



MONITORING TIMES

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SCANNING THE HONDURAN HOTBED

By Charles Robertson

An extraordinary amount of Central American low band skip has been received in the last year. Before this skip was logged, few monitors realized just how Americanized the undeclared war against Nicaragua and the Sandinistan rebels had become. Most of the Honduran soldiers heard via low band propagation used English in their comms, not Spanish.

About 700 U.S. troops are thought to be permanently stationed in Honduras. Tigre Island, located in the Gulf of Fonseca, houses a U.S.-built radar base for the purpose of detecting weapons shipments from Nicaragua to rebel-controlled areas along the La Unión to Río Lempa beaches of El Salvador. US C-130 spy planes also scrutinize this area.

This report will deal primarily with Central American skip received early in 1984. There are many roadway check points throughout Honduras. Their main purpose is to keep weapons and ammunition from being sent from Nicaragua to the Sandinista rebels who are involved in attacks on El Salvador from the mountainous Honduran border region.

Check point personnel were heard on 30.05, and used November and Mike Papa designators. Vehicles were heard on 30.35. Victor and Tango designators were most commonly encountered. (Victor/vehicle; Tango/transport?)

Mike Papa stands for MP (military police) and is commonly heard by the joint Caribbean and U.S. forces training on Grenada.



Check points are also called "Charlie Papas" (CP). They have numbers (like Charlie Papa 4) and names (like Rainbow, which is Charlie Papa One).

All personnel were English-speaking Spanish troops except for one American.

THE TEGUCIGALPA NET

Now let's turn our attention to an extensive radio system referred to by its Honduran users as the "Tegucigalpa Net." Many frequencies appear to be used, but 30.25 and 30.26 are by far the most active. The main use of these channels was to relay messages. The use of semi-duplex channels spaced only 10 or 15 kHz apart was often observed.

If you only list to one of these semi-duplex channels you may be able to hear the "other side" of the conversation, but it will be weak and distorted. Be sure to check the frequencies 10 or 15 kHz above and below the active channel; the "weak" transmission may turn out to be a completely different frequency with a strong signal strength!

Here's a list of other active semi-duplex frequency pairs having only a 10 or 15 kHz spacing:

- 30.19 and 30.20
- 30.335 and 30.35
- 32.585 and 32.60

Another twist in the radio communications techniques practiced by the Honduran military can be found in their use of "split frequencies." These channels are skewed 5 kHz off from standard U.S. allocations. Two split frequencies used by the Honduran military include 30.145 and 30.285 Mhz.

Various types of high tech scrambling have also been monitored coming from Central America. Time domain and DES-Fed scrambling seem to be the most commonly encountered types of voice protection.

U.S. Marine operations, possibly in Panama, have been logged several times on 34.30 MHz. Ship and aircraft



(Photos courtesy Claude Urraca/Syigma)

comms always seem to be by U.S. personnel, while many land comms are from English speaking Spanish personnel.

U.S. MP's are sometimes heard engaged in law enforcement on 33.10 MHz. English-speaking Spanish-dialect security communications were heard on 41.00 MHz.

On March 6th, both U.S. and El Salvador personnel were heard conducting training exercises on 30.15, 30.25, 30.45, 30.50, 31.00, 31.35, 31.45, 31.50, and 32.55 MHz. Many range controls were mentioned.

The various range controls are regularly heard at my QTH and are thought to be located at Fort Rucker, Alabama, a long way from El Salvador! As to why these Spanish troops were training in Alabama was answered in a March 12th Newsweek magazine article.

According to the Newsweek article, "20 Salvadoran recruits...were rushed to Fort Rucker, Alabama, to begin a quick training

course." Similar "joint training" comms have been heard coming from military bases on the Eastern U.S. coast. Just goes to show, not everything "Spanish" originates south of the border!

A list of Central American Spanish language military and business channels logged this spring includes:

- 30.00 Commando Camp
- 30.05 Guatemala military
- 30.25 Garrison
- 30.40 Military control point
- " " "
- 30.90 " " "
- 31.90 " " "
- 31.10 Guatemala military
- 31.80 Honduran business (petroleum?)
- 31.96 San Salvador, business
- 32.15 Honduran military
- 32.46 Managua, Nicaragua business
- 33.425R Santa Ana, El Salvador, business repeater
- *(see below)
- 33.625 Central America, business

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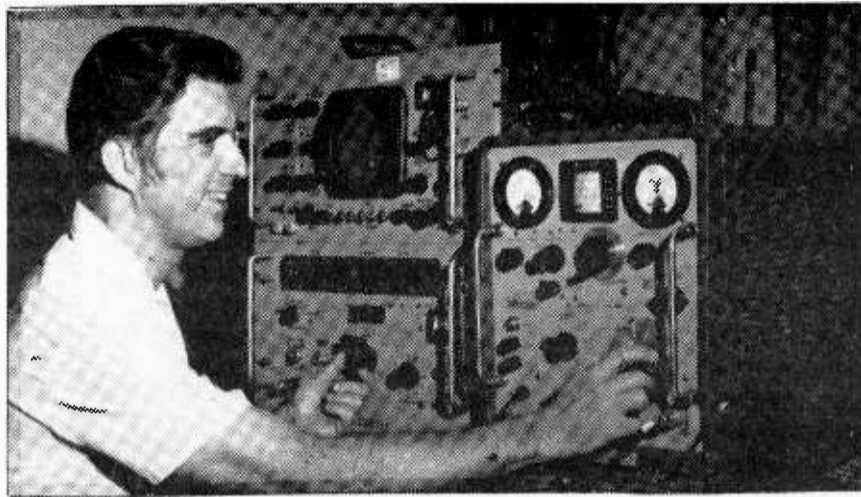


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FROM THE EDITOR



To Build or Not To Build

There was a time when the most casual glance through electronics hobby magazines would reveal a cornucopia of companies offering a wide variety of kits for the home electronics enthusiast.

Building electronics kits provided cost savings, education, experience and pride of accomplishment. But with the advent of inexpensive and effective factory-wired equipment from the Orient, the kit companies gradually disappeared from the marketplace.

The one remaining stronghold, Heathkit, has gone through troubled times with many new owners (Schlumberger, Zenith). And kits from Heath are hardly cost-saving.

Grove Enterprises has often discussed the possibility of offering simple, inexpensive kits -- simple one- or two-transistor or IC projects such as military aircraft receivers, frequency converters, filters, preamplifiers, voice descramblers, audio processors and so on.

But there are problems. How do you explain to a customer who returns his newly-assembled prize because it doesn't work that it looks as though he assembled it with a blowtorch? How can a company warranty someone else's work?

In other words, can kits cause more problems than they can solve? Is there a risk in customer

relations when quality control no longer rests with the manufacturer?

We would appreciate comments from our readers, both experienced builders and would-be home assemblers, to help us decide whether or not to consider this additional venture.

73 Magazine Withdrawn From Sale Block

About a year ago the publishing world was stunned by the announcement that Wayne Green had sold his publishing empire for a staggering \$60 million. The new owner, CW Communications/Peterborough, recently stated that they would continue to publish only those magazines directed to the information technology (computer) industry. 73 doesn't fit that mold. It was offered for sale.

Now, a new announcement has been circulated to the press advising that a change of heart has occurred. 73 Magazine will be retained by CW.

We would hope that the owners will recognize the unique nature of 73 Magazine and continue its format essentially unaltered. It truly spans the electronics hobby and, although catering primarily to the amateur radio specialty, has something for everyone.

HONDURAN HOTBED

- 34.06 Tegucigalpa, Honduras, business
- 34.66 Choloteca, Honduras, business
- 36.00 Central American business rpt.
- 37.35 Spanish military
- 37.40 " "
- 38.95 " "
- 42.80 " "
- 49.60 Panamanian gov't

*Central American repeaters often use 6 MHz input/output separation. U.S. police communications often key up these repeaters and may be heard by skip back to the states.

Due to the channel-splitting allocations in Central America, U.S. transmissions are often distorted because they are not exactly on the Central American input frequencies.

Some Honduran frequencies monitored in the past using scrambled voice may become active again. They include 30.20, 31.70, 32.60, 32.01, 36.87 and 45.44 MHz.

Additional Central American repeaters often reported rebroadcasting U.S. police communications near their input frequencies include:

- 33.475 (39.48 US input)
- 33.525 (39.52 US input)
- 33.675 (39.68 US input)

NEXT MONTH -- SCANNING THE CARIBBEAN PEACEKEEPERS



Viewpoint

In response to Bob Rankin's letter about the Spanish book, I was a radio tech at Ft. Chaffee during the time the Cubans were sent there.

They had a "special" section for the criminal types; we sometimes had to work in that area. They gave us a booklet, "Conversational Spanish for Correctional Workers" (FCI FW9-77 #1894). It's put out by the Dept. of Justice. Copies may be ordered by that title at this address:

National Institute of Corrections
 320 First St. N.W.
 Washington, D.C. 20534.
 (Gary Hickerson, Ft. Smith, AR)

>>><<<<

In the September, 1984 issue of Monitoring Times,

James Owen says he does not know under whose control the steady carrier on 5115, 3395 and 10163 kHz are.

The University of Alabama does some work along those lines.

Department of Geology
 University of Alabama
 Tuscaloosa, Alabama

I received a brochure from then some time ago.

(Eugene Munger, Jr., Montgomery, AL)

(ED.NOTE: I contacted the U of A, the Alabama Geological Survey and the U.S. Geological Survey; none avowed knowledge of the system or the pamphlet in question. Can any other readers help resolve the puzzling case of the unmodulated carriers?...Bob)

>>><<<

(ED.NOTE: This letter gives prospective authors some food for thought. Let David--and us--know if you would like to share your knowledge with other MT readers!...Bob)

UOSAT 9 and 11 (amateur satellites) have some sort of camera system designed to produce imagery that can be received by "simple ground equipment." Nobody seem to have any info on what this "simple ground equipment" is. Can you find out and print the answer in MT?

I'd like to see an article showing how to build a home weather satellite receiving station, with updates as the state of the art improves.

I'm also interested in packet radio. AEA has a new plug-in packet radio module. Could we have a product report in MT?

I've just learned that they are buoys in the Gulf of Mexico which telemeter weather data including wind speed and direction, barometric pressure, and temperature. What gear is needed to receive this info at home?

How about a homebrew SWL antenna book? (This one is due soon!...Bob)



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



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

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

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

VIEWPOINT

Here's my idea for a MT contest:

NASA has a little known piece of apparatus called LDEF or Long Duration Exposure Facility. This is just a large cylindrical frame carried into orbit in the shuttle's cargo bay. Basically, for a fee, those interested can bolt their experiment onto LDEF and have it placed in orbit to be retrieved at a later time.

I can't understand why AMSAT or other amateur groups have not seized upon this opportunity. NASA won't listen to me, but if you promote it in MT maybe NASA would provide a slot for the best amateur package offered.

That's my contest idea. What's the best dream package to fly on LDEF? Packet radio is a possibility. Also amateur radio astronomy.

My idea would be a camera package. Although spy satellite resolution is unlikely, it seems that resolution better than current wx satellites should be possible. A store and dump feature would record imagery out of line of sight of the US and dump it when the bird is once again over the US, thus allowing a look at the other side of the globe.

Modern intrusion alarms use a TV camera coupled to a computer. The computer records the background and sounds an alarm when anything in the picture moves. An adaptation of this technology would permit the camera (turret mounted) to lock on and track a moving target within its field of view (such as another spacecraft). Another benefit of a turret mounted camera would be the ability to take multiple shots at different angles of the same area at a fixed altitude. This would permit enhancement of the pictures using stereoscopic techniques.

Color, infrared, ultraviolet, and low light level imagery would be available in addition to black and white visible spectrum imagery. Zoom ability would permit concentration on interesting features as well as wide angle views of large areas. This data would be transmitted in a form easily handled by currently available receivers and home computers.

(David Bogart, Houston, TX)

>>><<<<

I think there are many very interesting stories from readers who were allied

spies during World War Two and also the Korean War; now perhaps there are those who are spies and who use radio in Nicaragua and San Salvador who could write of their radio spy adventures and sign with a fictitious name.

(Ken Hand, East Hampton, NY)

>>><<<<

In the July issue of Monitoring Times (page 18), your magazine depicted a Soviet "trawler" that was supposedly transmitting on 133.975 MHz.

It is quite possible that this spy vessel was transmitting data to either a communications satellite, another vessel or a high-flying aircraft...but I am only guessing.

On the back page, some of your readers had reported hearing strange "noises" between 6725 & 6740 kHz. The military is constantly experimenting with new techniques for signal transmission, so it is really hard to guess what the noises really are.

It IS very likely that much of this activity is a technique called spread-spectrum.

Techniques for spread spectrum range from simple channel-hopping to swept-band, digitally-encoded data transmission.

(Glen Gardner, Jr., Chillicothe, OH)

>>><<<<

I would like to make a comment about an article in the last issue of MT. In the review of the MX 5000, the author stated that he used it in his car and programmed in the cordless phone freqs. (49 MHz) and was surprised to find out that many users of cordless phones left them off the hook. I doubt that what he received was a cordless phone off the hook. This is based on my own experience monitoring the 49 MHz band and when I came to the same conclusion he did. I couldn't imagine why someone would leave the phone off the hook.

Upon further investigation, I realized that what I was hearing was a baby monitor!!! You know, the transmitter is in the baby's room while the receiver was located in another room where the parents could monitor its activity. Two of these baby monitors are in the Sears catalog. One transmits to an AM radio while the other is 49 MHz. It is my guess that this is what the author heard. I have enclosed the Sears ad for you to see. Our neighbor, three blocks away, has one and I receive it every-

day during most of the day and evening.

(Bob Skwirsk, Wayne, MI)

(Nice sleuthing, Bob!...ed.)

>>><<<<

THE "NEW LOOK"

>>><<<<

(ED.NOTE: The following are typical of the enthusiastic responses to the new format premiered in the October 1984 issue of MT. Okay, you win!)

>>><<<<

In the October Monitoring Times you asked for reader suggestions on the new look to avoid unnecessary continuation of articles to other pages.

For years I have been wishing all publications would do this. For me you are a first. Please keep it up.

(Paul Stump, Spring Hill, FL)

>>><<<<

I like the new format of MT. I wish all newspapers would adopt a similar style in their news presentation. The absence of a complete story on each page has been a pet peeve of mine for a long time.

I know your new format will give your readers a lot of satisfaction.

(Roy Purdy, Ocala, FL)

>>><<<<

Can't tell you what a pleasure it is to read MT now that you've eliminated the need to skip back and forth to finish an article. What an improvement!

And since you asked for opinions, mark down a big NO for increased computerization of radio receivers. And PLEASE, no CB hobby coverage in your fine paper. UGH!

(Ray Cunningham, Ambler, PA)

>>><<<<

CB OR NOT CB?

>>><<<<

About CB coverage. Suggest one page devoted to the latest in CB.

(D.N.Coble, Norfolk, VA)

>>><<<<

I am a new subscriber; I like your publication.

I have three answers to questions recently asked:

(1)Articles for the user of illegal CB gear above 27.405 MHz: ABSOLUTELY NOT!! I draw a firm distinction between monitoring illegal communications and information on how to accomplish them. Yours is a reputable publication and should stay that way.

(2)More articles on computer interfacing: A qualified yes. Have articles, but stay a radio

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VIEWPOINT

paper, don't go "all computer" like the late "Popular Electronics."

(3) Magazine format: No. The quick publication is more important than slickness.

(Thomas Mitchell, Port Angeles, WA)

>>><<<<

The only thing I would care about seeing in MT concerning CB is the type of information in your October 1984 cover page--"FCC SEIZES..."

(Thomas Barrett, Ozark, AL)

>>><<<<

A monthly column or a

series of articles pertaining to CB Radio? No way! CB Radio is the most useless and least sophisticated form of two-way radio communications on earth.

(Mark Holmes, College Park, GA)

>>><<<<

Yes!!! Definitely a CB column; I'd certainly appreciate it, since three CB magazines went belly-up the past couple of years. And (another magazine) doesn't cover it well at all.

A CB section in "Monitoring Times" is a must for serious consideration. I want it!

(Gene Suchecki, Milwaukee, WI)

Facts, Fables and Fun

A reply to Van Dalsem's Question on the Derivation of the word "ham."

By W. Clem Small, KR6A
26530 Parkside Drive
Hayward, CA 94542

A recent contribution to Monitoring Times¹ made several suggestions for the possible derivation of the word "ham," a term long used to identify an amateur radio operator. This present note will suggest another "guess" as to that derivation, cite a previous report on the derivation under question, and introduce a few more derivations for your amusement or amazement, as the case may be.

The "guess" (as to the derivation of "ham"), which I'd like to add to the five given by Van Dalsem, is that it comes from the same source as "ham actor," a person who likes to perform but perhaps isn't a talented actor. We do have a few ham radio operators who seem to like to "perform" as they ramble on-and-on over the air, in the style of a frustrated actor glad to have an audience. Maybe there were a few of this type around in the early days too!

The derivation of this use of the term "ham" is thought to be derived from allusion to down-in-the-heels actors who had, in their better days, played Hamlet; or to those who used a 19th century actor's make-up which was removed with ham-fat; or to an actor names "hamish" McCullough who traveled with his band of actors known as "Ham's actors"; or to a minstrel song about an inept actor called "Hamfat Man."²

The Dictionary of American Slang³ suggests "hambone," a name for an unsophisticated person (as "from the deep sticks") as the basis of "ham actor."

Leaving slang to return to more proper English, Webster's New World Collegiate Dictionary⁴ tells us that both of the terms "ham actor" and "ham radio operator" have been influenced in their derivation by the "am" in "amateur." This influence brings us around to the previous report I mentioned earlier.

Alice Schumacher, in her interesting biography⁵ of the "Father of Amateur Radio," Hiram Percy Maxim, points out that "amateur" is derived from "amator," Latin for "lover." Webster⁴ says that "amator" derives from "amare" which means "to love," and as we know, amateurs do their radio operating for the love of the hobby, not for profit.

More to the point, however, Schumacher informs us that the December 1931 issue of the amateur radio journal QST reports that "ham" is the British Cockney slang usage of the first three letters of "h'amateur," their version of "amateur." This explanation is rather close to the "am" as suggested by Van Dalsem in the Monitoring Times article cited earlier.

Early lexicologists (a British term for persons concerned with the history and meaning of words) thought "wireless" an unsatisfactory term. They pointed out that the U.S. Army had rejected it⁶, suggesting "aerography" for "wireless" (which instead became "radio"), "aerogram" for "wireless message," and "aerographer" for "wireless operator." The "aero" prefix referring, I assume, to the wireless signals traveling in the air, rather than on wires as they did in land-line telegraphy.

Going further, the Oxford English Dictionary⁷ reports olden-day usage of "Marconigram" for "wireless

message," while McCleery in Radio Today⁸ informs us that Marconigrams were handled by operators called "Marconimen."

Marconimen were later to be known as "Sparks" or "Sparkers" due to their association with the spark-gap transmitters used in those days. Today the commonly used name for such people seems to be "radio operators" (which, incidentally, are a "near-endangered species" due to the rapid advance of automation).

Guglielmo Marconi, the world's first radio operator, decided to pursue the use of electromagnetic waves for communication after reading an obituary report on Heinrich Hertz⁹, the first person to knowingly produce radio ("Hertzian") waves. The obituary reviewed Hertz's discovery which had produced these waves that could radiate through space.

The young Marconi was so excited with plans to further Hertz's discovery that he cut short a vacation in the Italian Alps Mountains (that's real dedication to science) to rush home and commence the research which has now become history. It took a good bit of time and effort, but Marconi was successful in developing a system for what we now call "radio communication."

Subsequently, the first paid public "Marconigram" in history was sent on June 3, 1898 by Lord Kelvin, a well known scientist⁸.

Kelvin had done considerable research in early land-line and transatlantic cable telegraphy. However, he is thought to have earlier said, in reference to sending messages, that he "preferred a boy on a pony to wireless!"

But speaking of delivering messages by animal power, did you know that in

April of 1901, the British Navy's Chief of The Bureau of Equipment "appointed a board to consider the advisability of discontinuing the homing pigeon service and substitute for it some form of wireless."¹⁰ I consider that a very fortunate date in radio history for all radio operators for all time to come -- after all, who among us would like to be known as a "pigeon operator"? So history goes.

REFERENCES

1. Van Dalsem, Jim. Where did "ham" come from?, Monitoring Times, Vol. 3, no. 8, August 1984.
2. Brewer's Dictionary of Phrase and Fable, Centenary Edition, Revised, Harper Brothers, New York, 1981.
3. Dictionary of American Slang, Thomas Y. Crowell Publisher, New York, 1964.
4. Webster's New World Collegiate Dictionary, World Publishing Co., Cleveland, 1960.
5. Schumacher, Alice C. Hiram Percy Maxim, The Ham Radio Publishing Group, Greenville, N.H., 1970, Pps. 62 & 13.
6. Dunlop, O.E. Marconi, The Man and his Wireless, Arno Press, New York, 1971, Pp. 102.
7. The Compact Edition of the Oxford English Dictionary, Oxford University Press, New York, 1971.
8. McCleery, D.K. Radio Today, Oxford University Press, London, 1961, Pps. 5 & 3.
9. Aitken, Hugh, G. J. Syn-tony and Spark-The Origins of Radio, John Wiley and Sons, New York, 1976, Pp. 183.
10. Marconi, Degna. My Father, Marconi, Frederick Muller Ltd., London, 1962, Pp. 77.

TO CONCLUDE OUR SERIES ON SAC, MONITORING TIMES PRESENTS IN THIS ISSUE A SPECIAL SECTION ON MILITARY COMMUNICATIONS

SAC — What Is In The Future?

CONCLUSION

By Art Lewis

Command control communications and intelligence — what the Air Force terms C³I is getting more and more emphasis, having displaced weapons as a top priority item during the past few years. SAC personnel are quick to admit there there is still a long way to go.

Literally hundreds of different projects are underway simultaneously; some have just gotten started, others are near comple-

tion. Some of the projects in our area of interest are presented briefly here:

● A VLF Ground Wave Emergency Network (GWEN) (see September 1984 issue of MT) to provide survivable ground-link communications between the NCA and NORAD, SAC, and coastal radar sites.

Sixty GWEN towers are already in place with many more to come for a total exceeding 300 sites. With enough sites (nodes) in place there is no way all sites could be disabled by missiles.

SAC

● A plan is being considered to use barrage balloons or easily-erectable towers for LF and VLF communications.

● Four **FLTSATCOM** (UHF) satellites are operational and four new **LEASAT** satellites will give additional coverage.

● The **Military Strategic Tactical Relay (MILSTAR)** system uses the EHF spectrum. The advantage of this bandwidth is that it is relatively impervious to jamming and recovers quickly from EMP degradation. The system, which is planned for full operation in the late 1980's will feature cross-links, frequency hopping, time shuffling and will be hardened against nuclear attack.

Satellites in the **MILSTAR** system will be programmable from highly mobile sites such as the **AABNCP**. It will carry secure voice and data.

● The highest priority item currently for SAC is **anti-jam communications**. Intelligence experts say that the Soviet doctrine towards military communications is simple and well known.

"They plan to jam about one-third of U.S. Electronic warfare capabilities; they will kill another third by physical destruction, and they expect that the remaining third will collapse," volunteered a spokesman.

The first step in coping with anti-jam (AJ) voice communications is a program called **HAVE QUICK II**. This program concentrates on protecting the UHF equipment, mainly **ARC-164s** used for air-to-air and air-to-ground communications. A program called **HAVE CLEAR** was also proposed which utilized computer-driven frequency hopping, but did not get congressional support.

● **COMFY FOX**: a mobile, self-contained signal security assessment system that would analyze signals for security and report the results for correction. This project is still in the concept definition stage.

● **SCOPE SHIELD**: A plan to upgrade Security Police communication equipment with state-of-the-art designs in the areas of Air Base Defense and Weapon Systems Security.

● **SACDIN**: SAC Digital Network to replace parts of the SAC Automated Command links the NCA with nuclear strike forces worldwide through **CINCSAC**.

KC-135 refueler connects with E-4A NEACP (National Emergency Airborne Command Post)

**C3I**

By Bob Grove

Command, Control, Communications and Intelligence is the military backbone for defense/offense. In order to effect these responsibilities, an enormous network of electronics has been implemented worldwide by the Department of Defense.

NAVSTAR-GPS

The Navigation System using Time and Ranging--Global Positioning System is expected to be fully operational in 1987. By then, 8 or 13 present systems will be eliminated, including aircraft VOR, TACAN; two long-range navigation systems.

The complete **NAVSTAR** system will incorporate 24 satellites in 3 rings, circling the earth every 12 hours at an altitude of 12,500 miles. Positioning accuracy will be on the order of 10 meters (33 feet).

Ground users will be issued 30,000 L-band sets for interrogating the satellites to provide positioning data.

DSCS

The Defense Satellite Communications System has evolved through 3 stages, with the third type now being placed in orbit by the space shuttle.

