

pg 15

\$1.75

MONITORING TIMES

Volume 3-Number 10

BRASSTOWN, NORTH CAROLINA 28902

October, 1984

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 entertain-

ment 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.

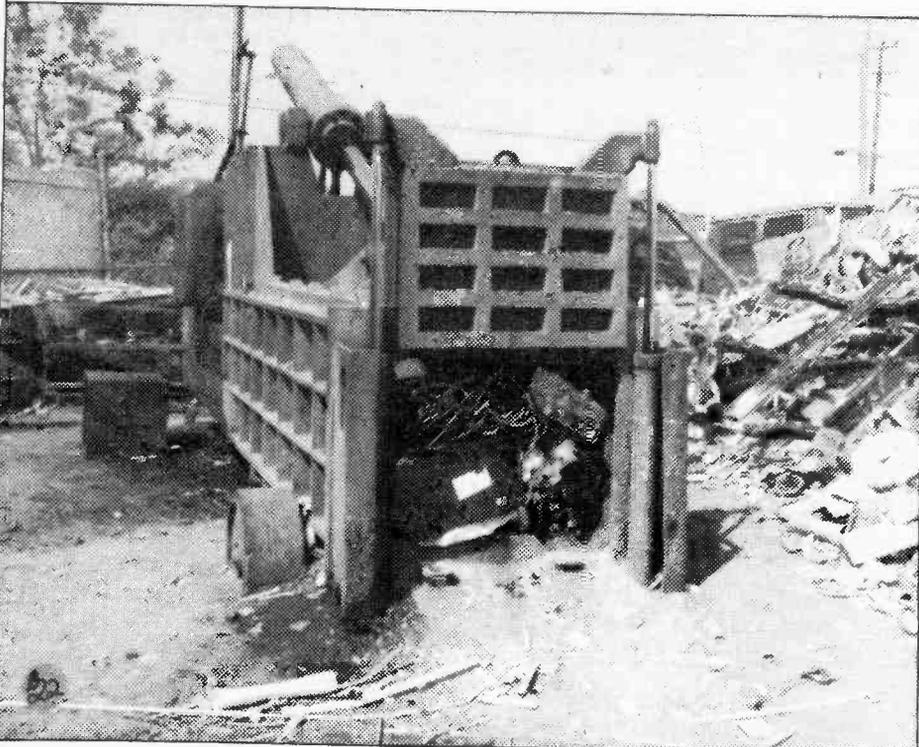
The FCC asks that anyone having information about the manufacture, sale or shipment of CB linear amplifiers send the name and address of the manufacturer, store or shop to:

FEDERAL COMMUNICATIONS COMMISSION
870 North Military Highway
Norfolk, Virginia
23502



Here J.J. Freeman of the Norfolk District office of the FCC inspects a cube of compressed junk which, moments ago, was part of the U-Haul truckload of seized CB contraband.

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.



INSIDE THIS ISSUE:

**Part Three of
MT Exclusive
SAC Coverage**

**Reviews and
improvements
for the:**

**JIL SX-400
Regency MX-5000
ICOM's
Kenwood R-2000**

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.

TABLE OF CONTENTS

FCC SEIZES CB GEAR.....1	NEW ARRIVALS.....22
EDITORIAL: Computer Age.....2	PRESENCE OF PIDGIN.....23
ARRL CONSIDERS UNIONIZING..2	US MIL SNARES SMUGGLERS...23
VIEWPOINT.....3	COMPUTERS DO ANYTHING....24
COMMAND POSTS (SAC).....3	STRANGE SOUNDS.....24
WHAT TIME IS IT?.....6	SIDEBAND ON 2 METERS.....25
JIL SX-400 SCANNER.....7	RADIO IN HOSPITAL STAY...25
HIGH SEAS.....8	LOGGING 170 METERS.....26
SIGNALS FROM SPACE:DBS....9	LISTENERS LOG.....26
ABOUT THE MX-5000.....10	TUNE IN CANADA.....27
RTTY/FAX.....12	BITS.....28
CLUB CORNER.....14	HELPFUL HINTS.....29
LIBRARY SHELF.....15	Icom Improvements
BROADCASTING: H. Bennett...16	Kenwood R-2000 Improvements
HCJB's Flea Power.....16	2-Meter SSB on FM Rig
English Language.....18	TECHNICAL TOPICS.....30
PIRATE RADIO.....19	DREAM MONITORING POST....30
UTILITY INTRIGUE.....19	EXPERIMENTERS WORKSHOP...31
LOS NUMEROS.....20	STOCK EXCHANGE/INFO PLSE..32
BEHIND THE DIALS.....21	



MONITORING TIMES

Bob Grove.....Editor

Judy Grove.....Office &
Advertising Manager

Mitzi McCoy.....Subscriber
Services

Rachel Thomas.....Production

Monitoring Times is published by Grove Enterprises, Inc., 140 Dog Branch Road, Brasstown, NC 28902. Phone 704-837-9200. Copyright 1984. Subscription rate: \$10.50 for one year, \$20 for two years, \$30 for three years. Canada and Mexico add \$9.50 per year. Foreign subscribers: surface mail add \$9.50 per year or air mail add \$28.00 per year.

CAVEAT EMPTOR

Some months back MT reviewed a new publication giving the point of purchase address as "Auburn Wolfe Publishing Company."

A complaint from one of our readers, Ray Gallagher, prompted our investigation as to the legitimacy of the company since addresses for them have appeared in other periodicals as variously being in Tahoe City, California, Holmes, Pennsylvania, and San Francisco, California.

A check with the operators of those areas showed no telephone listing for the company. Since the complaint of the MT reader concerns non-delivery of advertised materials for which payment was accepted, we must advise our readers to use caution in dealing with that company until we are satisfied that they are meeting their obligation. ●



REMEMBER!

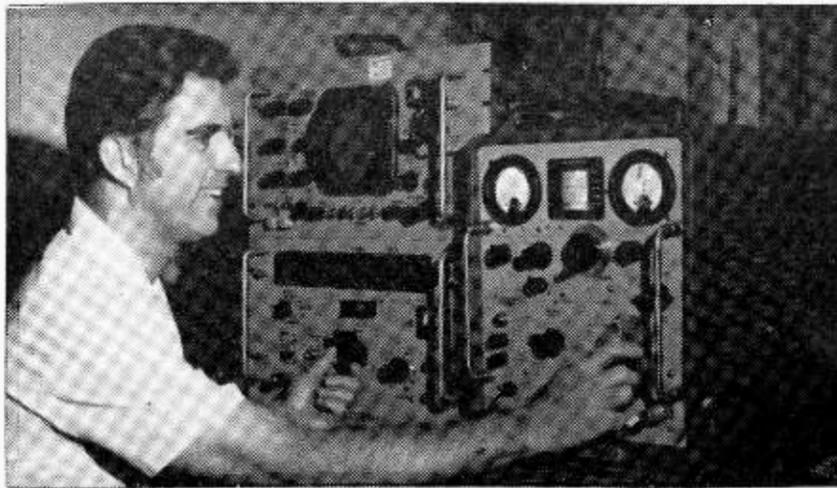
"S.A.S.E."

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

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

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

FROM THE EDITOR



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, check-out 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 transformation from manual and mechanical control to digital technology. Colleges, universities and technical schools have responded to the demand 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 intercommunications--interlinked terminals. Radio-frequency communications and voice exchange are all but forgotten in the bandwagon zeal to forge 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, busywork 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 increased computerization of radio receivers? Telephone us toll-free during September only with your vote. Call us (1-800-438-8155) weekdays from 8AM to 5PM 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 feel back in control).

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

SPECIAL MT REPORT BY BOB GROVE

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!

The American Radio Relay League, publisher of the magazine QST and the Radio Amateurs Handbook among dozens of other technical and operational manuals covering all aspects of ham radio, was founded early this century to act as a fraternal guardian of amateur radio in the United States.

Over the years there has been growing suspicion that the organization was becoming top heavy with self-serving executives who high-handedly disregarded the wishes of both the working staff and the amateur community which supports the League.

More than 100 persons at the Newington, Connecticut facility were affected by the negotiations; the National Labor Relations Board disqualified more than 30 employees as being management or supervisory, thus ineligible to vote on the unionization ballot. Of the 70 labor-classified voters, 49 cast ballots against and 12 for the union.

The League spokesman stated, "This should not be considered a defeat of the union; another ballot is scheduled by the NLRB to be cast in one year. Rather, it is a mandate for the directorate to relate more closely to the employees rather than usurp control of the management."

Prior to the balloting, a Massachusetts management consulting firm, OMNI, was brought in to "defuse" the growing tension. Employees sensed that management was faltering under the high-handed tactics of the 16-member board of directors.

Donna Camera, former secretary for present General Manager Dave Sumner, resigned recently after 11 years of service to the League.

Terrance Ward, attorney for the employees, recommended that an in-house union (ARRL Employees Association) would be preferred to a national or international group like the Communications Workers of America.

It will be interesting to see whether the special balloting will be interpreted by the ARRL directorate as a vote of confidence or one last chance to regain the respect and trust of the ARRL staff. This next year will provide that answer. ●



Viewpoint

Re: Sept 84 edition MT page 6 - article on "Unusual Utility Signals" by James Owen.

In response to his 2nd to last paragraph regarding 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 TOR (ARQ and FEC modes) i.e. synchronous RTTY at 100 Bauds, and they can be copied with suitable decoding equipment, e.g. Infotech M600A, 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, 12/13, 16/17 and 22 MHz. Channel spacing is 500 Hz and frequencies are paired for duplex operation to ships.

P.S.: UAT=Moscow Radio USSR; UFN=Novorossiysk Radio USSR

(Allan Bennett, Wellington, New Zealand)

>>>><<<<

Have you considered a CB column--or articles--? There are still a lot of us who have modified sets operating SSB on frequencies above 27.405. Not many real technicians but we mostly can tell a transistor from a dipole. (L.M. Massachusetts)

(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 Radio Frequency Management" is available from Executive Secretary, IRAC US Dept. of Commerce, NTIA Room 1605, HCH Building 14th 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 notes on 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 (NAVCAMSLANT) located on the Naval Base (NOB) in Norfolk. It is housed in a two-story windowless building, connected by an overhead enclosed walkway to the base H.Q. building; microwave towers adjoin it.

Ongoing message traffic between the shore-based commands and the ships afloat 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 Receiving Facility and relayed to NAVCAMSLANT by microwave. It is located on Ballahack Road, about three miles west of SR 168 in Chesapeake, VA (about 20 miles south of NAVCAMSLANT). This facility is manned by active duty Naval Personnel and civil 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 encrypted, 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 NAVCAMSLANT.

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 source near the receiving facility could jeopardize the reception of weak incoming signals by overloading the receiver front-ends. 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 articles, 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 (WWABNCP or "wabincap") which is the backbone of the Post Attack Command and Control System (PACCS): The airborne command post aircraft include the SAC Airborne Command Post ("Looking Glass") and two Auxiliary Command Posts. Three Airborne Launch Control Centers (ALCC), two radio relay aircraft and the National Emergency Airborne Command Post make up the rest of the PACCS.

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 callsign, and contrary to what you 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)

SAC COMMAND POSTS

transmission...certainly not on HF radio! About the only time it is used on the air is on UHF to demonstrate the communication link to visitors in the Underground Command Post.

The callsigns "Looking Glass" and "Command Post" are used when visitors are present in order not 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 (including CINCSAC, 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 crewmembers are the Emergency Action Team and are responsible for decoding Emergency Action Messages. The EAT and communication crews usually stay together as a team for every mission.

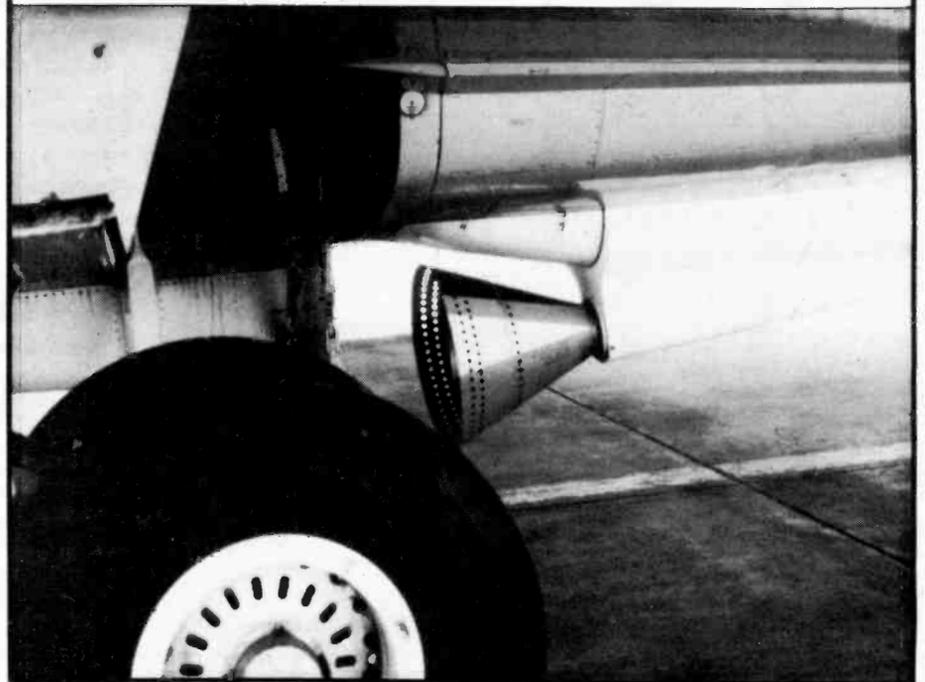
The next position (empty in photo) is the Missile Systems Operator which is not manned during routine operations. Then comes the Emergency Action Officer (General Bennie Davis, Commander in Chief of SAC in this photo) and the final position (foreground of photo with empty chair) is the Communications 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 "Go-Codes" which would allow the deployment of nuclear weapons. The AEAO and the Operations Officer each have a key to ONE 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, who also serves as Target Intelligence Officer; Chief of Planning Staff and Logistics Controller.

Forward 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

This drogue is attached to the five-mile-long copper longwire antenna used for the SVLF radio system. (photo by Art Lewis)



equipment on the port side and AFSAT, LF, VLF, AUTOVON and DATA equipment on the starboard side.

Just 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 become 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 NEACP, 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 squadron. 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 in 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.



The "battle staff" section of a LOOKING GLASS during an actual mission. In the foreground of the photo is the Commander-in-Chief of SAC, General Bennie L. Davis, acting as Emergency Action Officer on this mission. Every SAC general officer must fly LOOKING GLASS on a regular schedule. (SAC photo)

SAC COMMAND POSTS

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 WWABNCP if we intended to attack. As a matter of fact, the Soviets have nothing like it!" As General Davis puts it, "What deters the Soviets is the knowledge they could not gain enough by initiating 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 control of all SAC bombers and missile sites. All SAC bombers have been launched and are enroute to their "Fail Safe" points. All missile crews are on hard alert and waiting for the orders to launch.

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

Since we have assumed that the Underground 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 dif-

ferences between AABNCP 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 E-4A airborne command posts. Another contract for \$27.2 million was awarded in July for a third, and in December another contract was awarded for \$39 million for a more sophisticated version, the E4-B.

These aircraft were first intended to replace the EC-135 AABNCP. 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 by January, 1985.

Improvements in the E4-B include larger battle staff area, a more powerful air-conditioning system to accommodate the avionics, nuclear thermal shielding (EMP protection), acoustic controls, and improved technical control facility and new SHF and dual Collins VLF/LF communications systems.

The SHF antennae are housed in a dorsal (top) fairing which gives the E4-B 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

An E4-B 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 E4-A models. (Boeing Aerospace photo)



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 fields allowing NCA and JCS personnel to be boarded wherever necessary.

The E-4B can take off from a 5,000 foot runway with 8 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 with in-flight refueling, for 72 hours.

No less than 46 antennae provide communications over 13 different external communications systems rang-

ing 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 jam. One of the highest priority activities ongoing today in the Air Force is anti-jam communications.

The NEACP is equipped to interface with AUTOVON, AUTOSEVCOM, AUTODIN and SACDIN. 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 AABNCP, NEACP also can communicate directly with ships at sea, submarines, and surveillance and fighter aircraft, and with the National Military Command Centers.

