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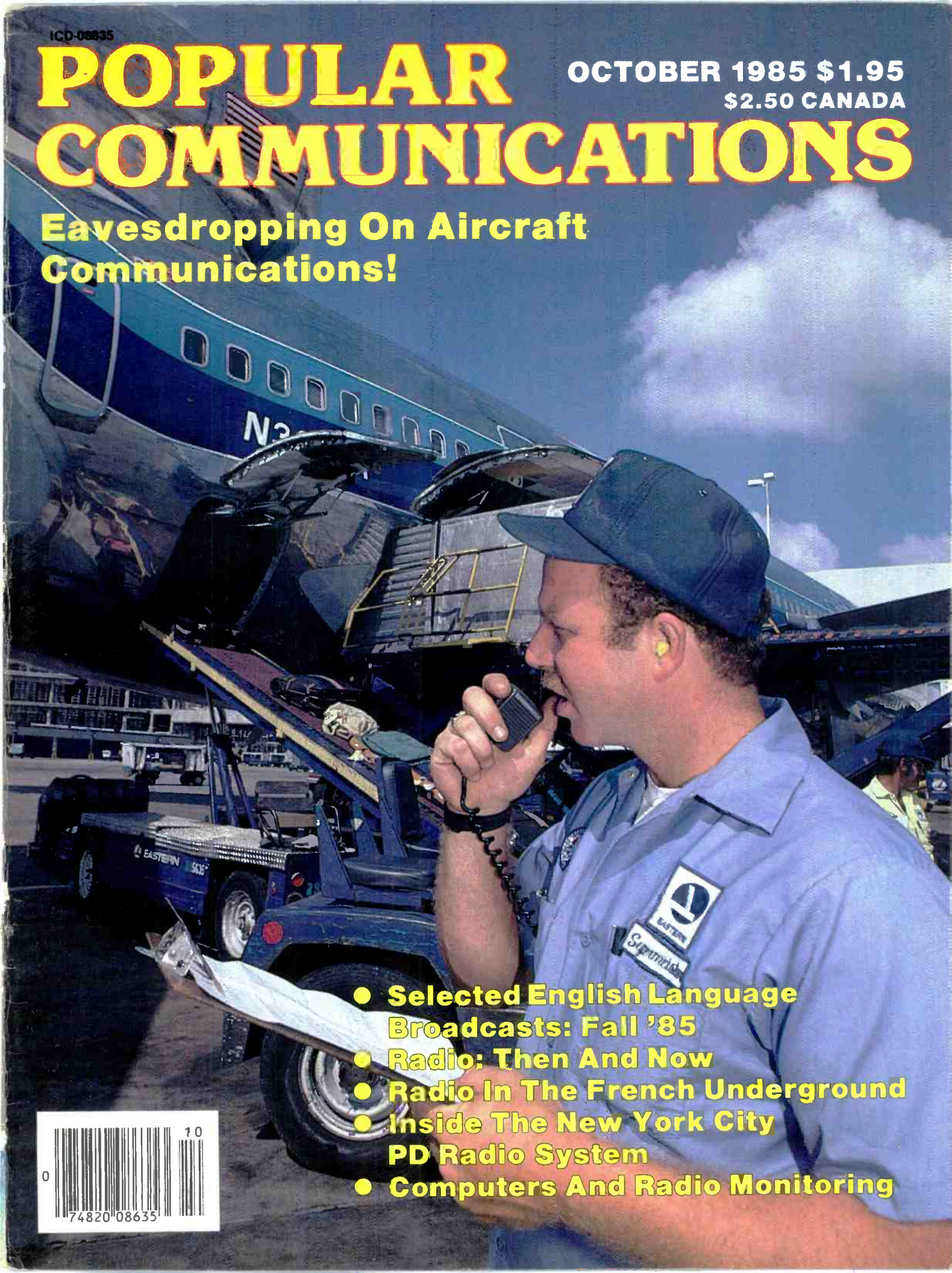