DSCS III is expected to provide Extremely High Frequency (EHF) radio transponders for satellite cross-linking, previously demonstrated by Lincoln Laboratory Experimental Satellites (LES 8 and 9).

FLTSATCOM

UHF military aircraft communications, primarily Air Force and Navy, are assisted by several satellites including the Navy's Fleet Satellite Communications system, the USAF **AFSATCOM** and the commercial **MARISAT**.

AFSATCOM provides direct radioteletype access via UHF to high priority DOD elements such as the National Command Authority and Strategic Air Command as well as the Commanders-in-Chief of Europe, Atlantic and Pacific (**CINCEUR**, **CINCLANT** and **CINCPAC**).

ASAT

Antisatellite systems are also being developed to

protect allied communications systems and detect hostile attack. **COBRA DANE** ("COBRA" is a code word assigned to Hq. USAF) is a multi-object (up to 200 targets) tracking radar located at Shemya Island, Alaska.

Antisatellite weapons would be fired at low-orbit Soviet satellites by F-15 fighters.

PAVE PAWS ("PAVE" is a code word for USAF night avionics), with dual installations at Otis AFB, Massachusetts and Beale AFB, California, assists the **NORAD** (North American Air Defense Command) Cheyenne Mountain, Wyoming complex in detecting submarine-launched ballistic missiles (SLBM) at distances of 2000-3000 miles from the coast.

NATO

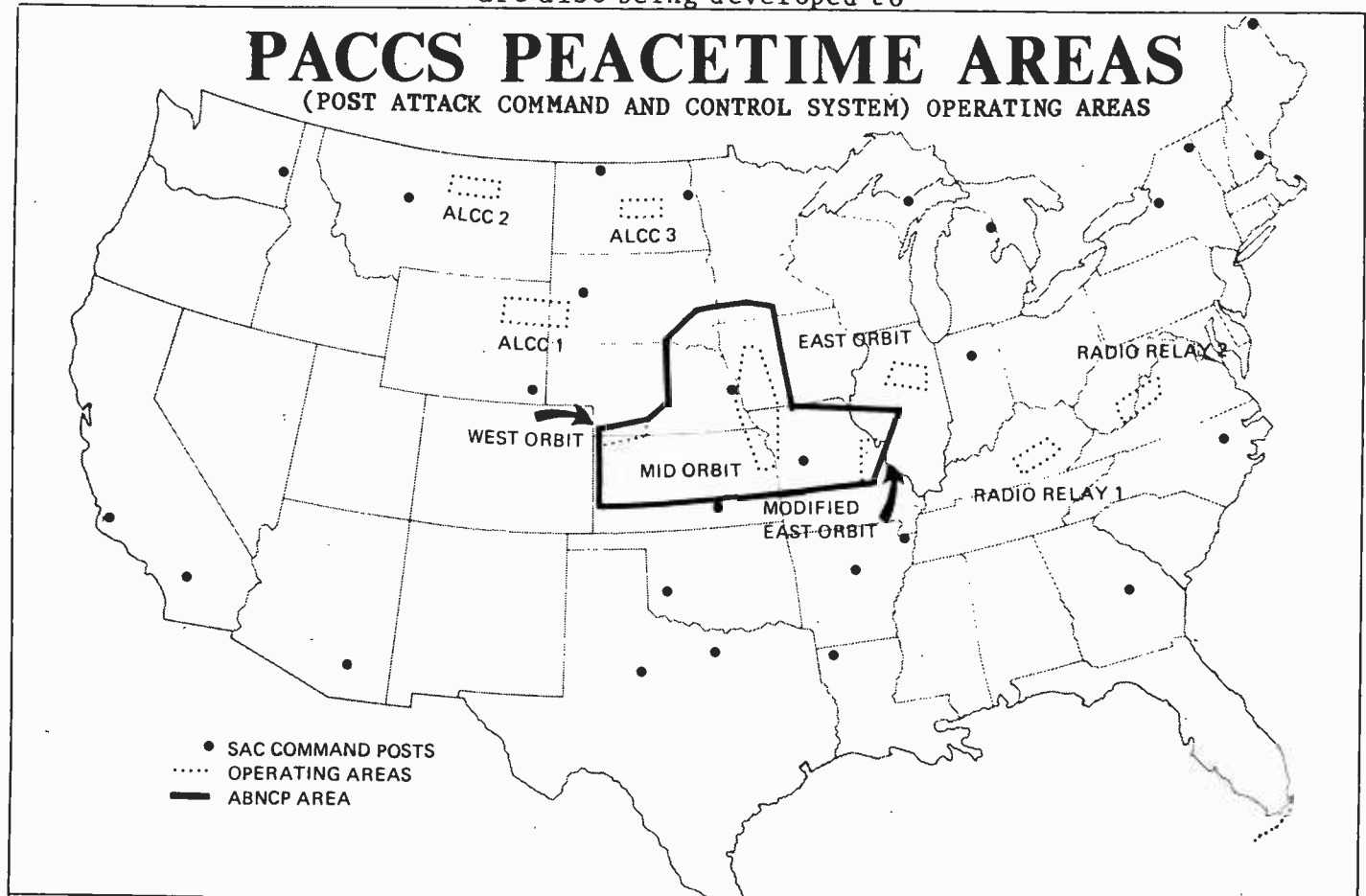
US Allies comprising the North Atlantic Treaty Organization operate three geosynchronous phase 3 Atlantic satellites, each containing one receive antenna and two transmit (wide and narrow beam) antennas.

Each satellite has three transponder channels capable of interfacing with the **DSCS** satellites. Tracking is provided by an X-band beacon, while command and control is done on S-band.

OTHB

Over the horizon backscatter radar utilizes HF (shortwave) propagation to detect low-flying aircraft (stealth type) at distances of 1100 miles from the North American continent.

Listeners-in will hear a humming noise on discrete



MILITARY SATELLITE ^{c3I}

ACRONYMS

NAVSTAR	Navigation System using Time and Ranging
GPS	Global Positioning System
TACAN	Tactical Air Navigation
NAVPLAN	JCS Navigation Plan
DSCS	Defense Satellite Communication System
GPSCS	General Purpose Satellite Communication System
AFSATCOM	US Air Force Satellite Communication System
FLTSATCOM	US Navy Fleet Satellite Communication System
MARISAT	Maritime Communications Satellite
LEASAT	Leased Satellite
SSS	Strategic Satellite System
ASAT	Antisatellite System
SPADATS	Space Detection and Tracking System
GEODSS	Ground-based Electro-Optical Deep Space Surveillance System
PAVE PAWS	Phased Array Warning System

frequencies which change to avoid interfering with other services.

ELF
Project ELF involves the transmissions of low-rate data on a frequency of 76 Hz to submerged submarines worldwide. Because of the sluggish-slow rate, only a few letters may be sent per minute, necessitating the use of prearranged codes to indicate major statements.

SPADOC
The Space Defense Operations Center is located at NORAD and is designed to provide higher echelon command and control, disseminating space-related information to other US commands.

GEODSS
Five sites spread over the globe optically detect, track and identify satellites at altitudes of up to 20,000 nautical miles. The Ground-Based Electro-Optical Deep Space Surveillance System functions in cooperation with NORAD.

JSS
Eight regional operation control centers comprise the Joint Surveillance System, designated for peacetime air surveillance with Canada and Alaska.

SACDIN
Direct and secure data communications with enhanced survivability from National Command Authorities to nuclear strike forces are the goals of the Strategic Air Command Digital Network.

MILSTAR
Two-way EHF communications from the President and other National Command Authorities directly to bombers, submarines and tactical forces would be provided by the Military Strategic Tactical and Relay Satellite as well as the SSS (Strategic Satellite System) at orbits of 110,000 miles altitude.

Scheduled for 1987 launch.

WWMCCS
The World-Wide Military Command and Control System comprises 60 digital computer systems to provide early warning of hostility, assess its magnitude and select retaliatory measures.

The network also transmits emergency action messages as well as damage assessment data to terminate US military action.

BMEWS
One of the oldest defense programs, the Ballistic Missile Early Warning System of the US Air Force is being upgraded with new computers at the Greenland, Alaska and United Kingdom installations.

Together with PARCS (Perimeter Acquisition Radar Characterization System) in North Dakota, individual warheads and their targets may be assessed well ahead of impact.

STRATSAT
The Strategic Air Command is busily trying to implement its virtually-invulnerable Strategic Satellite System consisting of four dedicated satellites 113,500 miles above the equator.

At that altitude it is supposed that the birds will not be blacked out by interference or jamming even during an all-out nuclear holocaust.

But will anyone be left on earth to use them?

We would like to thank National Defense magazine for their help in preparing this article.

Project ELF

A Special Report
by Bob Grove

While the pages of MT have been sporadically dotted with items about resistance to the proposed installation of the extremely low frequency (ELF) transmitter facility in Wisconsin and Michigan, details on the actual antenna have been lacking.

Now, thanks to a newspaper clipping sent in by MT reader Bob Wilson, we can provide some details.

Operating in the 76 hertz range, coded signals could broadcast status reports to submerged submarines at depths in excess of 300 feet worldwide. Data rates of 3 characters every few minutes seem slow, but are necessary at these low frequencies.

Two transmitter sites have been selected and will be erected now that the courts have cleared injunctions from environmentalists in the states involved. Environmental Impact Statements are due by February 1985.

One site is near Clam Lake, Wisconsin in the Chequamegon National Forest; There, 28 miles of overhead antenna will be strung in an "X" pattern.

The other site--148 miles away--is at K.I. Sawyer Air Force Base in the upper Michigan peninsula; Here, 56 miles of overhead wire will be arranged in an "F" pattern.

While either site alone is capable of communicating with submerged submarines over great distances, only both sites, controlled and synchronized at Sawyer, could provide global capability according to U.S. Navy spokesmen.

Approximately 4-1/2 months of delay were incurred by concerned citizens who were aware of post-1977 studies which linked ELF radiation with a variety of health hazards including cancer, behavioral changes, infertility, changes in growth rates and birth defects.

ALTERNATIVES
The Wisconsin and Michigan sites were chosen because of ground conductivity, better than anywhere else in continental United States. The only other submarine communications system that is considered survivable after nuclear attack is the airborne TACAMO (Take



Scanverter users praise this hot little item:

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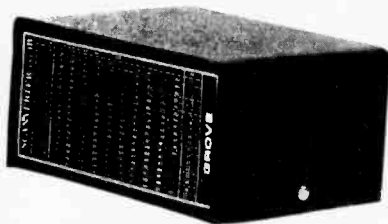
And, as a bonus, if you are using a multi-band scanner, you will be able to listen in on the 216-225 MHz inland waterways and hams as well as 406-420 MHz federal government communications!

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PROJECT ELF

charge and move out) system, a VLF installation in an EC-130 Hercules aircraft trailing a wire antenna.

At least one TACAMO aircraft is always airborne over the Atlantic and Pacific oceans. But there is another proposed system which might have merit.

A satellite-beamed blue-green laser could penetrate 100-200 feet beneath

the surface of the oceans' waters to be received by optical detectors on the hulls of submarines.

The satellites could be controlled by uplinks from earth stations, or could serve as passive reflectors for beams fired from the earth.

In any case, it would appear that the pathway is now clear for the construction of Project ELF.

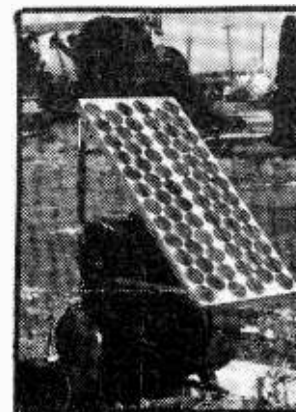
rent output of the PV array. This accounts for cloudy periods, days of long radio usage, and reactance and storage losses.

To minimize reactance and maximize battery life, make the batteries' cycling (their discharges between charging times) as shallow as practicable. These principles apply likewise to WECS, waterpower, or other installations except that greater electrical storage capacity must be allowed for these source as they're not as dependable as the sun.

The author uses a Solarex 14Vp 20Wp array on four parallel 12V 20AH gel cells to power an Allied receiver which consumes 12V @ 500mA, and the gel cells are switched into a parallel-series configuration to operate 24V 800mA military radios AN/PRC-47 and AN/GRR-17.

Never is any battery allowed to drain below 11 volts potential which is measured with the photovoltaics momentarily disconnected from the load.

PV users will notice that when panels in full sunlight aren't connected to an appreciable load, their output potentials will be 30-50% above their rated voltage peaks for matched loads. My 14Vp panels normally yield 20V_{oc} (open circuit voltage) on a 50mV



meter alone. Their loaded potential won't drop below 13.5 volts, however, regardless of the load's reactivity, which obviates the need to closely match the photovoltaics to the load of the battery bank.

Match boxes are produced for PV systems or all of the batteries can be charged individually from the PV output if the bank as a whole is not too deeply discharged and reactive.

If this happens in the author's home, quick pickup from the WECS is possible as cloudy periods turn windy.

Photovoltaic arrays are sold from \$7 to over \$20 per peak watt capacity depending upon quantity, quality and dealer. Batch or cosmetic cull deals can save some, but beware of faulty PVs from fly-by-nighter's!

Checking the classifieds of some electronics magazines you may find \$4 or

NATURAL POWER SUPPLIES

By Al Smith,
Box 280,
Wamsutter, WY 82336

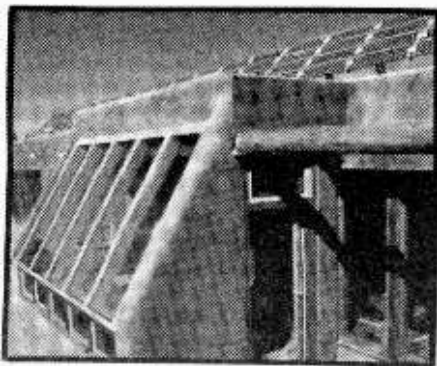
This past decade's emphasis on fuel conservation has renewed interest in naturally available energy, or what has come to be called alternate energy, including small scale electricity production.

Many homesteaders, outdoorsmen, survivalists, and radiomen are taking advantage of developments in the field of home-brew electricity. Their modest photovoltaic arrays (PV), wind energy conversion systems (WECS), and water wheels yield direct current electricity which, when shuttled through storage batteries, is plentiful enough to any of the present generation of radio equipment.

If you consider your radio essential during natural disasters, interruptions to commercial power, or otherwise away from commercial power sources, think about implementing one sort or another of natural power supply.

● Photovoltaics are indisputably the most reliable worker of naturally-available energy since they have no moving parts and will yield DC electricity from any earthly climate. As you probably know, photovoltaic cells are regular patterns of silicon cut some millimeters thick and overlaid with ribbon conductors. This configuration of materials rectifies 3-6% of sun energy into direct current.

Single cells have peak voltage outputs (Vp) in full sunlight around one half volt DC at up to two amperes according to the cell's



dimensions and the reactance of its load.

To make up a photovoltaic panel, cells are patterned on parallel-series configurations for desired voltage and amperage, underlaid with a supporting plate and insulator, overlaid with transparent weatherproof material, and sealed.

Panels are commonly manufactured for 6-36 Vp output at 2-50 watts peak into a matched load. It is important to remember that voltage and current peak ratings are for conditions of full sunlight and a non-reactive load. Care must be taken to match the photovoltaics' output with the load of the storage batteries it will be connected to.

A small 14 Vp 10Wp panel, even in clear sunshine, is poorly matched to a nearly-depleted 12-volt auto battery of sixty amere hours storage capacity, and would transfer only a couple watts energy to its cells in an hour. The remaining seven or eight watts of the panel's output would be used up heating the battery's plates due to the reactance of this load. Conversely, a 14Vp 10Wp panel could overcharge and destroy a 12V5AH ni-cad in a day.

Gel cell storage banks seem best suited to PV use due to their consistent voltage under light or heavy loads, minimizing reactance and consequent heat loss. However, any battery bank connected to a PV array must be kept within 10% or 15% of its maximum charge potential in order to accept the best part of the PV charge.

Photovoltaics' peak voltage may exceed the batteries' maximum charge potential by 10% to 30%: a 12-volt battery can accept a 13- to 16-volt charge at moderate amperage.

When planning your installation, the batteries' total storage capacity must be at least six or twelve times the daily current consumption of your radio et al. Also this daily current consumption must be 75% to 85% the average daily cur-

MONITOR



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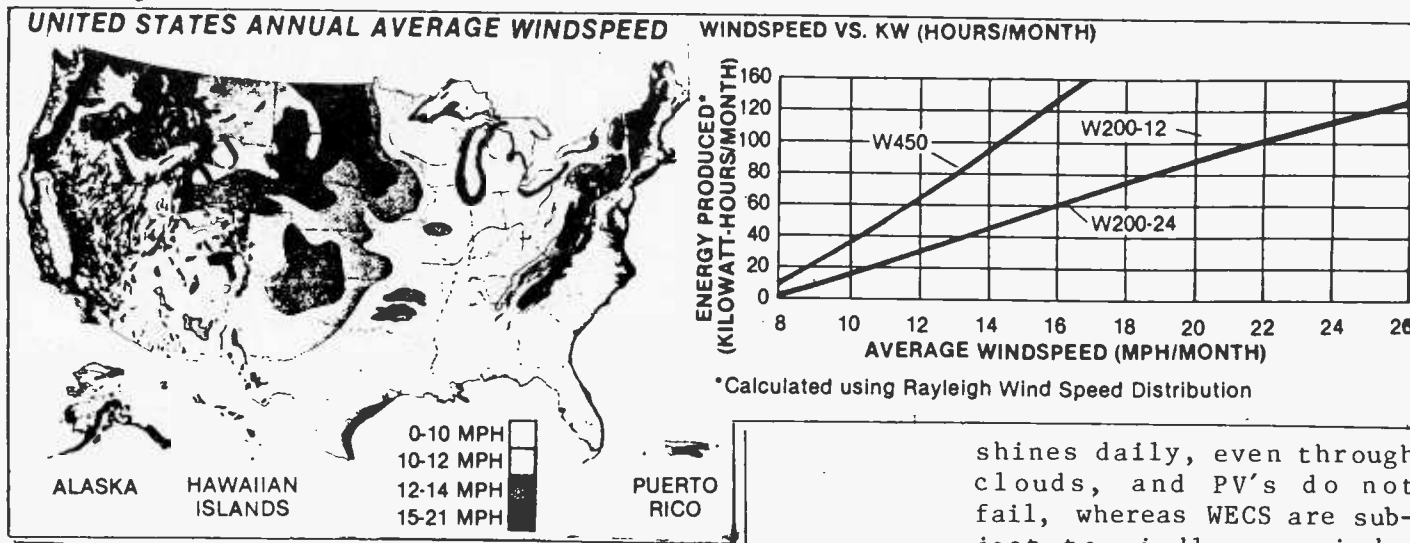
\$5 per peak watt deals on raw cells for the homebrewer to array, insulate and weatherproof.

As with all alternate energy materials, check with federal and state tax personnel for current rebate rules; incentives over 50% have been quoted in some states!

● Although the price per peak watt of generating capacity for wind energy conversion systems appears to average far below that of photovoltaics, the American WECS industry has been plagued with insufficient designs and product failures since its oil embargo revival in 1973.

A check of the Department of Energy's Rocky Flats, Colorado, WECS test facility statistics showed only 30% of the marketed WECS models which DOE tested since 1978 operated within 25% of their quoted specifications. Many others flew apart in gusts, and fewer than ten thousand wind electric generators have been sold since the rural Electrification Act of the 1930s.

Although the popular Wincharger, Dunlite, Jacobs, Eneritech, and BWC designs have virtually overrun the sixty-year-old problems of gust survivability, speed



control and generator matching, the majority of today's WECS manufacturers are a troubled lot. There are a myriad designs by horizontal and vertical work axes, number and shape of blades, speed control contraptions, and direct drive and geared alternators and generators, but very few successes in terms of either machine reliability or numbers sold.

Prospective buyers are referred to the WECS bibliography at the end of this article. A several-hundred-watts peak capacity DC WECS is a viable project for people with a modest shop, and the bibliography does indicate two source for construction plans.

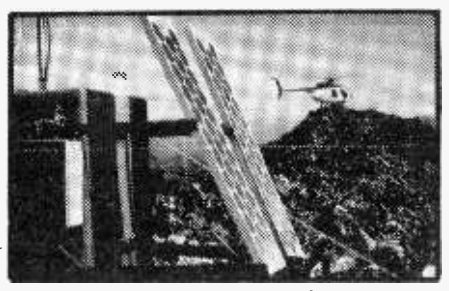
Many people are satisfied with the 200-watt and 450-watt WECS sold by Wincharger, the top home-scale manufacturer.

Renovated auto batteries make good economy with WECS. Ten batteries of forty to one hundred ampere hours capacity are used here in conjunction with a 200-watt Wincharger, and are checked monthly with a hydrometer as undercharge or overcharge in any of them throws in an element of reactance, just as in the previous discussion of photovoltaics.

Only in windier areas do commercial WECS prove better economy than commercial power over a period of several years. But here on the windy Wyoming plateaus, in the Australian outback, or in other remote locales where there is no commercial power, they're a boon to a household.

Jack Park's text "The Wind Power Book" (Cheshire Books, Palo Alto, Cal, 1981, \$19.95) is one of the best to help determine WECS viability in your locale. Areas with mean windspeeds exceeding 10 m.p.h. (>150 watts per square meter) prove best to WECS buyers. Check your area's airports for wind statistics, and consult Park's text (or another) for procedures on WECS production estimating, machine siting and calculating tower requirements. These considerations are quite complicated but implicit to understanding WECS potential.

The watchwords of this sort of alternate energy are to put the machine as far from the ground and any azimuthal obstacles as possible; and if you must buy one rather than build one, choose a proven machine.



● In remote locales where commercial, government, and ham operators have set up remote repeaters, weather, or troposcatter equipment, photovoltaics have been the designers' majoritive preference for power. The sun

shines daily, even through clouds, and PV's do not fail, whereas WECS are subject to windless periods, higher maintenance, and tornadoic catastrophes.

Photovoltaics' transportability as well as their durability and dependability seem to turn economy in their favor overall. Some cheap WECS options exist though, such as reclaiming and modifying disused farm water pumping windmills. Pre-REA wind electrics are rarer now, as most have already been renovated.

● Some people lucky enough to own a waterfall reap the best economy on naturally-supplied electricity, at least seasonally. The Pelton Wheel, a rotating disc crested with ten to twenty semiglobular to paraboloid cups and sized to the head and flowrate of the fall, is the commonest waterwheel and may generate upwards of forty watts.

Two good waterpower texts are noted in the bibliography. Water power is a likely project for the home builder. Since speed variation is a problem of water wheels as it is with WECS, most builders opt for the ease and flexibility of DC power rather than gearing up and down for AC pwerline synchronicity.

AC electronics can be powered from your storage batteries through a DC-to-AC inverter, which is an electronic or electromechanical device to convert a DC voltage to the needed AC potential. Most modern converters of the static (electronic switching) type yield a square wave of 50, 60, or 400 Hz at 110, 220, or 440 VAC and are sized from 10 watts to 10 kilowatts.

Most inverters run around 85% efficiency near their rated load, but some can loaf along at 99% efficiency. Some radios such as Drake and Hammarlund whose AC power supplies are sufficiently choked for line frequency sine wave, may pass an obnoxious buzz from the square wave power; inverter manufacturers print plans for extra filtering for such instances.

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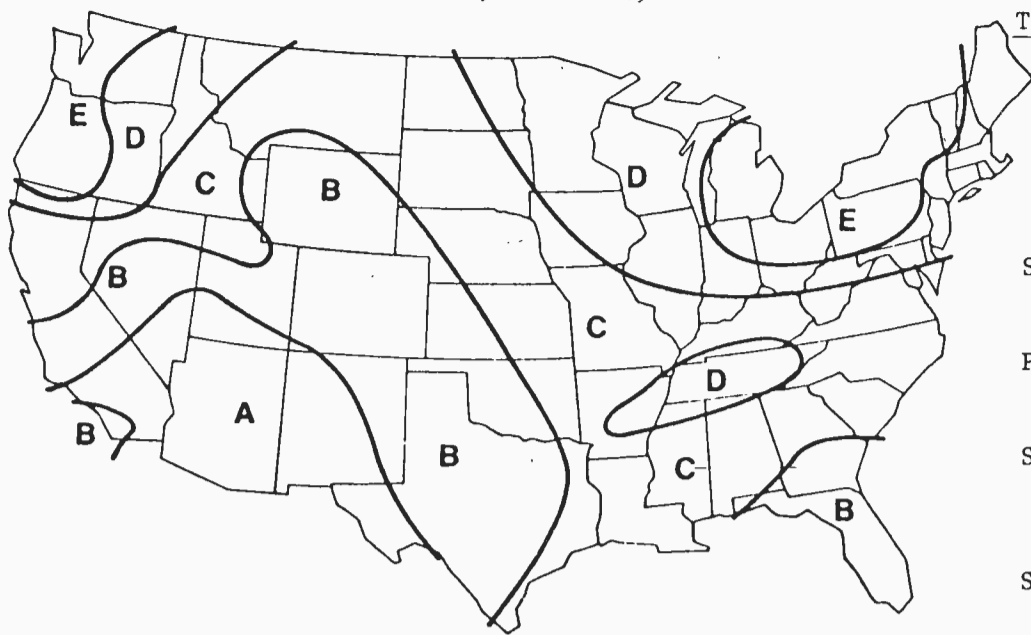
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*Not For TV

FIGURE 1

EQUIVALENT SUN HOURS PER DAY (ANNUAL AVERAGE)
(A=HIGHEST, E=LOWEST)



Another type of DC-to-AC inverter is the motor-generator, consisting of a DC motor and AC generator. These run at 50% to 80% efficiency, produce sinusoidal AC, and may be had quite reasonably surplus.