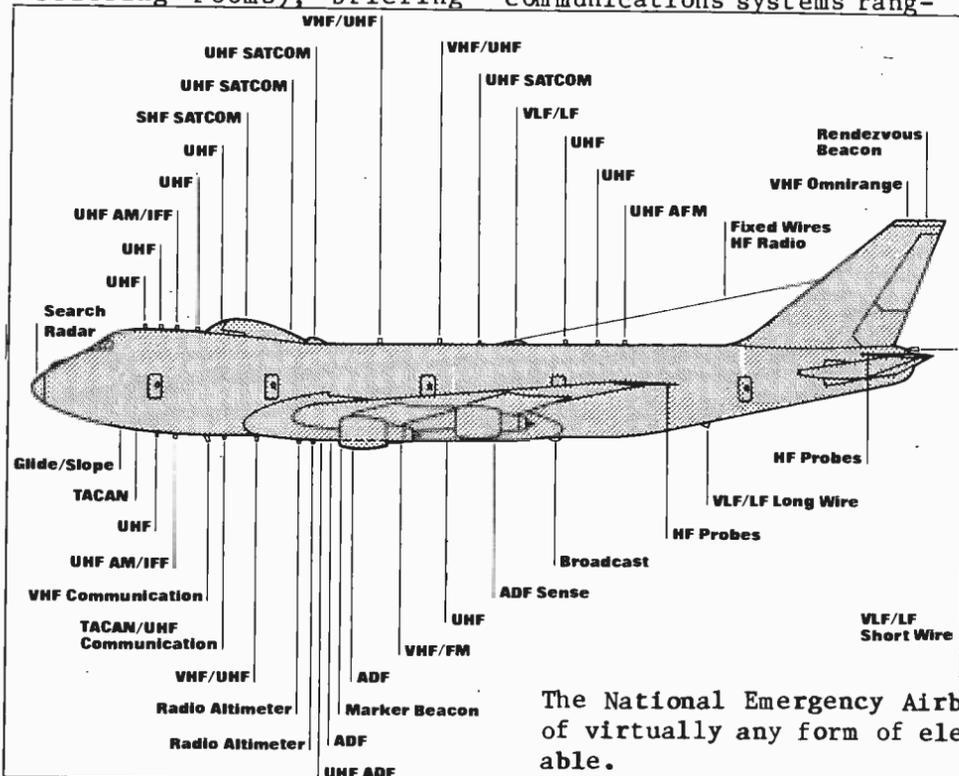
The one item that the NEACP does not contain is equipment to launch missiles; this is not a function of NEACP. While NEACP is designed to authorize the launching of missiles it is not capable of carrying out the launch. That point is an important one to remember in the light of recent publications which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

One system, the details of which are highly classified, provides for those who are designated to be aboard, including the President or 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.



- SCANNING ->

J.I.L. SX-400

SCANNER RECEIVER

By Robert Kelty, Mobile Radio Resources

Professional Ultra-super multiband radio/computerized programmable scanner. That's Japan Industries Limited (J.I.L.)'s claim for the new SX-400 series receiver covering the basic 26-550 MHz band, extending down to 150 kHz and up to 960 MHz when converters and other options become available in September 1984, according to a J.I.L. Company spokesman.

Hobbyists on the watch for the latest scanner will be pleasantly surprised and delighted with an excellent keyboard and display, easy entry discipline and attractive styling.

Serious enthusiasts eager for the ultimate computer-interfaced receiver with full EIA specifications, unblemished performance and circuit boards worth removing housing covers to show off, your time is still to come. The SX-400 is not quite that, even at \$740 list plus external REGULATED POWER SUPPLY (sic) that adds \$43.

But it does show that J.I.L. has identified buyer demand for a "high tech - user friendly" scanner receiver with remote control interface even though pin connection assignments are not supplied for the 34-pin connector. Those should be available in the technical manual expected in September 1984.

First impressions convey good looks, convenient keyboard with 49 functionally grouped, clearly marked buttons and easily-read green LED display with analog S-meter. Less often-used function switches hide behind a left front panel doorlet, out of sight until needed while rotary controls line the indented lower panel section. The rear panel carries interface connectors.

Standard features include priority, scan speed (4 or 8 channels per second), frequency block search (8 or 16 channels per second), wide-narrow bandwidth selection, AM-FM mode, channel increment switches, recorder output, external speaker jack, front panel telescopic antenna, 12-hour clock and DC memory backup.

Standard extras provide S-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, easy 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.

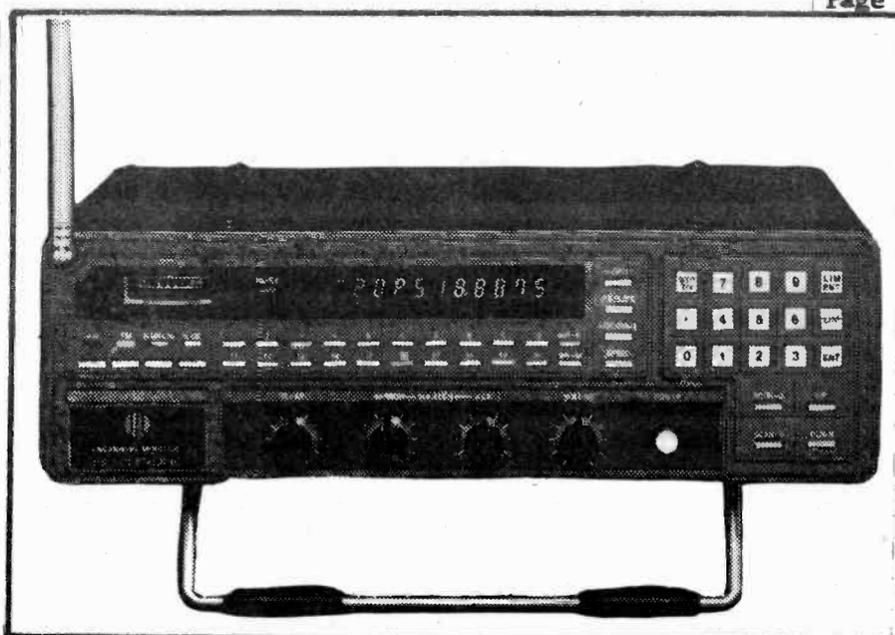
Frequency transfer from one position assignment to another is also possible though not shown in the manual.

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 disallows programming mixed increments within the two major frequency blocks, causing the microprocessor to 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 skate 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 sequence 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-sided circuit boards carry CMOS devices with many jumpers. This has no effect on performance but adds to cost as no automated assembly is apparent.

The phenolic UHF-type antenna connector, three AA size memory dry batteries



MONITOR



Do it yourself and save. Why pay for someone else to have all the fun? 73: *Amateur Radio's Technical Journal* publishes more easy-to-build construction projects than any other ham magazine. Every issue is packed with simple articles that will put your soldering iron to work.

Stay informed with the latest ham news. 73's monthly columns give you the facts you need:

73 International—learn about foreign contests, reciprocal licensing laws, and how hams operate in other parts of the world.

New Products—find out about the latest state-of-the-art equipment.

Reviews—comparison-shop from home and save money.

DX—get DXpedition updates, profiles of famous hams, and tips for beginners.

Never Say Die—publisher Wayne Green's bold editorials are sure to give you something to talk about.

Subscribe to 73 today. A full year (12 issues) is only \$19.97. You'll save nearly \$10.00 off the regular newsstand price. Just fill out the coupon, or call (toll free) 1-(800)-258-5473 and charge it.

Order 73—ham radio never sounded so good.

YES! I want to monitor 73. Send me 12 issues for \$19.97.

Check/MO MC Visa Amex Bill me

Card # _____ Exp. Date _____

Signature _____

Name _____

Address _____

City _____ State _____ Zip _____

Canada & Mexico \$22.97/1 year only, U.S. funds drawn on US bank.

Foreign surface \$39.57/1 year only, U.S. funds drawn on U.S. bank.

Foreign airmail, please inquire.

Please allow 6-8 weeks for delivery.

736RMT

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

SCANNING

and component choice follows the 1970's design characteristics.

A telescopic antenna housed within the cabinet is connected through a non-coaxial 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.

To 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 boards concentrated on this receiver element.

RF amplifiers are used rather than placing major gain after selective elements later 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 with this wide spread, peaking circuits to frequencies of main interest in each section is recom-

mended to achieve best sensitivity.

Although the RF assembly represents a 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 4 watts, audio measures 2 watts with a test tone. Excessive high and low frequency response amplifies an irritating amount of no-signal noise with the receiver squelched, and tone squelch "hum" with the receiver unsquelched, both of which become more noticeable in a quiet room.

Connecting a more efficient front-directed external speaker only emphasizes audio and squelch deficiencies which amount to imperfect audio stage muting.

RF sensitivity meets or exceeds published specifications for most band segments and selectivity seems adequate to reject all but strong closeby signals in the more densely 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 com-

mercial 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.



by James R. Hay

Last month I promised to continue looking at U.S. frequencies; let's take a look at some low frequency telegraphy.

Freq.	Coast Guard User
420	NMC San Francisco, CA
432	NMG New Orleans, LA
440	NMO Honolulu, HI
	NMA Miami, FL
450	NOX Adak, AK
466	NRV Guam
	NMN Portsmouth, VA
	NMR San Juan, PR
	NOJ Kodiak, AK
470	NOJ Kodiak, AK
472	NMF Boston, MA
	NMQ Long Beach, CA
	NMC San Francisco, CA

The frequency 410 kHz is reserved for direction finding purposes and 500 kHz is the International Distress and Calling frequency. 512 kHz is set aside as an intership safety channel and is used as a secondary calling channel when there is distress traffic on 500 kHz.

The following list indicates commercial stations also operating on low frequencies.

Freq.	Coastal Station
416	WPA Port Arthur, TX
418	WSL Amagansett, NY
420	WPD Tampa, FL
428	WMH Baltimore, MD
436*	WCC Chatham, MA
	KFS Palo Alto, CA
434*	WLO Mobile, AL
438	WLO Mobile, AL
442	WSL Amagansett, NY
460	WCC Chatham, MA
472	WPE Lantana, FL
	WKR Nome, AK
476	KFS Palo Alto, CA
	WSL Amagansett, NY
478	WNU Slidell, LA
484	KLC Galveston, TX
488	KLB Seattle, WA

Now moving up to the higher frequencies, here are some of the commercial telegraphy frequencies.

KFS Palo Alto, CA		
2037.5	6365.5	12844.5
2061.5	8444.5	17026
4228	8445	17184.8
4274	8558.4	22425
6348	12695.5	22515

KPH San Francisco, CA		
4247	12808.5	17016.8
6477.5	13002	22479
8618	17016.5	22557
8642		

WOE Lantana, FL		
4292	8486	17160.8
6411.35	12970.5	22503

WPD Tampa, FL		
4274	8615.5	17170.4
6365.5	13051.5	

WNU Slidell, LA		
4294	8525	16861.7
4310	8570	17117.6
6326.5	12826.5	22431
6389.65	13011	22458

WMH Baltimore, MD		
2063	6351.5	12952.5
4346	8610	12952.9
6333.5	8686	17093.6

WCC Chatham, MA		
4238	8630	16972
4268	12925.5	16973.45
4331	12961.5	22348.5
6333.5	13033.5	22366.5
6337	16904.9	22518
6376	16933.2	22521
8586		

WSL Amagansett, NY		
4342.65	8658	16997.6
6414.5	12660	17021.6
6416	12997.5	22485
8514	13024.9	22487

KLC Galveston, TX		
4256	8666	16871.3
6369	13038	22467
8508		

WPA Port Arthur, TX		
4322	8550	16918.8
6435.5	12839.5	22318.5

As I have mentioned in a previous column, these are the Coast station frequencies: the ship frequencies are not given. In the automatic marker transmissions the frequency is often given, or it is one of a family of frequencies.

U.S. Coast Guard voice communications utilize 2182 kHz as a calling and distress frequency: also 2670 is a U.S. Coast Guard liaison frequency. Other suggested frequencies to hear the Coast Guard are 2103.5, 2667 and 5422.5 kHz, all upper sideband.

Your correspondence is welcome, particularly if you have suggestions for topics or have noticed an error or mission. Direct all correspondence to: James R. Hay, 141 St., John's Blvd., Pointe Claire, P.Q., Canada, H9S 4Z2.

J.I.L. SX-400 PRICE SUMMARY

		Suggested Retail	Announced Availability
SX-400	Receiver	\$739.90	now
P-1A	Power supply	42.90	now
15026	RF converter (150 kHz-26 MHz)	599.90	SE84
80960	RF converter (800-960 MHz)	999.90	JA85
RC4000	Data interface with disc (for NEC 8801A computer only)	299.90	SE84
Receiver and options complete		\$2682.50	

BAND	FREQUENCY	MHZ SPREAD	MODE	SPEC SENS	MEAS SENS	PEAK FREQ
1	26.0-33.995	8	AM	0.5	0.2	30.0
2	34.0-49.995	16	FM	0.5	0.2	42.5
3	50.0-67.995	18	FM	0.5	0.2	52.5
4	68.0-87.995	20	FM	0.5	0.2	74.0
5	88.0-107.995	20	FM	0.5	0.15	100.0
6	108.0-139.995	32	AM	0.5	0.3	130.0
7	140.0-179.995	40	FM	0.5	0.3	160.0
8	180.0-219.995	40	FM	0.5	0.4	200.0
9	220.0-299.995	80	FM	0.5	0.5	260.0
10	300.0-379.995	80	FM	0.5	0.5	340.0
11	380.0-459.995	80	FM	0.5	1.5	450.0
12	460.0-520.000	60	FM	0.5	1.5	485.0

SIGNALS FROM SPACE



THE LATEST LOOK AT DBS

An Editorial Report

By Fred Hopengarten, K1VR
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 homeowners.

Discussions centered on a study of cable viewing preferences, the new M/A-COM Linkabit VideoCipher scrambling system, USCI service, 4 GHz DBS, and new, logical explanations for scrambling.

THE ORC STUDY

With considerable fanfare (and a considerable amount of cynicism by cable operators who were aghast 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 (three channel basic, three pay services, at \$30 per month, with a \$150 installation). Cable won 64% to DBS at 8%.

Other comparisons became more ridiculous. At worst, consumers were asked to choose between 36 channel cable or five channel DBS or five channel MMDS (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 "yawner."

THE M/A-COM LINKABIT VIDEO-CIPHER SCRAMBLING SYSTEM

The only serious competitor in the sweepstakes to get the multi-million-dollar scrambling hardware contracts which will be required when every cable operator must have a descrambling unit for each scrambled channel distributed appears to be M/A-COM's Linkabit subsidiary, based in California.

Unfortunately, the Linkabit VideoCipher I model was too expensive and unreliable to boot. The VideoCipher II model may be a winner; and VideoCipher III is in development.

Components manufacturers who have been asked to quote on elements of the system reveal that it is not unbreakable, but rather that the cost of breaking the system is high enough to defeat any economic incentive to manufacture bootleg units.

Other sources declared that, though these cries have been heard before, there will be some serious scrambling of signals (but only a very few) before June 1985.

USCI

New York-based USCI, the first operating DBS system, was on hand primarily to present its programming to the mid-year meeting of the National Satellite Cable Association.

This group of private cable operators, with a current capability of serving over 300,000 homes without crossing any public streets needs no municipal franchise.

Having failed to sell a private placement which would secure the financial stability of the service, USCI discussions were continuing with other sources of capital. The Wall Street Journal and Business Week identified one source of potential financing as General Electric's venture fund arm.

Readers of Monitoring Times may be interested to learn that the USCI signal is not scrambled and it may be months before it is. However, with its 12 GHz location and inability of most individuals to get

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 microwave interference, and the possibility of relatively-inexpensive head end receiving equipment, there was some doubt 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 1 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 president Frank Biondi is now being quoted as saying that HBO will be in the DBS business within the year.

Teamed with such other players on G1 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 G1 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 receiver their programming free. With subscribership on its way to 25-30 million homes, why would programmers endure the costs of hardware dollars and subscriber grief in the event of a failure?

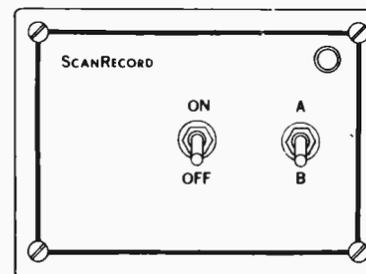
Word is leaking out that a driving force behind the scrambling movement, rather than pressure from Hollywood or a desire to protect copyrights, is bad behavior within the cable TV industry itself.

It seems that some cable operators, even very large ones, have discovered that they need 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 Scan Record recorder coupler will automatically turn on your tape recorder when your scanner is receiving a message and route the audio from the scanner to the recorder.



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

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 to 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 comes complete with all connecting cables.

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

Mail and phone orders are welcome. Send check or money order or we can ship via UPS COD. We also accept VISA and MASTERCARD. Please include your card number and expiration date.

FREE CATALOG featuring scanner accessories, carrier/subcarrier detectors, voice scramblers and unusual kits sent on request.

CAPRI ELECTRONICS
Route 1-M
Canon, GA 30520
(404) 376-3712

have to sell...programming. For some unexplained reason the programmers have been unwilling to sue for their money.

