FCC SEIZES RECORD HAUL OF ILLEGAL CB GEAR

U.S. Marshalls, assisted by agents from the District Office of the Federal Communications Commission at Norfolk, Virginia, conducted a search and seizure August 9th of over $140,000 worth of illegal radio equipment intended for use in the Citizens Band Radio Service.

The equipment was seized from D&D, Inc., in Shelby, NC. J. J. Freeman, Engineer in Charge of the District, said the investigation was launched on the basis of several tips from confidential sources that lead to a lengthy undercover investigation by his staff.

The seized equipment included numerous linear amplifiers, components and subassemblies which were being manufactured in Shelby, NC, and distributed to retailers in several states.

According to Mr. Freeman, such devices are unlawful as part of a Citizens Band station and can cause interference to all kinds of home electronics entertainment equipment, aircraft communications and even pacemakers used by heart patients.

Freeman added that finding the source and shutting down such operations is the most effective way to deal with this type of criminal activity.

D&D, Inc., and possibly others, face criminal charges for violation of the Communications Act of 1934, as amended, and could be fined up to $10,000 and sentenced to one year in prison for the manufacture and sale of external linear amplifiers.

The FCC asks that anyone having information about the manufacture, sale or shipment of CB linear amplifiers send the name and address of the manufacturer, store or shop to:

FEDERAL COMMUNICATIONS COMMISSION
870 North Military Highway
Norfolk, Virginia 23502

In June the FCC conducted a widely-publicized crushing of 400 pounds of illegal CB transmitters and linear amplifiers worth approximately $12,000. The site was the Norfolk (VA) Recycling Center.

DO WE LOOK
A LITTLE DIFFERENT
THIS MONTH?

We are always trying to improve the readability of MT and invite reader suggestions. This month we have attempted to provide better continuity in our articles in an effort to avoid unnecessary continuation to other pages. Let us know your preference.

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www.americanradiohistory.com
THE COMPUTER AGE:

Let's Take a Vote

No one can deny the enormous impact computers have had on every facet of our lives. Microprocessors, those busy little electronic brains, control cooking, typing, bookkeeping, checkout counters, automobile functions, TV tuning, fire and burglar alarms, telephones, calculators, home and office utilities and billing, games, clocks...the list seems endless.

Industry has geared up for total computerization from manual and mechanical control to digital technology. Colleges, universities and technical schools have responded by adding courses in programming and engineering, often reducing or eliminating previous traditional curricula. RF engineering is a dying art.

Telecommunications is an explosive industry, emphasizing wire data communications—interlinked terminals. Radio-frequency communications and voice exchange are all but forgotten in the high-speed zero to 10,000 feet per hour race ahead in a computerized society.

Are manufacturers showing computers down our throats? Should we resent the total domination which permeates every aspect of our existence, or should we accept the promise of high-tech industry?

None of us would deny the positive aspects of computerized industry and society. Routine functions have become automatic, labor is reduced, sensors guarantee comfort and safety, busyness is reduced allowing more spare time and equipment is regulated for optimum performance.

Certainly, microprocessors and computers are not perfect; they are as vulnerable to failure as any other electronic microcircuitry. Have you had your scanner or shortwave receiver repaired lately? Was the problem erratic display or loss of control? A microprocessor was probably the culprit.

Have you ever felt that the scanner and receiver manufacturers, like the automobile industry, refuse to listen to you, exercising their own collective will, producing products they want you to have rather than what you have asked for? Do you like pushbutton panels and automatic circuits regulating your receiver?

We would like to know your reaction to this editorial. Do you favor computerization of radio receivers? Telephone us toll-free during September only with your vote. Call us (1-800-438-8155) weekdays from 8AM to 8PM eastern, and say:

"YES" (Computers are the greatest. I'd like to see far more computer control of receiving equipment); or

"NO" (I'm fed up to here with computers. Give me a receiver with knobs so I can turn it back in control).

Your response will largely determine the future direction of Grove Enterprises products.

SPECIAL MT REPORT BY BOB CROWE

ARRL STAFF CONSIDERS UNIONIZING

Deteriorating relations between the working staff of the American Radio Relay League and the directors of the corporation were cited by an informed source as the cause for a unionizing vote on August 23, 1984.

MT AUTHORS WANT YOUR FEEDBACK — WRITE!
Re: Sept 84 edition MT page 6 - article on "Unusual Utility Signals" by James Owen.

In response to his 2nd to last paragraph on stations that send data bursts in the 17020-17250 kHz region--

There is nothing too unusual about these stations, they are all Marine Coast Stations operating TORSAR (ARQ and FEC modes) i.e. synchronous RTTY at 100 bauds, and they can be copied with suitable decoding equipment, e.g. Infotech M6030A, etc.

There are numerous other frequencies sending the same kind of transmissions and they can be found in the internationally allocated marine bands, i.e. 4, 6, 8, 12, 14, 16, 18 and 21 MHz. Channel spacing is 500 Hz and frequencies are paired for duplex operation to which they respond.

P.S.: UAT=Moscow Radio USSR; UFN=Novorossiyisk Radio USSR
(Allan Bennett, Wel-lington, New Zealand)

Have you considered a CB column—or articles—?? There are still a lot of us who have an interest in operating SSB on frequencies above 27,405. Not many real technicians but we mostly can tell a transistor from a diode (not backwards) (How about it, readers; do you want CB hobby coverage in MT?...ed.)

Scanner listings are scarce for most of Kentucky and several of the states bordering Kentucky, such as West Virginia, Indiana, Virginia and Tennessee. I have been corresponding with the officers of one nearby regional scanner club about the possibility of forming a Kentucky club. If there are any interested persons out there, please send your response to me at the address below. Please include a self addressed, stamped envelope if you wish a personal reply.

Joe H. Takacs
1407 Beulah Park Dr.
Lexington, KY 40502

Here's a little note for MT readers: A very nice pocket sized guide called "Table of Frequency Allocations and Other Extracts From: Manual of Regulations and Procedure for Federal Radiocommunications Management" is available from Executive Secretary, TRAC, US Dept. of Commerce, NTIA Room 1605, NCH Building 1A, and Constitution Ave NW Washington, DC 20230

Despite its long title the book nicely summarizes all the allocations for radio services from 9 kHz to 400 GHz in some 150 pages, with additional tables for many government/aviation assignments plus extensive notations in the allocations. It's kind of a mini ITU table, and the best part is its price: free for the asking from the above address; this latest edition is dated January 1984.

Rick Ferranti

Navy Norfolk and The Numbers

By Frank H. Ingle, Consulting Engineer

Nearly all communications between the Atlantic Fleet Headquarters (Norfolk) and the US Atlantic Fleet are relayed through the Naval Communications Area Master Station (NAVCOMSALANT) located on the Naval Base (N0B) in Norfolk. It is a flyover in a windowless building, connected by an overhead walkway to the base HQ building; microwave towers adjoin it.

Ongoing message traffic between the shore-based commands and the ships aloft is processed in this building by a large computer system before being relayed by microwave to the Naval Transmitting Facility in Driver, Virginia, about 30 miles southwest of the base. That transmitting facility contains HF and MF transmitters and an antenna field more than 100 acres in size. The station was at one time a full-fledged naval command, but is now operated by a private contractor with a small staff.

Incoming message traffic is received at another nearby location, the Naval Radio Transmitting Facility and relayed to NAVCOMSALANT by microwave. It is located on Ballahack Road, about three miles west of SR 168 in Chesapeake, VA (about 20 miles south of NAVCOMSALANT). This facility is manned by active duty Naval Personnel and civilian service employees, but is not a separate command.

The receiving facility features a wide variety of antennas and every kind of receiver imaginable, as well as two-way satellite dishes. The Great Dismal Swamp nearby provides stable ground conductivity for the antennas during varying weather conditions.

So much for the facts; now I would like to offer a few conjectures regarding the alleged numbers transmissions. Though much traffic is handled by satellite and RTTY, I suspect that some is transmitted by CW and voice just to keep their operators sharp. Naturally, much of the message traffic is classified, and therefore unknown, so the presence of 5 digit groups is not surprising. If anyone in the DOD is communicating with agents overseas, it would seem reasonable to expect that at least some of the traffic would come through NAVCOMSALANT.

My second conjecture is that it is not likely that numbers transmissions, or any other type of broadcast for that matter, would be coming from the receiving facility called Northwest. It is no accident that the transmitting and receiving facilities are located at two different sites; due to the sensitive receivers and high gain antennas, RF radiation from any facility near the receiving facility could jeopardize the reception of weak incoming signals by overloading the receiver. For this reason, I believe the source of any Navy numbers transmissions would be the transmitting facility at Driver, Virginia.

A SKY FULL OF COMMAND POSTS

(PART III IN AN EXCLUSIVE FOUR-PART SERIES ON THE STRATEGIC AIR COMMAND)

By Art Lewis

It is almost impossible to pick up any magazine dealing with short wave utility monitoring without somewhere finding a reference to "Looking Glass" or the Airborne Command Post. A serious problem with this is that in many of these, the term "Airborne Command Post," "Looking Glass," "Flying White House," "National Emergency Airborne Command Post," etc., are used interchangeably.

The fact is that most of these terms are not interchangeable and these various aircraft each have separate and distinct missions. The purpose of this part of our SAC story is to acquaint you with these aircraft and their missions.

The following aircraft comprise the World Wide Airborne Command Post (WWABCP or "wabacap") which is the backbone of the Post Attack Command and Control System (PACSS): the airborne command post aircraft include the SAC Airborne Command Post ("Looking Glass") and two Auxiliary Command Posts.

The SAC Airborne Command Post ("Looking Glass") and two Auxiliary Command Posts. The SAC Airborne Command Post aircraft include the SAC Airborne Command Post ("Looking Glass") and two Auxiliary Command Posts. The SAC Airborne Command Post aircraft include the SAC Airborne Command Post ("Looking Glass") and two Auxiliary Command Posts. The SAC Airborne Command Post aircraft include the SAC Airborne Command Post ("Looking Glass") and two Auxiliary Command Posts.

THE LOOKING GLASS

Probably the best known of these command posts is Looking Glass. This is the only aircraft that is in constant flight. "Looking Glass" is not a tactical call sign, and contrary to what some may have read recently it is doubtful you will ever hear this codename used in a

NEACP: One of the E4-Bs on the ramp at Offutt Air Force Base being serviced in preparation for a mission. (photo by Art Lewis)
transmission...certainly not on HF radio! About the only time it is used on the air is on UHF to demonstrate the communications link to visitors in the Underground Command Post.

The callsigns "Looking Glass" and "Command Post" are used when visitors are present in order to compromise the tactical callsigns in use that day. If you hear these callsigns, you can be certain that the traffic to follow is nothing more than a demonstration of the communications system!

On February 3, 1961, the first modified KC-135 (EC-135) took off from Offutt AFB in Omaha in order to provide continued Command and Control in case the underground command post were disabled. LOOKING GLASS gets its name from the fact that it is a MIRROR IMAGE of the Underground Command Post. The aircraft has all the command capabilities contained in the command post. Since that day in 1961, there has been an Airborne Command Post in the air CONTINUOUSLY.

Each LOOKING GLASS is manned by a "battle staff" under the command of the Airborne Emergency Action Officer (AEAO), a SAC general officer. Each of the 26 general officers in SAC (excluding DGNSAC, General Bennie Davis) takes his turn aboard Looking Glass approximately three times each month.

The accompanying photo shows the starboard side of the aircraft. The forward position (background of photo) is the Force Status Officer; next is the Emergency Action NCO); then the Operations Officer, who also serves as chief of the battle staff and missile combat crew commander.

These three crew members are the Emergency Action Team and are responsible for decoding Emergency Action Messages. The EAT and communications crews usually stay together as a team for every mission.

The next position (empty in photo) is the Missile Systems Officer which is not manned during routine operations. Then comes the Emergency Action Officer (General Bennie Davis, Commander in Chief of SAC in this photo) and the final position (foreground of photo with empty chair) is the Communications Officer, who also serves as Deputy Missile Combat Crew Commander.

Sitting on the counter slightly to the left of the AEAO is a red box with two padlocks containing the "Codes" which would allow the decontamination of nuclear weapons. The AEAO and the Operations Officer each have a key to this lock. When the box is opened a "clacker" sounds loudly throughout the aircraft alerting everyone to the fact that the box has been opened.

The port side of the compartment contains the remainder of the battle staff comprised of Planning Officer, Intelligence Officer, and the Target Intelligence Officer; Chief of Planning Staff and Logistics Controller.

Aboard of this area is the communications section. There are five communications operators and two technicians aboard during all missions. Radio equipment includes UHF and HF equipment on the port side and APRAT, LF, VLF, AUTOVON and DATA equipment on the starboard side.

Juju forward of the landing gear under the aircraft is a red cone-shaped drogue (See photo). This stabilizes the VLF long-wire antenna when it is deployed. A 5/16 inch copper wire 28,500 feet long which can be severed from the aircraft in case of emergency.

According to the Aircraft Commander, with this wire deployed to its full length there is only a 7% degradation of aircraft performance.

The bulk of voice communications aboard LOOKING GLASS are carried out over UHF, both scrambled and clear traffic. Since the sole purpose of LOOKING GLASS is to be the Airborne Command Post in case the Underground Command Post is disabled (what SAC personnel modestly call "an event"), constant status checks are carried out.

One position on the Communication Officer's console, channel ten, is a constant check on this status. If this channel is disrupted an alarm goes off on the aircraft; a series of checks is immediately conducted to determine if the Underground Command Post is, in fact, disabled.

There are a definite set of procedures for activating the Airborne Command Post. And it must be remembered that even then, it is still only a command post...and not a command authority.

The flight crew for the EC-135 consists of a pilot, copilot, navigator and boom operator. Even though it has no refueling mission, each EC-135 aircraft is still equipped with refueling boom and is fully capable of refueling other aircraft in flight as well as taking on fuel.

Although LOOKING GLASS is the best-known aircraft of the PACCS, the other components are no less important.

The two Auxiliary Command Post aircraft and two Radio Relay aircraft provide air-to-air communications links between NAACP, LOOKING GLASS and the ALCC aircraft. Also the battle staff aboard the Auxiliary Command Post aid the LOOKING GLASS battle staff in directing SAC forces.

The three Airborne Launch Control Centers are responsible for the deployment of SAC missiles in their own squadrons. Each aircraft contains a full missile launch crew and activation of the missiles from these aircraft is protected by the same safeguards as those installed in the ground launch control centers--including the turning of two spring-loaded keys at opposite ends of the aircraft virtually simultaneously.

As with the ground control sites, this procedure can be followed only after reception, verification and entering of the launch control codes.

The three ALCC aircraft, each assigned to one missile squadron, fly to areas close to the ground missile sites.

LOOKING GLASS and the East Auxiliary Command Post are stationed at Offutt AFB, NB; the West Auxiliary Command Post and ALCC 1, 2, and 3 are stationed at Ellsworth AFB, SD; Radio Relays 1 and 2 are stationed at Grissom AFB, Indiana.

As with the rest of SAC operations, redundancy is the key word in the PACCS. Each aircraft is equipped to take over one or more of the functions of the other aircraft, assuring that the system is virtually impossible to disable.
DETERRENCE NOT OFFENSE

LOOKING GLASS personnel refer often to the SAC motto: "Peace Is Our Profession." None of the systems of the Strategic Air Command is designed to wage war. Every system is designed, instead, to assure that in case of an event the United States would be in a position to retaliate. And the whole point of an assured and credible retaliation plan is DETERRENCE.