Deep cycling high storage capacity batteries such as those used with DC power equipment are best suited to regular inverter usage, or any regular current draw exceeding a few amps DC. Exide is the commonest North American manufacturer of deep cycling batteries; there are many more.

Home-grown power for radios needn't be an expensive project, but as with radios, experimentation is often the best path to success.

for the Homeowner. Emaus, Pa.: Rodale Press, 1981. (WECS)

Maycock, Paul D. and Sirewalt, Edward N. Photovoltaics. Andover, Mass.: Brick House Pub. Co., 1981. (PV)

Park, Jack. The Wind Power Book, Palo Alto, Cal.: Cheshire Books, 1981. (WECS)

Parker, Sybil P. The McGraw Hill Encyclopedia of Energy. Second edition, New York: McGraw Hill Book Co., 1981. (all forms of energy)

Producing Your Own Power. Emmaus, Pa.: Rodale Press, Inc., 1974. (PV, WECS, water)

Solarvision Energy Products Specifications Guide 1984, Harrisville, NH: Solarvision Inc., 1984. (PV, WECS)

ARTICLES

Marshall Price's Basement Built Wind Generator, The Mother Earth News, Issue #84, pp.130-132.

Sencenbaugh O² Powered Delight, The Mother Earth News, Issue #20, pp. 32-36.

Mother's Guide to Storage Batteries, The Mother Earth News, Issue #74, pp. 114-117.

Photovoltaic Cells: A Progress Report, Ham Radio, December 1983, pp. 52-54.

CONSTRUCTION PLANS

Mother's Plans, (The Mother Earth News), P. O. Box A, East Flat Rock, NC 28726: "#84033: Wind Driven Electrical Generator: \$15.00"; "#84019: A Hydropower Turbine You Can Build for Less than \$1000: \$15.00"

Helion, Inc., P. O. Box 445, Brownsville, CA 95919: "12/16 Construction Plans", 2kW WECS, inquire for price.

W.S. Cornelius Enterprises,

P. O. Box 57, Albion, CA 95410: plans and kits for auto alternator based WECS.

Thermax Corp., One Mill Street, Burlington, VT 05401: plans, kits, and low speed PM generators.

COMPONENTS SUPPLIERS

Solarwest Electric, 232 Anacapa Street, Santa Barbara, CA 93101: Catalog

Photocomm, Inc., 7745 East Redfield Road, Scottsdale, AZ 85260: Catalog

Solar Electronics, 156 Drakes Lane, Summertown, TN 38483: PV-WECS consultant

Solarex Corp., 1335 Piccard Drive, Rockville, MD 20850: manufacturer PV - brochure

Surplus Center, P. O. Box 82209, Lincoln, NE 68501: WECS, generators, inverters - catalog

Encon Corp., 27600 Schoolcraft, Livonia, MI 48150: PV manufacturer - brochure

Bergey Winpower Corp., 2001 Priestley Avenue, Norman, OK 73069: WECS manufacturer - brochure

Enertech Corp., P. O. Box 420, Norwich, VT 05055: WECS manufacturer-brochure

Jacobs Wind Electric Co., 2720 Fernbrook Lane, Minneapolis, MN 55441: WECS

manufacturer - brochure
Winco Div. of Dyna Technology, 225 South Cordova, Le Center, MN 56057: WECS manufacturer - brochure
Lindsay's Technical Books, P. O. Box 12, Bradley, IL 60915: shop books -catalog
Provisions Unlimited, P. O. Box 456, Oakland, ME 04963: PV, WECS - catalog
Northern Hydraulics, Inc., P. O. Box 1219, Burnsville, MN 55337: WECS, machine parts, generators - catalog
The Windsource Co., P. O. Box 280, Wamsutter, WY 82336: solar radios, ni-cads, gel cells, surplus - brochure
Real Goods Trading Co., 308C East Perkins, Ukiah, CA 95482: PV sales - catalog
Heart Interface Corp., 1626 South 341st Place, Federal Way, WA 98003: high-efficiency inverters -brochure



BIBLIOGRAPHY

BOOKS

Cullen, Jim. The Wilderness Home Power System and How to Do It. Laytonville, Cal.: The Wilderness Home Publishing Co., 1978 (PV, WECS, water)

Exide Stationary Lead-Acid Battery System, Section 50: Philadelphia, Pa.: E.S.B. Brands, Inc., 1972. (batteries)

Golding, E.W. The Generation of Electricity by Wind Power, 1955. Reprint. New York: John Wiley & Sons, Inc., 1976. (WECS)

Hackleman, Michael. The Homebuilt, Wind-generated Electricity Handbook. Mariposa, Cal.: Earthmind, 1975.

Hackleman, Michael. Wind and Winspinners, Mariposa, Cal.: Earthmind, 1974. (both WECS)

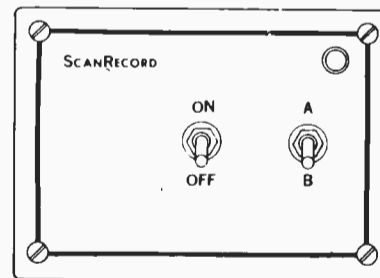
Guide to Solar Electricity: Rockville, Md.: Solarex Corp., 1977. (PV)

Marier, Donald. Wind Power

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UTILITY INTRIGUE

by Don Schimmel

I now wish I had taped the 13640.6 kHz transmission which appears as one of the items listed in this month's loggings. It sounded like a Spanish female numbers broadcast (5 figure groups) but it appeared that the tape was being played backwards.

I wonder if any of you readers observed this particular activity.

One of the Crypto Training Manuals used over the years, "MILITARY CRYPT-ANALYSIS, PART I," by William F. Friedman, has been declassified and is available from Aegean Park Press, P.O. Box 2837, Laguna Hills, CA 92653. The cost is \$20.80 postpaid. This book describes analytical methods for the various types of monoalphabetic substitution systems.

Also available from the same publisher is "COMPUTER SIMULATION OF CLASSICAL SUBSTITUTION CRYPTOGRAPHIC SYSTEMS" by R. F. Lauer. Cost is \$24.80 postpaid. California residents must include sales tax on the above two books.

This latter publication has 25 BASIC computer programs for various analytical procedures and it also contains information on U.S. cryptographic patents plus a list of valuable references.

The programs were written for a Commodore PET computer with 8K of memory. These programs can, with minor modification, be run on any other micro-system.

The author recommends "THE BASIC HANDBOOK" by D. A. Lien for assistance in tailoring the programs for your specific computer.

Yet another source for books of interest to Crypto buffs is Dover Publications, Inc., 180 Varick St., New York, NY 10014. Four titles currently listed in their catalog are: "CRYPTOGRAMS AND SPYGRAMS" Norma Gleason, \$3.50; "SECRET WRITING" by H. Lysing, \$2.50; "CRYPTOGRAPHY" by L. D. Smith, \$2.95; and "CRYPTANALYSIS" by Helen F. Gaines, \$4.50. The shipping costs are 75¢ for one book, \$1.25 for two or more books. New York residents must include sales tax.

New Federal Radio System

Region 9 of the Federal Emergency Management Administration (FEMA) has recently installed a new communications facility called FEERS (Federal Executive Emergency Radio System).

Agencies of the federal government involved include the General Services Administration (GSA), National Communications System (NCS), Sixth Army HQ, Department of Health and Human Services (HHS), Department of Transportation, U.S. Army Corps of Engineers, U.S. Forces Service, U.S. Department of Agriculture, and the Red Cross.

Each agency has been provided a four-channel handy talky with charger for disaster communications. Two channels are repeater and two are simplex.

Authorized frequencies for the operations are 142.350, 142.425, 142.975 and 143.000 MHz FM.

We would like to thank MT reader Edward J. Ryan for Fremont, California for sharing this timely information with fellow listeners.

AUGUST 1984 LOGGINGS	
KHZ	MODE/DTOI/IDENTIFICATION AND COMMENTS
4090	CW/030208/CBA(CHILEAN ALLOC) SENDS V'S
4477.7	CW/030209/5L GRPS, SPEC CHARAC IM AA OE OT
4522	CW/030205/5L GRPS
4780	CW/030201/5L GRPS, 6 GRPS IN MSG
6208.9	CW/030151/8Y DE JV
6603.5	USB VOICE/030141/AIR WX AT US AIRPORTS
6643	MCW/220206/5L GRPS, CUT NBRG G M I N D W A R T U
6734.8	RTTY 5-170 R/030138/ETD3(ETHIOPIAN ALLOC) RY'S
6752.5	USB VOICE/030132/AIR WX AT CANADIAN AIRPORTS
6968.9	RTTY 5-17 N/030127/NAU(SAN JUAN PR) RY'S
6989	CW/051323/RFT DE BON
12570.6	CW/040021/DE UJLF(SOCIET ALLOC) RUSS PT & 5F GPS
13159.5	USB VOICE/251259/SHIP-SHORE LINK, PHONE CALL
13243.5	USB VOICE/301640/SKYING MSG
13283.5	RTTY 75-170 N/302252/PRESS ITEMS FOR CUBAN EMBS
13333.8	CW/072350/CQ DE DAN(NORDDEICH GFR) CALL TAPE
13365	CW/162108/STN RPTS GRP 53072 OVER AND OVER
13375.6	RTTY 50-425 N/082144/PT D'S THEN ENCIPHERED XMSN
13375.7	RTTY 50-170 R/082255/CCF DE CCTO(CHILEAN NAVY)
13378.7	RTTY 40-170 N/212338/LZC-3(BULGARIA) RY'S
13386.6	RTTY 75-170 R/062244/PRESS IN ENGLISH
13387.7	CW/181336/5L GRPS, SPEC CHARAC IM OE OT AA
13429	AM VOICE/302131/5F GRPS, SPAN FEMALE, 40 GRP MSG
13434.1	CW/082210/XRL3 DE XRL4(CHILEAN ALLOC)
13435	CW/262143/V'S GA ZAW BT DE ZZU QAP NR UMR96 OK
13438.6	CW/210003/PSC4 DE GN5N, 74GJ DE GN5N
13561.9	RRTY 50-170R/181345/CHINA NEWS AGENCY TAIPAI
13605.5	CW/040029/SPANISH PT, OFFICIAL TYPE TFC
13615.6	CW/302115/SQZ DE SPH (POLISH SHIP/SHORE)
13622.9	RTTY 750170 N/251252/CODED WX TFC
13640.6	USB VOICE/262132/SPANISH FEMALE, 5F GRPS BUT IT SOUNDS AS IF TAPE IS BEING RUN BACKWARDS
13646.1	RTTY 50-170 N/251149/CTK NEWS SVC(PRAGUE CZECH)
13946	RTTY 50 170 R/041230/CLP55 (EMBA CUBA GUYANA) DE CLP1 (MINREX HAVANA) 5F & PT SPANISH MSGS
13962.5	CW/251230/5F GRP MSG, ZERO CUT AS T
13965.5	CW/251220/5L GRPS, PARTIAL MSG & 57 GRP MSG
13969.7	CW/301650/5L GRPS, STOPPED & SAID QRX NEXT
14496.2	RTTY 50-170 N/160021/(LAPAZ BOLIVIA) RY'S
15737.6	CW/302148/(BOGOTA COL) INTERPOL MSGS IN SPANISH
19066.6	RTTY 50-170 N/301625/MAHREB ARAB PRESSE RABAT MOROCCO, PRESS ITEMS IN FRENCH

- SCANNING -

THE GREAT WEST COAST DXPEDITION

By Norm Schrein

on a handheld scanner in the terminal area.

By the way, the airport designator for Dayton International is DAY. You can determine the airport designators by looking at those little tags they put on your luggage.

Frequencies monitored at DAY are: Flight Service 122.550, 122.200, 122.100; Dayton VOR 114.500. A VOR is used to plot a course from point to point. It works with the aircraft's navigation system. If a pilot within 100 miles or so of Dayton wishes to get the exact location of the VOR nearest the airport he wishes to land at, he simply dials that frequency into the receiver and follows the instruments.

The Dayton VOR is approximately 10 mi. from the airport. That is about

This special feature combined with next month's "Tune in Canada" column, and another feature the following month, will concentrate on my scanner monitoring from northern Mexico to the middle of Alaska. The monitoring (most of it) was done in conjunction with work on two of the Fox "Scanner Radio Listings."

DAYTON

The trip -- vacation and work -- started out in Dayton, Ohio. Considering that a lot of the trip was conducted via air, I found it interesting to monitor many of the airport frequencies for those airports we visited.

Since we started at Dayton, I had some time to monitor many of that facilities' frequencies. All of them could be heard easily

SCANNING

the average range you can hear most VOR's on the ground -- at least with a handheld scanner.

The airport VOR and ILS frequencies make good catches, although you have to be pretty close. Dayton Approach/Departure Control -- 134.450, 118.850, and 127.650; Dayton Tower -- 129.650; Ground Control -- 121.900; Clearance Delivery -- 121.750. Dayton Approach can also be heard on 118.000 and 126.700.

The ILS frequencies (108-118 MHz) are used for instrument landings and are assigned to various runways. Generally, the ILS frequencies can only be heard in the immediate vicinity of the airport. You will hear an unmodulated carrier or a Morse Code ID. By the way, that is pretty much what most VOR's sound like as well.

The Dayton International ILS frequencies are 108.300 (Runway 18), 108.900 (Runway 6L), 110.300 (Runway 24L), and 111.900 (Runway 24R).

ATIS stands for Automatic Terminal Information System. By listening to this frequency you can learn about such things as weather information and which runways are being used.

The airport is always identified.

The ATIS usually repeats a recorded message lasting about a minute. The Dayton ATIS frequency is 125.800. But you can generally get a better weather report on the local weather frequency (162.475 in Dayton)!

BE PREPARED

If you decide to take your scanner on a trip, it is a good idea to know exactly all the points you will be able to listen to along the way. I made a significant error in this respect. I thought my flight from Dayton would land in Kansas City to take on/discharge passengers. I was wrong; the city was St. Louis!

You can always use the search function on the scanner and locate the ATIS, ILS, and VOR frequencies. Fortunately, the flight did stop at Kansas City on the return.

LOS ANGELES

The next stop was Los Angeles International Airport, LAX. Just a quick summary of frequencies I monitored there:

- 108.500 ILS
- 109.900 "
- 111.100 "
- 111.700 "
- 113.600 VOR
- 119.800 Helicopters
- 120.950 Tower
- 121.400 Clearance
- 121.650 Ground
- 121.750 Ground
- 122.000 Flight Weather
- 122.100 Flight Service
- 122.200 " "
- 122.500 " "
- 122.950 Unicom
- 124.300 Appr/Dprt
- 124.500 " "
- 124.900 " "
- 125.200 " "
- 127.400 Los Angeles Ctr
- 128.050 " " "
- 128.200 " " "
- 128.500 Appr/Dprt
- 132.150 Los Angeles Ctr
- 132.500 " " "
- 133.800 ATIS
- 133.900 Tower
- 134.400 Los Angeles Ctr
- 134.550 " " "
- 135.450 " " "
- 135.650 ATIS
- 162.550 Weather

There are plenty of other airports in the greater LA area, but I just concentrated on the airport into which I flew.

It is a good idea to search between 128.800 and 132.000 MHz to hear many of the airline companies' internal communications regarding such things as lost luggage, gate changes, food handling and the like. There are literally dozens of such stations at LAX, but space does not permit me to list all of the active frequencies.

SAN DIEGO

From LAX I rented an automobile and headed south to San Diego. A little sampling from the San Diego area includes:

- 42.120 CHP
- 42.340 "
- 42.440 "
- 42.540 "
- 42.560 "
- 42.880 "
- 154.725 San Diego PD(Det)
- 154.755 " " Co. Sheriff
- 155.025 " " " (Det)
- 158.730 " " PD F-1
- 158.970 " " PD F-2
- 159.090 " " PD F-3
- 159.045 " " PD F-4
- 158.895 " " PD F-5
- 158.920 " " PD F-6
- 154.085 " " Fire Dept.
- 154.145 " " " "
- 154.310 " " " "
- 154.295 " " " "
- 152.030 Mobile telephone
- 152.060 " "
- 152.090 " "
- 152.120 " "
- 152.210 " "
- 454.025 " "
- 454.075 " "

- 454.125 " "
- 152.510 " "
- 152.630 " "
- 152.810 " "
- 162.400 Weather

There are many more services and types of frequencies in use in San Diego and Imperial counties -- over 5,700 in the directory. There was a special NOAA Weather station set up on Mt. Wilson (WXM 82) operating on 162.475. It broadcast weather forecasts for the Olympic venues in both English and French and was shut down afterwards.

For those of you wishing to venture south of the U.S./Mexico border and having a good understanding of Spanish, you may wish to tune in to a few of these frequencies:

- 31.850 Baja Judicial PD
- 150.160 " " "
- 151.400 Tijuana Commercial PD
- 162.050 Baja Judicial PD
- 166.125 Tijuana PD (down-town)
- 166.300 Tijuana PD (La Mesa)
- 166.425 Tijuana PD (Tac)
- 166.525 Tijuana PD(Beaches)
- 166.650 Tijuana PD (Capts)
- 165.325 Mexican Customs
- 161.175 Tijuana Taxi
- 170.725 " "

- 143.275 Mobile phone
- 143.325 " "
- 143.400 " "
- 143.475 " "

You can also pick up the U.S. Customs and Immigration information station on 1610 kHz (Travelers Information Service).

After work was completed in San Diego, it was on to Seattle and up into Canada -- British Columbia and Alberta in particular. Next month's "Tune in Canada" column will feature frequencies heard in those two provinces. Following that I will return with another special column to complete the monitoring with frequency information from Juneau, Fairbanks, Anchorage and, yes, those Kansas City airport frequencies.

Remember when you travel to take your scanner with you -- it is amazing the number of frequencies you can listen to. See you next month in "Tune in Canada."

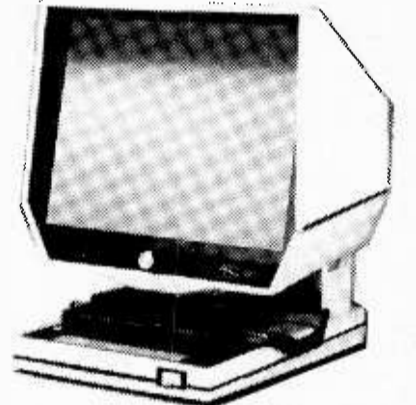


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by James R. Hay

THE MIDDLE EAST HOTBED

Since as I write this column things have not completely cooled down in the Middle East war between Iran and Iraq, perhaps a look at some of the stations in the Persian Gulf area is in order.

Iraq has one Coast Station which operates on HF - at Basrah. The callsign is YIR and frequencies to try are 4220, 6330, 8440, 12660, 16880, 16906 and 22338 kHz, all CW.

Iran has several stations on its southern coast, many of which use common frequencies. The following list of stations can use either SSB or CW on 4305, 5750, 7653 and 11550 kHz:

Bumusa Is. Naval Radio	EPO
Faris Is. Naval Radio	EPW
Farur Is. Naval Radio	EPT
Hengan Is. Naval Radio	EPN
Kish Is. Naval Radio	EPK
Larsk Is. Naval Radio	EPV
Lavar Is. Naval Radio	EPU
Sirri Is. Naval Radio	EPL
Tunbe Bozorg Naval R.	EPQ

The following stations use both SSB and CW on 4188, 6336 and 8809 kHz:

B. Busharh Naval Radio	EPE
B. Chahhahar Naval R.	EPI
Khark Is. Naval Radio	EPF

In addition to the frequencies above, B. Chahhahar Naval Radio also uses 3176 kHz for CW and 3173 kHz for SSB. The two remaining Naval Radio stations are on the following frequencies:

B. Abbas Naval Radio (EPC)			
CW			
4083.4	4186	4785	4888
6291	6447	6488	8350
8470	8759	8809	12448
12504	13194.4	15783	16100
16668	17250	17660	21780
22692	24055		

SSB			
4083.4	4186	6447	6488
6516.8	8759	8809	12448
15480	17250		

Khoramshahr Naval Radio (EPG)	
CW	
4186	4186
6288	6288
8580	8580
13060	13060

These additional coast stations may also be heard:

Abadan Radio (EQA)	
CW	
4292	4376
6362	6515.7
8469	17245.3
13069.5	

Abadan Radio (EQZ)	
CW	
4292	4428.6
6362	8789.6
8471	13140.5
13069.5	17286.5
16983.2	

Abbas Radio (EQI)	
CW	
4292	4403.9
6362	6515.7
8469	8731.3
13069.5	17279.4
22443	22701.4

Bushire Radio (EQM)	
CW	
4349	4369.8
6425	6515.7
8698	8746.8
12700	17319.7
	22602.2

Ghosbeh Radio (EQO)	
CW	
4292	4428.6
6362	4434.9
8469	8789.6
13069.5	13140.5

Khark Radio (EQQ)	
CW	
4349	4385.3
6425	6515.7
8698	13159.7
12700	

Khomeini Radio (EQN)	
CW	
4349	4360.5
6425	6515.7
8698	8805.7
12700	13193.8
	22695.2

Khoramshahr Radio (EQK)	
CW	
4292	4379.1
6362	6515.7
8469	8990.2
13069.5	17307.3
22443	22608.4

Khor Mussa Pilot Station Radio (EPPJ)	
SSB	
	4428.6

Lovan Radio (EQR)	
CW	
4292	4416.3
6362	6515.7
8469	
13069.5	

Mahshahr Radio (EQY)	
CW	
4293.5	
8740	

Kuwait's only coast station, Kuwait Radio (9KK), uses the following CW frequencies: 6381, 8525, 12895, 12925, 16995, 22504 kHz.

Qatar's coast station is Q.G.P.C. Radio (A7S) and they use the following CW frequencies: 4231, 4316, 8454, 8473, 8630, 12966,

13024, 16880 and 16935 kHz. They also operate on the following SSB frequencies: 4425.6, 8728.2, 13187.6, 17310.4 and 22701.4 kHz.

Oman's Muscat Radio (A4M) uses the following CW frequencies: 4233, 8445, 12675.5 and 16868 kHz; and for SSB they use 4366.7, 4419.4, 8780.9 and 8790.2 kHz.

Bahrain Radio uses 4284, 4302, 8448, 8454, 12698, 12709, 17169, 17175.2, 22312 and 22322 for CW; for SSB they operate on 4394.6, 8718.9, 8734.4, 13125.6, 17285.6 and 22611.5 kHz. The call sign for Bahrain Radio is A9M.

CORRIGENDA

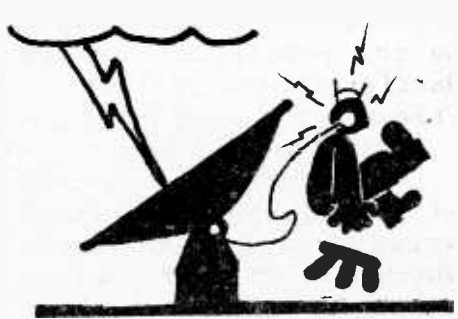
For those of you who haven't yet figured it out (and I am sure most of you

have) there was an error in my September column. In the chart of VHF channel assignments which appeared in that issue, the headings were left off.

For anyone still wondering, the first column is the channel number, the second is the ship transmit frequency, the third is the coast transmit frequency; the fourth column gives the use in Canada and the fifth column gives the user in the United States.

As always your correspondence is welcome. Please direct your comments, questions or suggestions to: James R. Hay, 141 St. John's Blvd., Pointe Claire, P.Q., Canada H9S 4Z2.

SIGNALS FROM SPACE



by Larry Van Horn

The NOAA/NESS weather satellite program has suffered several major setbacks over the last couple of months. On June 11, the NOAA-8 attitude control systems failed and now the spacecraft is tumbling. No systems are being used operationally.

But there appears to be some hope of recovery. The NOAA-8 beacon is being left on and the NOAA-6 beacon is being turned off during periods of conflict between these two spacecraft.

NOAA-7 has serious power regulation problems caused by a loss of power supply shunt loads. However, all systems appear to be operating nominally with APT signals being sent on 137.62 MHz and HRPT signals on 1707 MHz.

NOAA-6 has been reactivated to replace NOAA-8 and it is now the primary morning operational spacecraft, transmitting APT signals on 137.5 MHz and HRPT signals on 1698 MHz.