With a financial impact so much greater than any possible loss of revenues due to home earth stations (after all, a TVRO owner in an area where there is no cable company can hardly represent lost revenues), the real reason for scrambling becomes evident. That it also contributes to the creation of 4 GHz DBS may be a delightful icing on the cake!

(Almost) Everything They Never Told You About The MX-5000!!

By Dave Beauvais, KBlF
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 general coverage 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 to good to be true! So, like everyone else in the radio 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(?)

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. Nobody would ever have occasion to want to step that slowly through the channels, especially when the FAST rate is plenty 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 about one channel/second to two channels/second. Only the microprocessor knows why--and it ain't telling. Also, the published claim in the instruction book that the unit can SEARCH one megahertz in 6 seconds is pure fiction. Even in 25 kHz bites and in FAST mode, it takes a good 13 to 16 seconds to cover a megahertz of spectrum. Forget about the SLOW mode--you'll be dead and buried before it's through!

My suggestion: simply hold on to **your** old scanner and fill it up with fast-paced, 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, which in fact are not defective at all, 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 unuseable on this antenna--not because of lack of sensitivity (there's plenty), and not even because of internal oscillator birdies (there are few), but simply because the controlling microprocessor is **TOO NOISY FOR ITS OWN GOOD**. Every MX-5000 has this problem; yours is not unique. But once you've made a match that it finds agreeable, you simply won't believe what this radio can hear!

AND NOW THE GOOD NEWS

From this point forward, our news is nothing but good.

On a Ringo Ranger, the internal microprocessor noise problem vanished almost totally, not simply at antenna resonance but across the entire VHF spectrum. On the 5/8-wave two-meter mag mount, the noise problem diminished considerably, to the point where behavior of the radio was almost normal, with only spotty flare-ups of internal noise on a few low-band channels.

Most of our experiments with the unit have been in a mobile context, where road noise, ignition noise and rough terrain could be expected to raise havoc with performance. Not only has the unit performed superbly under those conditions, it has achieved feats which border on the miraculous! A few are so striking that they deserve to be repeated here.

NOISE REJECTION

Especially in FM mode (both narrow and wide), the unit shows an exceptional rejection of ignition noise, and a corresponding ability to dig out signals which are right at the squelch threshold. My small compact car is not particularly well-



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)

FLIGHT 51-B (DISCOVERY):
Jan. 17, 1985

Payload: Spacelab 3

FLIGHT 51-E (CHALLENGER):
Feb. 12, 1985

Payload: Telesat-I, TDRS-B

FLIGHT 51-D (DISCOVERY):
March 18, 1985

Payload: LDEF-1 Retrieval, Syncom IV-3

FLIGHT 51-F (CHALLENGER):
April 17, 1985

Payload: Spacelab 2

FLIGHT 51-G (COLUMBIA):
May 30, 1985

Payload: Ease-Access, Telstar-3D, Arabsat-A, Morelos-A

FLIGHT 51-L (CHALLENGER):
July 2, 1985

Payload: EOS-1, TDRS-C, OASIS

FLIGHT 61-A (COLUMBIA):
Oct. 14, 1985

Payload: Spacelab D-1

FLIGHT 51-H (ATLANTIS):
Nov. 27, 1985

Payload: EOM-1

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

Payload: Spacelab 4

FLIGHT 61-E (COLUMBIA):
March 6, 1986

Payload: Intelsat VI-1, Astro-1

Miller Publishing

Tune In the World

Kenneth MacHarg

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

NETHERLANDS WORLD BROADCASTING

ROBERT HASLACH

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

The Shortwave Book

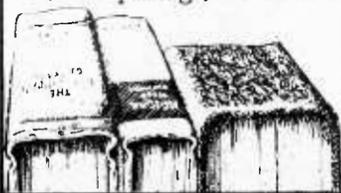
L. Miller & K. MacHarg, editors

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

Each (paperback) book \$9.99 plus \$1.50 postage (outside the U.S., \$2.50 postage). Checks or money orders in US\$ or their equivalent

to Miller Publishing, Dept. MT, 424 West Jefferson St. Media, PA. 19063 USA. PA

res. add 6%. Dealer inquiries invited.



MX-5000

shielded, and I have ignition noise trouble on both my 2 meter transceiver and in-dash FM broadcast radio. The MX-5000 is simply impervious 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 Cushman 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 these channels.

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 worth of yagi on a 60-foot tower!

With a base antenna it's possible to hear Radio RSA from Johannesburg, South Africa (25.790 MHz) and 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 clear signal that would be the envy of any private detective with his expansive snooping gear.

And if it weren'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 been 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 MHz, 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. Semi-automatic Frequency Stepping. Although the book doesn't say so, it's possible to step up or down any band in a pre-chosen channel increment (5, 12.5 or 25 kHz without repeatedly stabbing at 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 stopped 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 most users

THE MOST PROFESSIONAL SCANNING AT THE COMBINATION LOWEST PRICE!

**\$647.95 VALUE
ONLY \$427!
SAVE \$220.95**

**REGENCY MX-5000**

25-550 MHz CONTINUOUS FREQUENCY RANGE

HEAR MILITARY AIRCRAFT, UNDERCOVER FEDERAL AGENCIES, PUBLIC SAFETY AND BUSINESS COMMUNICATIONS, VHF AIR TO GROUND, FM AND TV BROADCASTS ALL ON ONE HIGH PERFORMANCE SCANNER!

- ★ 20 CHANNEL MEMORY AM, WIDE OR NARROW FM ON ANY CHANNEL
- ★ 120 VAC OR 12 VDC OPERATION ULTRA-COMPACT (5-1/2" X 3" X 8") AND LIGHTWEIGHT (2.4 LBS)
- ★ SEARCH INCREMENTS OF 5, 12.5 OR 25 kHz
- ★ HIGH SENSITIVITY (0.3 uV FM) AND SHARP SELECTIVITY (± 7.5 kHz)
- ★ UP-CONVERSION REDUCES INTERMOD AND IMAGES 50 dB
- ★ 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 CHIME CONFIRMS KEYBOARD ENTRIES.

25-54, 108-512, 806-960, MHz

**SCANNER BEAM**

SCANNER BEAM HAS 30-50 MHz LOW BAND RECEPTION AS WELL AS 806-960 MHz MICROWAVE MOBILE.

MAY BE USED WITH INEXPENSIVE TV ANTENNA ROTATOR FOR BORE-SIGHT ACCURACY, OR FIXED IN ONE DIRECTION FOR THOSE ELUSIVE, DISTANT STATIONS. LOCAL SIGNALS STILL COME IN LOUD AND CLEAR FROM ALL DIRECTIONS.

UP TO 8dB GAIN OVER OTHER SCANNER ANTENNAS!

BALUN TRANSFORMER, OFFSET PIPE AND ALL MOUNTING HARDWARE INCLUDED. APPROXIMATE SIZE 6' H X 4' L.

FREE SHIPPING IN U.S.

All products must be ordered at one time to receive special price and free shipping.

COAX

Grove low-loss RG-6/U is 100% shielded, foam-dielectric, solid copper center conductor PVC covered all-weather coax suitable for the most stringent requirements.

50 foot	\$ 7.50
100 foot	\$15.00
200 foot	\$30.00

CONNECTORS

The Grove connector package is ideally suited for mating with RG-6/U coax. Consists of 2 PL-259 connectors, reducers, Motorola plug with crimp ring, 2 F-56 connectors with crimp rings, coax seal and instruction sheet. \$4.95



CALL TOLL-FREE
1-800-438-8155

**GROVE ENTERPRISES**

P. O. Box 98 Brasstown, NC 28902 1-704-837-9200

RTTY/FAX

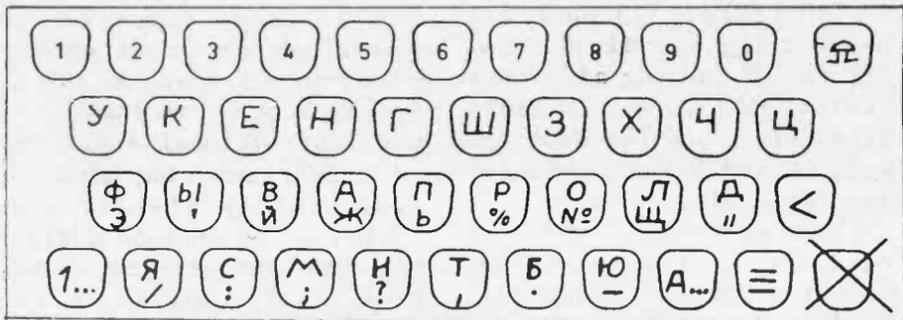
RTTY RUSSIAN KEYBOARDS

By D. K. deNeuf, WA1SPM

During WW2 the Teletype Corporation in Chicago manufactured tape perforators for transmitting the Russian Morse radiotelegraph code utilizing the cyrillic alphabet. (See Fig. 1) Some time before this the German Siemens & Halske Company was producing teleprinter

machines with cyrillic characters. (See Fig. II)

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

Paul Swearingen
7310 Ensign Ave
Sun Valley, CA 91352

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

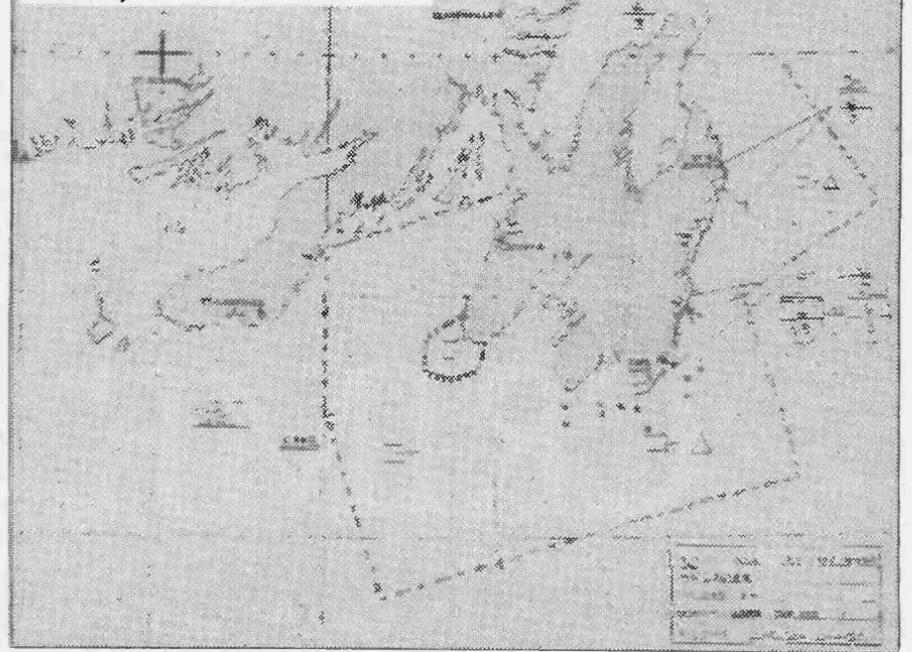
The Ontario (Canada) DX Association serves broadcast through shortwave band listeners with their bulletin "DX Ontario," one of the most professional-appearing DX publications I have read. Part of their secret is that they accept advertising. I'm sure that the other part is through the volunteer efforts 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 M5N 2Z4.

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

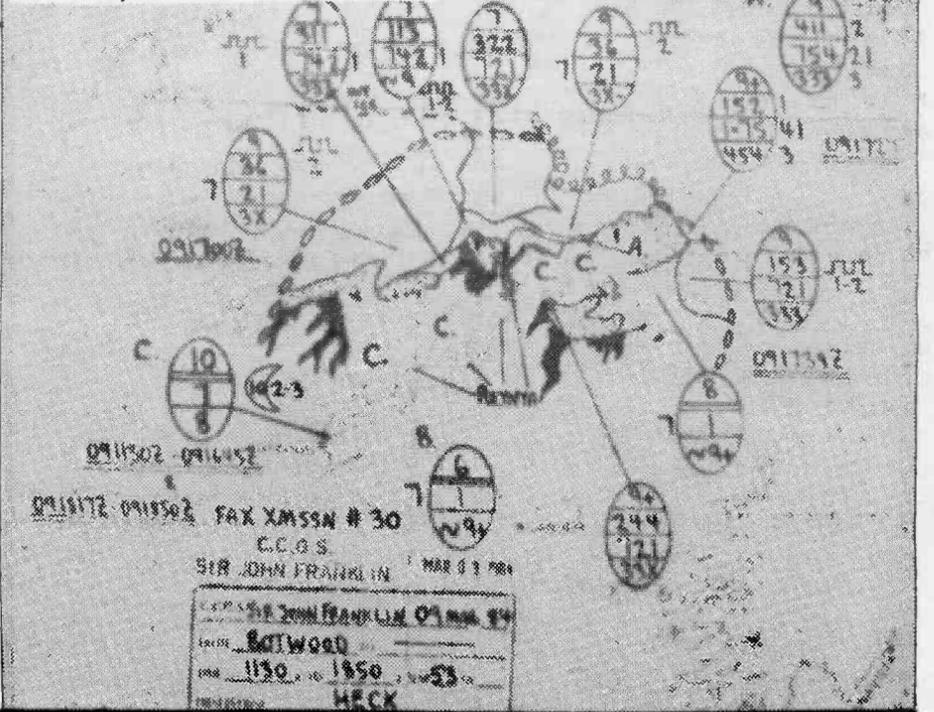
7710.0 kHz - 1300Z 29 April 84 from airborne C-FND2 (Electra LI88C out of Gander)



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)



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 an 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 AOSC 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 K7UGA; His Majesty King Hussein I of Jordan JY1; Ruth Hesch WDX2SEA; Father Mike Mullen WA2KUX; Bill Pasternak WA6ITF; Hank Bennett W2PNA/WDX2FT; Georgio Romanin SWL/Italy; Dr. Owen Garriott W5LFL;



CLUB CORNER

Sister Alverna O'Laughlin WA0SGJ; Bro. Bernard Frey WA2IPM; Father Moran 9N1MM and Henry Ward VE2DX1HW.

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 is forming is the New York DX Association. An SASE to Greg Baker, New York DX Association, 4103 Fort Hamilton Parkway, Brooklyn, NY 11219 will get you more 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, and has been since the death of its founder, Larry Brookwell, last December.

I had promised to bring you specific information about the October SCADS (Southern California Area DX'ers) meeting, but at deadline time no definite time or location had 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 Westin Hotel, Ottawa. Send an SASE (if you don't have Canadian postage, a couple of IRC's should do) to RSO/Convention 84, Box 15806, Station F, Ottawa, K2C 3S7 for details.

ANARC-85 will take place in Milwaukee 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 do you remember way back when you wrote your first letter to a DX club? You may have thought that the honchos of the club did nothing but prepare bulletins and answer letters from would-be members ... am I right?

I don't know of 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



SHORTWAVE DIRECTORY by Bob Grove (New edition, 8-1/2" x 11" looseleaf drilled for easy ring-binder insertion; \$12.95 from Grove Enterprises, P.O.Box 98, Brasstown, NC 28902).

More than an updated edition of the previous Shortwave Frequency Directory, this new publication also includes an exhaustive frequency cross-reference, enabling the listener to rapidly identify intercepted signals.

Designed for the serious utilities monitor, the **SHORTWAVE DIRECTORY** covers 1.6-30 MHz and includes US and foreign listings for a multitude of agencies including military, federal government, spies and smugglers, pirate and clandestine broadcasters, aircraft and ships, Interpol, space communications and many others as well. A must for every SWL's bookshelf!

ICOM/KENWOOD NEWSLETTERS (Subscription from International Radio, Inc., 364 Kilpatrick 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.

you ask for free information, have the courtesy to 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 cost 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 this 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 for \$9 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, MI, NY, OH, OK, PA, TX and WI; all other states are \$2 each. Additionally, lists for Washington, DC and Puerto Rico are available at \$1 each.

McGovern also provides customized frequency searches and a monitor law guide. Send an SASE for details.

SCANNER RADIO DIRECTORY (Cleveland, Ohio edition) by Norm Schrein (available for \$9.95 from Fox Marketing, 4518 Taylorsville Rd., Dayton, OH 45424-2497) or from Fox dealers.

This latest edition of Schrein's excellent direc-

tories 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, call sign and service, all cross-referenced.

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

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.

NRD-515

JRC *Japan Radio Co., Ltd.*

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

NRD-515 Receiver .1-30 MHz.
\$995.00

NDH-518 96 Channel Memory
\$224.00

NCM-515 Keypad Controller
\$149.00

NVA-515 External Speaker
\$ 39.95

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

BROADCASTING. . .

HANK BENNETT 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 have another column or two on nostalgia ranging from the present time all the way back to the days of the duck salesman.

Oh? You never 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 how many stumpers 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 subjects 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 for any particular issue?" "How long does it take you to do a column from start to finish?" "Have you ever had a column turned down flat?"