"We are just the opposite of a first-strike weapon," a LOOKING GLASS officer said. "We wouldn't need the WWABNC if we intended to attack. As a matter of fact, in full might we have nothing like it!" As General Davis puts it, "What deter's the Soviets is the knowledge they could not gain through bringing a nuclear exchange to make their resultant losses worthwhile."

THE KNEECAP

In the aftermath of "an event" we now have a sky full of aircraft which have assumed the role of all SAC bombers and missile sites. All SAC bombers have been launched and are enroute to their "Fall Safe" points. All SAC command centers are on hard alert and waiting for the orders to launch.

While the United States is in a position to retaliate, even against the aggressor, not one piece of the impressive SAC arsenal can be used without someone to give the order. Just as high a job of the National Command Authorities (NCA) through the Joint Chiefs of Staff.

Since we have assumed that the LOOKING GLASS Command Post can be eliminated by an enemy, we must also assume that Washington would also be a target. Therefore we must have some provision to assure that the NCA would be in a position to direct retaliatory efforts.

This is the function of the National Emergency Airborne Command Post (NEACP), the aircraft that is most often confused with LOOKING GLASS even though the two have virtually nothing in common.

In 1975 SAC acquired jurisdiction of the 1st Airborne Command and Control Squadron, Andrews AFB, MD. With this action SAC became responsible for the NEACP (pronounced "kneecap"). The move was made primarily to remove NEACP from the danger of a submarine-launched missile attack, a possibility in Maryland.

One of the major differences between AABNC and NEACP is that while the former is completely a SAC mission, NEACP, while it is flown and maintained by SAC personnel, is a JCS mission.

In February 1973 the Air Force granted Boeing Aerospace a $59 million contract for two 747-200B aircraft to be adapted as 4-4A airborne command posts. Another contract for $27.2 million was awarded in July for a third, and in November another contract was awarded for $39 million for a more sophisticated version, the E-4B.

These aircraft were first intended to replace the EC-135 AABNC. However, due to the number of aircraft to be replaced coupled with the fact that the E-4s are much more expensive to operate, it was decided to use these aircraft as NEACP aircraft instead.

At the present time SAC have converted two of the original E-4As to E-4Bs, and the third is due to be converted in January. Improvements in the E-4B include larger battle staff area, a more powerful air-conditioning system to accommodate the increased nuclear thermal shielding (EMF protection), acoustic controls, and improved technical control facility and new SHF and dual Collins VLF/UHF communications systems.

The SHF antennas are housed in a dorsal (top) fairing which gives the E-4B its readily-recognizable characteristic.

The E-4B is designed for long-endurance missions and has 5,500 square feet of floor space and accommodates 94 crewmembers. The main deck is divided into the following areas: The NCA work area, conference room, projection room (which serves both the conference and briefing rooms), briefing room, battle staff work area (which accommodates up to 30 crewmembers), communications control center, technical control center and rest area.

The flight deck houses the cockpit, navigation station and flight crew rest area. Below the main deck are communication and computer equipment, on-board maintenance and storage area, and a winch operator's station for the VLF antenna.

Because operations and maintenance are self-contained, and due to improved power plants, the E-4B can operate from a wide variety of civilian, abandoned or even damaged facilities allowing NCA and JCS personnel to be boarded wherever necessary.

The E-4B can take off from a 5,000 foot runway with hours of fuel on board, and although the exact figures are classified, it can take off from even shorter runways with a further reduction of fuel. With a full load of fuel it can remain airborne for 12 hours and in-flight refueling, for 72 hours.

No less than 46 antennae provide communications over 13 different external communications systems ranging from SHF satellite links to the 5 miles trailing wire for VLF. The high power VLF system is designed primarily to resist atmospheric effects caused by nuclear effects and is very difficult to adapt to the highest priority activities ongoing today in the Air Force is anti-jam communication.

The NEACP is equipped to interface with AUTOVON, AUTOSECOM, AUTODIN and SAC-DIN. It can also tie in to commercial telephone and radio networks and has the capability of being used for radio broadcasts to the civilian population. In addition to communication with the AABNC, NEACP also can communicate directly with ships at sea, submarines, and surveillance and fighter aircraft, and with the National Military Command Centers.

The one item that the NEACP does not contain is equipment to launch missiles; this is not function of NEACP. While NEACP is designed to authorize the launching of missiles it is not capable of carrying out the launch. That point is an important one to remember in the light of recent publications which have erroneously reported otherwise.

One system, the details of which are highly classified, provides for those who are designated to be aboard, including JCS Presid, his deputy, the Secretary of State, and the JCS, to be transported to the nearest NEACP in the event of an imminent threat. One of the E-4 aircraft is always in the vicinity of the President and can often be heard in flight when the President is aboard Air Force One.

NEXT MONTH OUR CONCLUSION: "WHAT IS IN THE FUTURE?"

The National Emergency Airborne Command Post is capable of virtually any form of electronic communication available.

An E-4B NEACP departs Offutt Air Force Base on a mission. The SHF Satellite Dish fairing behind the cockpit makes the E-4-B highly distinguishable from the older E-4-A models. (Boeing Aerospace photo)
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What Time Is It?
(or, Happy Centennial, Greenwich)

By Don Schimmel

This month marks the 100th anniversary of the adoption of the Greenwich meridian as the official zero longitude of the world. The agreement to do this was reached on 13 October 1884 at an international conference in Washington, DC when 22 countries accepted/approved the proposal.

At the conference France did not vote agreement with the other countries and for years, up until 1978, had its own time standard which was named Paris mean time.

Because of the difference in location between Paris and Greenwich, the time differed by 9 minutes, 21 seconds longitude which represented a time difference of 1/5th second from the Greenwich mean time (GMT).

When the sun crosses the Greenwich meridian it is noon there, while west of the meridian it is morning or A.M. (ante meridien [before midnight]) and it is P.M. (post meridien [after midnight]) east of the Greenwich meridian.

The 180 degree meridian on the opposite side of the earth forms the International Date Line and passing over it will result in losing or gaining a day depending upon the direction travelled.

Each hour the sun passes over a 15 degree section of the globe, so in 24 hours the entire globe (360 degrees) has been circumnavigated. Each of these 15 degree sections represents one of the 24 international standard time zones.

Time zone lines do not follow exactly the meridian lines but rather an irregular path following various national and state boundaries (See map).

There is a time difference of four minutes for each degree of longitude crossed by the sun (4 minutes x 15 degrees = 60 minute-degrees, or one time zone hour).

Here in the United States, Standard Time has been used since 1883 when a general time convention was adopted by the railroads. Standard time was made official by Congress in 1918 with the passage of the Standard Time Act. In late Spring, Daylight Saving Time comes into effect and clocks are turned back one hour. In the fall they are again returned to normal standard time for the particular U.S. time zone.

There are actually only four days per year that the noon sun is on time with the clock noon. Thus, days based on sun time are not equally long from noon one day to noon the next day. This is a result of the earth moving faster along its orbit when near to the sun and moving slower when farther away. Also the sun does not follow an exact east path but rather follows a slanting one.

These discrepancies make it necessary to figure the average length of days, hours, minutes and seconds. Clocks running at a constant rate can maintain such values and the time based on the averages is called mean time.

If, on the other hand, we had our timepieces running per the apparent time we should have to compensate for the difference by resetting the clock almost daily.

Accurate time signals may be observed on 25, 5, 10, 15 and 20 MHz these are the frequencies utilized by the transmitting stations operated by the U.S. National Bureau of Standards. One is located at Ft. Collins, Colorado and is identified by the callsign WWV. The other is located at Kauhia, Maui in the Hawaiian Islands and it has been assigned callsign WWVH.

To distinguish which station you are listening to, a male voice is used for WWV while a female voice is used for WWVH.

The time announcements given by WWV and WWVH are identified as "Universal Coordinated Time" and this coincides with the Greenwich zone time.

In addition to the time signals the broadcasts provide standard audio tones, radio propagation information and precise frequency references.

Canada's Dominion Observatory in Ottawa operates a similar service on 3330, 7335 and 14670 kHz using the callsign CCH.

Throughout the world there are numerous time signal broadcasts so even though it is not possible to hear a CCH you should be able to hear a time signal sponsored by another country.

SAY YOU SAW IT IN N7I
Standard extras provide 5-meter, carrier light, two scan modes, one-touch function access, resume button, three-mode mute switch, automatic noise limiter, display dim, intermediate frequency output jacks, converter interface, remote control interface and 10 dB RF input attenuator to reduce strong undesired signals.

Second impressions following a keyboard exercise to take the receiver through its full capabilities reveal a microprocessor that provides smooth, reliable operation. It will neither program out of specified frequency range nor preset modes.

The operator may manually change AM-FM, narrow-wide and channel spacing increments at will or enter variations into any of the channel memories. This may be necessary because presets don’t always correspond to U.S. frequency or modulation assignments.

A frequency transfer from one position assignment to another is also possible though not shown in the manual.

Normal defaults include power-up frequency 26.0 MHz, AM always narrow (can’t alter), FM always narrow (can alter), search increments (26-180 MHz) 5 or 6.25 kHz, (180-520 MHz) 10 or 12.5 kHz (switch selectable and can’t mix within block). The latter is not a serious shortcoming but does require programming mixed increments within the two major frequency blocks, causing the squelch to the round off or default to the increment switch setting.

Missing is keyboard-programmable block search increment for fast target frequency closure. Keyboard UP-DOWN switches step or scan frequency by preset increment.

An additional keyboard nicety holds off muting while new data is being entered. The processor also provides a SCAN-A mode to sequentially all 20 channels (except those locked out) and a SCAN-B mode to rapidly lock in channels to scan.

The latter eliminates EXCLUDING unwanted channels in a sequence, leaves SCAN-A as preprogrammed, and provides for INCLUDING those desired in the SCAN-B sequence. For example, touching SW-M 1 5 14 ENT programs only channels 1, 5 and 14 in the SCAN-B sequence regardless of status of SCAN-A.

A variable delay control provides 0-4 second delay after squelch closure before resuming SCAN or SEARCH. A RESUME button overrides functions in progress.

In the switch compartment a STOP mode switch selects (1) carrier operated squelch, (2) modulation-average-operated squelch and (3) modulation-peak-operated squelch. So much for the frosting. Now let’s look at the cake.

The metal receiver housing carries three circuit boards plus front and rear panel assemblies, interconnected by conventional wiring harnesses. Covers are held in place with exposed screws that remove for service ease allowing assemblies to be laid out or disconnected as necessary.

Although neat and highly serviceable, packaging exemplifies labor-intensive early 1970’s mechanical design. Phenolic phase lock loop and intermediate frequency single-aided circuit boards carry CMOS devices with many jumpers. This has no effect on performance but adds to cost as no automated assembly is apparent.

STEP BY STEP... 

The phenolic UHF-type antenna connector, three AAA size memory dry batteries...
and component choice follows the 1970’s design characteristics.

A telescopic antenna housed within the cabinet is connected through a non-continuous switch to the antenna and input extends for local operation. It would be best to disconnect this limited-use device to avoid accidental antenna mismatch.

The SX-400’s credit are BNC IF output and DIN recorder auxiliary connectors. This choice and other subtle design aspects suggest the product was intended for use in all three radio regions (Europe, Asia and America).

The 62 tuned circuit, 12 section fiberglass board RF assembly provides a mechanical design surprise and comparatively less " junk" reception than some older design scanners. J.I.L. confirmed that a design group other than those responsible for the phenolic board-concentric on this receiver element.

RF amplifiers are used rather than placing major gain after selective element in the receiver, the latter being a more modern design approach to avoid front end interference amplification. Without a circuit diagram or parts list, it is not clear if modern FET devices are used.

RF circuitry in each of the 12 sections is conventionally peaked without varactor tracking to a specific frequency with spreads ranging from 8 to 60 MHz wide. To realize best performance, select this wide spread, peaking circuits to frequencies of main interest in this section is recommended to achieve best sensitivity.

Although the RF assembly provides some novel scanner front end design, the circuits that follow are conventional 10.7 MHZ/455 kHz dual conversion with ceramic bandpass and crystal filters. An alternate IF section switches in when the wideband mode is programmed.

As soon as you turn the SX-400 on, a distinct audio output deficiency from the side-mounted speaker becomes apparent. Although specified at 5 watts, audio measures 2 watts with a test tone. Excessive high and low frequency response amplifies an irritating amount of noise signal with the receiver squelched, and tone squelch "hum" with the receiver unsquelched, both of which become more noticeable in a quiet room.

The SX-400 is designed with a more efficient front-directed external speaker only emphasizes audio and squelch deficiencies which amount to imperfect audio stage design.

RF sensitivity meets or exceeds published specifications for most band segments and selectivity seems adequate to reject all but strong closely crowded portions of the spectrum.

Until scanner manufacturers publish specifications to Electronics Industries Association (EIA) standards, equipment performance will no doubt continue to be difficult to measure and evaluate properly.

Overall, I was very pleased by the SX-400’s appearance, control panel convenience, operating ease and excellent features. As a perfectionist looking for a scanner receiver with commercial standard sensitivity, selectivity and specifications, I was disappointed by performance, circuitry and relatively high price. If it met these criteria, I’d pay $1000 for one.

J.I.L. and others seem to realize consumer desire for a high-tech computer-interfaced scanning receiver. With a more modern design in the receiver section, the SX-400 could have been that product.

**J.I.L. SX-400 PRICE SUMMARY**

<table>
<thead>
<tr>
<th>Description</th>
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<tr>
<td>SX-400 Receiver</td>
<td>$799.90 now</td>
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<td>P-1A Power supply</td>
<td>42.90 now</td>
</tr>
<tr>
<td>15026 RF converter (150 kHz)</td>
<td>599.90 SE84</td>
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<tr>
<td>80960 RF converter (800-960 MHz)</td>
<td>999.90 JAN5</td>
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<tr>
<td>80400 Data interface with disk (for NEC 8801A computer 299.90 SE84 only)</td>
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**MHz BAND FREQUENCY SPEC MEAS PEAK**

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</table>
**SIGNALS FROM SPACE**

**THE LATEST LOOK AT DBS**

***An Editorial Report***

By Fred Hoppengarten, K1WR

Channel One

Waltham, MA 02154

The recent trade show sponsored by the National Cable TV Association (NCTA) offered another chance to examine the technology and implementation of direct broadcast satellite service (DBS) to American home-owners.

Discussions centered on a study of cable viewing preference (one that at the underlying concepts of the research) NCTA proudly announced that Opinion Research Corporation, after questioning 757 different consumers, had discovered that the option of more channels for less money was more popular than fewer channels for more money. What a surprise!

For example, in its least offensive comparison, ORC sought to divine market penetration when current subscribers (or likely-to-purchase non-subscribers) were given the choice between 12 channel cable (five channel basic, up to two pay-movie-services, at $8.25 per month, with a $25 installation charge) and six channel DBS (six channel basic, three pay services, channel multi-point cable channel (five between $8.25 and $15 per month, with a $50 installation charge). Cable won 64% to DBS at $8.25 per month. Other comparisons became more ridiculous. At worst, consumers were asked to choose between 36 channel cable or five channel DBS or five channel MDDS (multi-channel multi-point distribution system—2 GHz service). Not surprisingly, cable won 69% to 2%.

Cable operators who make far more sophisticated programming decisions generally found the research to be a real "yawn." Their hands on the proper equipment except through USCI, they apparently feel safe for the time being.