The orbiting satellites aren't the only satellites in trouble. Failure of the second encoder lamp on GOES-EAST has had a major impact on the GOES program. When the lamp failed July 29, geostationary satellite imagery of an area from the U.S. midwest to western Europe and from southern Canada to southern South America was terminated.

To recover from this

loss GOES-WEST has been moved to a position near 98 degrees west to provide coverage of the Atlantic and part of the Pacific during the hurricane season. GOES-4 at 139 degrees west has been reactivated.

Both GOES-4 and GOES-EAST will be used to relay VISSR data collected by GOES-WEST, and for WEFAX and Data Collection Systems operations.

Those of you in the Pacific/Asian areas desiring information on the Japanese geostationary weather satellites can get further information on the GMS system. This information is provided in the GMS users guide published by:

Meteorological Satellite Centre
3-235 Nakakiyoto
Kiyosi, Japan
Tokyo 180-04

There is a nominal charge for this document.

The Japanese GMS-3 was launched at 2130Z on August 2 and is drifting 1.7 deg/day westward. The satellite will be on station at 140 deg east by September 11. Operational use of GMS-3 is scheduled to occur as this issue reaches your mailbox.

Bob Grove, WA4PYQ, was recently cited by AMSAT for his enthusiastic support of the amateur satellite pro-



SIGNALS FROM SPACE

gram. Bob's comments were recently published in ASR #85 and I quote: "It has been my privilege to report to our thousands of readers (in Monitoring Times) the exemplary program of AMSAT. Their contribution to amateur radio and to technology in general is a model of cooperation, commitment and dedication. We shall continue to support this fine organization and encourage similar efforts by other experimenter groups to follow their example."

Congratulations, Bob, on a nice achievement and your continued support for space communications enthusiasts.

I recently received a new catalog from Fred Osterman and Universal Shortwave Radio. They list a new book titled, "The Hidden Signals on the Satellites" by Tom Harrington and Bob Cooper. Price on the book is \$14.95 + \$1.50 P & H.

I have not seen a copy of the book as of this writing so I do not know which satellites or coverage the book takes. I hope to review the book in the future. Address is 1280 Aida Drive, Reynoldsburg, Ohio 43068.

Chris Rodgers from the land down under has checked in again with another Milsat report on the Indian Ocean and Pacific west fleetsatcom satellites. Chris reports that between 248.800 and 249.725 MHz he has received numerous carriers and facsimile channels, but no voice.

The signals from 248.8 to 249.350 are probably coming from the Marisat/Cap-filler satellites at 73 and 176 degrees east. The rest of the spectrum might be from the LES 8/9 satellites.

Chris also reports the following Indian Ocean Fleetsatcom frequencies in use:

- 250.65 Continuous data
252.16 Data
253.85 Data
252.140 Data
252.180 Data
255.550 Data
262.200 Facsimile
262.225 Just a carrier
262.475 Data
262.525 Carrier only
267.050 Data
269.950 Scrambled
258.650 Data
262.375 Facsimile
262.500 Carrier only
265.550 Data
268.450 Ciper

- 258.550 Data
261.500 Voice
261.600 Carrier
261.675 Carrier only
261.750 Voice-Clark and Clark deployed
261.900 Wideband (50 kHz ciper)
261.925 Voice
266.950 Ciper
268.350 Voice, ciper, facsimile
253.750 Data
257.050 Carrier only
261.450 Voice-Cowpuncher
261.550 RTTY/Ciper
261.650 Ciper
261.700 Ciper, some voice
261.950 Voice
265.450 Ciper

Chris also reports Navy voice traffic on 261.800 with Charlie 4 Victor, Echo Zero Tango and Yankee 5 Mike all working each other.

Chris reported that 261.800 appeared to be used as a calling channel for the Navy units and noted a brief transmission between Telescope and Leading Edge on 268.350 before going cipher. Nice set of intercepts, Chris, and MT readers will be looking for more from down under very soon.

Signals from Space would like to see your intercepts of satellite signals. This column will feature all satellite material regardless of the satellite system. Send your comments, questions, contributions to:

Signals from Space
1111 N. Carrier Pkwy,
B-107
Grand Prairie, TX 75050

LISTEN IN ON THE LF EXPERIMENTERS' BEACONS

There are still a few license-free experimental radio bands, and the 1750 meter band (160-190 kHz) is one of them.

A handful of stalwart experimenters build two-way radio equipment (usually CW) in order to maximize coverage in this electrically-noisy part of the spectrum.

An even smaller number put automatic beacons on the air, often identifying with their initials or another hand-picked group of letters and numerals.

The FCC limits operation to low power (1 watt)

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RF-B50 159.95 SALE \$129.00
RF-B85 CLOSE OUT \$49.95
RF-B300 \$249.95 SALE \$209
RF-B100 \$379 SALE \$279
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ICF-7600A \$169.95 SALE \$139
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EEB tests indicate AN-1 to work as well as other antennas costing twice as much and less susceptible to overload from strong signals.

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Optional AC adaptor AC-160 \$14.95
EEB AC Adaptor \$9.95
Add \$5.50 UPS.

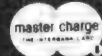
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EXPERIMENTERS' BEACONS

and short antenna lengths (15 meters, including feed-line), so maximum distances heard are generally on the order of 100 miles or so.

The following list of recent experimenters was published recently in the *LOWDOWN*, official magazine of the Longwave Club of America (45 Wildflower Rd., Levittown, PA 19057) and was written by Mitchell Lee.

Most "lowfers" operate their beacons on the weekends, although some are on the air 24 hours a day for propagation tests. They would appreciate knowing if you hear their signals.

For additional information about LWCA or to send in reports, write to the address above and enclose \$1

for a sample of the *LOWDOWN*.

FREQ kHz	IDENT	ST	CITY
160.8	LAH	CA	Los Altos Hills
161.8	YHI	CA	Loomis
163.8	TYP	CA	San Jose
165	D	IA	Des Moines
165.675	Z2	CA	San Simeon
171.272	MEL	CA	San Jose
175	ADX	MA	Westboro
175	ILM	MA	Manomet
175	SUK	CA	El Dorado Hills
175.3	IDW	MA	Middleboro
176.0	8TXT	OH	Sandusky
176.0	IA	MA	Marshfield
177	1KXP	MA	Braintree
177	UCP	CA	San Jose
177.0	ISSN	MA	Waltham
177.5	X	MA	Watertown
179.191	D	NJ	???
179.5	JXQ	CA	San Jose
182.4	HRM	NJ	Oakland
184	PRK	CA	Saratoga
184.3	JR	CT	W.Hartford
185.6	ZZ	MA	Dighton
185.00	KC	NY	Rush
185.380	CAP	NJ	Ramsey
185.5	UM	MA	Rehoboth
185.860	NI	NJ	Howell
186.0	BG/WG	CT	Hamden
186.370	VP	NY	Suffern
186.525	SD	CT	E. Haven
186.800	WI	MD	Owings
187.0	OMG	FL	Seminole
187.5	QJZ	CA	San Jose
187.9	CHAS	NM	Los Alamos
188.380	IRB	MA	Foxboro
189.3	NTD	FL	Oakland
189.400	TH	NJ	Colts Neck

JUSTICE AND TREASURY DEPT. AGENCIES

Conspicuous among the agencies missing on the "unclassified" federal government frequency master file (now reclassified by the Reagan administration but available from the Grove catalog) are those of the departments of the Treasury and Justice.

Operating primarily in the 163-168 MHz VHF-FM high band and 412-419 MHz portion of the UHF-FM land mobile band, communications among the various bureaus of these two agencies are considered sensitive enough for their frequency files to be exempted from public inspection.

But what are the various sub-agencies which are sheltered under the cover of those two major departments? Let's have a look.

The Department of Justice is subdivided into eight offices of administration, two boards, six prosecutive divisions and six bureaus. It is these six bureaus which are most commonly sought by scanner enthusiasts. They are: FBI, LEAA (Law Enforcement Assistance Administration), DEA (Drug Enforcement Admin-

istration), Immigration and Naturalization Service (Border Patrol), U.S. Marshals Service, and the Bureau of Prisons/Federal Prison Industries.

Of these six bureaus, the FBI is probably the most visible, employing some 9,000 agents coordinated through 13 headquarters divisions operating 59 field offices throughout the United States and Puerto Rico.

The Department of the Treasury maintains close liaison with intelligence agencies throughout the federal government, with special training conducted by the Federal Law Enforcement Training Center (FLETC) near Brunswick, Georgia.

FLETC also trains agents of the State Department as well as their own bureaus which include: Internal Revenue Service (IRS); Alcohol, Tobacco and Firearms (ATF); U.S. Customs; and the U.S. Secret Service (and its auxiliaries -- White House Police, Executive Protective Service, and Treasury Security Force).

Several military agencies (Defense Intelligence Agency, etc.) and two civilian agencies (Central Intelligence Agency and National Security Agency) also enjoy immunity from public scrutiny, although their communications--now largely conducted under SECOM (secure communications) measures--have been reported on occasion in the past. ●

PEN PALS: Friendship or Fraud?

By John M. Kapinos

Posting a reception report to a Third World nation station might get one a bit more than the anticipated QSL card. The odds are pretty good that a letter, or many letters, will be received from folks overseas requesting that the reporter become their "pen pal."

The first contact will be innocent enough, perhaps requesting a photograph and some used stamps or postcards, with a promise of "native craftwork" in exchange. Oh, yes; the native craftwork will come along in due course, usually a cheap trinket that one would not buy at a local five and dime here in the Americas. Then comes the semi-hard sell.

"Please send me an inexpensive camera so that I can send you pictures of myself and my family; don't

forget the film."

With the inexpensive camera and film one their way, along comes another letter.

"Here are the photographs you requested; as you can see my family and I do not have shoes; can you help us out?"

The line usually continues, "The customs people usually steal the shoes (interestingly enough, they didn't steal the camera and film!), so rather than sending the actual shoes, please send \$30 U.S. so that we can buy them here." And on and on it can go.

A variant on the scheme goes something to the effect, "I am sure that you have read about the floods (drought, plague, etc.) in my country and I beseech you to send me \$50 US. Dollars to help me out."

One might even get a letter (as did a now-inactive East Coast DXer) to the effect, "I have now been given permission to emigrate to the great United States; I am sure that you will be my sponsor and arrange for housing and a job for me in your locality, as well as pick me up at the airport." Yes, it really did happen!

It must be understood that these "pen pal" letters do not come from chance. Major newspapers in many third world nations run pages of "pen pals wanted" ads; your name may be among them. In most cases only the name is listed, no address. To get the address, one must send a specified fee to the person who placed the ad. That person is usually an employee of the postal system, but may be from the station you wrote to for the QSL.

I am not trying to discourage international friendship but to advise that these things do happen. One could wind up a lot deeper in a situation than he would care to.

Solutions? There are a couple. Do NOT put your return address on the envelope. Even the most corrupt postal systems will not dare to open a letter. If you do get a pen pal letter, it's your decision. Personally, I send the requested postcard, some nice used U.S. commemorative stamps and a very polite note stating, "Am glad to help you out, but this is all I can do for you; please do not contact me again."

My personal thanks to John H. Demmitt, whose contributions and ideas towards the formation of this article were invaluable. ●●

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NEW ARRIVALS

ATARI SCANNER LOG

A new program for the Atari home computer, now allows the "Game Player" 400/ 800/ 1200XL/600XL/800XL Atari Home computer to log your scanner frequencies in fields such as FREQUENCY-CALL- AGENCY- LOCATION- USE-BASE/MOBILE-PAIR, or any other field that you wish to create -- this program is "USER FRIENDLY."

Other options include: the use of most any printer

to print 40-80-? columns; and LOAD-SAVE-DELETE-SORT BY FIELD-and PRINT ON SCREEN/ PRINTER BY FIELD-DISPLAY ALL/ SELECTED RECORDS.

Program and files can be saved to either disk or cassette. The program for the most part is in Basic, so changes can be made if needed. It will run in 16 K or 48 K.

This USER FRIENDLY program is available from C & Electronics in cassette mode only (at present) for \$19.95

- Lined with bullet proof fabric that shields you against .357 Magnum.
- Miniature voice stress analyzer lets you know when someone is lying.
- Incredible 6 hour recorder--so small it fits in a cigarette pack.
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- Portable defense system gives you non-harmful protection against attackers.
- Super sensitive bomb sniffer warns you of hidden explosives.
- Siren alarm system alerts you if briefcase is stolen.
- Micro-miniature hidden bug detection system lets you know if you're being bugged.
- 5000 Km. Radio Telephone*

Fun from Moscow

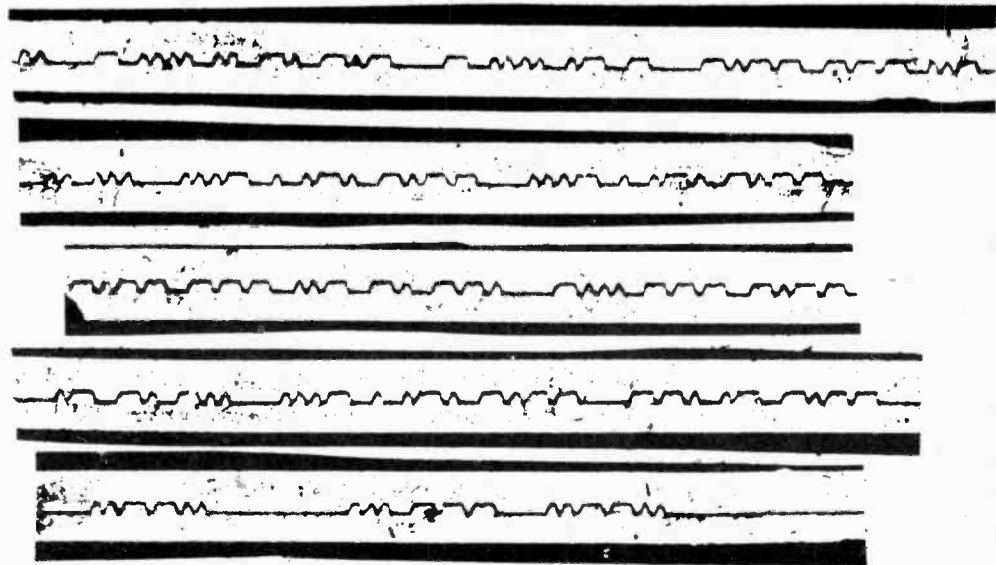
By D. K. deNeuf, WALSPM

During the 1942/1944 WW2 years, Press Wireless at New York had a direct HF radio circuit for press messages from Moscow which was commonly capable of handling traffic at speeds of over 400 words per minute. Shown below is a strip of 400 WPM incoming siphon recorder tape. Sometimes in between messages a Russian operator's personal comment to our guys would show up - still at 400 WPM:

Many old hands don't need to be told what this says, but anyway it reads:

"I THINK THAT YOU IS VERY VERY YOUNG BOY AND VERY GAY ? SO?"

Just to keep things in perspective, back in those days Webster defined "gay" as meaning "joyous, lively, merry, happy, or light-hearted"! How the meaning of some words change over the years! And remember when POT used to be something you cooked in, bet on, or planted flowers in?



STONEHENGE STILL A MYSTERY

By Bob Grove

For thousands of years the giant circle of stones have stood mutely on the Salisbury plain, dutifully marking astronomical events with delicate shafts of light through roughly-hewn notches.

Who were the prehistoric inhabitants of this

desolate region and how did they possess such advanced knowledge of the heavens?

Some distance away, later residents built Salisbury cathedral, boasting the tallest spire in England. At high noon on the summer solstice (the longest day of the year), a shaft of light enigmatically illuminates one particular gravestone on the floor of the cathedral.

To see the simple, yet provocative, inscription on this stone, turn to page 19.

on a top quality cassette in a crush proof box.

Write C & S Electronics, 10 Avalon Road, Dept. MT, Mt Vernon, Ohio 43050. S.A.S.E. appreciated.

FOR THE CONSUMMATE PARANOID

Believe it or not, the accompanying illustration actually exists, reprinted exactly as it appears in advertising. Whether or not the intended user actually needs all of the electronic artillery is a moot point; apparently there are those out there who buy it!

This and other products are available from CCS Communications Control, Inc., 633 Third Avenue, Dept. MT, New York, NY 10017. A complete catalog is available for \$50, applicable toward your first purchase...



DXER'S DIRECTORY

Most radio listeners are undertaking their hobby in a vacuum ... out of contact with other listeners in their locale. Few would argue that the DXing hobby is more enjoyable and productive when you know other listeners in your area with whom you can discuss mutual interests. The problem has always been; How do you find other listeners with similar interests in your area?

Universal is pleased to present a solution! We are presently compiling a directory of listeners. This computer-based list will offer accurate and current information on active listeners, including name, address, phone number, type of listening, and club affiliations. The directory will also include a list of all large and small listening clubs.

We need your help to make it happen! WE WANT TO INCLUDE YOU IN THE NEXT EDITION. Please send a SASE to receive your free registration form. Your listing will be without charge. You will be notified when the directory is available, but you are under NO OBLIGATION to buy one. It costs nothing to be listed. We will even include a photo of you and/or your "shack" if you care to send one! We would like your information whether you wish to buy the directory or not. So help us bring DXers together! Send a SASE for full info.!



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**FOR THE HOME EXPERIMENTER...
More Frequencies On
The Grove Globescan**

About two years ago Grove Enterprises introduced a novel, unique frequency converter called "Globescan" (model CVR-2; see accompanying ad on this page). It provides 4-22 MHz international broadcast band coverage when used in conjunction with any programmable scanner with the 118-136 MHz aircraft band.

As shown in the accompanying schematic diagram, the third harmonic (114 MHz) of a 38 MHz crystal oscillator is injected into a

double-balanced mixer where the 4-22 MHz shortwave spectrum is up-converted to 118-136 MHz (AM) for reception on a scanner.

Subsequent experiments have shown that additional frequency ranges are possible with this clever converter.

BUT THERE'S A TRICK

The ability of the converter to provide several additional ranges of frequencies is due to the harmonic nature of the crystal oscillator; all of those additional ranges are received simultaneously!

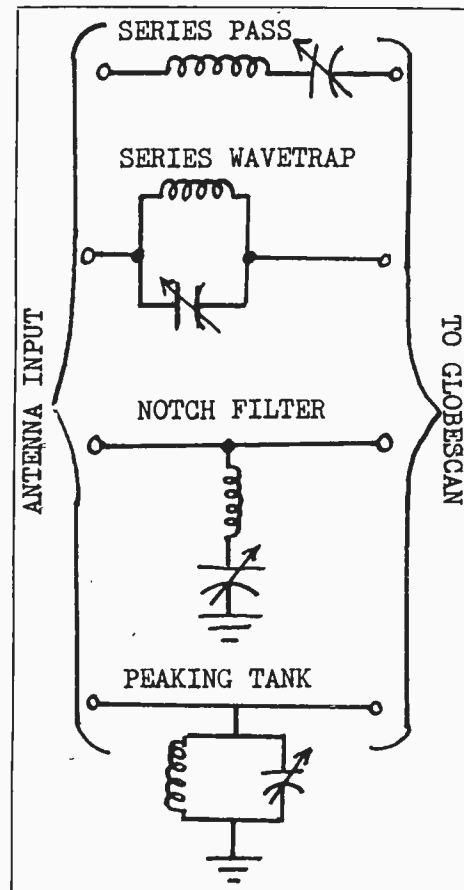
Clearly, then, some form of filtering is needed

to restrict the reception to one band at a time. That choice is up to the user.

Fresh out of the box, the Globescan will receive 4-22 MHz when connected between a shortwave antenna and the scanner. But hooked to a scanner antenna, the Globescan will allow any general coverage shortwave receiver to hear 30-144 MHz (in various increments) with approximately 0.25 microvolt sensitivity.

The trick is in constructing appropriate filters to remove the frequency ranges which would be heard simultaneously, allowing single-band reception.

The filters could be



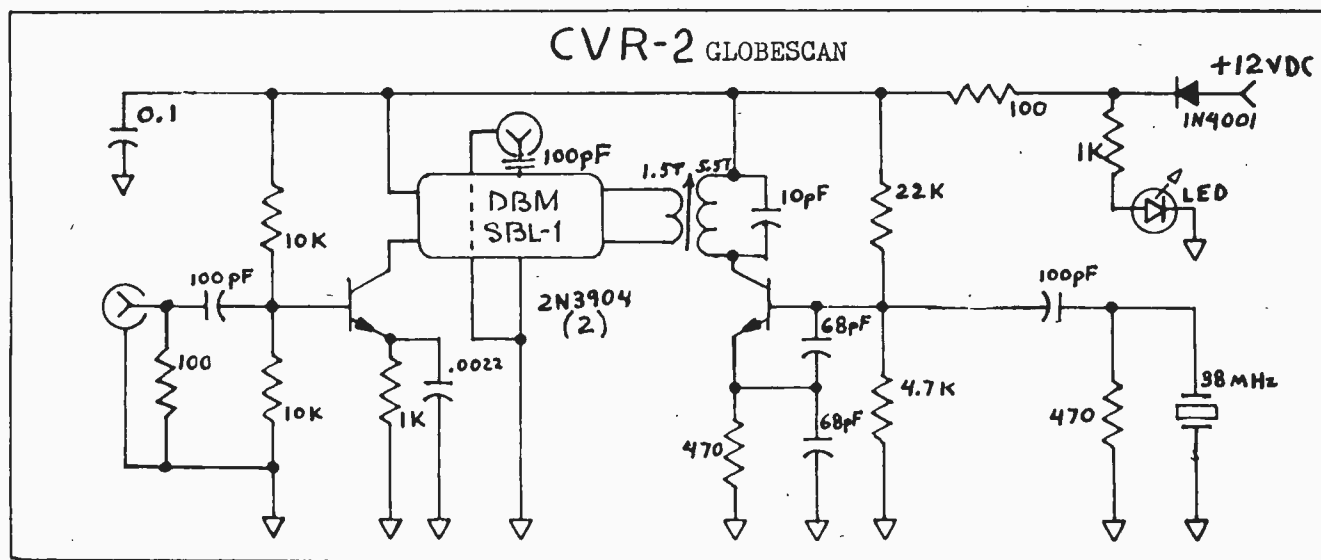
scanning receivers may be found by adding or subtracting the frequencies of the oscillator and its harmonics (38, 76, 114, etc. MHz) to and from the normal receiving ranges.

For example, a scanner which normally tunes 144-174 MHz may be enhanced with the Globescan to receive 30-60, 68-98, 106-136, 182-212, 220-250 and 258-288 MHz.

TUNING TIPS

Several schemes are possible to restrict the input signals only to the frequencies of interest. These include wavetraps, band reject or bandpass filters, tunable notch filters and peaking filters.

Experimenters may wish to try combinations of these to suit their own requirements. Start out with 6-10 turns of solid wire, 1/2" diameter and a 2-20 pF tuning capacitor or trimmer for the 50-150 MHz range.



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easily built in small utility boxes ("Bud boxes") equipped with Motorola jacks and plugs to insert between the antenna and the Globescan converter.

If your receiver tunes 1-30 MHz, you will simultaneously receive multiple 20-MHz-wide increments following the pattern: 8-37, 39-68, 46-75, 77-106, 84-113, 115-144 (etc.) MHz.

Other schemes for receiving additional frequencies on shortwave and

CLUB CORNER Paul Swearingen
7310 Ensign Ave
Sun Valley, CA 91352

Welcome again to Club Corner -- as the temperature falls, club activities warm up across the country and across the oceans and reception across the dials picks up. We're going to take a look at a South American club this month as well as a North American short wave club familiar to many SWL's.

La Asociación DX del Litoral (Coastal DX Association), headquartered near Rosario, Argentina, has been going strong for over six years, publishing over 50 issues of "Latinoamérica DX" and sponsoring yearly DXpeditions.

Editor Emilio Pedro Povrzenic notes that DX'ing in Argentina is much more difficult than in northern hemisphere countries because of relatively poor propagation, monthly incomes of from about \$170 to \$270 for most DX'ers, and the 20 to 25% monthly inflation rate, keeping DX'ers who can both purchase equipment and subscribe to a DX club magazine to a minimum.

Nevertheless, ADXL continues to publish a monthly bulletin in Spanish and a separate bimonthly condensed DX listing in English, both covering all bands. The club

CLUB CORNER

offers various cassettes including interval signals and DX from South American stations.

If you read Spanish, you'll find "Latinoamérica DX" full of articles covering much the same topics as do North American bulletins, but of course with a Latin flavor.

The monthly bulletin in Spanish is available for USA and Canada subscribers for \$20 per year, or 8 IRC's for a sample issue. The English-language "Latin American DX Report" costs a dollar for a sample issue or \$5 for a yearly subscription. Write to the editor at Casilla de Correo 26 - Villa Diego 2124 - Pcia. de Santa Fe - Argentina. Mention MT when you write, in English or Spanish.