Other columns, of which I have written hundreds, deal in station listings, which are contributed by listeners who send in resumés 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 spend a few hours at the typewriter. Everyone else does the work, the editor gets the credit and everyone is happy.

Not so with the present type of column that I'm doing here for you. Oh sure, I get replies - lots of them - for which 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 Newark 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 bride 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 winning 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 hamshack but we have 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 (Awright, 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 shall remain nameless. I used the story virtually verbatim. My editor didn't think much of it. Too much double talk. I wound up on my death bed 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 considerate 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, W5VJQ

CKFX's 10-watts from Vancouver, Canada, on 49-meters may be 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



HCJB'S FLEA POWER

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 a Kenwood R-1000 with a 65-foot wire outdoor antenna barely off the ground.

My report was verified by HCJB, and I was startled to notice on the QSL card that the transmitter used in an old Viking II by the E.F. Johnson Company, a rig which gave me fine service 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' 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.

He 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 exactly 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 overshot to 26021.

"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 relocation 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.

ference 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 Ell Sung" or a denunciation of the U.S. Sounds like mid 60's vintage Radio Peking.

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 Oki makes it easy! But some of those exotic South Pacific stations are still eluding me.)

FAR EAST MONITORING

By Bob Dodt, Jr.

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

RADIO ULAN BATOR is a regular on 12015 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 inter-

SWL HEADQUARTERS

NATIONS LEADING SHORTWAVE EQUIPMENT SUPPLIER

ICOM R71A SPECIAL

EEB IS ICOM'S #1 RECEIVER DEALER AND THERE'S GOOD REASON

- EEB does 100% QC, including 24 hour bench test and complete alignment.
- EEB offers more options and modifications to tailor your receiver to your needs.
- EEB's skilled technicians know the F71A inside and out, and offer many optional improvements.
- EEB doubles your warranty: 90 days (ICOM/9) days EEB, so you are covered a full 6 months!
- EEB is an authorized ICOM Service center. We take better care of you.



AS LOW AS **\$659** list \$799

- 100KHz-30MHz
- Keyboard Entry
- 32 Memories
- Memory Back-Up
- Scanning Frequencies & Memories
- Passband & Notch Tuning
- Wide Dynamic Range

Add \$7.00 UPS

OPTIONS

- CK-70 12 Volt DC Kit \$3.95
- CR-64 High Stability Osc. \$55.00
- EX-310 Voice Synthesizer \$39.95
- EX-257 FM unit (10M Ham) \$39.00
- FL-32 CW filter, 500Hz 9MHz \$59.50
- FL-44 2.4KHz 455KHz SSB Crystal Filter \$199.00
- FL63 CW filter 250Hz 9MHz \$48.50
- RC-11 Remote Control \$29.95

INSTALLATION... options can be installed by a skilled user/owner. EEB will do it for you!

- 1-3 options \$35
- 4 and up \$45

EEB OPTIONS INSTALLED

- Mechanical 2.4KHz filter—replaces stock ceramic filter—improves SSB, ECSS, AM narrow selectivity. \$95
- Front end upgrade—improves dynamic range (plus), pre-amp enable below 1600KHz. \$35
- 4KHz filter replaces stock 6KHz wide filter. Improves AM selectivity. \$50

ICOM ICR71A with full EEB service. Factory and extended warranty, tested and aligned. \$699

ICOM ICR71A with full factory warranty but without EEB's extra service/no installed options. \$659

***KENWOOD R 2000**



- 100 KHz to 30 MHz
- All mode AM-CW-SSB-FM
- 10 memories (memorizes mode)
- Memory backup
- Memory scan
- Programmable band scan
- 24-hour clock-timer
- VC-10 VHF converter 118-174 MHz \$139

Sale \$499

List \$599.95

- R-2000 \$599.95 SALE \$499
- R-1000 \$499.95 SALE \$429
- R-600 \$399.95 SALE \$329
- ADD \$6.50 UPS

***YAESU FRG-7700**

Sale \$399



- 150 KHz-30MHz
- All mode AM-CW-SSB-FM
- Digital frequency and clock

SPECIAL PACKAGE DEAL 7700-MU7700 FRA-7700 \$499

- Options:
- FRA-7700 active antenna \$59
 - MU-7700 12 channel memory \$135
 - FRT-7700 antenna tuner \$59
 - FF-5 VLF low pass filter \$20
 - DC-7700 12 VDC kit \$8
 - FRV-7700 VHF converter \$135
 - ADD \$6.50 UPS

***G.E. WORLD MONITOR**



Sale \$169

List \$229.95 (\$4.00 UPS)

Digital readout, wide and narrow selectivity BFO for SSB & CW.

- 3.5 - 31 MHz SW/MW/FM
- 120V/220V or battery

***PANASONIC RF-B600**



Sale \$429

List \$595 (\$6.00 UPS)

- 1.6 to 30 MHz FM/LW/MW/SW
- Micro computer multi-tuning system
- 9 memory stations, scan
- Slow/Fast rotary tuning
- 10 key direct access tuning
- Universal voltage

- RF-9 \$99.95 SALE \$89.00
- RF-B50 159.95 SALE \$129.00
- RF-085 CLOSE OUT \$49.95
- RF-B300 \$249.95 SALE \$209
- RF-3100 \$379 SALE \$279
- ADD \$4.00 UPS

***UNIDEN CR 2021**

Sale \$149.95

List \$229.00



Uniden's Worldwide Radio is among the finest multi-purpose available anywhere. It features a triple conversion receiver that precisely locates weak, distant signals automatically. It locks the precise stations in for perfect reception.

- 12 Channel Programmable Memory
- Dual Power AC or DC
- Micro-processor
- Triple Conversion Receiver
- Keyboard Channel Selector
- LCD Readout
- Preset Channels \$4.00 UPS.

***SONY ICF-2002**

Introductory Special

\$229

List \$249.95



Features: Ten memory channels • 12/24 hour quartz clock/PLL tuning for drift-free performance • Dual conversion Super-heterodyne for high sensitivity • SSB/CW

- ICR-4800 \$99.95 SALE \$69.95
- ICF-6500W \$199.95 SALE \$99.95
- ICF-6800W \$699.95 SALE \$549
- ICF-7600A \$169.95 SALE \$139

ADD \$4.00 UPS

NEW From SONY AN-1 WORLD BAND ANTENNA

- Telescoping 59" stainless steel whip
- 100KHz to 30MHz
- Antenna coupler and special induction module supplied
- Control module features attenuator, frequency selector, and battery power

EEB tests indicate AN-1 to work as well as other antennas costing twice as much and less susceptible to overload from strong signals.

\$79.95

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

FREE CATALOG



- We ship worldwide
- Shipping charges not included
- Prices & specifications subject to change without notice
- Canadian Orders: VISA, MC or POSTAL MAIL ORDERS ONLY!



10 Miles West of Washington D.C.
Sorry No COD's
10 5 Tues, Wed, Fri
10 9 Thursday
10 4 Saturday
Closed Sunday and Monday



Electronic Equipment Bank

516 Mill Street, N.E.
Vienna, Virginia 22180

Order Toll Free 800-368-3270

Virginia 703-938-3350



ENGLISH LANGUAGE BROADCASTSby **Tom Williamson**

This month we feature the continent of **SOUTH AMERICA**, not a prolific source of English broadcasts these days, unfortunately. Chile, Columbia, Peru and Venezuela, although well heard, no longer seem to have any English language broadcasts. Other countries such as Guyana and the Falkland Islands have services for local listeners only and cannot normally be heard here.

So we are left with the "Big Three"-Argentina, Brazil and Ecuador. Let us take a look at them, recognizing the fact that successful reception is very dependent on good propagation conditions (i.e. 21/17/15 MHz bands).

ARGENTINA

Buenos Aires has been operating an international service for a long time, indeed since the days of Peron, when it 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 English, French, Italian, Spanish and German; and to other areas in Japanese and Arabic. However, their transmitter 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 4.30; each segment is for a half-hour period.

Programs consist of news with emphasis on Argentina and its relations 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. Strangely, to foreign minds, this pulsating exotic rhythm no longer is played for dancing! Today the tango, with accompanying vocals, is music to listen to, and of different styles depending on the words (they may be songs of comical, romantic, or political nature!).

Less well known abroad is the rhythm of the Milonga and, of course, the waltz is still popular. There are many other facets of Argentine folk music that RAE may make familiar to you (currently the 15345 kHz channel

provides the best reception).

BRAZIL

Although now restricted (by financial restrictions?) to one frequency (15290 kHz) Radio Nacional Do Brasil provides a powerful, well-modulated signal with clear, crisp audio in its nightly transmission to N. America (0200-0300 UTC).

What a model this one is for other South Americans! The male announcer has one of the best announcers' voices I have ever heard, with a clear, hard pronunciation.

Programs consist of News and interesting weather reports which make you realize the vastness of this "country" (really a sub-continent in itself).

After the news reports there is usually a commentary on some aspect of Brazilian life, politics or sports. Interspersed with these spoken items are selections of Brazilian popular music which is unique and profilic. Anyone with a memory of the world-famous group "Brazil 66" will know what I mean by the unique type of rhythm and vocals.

The broadcast at this time on Sundays is known as "Sunday Special," and may include long documentaries on items such as the history of coffee; tourism in Brazil, Brazilian sport (did you know that in the 30's Brazil "exported" many of her famous players who became members of Italian teams?) and of course music, music, music, music...!

ECUADOR

Over the years the most reliable signals from South America have come from the pioneer missionary broadcaster HCJB, located in Quito. Also known as "The Voice of the Andes" ("La Voz de los Andes"), they have an extensive worldwide transmission schedule using beam antennas and multiple frequencies, seven days a week.

As far as listeners in North America are concerned, HCJB has two main broadcasting periods, 1215-1530 and 0030-0700 U.T.C. (see block summary for more details).

Since evening propagation conditions at present are quite variable, in the event of a high frequency fadeout it can be very difficult to hear HCJB except on the 9745 kHz channel. The morning transmission on HF bands may well be more reliable, though not so con-

venient for the listener.

For a long time HCJB has been a favorite stations among SWL's for its great variety of programs. They have an evangelical Christian mission, of course, but unlike the majority of religious stations they also transmit a wide variety of general interest material from many different program sources, including British and Australian content.

Here are some of the types of programs you can enjoy:

NEWS This is heard at 00.55 (Sundays and Mondays) and at 01.00 other weekdays as part of the Passport program beginning at this hour, also heard at 0400 daily.

News sources include Associated Press and the local Ecuadorian newspaper, "El Comercio". The program "Passport" includes an excellent portion devoted to Latin American and Ecuadorian news events, hard-to-find in this part of the world. Monday through Friday there is additional news at 15.00

MUSIC This is an integral part of the HCJB religious programming, so Christian music and songs are featured widely in such as "Songs in the Night," "Songtime," "Morning in the Mountains," and so on. Then there is "Musical Mailbag," a potpourri of humor, correspondence and music; and the Monday edition of "Happiness Is" features music as well.

If you are devoted to Latin American folk music, then there is a special treat available in the program "Musica del Ecuador" which give you a genuine (rare!) experience of Andean music.

SCIENCE Programs such as "World of Science" (from Britain) and "Nature Trail" cater to different tastes; and for the DX hounds there is the popular "DX Party Line", which features news about short wave equipment, radio clubs, and items on new stations heard recently by listeners. You may also be invited to join ANDEX, the radio listeners' club sponsored by HCJB itself. John Beck is the new host, replacing Clayton Howard who recently retired.

Two programs of special interest include "Today in Review", an overview of current events with commentary. It is always worth a listen.

There there is "Guidelines for Family Living", a Christian perspective on the many practical problems that beset parents in these modern times.

ARGENTINA R.A.E.**BUENOS AIRES**

2230/0100/0230/0430 each broadcast of 30 minutes.
DX Programs: Thursday 0100/02303; Friday 0430
Frequencies: 15345 kHz: 1900-0500
11755/11710: 0000-0500

BRAZIL RADIO NACIONAL DO BRASIL BRASILIA

0200-0300 15290 kHz
(1800-1900 15435/17895 to Europe, sometimes audible)
Weather, news, music, letters, Brazilian scene.
SUNDAY SPECIAL alternate Sundays, Brazilian music/information.

ECUADOR QUITO HCJB THE VOICE OF THE ANDES

0300-0700
15250/15115/11910/11835/6095 variable
1215-1530:
17890/15115*/11740 (*not in use now?)

SUNDAYS

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

TUESDAY-SATURDAY

0035 Today in Review-0150/0300
0050 Guidelines-0310
0405 Music in the Night
0430 Happiness Is
0530 Passport-0100-news
0630 DX Party Line(Tues.)
Musical Mailbag: Monday 0600 # Mondays also.
^also Mon.1000--Thurs. 0245--Fri. 2145.

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 AR-2001 from AOR Company of Tokyo.

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

R and S is a reputable firm which also carries Grove Enterprises merchandise for Canadian customers.

SUPPORT MT ADVERTISERS!

PIRATE RADIO



by John Santosuosso

RADIO IRAN: A rare reply from this anti-Khomeini clandestine claims it broadcasts in Farsi 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 address is Radio Iran, C/O C.B., 17 Blvd. Respail, 75007 Paris, France.

PROGRAMMING PERSPECTIVE BY JOHN T. ARTHUR: "From a Space Invaders game in Peoria, Illinois, KMA, 'the Rock of the Pirates,' brings you Doctor Why?" crackled the radio over HBO theme music; then Beethoven rolled over and another new station was on the air. Broadcasts with 100 to 500 watts into a dipole featured '70s' rock, pirate radio news and ads for an instant pirate station.

Humorously produced promos and smooth studio technique set KMA above 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 address is 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, box 5074, Hilo, HI 96720. Also available for one dollar is a copy of the "Free Radio Address Direc-

tory." This is arranged by call and slogan. Orders go to the above address.

TANGERINE RADIO: 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 do the same. Tangerine Radio now has a new schedule. They plan to broadcast the first weekend of each month and the night of the full moon, between 0100 and 0400 GMT. Frequencies will be 3475 and 7435 plus or minus 10 kHz.

Listeners in the Southeast have the best chance of hearing the signal according to the station. Tangerine Radio is currently planning a medium wave service.

Raunchy Rick of Tangerine Radio also sends along some interesting loggings. One July 14 he heard the renowned **Radio Clandestine** on 7355 from 0300 to 0355. It was a typical broadcast from this creative station with Drool the Radio Clandestine cabin boy (they claim to broadcast from a ship) being brought back to life by chief engineer Boris.

On the same day Rick also heard **WBST, "The Beast,"** on 7426 from 0355 to 0455; he notes it was Friday the 13th local time and the moon was full. In keeping with the time, the program 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 broadcasters. 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?

PIRATE QSLs: Here is some more of John Arthur's "Free Radio Directory." KPRC, box 542, Exeter, NH 03433. Voice of Tomorrow, Box 20039, Ferndale, MI 48220. KST-Arctic Radio, Box 852, Anchorage, AK 95506.

The following can all be reached via box 982, Battle Creek, MI 49016: WIMP, WOIS, KQRP, KTGR, Radio Clandestine, Radio Free Insanity, Radio Gany-mede, Radio Paradise International, Sumurai Radio, Voice of Communism, Voice of Democracy, Voice of Laryngitis, Voice of the Pyramids, Voice of Revolutionary Vinco and Voice of the United States.

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 the QSL. Mail drops cannot guarantee replies; they just forward mail.

SURINAME: Radio pirates 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 capitol of Paramaribo, the station had a power of only 8 watts and used a solid-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 first tuned his portable transmitter to 96.4 MHz, he was able to override the studio-transmitter link 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 Omani 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 and might encourage more moderate states to extend aid. Although these events were of considerable importance in the Middle East, they were almost entirely ignored in the American media.

WUMS: Perhaps it has been reported elsewhere, but it seems that most of the DX world has not yet learned of the death of one of the pioneer DXers and most famous pirate operators of them all, David Thomas. Recently we learned that a little over a year ago, in September, 1983, at age 74 he lost his battle with cancer.

Famed for his skill as a medium and shortwave DXer,

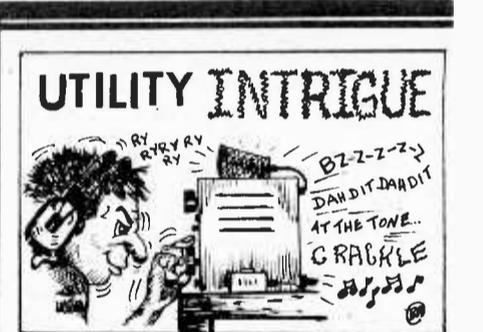
Thomas had thousands of QSLs in his collection as well as a virtual museum of early radio equipment. So extensive was the amount of his radio-related material that at one time the Smithsonian Institute expressed interest in acquiring it.

