diskette drive, for example, access to memory without the micro doing anything with the data. This is called Direct Memory Access, DMA for short. There are chips built with just this purpose in mind. Operation is something like this:

- 1) The micro is instructed by code, possibly by having the code interpret what the user typed in on the keyboard, to load a file into the computer from the diskette. It could be a letter, a game program or whatever.

- 2) The micro figures out how long the file is, tells the DMA chip where in memory to load the file, how long the file is, etc.

- 3) The DMA chip handles the transfer and informs the micro when it is done. DMA can be done by stealing cycles from the micro, idling the micro during a byte transfer, and allowing the micro to continue while it gets the next byte from the diskette. Normally, more than one byte is gotten from the diskette at a

time and put in a buffer, then transferred to memory at high speed on the cycle steal.

Making 2x2=4

Most of the additional chips in the machine are there to make other similar operations possible or to speed the operations the micro would otherwise have to do alone. An example of this would be a math co-processor.

Since multiplication is really a series of repeated adds, the micro can be given two numbers to multiply, like 10 x 10. The micro could be told to add 10 to itself 10 times, in 10 different steps. Naturally, the result would be 100.

Supposing, however, the micro passes the two numbers to another chip, with the instructions to multiply them and give back the results. Two things are accomplished: First, while the math chip is grinding away at the problem, the micro is free to do other tasks; and second, the math chip is made to do only math functions and can do them faster than the micro could.

The micro only needed two or three instructions to get the results instead of a dozen or so, and had time to do other tasks while the math calculations were going on. A faster machine results.

By no means the last chip to go into our glued-together machine is the clock/calendar chip. This chip is also built to do two things: keep track of the time and date, and pass this information to the operating system as needed.

It usually has a small battery added to allow it to keep time when the computer is powered off. Then, when the computer is powered on again, the time can be obtained from the clock and the user doesn't have to tell it what time it is. Handy, since most personal computers add the time and date to the file name when storing the file to diskette.

There are other chips in our glue pot, most doing minor but essential tasks to help the micro do its job.

Software

Before I end this month's column, I'd like to mention all the comments I've been getting about communications software for the various makes of PC, or rather the lack of it. Most software publishers put their code where the money is. This means writing programs for large business users. As a result, the hobbyist gets neglected. Most software for hobby applications is usually written by dedicated hobbyists themselves.

I see two solutions to the problem. The first, and for MT readers most important, is to write Bob Grove a letter and tell him there is a market for such programs. Give him an idea

how much you might be willing to spend for which kind of program.

Second, I have found two programs that might be of interest to MT readers. Both are public domain programs, made available under the shareware concept. This means you get a copy for free (almost) and you only pay if you like the program and use it. Prices are usually less than business oriented programs.

The two I found of interest are PROCOMM, a communications program that will control a modem to allow telephone access to another computer, and MURRAY TTY, a program to receive ASCII and teletype signals from a receiver.

PROCOMM requires a modem and MURRAY requires an adapter between the computer and the receiver. "Computer Corner" in the March '86 issue of MT carried plans for such an interface circuit.

" ASK BOB "

Bob Grove answers questions of general interest

Q. I have been hearing aeronautical traffic on several shortwave frequencies (2962, 8879, etc.) with a station called "Gander." What is this? (Bill Battles, E. Kingston, NH)

A. Gander, Newfoundland, is a major air route control center serving major international airlines. Gander also transmits VOLMET (flying weather) broadcasts at 20 and 50 minutes past the hour on 5592, 8870 and 13270 kHz.

The Grove Shortwave Frequency Directory has a complete aeronautical section covering these and other shortwave aircraft systems as well.

Q. Would installing cable TV cause TV and FM interference on the scanner? Also, aluminum siding was installed at the same time. No outside antenna is used, just the short whip that comes with the set.

Is there a way to get a directory of pagers or a list of mobile phones in any locality? (Jim Cavanagh, Palatine, IL)

A. Chances are the aluminum siding is having more of a serious effect in reducing reception on your scanner than would your cable TV; the cable TV interference would be received as commercial television audio on scanner bands. It would not affect your other reception. You need an outside antenna.

The only way you can get a comprehensive list of mobile phones, pagers, and other industrial and business frequencies would be to subscribe to a special service. We will most likely be offering that service in a few months directly from the FCC files.

Until the demands on my free time get too great, I will copy either of the above programs and mail to any individual for \$4.00 each to cover the cost of diskette, mailer, postage, etc. Both programs will NOT FIT on one diskette. Stamps are acceptable, cash is not a good way to remit through the mail, as it can get "lost."

Incidentally, I can include the five files for the encryption puzzle with the MURRAY TTY diskette ONLY. Please specify that you want a copy with the TTY disk. The PROCOMM diskette is full without them. See July '86 "Computer Corner" for a description of the puzzle; a number of people have written for copies of that puzzle. Presumably, they are hard at work trying to crack the codes!

So, until next month, keep those cards and letters coming. ■

Q. Where can I get batteries and a charger for my Regency HX1500 scanner? (Bob King, Absecon, NJ)

A. Unlike its predecessors, the HX1200 and HX1000, the HX1500 does not use a fast-charge battery pack, but utilizes eight standard AA rechargeable NICAD cells.