* * * * *

The Society to Preserve the Engrossing Enjoyment of

DX'ing (SPEEDX) has been serving short wave listeners for over 14 years. Available to anyone on a yearly subscription basis, SPEEDX's monthly bulletin aims to bring together all those whose hobby is short wave radio and to share their knowledge. The offset magazine is generally 60 pages or so in length and includes both loggings and articles covering all aspects of the hobby.

Membership status in SPEEDX is unique. The "associate member" is simply a subscriber. "Full membership" goes to those who also contribute occasionally to the monthly bulletin; voting privileges accompany full membership. Thus novices are encouraged to take a more active part in the club as they become more experienced.

A sample copy of SPEEDX plus an information sheet may be yours for \$1.50 or 8

IRC's outside of North America; a one-year subscription costs \$18.00 (first class to North America; surface mail to other countries; more for airmail to other countries).

Write to SPEEDX - 7738 E. Hampton St. - Tucson, AZ 85715 and you'll get a speedy (pun intended, but accurate) reply from Business Manager Jack Sanderson.

A few happenings for DX'ers in the near future:

Oct. 27: Fourth Annual Ontario DX Association Open House (send an SASE to ODXA - 3 Camrose Crescent - Scarborough, ON Canada MIL 2B5 for exact location)

Nov. 9-11: Hobby '84 Show at the International Centre, Malton, ON

Nov. 10: 8th Annual York Region Amateur Radio Club Fleamarket, Newmarket Community Centre, Civic Drive, ON.

And looking ahead to next year, ANARC '85 will be hosted in Milwaukee July 19-21 by the National Radio Club after a hugely successful '84 convention in Uxbridge, ON.

Now, if you feel that the above datelines have a distinctive Canadian flavor, it's because "DX Ontario" is the only bulletin I've received this month which has information far enough ahead of Club Corner's and MT's deadlines to make it into the column.

Club Corner's deadline

for information is the tenth of each month for happenings after the 25th (or so) of the next month; in other words, we'll print your club's events after December 25 if they reach me by November 10. And space permitting, we'll list events sponsored by any legitimate club, large or small. Until next month - good DX to all!


THE 757 CLUB

John Dowlan, W3HU, Corresponding Secretary of the 757 CLUB INTERNATIONAL, has announced a newsletter which will include monthly items of general interest to all Yaesu FT-757GX owners including letters from owners, technical problems and corrections, modifications, computer subjects, and a swap column.

Rounding out the format is a special section for DX short wave listening to acquaint users with the fascination of monitoring the high frequency spectrum.

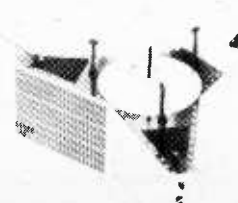
Owners of the FT-757GX are encouraged to participate in the 757 CLUB activities, awards program, weekly nets and personal involvement with the club newsletter. Membership is free!

To receive your 757 CLUB lifetime charter membership number and complete details about the club please send a large self-addressed stamped envelope (foreign: 2 IRC's) to: 757 CLUB, Box 52021-B, Spring Hill, Florida 33526 U.S.A.



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OSCAR

Do you know that amateurs have launched over a dozen satellites into earth orbit? Some of these spacecraft have achieved orbits over 20,000 miles high! Signals from these satellites can be received using relatively small antennas and a preamplifier and/or converter connected to your present shortwave receiver. If you are a licensed Radio Amateur with at least a Technician Class license, you can communicate through most of these satellites to obtain reliable international ssb, cw, RTTY or SSTV communications. * Special bulletins and other informational messages are available on satellite beacons. Informal conferences regarding space activities are conducted on these satellites and on various shortwave frequencies.

Here is your opportunity to take an active part in the space frontier. Whether your interest is in building future spacecraft, space communications, computer applications, space studies, satellite tracking, or just keeping informed regarding the exciting developments of the space age, here is your chance to get involved in the new frontier. By joining the AMSAT team you will receive regular news on the various amateur space projects, the latest home station equipment for receiving or transmitting via satellites, membership discounts on space shuttle/satellite tracking software for your home computer, plus much more. Further, your membership helps support the Amateur Space Program and ensures its continued success.

Please send additional free information on the Amateur Space Program and AMSAT membership. Enclosed is a business-sized, self-addressed, stamped envelope.

Please send free information on home computer programs and other software for tracking the space shuttle, satellites, and other objects in earth orbit. Enclosed is a business-sized, self-addressed, stamped envelope.

Yes, I want to become a member of AMSAT and receive ORBIT Magazine! Enclosed are my annual dues of \$24 (\$26 overseas - surface. Special rates are available if you desire air mail delivery service).

New Member Renewal

Please send me a sample issue of ORBIT Magazine. Enclosed is my personal check, money order, or appropriate credit card information, for \$2.

I am very interested in the Amateur Space Program and the efforts of AMSAT. Enclosed is my tax-deductible donation in support of these efforts. Please send me the gift indicated.

AMSAT Call Sign and Name Badge - \$6 minimum donation, first name only, personalized as follows: Call _____ Name _____

OSCAR Satellite Teeshirt - \$7.50 minimum donation. Please specify adult small, medium, large, or extra large.

Satellite Sponsor Lapel Pin - \$10 minimum donation.

OSCAR Solid Brass Belt Buckle - \$13 minimum donation

Fly my name on the next OSCAR satellite and send me the special personalized certificate attesting to my support of the Amateur Space Program. \$15 minimum donation please

Enclosed please find my check Please charge my VISA/MC account

Name _____ Call _____

Address _____

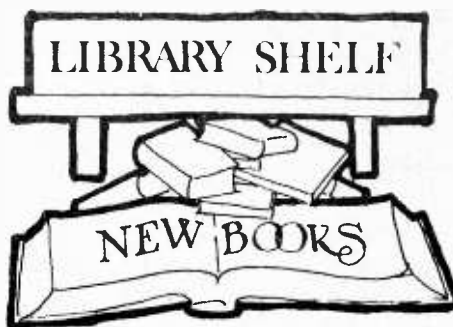
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*Although an Amateur Radio license is required for two-way communications via OSCAR satellites, you do not have to hold such a license to be a full voting member of the AMSAT team.



DOMESTIC LOG seventh edition from the National Radio Club (8-1/2" x 11", 230 pages, looseleaf; \$10 from NRC, Cambridge Publishing Committee, P.O. Box 24, Dept. MT, Cambridge, WI 53523).

First published in 1968, the Domestic Log has remained the consummate reference guide for 540-1600 KHz medium wave North American DX'ers.

Cross referenced by frequency and call letters, the log contains locations, addresses, program formats and air schedules for some 6000 US, Canadian and Alaskan broadcasters.

ANTIQUÉ RADIOS Restoration and price guide by David and Betty Johnson (8-1/2" x 11", 99 pages, soft-bound; \$10.95 from Wallace-Homestead Book Co., P. O. Box 6500, Dept. MT, Chicago, IL 60680)

Profusely illustrated with product photos, this excellent guide traces the production of domestic American radios from the 1920's into the 1950's.

Reprints of early ads, parts lists and descriptions, a chapter on early radio theory and tube pin diagrams are combined with discussions on how to choose a candidate for restoration,



GALAXY ELECTRONICS

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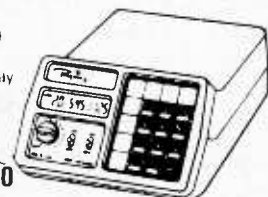
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Search up/down, dual speeds,
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Has full AM/FM/CW/USB/LSB capa-
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100 khz 30 mhz 32 programmable memories,
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TILL 11-25-84

LIBRARY SHELF

actual restoration procedures and a pricing guide.

For the flea market addict, this book is invaluable. And for those of us who remember these radios while they were still plugged in, the modest cost of the book is more than compensated for in the nostalgia.

THE CCS SURVIVAL CATALOG (64 pages, 6" x 12", glossy, softbound; \$50--applicable toward first purchase--from Communication Control, Inc., 633 Third Avenue, Dept. MT, New York, NY 10017).

Directed toward the professional surveillance and electronic countermeasures industry, the CCS Survival Catalog is a photo-essay of their own products written in English, French, Spanish and Arabic.

Over 80 products from bug detectors to scramblers, long-range broadcasters to spectrum-displaying receivers, portable communications systems to telephone line analyzers, alarm systems to lie detectors, and bullet proof vest to bullet proof cars--they're all here.

Since the product details are proprietary,

only skimpy applications information is supplied; prices are available upon further inquiry. But it doesn't take much imagination to visualize the intended applications for these products.

DESIGNING, BUILDING AND TESTING YOUR OWN SPEAKER SYSTEM with projects; 2nd edition by David B. Weems (5" x 8", 190 pages, soft-bound; \$9.95 from TAB Books, Inc., Dept. MT, Blue Ridge Summit, PA 17214)

Sure; it's easy to go into Radio Shack and buy a component stereo system, but there are still many of us out there who want to know a little bit more about how speaker systems are designed and built.

How is impedance determined? What is the difference between a public address system and a musical instrument system? How do damping and airtight enclosures help? What types of speakers are designed for which enclosures? Where are speaker systems placed in different rooms for the best sound?

These are just some of the questions discussed and answered by Weems. A handy index allows quick access to discussions of interest.

BROADCASTING...

HANK BENNETT ON SHORTWAVE

ECHOES FROM THE PAST

There is a great deal that can be said on the subject of nostalgia as it pertains to radio. One school of thought maintains that the past is past and let it stay as it is. Others - many others - are in the nostalgia business in full force these days, making money hand over fist as a direct result of things that were said, done, or sung in the time period of last week to - well, almost to the last century.

Look at all of the radio stations that are making fulltime features of big band music. Many stations are devoting full evenings to many of the oldtime network shows. And these stations are drawing good audiences for these bits and pieces of our lives as they were many years ago.

As previously promised, we have a very large list of stumpers that we are going to begin this month. I will not positively guarantee that every answer is correct although we've made every effort to assure their accuracy. I've had some help on these stumpers, not only from XYL Mea, but from daughter Marion, her husband Bruce, my sister May and her sidekick, Helen Porter from Mattapoisett, Massachusetts, and a few of the guys that I work with at the post office. Every stumper has some relation to radio or TV in one way or another.

Bob Grove has assured me that books will be

SCANNER RADIO LISTINGS by Norm Schrein (Two new editions: Toledo, Ohio, and San Diego area; \$9.95 each from Fox Marketing, 4518 Taylorsville Rd., Dept. MT, Dayton, OH 45424).

We have thoroughly discussed the Fox series of scanner directories in previous editions of MT, so we shall only add here that these two new releases follow the same pattern of excellence and accuracy: 125 or more pages, 8-1/2" x 11", cross referenced by name of service, call sign, type of service and frequency.

While the Toledo edition is an updated version of an earlier publication by Schrein, the San Diego book is entirely new, now covering large numbers of northern Mexico operations -- a first for scanner directories.

awarded to first, second and third place winners. All entries must be received by December 1, 1984.

When you send in your answers to Hank Bennett, P. O. Box 3333, Cherry Hill, N.J. 08034, please be sure to number your answers as we have numbered the questions.

1-Who was the comedian of many years ago who was always trying to sell a duck?

2-Who can tell us the legend of Mrs. Kalabash? Who is or was she? Who made her famous?

3-Name a program produced by Phillips H. Lord.

4-Dennis The Menace - who played the part on TV and how old is he now?

5-For our midwestern readers - Karl and Shelby Jean Davis, Hartford Taylor, Buddy McDowell, Randy Blake, Irvin Viktor, the Blue-Eyed Boy, Betty and Jenny Casper, and Doc Hopkins. Can you name a station and program on which they were heard for years?

6-The famous squeaky door denoted the opening and closing of what program?

7-Who was Festus Hagen?

8-Who headed up "The Breakfast Club"?

9-Who had a wife named Ida and five daughters?

10-That tremendously overloaded closet that let loose whenever anyone opened the door - name the owners of the closet and their address.

SCIENCE FRONTIERS (bi-monthly newsletter; free with book purchase or \$5 per year from the Sourcebook Project, P.O. Box 107, Dept. MT, Glen Arm, MD 21057). Free sample available for S.A.S.E.

One of the most interesting publications to cross our desk is this little four-page newsletter highlighting scientific anomalies which appear in respected journals worldwide.

All too often, scientists fear ridicule when discussing publicly topics on the paranormal, UFO's, and even unexplored (yes, there are still some) areas of original research.

William Corliss offers a vast library of publications dealing with hard-to-find topics, painstakingly researched. If you have unbridled curiosity about this incredible universe, you owe it to yourself to get on his mailing list. *

HANK BENNETT

- 11-Who was the Texaco Fire Chief?
- 12-Who made the term "peapicker" well known?
- 13-Who was the attorney in a wheelchair? Give real and stage names.
- 14-Garrison Morfit was a daily personality on TV for years. Who is he?
- 15-Who was chief in charge of "The College of Musical Knowledge"?
- 16-Radio station WXYZ in Detroit was known the nation over as the originating station for at least two very popular radio programs. Can you name them?
- 17-Who was the "Oh Johnnie" girl and in whose band was she?
- 18-"It's sad news tonight" or "Good news tonight!" were often opening lines of what news commentator?
- 19-Name the Connecticut Yankee.
- 20-Name the King of Swing.
- 21-Name the Idol of the Airwaves.
- 22-Who is known as The Songbird of the South?
- 23-Who was the young boss of the H-Bar-O Ranch?
- 24-What orchestra was sponsored by Lady Esther?
- 25-Who was the All American Boy?
- 26-What well-known red-head had a dog named Sandy?

HCJB Tries International Call-In Program

Quito, Ecuador--International shortwave station HCJB, The Voice of the Andes, broadcast live telephone call-in programs in August and October. The programs were carried to all HCJB target areas during the time periods normally reserved for the PASSPORT magazine program.

Listeners were able to ask questions of program host Ken MacHarg, DX Party Line host John Beck, news director Brian Seeley, and English Service director Glen Volkhardt. Most of the callers were regular HCJB listeners although a few people phoned who had never heard of The Voice of the Andes, having been intrigued with the idea of an international call-in show.

The program came off with a minimum of technical difficulties and plans are now underway for another DX Party Line call-in program in November and a Christmas call-in for December.

ENGLISH LANGUAGE BROADCASTS
by Tom Williamson

This month we will take a look at the subject of SPORTS BROADCASTING from around the world. Of course the topic includes results & scores, interviews with famous personalities, and direct commentaries of sporting events as they occur.

The latter aspect is difficult to give any precise information on, since

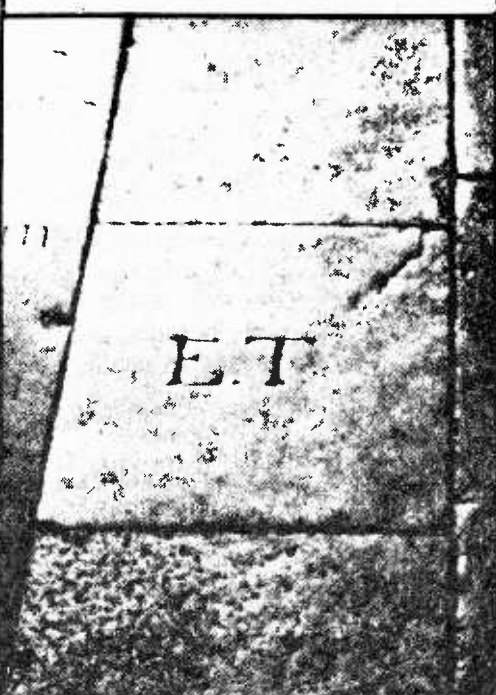
- 27-Who was The Singing Lady?
- 28-"Good evening Mr. and Mrs. Northamerica and all the ships at sea, let's go to press...FLASH!" What news announcer used these words as his opener?
- 29-Name the station that once claimed to be "The Nation's Station."
- 30-In what town was WCKY, Cincinnati, Ohio, located before it moved to Cincinnati?

That completes this first batch of stumpers. We have more for next month and in due time we'll give you all of the answers. If you have any that you'd like to have included here, send them in with your correct answers. And in case you have nothing else to do, think these stumpers over and send in your answers to them.

HAPPY THANKSGIVING TO ALL!

Stonehenge Mystery

CONTINUED FROM P. 15



"E.T." gravestone in Salisbury Cathedral (courtesy Donald Cyr, Stonehenge Viewpoint)

it depends on the season and exact dates for outside broadcasts on such divers activities as baseball, tennis, football, soccer and cricket!

Often major events are the subject of special time allocations by various radio stations; obvious examples are the Wimbledon tennis championships from the B.B.C., cricket "test" matches from Radio Australia and Radio New Zealand, and so on.

In the past both Australia and New Zealand have put special transmitters on the air at such times, using extra frequencies. I would advise listeners to check out the 16/19 meter bands at times when cricket is being played, if you are interested in this sport. For Wimbledon the B.B.C. publishes well ahead of time the special commentary periods in their monthly bulletin "London Calling."

With regard to the more regular programs of sports results and analysis, we can be more sure of station times and frequencies. Let's take a look at some of the more useful station schedules.

RADIO AUSTRALIA

5995	6035	6045	6060
6080	9770	11805	11820
15120	15120	15145	15160
15240	15310	15320	17795

17870 21720 at different times.

"Sports Magazine" is on FRIDAYS 1640; SATURDAYS 2240; SUNDAYS 0440 U.T.C.

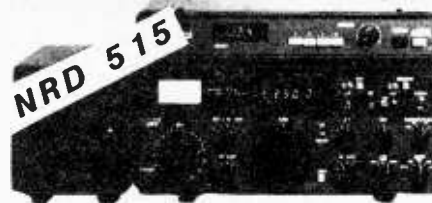
"Saturday Sports" from around Australia is scheduled at 0200-0730 and the frequencies used to be 15145/15240 kHz, but this requires checking in case of propagational changes.

AUSTRIA (5945/9770 kHz)
ORF in Vienna features sports news on TUESDAYS in their program "Report from Austria" at 0130, 0330 and 0430 to North America. These are half-hour programs but not necessarily all sport in content. The part we are concerned with is called "Sport Review."

BRASIL (15290 kHz)
Radio Nacional do Brasil has its sports scheduled for MONDAYS as the main feature of the evening program to North America at 0215 hours. Your editor heard a fine commentary the other day on soccer in that land, the program being entitled "Sports in Brazil."



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ENGLISH LANGUAGE BROADCASTS

However, I remind you of the snag! Only ONE frequency, on the 29 meter band!

CANADA

5960 9755; 9650 11955 for Canadians abroad

The triad of "News-sports-weather" seems to feature heavily in the programming of Radio Canada International! They open their broadcasts with a half hour section on these topics, but it's not possible to say how much would be devoted to sports at a given time. Naturally, ice-hockey and baseball feature prominently in the news!

There are many English language broadcasts scheduled but those most likely to be heard are for North America: 0000 0200 0300 hours UTC, and for "Canadians Abroad" (in North America at 1200 weekdays).

ISRAEL

7410 9815 11655 to N. America at 0000; others to Europe

Tel Aviv has sports broadcasts on SUNDAYS at 2000 2230 0000 hours, these being EBA transmissions to North America. The program is called "Sports Sunday."

U.S.A. (see below)

I must admit to a bias here! In my humble opinion the best sports service on short-wave comes from the A.F.R.T.S.! They have a wonderful selection of programming, much derived from the domestic networks; so if you missed something on the broadcast band local station you may be able to pick up a repeat summary on the Armed Forces stations.

The problem here, however, is where you live and whether you are able to receive the stations at a convenient hour. Transmitters are based in Bethany, Ohio; Greenville, N. Carolina; Delano, California; and Poro, Philippines.

None of the broadcasts is directed to North America, but perhaps the closest is the Caribbean beam. I find the 6030 kHz frequency (scheduled 0100-1300) the best reception in the evenings.

Programs include the following (E.S.T., subject to recent changes):

- 0023 UPI sportscast
- 0126 UPI sportscast (SAT)
- 0145 CBS sportstime
- 0150 ABC sportscall
- 0224 UPI sportscast
- 0227 APR sportsline
- 0424 AFRTS sports
- 0635 AFRTS expanded sports
- 0835 AFRTS expanded sports
- 1246 CBS sports world roundup
- 1251 ABC sportscast

Far East Broadcasting

Features Multilingual Programming

Interested in hearing exotic languages spoken in their native dialects? Listen in on some of the transmissions from Far East Broadcasting Company's Radio International from Manila in the Philippines.

The fall schedule of this missionary station is listed below; following the published schedule should provide you with a fascinating mixture of tongues from foreign lands when the skip favors propagation from this directional broadcaster.

Power runs 50 or 100 kilowatts, but when conditions are right you will be favored with some interesting sounds!

- 1427 UPI My side sports country
- 1445 MBS Al Wester Inside sports
- 1448 ABC Howard Cosell (SAT world of sports)
- 1452 ABC Dan Lovett (SAT sports world)
- 1456 ABC Dan Lovett (SAT)
- 1523 APR sportsline (SUN)
- 1525 CBS sportstime (SUN)
- 1623 APR sportsline (SAT/SUN)
- 1626 ABC world of sports (SUN)
- 1723 APR sportsline (SUN)
- 1726 ABC world of sports (SUN)
- 1823 APR sportsline (SUN)
- 2023 APR sportsline (SUN)
- 2026 ABC world of sports (SUN)
- 2256 APR expanded sportsline
- 2311 ABC Howard Cosell
- 2315 ABC Dan Lovett
- 2327 APR sportsline (SUN)
- 2330 ABC world of sports (SUN)

AFRTS FREQUENCY SCHEDULE

- 21670:0000-1900
- 21570:2100-0430
- 17765:1600-0700
- 15430:1100-0100
- 15345:1700-2300
- 15330:0430-0700/1100-0200
- 15305:2230-0000
- 11805:1000-1700
- 11790:2300-0700
- 9700:1000-1600
- 9590:0900-1100
- 9530:0900-1100
- 6030:0100-0700/0900-1300

ENGLAND (see previous columns for frequencies)

- BBC World Service offers the following sports programs on a regular basis:
- "Sports Roundup" 1245 1745 2245
- "Sports Review" SUN 0230 1945
- "Sports International" MON 2030, TUES 0230 1130
- "Saturday Special" SAT 1400 1515 1615

kHz	Time (UTC)	Service Area	Language
6030	1000-1200	Philippines	Tagalog
6030	2130-2300	Philippines	Tagalog
6030	2300-2315	Philippines	English
6120	1230-1300	China	Swatow
6120	1300-1330	China	Hakka
6120	1330-1400	China	Cantonese
9505	1130-1200	Vietnam	Viet. Tribal
9505	1200-1300	Vietnam	Vietnamese
9505	1300-1330	Bangladesh	Bengali
9505	1330-1400	India	Tamil
9510	2200-2345	Indonesia	Indonesian
9570	1100-1200	China	Mandarin
9590	2130-2300	China	Mandarin
9590	2330-2400	China	Amoy
9675	1400-1800	USSR-Central	Russian
9675	1800-1900	USSR-Central	German
9715	1030-1100	Japan	Japanese
9715	1200-1600	China	Mandarin
9715	2215-2230	Thailand	Thai
9715	2230-2300	Laos	Lao
9715	2300-2330	Laos/Thailand	Hmong
9715	2330-2400	Cambodia	Cambodian
11815	0100-0500	India/Asia-SE	English
11850	0800-1000	China	Mandarin
11855	1000-1030	Indonesia	Javanese
11855	1030-1145	Indonesia	Indonesian
11855	1145-1215	Indonesia	Sundanese
11855	1215-1400	China	Mandarin
11870	0500-0600	China	Cantonese
11870	0600-0800	China	Mandarin
11890	0500-1000	Australia/NZ	English
11890	1000-1030	China	Amoy
11890	1030-1100	China	Swatow
11895	1630-1730	Saudi Arabia	Tagalog
15300	1000-1030	Malaysia	Amoy
15300	1030-1100	Malaysia	Swatow
15300	1100-1130	Malaysia	Hakka
15385	1300-1430	Burma	Burmese
15385	1430-1500	Burma	Burmese Tribal
15390	1100-1115	Burma	Burmese Tribal
15390	1115-1130	Burma	Burmese Tribal
15390	1130-1200	Vietnam	Viet. Tribal
15390	1200-1300	Vietnam	Vietnamese
15410	0115-0130	Burma	Burmese Tribal
15410	0130-0145	India-NE	Kuki
15410	0145-0200	India-NE	Meitei
15410	0200-0230	India-NE	Ind. Tr. (Sat, Sun)
15410	2315-2330	Burma	Burmese Tribal
15410	2330-2345	Burma	Wa
15410	2345-0115	Burma	Burmese
15445	0000-0100	India/Asia-SE	English
15445	1115-1130	Thailand	Thai
15445	1130-1200	Laos	Lao
15445	1200-1215	Burma/Thailand	Burmese Tribal
15445	1215-1245	Cambodia	Cambodian
15445	1245-1600	India/Asia-SE	English
15445	2230-2300	Malaysia	Malay
15445	2300-2400	Malaysia	English
21475	0500-1000	India/Asia-SE	English
21475	2300-0500	Papua New Guinea	English

An SWL Visits Newfoundland

By Bert Huneault

Last July, my wife, our teenage daughter and I vacationed in Atlantic Canada. We spent a week motoring through the province of Newfoundland, thoroughly enjoying the fabulous scenery which included, among other things, snow cover on some mountains along the west coast of the island, and icebergs off the northeast coast.