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 by the FCC 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 1943, apparently out of exasperation, the FCC issued him a "Certificate of Registration--Transmitter--Not Licensed," although Thomas had not applied 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.



by Don Schimmel

Having added a Radio Teletype capability to the UTILITY INTRIGUE monitoring position, I needed some RTTY reference aids. After looking at various publications, I selected "RADIOTELETYPE FREQUENCY LIST" by Klingenfuss, "RADIOTELETYPE PRESS BROADCASTS" by Schaay and "GUIDE TO RTTY FREQUENCIES" by Ferrell. All are extremely valuable sources of RTTY identification information and they are available from various MT advertisers.

You may recall my mentioning "JANE'S MILITARY COMMUNICATIONS 1979-1980" in the April 1984 UTILITY INTRIGUE column. Publishers Central Bureau is again offering this great technical reference book and there has been a further reduction in the price. You can now purchase a copy for only \$9.98 plus \$2.40 shipping/hand-



UTILITY INTRIGUE

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 loggings, 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 mailing off the column 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 WWII.

Dr. Ralph E. Weber, a historian at Marquette University, has written "UNITED STATES DIPLOMATIC CODES AND CIPHERS 1775-1938." 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 cryptology 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.

JULY 1984 LOGGINGS

KHZ	DATE/TIME	MODE	COMMENTS
4270	060238	RTTY 75/170 REV	WEATHER/EE
6982.5	130049	RTTY 50/170 NORM	PRESS/EE
6984	130054	CW	219 DE 310/SS
7895	142053	MCW	LTR V FOLL BY NOISE BURST
11447	191950	RTTY 110/17 NORM	PRESS/GG
12255.8	150150	RTTY 50/425 NORM	DE ZPM (ASUNCION, PARAGUAY)
13012	242134	CW	CQ DE WNU44 (SLIDELL, LA)
13019	191803	CW	DE GKC (PORTISHEAD, ENGLAND)
13042	242138	CW	LKWH DE PEO (NORWEGIAN SHIP FROM DUTCH STATION)
13064	171222	CW	CQ DE 6YI (KINGSTON, JAMAICA)
13106.5	262216	USB VOICE	DE KMI (DIXON, CA)
13177.8	232014	USB VOICE	CONVERSATION/FF
13182	231814	CW	VVV 9KB3/5(KUWAIT ALLOCATION)
13188	171213	CW	PZ DE VF (4F TFC PT SS)
13256	031944	CW	SS PT MSGS
13281.2	092033	USB VOICE	WX AT HONOLULU/EE
13283.8	232259	RTTY 75/170 NORM	PRESS/SS FROM CUBAN FORNMIN.
13315.5	232253	RTTY 50/170 NORM	" " " "
13345.4	161243	RTTY 50/170 NORM	CLP1 DE CLP55 5L TFC (CUT NBRS) CW FOR RPTS (CUBAN EMB, GEORGETOWN, GUYANA)
13361	130006	MCW	SAME AS 7895
13365.8	031352	RTTY 75/170 NORM	RY'S DE HDN (QUITO, ECUADOR)
13366	032253	RTTY 50/850 NORM	5YD RY TAPE (NAIROBI, KENYA)
13390	171200	CW	CLP55 DE CLP1 (CUBAN EMB. GEORGETOWN FROM HAVANA)
13391.2	092038	USB VOICE	CONVERSATION/PORTUGUESE)
13428.5	231839	AM VOICE	5F GRPS/EE FEMALE
13434.5	211153	RTTY 50/170 NORM	RY TAPE FROM Y7A-48 Y7A53 (BERLIN [KONIGS WUSTERHAUSEN GDR])

13586	141106	USB VOICE	CONVERSATION/SS
13622.7	131930	RTTY 75/170 REV	5F GRPS CODED WX
13631.3	180041	RTTY 50/170 REV	HY DE KB 5L TFC
13945	151243	CW	V'S DE CLP1.
			SEE 13345.4
13966.6	112309	USB VOICE	WHISTLES, THEN CALLS "PANCHO"
14520	150211	CW	TWO TONE MARKER
14920	151244	CW	V'S DE CLP1.
			SEE 13345.4
15604	172230	CW	AFTER CONTACT SHIFTS TO RTTY 50/170 NORM. 5L TFC/SS CHATTER. POSS ADDRESSEE TELECOM CTR TALCAHUANO, CHILE
15606	152250	RTTY 50/425 REV	5L GRPS
15908	152245	RTTY 50/425 NORM	AFPN SPORTS/NEWS IN SS
16697.6	152235	RTTY 50/425 NORM	POLISH PT MSG
16700	152230	RTTY 50/425 NORM	UJY DE URMZ RY TAPE (KALINGRAD USSR DE ?)
16702.5	191850	RTTY 50/170 NORM	URB2 DE LYDY. RY'S THEN RUSSIAN PT TFC FOLL BY 4L GRPS (KLAIPECA, LITHUANIAN SSR)
17185	262249	CW	CQ DE KFS (SF, CA)
18421	062154	RTTY 50/170 REV	LAM PRESS SVC BA ARG TESTING WITH TANJUG SVC YUGOSLAVIA
18688.8	142355	CW	DE CLO/SS PT (CUBAN ALLOC)
18950	141658	CW	5L GRPS. ADDEES
20010.5	191910	RTTY 50/425 REV	LVB NCB LHA
20350	142036	RTTY 75/850 REV	PYENG YANG IN HEADING OF MSG
			NBA TEST TAPE (NAVCOMSTA BALBOA PNZ)
20470	191830	RTTY 75/850	DE CXR/SS PT MSGS (MONTEVIDEO, UR)

"Los Numeros"

32444 69213 88816 52196 63811 94216

Havana Moon



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

I ALWAYS KNEW 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 "thankyous" are due from my end of this venture for Eric Conners, John Santosuosso, Kristi-Ana 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.

SUNNY 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 cocaine 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 ini-

LOS NUMEROS

tials of your city are I.M. Thanks for the material.

CUBAN BROADCAST FRANKNESS(?)

Recent news reports in the U.S. press indicate that Fidel appears to be most defensive about U.S. criticism of his 25-year-old revolutionary government. Other sources indicate that Cuban newspapers and television and radio stations have shown more frankness in addressing Cuban complaints and problems.

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

It's also been indicated that these diplomats, speaking on condition that they would not be identified, say that Castro does not exactly favor the Cuban populace tuning in to Radio Marti, staffed largely by anti-Castro Cuban exiles.

RETURN OF COMMANDANT DAVID?

Sources continue to indicate that the legendary and vitriolic Commandant David has resumed his anti-Castro broadcasts on 7 MHz frequencies. Numerous checks on his past frequencies indicate that the Commandant is not to be found. Any verifiable report of new frequencies for the Commandant are welcome.

OFF LIMITS

My sources tell me that the -- by now -- infamous Warrenton/Remington 4-digit Spanish transmission sites are **OFF LIMITS** to Soviet diplomats and journalists. This is also true for areas in and around Driver, Virginia.

Press reports indicate that the U.S. State Department has lifted Dallas restrictions on Soviet diplomats and journalists during the Republican Convention.

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

Research is now underway in regards to just what areas of the U.S. are off limits 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 half-way point of this program. 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 7705 kHz at 0206 on same date. MCW mode on both transmissions. Bob Grove's new **SHORTWAVE DIRECTORY** shows FEMA (Federal Emergency Management Agency) for the first 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 CRYPTICS

Have a go at this one:
MT DE HM
GR 24 BT
CISS CSSCI CSNCC IISAC
SSSSS NNNCS ISCIS AINSN
CAAAS CICNN CNNIS SCIIS
NAIII SINNN CSISC INNIN
NCCSN NIISS CNSCC ISACN
CNCISI SAIIN INSIA NASAN
AR SK

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

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

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

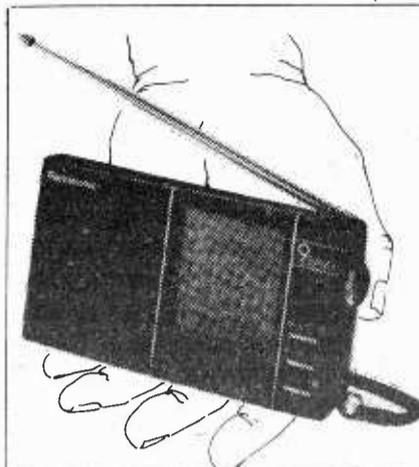
NDXE

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

BEHIND THE DIALS



PANASONIC RF-9 POCKET SHORT-WAVE RADIO

While many imported receivers are advertised as "pocketable," one can only suspect that the orientals have much 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 "Wee 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 coverage. SW bands are 3.8-4.0, 5.9-6.2, 9.5-9.8, 11.7-12, 15.1-15.5, 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; bandspread 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 sensitive to worldwide broadcasts using only the little collapsible whip antenna and internal ferrite rod loop.

rather well known contributor has very **mistakenly** identified a well known BCB DX'er as being Havana Moon! This statement -- as this certain BCBer 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 ...

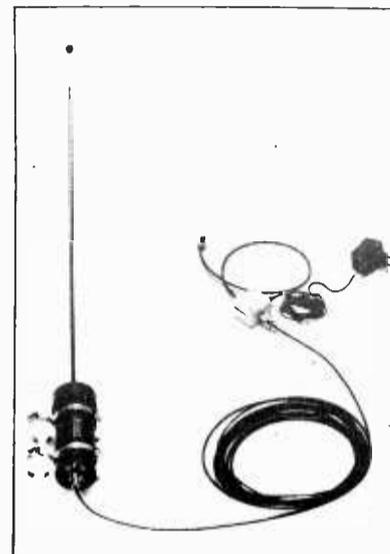
Adios,
Havana Moon y Amigas

(The opinions expressed in this column are those of Havana Moon and do not necessarily represent the views of Monitoring Times.

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

A tone control affords additional listening comfort.

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



DRESSLER ACTIVE ANTENNA

For shortwave/longwave listeners with a 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 coupler and 117 VAC/12VDC 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 reference 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 less responsive to signals than the dipole and 90% of the response was equal to the dipole; the remaining percentage was almost always better by 10-30 dB!

But higher S-meter



Time now for a Tecate® and ...
Thanks

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 I sometimes do that in this maze of foreign tongues there exists a real danger of minimizing the significance, purpose and effect of a program heard in a specific language.

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 reflect on the strides of its people toward a better life.

Such is the case with 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 "Karai" or educational service in Port Moresby on 4890 kHz have no doubt heard the English language programs of Papua New Guinea frequently and what seems to be at first randomly-interrupted with long rambling announcements of what appears to be broken English. 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 facilitating trade 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 national 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 expressive 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, 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 called upon via short wave radio to address a health problem in the same province. Both examples illustrated for me the growing reliability and respectability of this language, once disdained as little more than babble.

Entire programs in Pidgin from the Port Moresby national service have not been observed here as yet. They may exist - obtaining schedules of Port Moresby programs is indeed an art! - but Pidgin interviews recently aired on the Wednesday feature "Music Makers" verify the feeling of New Guinea scholars that Pidgin is the coming language of its youth.

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 Edge Band of West New Britain. These bands perform fine Melanesian tunes for listeners.

The Pidgin interviews with band members 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 25 August 1979..."

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

Reply: "Yu tok long, yu make gud planna... Wi pla an got five pela members, nee-

dee taim an den got sampela yongpela man."

For the shortwave listener the presence of New Guinea Pidgin should wrest 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.

¹Pidgins and Creoles, Loreto Todd, School of English, University of Leeds, 1974, p.1.

Pidgin Bible verses from October 14, 1983 Solomon Star illustrate the wordiness of the Pidgin expression.

Matiu 5:6-8

Sapos eniwan hemi hanggre tumas fo duim wanem God hemi wandem, baebae hemi hapi tumas, bikos God baebae helpem hem fo duim diswan an mekem hem satisfae olsem man hu i hanggre hemi satisfae taem hemi kaikai.

Sapos eniwan hemi sore an kaen long nara man, baebae hemi hapi tumas, bikos diskaen man nomoa God baebae hemi sore an kaen long hem.

Sapos eniwan hemi barava wanmaen fo falom wei blong God, baebae hemi hapi tumas, bikos diskaen man nomoa baebae hemi save wanem God hemi laek.

Pijin Bible Verses From S.I.C.A.

US MILITARY HELPS SNARE SMUGGLERS

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

The US Marine Corps is flying OV-10 aircraft to assist Customs agents while the Army is providing Black Hawk helicopters. Even the Air force is lending the services of its AWACS aircraft, as is the Navy with its mini-AWACS.

The Drug Enforcement Agency is using both its helicopters and fixed-wing aircraft along with transponders to block deliveries of heroin, cocaine and marijuana.

Most heroin comes from the Middle East with Mexico a close second; only a small percentage trickles in from Southeast Asia. Heroin usually comes into the industrialized northern cities, while Miami is noted for cocaine.

A coordinated effort by DEA, Coast Guard, FBI, customs, Immigration (Border Patrol) and the armed forces was inaugurated last year through a special task force set up by Vice President George Bush.

Additionally, Bush recognized the problem in Florida by organizing 256 DEA and Customs agents into Operation Florida/South Florida Task Force.

Ten years ago the El Paso Intelligence Center (EPIC) was opened to exchange drug related informa-



tion among federal law enforcement agencies. At present some 150 personnel are drawn from and serve DEA, Immigration, Coast Guard, Customs, IRA, FBI, US Marshals and ATF (Bureau of Alcohol, Tobacco and Firearms).

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 coordination and administrative traffic, 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 such 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!

••••

Computers Can Do Anything...Almost... And It's

EASY AS PIE

by
John Dorsey

We've been hearing that some fellow radio listeners have been having trouble keeping 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 file clerk is still trying to find, and started to work.

After separating government from civilian I decided the best way to put them in the machine would be alphabetical. Unfortu-

nately, 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 listings have no service codes. We decided to list them all three ways.

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

I realized 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 outgrew their Sperry system, 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.

We did spend a little more than we planned installing air conditioning; have you bought any 100 ton air conditioners recently? The power company was very understanding. The new power lines to the house including right-of-way only cost \$675,000.

I never felt more like a king than when I was operating that beautiful system. I was able to rescue the Apple, and am using it to hold my satellite TV schedules.

When I get my filing problems 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 "L" 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 talking to the Internal Revenue Service about a machine they've outgrown. It holds twenty years of every finan-

cial transaction made by every taxpayer (or nonpayer) in the country.

We've come to terms on the machine, but we're still dickering about the 41-story building that houses 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 hopeless 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. Hanzoff Hezagoner, will advise you which are my more lucid days for your visit to the hospital. Things are very comfortable here. I did encounter some difficulty stringing an antenna 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,
WA2RCB

Have you been hearing unusual signals in some of the HF ham bands lately? Have you heard 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 transmissions which are way out of shift with the norm for amateur RTTY in the "phone" portion of the band?

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

harmonics from multi-kilowatt utility stations? Can it be "ET" phoning home???

With the exception of our little friend who likes Reese's Pieces, any of the above may be the answer as to the identity of these signals. I will try to explain why these signals on amateur frequencies may be on the increase.

Most of what is now happening is a result of the recent WARC-79. This conference did little to help the existing amateur HF bands. However, it did do a massive shakeup of the utility stations. Many of these utility stations are migrating to satellite-type operations; however, one of the advantages HF has over satellite is that it is much less costly. This, coupled with the many Third World nations' requests to the I.T.U. for frequency space, has laid the groundwork for a scenario in which we may see amateur radio HF bands being "shared" with commercial services.

Tune to 3.636 - 3.639 some night and you should hear one of the many

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/Grindjavik, Iceland
3.607	TFR2	USCG/Keflavic, Iceland
3.627	NCI	USCG/Naples, Italy
3.627	NCI10	USCG/Rhodes, Greece
3.645	LGP	Bodo Radio/Bodo, Norway
3.650	MKE	Royal AF/Akrotiri, Cyprus
3.652	OSA	Antwerp Radio/Antwerp, Belg.
3.690	5BA	Nicosia Radio/Nicosia, Cyprus
3.695	DGC79L5	Deutscher Wetterdienst/Quickborn, W Ger
3.704	DAN	Norddeich Rad/Norden, W Ger
3.722	FFC	Archarchon R./Archarchon, France
3.722	FFU	LeConquet/LeConquet, France

3.722	TKM	Grasse R./Grasse, France
3.775	8PX6	Cable+Wireless/St Philip, Barbados
3.795	FFB	Boulogne-Sur-Mer/Le Portel, France
3.795	FFM	Marseille R./Marseille, Frnc
3.795	OFJ	Helsinki R./Helsinki, Finland
3.799	NCI10	USCG/Rhodes, Greece
3.822	KSW78	US Emb./Nicosia, Cyprus
3.975	VHP	Australian Nvy/Canberra, Aust
3.980	CNL	US Navy/Kenitra, Morocco
3.990	ZLQ3	New Zealand/Scott Base, Antarctica

Canadian Hears Russian Salyut Space Station

Gilles Thibodeau of Lac-Megantic, Quebec, reported listening to cosmonaut 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 modest equipment consisted of only a Bearcat 200 scanner enhanced by a Grove Scanner Beam antenna and a Grove Signal Amp pre-amplifier.