Ideally, these cells should be charged at 45 milliamperes for about eight hours, and certainly at no more than 100 milliamperes for four hours, or heat damage may occur.

We have found that a universal AC adaptor such as the Grove ACC20, set at 7.5 volts, negative polarity, works quite well, both as a charger and AC wall adaptor to operate the scanner.

Similar wall adaptors are available at major discount stores. It is important to measure the charge current initially of an unknown charger to make sure that it is working properly and feel the back of the radio to be sure the cells are not overheating.

Q. Will the Grove ANT-8 range-extending scanner whip work on a Regency HX2000? (Bill Tomkiw, Oakland, CA)

A. The ANT-8 is equipped with a type BNC base connector allowing it to replace flexible whips on the Bearcat BC-100, BC-50, Radio Shack PRO-30, 31 and 32, and Regency HX1000, 1200 and 1500. Unfortunately, the Regency HX2000 has a non-standard threaded socket which will not accommodate the BNC-equipped ANT-8.

MT

Technical Topics

by Terry Staudt, L.P.E., W0WUZ
4807 S. Blue Spruce Road
Evergreen, CO 80439

NOISE, NOISE, NOISE!

This is going to be short, sweet and to the point.

Ninety percent of my mail concerns noise and what to do about it. Outside of the obvious -- loose connections on antennas, grounds and the like -- it seems to be driving everybody crazy.

If you have *really* checked around your house with a small transistor radio, *know* your connections are tight and simply *can't stand it anymore*, there is a solution.

In the early 1960s, there was a Japanese genius named Makino who was in charge of helicopter maintenance for the Japanese "self-defense" force. There's truly nothing on earth that throws out more crud than a helicopter ignition system. As a result, the usable radio spectrum with the best equipment was usually less than half the flight of the aircraft. Makino was charged with doing something about it. And after hundreds of hours of work, he solved the problem.

Oddly enough, the circuit Makino designed has never appeared in a piece of consumer electronic gear that has ever come to my attention.

The circuit won't work on lightning -- nothing will as the pulse is too long -- but it works on everything else you can throw at it. The only defect, if you can call it that, is an insignificant amount of distortion on an extremely heavily modulated signal (rare).

All parts can be obtained at Radio Shack and it can be wired on a piece of "perf board" about one third the size of a playing card. If your receiver uses a germanium diode (1N34, 1N60, 1S1007, etc), it may be used as long as the cathode (banded end) points toward the last IF transformer winding. If not, it simply needs to be reversed. Also, the last "IF" transformer winding needs to be disconnected (with a razor blade or Xacto knife if it's on a printed circuit).

The anode (non-banded end) of the diode should be carefully "snipped," leaving a short length remaining for soldering C2 to. The wiring is not at all critical (within reason), resistors are 1/2 watt and capacitors are discs with the exception of C1 which is an axial (PC mount) electrolytic, 10 volts or more.

If you cannot read schematics, solder or are just plain *terrified* of doing something of this nature, don't. Just about all of you know a "ham" or electronic hobbyist who will do this for you for free or for a few bucks. In a real pinch, a competent Radio/TV/Stereo shop should do it for around \$25.00. You may or may not have to pay for the parts. And in any case, the circuit is easily restored to its original condition.

Note that in the very rare case where the last IF transformer goes into an IC (integrated circuit), the circuit should still work between the IF transformer and the IC blocking capacitor.

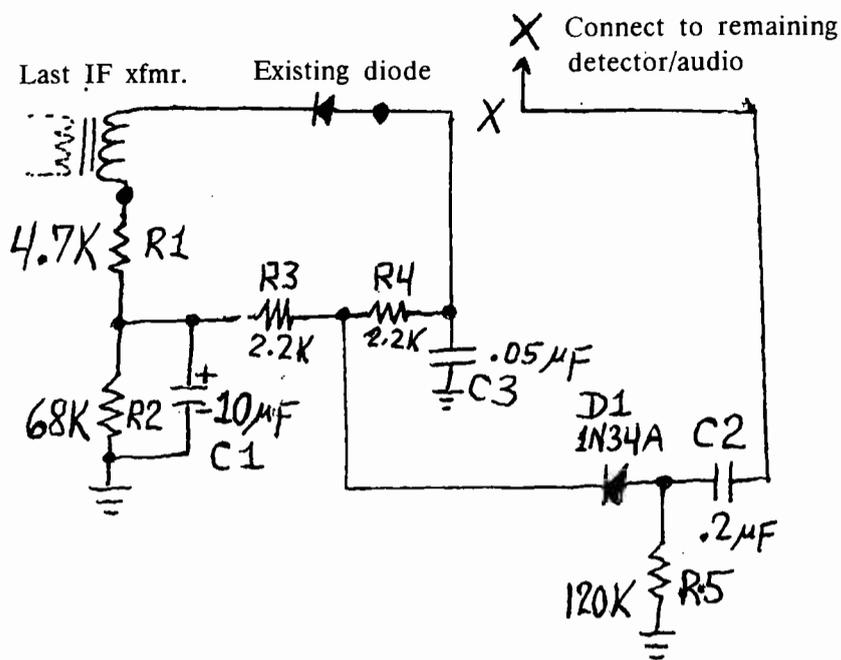
Note also that the circuit is for AM only. FM is "self limiting" and SSB is detected in a different manner. If you use an old receiver with a BFO for SSB and CW detection, the circuit will work.