Despite the good show put on by USCI representatives, the need for cable programming which is not susceptible to 4 GHz down-wave interference, and the possibility of relatively inexpensive head end receiving equipment, there was some skepticism among operators as to whether USCI would survive its coming capital needs.

**DBS AT 4 GHz**

For six months or more trade magazines have been suggesting that the Galaxy I satellite, located at 134 degrees west longitude, would provide DBS service as soon as the scrambling problem was solved.

With the advances of the Linkabit VideoCipher system, it was not surprising to learn that HBO's President Frank Blondi is now being quoted as saying that HBO will be in the DBS business within the year.

Teamed with such other players on GI as The Nashville Network, The Disney Channel, Showtime/The Movie Channel, CNN, ESPN, C-SPAN, CBN, WOR, Galavision and SIN, a subscription service for the contents of GI programming only would still be very interesting. Satellite TV Guide already has a sister publication devoted to that one satellite.

Despite whatever problems facing DBS at 12 GHz, it appears that DBS at 4 GHz is almost upon us, if it hasn't already arrived.

**A RATIONALE FOR SCRAMBLING**

For years observers have been asking why satellite programmers should care if a few hundred thousand home owners could receive their programming free. With subscribership on its way to 25-30 million homes, why should programmers endure the costs of hardware dollars and subscriber grief in the event of a failure?

Word is leaking out that a driving force behind the scrambling movement, rather than pressure from Hollywood or a desire to protect copyrights, is bad behavior within the cable TV industry itself.

It seems that some cable operators, even very large ones, have discovered that they could not pay their bills on time. Payables from some operators are now running 12 to 24 months behind.

Thus, with scrambling, millions of dollars in payables will come rolling in the moment that operators realize that they will lose the only product that they

---

While you were out...

**SOMETHING HAPPENED!**

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

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

The easy to use ScanRecord features user selectable drop-out delay, adjustable sensitivity, activity indicator and recorder control switch. The unit is all solid-state with no relays to stick or wear out. It operates on 9 or 15 volts DC and can be powered by a 9 volt battery or AC adapter.

All you'll need in addition to your scanner and the ScanRecord is a tape recorder with a microphone jack and a remote control jack. The ScanRecord is complete with all connecting leads.

Your complete satisfaction is guaranteed. Order your ScanRecord today for only $35.75 plus $2 shipping and handling.

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NASA SPACE SHUTTLE MISSION UPDATE

FLIGHT 51-A (DISCOVERY): Nov.2, 1984
Payload: Dual option flight, Telesat-H, Syncom IV-1
FLIGHT 51-C (DOD MISSION) (Classified)
Payload: SpaceLab 3
FLIGHT 51-E (CHALLENGER): Feb. 12, 1985
Payload: Telesat-I, TDRS-B
FLIGHT 51-D (DISCOVERY): March 18, 1985
Payload: LEPE-1, Retrieval, Syncom IV-3
FLIGHT 51-F (CHALLENGER): April 17, 1985
Payload: SpaceLab 2

(TAlmost) Everything They Never Told You About The MX-5000!!
By Dave Beauregar, KB1F Magic Media
P.O. 695
Amherst, MA 01004

Like everyone else, I was mighty impressed by the advertised specs of the new Regency MX-5000 VHF/UHF communications receiver. More than a scanner, it's actually a generally capable 25-550 MHz all-mode receiver which also happens to have scanning and memory capability.

Continuous frequency coverage, +3 microvolt actual measured sensitivity for 20 db quieting across the entire frequency range...it seemed good to be true! So, like everyone else in the world who could afford it (and if you pay more than $399 for your unit, you're being had), I took the plunge and got one.

SPEED(7)
Yes, the scan and search rate is somewhat slow. All of the product reviews have prepared us for this fact of MX life, so nobody can say we weren't warned. The "FAST" scan and search rate is about five seconds for 20 channels. (By locking out unused channels in SCAN mode, you can increase the speed, of course.) The "SLOW" scan and search rate (11 seconds for 20 channels) earns the unit its first design Edsel: it's ridiculous, unnecessary and totally useless. Truly, one would ever have occasion to want to step that slowly through the channels, especially when the FAST rate is plus enough slow enough to catch and hold even a momentary blip of activity on a channel that's being searched or scanned.

We've found that even for a constant channel increment (5 kHz for example), the stepping rate over different parts of the spectrum varies. Remember, this antenna resonance is not a linear step-to-second to channels per second. Only the microprocessor knows what--and it ain't telling. Also, the published claim that the instruction book that the unit can SEARCH one megahertz in 6 seconds is pure fiction. Even in 25 kHz steps and in FAST mode, it takes a good 13 to 16 seconds to cover a megahertz of spectrum. Forget about the FAST mode--you'll be dead and buried before it's through!

My suggestion simply hold on to your old scanner and stick it up with your feet spaced, local-action police and fire channels, or whatever it is that you find critically important to hear instantly as soon as a channel springs to life. Then, use your MX to go space-exploring in the uncharted regions of the VHF/UHF spectrum never before reached by commercially-available radios. This is the job for which it was truly built.

BUILT-IN INTERFERENCE
The MX's other design Edsel is quite a bit more insidious: When you first attempt to scan or search a piece of spectrum with its plug-in whip attached, you find the unit hanging up every 75 kHz or so on its own microprocessor noise.* (*See August MT, p.24 "Curing the RFI Problem in the MX-5000."

I suspect Regency's failure to give such a warning will result in many, many units being returned to them as defective, while in fact the hardware is totally fine, but the unit MUST be used with an impedance-matched antenna, fed by a length of shielded coax.

The stick whip supplied with your unit works acceptably on UHF (above about 300 MHz). On frequencies below 300 MHz--especially between 25 and 88 MHz--you'll find the unit almost unusable on this antenna--not because of lack of sensitivity (there's plenty), and not even because of ignition noise, signal from birds (there are few), but simply because the controlling microprocessor is TOO NOISY FOR ITS OWN GOOD. Even a 50 dB signal power would ever have occasion to want to step that slowly through the channels, especially when the FAST rate is plus enough slow enough to catch and hold even a momentary blip of activity on a channel that's being searched or scanned.

We've found that even for a constant channel increment (5 kHz for example), the stepping rate over different parts of the spectrum varies from channel to channel. Only the microprocessor knows what--and it ain't telling. Also, the published claim that the unit can SEARCH one megahertz in 6 seconds is pure fiction. Even in 25 kHz steps and in FAST mode, it takes a good 13 to 16 seconds to cover a megahertz of spectrum. Forget about the FAST mode--you'll be dead and buried before it's through!

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BUILT-IN INTERFERENCE
The MX's other design Edsel is quite a bit more

FLIGHT 51-G (COLUMBIA):
May 30, 1985
Payload: Base-Access, Telestar-3D, Arabsat-A, Marosol-A

FLIGHT 51-L (CHALLENGER):
July 2, 1985
Payload: EROS-1, TDRS-C, OASIS

FLIGHT 61-A (COLUMBIA):
Oct. 14, 1985
Payload: SpaceLab D-1

FLIGHT 61-H (ATLANTIS):
Nov. 27, 1985
Payload: EDM-1

FLIGHT 61-D (COLUMBIA):
Jan. 28, 1986
Payload: SpaceLab 4

FLIGHT 61-E (COLUMBIA):
March 6, 1986
Payload: Intelsat VI-1, Astro-1

FLIGHT 61-F (COLUMBIA):
April 17, 1985
Payload: SpaceLab 2

Miller Publishing

Tune In the World
Kenneth MacHarg

Ken MacHarg is a 25 year veteran SWL. He is regularly heard on KB2A's "IX Party Line," and now he is the author of an exceptional book that profiles some 70 shortwave stations. Each profile is packed with facts on the station's history, programming, personalities and facilities. Plus articles on SW news, music, drama and more. It's the listener's guide to international SW radio.

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

The Shortwave Book
L. Miller & K. MacHarg, editors

Whether you're a brand new SW, or a seasoned veteran, you'll find one of the best overviews of the SW hobby in The Shortwave Book. It's intelligent, non-technical and comprehensive with articles on topics ranging from jamming to clandestine, radio clubs to history and programming. And it's written by experts like George Wood, Andrew Steele, John Santomach, Ken MacHarg and many more. Each (paperback) book $9.99 plus $1.50 postage (outside the U.S., $2.50 postage). Checks or money orders in US$ or their equivalent to Miller Publishing, Dept. MT, 424 West Jefferson St., Media, PA, 19063 USA. PA residents add 6%. Dealer inquiries invited.
shielded, and I have ignition noise trouble on both my 2 meter transceiver and in-dash FM broadcast radio. The MX-5000 is simply imperious to all of this noise, much to my astonishment. It is, however, subject to intermodulation or "smearing" of strong signals on the FM broadcast band. Since it was not expected to excel as a broadcast receiver, this is not a serious drawback.

SENSITIVITY
Awesome, totally awesome! The actual measured performance of a sample MX-5000, as viewed on a Gushman calibrated laboratory receiver, shows three-fifths of a microvolt for better than 20 db of quieting across the entire receivable spectrum.

On a recent trip I channelled up the unit for the local frequencies in use at my destination, some 100 miles away. Almost immediately, I began to hear activity on the unit.

The unit was showing an effective working range of almost 200 miles--and this with a roof-mounted off-resonance antenna--sitting in a car in downtown traffic! You can only imagine what it will do with ten elements, a whip of yagi or a 60-foot tower!

With a base antenna it's possible to hear Radio RSA from Johannesburg, South Africa (20,950 MHz) or the Voice of America from Liberia (26,045 MHz) in the AM mode almost every afternoon, even when the band is not fully open.

SENSITIVITY STUDY NO. 2: CORDLESS TELEPHONES!
On a whim, I channelled up the MX with all five of the current 49 MHz cordless telephone channels and drove around with it for a few weeks. I discovered not only how many cordless telephones are in use, even in the smallest New England towns, but also how exceptionally well they can be heard over a distance of between one-half to two miles away. The receiver's exceptional sensitivity and noise rejection deliver a quality of fidelity that would be the envy of any private detective with his expansive "snoping" gear.

And it wasn't enough to know that you've tapped your own phone with one of those cordless jobs, there's more. The MX-5000 has "uncovered" the fact that some of these cordless telephone units remain in the transmit mode even after they've been returned to their charging cradles! Whether this happens because the operator forgot to snap the disabling switch, or from some design fluke of certain models, is not clear.

In any event, more than a few of these hand-held units have the terrifying habit of broadcasting all conversations taking place in a room--even when the telephone is "on the hook"! With its high sensitivity, the MX roots 'em right out, even when the telescopic whip on the cordless handset has presumably collapsed to a mere stub. Range is diminished, of course--but the signals are still strong enough to activate the MX as you drive by the house.

KEYBOARD MAGIC
There are some helpful quirks that the tiny instruction book fails to mention. Here are some we've discovered so far.

1. Microwave Reception Programming. It is possible to get the unit to operate in the 800-1200 MHz microwave region. This is done by subtracting 750 from a desired frequency above 775 and entering the difference in the scanner, either directly into a memory channel or as a search limit. (750 MHz is the uppermost IF frequency of the unit--hence, the "magic" number used in the subtraction.)

2. Automatic Frequency Stepping. Although the book doesn't say so, it's possible to step up or down in a band in a pre-chosen channel increment (12.5 or 25 kHz without repeatedly switching the "UP" or "DOWN" button, and even with the squelch fully open. Simply press MANUAL to stop the SEARCH or SCAN function on a given channel, and then hold your finger on either the UP or DOWN button. The unit will step continuously in the direction indicated by the button chosen.

In SCAN mode, note that once the unit has stepped on a channel (either because a signal has captured the receiver or because the squelch has been opened manually), it's necessary to press the MANUAL button before the semi-automatic stepping function will work. Pressing UP or DOWN without first pressing MANUAL will cause the unit to do absolutely nothing--except beep! That's why it may take a while for some owners to find this "hidden" step feature, although many users

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-120 VAC OR 12 VDC OPERATION ULTRA-COMPACT (5-1/2" X 3" X 8") AND LIGHTWEIGHT (2.4 LBS)

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- UP-CONVERSION REDUCES INTERMOD WITH A LARGE LCD DISPLAY SHOWS FREQUENCY, CHANNEL, PRIORITY FUNCTION, LOCKOUT OF UNUSED CHANNELS, DELAY OR RESUMED SCANNING OR SEARCHING, SEARCH INCREMENTS, RECEPTION MODE AND TIME OF DAY (24 HOUR CLOCK). A CHAIN OF CONFIRMS KEYBOARD ENTRIES.

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100 foot $15.00
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CONNECTORS
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RTTY RUSSIAN KEYBOARDS

By D. K. deNeuf, WA1SPH

During WW2 the Teletype Corporation in Chicago manufactured tape perforators for transmitting the Russian Morse radiotelegraph code utilizing the cyrillic alphabet. (See Fig. 1) I recall that those machines made by the Teletype Corp. were for use by the US Office of War Information (OWI) in transmitting Morse radiotelegraph newscasts in the Russian language.

11480.0 kHz - Buenos Aires, Argentina (NA)

CLUB CORNER

This month's column spotlights two fine regional clubs whose bulletins could serve as models for publications emanating from national/international clubs.

The Ontario (Canada) DX Association serves broadcast through shortwave band listeners with their bulletin "DX Ontario," one of the most professional-appearing DX publications I have read. Part of their secret is that they accept advertising. I'm sure that the other part is through the volunteer efforts of loggings, QSL information, station information, pirate broadcasting, equipment reviews, technical information, computer tips and miscellaneous contributions; in other words, if a DX'er couldn't find something of interest in "DX Ontario," he's beyond help!

Although membership is open only to Ontarians, anyone may subscribe write for a sample copy, including $1.50 (Canadian) to ODXA Membership Secretary Mr. Cedric Marshall, P. O. Box 232, Postal Station "Z", Toronto, Ontario MIV 2V.

A slightly more esoteric group is the All Ohio Scanning Club, dedicated to sharing information and improving the hobby of monitoring two-way radio communications, and they've been around for almost five years.

The coverage of Ohio and neighboring states is their newsletter's primary concern, but general manager Dave Jones informs me that they are making plans to double the frequency of publication to monthly, and hope to increase the number of members.

Although the loggings and frequency listings might be of limited interest to non-Ohioans, the more general information such as how-to columns, reviews and technical topics is well-done and well worth the annual dues. For a sample bulletin, send $1.00 to Dave Jones, 1043 Princewood Ave., Dayton, OH 45429; enclose as SASE if you'd like further information on the club. If you're interested in starting a scanner club in your state, you'd do well to check in with the AOSG to see how it's done.

The Radio Communications Society of the World is a newly-formed organization which, according to Founder-President George A. Greenwood, has as its purpose the sharing of knowledge, personal interests and friendship among amateur radio operators and shortwave listeners throughout the world. In a letter to me, the society notes that early members include Senator Barry Goldwater KYUG; His Majesty King Hussein I of Jordan JYY; Ruth Hesch WDX2SEA; Father Mike Mullen WAZUX; Bill Fasternak WA6ITP; Hank Bennett W5PWA/WDX2FT; Georgia Romanin SWL/Italy; Dr. Owen Garrett W5LFL.

JUST THE FAX

More of the fine collection of weather and news photofacsimile monitored off the air by Bill Grant of Worcester, MA. Thanks for sharing your catches, Bill!