SIDEBAND ON TWO METERS

While the 144-148 MHz ham band is largely the domain of narrow band FM, there is a dedicated group of single sideband operators which 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 non-hams 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 postage for remailing to the station.

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

Day	UTC	Time	Area	Name	Frequency	NCS
ALL	LOCAL	TIME	IS IN	DAYLIGHT	TIME	AFTER APR. 29, 84
Sun	1400Z	10:00 AM	NYC	East Coast	144.250	WA2SLY/WA2FXB/WA2P
Sun	0115Z	8:15 PM	Nevada	NV Activity	144.225	WA7JUO
Sun	1530Z	8:30 AM	Tucson	Arizona-Tucson	144.300	N7WS/W5DXN
Sun	0000Z	8:00 PM	Orlando	Sunshine State	144.250	WA4GPF WD4FAB KA4W
Sun	0200Z	9:00 PM	Twin Cities	Minnesota	144.250	WOKRX
Sun	0300Z	7:30 PM	So. Calif.	SOCAL	144.250	WB6NOA/KF6ZB/K6PVS
Mon	0030Z	8:30 PM	Cincinnati	SW Ohio	144.250	KA8MRI/KF4ST
Mon	0100Z	9:00 PM	Greenville	Sandlappers	144.250	KE4JA/NB4S/W4VRV
Mon	0200Z	9:00 PM	(Inactive)	So. Texas	144.250	INACTIVE
Mon	0200Z	9:30 PM	Norman OK	Cent. Okla.	144.250	WB5GZQ
Mon	0300Z	8:00 PM	Spokane	Inland Empire	144.250	KB7N
Mon	0300Z	9:00 PM	Salt Lake	Mtn. States	144.250	N7BHC
Tue	0200Z	9:00 PM	Rio Grande	Republic of Rio G	144.250	N5DQD/WB5YVD
Tue	0600Z	9:00 PM	Anchorage	Alaska	144.200	KL7JAI/KL7IKV/KL7Q
Tue	0130Z	8:30 PM	So. Ill.	"Little Egypt"	144.250	N5AFL/KA9HDZ
Tue	0300Z	8:00 PM	Phoenix	Arizona-Phoenix	144.300	KB7CH
Tue	0300Z	8:00 PM	North Count	NORCAL	144.250	WA6ZJF
Thu	0200Z	8:00 PM	Albuquerque	NM Activity	144.250	rprtd by W5RKS
Wed	0000Z	8:00 PM	Cleveland	N. Central States	144.255	K8RAQ/WD8PKQ/W8FQK
Wed	0100Z	9:00 PM	Greensboro	North Carolina	144.250	K4CAW
Wed	0100Z	9:00 PM	East PA	Delaware Valley	144.250	WB2BJH/WA2ADS/N3BH
Wed	0200Z	9:00 PM	IA/MO/IL	Tri-State	144.250	WBOSWD/WB9WMM/N9CX
Wed	0200Z	9:00 PM	N. Texas	Hdqtrts	144.250	WD5DJT KA5NGG
Thu	0100Z	8:00 PM	Chicago	INDY	144.250	KC9WN/KA9EJJ/KA9MX
Thu	0100Z	9:00 PM	West VA	Triple-States	144.150	WB8ZTV/KJ8J
Thu	0300Z	8:00 PM	South Count	NORCAL	144.250	N6EIO, K9TGT, K6HX
Sat	1200Z	7:00 AM	North Texas	Hdqtrts	144.250	WA5DBY/K5ASZ
Sat	1500Z	8:00 AM	WA-ID-MT	Inland Empire	144.110	W7HAH/N7ART
Tue	0045Z	8:45 PM	MD to OH	Activity group	144.170	W3WN
Fri	0045Z	8:45 PM	MD to OH	Activity Group	144.170	W3WN
Sun	0045Z	8:45 PM	MD to OH	Activity Group	144.170	W3WN

WE WELCOME REPORTS FROM SWL OPERATORS. SEND REPORTS OF RECEPTION WHEN DX INVOLVED IS OVER 100 MILES, TO LEN HOOPS KC5IJ, 1704 GLENN DRIVE, FORT WORTH TX 76131. REPORTS RECEIVED WILL BE PUBLISHED IN THE SWOT BULLETIN. Name individual stations heard.

RADIO EASES HOBBYIST'S HOSPITAL STAY

By John F. Henault

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, I went to great lengths to prepare my SWL equipment and accessories.

The hospital stated that the only requirements were the UL approval stamp 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! After getting settled in, I set about the task of setting up the 2001 and active antenna, holding the DX-400 in reserve.

But no matter how hard I tried with either receiver, active antenna or 25 feet of wire hung out the window, AC or battery power, about the only SWBC stations heard were the normal powerhouses--BBC; 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 piped-in radio stations usually found in the hospital environment. Disappointment was the norm for that stay for sure.

Upon learning that an operation was required on my spine and I would be readmitted to a different hospital in Boston, I decided that there had to be some alternative to 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 next to impossible. The biggest detraction is 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 pro-

grammed 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 with just the telescoping whip supplied with the set. I was to become privy to many interesting adventures: a spectacular aircraft crash, rescue and emergency cases being transported 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 broadcasts 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 will prohibit any radio equipment which is not UL approved; and if the person is going to be in very close proximity to the Cardiac 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 same room be adverse to hearing the activity from the receivers.

Now that I am at home recuperating I can enjoy the shortwave rig to my heart's content; however, a normally-depressing, long hospital stay was certainly made much more enjoyable and tenable by the simple use of a scanner.

●●●●●

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 facts: (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 offshore." Some loggings:

- 1609.9 YOSEMITE NATIONAL PARK TIS
- 1623 ECUADOR Pastaza
- 1700.4 Raspy pulsed signal

1727

17 unmodulated carriers spaced 825 Hz apart. (A similar signal, with a spacing of 425 Hz was heard on 1762.25-1776.28)"

From Kermit Geary:

- 1620 Cubic Argo
- 1620 KA83774
- 1620 SDT beacon
- 1629 KA83781
- 1642 KA83337
- 1642 KA83795
- 1642 NV45 and dash
- 1667 USB signal, EE conversation
- 1692 MEJ beacon
- 1695 CUBA? R.Cadena Agremonte?

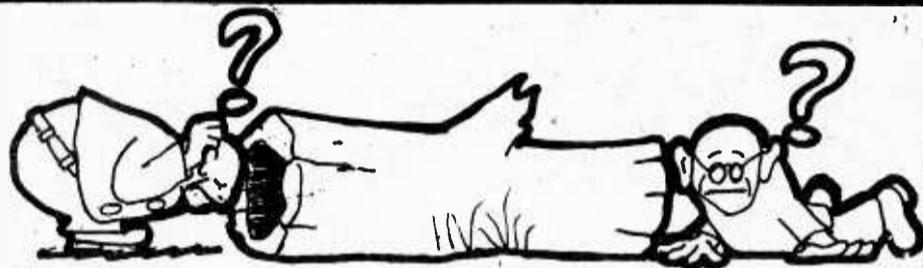
From John Ramsey:

- 1619 KA83772
- 1622 KA83775
- 1631 L425

MORSE-MARKED MONEY

By D.K. deNeuf, WALSMP
Probably the only coin 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 bead 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 really 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."



Listener's Log

Atlantic Coastal Scanning

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

(ED.NOTE: The following list is part of an installment

series; MT 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
LARC	NASA	FD	173.6125
LARC	NASA	KLATE HOLT	171.1500
LARC	NASA	SECURITY	173.6875
LEESBURG	PD		453.7250
LOUDON CO	FD	F1	46.3800
LOUDON CO	FD	F2	46.4000
LOUDON CO	FD	F3	46.3200
LOUDON CO	PD		155.9700
LOUDON CO	PD		156.0300
MANASSAS	FD		453.2000
MIDDLESEX	FD		33.9800
NAS NORVA	AMBULANCE		143.6250
NAS NORVA	ARCFT FUEL		140.3450
NAS NORVA	BASE EXCHANG	SECURITY	138.5250
NAS NORVA	CINCLANFLT	MOBILE OPR	142.5000
NAS NORVA	DEGAUSSING		356.2000
NAS NORVA	FD	CRASH/RESCUE	142.4800
NAS NORVA	FD	F1	140.1000
NAS NORVA	FD	F2	139.5750
NAS NORVA	FD	F3	139.9750
NAS NORVA	GRND SUPPORT		140.1750
NAS NORVA	HARBOR		385.0000
NAS NORVA	L.Y. SPEAR		139.5250
NAS NORVA	LANFLT		277.8000
NAS NORVA	NAS DUTY		142.6250
NAS NORVA	NATO		138.7750
NAS NORVA	NOB DUTY		149.0250
NAS NORVA	ORDNANCE		142.7500
NAS NORVA	ORDNANCE		140.9750
NAS NORVA	PD		140.9250
NAS NORVA	PD		150.0750
NAS NORVA	PD	F1	143.6000
NAS NORVA	PD	F2	140.5250
NAS NORVA	PD	NIS	140.0750
NAS NORVA	TUGS	DISPATCH	142.0500
NAS NORVA	TUGS	F1	141.9500
NAS NORVA	TUGS	F2	142.6500
NAS NORVA	TUGS	F3	142.0000

NAS NORVA	USS BYRD	139.4750
NAS NORVA	USS TEXAS	140.2750
NAS NORVA	USS DALHGREN	140.2750
NAS NORVA	USS YLLWSTN	139.4750
NAS NORVA	USS EISENHWR	139.5500
NAV WEAP STA	PD	149.4250
NAV WEAP STA	PD	149.0750
NEWPORT NEWS	AMATEUR	147.3750
NEWPORT NEWS	AMATEUR	146.8500
NEWPORT NEWS	AMATEUR	147.1650
NEWPORT NEWS	FD	154.1300
NEWPORT NEWS	LG	453.7000
NEWPORT NEWS	LG	155.9250
NEWPORT NEWS	LG	NNRHA 453.4500
NEWPORT NEWS	LG	PUBLIC WORKS 453.5500
NEWPORT NEWS	NNSDC	461.4750
NEWPORT NEWS	NNSDC	FD 462.2750
NEWPORT NEWS	PAT. HENRY	SECURITY 158.8650
NEWPORT NEWS	PD	F1 453.6500
NEWPORT NEWS	PD	F3 453.6000
NEWPORT NEWS	PD	SHERIFF 159.0900
NORFOLK	AMATEUR	146.7000
NORFOLK	AMATEUR	52.5250
NORFOLK	FD	DISPATCH 154.1900
NORFOLK	FD	FIREGROUND 154.2350
NORFOLK	NAVAL SHIPYD	CRANE TESTNG 138.6750
NORFOLK	NAVAL SHIPYD	DETECTIVES 140.1250
NORFOLK	NAVAL SHIPYD	DISPENSARY 143.5000
NORFOLK	NAVAL SHIPYD	FIRE 140.7000
NORFOLK	NAVAL SHIPYD	NUCL.REFUEL 142.6800
NORFOLK	NAVAL SHIPYD	NUCLEAR HT 149.1000
NORFOLK	NAVAL SHIPYD	NUCLEAR/INSP 140.9400
NORFOLK	NAVAL SHIPYD	NUCLEAR/INSP 141.9750
NORFOLK	NAVAL SHIPYD	PAGING 148.3750
NORFOLK	NAVAL SHIPYD	POLICE 140.8200
NORFOLK	NAVAL SHIPYD	PUBLIC WORKS 139.5000
NORFOLK	NAVAL SHIPYD	RADCON F2 140.8750
NORFOLK	NAVAL SHIPYD	RADCON F1 140.6250
NORFOLK	NAVAL SHIPYD	RIGGERS 143.5800
NORFOLK	NAVAL SHIPYD	SHOP 56 143.6750
NORFOLK	NAVAL SHIPYD	SHOP 26 142.8250
NORFOLK	NAVAL SHIPYD	SUPPLY 142.6000
NORFOLK	NAVAL SHIPYD	TRANSPORT 148.2900
NORFOLK	NAVAL SHIPYD	TUG CONTROL 140.7600
NORFOLK VA	NORF INTL	SECURITY 156.0000
NORFOLK	ODU	PAGING 158.4600
NORFOLK	ODU	SECURITY 464.8250
NORFOLK	PD	F1 YOUTH 156.2100
NORFOLK	PD	F2 DETECTIVE 155.6400
NORFOLK	PD	F3 155.3100
NORFOLK	PD	F4 TRAFFIC 155.7900
NORTHERN VA	PD	MUTUAL AID 154.2800
POQUOSON	FD	154.3400
POQUOSON	PD	453.2000
PORTSMOUTH	AMATEUR	146.8500
PORTSMOUTH	AMATEUR	444.2500
PORTSMOUTH	COAST GUARD	165.2625
PORTSMOUTH	FD	154.4450

LISTENERS LOG

PORTSMOUTH	PD		460.0250
PORTSMOUTH	PD		460.1000
PORTSMOUTH	PD		460.3000
PRINCE WM CO	FD		154.4450
PRINCE WM CO	FD	DISPATCH	154.3250
PRINCE WM CO	FD	FIREGROUND	154.3700
PRINCE WM CO	PD	F1	453.3750
PRINCE WM CO	PD	F2	453.4750
QUANTICO	FD		149.3500
QUANTICO	PD		149.1000
QUANTICO	PD		149.1300
RICHMOND	ALLIED AMB	DISP	155.2800
RICHMOND	AMATEUR		147.0600
RICHMOND	AMATEUR		146.8800
RICHMOND	AMATEUR		146.9400
RICHMOND	AMATEUR		146.6400
RICHMOND	AMATEUR		145.4300
RICHMOND	FD		154.1300
RICHMOND	HEAR		155.3400
RICHMOND	LG		453.5250
RICHMOND	LG		453.7750
RICHMOND	NEWSPAPER		453.0000
RICHMOND	PD		460.1000
RICHMOND	PD		460.2000
RICHMOND	PD		460.3000
RICHMOND	PD		460.4000
RICHMOND	PD		460.5000
RICHMOND	PD		460.3250
RICHMOND	UNIV OF VA		154.7850
ROANOKE	FD	CITY	155.8200
ROANOKE	FD	CITY	154.3100
ROANOKE	FD	F1	45.8800
ROANOKE	FD	F2	46.4800
ROANOKE	PD		156.1500
ROANOKE	PD	F1 CITY	155.1300
ROANOKE	PD	F2 CITY	155.4900
ROANOKE	PD	SHERIFF CITY	453.0500
ROANOKE	PD	TACTICAL	155.7900
SALEM	PD		453.2250
SALEM	PD		453.3250
SALEM	PD		453.4750
SKYLINE DRV	NTL PARK SVC		166.9000
SUFFOLK	FD		154.0700
SUFFOLK	FD		154.3850
SUFFOLK	PD	BASE RPTR	155.1900
SUFFOLK	PD	BASE	158.7300
SUFFOLK	PD	MOBILE	159.0300
TIDEWATER	BRINKS		159.4950
TIDEWATER	CBN		450.7000
TIDEWATER	CHES/PORTS		450.5500
TIDEWATER	CITY AMB.		155.6100
TIDEWATER	DAILY PRESS		173.2250
TIDEWATER	FD	MUTUAL AID	154.2950
TIDEWATER	HEAR		155.4000
TIDEWATER	HPT RDS BDC		450.2125
TIDEWATER	KINGS DGHTRS		460.5250
TIDEWATER	KINGS DGHTRS		460.5000
TIDEWATER	LANDMARK COM		173.3250
TIDEWATER	METRO AMB.		155.2350
TIDEWATER	PENTRAN		453.7750
TIDEWATER	PENTRAN		453.8250
TIDEWATER	PORT AUTH	BASE-MOBILE	453.8750
TIDEWATER	PORT AUTH	BASE	154.7850
TIDEWATER	PORT AUTH	BASE-MOBILE	453.9250
TIDEWATER	PORT AUTH	BASE-MOBILE	154.8750
TIDEWATER	PORT AUTH	BASE-MOBILE	453.9750
TIDEWATER	PORT AUTH	BASE-MOBILE	453.9500
TIDEWATER	PURULATOR		452.6250
TIDEWATER	RADIO TDWTR		153.0500
TIDEWATER	RADIO TDWTR		153.1100
TIDEWATER	RIVERSIDE		157.7400
TIDEWATER	RIVERSIDE	SECURITY	464.4250
TIDEWATER	RIVERSIDE	SECURITY	469.4250
TIDEWATER	SMILES		166.2500
TIDEWATER	SPCA		151.9550
TIDEWATER	TRT		453.5250
TIDEWATER	TRT		453.3750
TIDEWATER	WAVY		450.4125
TIDEWATER	WCMS		161.6700
TIDEWATER	WGH		161.6400
TIDEWATER	WNIS		455.0500
TIDEWATER	WTAR		163.7300
TIDEWATER	WTAR		161.7000
TIDEWATER	WTAR		450.5875
TIDEWATER	WVEC		455.1500