On the way to Newfoundland, the awe-inspiring size and complexity of Radio Canada International's antenna farm at the transmit-

ter site near Sackville, New Brunswick, sure caught my attention as we drove by on the Trans-Canada Highway. But for me, two of the highlights of the trip were visits to a weather station and to a flight service station in Newfoundland. Because both visits are likely to interest SWLs, I'd like to share these two experiences with MT readers.

RTTY WEATHER REPORTS FROM WDH

With my radioteletype and home computer, I often



NEWFOUNDLAND

monitor RTTY weather reports transmitted by the Canadian Forces Base station CFH in Halifax, Nova Scotia. The routine hourly reports (SA's) from Newfoundland include one from weather station WDH.

The first time I saw WDH on the monitor screen, I asked myself, "Who is that?". Looking up my weather station index, I discovered that WDH is at Daniel's Harbour, Nfld. But this prompted another question: Where in the world is Daniel's Harbour?

My geographic atlas answered that question: It's a small community on the west coast of Newfoundland, about a third of the way up the Great Northern Peninsula.

But this aroused my curiosity even more... I knew there is no airport there, because in Canada three-letter identifiers for airport weather stations start with letter Y (for example, YQX = Gander Airport), while identifiers for weather stations at non-airport locations start with letter W. I wondered, who would operate a weather station in that small village?

So, while we were exploring the west coast of the island, I decided to yield to my curiosity and find out for myself! We drove north on a scenic highway with the sea on one side and the Long Range Mountains on the other, until we got to Daniel's Harbour, which turned out to be a small mining town with a population of about 800.

A gas station attendant directed me to the Wentzell residence, a short distance away. There I was well received by Peggy Wentzell, a young woman who, with her husband Ralph and another person, operates the weather

station next door under contract with Environment Canada.

We went into the station where she showed me the meteorological instruments and the teletype terminal. The barograph, wind speed and direction indicators, mercury barometer, etc. instantly brought back memories of the late forties when I worked as a radio operator/weather observer in Labrador.

Day and night, hourly weather reports from WDH are transmitted by Telex to Gander, Nfld. From there they find their way by land-line and undersea cable to Halifax where they are included in CHF's RTTY broadcasts. WDH also supplies a synoptic observation every six hours.

In the yard outside the station, one can see an anemometer and wind vane at the top of a tower, a Stevenson screen housing thermometers, a rain gauge, a snow gauge and a solar radiation (sunshine) measuring instrument. Mrs. Wentzell explained that they also use a ceiling projector and weather balloons for measuring cloud heights.

VOLMET BROADCASTS AND GANDER OCEANIC

While visiting the northeast region of Newfoundland, I made a point of stopping at the Gander International Flight Service Station located in the town of Gander, not far from the airport. There, I got a friendly and enthusiastic welcome from the Supervisor on duty, Jack Butt.

I was particularly interested in visiting this station because I have been monitoring Gander Oceanic communications and Gander VOLMET broadcasts on HF for years, and I felt as if I knew some of these radio operators!

Gander Oceanic radio operators on duty



Jack gave me a "grand tour" of the facilities and introduced me to a couple of the fellows who broadcast VOLMET weather reports twice each hour.

When I looked at the VOLMET broadcast desk, I immediately knew the answer to a question I had been wondering about for quite some time: What causes the printer-like noise often heard in the background during Gander VOLMET broadcasts?

I had guessed that it was perhaps cross-talk between teletype lines and

the telephone lines carrying the voice signals to the HF transmitters (their HF and VHF antenna farm is located just outside of town along the highway).

Well, I sure guessed wrong! The teleprinter on which the hourly weather reports are received is located right next to the VOLMET desk (see the accompanying photo) and the operator's microphone picks up the noise directly from the printer!

Jack showed me the sys-



Mrs. Peggy Wentzell with weather instruments at WDH

☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆

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NEWFOUNDLAND

tem they use to keep a record of the flights they work over the Atlantic. He explained that the Canadian Government (Transport Canada) charges the airlines a flat fee (approximately \$35 per flight) for providing the Gander Oceanic communications services, regardless of how many radio contacts are made. This fee does not apply to military aircraft or to Air Canada flights (Air Canada is our country's state-owned airline).

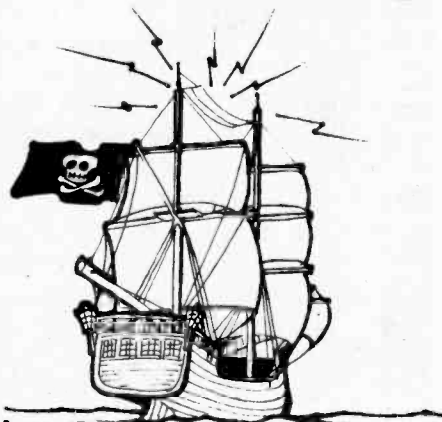
Gander Oceanic is a busy place at times. According to Jack, during a 24-hour period recently, there were 488 aircraft crossing the Atlantic; this included eastbound and westbound flights, and military as well as civil aircraft.

As shown in the photo, Gander Oceanic comprises several communications consoles where radio operators are on duty working the different frequencies. The Flight Service Station also features a domestic flight console where the operator is in radio contact with local flights.

I found one aspect of Gander Oceanic radio communications especially fascinating: It came as a complete surprise when Jack Butt explained to me that Gander also provides VHF radio service to aircraft flying the polar route over Greenland. When I asked him, "How can you possibly reach aircraft over a thousand miles away on VHF?", he explained that they have remote VHF facilities located in Greenland, including one site near Sondre Stromfjord above the Arctic Circle!

Naturally, my next question was, "How is Gander linked with these remote transceiver sites?". His answer was most interesting:

PIRATE RADIO



by

John Santosuosso

RADIO ANTORCHA MARTIANA:

Among the most important recent events in clandestine broadcasting was the August return of anti-Castro RADIO ANTORCHA MARTIANA. The station had been silent for two and one-half years.

Movimiento Insurreccional Martiano is the operating organization, a group which has not sought publicity as have some of the other Cuban exile groups. Rumors also abound that some of its leadership is linked to the much-feared Omega Seven.

In any case, Radio Antorcha Martiana made its first broadcast about three years ago when Cuban-exile radio activity was at a peak. Its return could possibly mean that other stations will do the same thing.

Broadcasts normally appear to follow a Monday-Wednesday-Friday eastern time schedule with sign-on at approximately 9:00 p.m.

"The long way," he said, "via transatlantic cable from Newfoundland to Denmark; and from there, by undersea cable again, to Greenland." (Readers may recall that Greenland is a province of Denmark.)

He also pointed out that the quality of air/

They are usually about 15 to 20 minutes in length on a frequency of 7080 kilohertz.

Signal strength is not as strong as when the station was last active, but this may be due to technical problems rather than a new transmitting site. If a prepared card is enclosed, occasionally some reception reports are verified. The address is P.O. Box 440491, Miami, FL 33144.

IRAN: Sometime this past summer a most unusual clandestine radio broadcast was made inside Iran. Followers of Masoud Rajavi, who leads the anti-Khomeini Mujaheddin-e-Khalq from his Paris headquarters, were able to make a broadcast over internal Iranian Army channels by which they called for the soldiers to stop fighting Iraq.

An unusual source of news for those interested in Iran, a target for much clandestine broadcasting, is the newspaper Kayhan. Although printed in and mailed from the United States, it is published in Tehran where its editorial offices are located.

The paper is entirely in English; a six-month subscription is \$16.00 from P.O. Box 7729, Silver Spring, MD 20907.

PROGRAMMING PERSPECTIVE

BY JOHN T. ARTHUR: RTTY chatters, static roars, a siren wails through the noise of 41 meters. A siren? There it is again. No doubt about it. "Your equation for entertainment--RADIO SINE WAVE" is on the air again.

ground communications over this arctic VHF link is far superior to the single sideband HF service with which most SWLs associate Gander Oceanic.

I enjoyed my visit to the Flight Service Station, and especially appreciated the welcome extended to me. The reception I got was typical of the Newfoundland hospitality we experienced everywhere on the island.

Now, when I monitor VOLMET broadcasts or Gander Oceanic air to ground communications I can relate to the place and readily visualize the room where all the action takes place.

By the way, the accompanying list of frequencies was kindly provided by Jack Butt. If you're reading this, Jack, thanks again!

GANDER VOLMET (kHz)
3485 6604 10051 13270

GANDER OCEANIC A/G (kHz)
2899 2962 2971 3016 4675
5598 5616 5649 8825 8864
8879 8891 11279 13291 13306
17946

RSW, also known as Mathematical Radio, boasts a short but active history; they have broadcast several original programs since the spring of 1984, including a classic Voice of Tomorrow parody.

The latest (possibly last) program contained a Beatles music profile, news of computer racism read by Dr. Calculator, remote reports from Cory Storage and Rom Backup about Independence Day festivities in Microchip City which turned violent, listeners' letters, and many, many computer puns.

Radio Sine Wave will send a computer drawing of Mount Microchip to verify correct reception reports sent via Box 5074, Hilo, HI 96720 and which include three 20-cent stamps for reply. Allow adequate time for mail handling, since there is no direct mail service to Microchip City.

THE MINORITY ASSOCIATION: This group has advised us their name has been changed to the Toynbee Association. They say they hope to return to the air before the end of the year.

Operations will be on 48 meters with their newly-acquired transmitter. There is also a possibility that they may soon have a new mailing address, and we will keep our readers advised of such changes.

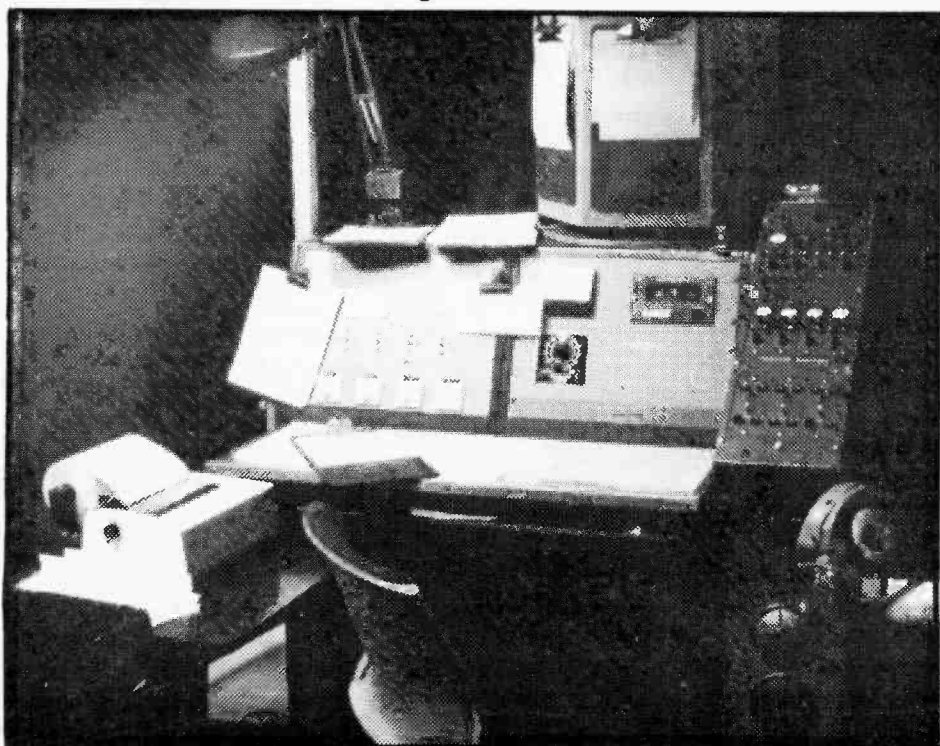
The Toynbee Association states it is going ahead with plans for FM transmissions in the Moscow and Leningrad areas of the USSR, although any actual broadcasts are still some months away. Should they be successful in accomplishing this, we will have the details at a later date.

For those not familiar with this organization, it has as its stated purpose the colonization of the planet Jupiter with resurrected human beings. It claims the writings of the historian Arnold Toynbee inspired this philosophy.

During the past summer the association was able to make some broadcasts which were relayed by another free radio station, since their old transmitter was not in working order.

We would like to point out that the Toynbee Association does not operate and is not affiliated with free radio station Radio Ganymede.

ENGLAND: Terry Krueger sends along an article from the August issue of England's magazine The Face. The publication believes that Britain's tough new



The VOLMET weather broadcast console



PIRATE RADIO

anti-pirate legislation, which makes illegal broadcasting a criminal rather than civil offense, could end the days of alternate radio.

While admitting that some pirate stations are boring, it goes on to say that others make a useful contribution which it would be unfortunate to lose.

The article points out that the station INVICTA "is currently the only UK station devoting serious airtime to the burgeoning electro/hip hop scene."

Another favorite is the DREAD BROADCASTING CORPORATION. "What this outfit lacks in money and facilities, they more than make up for in ideas."

We have to agree. It will be a sad day if free radio becomes a thing of the past in Britain or any other country for that matter.

WQSL/KQSL: A Monitoring Times reader is interested in knowing who may have heard of or monitored this station which operated around 1600 back in 1972. He is curious to learn how far its 60-watt signal was able to travel. If you ever logged WQSL/KQSL, or know someone who did, let us know, and we will pass the information along.

LOGGINGS: Florida's David Crawford had a tentative ID of the clandestine VOICE OF THE UNITED MUSLIM FIGHTERS of Afghanistan on 11560 kilohertz around 0100 GMT with programming in Dari. Signal strength was excellent.

Also from Florida, Terry Krueger heard an unidentified Iranian clandestine on 6655 with sign on at 0230 GMT in Farsi or some similar language. A warbler jammer was also present.

Terry heard pirate WROA, "The Rock of America," on 7411 signing off at 0319 GMT on August 19. The next night he logged RADIO SINE-WAVE on 7410 around 0200. On August 27 WIMP was present on 7428 at 0345.

This columnist notes that one of the easiest clandestines to monitor these days is VOICE OF THE LIBYAN PEOPLE which can be heard afternoon and evening hours on 15040 with Arabic programming. In the past it has made an occasional English transmission. There is jamming from Libya, but for the most part it is not effective.

From Alberta, Canada, William Dang reports in with a number of excellent loggings. On June 227 from 0825 to 0838 he heard a station which identified itself by

saying, "Serving the West-coast on 41 meters, this is MODERN RADIO."

Bill remarks that the announcers sounded as if they might have an Australian or New Zealand accent. He wonders if any reader might have an address for this station.

On May 27 Bill managed to log two other stations: KQRP was heard with a mail-bag show and bluegrass music on 6280 from 0411 to 0428; SAMURAI RADIO's 0430 to 0500 show also was received. Bill is our first contributor from Canada. What about the rest of you up there? What are you hearing?

LATVIA: Another unusual publication is the bimonthly Latvian News Digest published by the American Latvian Association, Box 4578, Rockville, MD 20850-0071. In its July issue it declares that the VOA broadcasts a 2-hour Latvian Service program to Latvia daily. However, reception is reported to be rather poor.

The same article claims more is spent by the USSR on jamming VOA, RADIO FREE EUROPE, and RADIO LIBERTY broadcasts than is budgeted for producing and transmitting these programs.

**A Pirate's Life...
The Victor J. Alcorn
Story**

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By William J. Martin

PART ONE

The FCC Press Release issued on December 9, 1983 seemed too incredible to be true: "...on November 22, 1983, Victor G. Alcorn of Sayville, New York was sentenced to 18 months of probation and ordered to pay a \$750 fine for operating an unlicensed FM radio broadcast station in violation of Section 301 of the Communications Act."

The FCC announcement explained further that Alcorn had been charged with four separate counts of unlicensed broadcasting, each count punishable by penalties of up to one year imprisonment and a fine of up to \$10,000.

In view of the Commission's well established policy of relying on its administrative powers to impose monetary forfeitures instead of bringing criminal charges against pirate radio broadcasters, the Alcorn case was puzzling. Just what did this pirate radio operator do to provoke the FCC and Department of Justice into bringing four criminal

charges against him? How did Alcorn come to be the only person within at least the last ten years to be convicted of operating an unlicensed pirate radio station?

THE BEGINNINGS: WPOT-FM

The town of Sayville is located along the Atlantic shore of Long Island near such communities as Islip, Patchogue and Bay Shore. Most pirate radio enthusiasts would agree that--at least with respect to the AM and FM broadcast bands--Long Island has produced more unlicensed radio broadcasters than any other area of the country of similar geographic size. It must be something in their water supply.

So it was in early 1981 when WPOT-FM commenced programming at various times in the evenings. The station, although claiming that it was located in Blue Point, Long Island, actually broadcast from Sayville on a frequency of 108.5 MHz and was well heard within a ten mile radius.

On February 28, 1981 the FCC Watch Officer in Washington, D.C. received a telephone call from the Federal Aviation Administration's Tower Manager at MacArthur Airport in Islip, Long Island, who complained that an unlicensed radio station using the callsign "WPOT" was causing harmful interference on 108.5 MHz, an ILS frequency used for aircraft radio navigation at nearby LaGuardia Airport.

The FCC Watch Officer immediately telephoned the New York field office's Engineer - in - Charge, Alex Zimny, at his home and requested that he investigate the interference complaint. Zimny then proceeded by automobile to the area near MacArthur Airport where he did indeed monitor a station identifying itself as "WPOT...Blue Point, Long Island." Before Zimny could DF the station, however, WPOT signed off the air for that evening.

The FCC's New York field office took the FAA's complaint very seriously, just as it does any complaint involving potential "life or death" services such as the aircraft radio navigation frequencies. For that reason, on March 4, 1981 the FCC field engineers provided the FAA personnel with a special receiver tuned to the 108.5 MHz ILS frequency, together with the names and home telephone numbers of the FCC engineers so that they could be notified immediately if WPOT resumed transmissions.

The FCC did not have long to wait. At 10:20 p.m. on the evening of March 4, 1981 New York engineer William Suffa was notified by the FAA that WPOT had again been heard on 108.5 MHz that evening, but that the station had closed down at approximately 10:05 p.m.

An FAA employee had even contacted the station over a telephone company loop line during the broadcast to advise the pirate operator that WPOT's signals were causing interference to the ILS frequency, and that the FCC had been called into the case.

WPOT returned to the air on March 5, 1981 at approximately 3:00 p.m. On this day, however, FCC engineers Judah Mansbach and Daniel Noel were already in the area and were able to conduct a close-in DF of the station. Mansbach and Noel determined that the signals were coming from the Sayville area.

Amazingly, during this broadcast WPOT made several on-the-air references to the fact that it knew that the FCC was trying to locate its transmitter. The station closed down before Noel and Mansbach could complete their close-in DF of the station.

On March 6, 1981 Suffa and Noel drove from New York City to Sayville and again monitored WPOT's signal; however, the station abruptly left the air after announcing that "the FCC guys in the glasses and the long coat (referring to Suffa) are after our station again!"

Suffa and Noel returned to Sayville at 1:00 p.m. on March 7, 1981 and during the next four hours of that afternoon monitored the entire FM broadcast band in search of WPOT. Although WPOT was not heard, the engineers did log an unlicensed radio station using the call letters "WBLO" on 105.561 MHz. The station used the same programming format as WPOT, broadcasting rock music and requesting listeners to telephone the station via a loop line.

The engineers used the cassette tape recorder in their investigative vehicle to make a monitoring tape of WBLO. Subsequent comparison of that tape recording and the FCC's tapes of WPOT by Zimny, Noel, Suffa and Mansbach led the FCC to conclude that WPOT and WBLO were one and the same.

Suffa and Noel successfully DF'd the WBLO signals to a two story residence on Dunn Court in Sayville. Out-

A PIRATE'S LIFE

side of that house they observed a blue van with a painted "WPOT" sign on its rear door. The FAA had previously advised the engineers that WPOT claimed to operate from a blue van.

After making a note of the van's license number both engineers went to the front of the house and were permitted entry by a man whose brother, it was later learned, owned the residence.

This man advised the engineers that his brother rented an upstairs room to Victor Alcorn and that Mr. Alcorn owned the blue van. After explaining the purpose of their visit, the FCC engineers asked this man to go up and request that Alcorn permit them to inspect his station.

Although Alcorn refused that request, he did come downstairs to speak with Noel and Suffa, bringing with him a small wireless FM microphone which he claimed to have modified by connecting it to a record turntable and his television antenna. This, according to Alcorn, was the WBLO transmitter.

The engineers were skeptical of that claim, particularly since Alcorn denied any connection with WPOT yet could not explain why the WPOT call letters were painted across his blue van.

Since Alcorn said that he could not read, the engineers did not even attempt to obtain a written statement from him with respect to the unlicensed operation of WBLO. Alcorn was verbally warned that operation of the radio station violated the provisions of Section 301 and 501 of the Communications Act of 1934.

Suffa and Noel returned to Dunn Court two days later to deliver a written warning letter to Alcorn; however, Alcorn refused to accept the formal warning and accused the engineers of harassing him. Alcorn advised the engineers that he had contacted *Newsday*, a local Long Island newspaper, in order to publicize his underground station and complain about FCC harassment.

Shortly thereafter the New York office of the FCC was contacted by Mark McIntyre, a reporter for *Newsday*, who requested information regarding the Alcorn bust. Since the case was under investigation, the FCC refused further comment. For his part, McIntyre volunteered to Alex Zimny that Alcorn had admitted to him that he had operated

"Los Numeros"

32444 69213 88816 52196 63811 94216

Havana Moon



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A furtive informant who shall only be identified as "Deep Thought" and who purports to have certain very mysterious information about those weak and erratic CW signals in early 1968 from the missing USS *Scorpion* gave me a call just a few days ago.

According to "Deep Thought," the signals were REAL and not exactly a hoax as once reported by various government officials. His report was especially disconcerting as I have been hearing veiled hints of a *Scorpion* cover-up over the past few weeks.

In brief --IF-- (I stress the word *if*) my memory serves me correctly, the last known visual sighting of the *Scorpion* was when this vessel passed near Gibraltar about the middle of May of 1968.

According to a very reliable source, the LAST KNOWN voice communications with the *Scorpion* was with the USS *Bigelow* just a short time later. The *Bigelow* (call sign NIYY) radio oper-

ated on the 108.5 MHz frequency for approximately 6 months.

Newsday did run a short story pertaining to the Alcorn bust on March 12, 1981 under the caption, "Radio Freak Bows to FCC, Leaves Air" in which Alcorn admitted his unlicensed operations but was quoted as saying, "I did a good job. The people loved me out there. I kept the kids home on Friday nights."

Alcorn indicated to *Newsday* that he would stop broadcasting for the time being; however, he left open the possibility that he would return to the airwaves, and stated "I'm not going to do it right away for a good six months because the heat's around!"

NEXT MONTH: ALCORN CONTINUES TO CHALLENGE THE FCC

ators reported that the *Scorpion* traffic was of a routine nature -- nothing unusual.

Several days later the *Scorpion* was reported overdue at Norfolk. It was during this massive search effort that Azores based radio operators and monitors reported the intercept of weak, strange and erratic CW signals.

The call used by this mysterious station was -- Brandywine-- the tactical ID of the USS *Scorpion*! It's also been reported that some U.S. Amateur radio operators and SWL's reported these transmissions.

According to "Deep Thought" and other reliable sources, these transmissions might very well have been from a HOSTILE source!

A more detailed report is now in the research stage and --hopefully-- will be ready for publication in *Monitoring Times* in a few months.

WAS THIS AN UNDERWATER VERSION OF KAL-007?

May 27, 1968--THE ATLANTIC OCEAN. The USS *Scorpion* was reported overdue at Norfolk, VA. The nuclear submarine, with 99 souls aboard, was last heard from on May, 21. It was south of the Azores at the time.

UNUSUAL INCIDENT

A 5-DIGIT SPANISH SIMULCAST? This highly unusual incident happened at 0100Z on 4030 kHz (an established frequency) and 4759 kHz on August 21, 1984. The 4759 kHz signal although much weaker than 4030 kHz, was heard on TWO different receivers! I'm certain that this intercept incident was not a receiver idiosyncrasy.

Readers are reminded that UNUSUAL INCIDENT reports ARE solicited by this column. Reports should --if possible-- be "numbers" related.

HAVANA MOON'S MAILBAG

Here's a portion of a letter that readers will find most interesting: "...educating your "LOS NUMEROS" readers re the elements of cryptanalysis is certainly a worthwhile endeavor.

"Anything that could possibly contribute to the

production of some solid information concerning procedures of any of the numbers stations would be the most interesting development in that area since the SWL mags started reporting on them twenty years ago.

"But it has occurred to me that a more effective program in that direction might be as follows:

"Let's recall that there are already enough hobby types in the USA to support at least three, maybe more, crypto magazines...