14626.5 kHz - CCGS Sir John Franklin (CCGS Ice Breaker)

7710.0 kHz - 1300Z 29 April 84 from airborne C-FND2 (Electra 1188C out of Gander)
Sister Alverna O'Laughlin WA0OGJ; Bro. Bernard Frey WA21PM; Father Moran 9N1MH and Henry Ward WA3KAA.

Veterans and the handicapped are accorded a reduced rate in the membership fee. For more information, send an SASE to RCSW, George A. Greenwood, President, 32 Applegate, Bennington, VT 05201.

Another club which 1s forming is the New York DX Association. An SASE to Greg Baker, New York DX Association, 4103 Fort Hamilton Parkway, Brooklyn, NY 11219 will provide up-to-date information; or if you're in a mad rush, dial (212) 981-4866.

There's been no change in the status of the International DX'ers Club of San Diego, it's still on hold, pending a volunteer taking over the publication of the club bulletin. The club was formed since the death of its founder, Larry Brookwell, last December.

I'm pleased to bring you specific information about the October SCADS (Southern California Area DX'ers) meeting, but at deadline time no definite time or location has been announced. Send an SASE to SCADS director Don R. Schmidt, 3809 Rose Avenue, Long Beach, CA 90807 for up-to-date information.

A few dates to mark on your calendar... October 5-6: Radio Society of Ontario convention at the Watson Hotel, Ottawa. Send an SASE (if you don't have Canadian postage, a couple of IRC's should do) to RSO/Convention 84, P.O. Box 15806, Station F, Ottawa, K2C 3R7 for details.

ANARC-85 will take place in Milwaukie July 19-21 and will be sponsored by the National Radio Club.

I suspect that most DX'ers are a little tired of my constantly reminding readers to include an SASE that's "Self Addressed, Stamped Envelope" - when asking for information from clubs such as mentioned in this column. But did you ever wonder how people wrote their first letter to a DX club? You may have thought that the hostesh of the club did nothing but prepare bulletins and answer letters from would-be members... am I right?

I don't know anyone who is making a profit out of running a DX club. Most of the club work is done evenings or Sundays over kitchen tables: after the dishes are done... by ordinary people like you and me who have taken on extra responsibilities. So, when you ask for free information, have the courtesies and pay their postage (in the postage of their own country, or by IRC's--International Reply Coupons-- available at most post offices).

If you ask for a bulletin, send them a couple of dollars at least. The July "DX Ontario" costs 80¢ Canadian to send, and I'd hate to guess what it costs to print an 80-page offset booklet, complete with screened photos, color and a heavy-stock cover.

Be specific for what you request, but be willing to take last month's bulletin instead of next month's. Thank them. Please. They'll appreciate it. And by the time you become one of the volunteers in a DX club, perhaps your job will be a little easier.

That's it for this month. The deadline for the December issue is October 5; keep those bulletins and club information coming in, and thanks for passing them on.

Notes in the monthly issues include modifications and improvements, service notes and troubleshooting information, reviews of new equipment and accessories, and interfacing procedures with other equipment.

Ten issues (no August or December) are available for either newsletter per year or $16 for both. Send one dollar and an SASE for a sample.

AIRPORT FREQUENCY DIRECTORIES (available from Bob McGovern, Command Post Communications, Box 997, Las Vegas, NV 89125)

Covering all 48 contiguous states, McGovern's airport directories are listed in alphabetical order and identify the use of each VHF frequency authorized at each location.

Costs are $3 each for CA, FL, IL, KS, MN, NY, OH, OK, PA, TX and Wl; all other areas are $2 each. Additionally, lists for Washington, DC and Puerto Rico are available at $1 each.

McGovern also provides custom service frequency guides and a monitor law guide. Send an SASE for details.

SCANNER RADIO DIRECTORY (Cleveland, Ohio edition) by Ken Schrein (available from Norm Schrein, 144 Kimball Ave., St. Lucie, FL 33452).

Editor Bob Pohorence has tapped an excellent market, offering pooled information on amateur and SWL equipment from both Kenwood and ICOM.

This latest edition of Schrein's excellent directory follows the same format as those previously reviewed. In a saddle-stitched 8-1/2" x 11" full-color-covered format, the directory is arranged by name of agency or licensee, and cross-referenced.

The geographical region covers the counties of Abita- tabula, Cuyahoga, Geauga, Lake and Lorain. Agencies and services covered include business, public safety, amateur, federal government, aircraft and by law enforcement.

DESIGNING AND BUILDING ELECTRONIC GADGETS With Projects, by Joseph J. Carr (5" x 8", 396 pages, softbound, $12.95 from TAB Books, Blue Ridge Summit, PA 17214).

Joe Carr's name is well known as respected among electronic hobbyists. His byline has appeared on countless articles in the electronic media. This latest book is an example of his instructional art.

Thirteen chapters are conveniently divided into topics which include designing your own project, power supplies, amplifiers, instrumentation, timers, indicators, test equipment and construction techniques. As with all TAB books, printing quality is bold and easy to read, language is clear and readily-understandable, and the accompanying mathematics are fully explained.

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

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HANK BENNET ON SHORTWAVE
COLUMNS OF THE PAST...a few reflections

You people out there in radio land (as they used to say in the olden days) have asked and asked and we have decided to do it. We're going to do a column or two on nostalgia ranging from the present time all the way back to the days of the duck salesman.

Have you ever heard of the duck salesman? Well, I remember him and I'm sure that someone out there can tell me who it was. Tune in to this column next month and see if you can answer. Perhaps Bob Grove will be kind enough to donate another book from his library for the person who can amass the greatest score. (Sure--have at it...Bob).

For this month, though, other activity will be discussed. Besides, I don't have all of the questions fully prepared yet. I want to test them out on a couple of people I know to see how they react.

***

Other columnists surely must have people ask them the same questions that I've often been asked. "How do you get a column started?" "When do you decide what subject you're going to cover so early in the issue?" "How long does it take you to do a column from start to finish?" "Have you ever had a column turned down?"

Other columns, of which I have written hundreds, deal in station listings, which are contributed by listeners who send in resumes of their logging activities. Those columns are a snap to produce because, in effect, everyone writes the column for you. All the editor has to do is to sort out the reports, line them up in proper order and add a few hours at the typewriter. Everyone else does the work, the editor gets the credit and everyone is happy.

But not so with the present type of column that I'm doing here for you. Oh sure, I get replies - lots of them - but I'm genuinely thankful.

What amazes me is that the very great proportion of replies that I'm getting are in regard to the nostalgia columns. Certainly, the main readership of MONITORING TIMES must be people in the 18-35 age bracket, but obviously they are as much interested in the days past as the youngsters in the 35-64 age bracket are because we're hearing from them!

A LOOK BACK

For years (over 30 or them, to be truthful), I wrote the shortwave column for the eurawk News Radio Club (NNRC). I had never had any training whatever in journalism; I had been married only a short time after being recently fresh out of military service in World War II (as a radio operator, what else?)

A call came in from I.R. Potts (we called him Irvington Remington Potts), president of NNRC, who invited me to the next Board meeting of the NNRC to discuss the possibility of taking over the shortwave column from James Hart who wanted to retire from that activity. "Bring your pride with you." Mea and I took off for the Board meeting which was held somewhere in North Jersey, and before the meeting closed, we (WE, not I) were shortwave co-editors. This continued for a couple of years until the club membership, in their infinite wisdom, elected Mea as a club vice-president.

In that club you could be an officer or an editor, but not both. Mea chose the vice-presidency. This left me stuck (so the club thought) as shortwave editor all by myself. Nonetheless, she continued her ways of helping me with the column and keeping my parents off my neck around deadline time.

This system has continued through the years; she's right there ready to pitch in whenever necessary. If I want to get up in the middle of the night to work on a column, she'll light the fire under the coffee pot. If I miss a date for a deadline, and want to take a day off from work to get the column done in a hurry, she would call the boss for me and convince him that I was on my death bed. A usual amazing recovery took place the next day.

Most of my columns have originated here in the W2NA ham shack but we also worked on them in the family car, on board Amtrak or even on a Trailways bus en route to visit the kids. Believe it or not, several columns have been prepared at Mea's hospital bedside when she was undergoing surgery.

In doing a column for NNRC, it was usually best to begin with a lead story of some sort which was supposed to capture your attention and keep it right on through the station listings, the schedules, the member comments and on through the bitter end. Sometimes I simply wouldn't have anything suitable for a lead story so I'd go right into station listings and have the lead story later on (Aarright). I know the lead story goes at the start but I was the editor and put it where I wanted it. Besides, no one complained.

Then, for some 16 years, I also wrote a sister column for Popular Electronics (PE) Magazine. Fortunately I had a great bunch of reporters behind me and I usually had plenty of material on hand.

Oh - I was asked if I'd ever had a column rejected. Yup. But only the lead story part. Seems I had received a great story (I thought) from a European broadcaster, who used the story virtually verbatim. My editor didn't think much of it. Too much double talk. I wound up on his desk again (recovered the next day) and came up with a different leader.

I mentioned writing a column in a car. I had the typewriter, the paper, more than enough material to fill several pages; what I didn't have was time. As a member of the Board of Directors of the NNRC I had dutifully sent in my postcard informing the host and hostess that I would be present. This particular meeting was not one that was just around the corner; in fact it was about 80 miles distant. I contacted another member and conned him into doing the driving while I did the typing. Our car, a station wagon, had those back seats that folded up. I set up a very short-legged little table, put a pillow under my most appropriate part and got the column started.

When I worked up one of those NNRC columns, I'd take all of the reports, cut them apart and line them up by frequency in numerical order. This made a dandy line of paper strips which, in turn, made a gorgeous target for any loose breeze that happened to be in the area.

After Bob and I found out the hard way that it wasn't too considerable of him to drive along with his elbow out in the breeze, we closed the windows. By the end of the evening the column was finished.

I received many curious stares from people in passing cars; I guess it is isn't every day that you see someone going up Route 130 at 45 words per minute and 50 miles per hour!

(Exclusive for Monitoring Times)

HCJB's Flea Power
On 11 Meters
Good DX Catch

By Don Brewer, WSVUQ

CFX's 10-watts from Vancouver, Canada, on 49-MHz was the lowest powered shortwave broadcaster (MT, June, 1984), but the 100-watt transmitter into a non-directional antenna operated by pioneer missionary broadcaster HCJB in Quito, Ecuador, makes an...
interesting DX catch on 26020 kHz.

After monitoring HCJB on-and-off for 40 years, I decided last year to log this one and after about a half-dozen attempts did so around 1400 UTC last November. I used my EEB-1000 with a 65-foot wire outdoor antenna barely off the ground.

My report was verified by HCJB and I started to notice on the QSL card that the transmitter used in an old Viking II by the E.F. Johnson Company, a rig which gained on the ham bands back in the late 1950's. I wrote HCJB for more information earlier this year and received a reply from engineer John Stanley.

Stanley said that use of a low-power transmitter on 11 meters had been a dream of his since he came to Quito in 1973 for several reasons, not the least of which is the fact that he observed the over-crowding of the lower SW broadcast bands and the lack of use on the higher frequencies.

"The possibility of direct broadcast satellites using the 11-meter band gave me an incentive to occupy a channel so as to have some 'grandfather's rights' to occupy a channel on the satellite, should such become available," Stanley said.

"Use of low power was indicated," Stanley continued, "to hold down operating costs" because of the very few listeners monitoring 11 meters.

I explained that HCJB owned two old Viking II transmitters which had been discarded by hams, and that he had personally used one of them to acquire the coveted "Worked All States" award.

"They were found to tune up without modification on 26 MHz," Stanley recalled. "A crystal from the HCJB 'crystal graveyard' was found that fell on 26 MHz once when operated on the fourth harmonic; for that reason, we began operation on that frequency, using a dipole antenna about 20 feet in the air.

Because of interference between HCJB and VOA Philippines, they ground a crystal and were aiming at 26020, but HCJB stuck it.

"We ran there for awhile, but upon receipt of 'pink slips' from Canada and the United States, we broke down and bought a crystal for 26020," Stanley said.

After a few months of operation, a five-element quad was built at HCJB and put into service on a 24-hour basis aimed at target areas of the world. "Unfortunately, the quad was badly damaged when its tower fell during re-location to make a building expansion," Stanley commented. "It was replaced with a CB vertical which has served since.

"Many reports were received from North America and Europe and dozens from Africa, Japan and Australia. With declining sunspot numbers (SSN), hearing 26020 kHz will be more and more difficult, but our plan is to leave it on through the bottom of the sunspot cycle, as even with a SSN of 10, we expect occasional service. According to HCJB's latest program schedule, the 11 meter transmitter broadcasts in English from 0030 to 1100 UTC, 1200 to 1530 UTC, 1900 to 2000 and 2130 to 2200 UTC.

FAR EAST MONITORING
By Bob Dodd, Jr.

The following shortwave broadcasters are presently heard here in Okinawa and they may be receivable under ideal conditions on the US west coast.

Radio Ulam Bator is a regular on 1201 kHz, not 12070 as registered in other lists. They have English from 1200-1235 UTC. Signals are good here but modulation is mediocre with some interference from a Chinese-speaking station.

Radio Pyongyang: English to North America is excellent from 1100-1250 on 9977, 9745 is only fair at that time.

Every other sentence is in praise of "Dear Comrade Kim Il Sung" or a denunciation of the U.S. Sounds like 60's vintage Radio Feking.

Radio Phnom Penh has moderate strength signals in English from 0000-0015 on 9695 kHz. (I feel like I've been cheating after chasing these stations for years and my assignment to OK1 makes it easy! But some of those exotic South Pacific stations are still eluding me.)
This month we feature the continent of SOUTH AMERICA, not a prolific source of English broadcasts this time, but especially Chile, Columbia, Peru and Venezuela, although well heard, no longer seem to have any English language broadcasts there. Other countries such as Guyana and the Falkland Islands have services for local listeners only and cannot normally be heard on the air.

So we are left with the "Big Three"-Argentina, Brazil and Ecuador. Let us take a look at them, recognising that successful reception is very dependent on good propagation conditions (i.e. 2/17/15 kHz bands).

ARGENTINA

Buenos Aires has been operating an international service for a long time, indeed since the days of Porfirio Diaz, when it was called itself "SIRA" (Servicio Internacional de Radiodifusion Argentina) and was better heard in those days than now.

Currently, "R.A.E." (Radiodifusion Argentina del Exterior) has services to Europe and the Americas in the frequencies Brazilian, Spanish and German; and to other areas in Japanese and Arabic. However, their transmission power is between 50-100 KW which is not too hot today.

English to North America is at 22.30, 01.00, 02.30 and 4.40; each segment is for a half-hour period.

Programs consist of news with emphasis on Argentinian themes to other countries; news commentaries of political nature; and talks about the country in respect of geography and history.

There is also, of course, the music of Argentina! I need hardly add that it is the Tango which makes the musical fame of the land. Strongly, to foreign minds, this pulsating exotic rhythm no longer requires introduction for dancing! Today the tango, with accompanying vocals, is music to listen to, and of different styles depending on the origin of its composer (they may be songs of comic, romantic, or political nature!).

Argentina's DX Party Line frequencies are 15250/15115/11910/11835/6095 kHz: 1215-1530; 17890/15115/11740 (not in use now).

SUNDAYS

0055 News# 0200 Songtime 0230 DX Party Line 0300 MUSICA 0400 News# 0430 Happiness Is 0630 DX Party Line 1230 Happiness Is 1330 Morning Song

TUESDAY-SATURDAY


...also Mon.1000- Thurs.2435-Fri. 2145.