TIDEWATER	WVEC		450.1500
TIDEWATER	WVDE		450.6125
VA BEACH	AMATEUR		147.0450
VA BEACH	AMATEUR		444.9500
VA BEACH	AMATEUR		146.9700
VIENNA	PD	BASE/MOB	155.7000
VIENNA	PD	HANDHELD	156.0900
VIRGINIA	BRIDGES		47.3400
VIRGINIA	C & P	EMERGENCY	151.9850
VIRGINIA BCH	FD	DISPATCH	154.3700
VIRGINIA BCH	FD	FIREGROUND	460.5250
VIRGINIA BCH	PD	1ST PCT	158.8500
VIRGINIA BCH	PD	1ST/3RD PCT	158.7900
VIRGINIA BCH	PD	2ND PCT	158.8500
VIRGINIA BCH	PD	SURV.	156.1500
VIRGINIA	STATE PD	BASE	159.1350
VIRGINIA	STATE PD	BASE	159.1650
VIRGINIA	STATE PD	BASE	159.0000
VIRGINIA	STATE PD	BASE	158.9850
VIRGINIA	STATE PD	BASE	159.1350
VIRGINIA	STATE PD	MOBILES	154.6650
VIRGINIA	STATE PD	MOBILES	154.9350
VIRGINIA	STATE PD	MOBILES	154.4450
VIRGINIA	STATE PD	MOBILES	154.6950
VIRGINIA	STATE PD	MOBILES	155.4600
VIRGINIA	STATE PD	MOBILES	458.3500
VIRGINIA	STATE PD	MOBILES	154.9050
WMBG	AMATEUR		146.6700
WMBG	BUSCH GRDNS	SECURITY	463.7750
WMBG	FD		154.1450
WMBG	FD		460.0500
WMBG	WM & MARY		154.1000
WMBG	WM & MARY	SECURITY	154.1000
WMBG	WM & MARY	SECURITY	154.8000
WMBG	WM & MARY	SECURITY	460.4250
YORK CO	FD		154.4000
YORKTOWN	NTL PARK SVC		168.4250
YORK CO	PD		453.1500

CANADIAN MILITARY MONITORING	38.400	Land Force Mob. Op.	
(VHF/UHF)	40.800	" " " "	
QUEBEC	43.300	" " " "	
	45.800	" " " "	
Freq. MHz	42.400	Mobile Ops.	
Base: Valcartier	44.300	" "	
172.470	ARMY:	44.900	" "
172.560	Admin., Firing Range		
173.460	Fire, Service		
173.370	Control Tower		
173.250	Military Police		
173.580	Security Firing Rng		
173.670	Transport of vehicles		
49.900	Firing Range		
45.800	Heli. & Twr. Ctrl.		
40.500	Heli. & Twr. (Emerg. Evac.)		
43.800	Admin., Firing Range		
245.100	Field Range		
258.700	Field Range		
307.600	Twr. Ctrl. Primary		
126.200	Heli. & Twr. Ctrl.		
243.00	Ctrl. Twr. Emerg.		
121.500	Ctrl. Twr. Civil Emergency		
173.160	Research Center		
173.220	Research Center		
173.280	Research Center		
154.570	Munitions Security		

BRITISH COLUMBIA		
149.140	BC Army Provost	
149.650	" " "	
149.350	Chilliwack Army Provost	
149.230	" " "	

TUNE IN CANADA



by **Norman H. Schrein**

FOX MARKETING, INC.
 4518 Taylorsville Road
 Dayton, OH 45424

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. CJL 48
- 79.000 Canadian Broadcasting Corp/CBLT
- 118.000 Dept of Transp/VGB

TUNE IN CANADA

130.650	General Aviation Services/CJQ549	161.355	same
140.190	RCMP/XJE79	161.415	Can. Nat'l RR CHB641
140.400	same	161.475	Can. Pacific RR CHB938
140.470	Ontario Prov. Amb. XMI881	162.330	CFRB Ltd./CJY836
149.47	P (paired freq)	163.320	BDC Ltd./VCL775
143.060	Radio Phones/CHC215	163.350	Aprile Contracting CJ0775
148.060	P	163.470	Allard Radio Serv. CHC84
148.105	York Telecommuni- cations/CHC273	167.520	P
149.020	Christie Brown & Co/VCL765	164.460	York Telecommuni- cations/CHC273
149.770	Bell Canada/CGG501	168.480	P
150.100	Ontario Prov. Amb./ XMI881	164.520	same
150.160	Canadian Nat'l RR/ CZV361	168.540	P
150.460	same/CHB604	164.910	same
150.610	same/CZV362	169.725	P
150.670	Radio Rogers/CJY731	165.660	same
151.790	P	170.430	P
151.055	General Aviation Services/CJQ549	166.080	Bell Canada/CGD364
151.055	Lumb & Scotland/ VCK433	163.050	P
151.085	General Aviation Services/CJQ549	166.170	York Telecommuni- cations/CHC62
151.355	The Consumers Gas Co/CJP938	170.100	P
151.565	Dufferin Materials & Const./CZX87	166.290	same
151.625	Alcan Colony/ CJP887	170.460	P
151.685	Kilmer Van Nostrand CJP861	167.850	Air Canada/CJM930
152.180	same	170.010	S McCord & Co/CJD562
152.345	Dufferin Materials/ CJQ46	170.430	Byers Motors/VCL833
158.325	P	170.580	S McCord & Co/CJ0562
152.350	Bell Canada/CGG273	171.360	Premier Bldg Mater- ials/CJM741
152.870	CBC/CJY828	171.600	Can. Bldg. Materials CJ0350
170.150	P	171.810	Premier " "/CJM741
153.005	Can. Gen. Electric/ CJM763	171.900	Can. Pacific Express CJV320
153.050	CKEY, Ltd/CJY33	171.930	Can. Bldg. Mat./CJ0350
153.320	Coin-A-Matic of Ontario/CJU58	172.080	Allway Transp. Serv/ VCL761
153.710	Toronto Hydro Elec System/XJH24	172.290	Bell Canada/CGG280
154.460	Can. Motorola Elec CJQ460	172.470	Molsons Brewery VCL759
154.570	Hilroy Envelopes & Statry/CJ0417	172.845	Eastern Construct. VCL717
154.740	Bell Canada/CGG723	172.875	CBC/CJY828
154.845	Toronto Hydro Elec Sys/XJH24	166.250	P
155.310	Dominion Electric Protection/CJM38	173.910	Olympia & York Development/VCM584
155.610	Can. General Elec. CKA77		
160.150	P		
156.000	Decca Radar Can./ VE9GC		
156.450	Royal Can. Yacht Club/CJQ717		
158.010	Bell Canada/CGG723		
158.160	Toronto Peterborough Transport/CJQ441		
158.370	Foster Hewitt Broad- casting/CJY58		
159.015	York Telecommuni- cations/CHC273		
159.885	Canadian Pacific RR CZA266		
159.930	same/CJU716		
160.665	same/CHB606		
160.875	same/CZA28		
160.905	same/CZA209		
161.115	same/CHB938		
161.205	Canadian Nat'l RR CHB641		
161.295	same/CZV346		
161.325	Can. Pacific RR CHB938		

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 List- ings."

Now on to Weatheradio Canada which transmits a cycle of 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, aver- aging 5 minutes. Normally the cycle includes: severe weather warnings; current weather forecasts; synopses, giving background to the forecast and longer range trends plus special weather information for agriculture, recreation, utilities, con- struction and travel and transportation.

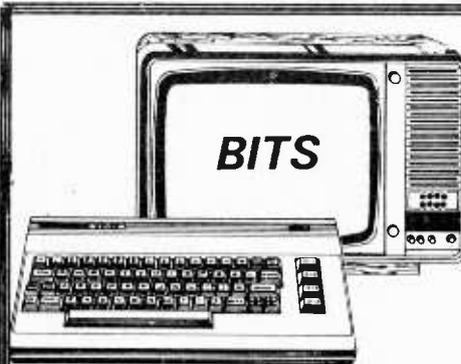
Cross-Canada weather reports, forecasts and weather information for selected vacation centers may also be featured. Pro- gram content will be adjust-

ed to accomodate users' changing needs.

The current roster of stations is listed below.

Gander--162.550; Halifax-- 162.550; Moncton--162.550; Quebec--162.550; Montreal-- 162.550; Toronto--162.475; Winnipeg--162.550; Saska- toon--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!



Ham Radio Computer Communications

by
Rich Casey
N5CSU
313 Biscay Drive
Garland, TX 75043

Amateur radio operators are, generally, a rather inquisitive breed. When home computer kits like the Altair and the Imsai first 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 sur- prising that home computers have become an integral part of many modern "ham shacks." While computerized log- books, satellite orbit tracking programs and con- test logs are common, the computer is really at its full potential only when it is connected to radio equip- ment and put "on the air."

Every brand of home computer is represented on the international short wave ham frequencies, and on our local VHF and UHF ham bands. Using a computer, teletype transmissions, ASCII tones, the Morse code and other more exotic codes can be sent, received and decoded with equal ease.

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

DATA's all-ASCII re- peater allows sending and receiving of graphics and program listings, as well as

enabling casual conver- sations over the air via keyboard. All that is re- quired is a personal computer, an amateur radio modem (the audio tones used are different than in a telephone type modem), and any two meter ham trans- ceiver.

One of the unique fea- tures of the DATA system is that real-time weather in- formation is relayed by com- puter onto the network. Also, a Richardson, Texas ham downloads the national ham bulletins broadcast on shortwave each day from the American Radio Relay League in Newington, Connecticut, and retransmits them on the local DATA repeater.

A computer monitoring the DATA system receives all the current weather infor- mation plus the latest amateur radio news, short wave propagation forecasts, and ham satellite bulletins.

Just like telephone computer bulletin boards, amateurs around the world have radio bulletin board systems operating on the ham bands. Locally, we have a board available each evening on the DATA repeater. During the day, it is switched over to a frequency on the 20 meter ham band.

I carried on an ex- tended conversation during 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 mailbox system named CSU on the two meter band, using my old TRS-80 Model 1. Instead of ASCII audio codes, however, I use five level Baudot, as many hams have old surplus tele- type machines that cannot be used on ASCII. This way, their old 1940's clunkers can still be put to use in talking to a computer.

It is a unique exper- ience having a conversation with someone in real time using a keyboard instead of a microphone. Those of you who have used CompuServe's CB Simulator for modem com- munications by phone know what I mean. Using the airwaves for this activity really saves on your monthly billing charges!

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

BITS

ham's computer to another's. More important than speed, however, packet interchanges include Cyclic Redundancy Checking (CRC). This sophisticated technique, often used in disk copying procedures, assures 100% error-free copy of all received text.

Packet radio activity is starting to take off in the Dallas area, with ten stations appearing on the air this past year on 147.57 MHz. They squirt information packets at 1200 baud back and forth and include a packet bulletin board.

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 RAM—enough memory on board for 1 million characters of information.

The eventual goal of the PACSAT program is to have "gateway 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 messages in PACSAT's computer marked 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.

Back on earth, a 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. This is an outgrowth of our experience in providing emergency communications in the aftermath of the Wichita Falls and Paris, Texas, tornados.

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

bandpass filter section. Cut the wire and position or tape so that will not touch any other components.

This modification will not allow the preamp to operate at the broadcast band and below. However, it is recommended that the preamp switch be shut off below about 200 kHz or the filtering will actually attenuate rather than amplify signals lower in frequency.

THE R71A

Remove the top screws and the top of the cabinet. Locate the RF unit on the right side and find the two BA618 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 preamp will now provide an additional 1-5 dB gain at the broadcast band while still switching off automatically below 500 kHz.

ICOM users must be 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 modification hints through the pages of MT. We concur.

As a starter, Gregory would like to share the results of some worthwhile 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 not exist on my receiver. I took the bottom cover off the receiver and found a pin where the switch would connect and I found a wire which was plugged onto a "blank" pin (apparently to keep the wire from flopping around). The two pins on the board are labeled.

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

When the switch is closed, the "Program Scan" feature of the radio will behave 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 I.F. ceramic filter from my junk box and put it on a switch with the existing 6 kHz wide filter. This eliminates the 5 kHz heterodyne so often encountered using the 6 kHz filter, yet provides better audio fidelity than the 2.7 narrow filter does.

Now I have 3 I.F. filter positions for AM reception.

.....

HEAR 2-METER SSB ON AN FM RIG

All you need is a programmable scanner to act as a signal generator (BFO) and you can listen to ham two-meter SSB on an FM ham rig or another scanner.

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

THE PROCEDURE

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 signal.

The malady 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 on it; that carrier can come from the oscillator of a nearby programmable scanner.

For example: A common nationwide 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.

With Regency and Radio Shack scanners used as signal generators, use 10.7 MHz (after confirming that IF in the owner's manual).

A similar procedure may be used with ACSB, now coming into use in the VHF spectrum.

Some amount of experimentation must be done to assure the correct amount of signal coupling between the radios; try various degrees of physical separation as well as different whip lengths on the signal-generating scanner.

We would like to thank reader Dan Mulford KA9DZM of Osgood, Indiana for this excellent listening tip.

HELPFUL HINTS**Improvements For****The ICOMs**

by
Dave Wilson

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. For the "RESUME SCAN" function to operate as described on page 13 and 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 slid 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 rota-

tional rate of the main tuning dial.

Curiously, with the TS switch activated, the incremental tuning speed is greater when the dial is turned slowly than when it is turned fast! With the TS switch in, tuning rate is 2 MHz per revolution in one-kHz steps when turned slowly, but 1 MHz per revolution when turned fast.

With the TS switch out, tuning speed is 2 kHz per revolution slow in 10 hertz increments, and fast it is 1 MHz per revolution in 50 hertz steps.

5. While the FL-32 CW filter was included on the R70, it must be ordered separately for the R71A.

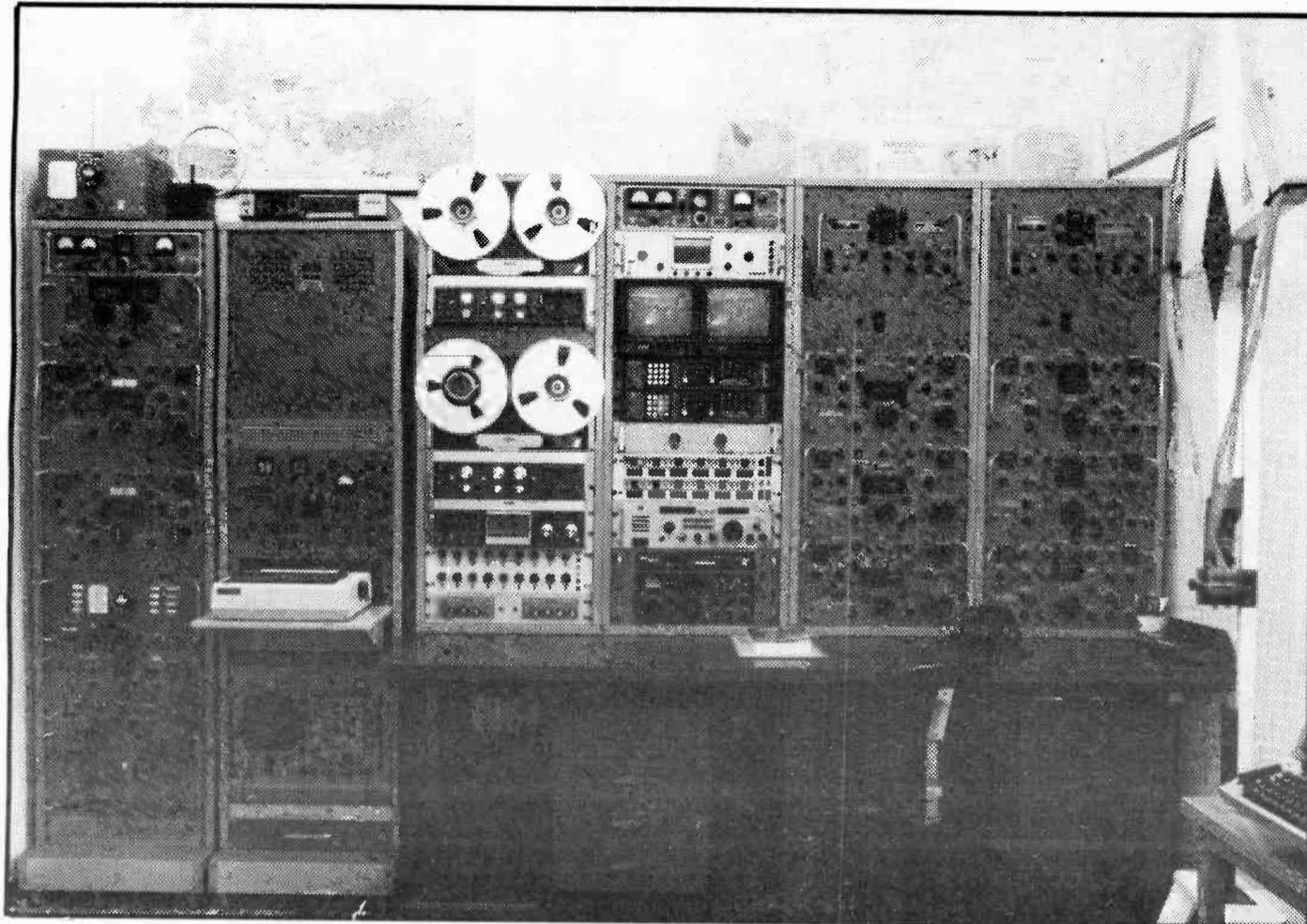
IMPROVED BROADCAST BAND SENSITIVITY

The built-in pre-amplifier is automatically shut off when tuning frequencies below 1600 kHz both receivers are easily modified using a small pair of wire cutters and a good Phillips screwdriver to avoid reaming the slots of the soft cabinet screws.