Lastly, if there is an AGC diode connected to the detector diode, it may remain.

I'll be happy to answer any questions with a S.A.S.E. (self addressed, stamped envelope). Enjoy.

Notes: The two heavy "dots" are where the new circuit joins the existing circuit. All resistance is in ohms. "K" = 1,000. Capacitance in micro Farads. Solder common ground to IF "can" or ground "buss." Wrap circuit in a refrigerator plastic bag with several rubber bands around it or tape.

"Makino" Audio Noise Blanker



GOOD NEWS!



THE GROVE EQUIPMENT REPAIR CENTER!

Yes, the same personal service that you have come to expect from Grove Enterprises is now extended to equipment repair!

We have recently opened a full maintenance and repair shop for scanners, shortwave receivers and amateur radio equipment as well. A licensed technician will provide the care your equipment needs to get it working properly again.

IF YOUR SCANNER, SHORTWAVE RECEIVER OR HAM RIG NEEDS SERVICE, just let us know and we will send you full information on how Grove can provide courteous and competent repair.

REASONABLE RATES -- Only \$35 for the first hour and \$25 per hour thereafter -- the lowest we have found in the industry. And with Grove you know that your equipment will receive first rate care, backed by years of experience in consumer electronics.

Regency Speed Modification

We can double the scan/search speed of your Regency MX5000, 5500 or 7000 scanner for only \$29 including return UPS shipping (U.S.)!

WRITE OR CALL US NOW for full information including a copy of our repair contract: Grove Enterprises Service Department, P.O. Box 98, Brasstown, North Carolina 28902 or call toll-free 1-800-438-8155. It may be the wisest investment in time you ever made!



To renew your MT subscription, see the form on page 58.

MT EXPERIMENTER'S WORKSHOP

A Novel Way to... DESCRAMBLE SPEECH INVERSION

by Greg Doerschler

In speech inversion voice scrambling, the speech spectrum (300-3000 Hz) is "turned upside-down"; that is, high tones become low and low tones become high. The speech is therefore unintelligible.

With a little ingenuity, a general coverage receiver capable of SSB reception can be used to decode speech inversion scrambled transmissions monitored on a scanner. This technique requires the use of an AM or SSB HF signal modulator (transmitter or oscillator) to relay scrambled signals from the scanner where they can be properly tuned in.

A signal generator capable of accepting external modulation would make an ideal signal source. A CB or amateur radio transmitter will also work, as would a low power crystal oscillator, but they should all be capable of low power operation to avoid interference to other services on the frequency chosen. Remember,

the transmission only needs to be received a few feet away.

THE TECHNIQUE

Simply feed the scrambled audio from the scanner into the audio input of the RF generator and tune in the signal on a general coverage receiver using the SSB mode.

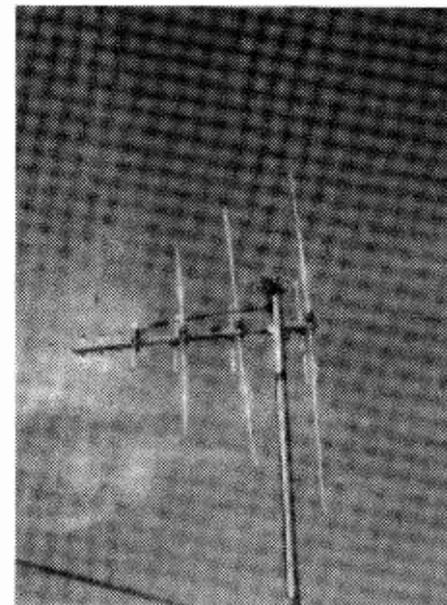
The secret is to use the opposite sideband mode from that of the modulator; if the modulator is generating an USB signal, tune it in using the LSB mode.

If the modulator generates an AM signal, tune in the LSB side of that signal using the USB mode on the receiver. A sharp SSB filter will be needed in the receiver to reject the

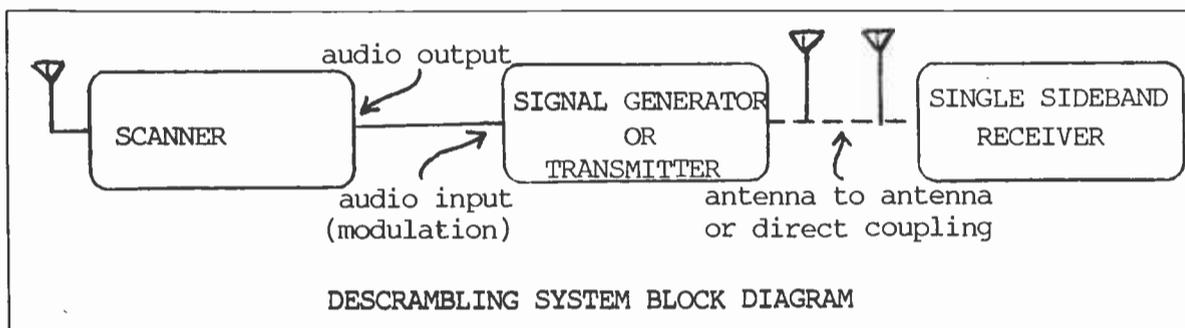
A Compact Scanner Beam Mod

Scanner buff Robert Hofer of St. Paul, Minnesota, described recently an experiment in which he saved off the rearmost (longest) element of the Grove ANT-1B Scanner Beam in an effort to improve high band and UHF performance. Since the long element was only for 30-50 MHz reception, of no interest to him, he decided the risk was worthwhile.