ECUADOR

Ecuador's DX Party Line frequencies are 15290 kHz: Monday 0100/0230, Tuesday 0245, Wednesday 0300, Thursday 0400, Friday 0430, Saturday 0630, Sunday 1230, Monday 1330.

ACCESSORIES FOR THE MX-5000

An MT reader recently complained that Regency could not provide additional power cords or mounting brackets for their popular MX-5000, a private-labelled Japanese AA-2001 from AOR Company of Tokyo.

We advised the prospective customer to order through a Canadian dealer, R and S Electronics (157 Maine Street, Dartmouth, Nova Scotia B2X 1S1). He was successful.

R and S is a reputable firm with also associated Grove Enterprises merchandise for Canadian customers.

SUPPORT MY ADVERTISERS!
by John Santusosso

Pirate Radio

Radio Iran: A rare reply from this anti-Khomeini clandestine claims it broadcasts in Parsi daily at 0200, 0400, 1300, and 1830 GMT on the following frequencies: 3360, 7170, 9400, 9584, 11640, 11750, and 15650. Power is 250 kilowatts except on 3360 and 9584 where it is 500, and 7170 where it is 1000. Transmissions probably originate from inside Iraq.

Despite Iranian jamming, hearing this one is not too difficult; verifying it is quite another matter. However, the response noted above is proof it can be done, and if you wish to try the Khomeini network, C/O G.C.B., 17 Blvd. Respal, 75007 Paris, France.

Programming Perspective

By John T. Arthur: From a Space Invaders game in Pecoria, Illinois, KMA, 'the Rock of the Pirates,' brings you Doctor Why? cranked the radio over HBO theme music, then Bruno Mars played over and another new station was on the air. Broadcasts with 100 to 500 watts in a dipole featured '70s rock, pirate radio news and ads for an instant pirate station.

Humbly produced promos and smooth studio themes from the Young Kids Playing Radio; with some creative input they could have become one of America's favorites. In July, however, Doctor Why? sold the transmitter and put on a tie to get a job.

KMA still offers to QSL correct reports with three mint stamps. The addresses are Box 3192, Joliet, IL 60434.

Publications: John Arthur has informed me that he has now completed the first edition of the "Free Radio Handbook" is available. You can order a copy for two dollars from DVS, 5074, Hol, HI 96720. Also available for one dollar is a copy of the "Free Radio Address Directory." This is arranged by call and slogan. Orders go to the above address.

QSL linkage: Radio Clandestine. This is a station which has done an excellent job of keeping us up to date on what they are doing. We invite others to air the reports. Radio Clandestine now has a new schedule. They plan to broadcast the first weekend of each month and the night of the 5th from 0100 and 0400 GMT. Frequencies will be 3475 and 7435 plus or minus 10 kHz.

Listeners in the Southeast have a FCC broadcast alert hearing the signal according to the station. Tangerine Radio is currently planning a medium wave service.

Don'tcha know Rick of Tangerine Radio also does some interesting logistics. One July 14 he heard the renowned Radio Clandestine from 0355 to 0435. It was a typical broadcast from this creative station with Droll the Radio Clandestine camer boy (they also broadcast the "sightseeing" being brought back to life by chief engineer Boris.

On the same day Rick also heard "The Beast" on 7426 from 0435 to 0455; he notes it was Friday 13th and local time and the moon was full. In keeping with the theme, the show consisted of ads for horror movies, bits of radio dramas and Satanic rock music. Signal strength was good.

The station uses the slogan, "Remember the phrase that pays; WBST brings out the beast in me." Rick also monitors clandestine broadcasts. He notes that La Voz del CID on 10040, and Irish pirate Radio Dublin on 6910, are audible at his location almost every evening. Rick has told us what he is hearing; what are you hearing?

QSL ORSIS: Here is some more of John Arthur's "Free Radio Directory." KPRC, box 542, Everett, WA 03433. Voice of Tomorrow, Box 20039, Ferndale, MI 48220, KST-Arctic Radio, Box 4952, Anchorage, AK 99506.


Remember when sending a reception report to a free radio station, always enclose three 20-cent stamps to pay for the forwarding of your letter and the return of your QSL. We cannot guarantee replies; they just forward mail.

Suriname: Radio pirate sometimes turn up where you least expect them. In his "El Cazador" column appearing in a March issue of DX South Florida, David Crawford writes about a former Surinamese FM pirate, Radio Mustang.

Operating from the capital of Paramaribo, the station had a power of only 8 watts and used a small state transmitter design similar to that in use among many of the Dutch pirates (Suriname was a Dutch colony before independence). Normally Radio Mustang used a frequency of 100 MHz, but on one occasion the operator could not resist driving to the transmitter site of government-owned SRS. Having tuned his portable transmitter to 96,4 MHz, he was able to override their 10-kW transmitter briefly and briefly broadcast over the 725 and 4850 kHz frequencies used by SRS.

Oman: Ever wonder what happens to some of those more obscure clandestines? One such station was the Voice of the Oman Revolution, which transmitted from neighboring South Yemen in the early 1980's.

In 1982, to the surprise of many, South Yemen signed a peace treaty with Oman, ending 15 years of hostility between the two countries. South Yemen also promised to drop its support for the Popular Front for the Liberation of Oman and began honoring its pledge by closing down the clandestine transmitter.

Most likely the reason for this change in attitude was South Yemen's growing financial difficulties. Better relations with surrounding countries would help ease the strain on its budget, which might encourage more moderate states to extend aid. Although these events were of considerable importance in the Middle East, they were not entirely ignored in the American media.

WUMS: Perhaps it has been reported elsewhere, but it seems that most of the world has yet learned of the death of one of the pioneer DXers and most famous pirate operators of the last 30 years, David Thomas. Recently we learned that a little over a year ago, in September, 1983, at age 74 he lost his battle with cancer.

Pictured for his skill as a medium and shortwave DX'er, Thomas had thousands of QSLs in his collection as well as a virtual museum of early radio stations and pirate radio operators. Most suggestive was the amount of his radio-related material that at one time the Smithsonian Institute expressed interest in acquiring.

However, Thomas' chief claim to fame was as owner and operator of pirate WUMS, a station which set a record that will probably never be broken. Starting back in 1924 WUMS broadcast for over 50 years without a license. Thomas was arrested and brought to court on four separate occasions at least four times. Once he was sentenced to four years in prison and fined $8,000. In the end he managed to have every case against him dismissed, although he once admitted to this writer that he was guilty as charged.

In the recently out of exasperation, the FCC issued him a "Certificate of Registration--Transmitter--Not Licensed," although Thomas repeatedly asked for such a bizarre document.

Sometime in the mid-70's Thomas moved from Ohio to Florida. Everyone thought the days of WUMS was over. Nonetheless, at least one transmission was made from Florida. David was determined that as long as he lived so would WUMS.
ling. The PCB Catalog Number is 391562 and the address is One Champion Avenue, PO Box 1262, Newark, NJ 07101.

Another helpful and informative operator aid has appeared on the scene, and is available at various MT advertisers. Fred Osterman of Universal Shortwave Radio Research has put together a comprehensive collection of logs, all of which have been heard in the USA.

The information is presented in a most practical, easy-to-use format, with sections for frequency order, country listings, mode/time plus two sections containing spectrum analysis charts—one section at low resolution and the other at medium resolution. You will discover very quickly that this book will become an often used addition to your collection of reference volumes.

Just before a letter for this month, I learned of the publication of an impressive detailed documentary study of cipher systems and codes used by the US Government for foreign affairs purposes during the period from the American Revolution to just prior to WW II.

Dr. Ralph E. Weber, a historian at Marquette University, has written "UNITED STATES DIPLOMATIC CODES AND CIPHERS 1775-1918." Not only does this book contain descriptions of American diplomatic systems but it also has an appendix which lists all the basic keys to the systems covered in the text.

The book is expensive, costing $49.95, but I suspect that serious students of cryptography will gladly pay this amount for this outstanding study which took Dr. Weber over ten years to research and write.

By the way, it received the National Intelligence Study Center award for "Intelligent Writing on Intelligence." The book can be ordered from Desmond Books, 7420 Grand Parkway, Milwaukee, WI 53213. The price includes shipping/handling.

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**JULY 1984 LOGGINGS**

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**"Los Numeros"**

32444 69213 88816 52196 63811 94216

**Havana Moon**

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I ALWAYS KEPT THAT MONITORING TIMES READERS WERE THE GREATEST, THANKS SO VERY MUCH FOR THE VOTES. I'M MOST GRATEFUL. This reminds me that some very long overdue "thankyou's" are due from my end of this venture for Eric Conners, John Santosoosso, Kristi-Ama and those sources that wish to remain anonymous. ALL OF YOU HAVE BEEN A GREAT HELP.

UNUSUAL INCIDENT

An apparent lack of 5-digit Spanish transmissions on Sunday (8-12-84) from 0000 to 0500 has left me rather bewildered. All known and previously very active frequencies were dormant. No known reason at this time. MT readers are reminded that "unusual incident" reports are solicited by this column.

SINNIE FLORIDA

Reliable Florida sources continue to report strong daytime 5-digit Spanish transmissions on 3090 and 4030 KHz.

A PLAIN BROWN ENVELOPE...with no return address was forwarded to me by my editor a few days ago. Copies of a "high-tech" pager article as well as a portion of a transcript of a legal trial were enclosed. I always appreciate information of this type. It took me some time to identify the city from which this envelope was mailed. Seems the post office hand stamp was blurry. The in-
LOS NUMEROS
tials of your city are L.M. Thanks for the material.

CUBAN BROADCAST FRANKENNESS?
The latest news reports in the U.S. press indicate that Fidel appears to be most defensive about U.S. criti-
cism of his 25-year-old revolutionary government. Other sources indicate that Cuban newspapers and tele-
vision and radio stations have shown more frankness in addressing Cuban complaints and attacks.

A few Western diplomats indicate that this Cuban defense by Castro is due in part to the imminent (?) transmissions of a recently created based Radio Marti.

It's also been indi-
cated that these diplomats, speaking on condition that they were not identi-
fied, say that Castro does not exactly favor the Cuban population tuning into Radio Marti, staffed largely by anti-Castro Cubans.

RETURN OF COMMANDANT DAVID? Sources continue to indicate that the legendary and popular Commandant David has resumed his anti-
Castro broadcasts on 7 MHz frequencies. Numerous checks on his past frequencies indicate that the Com-
mandant is not to be found. Any verifiable report of new frequencies for the Command-
ant are welcome.

OFF LIMITS My sources tell me that the -- by now -- infamous Warren/Mentor/Remington on 4-digit Spanish transmission sites and Western diplomats and Journalists. This is also true for areas in and around Driver, Virginia.

It was reported that the U.S. State Department has lifted Dallas restrictions on Soviet diplo-
mats and journalists during the Republican Con-
vention.

The Dallas area has a heavy concentration of defense and electronics industries.

Research is now under-
way in regards to just what areas of the U.S. are open to Soviet diplomats. Hopefully this report will be ready for publication in the January edition of MT.

A VERY NICE SURPRISE On a recent Sunday, while searching for 7 MHz "numbers" transmissions, I happened to catch one of RADIO EARTH's very well-done broadcasts via WRNO on 7355 kHz. Rather rude of WRNO to switch to 6185 kHz about the halfway point of this pro-
gram. Very well done, Jeff. You can count Havana Moon as a regular listener.

RADIO CLANDESTINE I just happened to catch the very "slick" sounding RADIO CLANDESTINE on a 7 MHz frequency a few weeks back. How about letting me know just who that fantastic "blues" harmonica player might be. Could it be Little Walter?

INTERCEPTS Alpha characters in groups of 5 at about 5 wpm on 4780 kHz at 0104 on 8/12/84. Also noted on 7005 kHz at 0206 on same date. CW mode on both trans-
missions. Rob Grove's new SHORTWAVE DIRECTORY shows FEMA (Federal Emergency Management Agency) for the first time and NASA (U.S. Air Force) for the second. Code practice?

TRADECRAFT It requires a search warrant for other than the addressee to open first-
class mail or packages. All other mailing classes are fair game for opening. If you desire a fair amount of security, ALWAYS mail by first class.

FOR THE CRYPTIC Have a go at this one:
MT DE 1NM
GR 24 BT
CISS CSSS CNSC NIASS
SSSSS NNNCG ISCIC AINSN
CAAS CICN CNSC SCIIS
NNCNN CNSC ISACN
NCIS CNSC ISACN
CSIS SAIN INISA NAS
AR SK

Clue: The first letter of the plain text is "W".

The translation and method used for the above cryptogram will appear in the December issue of MT.

Please further clues you might refer to previous articles. A histogram might also help.

NOTE That's the call sign of the newest U.S. entry in the field of international broadcasting. Target date is January of 1985. QTH is Alabama. More details in a future issue.

NOT TRUE A reliable source has just informed me that a Canadian DX publication's rather well known contrib-
utor has very mistakenly identified a well known BCB DX'er as being Havana Moon! This statement -- as this certain DX'er will be the first to admit -- IS NOT TRUE! This is a regretful incident which should be rectified as soon as possible.

Time now for a Tecate and ...

Adios,
Havana Moon y Amigas

(Thanks for the Tecate and ...)

While many imported receivers are advertised as "pocketable," one can only suspect that the orientals have such larger pockets than we have in the west!

With tongue in cheek, we ordered a test sample of the Panasonic RF-9, designed to compete with the popular "Next One" (ICR-4800) from Sony. We were pleasantly surprised.

Not only was the Panasonic smaller (5-3/8" x 2-
7/8"x 1") but it had reasonable sound for such a small box. Its lightweight 7 ounces fit neatly in a shirt pocket. Powered by two AA cells, the RF-9 provides nine bands of AM/FM and shortwave frequency cover-
age. SW bands are 3.8-4.0, 5.9-6.2, 9.5-9.8, 11.7-12,
15.1-18.9, 17.7-17.9 and 21.4-21.8 MHz (AM only; no SSB or CW).

A tuning light signals when a strong signal is properly centered in on the dial; bandwidth is sufficient considering the small size of the radio.

While some heterodynes from image interference was heard it was not overly objectionable and the receiver proved quite sensi-
tive to worldwide broadcasts using only the little col-
lapsible whip antenna and internal ferrite rod loop.

An attenuator switch helped reduce the interference from strong signal overload. A handsome black and gold decor is accentuated by a leatherette carrying case with wrist strap. A matching black earphone is included.

A tone control affords additional listening com-
fort.

Designed to sell for $99.95, the attractive RF-9 is available from several U.S. Enterprises for only $89 including UPS shipping.

BEHIND THE DIALS

For shortwave/longwave listeners with real estate problem, few antennas are as satisfactory as a good active antenna, and the new Dressler ARA 30 is a good active antenna.

Composed of a 3-1/2 foot fiberglass whip atop a rugged all-weather aluminum mast-top housing, a 25-foot length of coaxial cable with PL-259 connectors brings the signal down to the receiver and 117 VAC/12VD power adaptor.

Although specified to cover the frequency range 200 kHz through 30 MHz, the ARA 30 does in fact work far beyond that range. Our sample picked up readable signals from near 20 kHz through 75 MHz with no difficulty.

But how did the unit perform when compared with a 134-foot dipole up 25 feet in the air? We mounted the ARA 30 atop a 12 foot temporary mast and switched the two comparison antennas between an ICOM R71A receiver and a Kenwood TS430S transceiver.