THE R70

Remove the top screws and the top of the cabinet. Locate the RF unit on the right side and find the bandpass filter section (see page 18, figure 7-2 of your owner's manual).

Locate the wire (red in my unit) going to point G in the upper left corner of the



DREAM MONITORING POST

Robert Pieraccini of Pistoia, Italy, is justifiably proud of his monitoring post. Comprised largely of military surplus receivers, his six equipment racks feature the following gear:

(1) AN/FRR-33 receiving set composed of C-973/FRR-33 remote control, CU-286/FRR-33 antenna coupler, two R-391/URR receivers, C-974/FRR-33 control unit, C-975/FRR-33 automatic tuning unit and PP-629/FRR-33 power supply. A Northern Radio Company model 174 diversity FSK converter occupies the first position in the rack.

(2) Two LS-206A/U loudspeakers are mounted above an R-220/URR receiver, below which are an Epson MX-80 III printer and TS-1379/U spectrum analyzer. A Sony VTX-100 TV tuner sits atop the rack.

(3) Two B-77 and one B-710 Revox tape recorders are switched between Autek filters.

(4) A Northern Radio Company 174 FSK converter is followed by a Telequipment S54AR oscilloscope for RTTY tuning; two video monitors are connected to mating Infotech M600A multimode RTTY/Morse demodulators; an ITT PS300 0-30 MHz passive preselector is followed by digitally-controlled antenna switches providing 120 combinations; lastly, a Drake R-4245 receiver is mounted adjacent to a JRC NRD-515 with NDH-518 96-channel memory unit.

(5) Three Collins R-390A/URR and three Collins R-389/URR receivers provide shortwave and longwave dual-diversity reception; SSB is enhanced by two matching CV-157/URR converters.

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. Doynen, 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-255/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 pilot tone. Increasing 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, Mesa, 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 835-845 MHz range, with bases in the

880-890 MHz swath.

•••••

Q Can I use my Sony AN-1 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? (C.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 frequencies may be 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



TECHNICAL TOPICS

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.

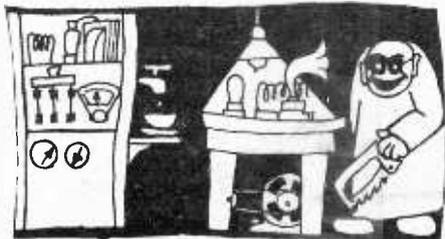
●●●●●

Q What is the purpose of the converter jack on the back of my ICOM R-70? And how about the accessory connector? (Craig Rocha, 2542 Mobley 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.

Can any of our readers help Craig on this one?

EXPERIMENTER'S



WORKSHOP

FRG-7700

256-Channel Memory

Revisited

I recently bought a used Yaesu 7700 with MU-7700 Memory Unit. I installed it in the headboard in our bedroom. In order to use the Memory Unit while flat on my back and half awake I needed something workable in darkness that would fall to hand better than eight toggle switches and binary number placement.

To that end I fashioned an 8-bit Hexidecimal Encoder which addresses the UPD 5101 LC memory chips in the MU-7700 via two 4066 Quad Bilateral Switch IC's. This permits accessing the MU-7700 by pressing two keys instead of manipulating eight toggle switches.

Reproduced below is my schematic for this device. If you need details drop me a line along with an SASE and I'll be more than happy

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

A reasonable clear explanation of decimal/binary/hexidecimal conversion appears in the August 1984 edition of Radio Electronics. See sub-heading, "Binary, Decimal, and Hexidecimal" on page 54 which appears within an article dwelling on interfacing a ZX81 Computer.

Over the years I've made a lot of home brew equipment, and much of it seemed 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 Ladeene Avenue
Torrance, California 90503

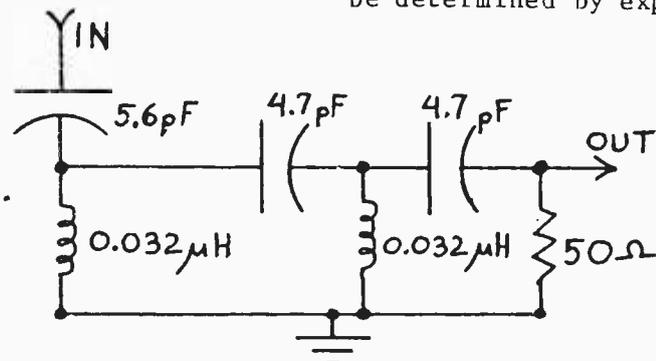
One of our readers discovered that he could enjoy better 225-400 MHz military aircraft reception on his Regency MX-5000 if he inserted a 225 MHz high pass filter between his antenna and the radio.

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 #22 solid on a 1/8" diameter form; actual configuration will have to be determined by experiment.

IMPROVED UHF ON THE MX-5000



IC1
HDO-165 KEYBOARD ENCODER

IC2
74LS123 DUAL RETRIGGERABLE MONOSTABLE MULTIVIBRATORS

IC3 & IC4
74LS175 QUAD D-TYPE FLIP-FLOP

IC5 & IC6
4066 QUAD BILATERAL SWITCH

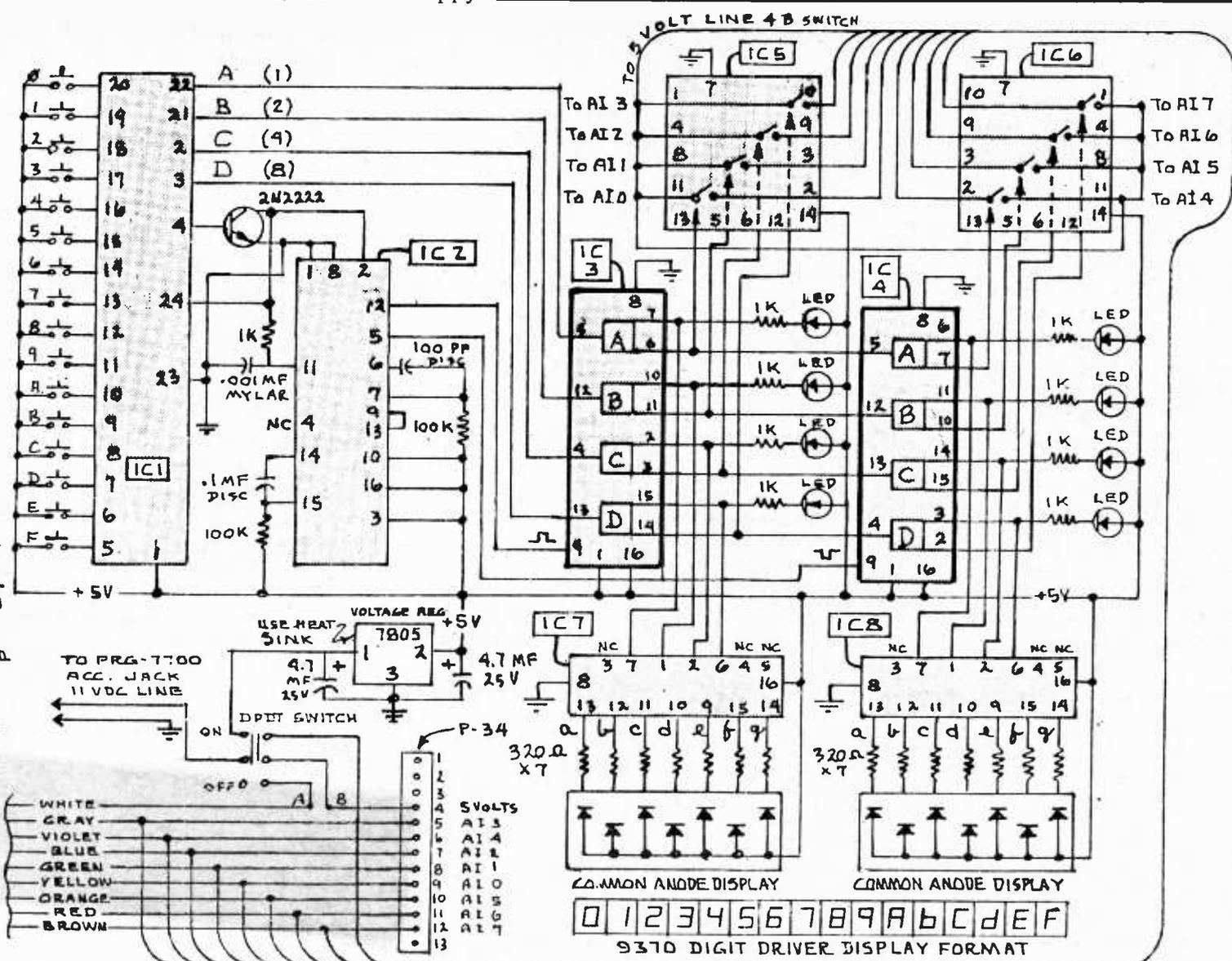
IC7 & IC8
9370 7-SEGMENT DIGIT DECODER/DRIVER

OPERATION

ADDRESSES 8-BIT MEMORY CIRCUIT IN FRG-7700 M.U. BY PROVIDING 2 HEXADECIMAL DIGITS FROM SEQUENTIAL KEY ENTRIES. EIGHT L.E.D.'S MONITOR THE 8-BIT LOGIC AND TWO 7-SEGMENT DISPLAYS PROVIDE READ-OUT OF KEYBOARD CHARACTERS ENTERED. LEAST SIGNIFICANT BIT APPEARS ON THE RIGHT.

HEXIDECIMAL CODE

KEY	BINARY
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
A	1010
B	1011
C	1100
D	1101
E	1110
F	1111



FRG-7700 256-CHANNEL MEMORY ADDRESSER SCHEMATIC

DWN: Don Schrank

DATE: MAY 19, 1984

STOCK EXCHANGE

PERSONAL

NOTE: Monitoring Times assumes no responsibility for misrepresented merchandise.

SUBSCRIBER RATES: \$.10 per word, paid in advance. All merchandise must be non-commercial and radio-related. Ads for Stock Exchange must be received 45 days prior to publication date.

HEATH HW-5400 Transceiver with HW-5400-1 Power Supply. In excellent condition, factory aligned, cost \$950. Will take \$400. Al Huntley, RFD #1, Box 685, Windsor, Vermont 05089. (802)674-5415.

KENWOOD R2000, in mint condition, \$440 (or best offer). YAESU FRG7, excellent condition, \$180 (or best offer). Write: Patrick Rudolph, 382 Allen Drive, Wadsworth, Ohio 44281.

Bob's Bargain Bin - All prices include shipping!

EICO 950B resistance/capacitance bridge-comparator, excellent with manual. \$35.

MODUBLOX SRPK-01 solar power pack, provides 12 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 \$950 UPS.

BELL AND HOWELL Film-sound 170 16mm sound movie projector. An oldie but a goodie. Only \$100.

Approximately 1000 feet of GROVE CBL low-loss coax in miscellaneous lengths, 5 to 400 feet each. Value \$150, only \$50.

Six rolls (approx. 50 ft. per roll) of 25-pair (50 conductor) telephone cable. \$25 UPS.

Bob Grove, 140 Dog Branch Rd., Brasstown, NC 28902.

JOIN A RADIO LISTENING CLUB. Complete information on major North American clubs for 25¢ and SASE. ASSOCIATION OF NORTH AMERICAN RADIO CLUBS, 1500 Bunbury Drive, Whittier, CA 90601.

COMMERCIAL

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

SCAN-LOC
FOR THE TS-430S
HALT ON ACTIVE FREQUENCY
OPERATES WITH MS OR PG.S MODE
ADJUSTABLE RESUME DELAY
COMPLETELY INTERNAL
NO HOLES OR MODS
5-WIRE INSTALLATION
TRANSPARENT TO NORMAL OPERATION
ACTIVATED BY LOCK SWITCH
TRIGGER POINT SET BY RF GAIN
\$16.95
--AVAILABLE FROM--
MICROCOMM
P.O. BOX 1003
MAULDIN, SC 29662

NEW! BEARCAT 201, 9 Band - With aircraft, 16 channel, programmable, great with Grove Scanverter. Lowest price around \$195.

MX7000, 25-1.2 GHz, only \$454. Write for flier or special prices:

J. C.'s Radio Shop
Box 5, Hunt Street
Osgood, IN 47037

CUSTOMIZED FREQUENCY RESEARCH
Send \$1.00 (credited to first order) and SASE for complete details of this service. Businesses, Federal Government, and other services researched.

CP COMMUNICATIONS
Box 997
Las Vegas, Nevada 89125

FINALLY, A FREQUENCY BOOK FOR YOUR LOCAL AREA--not several states or half the country! The new **FOX SCANNER RADIO LISTINGS DIRECTORY** has thousands of listings cross-referenced three different ways for easy use. Currently available in the following cities:

Cincinnati/Dayton; Columbus; Toledo; Cleveland; Ft. Wayne/Lima; Chicago; Detroit/Windsor; Buffalo/Niagara Falls; Minneapolis/St. Paul; Louisville/Lexington; Tampa/St. Pete; Orlando/Daytona Bch; Oklahoma City/Lawton; Kansas City; Dallas/Ft. Worth; Los Angeles; Hawaii/Guam. Specify city when ordering; Send \$9.95 Check or Money Order plus \$1.00 First Class Postage to:

EXECUMAIL SERVICES CO
Dept. A., P.O. Box 61
Dayton, OH 45404

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, WB2EUF, 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: R 388 (51 J 4), R 390 A and R 392. If anyone can help, please answer to, F. BRUNS, Stupfstr. 2, D-8 MUNICH 19, West Germany.

Is there a need for a monitor receiver crystal exchange? Send comments to Bruce Owings, WA4BPV, 2483 Gwinn 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 meters September 14; Instructions on making a home-brew 5 kHz slot filter. Richard L. Baumgart, P.O. Box 725, Columbus, NE 68601-0725.

(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 9006, RCA Model 9-X-562 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?

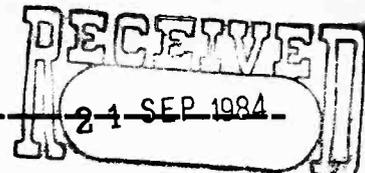
John Stauber, spokesman for the Wisconsin-based "Stop Project ELF" was quoted recently as saying, "As long as Reagan is in office, ELF will sail through Congress."

Project ELF, an extremely low frequency (76 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) area 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 Skwirsk for sending the news clipping which provided this latest information.)



Wanted - Active US Postal Service Frequencies for the Boston, MA. area. Also, radio channels in use for "extend-a-phone" remote transmit + base receive frequencies. Anthony J. Zalvis III, P.O. Box 51, Wellesley Hills, MA 02181.

GROVE ENTERPRISES
P.O. Box 98
Brasstown, NC 28902

RUSH!
**NEWS
VALUE**

**BULK RATE
POSTAGE PAID**
Grove Enterprises
PERMIT No. 4
Brasstown, NC
28902

GOODMAN, DAVID J.
31870 HIRAM TRAIL

CHAGRIN FALLS

1/ 1/85

OH 44022

**DON'T LET YOUR SUBSCRIPTION LAPSE!
CHECK THE DATE ON YOUR MAILING LABEL**

SEE MAILING LABEL FOR SUB. EXPIRATION MONTH/DAY/YEAR