Robert reports that he noticed considerable improvement in signal reception in the 150-470 MHz ranges. While we cannot verify his findings, we would be willing to contribute a Scanner Beam to anyone with the qualifications to perform a before/after signal measurement and report the results.



Robert Hofer's modified Grove Scanner Beam with the low band element removed.



AM carrier and tune in only the desired sideband.

Tuning in an SSB signal using the wrong sideband causes the audio to

become inverted. The inverted audio from a scrambled signal can therefore be re-inverted or corrected using this practice.

A Simple Radio Direction Finding Antenna for Shortwave

PART ONE

by Chris Williams

Radio Direction Finding (RDF) has been around as a useful technology since the earliest days of radio. It has seen many applications ranging from locating illegal transmitters to pinpointing emergency transmissions. I've become interested lately in yet another use: shortwave listening.

BEAMING IN THE BROADCASTERS

Consider the challenge of identifying a shortwave broadcast station which is, at the time you are listening, using some language other than one you understand. One might first turn for help to the *World Radio TV Handbook* (a must for your personal shortwave listening library). If you are fortunate, there will be only one station listed as using that frequency and your ID is made.

But this is rare. Most frequencies have multiple users listed. In these

cases, knowing the bearing to the station can sometimes provide that critical extra clue and allow me to achieve an ID I might otherwise have missed.

THOSE ELUSIVE UTILITIES

Utility radio stations are military, commercial and other non-broadcast stations who often aren't interested in making their identity known to a casual listener. Two bearings taken from listeners a great distance apart can pin-point a transmitter site quite accurately.

This is the first of a two part article that will teach you how to build and use a shortwave RDF antenna. In this installment, we will examine a design for a simple, effective directional antenna. Once you have the parts (a list of suppliers is provided with the schematic), the entire project is sufficiently simple

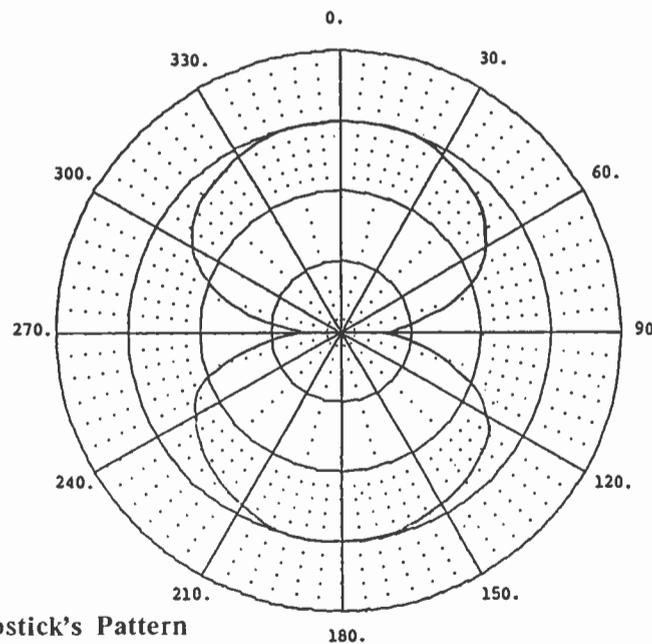


Figure 1.
The Loopstick's Pattern

that it should require no more than an evening's work. The "from scratch" cost of the project should be about fifteen dollars.

The second installment of this article will appear in *MT* next month and will discuss such topics as sky wave effects, triangulation and error analysis. There will also be a bit more detail about how you can enhance your accuracy.

THE CIRCUIT

Please examine Figure 1. This is a top view drawing of the radiation/reception pattern for a resonant loopstick antenna. A resonant loopstick is a rod of ferrite or powdered-iron material with a coil wound on it. When this coil is connected to a parallel capacitance, it resonates ("peaks") at a given frequency determined by the inductance of the