The results were astounding. In virtually no case was the ARA 30 responsive to signals than the dipole and 90% of the response was equal to the dipole; the remaining per-
centage was almost always better by 10-30 dB.

But higher S-meter
NEW ARRIVALS

TRANSMITTER (BUG) DETECTOR

For those who are concerned about their home, office or car may be bugged, Capri Electronics introduces the TD-17 Transmitter Detector. Its wide frequency response (1 MHz to over 1,000 MHz) is ideal for the ARA-30 to detect virtually all RF transmitters (bugs) commonly used for surveillance purpese.

In use, the TD-17 warns of the presence of a nearby RF transmitter when the RF Alert LED turns on. A flashing range LED and audio tone give and indication of the transmitter's distance to the bug. The Sensitivity control, used in conjunction with the two LEDs, helps in quickly zeroing in on hidden bugs.

The hand-held TD-17 weighs less than 7 oz. and is housed in a high-impact plastic case. Ordered at under $200, the unit comes complete with battery, antenna and instruction manual.

For additional information, call (404) 376-3712 or write Capri Electronics, Dept. MT, Route 1, Canon, GA 30320.

HF LOOP ANTENNA FROM H. STEWART DESIGNS

If there is one thing we can count on, it is the eventual evolution of every conceivable scheme of anenna imaginable. Stewart's double-loop antenna is an interesting case in point, a phased indoor wire loop array available for the amateur 2, 6, 10 and 15 meter bands.

While centered on discrete frequencies, the loop design, called DXHA ('DX Hidden Asset'), will also work for a much larger frequency range, especially for receive-only applications.

For the stalwart experimenter with a few hours to spare on a weekend, Stewart offers to send you his plans for $1.50; a complete kit of parts and wiring along with the plans runs $39.95 to $67.95 depending upon the band.

The finished and installed antenna will be omnidirectional in performance and is fed directly with 50 ohm coaxial cable.

This is an example of 24 COLUMN PRINTING

This is a simple of 24 COLUMN PRINTING

Bit-Mapped Graphics

2. CHARACTER SET 01

---

INK color of purple or black is available on the ribbon cartridge, the latter uses only 1 watt of power while idling and 4 watts while printing.

Reverse character mode, double height and wide printing, upper/lower case characters, and automatic wrap-around are additional features.

IMPACT PRINTER, $129 from Fidelity Electronics, 8800 NW 36th Street, Miami, Florida 33178.

COMER 30K RECEIVER

Amidst a great deal of enthusiasm among listeners, Comer Communications announced a couple years back the imminent production of their pocket-sized AM/SSB communications receiver, the R30K.

With a frequency range of 10 kHz through 30 MHz and thumbwheel frequency selection, the tiny dynamo boasted excellent specifications.

But it seemed that the project never got off the ground. A few units were sold to military agencies but the advanced technology was not cost effective enough for Comer to continue the production.

We now have been informed by Comer himself that the receiver has been discontinued.
The Presence of Pidgin

By Peter de Hart

If you’re as curious as I am about foreign languages, the abundance of non-English programming on the shortwave bands is probably one of your biggest attractions. You may even feel as if sometimes do that in this case of foreign tongues there exists a real danger of minimizing the significance of the language itself. After all, the presence of Pidgin English in the world today is not only a reflection of the language but a manifestation of the people who speak it.

The presence of a program in a new or unusual language can make a statement about the population of the intended audience. It might serve as a tool for political analysis enabling the listener to question the "why" of a broadcast in a specific language. In rare instances it might even say something about the development of a nation and its people to reflect on the strides of its people toward a better life.

It is in the presence of Pidgin, an increasingly used and monitored, but at the same time somewhat misjudged, language of the Republic of Papua New Guinea.

Listeners to the "Karat" or educational service in Port Moresby on 4890 kHz have no doubt heard the English language spoken in the Papua New Guinea frequently and what seems to be at first randomly-interrupted with long rambling announcements and one-sided broadcasts. This is Pidgin, a once lightly-regarded but now important language of this South Pacific nation.

Pidgin, a "marginal language which arises to fulfill certain restricted communication needs among people who have no common language,"1 is usually a temporary phenomenon. Perhaps developing originally as far back as the Middle Ages for use between Chinese and European merchants, Pidgins of various strains can be heard in the West Indies, Africa and in the Pacific where they have found a niche in broadcasting.

Pidgins seldom become recognized as languages, but in the case of New Guinea the results might be different. If that does occur radio may take much of the credit. But the Port Moresby broadcasts using Pidgin are frequent and significant for other reasons as well.

Pidgin, as heard via the Port Moresby station, signifies by its use a change in the Papua New Guinea society. Because it is a language which is highly controversial and able to be called upon for complex explanations, it is well suited for the developing, modernizing society which is Papua New Guinea. Thus it is not surprising to hear Pidgin parliamentary debates on fund allocation for national development projects. An English explanation of the session precedes the debate.

Since it is recognized as a highly expressive language, Papua New Guinea Pidgin is used frequently instead of English to make announcements concerning issues of national security and concern. When a recent border problem in a remote province arose, a Port Moresby broadcast in Pidgin by the governor of the province attempted to quell the fears of citizens in the area.

About that time Pidgin was used upon via shortwave radio to address a health problem in the same province. Both examples illustrated for me the growing reliability and expressibility of this language, once disdained as little more than babble.

Entire programs in Pidgin on Port Moresby’s national service have not been observed here as yet. They may exist - obtaining schedules of Port Moresby programs in New Guinea are difficult, but Pidgin interviews recently aired on the Wednesday feature "Music Makers" verify the feeling that Pidgin is a more popular language that is being used.

The youth-oriented "Music Makers" features the best of Papua New Guinea’s popular young music groups such as the Red Stripe String Band, The Maruku String Band of East Sepik and the Western Edgins from Western New Britain. These bands perform fine Melanesian tunes for listeners.

It is in these Pidgin interviews with band members that are quite interesting and can with the aid of a slow speed recorder be well comprehended: Example:

Interviewer: (In English) When was your band formed?

Reply: "Cum up long August 1972..."

Interviewer: How do you go about preparing for a performance?

Reply: "Yu toky long, ya make 15 plana... Win a got five pela members, nee-dee taim an den got sampela yongpela man".

For the shortwave listener the presence of New Guinea Pidgin should wring our attention; it indicates by its use in bulletins and announcements that something important is being said.

Pidgin’s presence in broadcasts of Papua New Guinea is a harbinger of continued good, educational and significant programming to come.

Bible Verses from October 14, 1983 Solomon Star illustrate the wordliness of the Pidgin expression.

Meta 5:6-8

Sapos eniwan hemi hanggre tumas fo duim wanem God hemi wandem, babae hemi hepi tumas, bikos God baabre helpem hemi fo duim dawan an encem hemi satifer sitem man ha lhanggre hemi satifer semu hemi kaikai.

Sapos eniwan hemi sore an kan lorn naga man, babae hemi hapi tumas, man mornam God hemi kaikai. Sapos eniwan hemi bara waamen fo falom wei blong God, babae hapi tumas, bikos diskaaem man mornam babae hemi hapi wanem God hemi laek.

Pidgin Bible Verses from S.L.C.A

US MILITARY HELPS SNAKE SMUGGLERS

With drug abuse and drug-related crime on a steady increase in the United States, unusual measures are being taken by the federal and local agencies to help curb the rising tide.

The US Marine Corps is flying OV-10 aircraft to assist Customs agents while the US Coast Guard, FBI, US Marshals and ATF are drawn from and serve DEA, Immigration, Coast Guard, Customs, IRA, FBI, US Marshals and ATF.

RADIO COMMUNICATIONS

While most communications among these agencies is conducted on a routine day-to-day basis using conventional telephone circuits, radio is used to tie in surveillance aircraft, remote radar installations and undercover agents.

Frequencies in the shortwave spectrum are used for single sideband voice communication, VHF and UHF for close-in work and even satellites on an experimental basis.

Oddly enough, most of these frequencies are not classified and appear in publications as Bob Grove’s SHORTWAVE DIRECTORY and Grove’s new Federal Government microfiche and FCC Master File.

They aren’t always easy to spot as they may be hidden under military agency or contractor frequencies, but they are there, nonetheless.

EASY AS PIE

by John Dorssey

We've been hearing that some fellow radio listeners have been having trouble keeping up with their reference material easily accessible. I can't understand why. When my pile of monitoring information grew large enough to dam the Amazon River I decided to put everything in the computer.

We have enough radios around here to cover everything from DC to light... from submarine to satellites, you name it—we've got some sort of junk around here that can do a reasonable job of receiving it.

Nope, says me, the old Apple II won't have a bit of trouble sorting this info. So I took twelve bookcases full of printed matter, the same publications you have plus some bad investments, some rare, stolen items that some government agency took their work is still trying to find, and started to work.

After separating government from civilian I did the best I could to put them in the machine would be alphabetical. Unfortunately, not a damn one of my books was in alphabetical order. OK, we'll list them by frequency. Same story. List them by FCC service codes? The government list doesn't have those service codes. We decided to list them all three ways.

By some clever engineering we wired 50 hard disk drives into the Apple, a rotor was tone-actuated by an old Moden pager we had in the shack. I want you to know that this system worked fine—all the way to the letter "W." Somehow tones from the local rescue squad kept starting machines that weren't even on line.

I utilized that considering the amount of information I had to store I'd have to have a larger machine. To put things into perspective, one card of microfiche has 14,871,600 bits on it.

Fortunately, the Division of Motor Vehicles output thus far more than the Sperry system, thus far more than the one in which they kept complete license files for the State of Virginia. We bought it really cheap and only had to add three rooms to the house to hold the rascal.

So when my filing problems I solved, I think I'll tie the traverse motor on the satellite dish to the computer so it can change satellites by the clock. But that's another story.

Would you believe we got all the way to the letter "F" before we filled up the Sperry? Friend, I want you to know it gives you a funny feeling in the pit of your stomach when those three-foot-square transformers start humming, lights dim and whole system slows down. Then it happens... OVERLOAD flashing all over the screens.

I never was the kind of guy to give in to a little adversity. I'm currently devoting the Internal Revenue Service about a machine they've outgrown. It holds twenty years of every financial transaction made by every taxpayer (or nonpayer) in the country.

We've come to terms on the machine, but we're still dicing about the 41-story building I have to house it. Commuting to Oak Ridge, TN could get troublesome in the winter. Those mountain roads get icy.

The only real problem I've had with this computerized filing project is that while I've been organizing things I've been too busy to listen to my radios. And you know hope-less shortwave listening becomes if you miss Ian McFarland and Glenn Hauser two or three weeks in a row.

If you have any filing problems which I can help you with, don't hesitate to ask. My Psychiatrist, Dr. Hansoff Resagoner, will advise you which are more lucid days for your visit to the hospital. Things are very comfortable here. I did encounter some difficulty buying a scanner through these rubber walls.

Can't imagine anyone having trouble with a simple filing project. It's as easy as pie.

Strange Signals In The Ham Bands

By George J. Primavera, WA2HCB

Have you been hearing unusual signals in some of the HF ham bands lately? Have you heard the Spanish-speaking stations in the CW portion of the band? Beacon stations which repeat a single or double letter but give no other ID?

Have you ever intercepted a transmission that consisted of a Spanish-speaking woman's voice repeating 4- and 5-digit number groups for as long as a half-hour duration but giving no info as to her location or identity? RTTY transmission which were out of shift with the norm for amateur RTTY in the "phone" portion of the band?

How about those other signals you heard: data bursts, fax, clicks, pulses and other modes? Are they legal operations or intruders? Are they some kind of special activity, drug smugglers, clandestine broadcasters or guerrilla activity? Are they "pirates" who got their hands on easily available ham gear or

ham radio operators? How about those other signals you heard: data bursts, fax, clicks, pulses and other modes? Are they legal operations or intruders? Are they some kind of special activity, drug smugglers, clandestine broadcasters or guerrilla activity? Are they "pirates" who got their hands on easily available ham gear or

infamous Cuban letter beacons. The beacon signs a letter "U" at about a 3-5 second rate. The Cubans have set up dozens of these beacons in almost every portion of the HF spectrum. The Cuban Government will give no explanation as to their purpose and they keep multiplying every year.

80-METER UTILITY STATIONS

FREQ. Call Station/Location

3.607 NRK US Navy/Grind- jakvik, Iceland

3.607 TFR2 USCG/Keflavik, Iceland

3.627 NCI USCG/Naples, Italy

3.627 NC110 USCG/Rhodes, Greece

3.645 LGP Bodo Radio/ Bodo, Norway

3.650 MKE Royal Norwegian Ro- tairi, Cyprus

3.650 OSA Antwerp Radio/ Antwerp, Belgium

3.650 SBA Nicolasia Radio/ Nicolasia, Cyprus

3.695 DGC975 Deutscher Wetterdienst/ Quickborn, West Germany

3.704 DAB Norddeich Radio/ Norddeich, Germany

3.722 FFC Archachon R./ Archachon, France

3.722 FDU LeConquet/Le- Conquet, France

Canadian Hears

Russian Salyut Space Station

Gilles Thibodeau of Lac-Megantic, Quebec, reported listening to commun- naut voice communications from the Russian Salyut space station during the last mission on 142.417 MHz.

Gilles copied the radio traffic for over three hours around noon August 15, 1984. His amateur equipment consisted of only a Barecat 200 scanner enhanced by a Grove Scanner Beam antenna and a Grove Signal Amp pre-amplifier.
While the 144-148 MHz ham band is largely the domain of narrow band PM, there is a dedicated group of single sideband operators who populate the band as well.

The S.W.O.T. (Side Winders on Two) Amateur Radio Club publishes their own newsletter; membership is open to anyone as well as on an associate basis. Dues are $10 per year, including the ten-issue SWOT Bulletin and an alphabetical/numerical membership list.

SWOT members appreciate listeners' reports of reception of their signals over long distances. Most SWOT nets are on 144.250 MHz. A list of SWOT members is available for only $1.

Listeners who wish a QSL may send a verification form along with an SASE directly to the station monitored, or to the address below with additional posting for reminding to the station.

If QSL's are not necessary and you wish to help SWOT by sending reception reports over 100 miles distance, that information will be published in the SWOT newsletter.