"...the upshot to all of this is that the crypto mag readers are not likely to learn much about the numbers stations in the near future, unless we SWL's take some further action.

"SWL's should bombard the Crypto Mag editors with letters encouraging the editors to let their readers know the numbers station story..."

(name and address withheld)

Sounds like a great idea!

Florida's Frank Ingle checks in with some most interesting "numbers" material. This Jacksonville based monitor mentions my article in the June *Monitoring Times* in which I mentioned a tip that "numbers" transmissions were being originated from a naval facility near the NC border in Virginia.

It turns out that Mr. Ingle is very familiar with that facility and has reason to believe that my source was close, but not quite on target. Mr. Ingle's full comments appear on page 3 of the October issue of *Monitoring Times*.

Kirksville's (That's in the "Show-me" state of Missouri) Zel Eaton sends information on some very interesting communications facilities in Florida.

It just so happens, Zel, that I am familiar with some of the areas or sites that you mention. I'll report on the possible uses of some of these sites in a later issue. One of the sites you mention was a former C.I.A. site.

Zel says that he always reads my articles and enjoys them very much. One of Zel's hobbies is studying the history of intelligence.

Here's one for you, Zel: Would you believe that I met my first "true love" while attending a radio/TV journalism class at the University of Missouri at Columbia?

If you're really into intelligence, Zel, you --as



LOS NUMEROS

well as other readers-- might acquire a copy of The Death Merchant by Joseph C. Goulden. This chilling work is published by Simon and Schuster and deals with CIA intrigue, international terrorism and the shadowy world of a renegade former CIA officer. This true story is more frightening than any spy fiction by Le Carré or Robert Ludlum.

Thanks for all the kind words, Zel. Did you ever think about a career as a professional Intelligence Officer?

INTERCEPTS

Next we have Greg Doerschler of Massachusetts with some very interesting loggings. Greg's Worcester intercepts include:

11685 kHz 0525Z 06/13/84 English - no accent, female with 4-digit groups.

11437 kHz 0542Z 06/13/84 Spanish, female with 6-digit groups.

9465 kHz 0526Z 06/20/84 English, female with no accent reading 4-digit groups. Mode was Reduced Carrier USB.

11617 kHz 0530Z 06/22/84 Unknown language, German sounding female with 5-digit groups. Female preceded by repeating musical sequence --flute sounding instrument-- and voice in unknown language -- "Kilo?"

Very nice, Greg. Let's have some more from you and other readers. I'd much rather read your intercepts than mine.

By the way, Greg, the Chinese food at THE PEKING GARDENS in Concord is just too much for words. Try it sometime.

I'll be in your area in a few weeks for another great visit. Great state you live in.

ANOTHER REVELATION?

Richard Rush calls Oak Ridge home and sends a copy of a very interesting article that's from the May/June 1984 issue (Vol. 24, No. 3) of The Sciences published by the New York Academy of Sciences.

The last part discusses "number" transmissions and that they may be transmissions of "one-time-pads." I'm in partial disagreement, Richard; I'll go into the reasons in a future column.

I'll take the liberty of quoting a brief portion of this article by Mr. Alan L. Mackay.

"...turning on an ordi-

nary radio in Britain, one can find stations as sinister as the Enigma traffic. On them, a woman's voice endlessly intones groups of five-figure numbers in German, English, or Russian (emphasis mine).

"These are the "numbers stations" that must be transmitting in code, perhaps from somewhere like Magdeburg, near the border of East Germany, to agents in other countries..."

Mr. Mackay mentions the frequency of 13,775 kHz as being very active with these type transmissions.

Thanks for the contribution, Richard. How about being a regular? Information of this type is just what I'm looking for.

I might mention that Alan Mackay is a reader in crystallography at Birbeck College, University of London. He is the author of Scientific Quotations as well as other works.

WHAT THE XIZ#XX IS GOING ON IN FLORIDA?

I continue to hear rumors of STRANGE intercepts from the Sunshine State! How about some Miami, Key West, Tampa, Ft. Lauderdale monitors checking in? Are you people REALLY on top of a 5-digit "numbers" transmitter? I thought all(?) "numbers" transmissions originated from a site near Havana, Cuba!

PENTHOUSE

Be sure to pick up a

copy of the October edition of Penthouse. Your reason will not be for the photos but for Dr. David Kahn's highly revealing article on the KGB nasties and the sinister Glen Cove mansion. It's Kahn at his very best. MUST READING.

TO THE READER THAT WAS NOT SURE

It's Mr. and not Mrs. or Miss.

TRIVIA TIME

Remember when most 5-digit Spanish transmissions terminated with "adios" rather than the current terminator? It really hasn't been all that long ago.

Readers are cordially invited to submit "numbers" or other communications related trivia to this column.

TRADECRAFT AND FOR THE CRYPIES

These two features will not be presented this month due to space limitations.

A unique crypto system is in the works for the next issue, unique in the respect that so-called "agents" have no need to access any prepared material for deciphering of coded transmissions. The entire system can be memorized in just a short time. You'll find it most revealing in many respects.

Readers are reminded that TRADecraft and FOR THE CRYPIES are for ENTERTAINMENT purposes only.

TO "LOS NUMEROS" READERS

Thanks for your letters. I wish I could answer, or even acknowledge, every request you make. While this isn't always possible, each letter or request is seriously considered. Every effort will be made to reply to your letters personally or through this column. Your patience is appreciated.

THANKS TO

Frank Ingie, Zel Eaton, Greg Doerschler, Richard Rush and Jennifer. Had it not been for Jennifer, the spelling in this article would have left much to be desired. Thanks, Jenny.

Time now for a Tecate and...

Adios, Havana Moon y Amigos

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

CORRECTION

Those very slow CW transmissions I reported in the last issue were possibly FEMA and not U.S. Navy. I had Navy on my mind for some unknown reason. A full list of FEMA VHF frequencies will be presented in the next issue.

"EAVES-DROPPING"

By Donald K. deNeuf

We knew that the enemy was monitoring all of our international radio-telephone channels, despite the sophisticated voice-scramblers which "inverted" speech, making high tones into low ones and vice-versa. Only authorized persons were permitted to use



listener's log

SPORTS SPECTACULAR

Few exhilarating events equal sports racing, whether your particular favorite is cars, horses, motorcycles, bicycles, boats or some other fast-paced locomotion. And for the arena fans, football, figure skating and basketball provide endless hours of entertainment.

But wouldn't it be more fun if we could tune in on the private communications

of the team captains, pit crews, officials and sportscasters?

This month MT presents what we believe to be the most comprehensive list of sports frequencies ever to appear in print. Although centered in Chicago, many assignments are heard nationwide. We would like to thank Bob Parnass AJ9S of Naperville, IL, for sharing this fine list with fellow monitoring enthusiasts.

Table with columns for station name, frequency, and call sign. Includes entries like AAR Toyota Motor Sports (USA-wide) 461.0500 KNEU448, Alexander, Mike, racing 461.2750 ?, All American Racers, racing (USA-wide) 466.0250 mo KNEU447, Allied Auto Racing (USA-wide) 154.6000 2w KP3213, Allison, Bobby, racing 469.3125 mo ?, American Balloon Svc, sports (USA-wide) 123.3000 KN7685, American Bicycle Assn, sports (USA-wide) 154.6000 2w KB29116, American Honda, motorsports? (USA-wide) 151.9550 KA96286, American Junior Golf..., sports (USA-wide) 151.6250 it KA69423.

ABBREVIATIONS USED

- h=heard/verified by Bob Parnass
O=heard/verified by other listeners
p=listed in print media, not verified
it=itinerant stations
mo=mobile only, repeater input
pg=paging frequency
2w=low power transmitters

LISTENERS LOG

American Quarter Horse..., sports (USA-wide).....	151.6250	it	KNAW827
American Speed Assn, racing (USA-wide).....	469.5000	mo	KB38932
American Totalisator, sports measuring equip? (USA-wide).....	467.8625	2w	KB37113
Apple Jack Racing (Lake Zurich).....	467.8000	2w	KT5645
Arlington Park Racetrack, paging, sports (Arlington Hts).....	464.9750	..	WQH523
Arlington Park Racetrack, sports (Arlington Hts).....	151.6250	it ?	
"	464.4750	..	WQH523
Arrowhead Golf Club, sports (Wheaton).....	151.6550	..	KCR961
Auto Race Promotions, sports (USA-wide).....	154.5300	..	KA52803
Balloon Adventure, sports (USA-wide).....	151.6250	it	KA89677
Balloon Adventures, sports (USA-wide).....	123.3000	..	KD9559
"	123.5000	..	KD9559
Balloon Depot Inc, sports (USA-wide).....	151.6250	it	KB28682
Balloon Media Ltd, sports (USA-wide).....	151.6250	it	KA79512
Balloon Promotions Ltd, sports (USA-wide).....	123.3000	..	KU6011
Balloonatics Inc, sports (USA-wide).....	151.6250	it	KB20846
Balloons Aloft, sports (USA-wide).....	123.3000	..	WNQ5
"	123.5000	..	WNQ5
Balmoral Racing Club, sports (Illinois).....	154.5700	2w	KS4358
"	469.8250	mo	KS4358
"	469.8750	mo	KS4358
Baton Rouge Road Run..., racing? (USA-wide).....	469.5500	mo	KB40093
Bayside Racing Team (USA-wide).....	469.5000	mo	KJ3823
BDR Racing (USA-wide).....	469.5500	mo	KK8624
Bon Temps Racing Inc (USA-wide).....	464.3250	..	KNFW308
Bouchard, Joe, racing.....	464.6000	.. ?	
Brinks Racing Team, sports (USA-wide).....	42.9800	2w	KA46958
Brune, Leslie V Racing (USA-wide).....	466.3000	mo	KB28380
Butler National Golf Course, sports (Illinois).....	151.6250	it	KA92953
Butler National Golf Course, sports (Oak Brook).....	151.6250	it	KX4444
Byron Dragway, sports.....	154.6000	2w ?	
Calumet Raceway Assn, sports (Illinois).....	154.5700	2w	KA80464
Champion Spark Plug, motorsports (USA-wide).....	464.5500	it	KT5267
Championship Auto Racing (USA-wide).....	464.6250	..	KA44115
Championship Auto Racing, pace car, race officials (USA-wide).....	464.7500	..	KA44115
Chicago Bears, sports (USA-wide).....	151.6250	it	KA77887
Chicago Glider Club, sports (Minooka).....	123.3000	..	WSZ7
Chicago Stadium Corp. sports (Illinois).....	151.9250	..	KA88023
Chicago White Sox, sports (USA-wide).....	151.6250	it	KA93479
Chrismol Racing Inc, sports (USA-wide).....	464.5500	it	KB20669
Clarke Race Cars, sports (USA-wide).....	151.9550	..	KK7097
Cobra Racing (USA-wide).....	469.5000	mo	KB24827
"	469.5500	mo	KB24827
Competition Limited, sports (USA-wide).....	35.0400	it	KA7851
Cowart, Delma, racing.....	460.6875	.. ?	
Dallas Tornado Soccer, sports (USA-wide).....	464.5500	it	KOL479
Daredevil Attractions, sports (USA-wide).....	154.5700	2w	KB35171
Dependable Swimming, sports (Lake Zurich).....	471.3625	..	KWJ865
Desperado Racing (USA-wide).....	469.5000	mo	KU4811
Dwyer, Clark, racing.....	461.0500	.. ?	
Electronic Race Patrol, auto racing? (USA-wide).....	469.5000	mo	KB32647
Events and Entertainment, sports (Illinois).....	466.9875	mo	KA91151
Events Inc, entertainment, sports? (USA-wide).....	464.5500	it	WYL555
Executive Sports (USA-wide).....	154.6000	2w	KS8119
Exmoor Country Club, sports (Highland Park).....	35.0800	..	KVG357
Falcon Racing (USA-wide).....	469.5000	mo	KB30672
Fast Trucks Inc, motorsports? (USA-wide).....	462.5750	..	KAD6220
Fletcher Racing (USA-wide).....	464.7250	..	KA33486
Foyt, AJ, racing.....	463.1875	.. ?	
Gilmore Enterprises, auto sports racing (USA-wide).....	151.7750	..	KA83937
Glencoe Golf Club, sports (Glencoe).....	151.8350	..	KCC776
Goodyear Blimp, sports, entertainment.....	151.6250	it	KC8186
"	132.0000	..	WQP6
Great Lakes Balloon, sports (USA-wide).....	464.5500	it	KB31135
Great Lakes Dragway, sports.....	154.5700	2w	KA73209
Gymnastic Federation, sports (USA-wide).....	464.5000	it	KA51269
Hallett Motor Racing (USA-wide).....	151.9550	..	KB35540
Hawkins, Bobby Racing (USA-wide).....	463.5000	..	KNHD830
Hawthorne Race Track, sports (Cicero).....	154.6000	2w	KN3447
Hayes, Johnny Racing (USA-wide).....	464.4500	..	KB31930
Hidden Cove Marina, sports (Lake Zurich).....	464.1750	..	WFX64
High Sierra Sports, sports (USA-wide).....	151.9250	..	KNDX844
Hooker Racing Enterprises (USA-wide).....	469.4250	mo	KB34600
Hot Air Corps, balloons, sports (USA-wide).....	123.3000	..	KX7651
"	123.5000	..	KX7651
Hot Air Hang Ups, balloons, sports (USA-wide).....	151.6250	it	KA62685
Hot Air Inc, balloons, sports (USA-wide).....	151.6250	it	KJ5265
I 70 Speedway Inc, sports (USA-wide).....	460.5500	..	KM7823
"	460.8250	..	KM7823
IL: Bureau of Race Track Police, sports.....	151.8650	..	KMD637
Indian Speedway, sports.....	154.6000	2w	KL3446
Jarrett, Glen Racing (USA-wide).....	461.1000	..	KB25794
JET Racing (USA-wide).....	469.5000	mo	KB36366
Kent & Bagly Racing (USA-wide).....	464.7500	..	KA33482
Kent Racing Inc (USA-wide).....	461.0250	..	KNFP607
"	466.0250	mo	KNFP607
Keystone Sports Foundation (USA-wide).....	462.5500	..	KAD3316
Kyle Racing (USA-wide).....	464.8000	..	KNCV313
Labonte, Terry, racing.....	463.3375	.. ?	
Lake Speed, racing.....	463.7750	.. ?	
M & R Associates Inc, entertainment, sports (USA-wide).....	464.5500	it	KA42910
Malibu Grand Prix Inc, racing (USA-wide).....	467.9000	2w	KS9804
Market Square Associates, Indy Sports Arena (Indianapolis).....	467.8000	2w	KZ9888

"EAVESDROPPING"

overseas telephone circuits. We were equipped with elaborate recorders and switching control boxes which permitted us to cut off either side of a conversation, or to substitute ourselves for either party. A strict set of rules forbade us to permit maritime information, weather reports, cargo information etc. to pass over the circuits.

Influences in Washington sometimes resulted in orders issued to us to permit use of the overseas telephone circuits, even though we were suspicious of previous conversations because parables and unusual phrases often used made it difficult to follow what was being said. "How can we monitor carefully when we can't understand what they're saying?" went unheeded.

We caught one fellow red-handed in South America using wierd terms like "birds leaving the nest with a basket of eggs." I finally cut in the circuit and told him I'd forgotten what that meant. He tried a couple of other phony phrases which I also couldn't understand. Finally he lost his patience and blurted out, "Oh, hell; I'm talking about those special munition orders which left yesterday for Germany."

A special telephone speech scrambler had been developed which was small enough to use on a desk. Its availability was extremely limited but a couple of Army officers - one in the U.S. and the other in Panama - had been able to get hold of a pair of them, and between them secretly installed them on their desks, unbeknownst to us, of course!

One day I heard the fellow in Panama say, "OK, Joe, now over to the scrambler" and their ensuing conversation became unintelligible. We quickly checked the radio telephone circuit equipment and discovered that the technical characteristics of the equipment they were using and our own was identical. As a result, when they inserted their scramblers the speech inversion righted itself and their conversations went out over the radio circuit in clear language - readable by anyone! That was the end of the use of their private "secret conversation system."

Some of the worst offenders of overseas telephone use security were top people. I'll have to list

"EAVESDROPPING"

Generals Eisenhower and Marshall as two of them - at least sometimes. I can remember one day the circuit between Washington and London happened to be very poor in quality and "understandability" was stretched to the utmost.

General Marshall in Washington had General Eisenhower on the line in London who couldn't understand a word of what Marshall was saying. Marshall repeated several time "Ike, this is GCM - Marshall - GCM - got it?" without results. Finally in frustration Marshall turned to an aide and could be plainly heard to say "What's the code word for my name?"

The next thing we knew Marshall was slowly and distinctly repeating his code name interspersed with "GCM" and "Marshall." Of course we had to cut the circuit and notify the code group in Washington to immediately "bust" the code - we couldn't take any chances - revelation of the code word for his name might have been all the enemy intelligence was waiting for to help it "code-break" other communications!

On the other hand, President Roosevelt and Prime Minister Churchill were two of the best and easiest to monitor. Both used references to previously-transmitted overhead messages by numbers and most of the conversation was along the lines, "Well, Winnie, on number 528 I really don't think we should do that - you know how they are." Nobody could gain any information from listening to their telephone conversations.

I always enjoyed listening to Sir Winston originating a call. The British telephone operators were required on every connection to announce in advance of a conversation, "You are warned not to mention the names of vessels, sailing dates, cargoes, weather (etc. etc) - any violation on your part will result in the circuit being cut off and your action reported to the highest authority. Do you understand?" Sir Winston always docily replied, "Yes, ma'am; I understand."

One enemy group had learned the "language" of speech inversion. For example, listening on the air to a radiotelephone circuit, one might hear a word that sound exactly like "KRINKANOPE"; that was the word "TELEPHONE" after is had passed through the speech inversion system!

LISTENERS LOG

Table with columns for station name, frequency, call letters, and other details. Includes entries like 'Martin, Mark Racing (USA-wide)', 'Mash Racing (USA-wide)', 'Medinah Country Club, sports (Medinah)', etc.

NASCAR RACING CHANNELS

We would like to thank Larry E. Williams of Greenville, South Carolina for sending this next list of channel breakdowns heard during NASCAR racing events.

Another MT reader phoned in two additional frequencies of interest:

462.650 CBS announcers' prompter headsets
151.625 Grande Prix race control (Dallas)

NASCAR FREQUENCY UPDATE

464.500 ROAD CHANNEL USED FOR RACE / SCORING
464.775 DAYTONA HQ & RACE. TALLADEGA SPEEDWAY
464.900 ROAD CHANNEL USED FOR RACE / SCORING
154.540 RD CH-SHORT TRACKS

MISC OPERATIONS CHANNELS

151.625 = WALKIE TALKIE CH
154.515 =
154.540 ALL OF THESE
154.570 = FREQ SHOULD BE
154.600 = CHECKED AT ALL
464.500 = TRACKS FOR RACE
464.550 = OPERATIONS
464.500 =
464.550 =

GRAND NATIONAL DIVISION

460.687 #01 DELMA COWART
461.050 #17 CLARK DWYER
461.200 ?
461.275 #71 MIKE ALEXANDER
461.575 ?
461.700 ?
461.875 #75 DAVE MARCUS
461.962 ?
462.175 #11 DARRELL WHO?
462.550 ? (ESPN-POCONO)
462.650 ? (ESPN-POCONO)
463.187 #14 AJ FOYT (1983)
463.350 ?
463.700 #28 DALE YARBOROUGH
463.775 #1 LAKE SPEED
463.900 #27 TIM RICHMOND
464.125 ?
464.337 #44 TERRY LABONTE
464.475 ?
464.550 ?
464.525 #33 HARRY GANT
464.600 #47 RON BOUCHARD
464.662 ? (RANDY ?)
464.725 #7 KYLE PETTY
464.800 #43 RICHARD PETTY
464.825 #98 JOE RUTTMAN
466.437 ?
466.650 ?
466.812 ?
466.825 ?
467.112 #48 TREVOR BOYS
467.925 ?
468.612 #22 ALLISON (POCONO)
468.900 ?
468.975 ?
469.125 ?
469.200 ?
469.312 #22 BOBBY ALLISON
469.550 #84 JODY RIDLEY

RADIO RESEARCH
10 ELF LANE
GREENVILLE, SC
29611

C-64 DISKS AID
RADIO HOBBYISTS

SUPER HAM LOG

(Commodore 64 disc) by Eugene Morgan, 1311 Cross St., Ogden, UT 84404 (\$20)

Color graphics and practical menu are keynotes of this excellent logging program for the Commodore 64. Search by any data field -- call sign, QTH, name, date, time, frequency, mode, band or QSL status. Rapid dupe checking as well. Automatic UTC/local clock.

Preset auto log values for single-key entry of repetitive information like data, band, power, mode and QSL status. Over 600 calls per log file.

Includes easy-to-use 16 page manual.

PREFIX LOCATOR and MUF FORECASTER (Commodore 64 disc) also by Morgan (see above for address) (\$15)

Over 600 preset data entries includes all countries, US states and over 60 worldwide cities. Data recalled by entering any of several fields including call sign, prefix, city, country, state or latitude and longitude.

Automatic UTC/local clocks. Available in a slightly reduced version for VIC 20 (\$10).

machines developed by other companies under the Atari name. This is mainly a marketing necessity as no other firms can accept the low prices at which Atari plans to sell these systems.

Some of the Integrated Circuits that Atari needs custom-made for the systems are manufactured by AMIGA Corporation which has also announced its own 32-bit computer system. Commodore and Amiga recently announced that they were to merge.

Atari realizes that their main thrust will be the home computer market even though these new computers are geared for business. Atari is known best in the home entertainment marketplace.

Last year or so Atari dropped out of the home computer market when they lost money due to the unreliable nature of their first computers. To date, the 800XL has been very successful, selling for about \$170 to compete with Commodore.

As always, my address for questions is P.O. Box 203, Roselle Park, NJ 07204.

HELPFUL HINTS

SPRAY SHIELDING:

DOES IT REALLY HELP?

With the technology explosion unleashing a myriad devices capable of producing electromagnetic interference (EMI) and radio frequency interference (RFI), it is small wonder that shortwave and scanner owners are hearing far more than they bargained for!

Are there ways to reduce the garbage now polluting the airwaves? While stringent incidental emission regulations written by the FCC do exist, many are selective as to the market they affect.

For example, here at the Grove Enterprises/Monitoring Times offices, we have three computers: Two Televideo 20-megabyte hard disc machines and a Commodore 64 home computer.

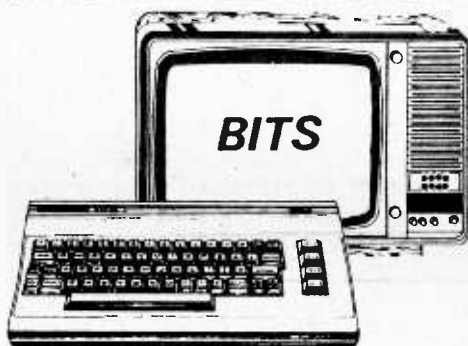
While the pair of office computers cost 60 times what the tiny Commodore did, the C64 is virtually interference-free, while the Televideo machines declare war when we try to listen to any radio frequencies below several hundred megahertz!

Clearly, some experimentation was called for to tame the noisy computers. We started by spraying the insides of the cabinets with conductive sprays manufactured by two different suppliers: Miller-Stephenson's MS-485, and Emerson & Cuming's CC-33S "Eccocoat." Curiously, the results were much different from what we suspected--the radiation was worse! But there is a logical explanation (or so we surmise). Proper grounding of the cabinet shielding must be provided or the new conductive area acts like an antenna!

Recent tests conducted by the American Radio Relay League (ARRL) in Newington, CT and reported in QST magazine showed dramatic reduction in radiated RFI from plastic cabinets sprayed with the Miller Stephenson product.

From 7 to 144 MHz, incidental cabinet radiation was reduced from 6 to 60 or more decibels. Miller Stephenson claims 78 dB at 1 MHz, 49 dB at 10 MHz, and 21 dB at 100 MHz.

Additional experiments showed that most of our noise was coming from interconnecting cables, not from the cabinet itself. Nonetheless,



by Mike Edelson

CRUMTRONICS
SOFTWARE DIVISION
P. O. Box 6187
Ft. Wayne, IN 46896
or phone:
219-745-0350/485-2718

CRUMTRONICS CONTENDER
SOFTWARE SERIES

This month I'll resume BITS with a report on software information I received from Mr. George W. Crummie, Jr. (KA9DAH), proprietor of Crumtronics in Ft. Wayne, Indiana. They have produced a number of logging programs for the Commodore C-64: CONTENDER, CONTENDER PLUS, and CONTENDER PLUS II.

Mr. Crummie reports that you can get 2000 entries per single sided disk (9 items per entry). These entries can be call-sign, R(T) sent and received, auto and/or manual time and date, auto and/or manual band and mode, QTH, name, zone, and QSL information.