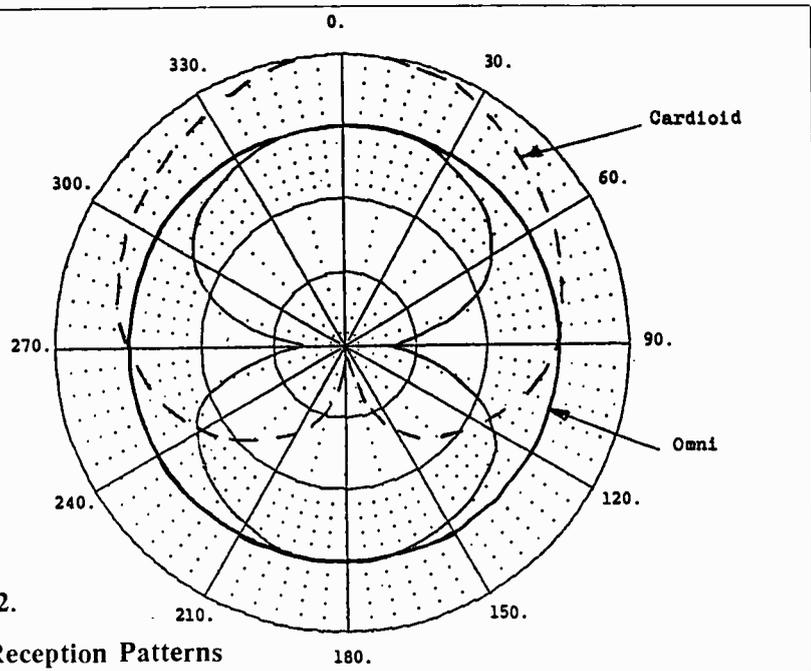


Figure 2.
Three Reception Patterns

coil and the value of the capacitor.

Note the nulls (dips in sensitivity to incoming signals) in the pattern which occur off the ends of the rod. For high-Q loopsticks, these can be very deep and very sharp. Its only problem is obvious: Nulling the signal to obtain a bearing to the station would be ambiguous; i.e., you wouldn't be sure which null was pointed at the station.

This could be resolved by taking a second measurement some distance away from the first and then applying the classic triangulation procedure, but that's not the kind of easy, convenient procedure one would like for a hobby installation. Fortunately, there's an easier way.

Figure 2 is a diagram of three reception patterns. The first is the resonant loopstick again as shown in Figure 1. The second appears as a circle and is the omnidirectional pattern of a simple whip antenna. The third is a combination of the other two.

It is this third pattern that provides us with what we want; it results from mixing the other two patterns. It is called a "cardioid" (heart-shaped) and, as you can see, has only one null.

The cardioid pattern is produced by combining the omni pattern shifted 90 degrees in phase with the loopstick pattern. I've included bibliographical references at the end of this installment that cover the mathematics involved.

CREATING THE CARDIOID

Figure 3 is the schematic of an antenna circuit which produces the cardioid pattern in Figure 2. As you can see, it consists of only a handful of components.

This circuit can be built in a small aluminum project box. The rod should be elevated a few inches above the box and the whip placed a few inches from the side (not an end) of the rod.

As shown in Figure 3, the loopstick consists of coils L1 and L2 wound on a ferrite rod. L1 is connected in parallel to C1. L2 is the secondary of what is essentially a tuned transformer and it feeds a coax connector on the enclosure which is then connected with 50-ohm coax to the antenna input of your receiver.

The sensing antenna is a 14" whip tuned by L3 to resonance at the frequency of the signal you're trying to locate. The length of the whip is not critical; in fact, the longer it is (while still keeping the unit small enough not to be cumbersome), the more sensitive the sensing antenna will be.

You will note that as you lengthen the whip, you will have to adjust L3 to maintain resonance. This is not a problem since L3 is specified as a slug-tuned inductor.

S1 simply switches the sensing antenna out of the pattern and leaves you with the loopstick pattern of Figure 1. In adjusting the antenna, it is helpful to do this briefly to obtain reliable peaking with C1.

You will also switch out the sensing antenna once you've determined the approximate direction to the station. The nulls off the ends of the loopstick are much more accurate than the single cardioid null.

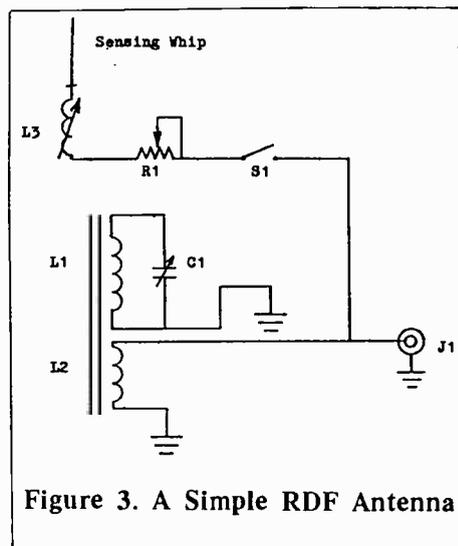


Figure 3. A Simple RDF Antenna

R1 is a potentiometer which allows you to attenuate the signal from the sensing antenna and produce signal strengths from it similar to the loopstick's. The combined adjustments of R1 and L3 is what creates the 90 phase shift and, consequently, the single-null cardioid pattern.

With regard to where to wind the coils on the loopstick, I prefer to put them side-by-side with a slight gap in between. This contributes to the pattern skew, but I've found it to be the most sensitive configuration.

INITIAL TEST

The tuning procedure for the antenna is straightforward, but you must be willing to make fine adjustments. In the world of RDF, patience is rewarded in accuracy.

I've found the antenna to be so selective that appreciable re-tuning is necessary to recreate the cardioid every time there is a shift in frequency of more than a few tens of kHz. It is best to tune up on a signal of known bearing near the frequency of the target station.

The test signal must exhibit as little fading as possible; much of the work you'll be doing will involve peaking and dipping the S-meter on your receiver and you'd like as many of those dips and peaks as possible to be attributable to your actions and not the ionosphere's!