<table>
<thead>
<tr>
<th>Day UTC</th>
<th>Time</th>
<th>Area</th>
<th>Name</th>
</tr>
</thead>
</table>
| 14400Z  | 10:00 AM | NYC | East Coast | AFTER APR. 29, 84-
| 0115Z  | 8:15 PM | Nevada, NV Activity | WA2SL/1/WA2FKB/WA2P |
| 1530Z  | 8:30 PM | Tucson, Arizona-Tucson | WA2JJ/W5DXN |
| 0000Z  | 8:00 PM | Orlando, Sunshine State | W4GP/W4FAB/K4WV |
| 0200Z  | 9:00 PM | Twin Cities, Minnesota | W9SGZQ |
| 0300Z  | 10:00 PM | So. Calif., Socal | KB7N |
| 0000Z  | 9:00 PM | Cincinnati, OH | N7BC |
| 0200Z  | 9:00 PM | Greenville, Sandlappers | N7BC |
| 0900Z  | 9:00 PM | (Inactive), So. Texas | INACTIVE |
| 0200Z  | 9:30 PM | Norman, OK, Cent. Okla. | W5SGBQ |
| 0300Z  | 9:00 PM | Spokane, Inland Empire | KB7N |
| 0900Z  | 9:00 PM | Salt Lake, Mt. States | K3HBC |
| 0600Z  | 9:00 PM | Rio Grande, Republic of Rio G | W3DXP/W5SYV |
| 0130Z  | 8:30 PM | So. Ill., "Little Egypt" | K4FL/K9HIDZ |
| 0300Z  | 8:00 PM | Phoenix, Arizona-Phoenix | KB7CH |
| 0300Z  | 8:00 PM | North Count, Noccal | WA6ZJF |
| 0200Z  | 9:00 PM | Allahuqees NM Activity | WR5|
| 0000Z  | 8:00 PM | Cleveland, N. Central Activity | KB8P/Q711/D8PQ/W8FQK |
| 0100Z  | 9:00 PM | Greensboro, North Carolina | K4CAW |
| 0200Z  | 9:00 PM | East PA, Delaware Valley | W8J/JA4AD/M8BH |
| 0200Z  | 9:00 PM | IA/MO/IL Tri-State | K8MND/K15H/M10DX |
| 0200Z  | 9:00 PM | N. Texas, Hqtrts | W3AL/K2ND/K2AG |
| 0100Z  | 9:00 PM | Chicago, Indy | K2CA/K4W/D8J/K9M |
| 0100Z  | 9:00 PM | West VA, Triple-State | W3LW/K15T/K5H |
| 0300Z  | 8:00 PM | South Count, Noccal | K6IEO/K7G/K6X |
| 1200Z  | 7:00 AM | North Texas, Hqtrts | W5DHF/K5ASZ |
| 1500Z  | 6:00 PM | ID-MT | W4NP/K9BT/9AV |
| 045Z  | 8:45 AM | MD to OH, Activity group | W4JW |
| Fri 045Z | 8:45 AM | MD to OH, Activity Group | W4JW |
| Sun 045Z | 8:45 AM | MD to OH, Activity Group | W4JW |

WE WELCOME REPORTS FROM SWL OPERATORS. SEND REPORTS OF RECEPTION WHEN DX INVOLVED IS OVER 100 MILES, TO LEN HOOPS K55LJ, 1704 GLENN DRIVE, FORT WORTH TX 76131. REPORTS RECEIVED WILL BE PUBLISHED IN THE SWOT BULLETIN.

RADIO EASES HOBBYIST'S HOSPITAL STAY

By John F. Renault

For three months this summer I was committed to some lengthy stays in two separate hospitals; knowing of the notoriously poor SWL reception in these environments, and the great lengths to prepare my SWL equipment and accessories. The hospital stated that the only requirements were the ability to set my radio shack on the radio receiving equipment. I left on the appointed day equipped with a Sony ICF-2001, a Radio Shack DX-400, an MFJ active antenna, a small roll of insulated copper wire, some alligator clips and a pocket knife.

Lo and behold, upon checking into the hospital I was pleased to find my bed was right next to the window. I had no way to set up the equipment, so I set about the task of setting up the 2001 and active antenna, holding the DX-400 in reserve. As a matter of fact, I used the smoothing out of the abnormal heart sounds--BSC, VOA and Radio Moscow were barely audible in the high noise environment of the hospital. Even local AM stations were heard very poorly.

I found myself reluctantly confined to the usual TV and radio offerings usually found in the hospital environment. Disappointment was the norm for that stay for sure.

I finally decided that an operation was required on my spine and I would be re-admitted to a different hospital in Boston. I decided that I had to do something about the situation in the usual hospital offerings of radio and TV.

After talking with several SWL's and ham operators who had been confined in the same hospital it became apparent that SWLing was not only feasible but also a welcome distraction for the patients. The biggest distraction was the man-made interference from equipment such as X-ray machines, paging systems and the like.

As my profession is as a police officer, I decided to bring along my Bearcat 20/20 and a current copy of a scanner directory. After the usual admission tests, I finally got around to setting up my scanner and programmed it for frequencies in Boston and vicinity as well as Coast Guard and Logan International airport.

Much to my surprise the scanner worked extremely well and we found just the right ratio of interesting cases being transmitted to my hospital and many other incidents I would not normally be monitoring at my suburban home location. Many nurses and patients on my floor would constantly drop in to see what was going on in the city.

When news of the plane crash spread throughout the floor the nurses were forced to limit the number of persons in my room at any one time! We had the whole incident unraveling in our ears for almost three hours before the first news broadcast began to break on the crash.

Although I personally found the staff at both hospitals to be very congenial and understanding in my quest for the unusual in listening fare, I did learn a few things that someone else forced into a hospital stay should check into before dragging a receiver inside.

Most importantly, most hospitals do not prohibit any air radio equipment which is not UL approved; and if the person is going to be in very close proximity to the Care Unit where patients are wearing heart monitoring devices, the receiver will normally be banned for fear of interference with the radio devices the heart patient is wired into for constant monitoring purposes.

Secondly, some hospitals require the receiver be equipped with the option to allow use of headphones should the patient(s) in the room be adverse to hearing the activity from the receivers.
Logging 170 Meters

by Craig Healy, Editor "Top End Yearbook" (66 Cove St., Pawtucket, RI 02861)

This note from Walter Shepherd: "I don't wish to spoil anyone's fun, but I've been in the military electronics business for over 20 years and would hesitate to believe any rumors or stories about spies, spooks or covert military usage of the 170 meter band. This is not based on direct knowledge, but on my judgement. A few notes: (1) 170 meter antenna systems are cumbersome and not compatible with mobility...a prime military requirement. (2) 170 does not offer the propagation stability of longwave. (3) D-layer absorption during daylight hours limits the application to short range transmissions. One can get short range coverage elsewhere. VHF, UHF and microwaves have plenty of spectrum, low cost and compact antennas. (4) The 170 meter band is certainly not very private.

"Transmissions can be readily monitored from off-shore." Some loggings:

1609.9 YOSEMITE NATIONAL PARK TIS
1623 ECADOR Pastaza
1700.4 Raspy pulsed signal

Atlantic Coastal Scanning

by Kevin Johnson
P.O. Box 7464
Hampton, VA 23666

(EDNOTE: The following list is part of an installment series; NT readers wishing a computer printout of the entire series may send $5 with your request to the author at the address above.)

VIRGINIA

LOCATION AGENCY DESCRIPTION FREQ
LARK NASA FD 173.6125
LARC NASA KLA TE HOLT 171.1500
LARC NASA SECURITY 173.6975
LEESBURG PD 453.7250
LOUDON CO FD F1 46.3900
LOUDON CO FD F2 46.4800
LOUDON CO FD F3 46.3200
LOUDON CO PD 155.9700
LOUDON CO PD 156.0300
MIDDLESEX FD 453.2000
NORFOLK AMBULANCE 143.6250
NORFOLK ARRC FUEL 140.3450
NORFOLK BASE EXCHANGE SECURITY 138.5250
NORFOLK CINCLANFLT MOBILE OPR 142.5800
NORFOLK DEGAUSSING 352.2900
NORFOLK FD CRASH/RESCUE 142.4800
NORFOLK FD F1 140.1600
NORFOLK FD F2 139.5700
NORFOLK FD F3 139.7750
NORFOLK GRD SUPPORT 140.1750
NORFOLK HARBOR 355.0000
NORFOLK L.Y. SPEAR 139.5250
NORFOLK LANFLT 277.9800
NORFOLK NAVY DUTY 142.6250
NORFOLK NATO 138.7750
NORFOLK NOB DUTY 149.0250
NORFOLK ORDERS 142.7500
NORFOLK ORDERS 140.9250
NORFOLK ORDERS 140.0750
NORFOLK PD 140.5250
NORFOLK PD F1 143.6000
NORFOLK PD F2 140.5250
NORFOLK PD F3 140.8750
NORFOLK TUGS ND 142.8500
NORFOLK TUGS ND 141.9500
NORFOLK TUGS F1 142.6500
NORFOLK TUGS F2 142.6000

1727 17 unmodulated carriers spaced, 825 Hz apart. (A similar signal, with a spacing of 425 Hz was heard on 1762.25-1776.20")

From Kermit Geary:
1620 Cubic Argo KAB3774
1620 SIT beacon KAB3781
1642 KAB3337
1642 KAB3795
1667 NV45 and dash
1667 USB signal, EE conversation
1692 MJJ beacon
1695 Cubat's radio

From John Ramsey:
1619 KAB3772
1622 KAB3775
1631 L225
1631 L25

MORSE-MARKED MONEY

By D.K. de Neuf, WAI5PM

Probably the only code ever minted which embraces a telegraph code is the Canadian five-cent piece of 1943 issued during WW2. On the reverse side, instead of the usual continuous head of small dots forming a frame, a message in international Morse code reads "WE WIN WHEN WE WORK WILLINGLY."

The inscription is so minute that many people are unaware of it, and a magnifying glass is usually required to read it. It also features in the center a large "V" (for "victory") which in WW2 was a Morse code interpretation of the first bar of Beethoven's Fifth Symphony - dit, dit, dit, dah. It was often called the "Victory Symphony."
<table>
<thead>
<tr>
<th>Listeners LOC</th>
<th>PD</th>
<th>468.8250</th>
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<tbody>
<tr>
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<td>PD</td>
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<td>FD</td>
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**Canadian Military Monitoring**

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**TUNE IN CANADA**

Welcome to another edition of the "Tune in Canada" column. This time we are going to concentrate on Toronto, and also some information about the expanding Weatheradio Canada system.

First of all, from the Toronto area, some frequencies of interest:

- 30.420 William Neilson, Ltd. C.I.L 48
- 79.000 Canadian Broadcasting Corp/CBC
- 118.000 Dept of Transp/VGB
TUNING IN CANADA

130.650 General Aviation Services/CJQ549
140.190 RCHF/XJ79
140.400 same/CJQ7
140.470 Ontario Prov. Amb./XM881
149.47 P (paired freq.)
143.060 Radio Phones/CHC215
148.090 P
148.105 York Telecommunications/CHC273
149.020 Christie Brown & Co/VCJ275
149.770 Bell Canada/CG501
150.100 Ontario Prov./XM884
150.160 Canadian Nat’s RR/CJX361
150.460 same/CHB604
150.510 same/CHC8
150.670 Radio Rogers/YJ731
151.170 P
151.055 General Aviation Services/CJQ549
151.075 Lombardi Scotland/VQX433
151.085 General Aviation Services/CJQ549
151.355 Commeres Gas Co/CJX362
151.565 Dufferin Materials & Const./CJX87
151.625 Alcan Colony/VCJ287
151.685 Kilmer Van Nostrand CJF661
152.180 same
152.345 Dufferin Materials/ CJQ46
153.325 Alcan-Maitinative of Ontario/CJU55
153.710 Toronto Hydro-Electric System/XJH24
154.460 Can. Motorola Elec CJQ460
154.570 Hillroy Envelopes/IN88
154.740 Bell Canada/CJG273
154.845 Toronto Hydro-Elec Sys/XJH24
155.310 Dominion Electric Co/JCM8
155.610 Can. General Electric/CK77
160.150 P
160.000 Decca Radar Can./VE6G
165.450 Royal Can. Yacht Club/CJQ17
158.010 Bell Canada/CJG273
158.160 Toronto Doug Rathman Transport/CJQ46
158.370 Foster Hewitt Broadcasting/CJY58
159.015 York Telecommunications/Galaxie
159.885 Canadian Pacific RR CZA266
159.930 same/CJU716
160.665 same/CHB866
160.875 same/CHB28
160.905 same/CHB209
161.115 same/CHB938
161.203 Canadian Nat’s RR CJQ501
161.295 same/VCX346
161.325 Can. Pacific RR CHB393
161.355 same
161.415 Can. Nat’s RR CHB641
161.475 Can. Pacific RR CHB993
162.330 CFRB Ltd./CJX836
163.320 Bell Ltd./VL775
163.350 Aprilie Contracting CJG775
163.470 Allard Radio Serv. CHO84
167.520 same
166.480 York Telecommunications/CHC273
168.480 P
168.520 same
169.725 P
170.430 P
170.650 Bell Canada/CG064
170.050 P
171.180 Premier - " " CJM741
171.900 Can. Pacific Express CJX20
171.930 Can.Bldg./Nat./CJQ350
170.080 Allway Transp. Serv/ CJQ761
172.290 Bell Canada/CG0280
172.470 Molsons Brewery VCL759
172.850 Eastern Construct. CJX2717
172.875 CBC/CJX82
166.250 P
173.900 Olympia & York Development/VCN84

There is always a lot to pick from in the Toronto area, and soon the entire area will be covered in a Fox "Scanner Radio Listings." Now on to Weatheradio Canada which transmits a cyclic weather information tailored to the interests and needs of local users. The regular program is repeated and updated at regular intervals. It may be interrupted at any time to broadcast weather warnings.

Length of the program cycle varies somewhat, averaging 5 minutes. Normally the cycle includes: severe weather warnings; current weather forecasts; synopses, giving background to the forecast; and long and short-term trends plus special weather information for agriculture, recreation, utilities, construction and transportation.

Cross-Canada weather reports, forecasts and weather information for selected vacation centers may also be featured. Program content will be adjusted to accommodate users' changing needs.

Gander—162.550; Halifax—162.550; Moncton—162.550; Quebec—162.550; Montreal—162.550; Toronto—162.475; Winnipeg—162.550; Saskatoon—162.550; Regina—162.550; Edmonton—162.400; Vancouver/Victoria—162.400; Calgary—162.400.

Until next time, have a good time in scanning Canada!

IN CROSS-CANADA WEATHER

Now on Weatheradio Canada we are offering a new service: the Weatheradio bulletin board system. The bulletin board system is a new addition to the service, and it is being introduced on shortwave each day from the American Radio Relay League in Newington, Connecticut, and retransmits them on the local repeaters.

A computer monitoring the bulletin system receives all the current weather information plus the latest amateur radio news, does shortwave propagation forecasts, and adds satellite bulletins. Just like telephone bulletin boards, amateurs from around the world have radio bulletin board systems operating on the ham bands. Locally, we have a board available each evening on the DATAS repeater. During the day, it is switched over to a frequency on the 20 meter ham band.

I carried on an extended conversation with the football season with a ham in Syracuse, New York using this board. He would leave messages for me on the board via the short wave band during the day (he was a Giants fan), and I would reply in the evening when the board was available on the local two meter band.

I operate my own radio computer bulletin system known as SU on the two meter ham band. It is based on a Model 1. Instead of ASCII audio codes, however, I use five level Baudot, as many hams have old surplus teleprinter machines that cannot be used on ASCII. This way, their old 1960's cruisers can still be put to use in talking to a computer.

The only experience having a conversation with someone in real time using a keyboard instead of a microphone is a huge change. I have used CompuServe's CB Simulator for modern communications by phone know what I mean. Using the airwaves for this kind of activity really saves on your monthly billing charges.

A new communications mode, packet radio, is another combination of computer technology and ham radio. In this mode, words are bundled into digital packets of information and sent at high speed from one

Ham Radio Communications

by Rich Casey

313 Blacey Drive
Garland, TX 75043

Amateur radio operators are generally, a rather inquisitive breed. When home computer kits like the Altair and the Imp 1 appeared some ten years ago, hams were among the first to get them up and running. The first computer telephone bulletin board system was also conceived and built by a ham. So it is not surprising that home computers have become an integral part of many modern "ham shacks."

While computerized logbooks are popular, those tracking programs and contest logs are common, the computer is really at its full potential only when it is connected to radio equipment and put "on the air."