It is possible to edit or update any time in the record without changing them all. The programs also allow you to scan the information in forward or reverse, set up a printer for the file output or dupe sheets to printer or CRT, sort before printing, and a host of other functions to support ANY contest or endeavor in the radio hobbyist world.

Price for the Contender Plus II is \$34.95. For further information, write:

I would appreciate hearing from anyone who has used or is using these programs.

NEW ATARI MACHINES

For those of you considering investing in a good computer, it might be wise to wait until January when ATARI Corporation, which was unsuccessful with its first attempts at entering the computer market, has announced that they will enter the business and home computer market with 16- and 32-bit machines to rival the IBM PCs and the Apple Mac-Intosh. Atari claims that their new systems will be at "rock bottom prices."

Atari plans to introduce these new machines at the Consumer Electronics Show in Las Vegas in January. To date, the only system Atari is producing is the 800XL which is an 8-bit machine.

Atari's Vice President of marketing, James L. Copland, refused to comment on the capabilities of these new machines but did say that they are to be manufactured and developed by Atari as opposed to remarketing

HELPFUL HINTS

less, properly grounded, the spray-shielded cabinet should reduce the possibility of RFI from that source. Conductive coatings are also available in forms other than sprays.

Conductive sprays are not inexpensive; A 16 ounce can of MS-490 is \$6 and it is the cheapest of the lot. Additional technical and pricing information is available by writing the manufacturers: Miller-Stephenson Chemical Co., George Washington Highway, Danbury, CT 06810; and Emerson & Cuming, 869 Washington St., Canton, MA 02021.

PRESERVE THOSE MAGNETIC ANTENNA MOUNTS

A recent article in CQ Magazine pointed out the causes for gradual weakening of the magnetic base in mobile antennas which often leads to antenna losses at highway speeds.

Writer Carl Zelich AA4MI points out how common it is for us to remove the magnetic antenna and toss it onto the rear floor when not in use. Sharp blows to a permanent magnet disorients the magnetic domains, cumulatively weakening the strength of the magnet.

Additionally, the use of a "keeper"--a piece of iron or steel across the magnetic poles--will increase the longevity of the magnet.

Carl suggests the use of a cover from a ceiling electrical conduit box; its 3-1/2" diameter is suitable for all magnetic mobile antenna mounts.

TRY THIS QUICK COMPUTERIZED LOGGING PROGRAM

MT reader Bob Skwirsk shares a nifty programming hint for owners of home computers. He says it works on his Commodore 64 and his brother's TI-99; he suspects it may work on others as well.

To test your computer, enter the following sample list:

- 162.550 NOAA
- 118.400 FAA
- 108.000 VOR
- 154.815 Wayne PD
- 121.500 Air emerg.
- 162.400 NOAA
- 155.700 Wayne Co. SO

Next, type LIST then enter. A fast sort routine should be displayed.

To print out the sorted list, type:

```
OPEN4,4,4:CMD4:LIST [enter].
```

GETTING STARTED



Preparing a Verification Report

Reader Craig Wicks of Independent News Watch shares a sample of the verification form he uses to send to international broadcasters. MT readers may wish to use some of his suggestions to customize your own "veri's"!

To Radio Station _____

I AM PLEASED TO REPORT RECEPTION

Your verification (by card or letter) would be much appreciated.
On _____, 19__ on or about _____ kilohertz

This reception report constitutes a request for a verification which I need in order to qualify for one or more certificates of achievement. If it is complete and accurate, I hope that you will be kind enough to comply. Should it be necessary to deny the request, please note reasons on the report and return to me. I have included an international reply coupon to prepay your postage.

Verifications should show the station call, location, operating frequency, date and time of reception. This reporter's name should be included, as should the name and position of the issuer.

Thank you for your attention and consideration.

TIME	PROGRAM / TRANSMISSION

RECEPTION REPORT

Signal Strength	
Interference (from other stations)	
Atmospheric Noise (static)	
Propagation Disturbance (fading)	
Overall Merit	

SINPO Numeric Grades	S	I	N	P	O	I have interpreted the SINPO Code as follows															
Monitoring Start						S I · N · P O															
Additional Time						<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">5 Excellent (more than S9+20db)</td> <td style="width: 33%;">5 None</td> <td style="width: 33%;">5 Excellent</td> </tr> <tr> <td>4 Good (S9+5 to S9+20db)</td> <td>4 Slight</td> <td>4 Good</td> </tr> <tr> <td>3 Fair (S7 to S9+5db)</td> <td>3 Moderate</td> <td>3 Fair</td> </tr> <tr> <td>2 Poor (S3 to S7)</td> <td>2 Severe</td> <td>2 Poor</td> </tr> <tr> <td>1 Barely Audible (less than S3)</td> <td>1 Extreme</td> <td>1 Unusable</td> </tr> </table>	5 Excellent (more than S9+20db)	5 None	5 Excellent	4 Good (S9+5 to S9+20db)	4 Slight	4 Good	3 Fair (S7 to S9+5db)	3 Moderate	3 Fair	2 Poor (S3 to S7)	2 Severe	2 Poor	1 Barely Audible (less than S3)	1 Extreme	1 Unusable
5 Excellent (more than S9+20db)	5 None	5 Excellent																			
4 Good (S9+5 to S9+20db)	4 Slight	4 Good																			
3 Fair (S7 to S9+5db)	3 Moderate	3 Fair																			
2 Poor (S3 to S7)	2 Severe	2 Poor																			
1 Barely Audible (less than S3)	1 Extreme	1 Unusable																			
Monitoring End																					
My receiver is a																					
My antenna is a																					

One caution: You can not mix kilohertz and megahertz since the sort does not recognize the difference in the numerical values.

Thanks, Bob, for this great programming routine!

THE FOUR COMMANDMENTS OF LOCATING HF TRANSMITTERS

(by an experienced transmitter hunter)

- THOU SHALT NOT use loop antennas for HF direc-

tion finding at more than a few miles. (Even 40 years ago it was known that loops were useless if skywave was more than 1% of the signal!)

- THOU SHALT NOT assume that a strong signal means a close transmitter. A strong ground wave will be found out to about 5 to 10 miles. The signal will then become quite weak; but several hundred miles away it will

again be strong due to skip.)

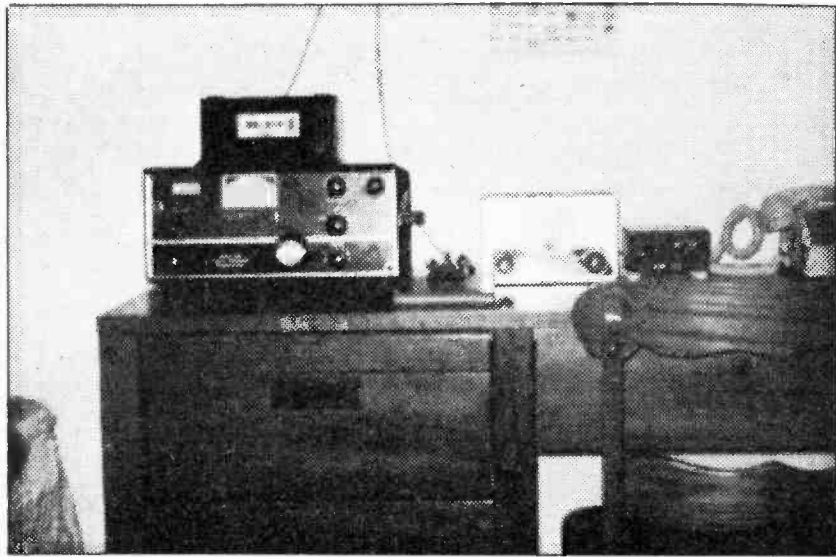
- THOU SHALT observe signal strength moving towards and away from the proposed location from several directions (and compare the results to the remarks following the second commandment).

- THOU SHALT use one's eyes. (Although seeing an HF antenna is not evidence alone, it will certainly help.)

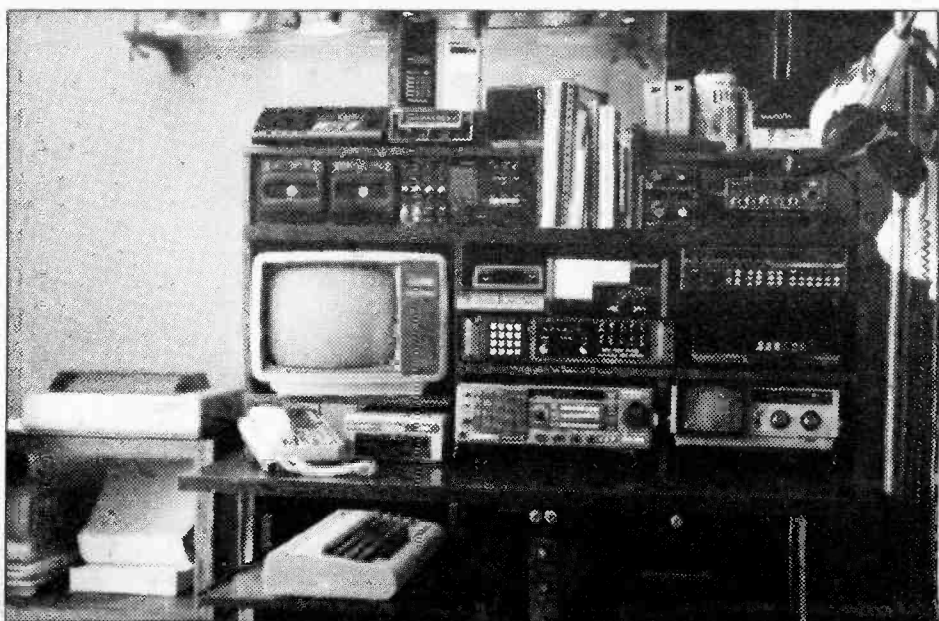
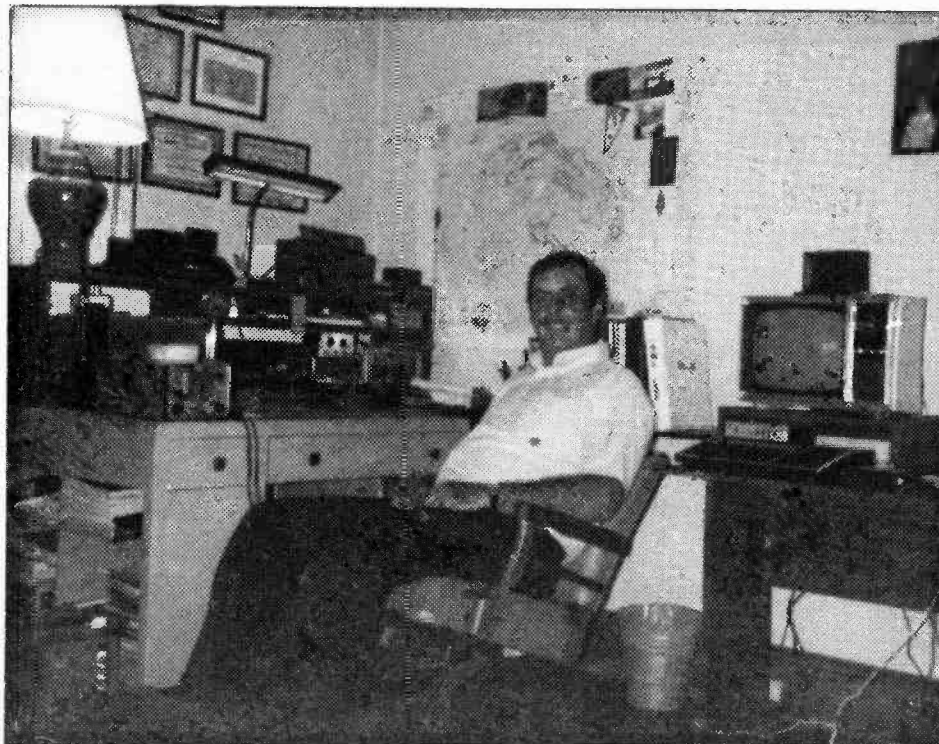
MONITORING POST

Henry Ponder of Lawndale, NC, enjoys listening to the spectrum from this cozy corner of his home. A partial list of his monitoring equipment includes a Bearcat 220 with a Grove Scanverter, an FRG-7700 shortwave receiver, an old Hallicrafters receiver, a Motorola remote unit for the sheriff and two CB rigs.

Compact Ham Shack of Arnold Feldman WB3DA0:
 Swan Cygnet transceiver
 Heath SWR bridge
 SST tuner



Bearcat 210 220 300 ThinScan
 Kenwood R-2000
 Infotech M600A
 Regency Flight Scan
 Radio Shack PRO-30
 Commodore 64, 1541 disk drive, 1526 printer
 Discone antenna for scanning
 McKay-Dymek DA-100 active antenna for SW
 (Dave, Cleveland, OH)



TECHNICAL TOPICS by Bob Grove

Q What is the address of Sharp Electronics? Whatever happened to Lafayette Radio and Electronics? (M. L. Flanagan, Charlottesville, VA)

A Sharp Electronics' address is 10 Sharp Plaza, Paramus, NJ 07652. Lafayette Radio and Electronics went through a painful period of reorganization about four years ago, closing all of their nationwide outlets as well as their mail order division. Only one or two home stores remained near Syossett, Long Island. I don't know if they are still open.

Q Why does my RTTY copy switch from figures to letters while I am receiving weather (WBR)? (Bill Griffith, Grove, TX)

A You probably have your "unshift on space" (UOS) feature engaged; this is a useful function for normal text, preventing erratic bits from forcing the decoder to shift to numbers and symbols which become "garbage" on the screen. Simply disengage the UOS function and the problem should clear up. Use UOS once again when copying plain text.

Q Can you send me the address of the "Ten-Ten" club? (Nathan Rosen, N. Brunswick, NJ)

A The Ten-Ten Club, comprised of active ten-meter amateur operators who encourage use of that band during low propagation conditions, has a regional manager for each call district.

Membership (\$4 per year) entitles participants to receive the newsletter, "Ten-Ten International news." For more information send an SASE to Jim Michaels W6PGM, 3102 Lomina Avenue, Long Beach, CA 90808.

MT readers may wish to tune in on these active hams worldwide who monitor 28.800 MHz SSB round the clock and check in at 1800 UTC daily except Sunday.

We would like to thank Ten-Ten member Steve Ewald of the American Radio Relay League (ARRL) for the preceding information.

Q What CB transceiver would you recommend for best all around use at lowest cost? Will watch for your reply in MT.

(D.N.Coble, Norfolk, VA)
A Look for the best low-

distortion noise blanker to remove ignition interference, sufficient undistorted audio output to overcome road noise, and compactness to avoid cramping your leg room.

Nearly all present-day CB's are peas in a pod, so you pay for the extras like single sideband mode if you really need it, "delta tune" fine tuning and so on. Choose the features you really need and avoid extras that are bells and whistles.

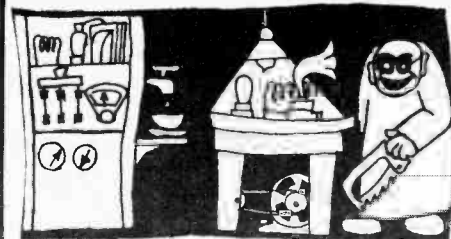
Q What antenna would be required to hear the military FLEETSATCOM satellites? Would it have to be pointed up at an angle? (Ray Tongue, Las Vega, NV)

A These military satellites transmit back to earth in the 240-270 MHz range predominantly, and at decent power for detection by any antenna made for that frequency range.

While scanner-type discones will work, the Grove OMNI and Scanner Beam were developed with that range in mind. They don't have to be tilted up in most cases (unless the bird is nearly overhead), although the directional Scanner Beam must face the appropriate direction.

A preamplifier is not required but is recommended.

EXPERIMENTER'S



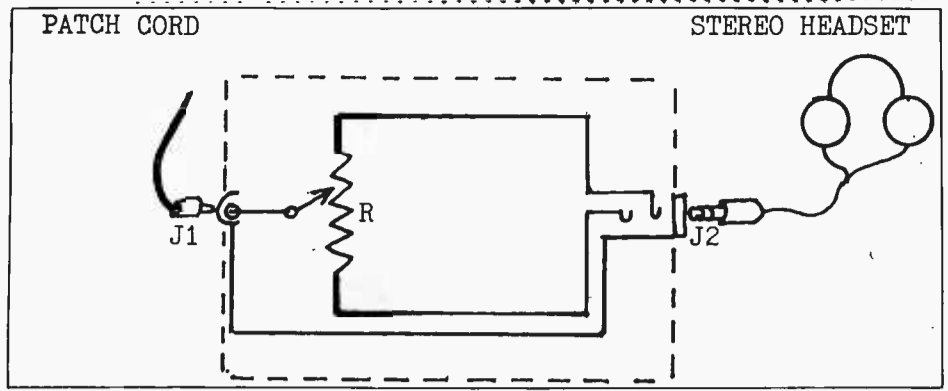
WORKSHOP Earphone Balance Control

By A. W. Edwards

I developed this circuit to address a couple of pesky problems. One, it seems that all the high quality, comfortable, stylish headphones available are supplied with a stereo plug. Most of the audio I am interested in hearing are monaural. Two, my ears do not hear quite the same anymore.

Due to a bit of horse-play at a shipyard where one dimwit wished to startle some of us and blasted about 130 dB or portable boat horn in a confined space, my left ear was damaged and needs more input to hear at the same level as the right ear.





EXPERIMENTERS WORKSHOP

I have tried the little adapter from Radio Shack that is supposed to connect the stereo plug to monaural connection, but this assembly is at best unwieldy (too long); I have also had many problems getting proper mechanical and electrical coupling integrity.

My circuit uses the standard stereo jack to accept the stereo plug on the headphones; when wired as shown, a satisfactory range of level adjustment ("balance") may be achieved.

This permits one a wide selection of snazzy (and, may I add, various impedance) stereo headphones, and yet, have the option of adjusting the incoming monaural audio so that the perceived levels at the ear are comfortably balanced. The new Grove HP-1 feather-weight phones are an excellent example.

Parts are described below. I used Radio Shack's "Stereo Fader" only because

I had it on hand; any variable resistor with a total resistance of between 20 and 50 ohms ought to do nicely.

I whittled on the "Stereo Fader" assembly a little to make it fit better inside the small experimenter box (Radio Shack 270-230) and to give more room for the stereo jack.

A drop of super glue will attach the fader assy, but it is a snug fit and, with the panel, you won't need it.

I mounted the stereo jack in one end and an RCA phono jack in the opposite end. This gave me flexibility in coupling via patch cords readily available (mini, standard, RCA phono or even alligator clips).

PARTS LIST

- J1 Stereo phone jack, Radio Shack 274-282
- J2 RCA phono jack, Radio Shack 274-346
- R Stereo fader control, Radio Shack 270-047
- Construction box (1"x2"x3") Radio Shack 270-230

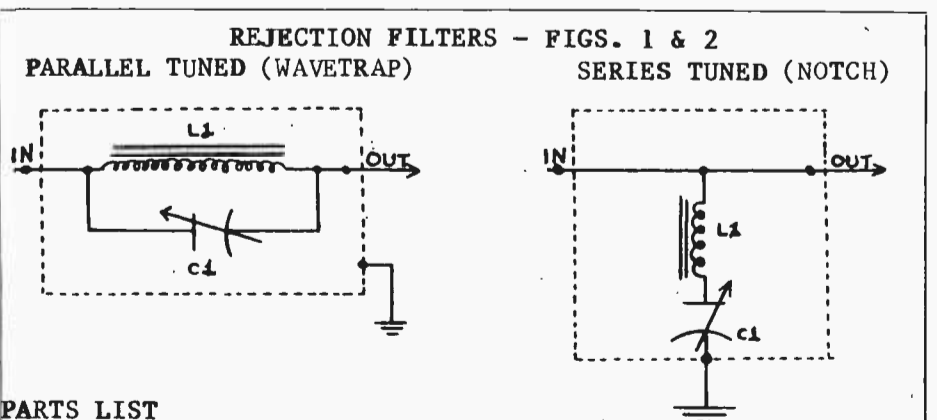
The Problem of Unwanted Stations

(Adapted from the SWL Digest of Radio Canada International)

Something which confuses many SWLs and DXers is the reception of short-wave stations on the AM Standard Band of a receiver, and the reception of AM Standard Band stations on one or more short-wave bands of a receiver. In most instances this sort of strange reception occurs on receivers in the lower price ranges,

especially when using external antennas.

The strength of this interference varies from receiver to receiver and depends upon the strength of the unwanted signal. The cause of the problem is the same in both cases - a lack of selectivity in the receiver. Selectivity is the



PARTS LIST

- C1 - Small 365 mfd. variable tuning capacitor of the type use in small transistor radios
- L1 - Miniature ferrite core broadcast band loop antenna

These filters should be housed in a mini-box. They will work most efficiently when a good earth ground is used. The filter, in the mini-box, can also be bolted to the chassis of a receiver if the receiver has a good earth ground connection.

The input and output connectors on the mini-box can be screw terminals, phone jacks, mini phone jacks, etc.

ability of a receiver to reject all signals except those to which the receiver is tuned.

The poor selectivity of low-priced receivers is designed to simplify receiver circuitry in order to keep manufacturing costs down.

SOLVING THE PROBLEM

In the case of reception of Standard Band stations on the SW band of a receiver, the least expensive solution is to construct a rejection filter tuned to block out any standard-band station interfering with SW reception.

In both the parallel and series tuned rejection filters (Figs. 1 & 2) the inductor (L1) is tuned to resonance by the capacitor (C1) enabling the interfering AM band station to be blocked out.

The variable capacitor is simply rotated until the interfering AM station disappears. At this point the filter will be resonant at the same frequency as the interfering station.

Since this rejection filter is connected between the receiver's antenna and the input of the receiver, it will only block an AM Band signal which is entering the receiver via the antenna.

In the case of a receiver being used with an AC line cord, it is possible that the interfering station is getting into the receiver via this line cord. In such cases the line cord should be kept as short as possible. This can be done simply by coiling up any excess cord length and securing the coil with some tape, a piece of string, or

a rubber band.

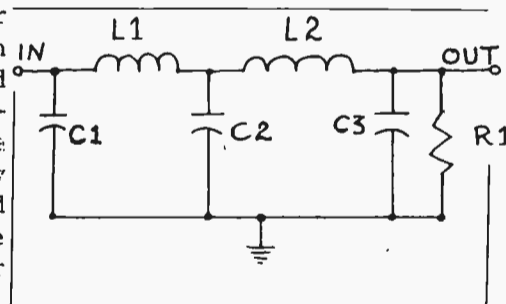
RECEPTION OF SW STATIONS ON THE STANDARD BAND OF A RECEIVER

Here we have just the opposite of the first case of interference: SW stations are appearing on a band of a radio where they shouldn't be. However, the cause of the problem is the same as before, - a lack of receiver selectivity.

Since the preselector described earlier will work only on the SW bands, the simplest solution to this problem is a Low Pass Filter. The filter shown in Fig. 3 has a cut-off frequency of 2 MHz. This means that when the filter is connected between the antenna and receiver input (the receiver's antenna terminal), all signals below 2 MHz (which includes all of the standard AM broadcast band) will pass through the filter. Any frequency above 2 MHz, which includes all of the international SW broadcast bands, will be blocked by the filter.

Reception of an SW station on the AM band of a receiver is usually due to a very strong signal from an SW station, often the result of unusually good propagation conditions.

Any questions regarding this information should be directed to: Radio Canada International, The DX Digest, P. O. Box 6000, Montreal, Canada, H3C 3A8.



LOW PASS FILTER - FIG. 3

PARTS LIST

- *L1 & L2 - 3.6 microhenry RF Choke
- C1 & C3 - .0045 mfd. capacitor (15 wdc)
- C2 - .006 mfd. capacitor (15 wdc)
- R1 - 50 ohm, 1/2 watt Resistor

*28 turns of #18 or #20 AWG enameled copper wire, on a 5/8" PVC or polypropylene former; windings should be 1 wire diam. apart.

This filter can be mounted on a small board, and housed in a metal mini-box.

The input and output impedances of this filter are 50 ohms, and it will work reasonably well with antenna and receiver input impedances of from 50 to 75 ohms.

NOTE: You may find it difficult to find chokes of the value listed above for L1 and L2. Since these values are not extremely critical, you can use the closest available standard value provided that it is not higher than the value listed above, or you can make your own using the above instructions. Using a value lower than 3.6 microhenries will simply make the cutoff frequency of the filter slightly higher. Using a value higher than 3.6 will lower the cutoff frequency, and may possibly put the cutoff frequency somewhere in the middle of the AM broadcast band; which would defeat the purpose of the filter.

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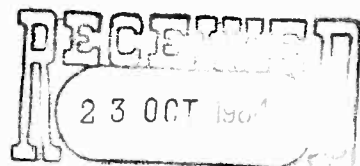
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I would like to correspond with anyone who is a utilities DX'er. Also am interested in DX'ing English language SW programs or anyone who knows about propagation. Dave Legg, 9217 Cottage Grove Avenue, Highland, Indiana 46322.

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