Once you've picked a signal, switch off S1 so that the sensing antenna is removed from the circuit. Peak the signal with C1. If fading is present, make your adjustments only when the signal is strongest.

Switch S1 on again to reconnect the sensing antenna; move R1 to minimum resistance and peak the signal with L3. If necessary, turn the unit to reduce the input from the loopstick for this step. This is a fine adjustment, so take your time and try to compensate for the hand-capacitance effects that will manifest themselves as you reach for the controls.

Now pick a side (not an end) of the loopstick and turn it towards the transmitter. Increase the resistance of R1. If you picked the right side of the loopstick, a null should be apparent on the S-meter; if not, turn the unit 180 degrees and try again.

Once you've found the side with the null, further tiny adjustments of L3 and R1 will sharpen it, but don't spend too much time on this. Remember, this step is only to provide approximate information about the signal's bearing. The precision reading is taken with the sensing antenna switched out and using a null off an end of the rod.

Once you've wound L1 and L2 on the

rod and have determined that the frequency coverage is correct, glue both coils into place! The direction and magnitude of your pattern's skew can vary significantly if you wind loose coils that slip back and forth.

When you've found the side of the loopstick with the null, mark the exact null direction on the antenna's box so that you may reference your bearing measurements to it. And as I mentioned before, rarely will the loopstick's pattern be the perfect one shown in Figure 1. With an unbalanced feedline, there can be a skew of 20-30 degrees.

FINAL NOTES

Loopsticks are not the best RDF antenna for use on sky wave signals; the Adcock array is considered superior, but it is quite large at these frequencies.

The antenna presented here will provide good bearings to stations when conditions are good and non-deceptive (sometimes, the ionosphere bounces signals sideways!), and that, I've found, is more often than not.

Next month, we'll discuss just how accurate your bearings can be and how to project any measurement errors over thousands of miles. We'll also discuss triangulation and the effects of ionospheric propagation on accuracy.

Bibliographical References

- Radio Amateur's Handbook, ARRL, Newington, CT
- Radio Engineering, F. Terman, McGraw-Hill, NY, NY
- Engineering Electromagnetics, W. Hayt, McGraw-Hill, NY, NY

Parts List:

- C1 10-150 pf trimmer capacitor, shafted type
- J1 SO-259 coax connector
- R1 100K ohm potentiometer
- S1 SPST toggle switch
- L1, L2 Loopstick
Six-inch ferrite rod wound with no. 24 enameled wire. L1 - 10 turns wound with end closest to center of rod placed 1/4" from center, L2 is 6 turns wound symmetrically on other side of rod's center. Rod's center is mounting point.
- L3 35 uh. slug-tuned adjustable inductor

These parts are available from:

Dick Smith Electronics
1-800-332-5373

Circuit Specialists
1-800-528-1417

State Street Sales
P.O. Box 249
Luther, MI 49656

Mailbag

Shortwave

Larry Miller, MT Broadcast Editor, P.O. Box 691, Thorndale, PA 19372

Well, it's time to dig into the mailbag again and see what we've got.

June LeMance of Harriman, Tennessee writes in to say that "Enjoying shortwave may not be as easy as flipping on the FM, but then none of us wants to carry the world pulpit around in our pocket, either. I am talking about the frequency monopoly of Family Radio [WYFR]. These Ochobee (sic) [Florida site of WYFR's transmitters] boys," continues June, "seem bent on saving the world from heaven knows what -- but mostly good listening! I have programmed my radio for hours, sometimes in the wee hours of the morning, only to have the oily-voiced ministry of WYFR thunder through the channels, blocking vital information I need to monitor. This sort of intrusion, short of theft, is suspect. It was deliberate!"

There have been some shady accusations in the hobby press by some real wild-eyed types that WYFR (and KCBI, and virtually all other major religious stations) are in reality nothing more than U.S. government-sponsored jammers designed to blot out "hostile" radio signals coming into the States. While I've heard some fairly convincing but unsubstantiated arguments for both sides of the case, I personally doubt that the CIA or anything is behind WYFR, although I suppose it certainly is possible.

Taken at face value as an evangelical broadcaster, stations like WYFR have a job to do -- whether you happen to agree with their motivation or not -- and they do it the best way they can by pouring out as much power on as many channels as possible. No, I'm not a big Harold Camping fan, but you've got to admire any station that kicks _____ as well as WYFR. Come to think of it, though, I've written and called a number of times to arrange an interview with Camping and I never get a response. Hmmm... Has anyone ever seen Camping or might he be something like Max Headroom?

Incidentally, the new *Radio Database International* is now out and this year it contains a new statistics section listing the number of hours broadcast by stations each week. Number one isn't WYFR. Not

surprisingly, though, topping out the list is Radio Moscow with a mind-boggling 39,000+ hours a week (that's no typo, friends -- 39,000+ hours a week). In last place is... well, if I say, it would be like telling you "whodunnit" in a murder mystery before you get to the end of the book.