Every brand of home computer is represented on the national short wave ham frequencies, and on our local VHF and UHF ham bands.

Using a computer, teletypewriter transmissions, ASCII tones, the Morphon, and other more exotic codes can be sent, received and decoded with equal ease.

A good example of the use of computerized technology in our area is the network of the Dallas Amateur Teleprinter Association (DATA). This group maintains a repeater on the two meter VHF ham band (146.70 MHz).

DATA's all-ASCII repeater allows sending and receiving of graphics and program listings, as well as enabling casual conversations over the air via keyboard. All that is required is a personal computer, an amateur radio modem (the audio tones used are different than in a telephone type system) and any two meter ham transceiver.

One of the unique features of the DATA system is that all current weather information is relayed by computer onto the network. Also, a Richardson, Texas ham downloads the national radio bulletin board on shortwave each day from the American Radio Relay League in Newington, Connecticut, and retransmits them on the local repeaters.

A computer monitoring the bulletin system receives all the current weather information plus the latest amateur radio news, does shortwave propagation forecasts, and adds satellite bulletins. Just like telephone bulletin boards, amateurs from around the world have radio bulletin board systems operating on the ham bands. Locally, we have a board available each evening on the DATAS repeater. During the day, it is switched over to a frequency on the 20 meter ham band.

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A new communications mode, packet radio, is another combination of computer technology and ham radio. In this mode, words are bundled into digital packets of information and sent at high speed from one
ham's computer to another. More important than speed, however, packet interchanges include Correct Redundancy Checking (CRC). This sophisticated technique, often used in disk copying procedures, assures 100% error-free copy of all received text.

In the next two years, we should see the first operational packet ham satellite launched into space. PACSAT will be a "flying mailbox" with one Meg of random-access memory on board for 1 million characters of information.

The eventual goal of the PACSAT program is to have packet stations in each major city in the world for uplinking of messages to the satellite. A local ham would send his packets to the gateway station's computer. Then, as PACSAT passes overhead, the gateway station will uplink his message to the satellite's memory, along with others it had gathered. The ground station next retrieves any that can be PACSAT's radio format, and the packets are then repeated for delivery to hams in the gateway station's area.

Experiments on one of the current ham satellites, OSCAR 10, have proven the packet relay concept. Hams around the world are helping build the PACSAT satellite, which will operate on each committee within the Garland, Texas, Amateur Radio Club is working on an automated emergency message handling concept. Their goal is to speed up transmission time for the hundreds of health and welfare messages sent in and out of an emergency area. A description of our experience in providing emergency communications in the aftermath of the Wichita Falls and Paris, Texas, tornadoes is included.

So, as you can see, ham radio and personal computers are destined to be even closer working partners in the future.

HELPFUL HINTS

**Improvements For The ICOMs**

by Dave Wilson, W5OK

I would like to share a list of observations along with some suggestions to improve performance of the top-ranked ICOM R70 and R71A receivers. First, a look at the observations.

1. The RESUME SCAN function to operate as described on page 13 and page 14 of the R71A instruction manual, the "SCAN STOP" function switch (fig. 7-3, page 20) must be in the "TIMER ON" position. As shipped from the factory, this switch is in the wrong position.

2. If either the FL-32 or FL-63 CW filter is installed in the R71A, the filter switch (fig. 7-1, page 19) MUST be set to the left (on) position or the new filter will not operate. This caveat was not included in the instruction manual.

3. The R71A actually has three VFO's; in the memory mode, any frequency may be changed simply by rotating the tuning dial. The memorized frequency will not be lost.

4. There are actually four tuning speeds on the R71A, depending upon the position of the tuning speed (TS) switch and the rotator's position. The computer, then, as PACSAT passes overhead, the gateway station will uplink his message to the satellite's memory, along with others it had gathered. The ground station next retrieves any that can be PACSAT's radio format, and the packets are then repeated for delivery to hams in the gateway station's area.

The R71A behaves in the top two speeds and the top of the cabinet. Locate the RF unit on the right side and find the two panel bandpass filter IC's. Locate diode D23 about an inch to the left and cut the upper lead; bend it out of the way making sure it doesn't touch any other component.

The R71A filter will now provide an additional +5 dB gain at the broadcast band while still switching off automatically below 500 kHz. We were impressed with this new filter and strongly advised that any modifications done to your receiver may void your warranty.

*****

**Improvements For The Kenwood R-2000**

Reader Gregory McIntire of Belle Fourche, South Dakota suggests that fellow readers share their modifications with the pages of MT. We concur.

As a starter, Gregory would like to share the some experiments he performed with his R-2000. We present his interesting letter herewith.

*****

Upon examining the schematic of my R-2000, I saw a s.p.s.t. switch which does nothing to my receiver. I took the bottom cover off the receiver and found a pin where the switch would connect and I found a wire connected to this pin. I plugged in a "blank" pin (apparently to keep the wire from flopping around). The two pins on the board were labeled.

I connected an s.p.s.t. toggle switch between the wire and the pin labeled "SSB/AM Busy Scan" and moved it to the rear panel.

When the switch is closed, the "Program Scan" feature of the radio will begin on SSB and AM the same way that it already behaves on FM; while scanning SSB or AM it will now stop on a signal strong enough to overcome the squelch setting.

Of course, the switch can be opened and the Program Scan mode will work the way it always did ("Free Scan").

**AM Selectivity**

I also took a 4-kHz-wide filter from my junk box and put it on a switch with the existing 6-kHz filter. This eliminates the 5-kHz heterodyne distortion encountered using the 6-kHz filter, yet provides better audio fidelity than the 2.7 narrow filter does.

If you have 3 I.F. filter positions for AM reception.

*****

**HEAR 2-METER SSB ON AN FM RADIO**

All you need is a programmable scanner to act as a signal indicator and you can listen to ham sSB on an FM ham or another scanner.

The procedure will also work on an automatic compandered sideband (ACSB), rapidly coming to the forefront as an emerging spectrum-conserving technology.

**HERE'S HOW**

Anyone who has ever operated two programmable scanners side by side is painfully aware of "lockup", characterized by one scanner's hearing the oscillator of the other scanner and stopping dead on the sideband.

This problem can be put to good use. If a single-sideband signal is received on a scanner it can be made intelligible by imposing a carrier and a filter carrier can come from the oscillator of a nearby programmable scanner.

For example, a common national calling frequency for two-meter SSB hams is 144.200 MHz; the intermediate frequency (IF) of most Bearcat scanners is 10.8 MHz. Add 144.200 to 10.8 MHz and enter the sum (155.000 MHz) into the signal-generating scanner.

My "Truck Shack" scanner uses as signal generators, use 10.7 MHz (after confirming that IF in the owner's manual).

Some amount of experiments must be done to assure the correct amount of signal coupling between the radio; try various degrees of coaxial connections, as well as different whip lengths on the signal-generating scanner.

We would like to thank reader Dan Mulford of Osgood, Indiana for this excellent listening tip.
TECHNICAL TOPICS by Bob Grove

Q Is there any possibility that MT could publish a monthly 24-hour time schedule of shortwave broadcast stations with frequencies and times? (D.H. Doyle, Estes Park, CO)

A With the large number of SWL hobby newsletters, the re-emergence of White's Radio Log, the venerable World Radio TV Handbook and other new books on the market, we have elected not to compete with another "me too" publication. We must admit to having given some thought to publishing a list of shortwave stations, times and frequencies offering English language programming and music. Any comments from readers? ● ● ● ● ●

Q I just bought a Regency MX-5000; is there an easy way to adapt its BNC connector to my Motorola-plug-equipped coax? (Drury Christian, FPO San Francisco)

A The handiest way to solve the problem is with interchangeable adaptors. First, replace the Motorola plug on your coax with a standard PL-259 coax connector. Then you may use two standard adaptors (available from Radio Shack): an SO-239 to Motorola (RS#278-208) for standard scanners, and a UG-235/U (PL-259 to BNC; RS#278-120) for Regency. ● ● ● ● ●

Q My Bearcat 210 won't stop scanning when an active 49 MHz cordless phone appears on frequency. Has anyone solved the problem? (Jimmy Tucker, 26558 Ashley St., Dearborn Heights, MI 48127)

A As reader Tucker pointed out in his letter, three squelch systems are used in the BC-210: 2 kHz tone bypass, frequency detector (adjacent channel) squelch, and 8.5 kHz audio noise squelch. It is probably this latter circuit which is sensing the 8 kHz pilot tone on the cordless telephone carrier, disabling the squelch.

Since you have a service manual, try reducing the capacitance of C26 and C27 from 470 pF to 100-220 pF; this should raise the frequency of the op amp far enough away from the 8 kHz track in MT, but look for the resistance of R25 from 18 K to 22-47 K might also work. Try it; if that doesn't help you can always reconnect the original components.

Has any of our readers thoughts on this problem? ● ● ● ● ●

Q Cellular mobile telephone is starting up here in the Phoenix area. Are these FM systems and where can they be monitored? (Doug Hanke, Wess, AZ)

A The 806-960 MHz portion of the spectrum is now enjoying explosive growth in larger metropolitan areas which have saturated allocations in UHF, high and low bands.

Cellular mobile radio was discussed a few months back in MT, but look for the mobile phones in the 833-845 MHz range, with bases in the 880-890 MHz swath. ● ● ● ● ●

Q Can I use my Sony AN-I active antenna for transmitting on CB? (Mike Plummer, Nappanee, IN)

A NO! All active antennas are designed for receiving only; no provision is made to bypass the delicate internal components for the brutal force of transmitted signal. You would positively cause extensive damage to the small-signal amplifier; in fact, many active antennas can not even be used in the proximity of transmitting antennas without running the risk of burnout. ● ● ● ● ●

Q How can I predict where harmonic frequencies will be heard? (Taylor, Brandon, Manitoba)

A Signals heard at multiple spots on a receiver may be caused by several things: transmitter harmonics, intermodulation, cross modulation and images are by far the most common.

Briefly, transmitter harmonics are the fault of the sender, whose transmitter sends out not only the assigned frequency, but whole-number multiples as well. Thus, if the fundamental frequency is 11.850 MHz, a second harmonic may be heard at 23.700 MHz.

Harmonics are inevitably weaker than the fundamental, but due to propagation they may actually be heard louder at some distance away.

Intermodulation and cross modulation are the result of two or more strong signals mixing together to produce "products" (other frequencies); this may occur internally in receiver circuitry or externally in metallic junctions. Their resultant amplitudes are unpredictable without knowing all the variables involved.

Images are also produced by the receiver and will be heard by an amount exactly double the intermediate frequency (IF) away.
from the correct dial setting. For example, most Bearcats have an IF of 10.8 MHz; it is common for aircraft signals to be heard 21.6 MHz above their actual transmitting frequencies. That is why 133-134 MHz aircraft transmissions are commonly encountered in the 154-156 MHz police and fire band.

Radio Shack and Regency scanners have a 10.7 MHz IF; their images will be heard 21.4 MHz away.

External preselectors will reduce or eliminate images, intermod and cross modulation.

Q: What is the purpose of the converter jack on the back of my ICOM R-701? And how do you select the accessory connector? (Craig Rocha, 2542 Hobley St., San Diego, CA 92123)

A: ICOM is very reluctant to provide technical information on products they don’t have. Unfortunately, ICOM never came out with a converter, nor have they yet released the promised computer interface for the R-71A, nor, at this writing, will they provide any information about it.

Any of our readers help Craig on this one?

to get into it including an explanation of how the two-digit hexadecimal system functions.

A reasonable clear explanation of decimal/binary/hexadecimal conversion appears in the August 1984 edition of Radio Electronics. See sub-heading, "Binary, Decimal, and Hexadecimal" on page 54 which appears within an article dwelling on interfacing a Z80 Computer.

Over the years I’ve made a lot of home brew equipment and much of it seems like a good idea at the time, but proved otherwise. This one has exceeded my expectations and I thought it worthy of passing along.

Don Schrank
21229 Laudagne Avenue
Torrance, California 90403

One of our readers discovered that he could enjoy better 225-400 MHz military aircraft reception on his Regency MX-5000 if he inserted a 225 MHz high pass filter between his antenna and the radio.

High pass filters are commonly used to prevent front-end overload by strong signal saturation from the lower frequencies. The filter may be built in any small box using very short leads and your choice of connectors.

Capacitor values are standard and may be ceramic or mica; even trimmers may be used if you have test equipment available for alignment.

Coils may be hand-wound if suitable commercial units are not available. Start with three or four turns of approximately .022 solid on a 1/8" diameter form; actual configuration will have to be determined by experiment.

IMPROVED UHF ON THE MX-5000

VIN

5.6 µF

4.7 µF

4.7 µF

0.032 µH

0.032 µH

50 µ

To FRG-7700

256-CHANNEL MEMORY ADDRESSER SCHEMATIC

FRG-7700 256-CHANNEL MEMORY ADDRESSER SCHEMATIC

DIN: Don Schrank

DATE: MAY 14, 1984

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EICO 9508 resistance/capacitance bridge-comparator, excellent with manual. $35.
MODUBLOX SRPX-01 solar power pack, provides 2 VDC at 10 AH (125 watt-hours), features satellite-grade solar cells and built-in batteries. Includes plug-in night light. Compact leather carrying case included. New condition; cost $1500, sell only $500 UPS.

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**INFORMATION PLEASE**

MONITORING TIMES will print at no charge (as space permits) announcements and questions of a non-commercial service nature.

Anyone interested in making printed circuits without using messy chemicals please write Ken Hand, W5ZEU, P.O. Box 708, East Hampton, NY 11937.

Need military electronics manual source and any contacts for data encryption. Al Smith, Box 280, Wamsutter, WY 82336.

Wanted! Info for "technical modifications" of the COLLINS-Radios, types: R288 (51 J 4), R390 A and R392. If anyone can help, please answer to, P. BRUNS, Stupfstr. 2, D-8 MUNCHEN 19, West Germany.

Is there a need for a monitor receiver crystal exchange? Send comments to Bruce Owings, WAGBPV, 2481 Glain Drive, Norcross, Georgia 30071.

INFO PLEASE: Technical aspects of broadcasting antennas like HCJB's steerable array; A printed transcript of the audio seminar held on two maters September 14; Instructions on making a home-brew 5 kHz slot filter. Richard L. Baumgart, P.O. Box 725, Columbus, N.Y. 13060-0725.

(How about it, readers—can anyone help Richard?)

WANTED: Information, catalogue pictures, manuals, what-have-you for the following radios: SEARS Silver-tone 1949-model 9008, RCA Model 9-X-$62 year (?). Please advise of what you have and price. Xerox OK. Tom Mooningham, P.O. Box 8512, Camp Lejeune, NC 28542.

**ELF**

A CAMPAIGN ISSUE?

John Stauber, spokesman for the Wisconsin-based "Stop Project ELF" was quoted recently as saying, "As long as Reagan is in office, ELF will sail through Congress."

Project ELF, an extremely low frequency (75 Hz) data communications system to contact submerged submarines worldwide, has come under considerable fire from conservationists concerned about signal radiation.

Miles of wire antennas have been laid in the upper Michigan and Wisconsin (Clam Lake) areas in spite of claims by environmentalists that not enough environmental impact studies have been made to justify the risk posed by the $240 million U.S. Navy installation.

August 16 U.S. Supreme Court Justice John Paul Stevens refused to block work on the project expected to be operational by mid-1987.

(Thanks to MT reader Bob Skvrnik for sending the news clipping which provided this latest information.)

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