Also out is the first issue of *World Radio Report*, a new monthly shortwave publication from Miller Publishing. Issue number one is a handy 8-1/2 by 5-1/2 bulletin packed with monitoring information and program details designed to help you find your way through the frequency jungle. It's available for \$18.00 a year from Miller Publishing, 3 Lisa Drive, Thorndale, PA 19372 USA. Sample copies are \$2.50 in the States; \$3.50 elsewhere. Don't miss it!

Don Schmidt says that he is really enjoying the new *MT*. Don is the head of that fine local group, SCADS (Southern California Area DXers) and he invites anyone in the general vicinity of Long Beach to contact him at 3809 Rose Avenue, Long Beach, CA 90807-4334 (include a self addressed, stamped envelope). SCADS members get together a few times a year to look at new equipment and publications and swap stories about DXing. The next SCADS meeting is in February, 1987 so you've got plenty of time to work things out!

Mary Longo of North Palm Beach, Florida says that she has gotten used to the new *MT*. "Interestingly, this is now the second *MT* magazine I get -- *Monitoring Times* and *Money Talk*. "By the way," continues Mary, "where is Thorndale, Pennsylvania? I can't even find it listed in my supermarket Funk and Wagnalls." Thorndale is about a half hour outside of Lancaster, Pennsylvania, home of the second largest community of Amish or "Pennsylvania Dutch" in the U.S. If you're ever in the area, it's a great place to visit.

Robert Fesselinger of Watseka, Illinois (and you're wondering where Thorndale is?) says that he enjoyed the article on the Thunderbirds in a recent edition of *MT*. He would, however, like to see more advance program details. "They certainly added to the enjoyment of SW and

helped introduce new people into SW listening." As mentioned in last month's edition, we'll be trying to find a way to get this information into *MT*, which has later deadlines than did the old *International Radio*.

Look out next month for our annual shortwave survey in the November issue of *Monitoring Times*. It's your chance to make your opinions heard on a number of topics from your favorite station and broadcaster to what you'd like to hear more of on shortwave.

Last year we had difficulty in getting the results back in a timely fashion from the VOA's Dr. Kim Andrew Elliott so this year we're going to handle the project differently. The survey will be printed in *Monitoring Times* and you can either tear out the survey or xerox it and fill it out. Remember, the more people who send in the survey, the better a picture we'll have about international radio. So plan on filling it out and mailing it in!

"Saw your picture in the September issue of *MT*" says Jim Small of Hawaii. "Could I take it from your scowling face that you were, as usual, bored at the ANARC convention?"

"I thought I'd bring up a subject," says Mike Hardester of North Versailles, Pennsylvania, "which undoubtedly has caused many other hobbyists endless hours of concern as well as sleepless nights: radio conventions!

More to the point, how do people find the money for those three or four days of reckless abandon? Are attendees rich, old, young, live in/near the convention city, etc.? Undoubtedly, the potential for a Ph.D thesis is sitting here waiting to be discovered." Yes, the lifestyles of the rich and bored.

"I attended the 1980 ANARC convention in Irvine, California," continues Mike before he was so rudely interrupted, "as a representative of Radio West. Had Radio West not paid my way, I couldn't have afforded to attend. And Irvine was only a two hour drive from where I was then living.

"I don't plan to start a massive survey and dissertation on radio convention attendees, but it never ceases to amaze me how people can afford to attend. Maybe someday somebody will eventually undertake this phenomenon of 'free spending' and explain it to me so I can do it!"

As anyone who's ever read or heard my reports about ANARC will know, I find the conventions to be horribly boring, not to mention expensive. So why do I spend \$800.00 and the good

part of a week to attend? People who work in shortwave or listen to it are geographically dispersed around the world. So a convention is the only time I get to meet them face-to-face. And that's nice.

But as for the rest of the event, it's a real yawner. First, ANARC is always trying to lure businesses into attending, donating and participating, then telling them that the convention is non-commercial. At one convention, officials even told vendors at the event to stop selling things. Actually, to be fair to ANARC, I have to mention that I even heard one ANARC official this year saying "I hate these things."

Now, Jeff White of Radio Discovery put a bid in for the 1988 convention. And what Jeff wants to do sounds good. His idea is to make it *fun* -- a vacation with a shortwave accent. There were to be cookouts on sunny Florida beaches and Caribbean marimba bands playing out by the pool late at night and so forth -- all without that horrible pretentiousness of the ANARC convention. Fun. That's the word.

I'll bet that Jeff White's bid won't be accepted. It's too good. But someday, some entrepreneur is going to see the full potential of a shortwave convention and do it right. And you know it'll be done right because if it's commercial, it'll have to be good in order to survive and prosper. And when the commercial sector enters the SW convention market -- and there are rumors to that effect floating about even now -- then we'll have the shortwave listener's equivalent to the enormously popular and profitable annual Dayton Hamvention -- instead of these anemic ANARC affairs attended by two or three hundred people.

Think I'm wrong about the ANARC conventions? Then why do 20 thousand show up for a "ham" convention each year in Dayton and only 300 for a shortwave convention -- when there are far more SWLs than hams?...

Charles West of Santa Ana, California says that he receives Radio Bras from Brasil like a local on 11745 kHz. And that's normal enough. "But at 11780 kHz I find another station, Radio Nacional da Amazonia. Reception is even better than Radio Bras and it sounds like party time -- a lot of fun -- and great music I've never heard before! I like it!

RNA is part of the national service of Radio Bras designed for people in the Amazon region of the country.

Mailbag

Utilities

Bob Grove, Utilities Editor, P.O. Box 98, Brasstown, NC 28902

ADD-ON FREQUENCY DISPLAY

In Sept. 86 *Monitoring Times* p.50, I have another answer to the question, "Who makes an add-on frequency display for receivers?"

Thomas M. Miller, WA8YKN, has designed and built add-on displays for receivers. See his article in 73 magazine, July 1985 page 40.

He also has a design for receivers which have a VFO that tunes in the opposite direction as the displayed frequency. This would make a great project for you experimenters.

Carl Anderson, WB0DFH
Eagan, Minnesota

A DIFFERENCE OF PRIORITIES..

I was outraged to see the price wanted for the ICOM R7000 scanner. I do admit that ICOM puts out quality products but to have their first scanner at that price! It is interesting that their ICOM R71A receiver costs less. Now I am searching for a viable alternative in continuous coverage scanner which may be the Radio Shack PRO 2004.

Claude Mangum
Macon, GA

I believe my R7000 was the best investment I ever made, followed by my boat and wife.

(Name withheld!)

(SW MAILBAG, cont'd)

And if you haven't ever had a chance to tune this one in, do it. Even though it's in Spanish, the announcers have such a good time and play such a great selection of music and advertisements that you can't help but enjoy it. It's real high-velocity radio and, like Charles says, a lot of fun. Try it. It's on about 14 hours a day, best heard here in the local afternoon with a near local quality signal. Great stuff!

Don't be afraid of the fact that the program is in Spanish. Good radio works well in any language!

That wraps up this edition of mailbag. If you have any question or comments, don't hesitate to drop me a note at P.O. Box 691, Thorndale, PA 19372 USA.

MIXED EMOTIONS

As a scanner enthusiast, I really enjoy the listening out here in the great South West; I have yet to experience digital voice transmission and there is no effort made to eliminate the unnecessary use of mountain top repeaters or to encode voice transmissions in any way.

As a citizen, I feel that immediate action should be taken to protect the sensitive communication so important to law enforcement. Talk about mixed emotions!

Albert Nichols
Sun City West, AZ

'MT' WORTH THE EXTRA

My hearty congratulations and "Well Done" for the "new" publication. For what it's worth, I've cancelled all my other publications (some 18 total) and am having my mail service forward only *MT* to me here in Grenada (about \$6.00 per copy), and it's worth it. Even the *XYL* is reading *MT*.

John Praytor, WA4TKU/J3
St. George's, Grenada, W.I.

TOO LITTLE, TOO LATE?

I want to respond to the Action Alert article by Bob Horvitz. I've just mailed off two letter to our California Senators. Hope it will generate some response...

How about having *MT* serve as the coordinating center? Most folks dislike writing letters and you are talking about the scanner group...-people more into listening than writing. If *MT* can make out some kind of a return post card with message already printed, all the subscribers have to do is sign their name and their addresses and then mail it back to *MT*. *MT* then can carload them to DC either by states or just one big bag to the hearing committee.

Yes, it will involve some effort for *MT*. But at the same time you will know who's out there that's at least concerned, but lazy to write. In case no one responds or the responses are miniscule...then...then I guess *MT* ought to drop the case and no further future alert.

Just an idea...
Winston Ho
Hayward, CA

It's too late to accumulate and forward cards and letters; they must

be sent immediately--as you have done--to your legislators who want to get the issue over with...Bob

SUGGESTION BOX

I am so pleased with your *Monitoring Times*. I loved *International Radio* and watched every month for it to come. Now I'm watching with pleasant anticipation around the first of the month for your paper.

Thank you for your little catalogue. I ordered two antennas out of it and I am delighted. The ANT-8 and my hand-held Bearcat make a great pair. I went to an army surplus store and got a leather ammunition box and my Bearcat and accessories just fit as snug as can be. The box has a loop and can be worn on the belt.

Have you ever thought about preparing a booklet for people like me, who are survival minded but short on electronic "know how," (I am straining my brain to be able to pass amateur radio tech...)?

How about how to build a primitive CW transmitter out of junk with Morse code printed on the front cover? It could be set up so it works on only one frequency, say, e.g. 7.125 MHz. A ham would surely hear it and perhaps save a life.

Another thing I'm interested in is a solar battery recharger. Every back packer or emergency kit should have at least one.

May you could just write articles in your magazine on how to build these items--CW and solar, or perhaps sell little project kits to get kids interested in ham radio--A little transmitter and a little ear phone receiver on a solar cell.

Jeanne Freitag
Burbank, CA

Jeanne has some great ideas here. Hopefully, they will spark some interest among the writers amidst our readers!...Bob

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Bob Grove's

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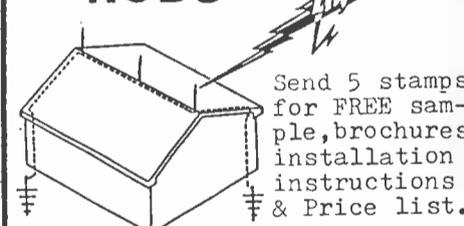
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