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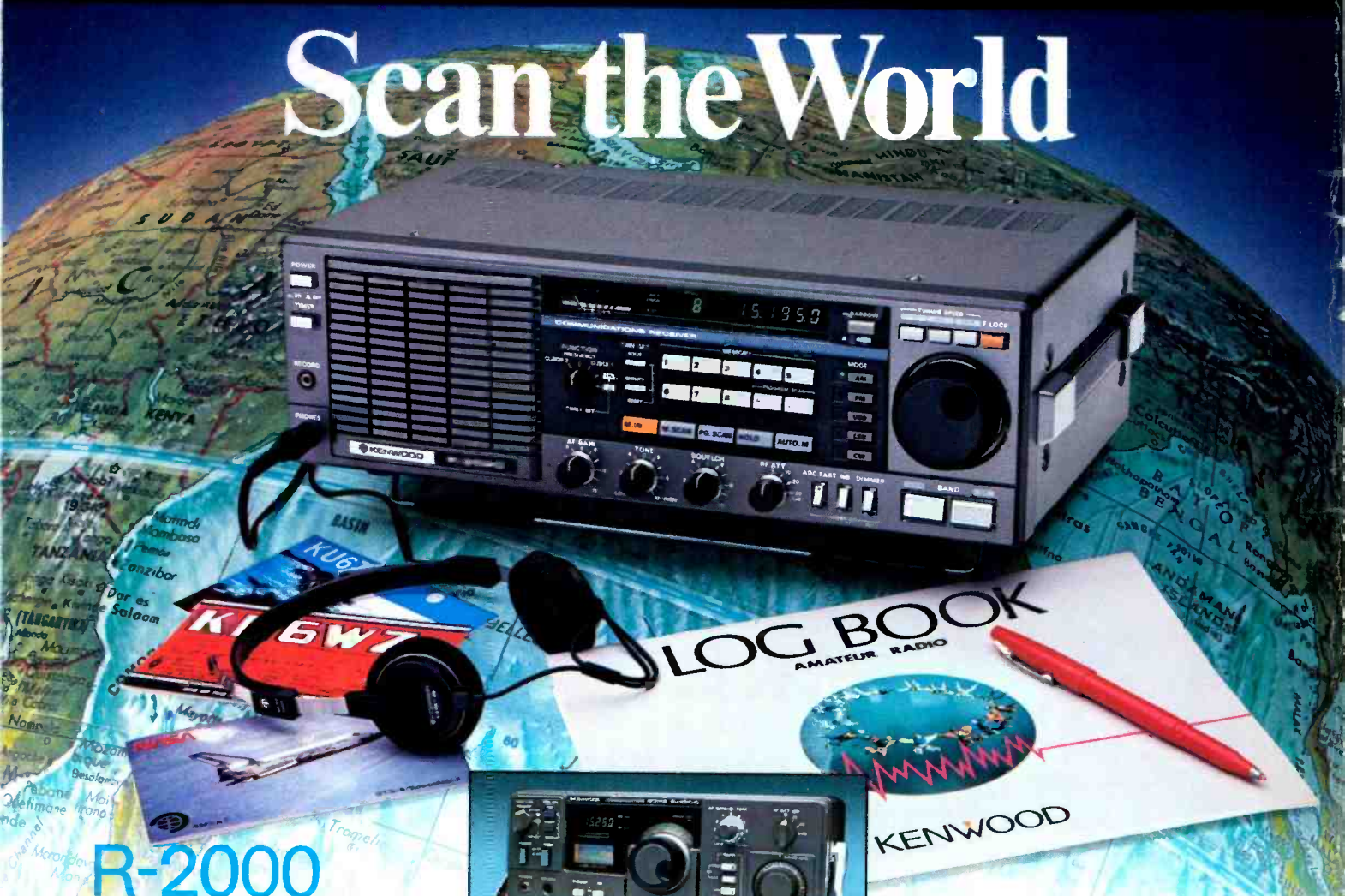

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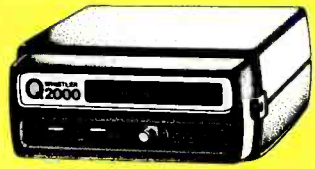

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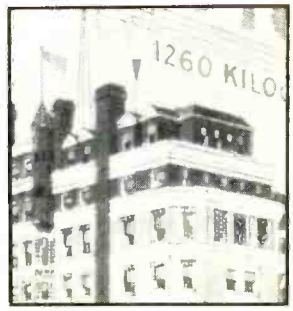

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FEATURES

This month's cover: *In Miami, Eastern Airline's Mitchell Segermeister exchanges some communications with his dispatcher. Check out the user report on the new SONY AIR-8 hand-held programmable VHF aero band scanner in this issue. Photo by Larry Mulvehill, WP2ZPI.*

DEPARTMENTS

BEAMING IN

BY TOM KNEITEL, K2AES

AN EDITORIAL

Talk Softly And Carry A Big Stick

Last May, the Voice of America unveiled its new broadcast band service to Cuba, Radio Marti. This station is located on Sister's Creek Island in the city of Marathon, Florida. The station's inauguration was marked by two important reactions.

First, Cuba's Castro said he was ending a December 14 agreement that approved the immigration to the USA of about 20,000 Cubans annually as a swap for taking back 2,700 Cuban "undesirables" presently in American prisons. Castro also said that he would no longer allow any Cuban-Americans to visit their former nation.

Secondly, and of considerable significance, HBO's satirical cable TV program, *Not Necessarily The News*, quickly produced a bitingly sharp parody about Radio Marti in which the station was portrayed as a raucous American style "Top 40" rock station, complete with a screaming DJ who made Wolfman Jack sound as sedate as David Brinkley by comparison.

Although he did not offer any public comment about the HBO parody, Charles Wick, director of the U.S. Information Agency who oversees Radio Marti, sniffed, "The Cuban reaction doesn't seem appropriate."

And while he probably couldn't have seen the humor in *NNTN*'s reaction, he was 100% right about Castro overreacting to Radio Marti, especially after getting a taste of its initial programming!

Unless there are major changes in the programming approach taken by Radio Marti, Cuban audiences will probably nod off while listening to the station—while the more sophisticated in the audience may get a few chuckles. If this is the VOA's approach to ideological or psychological warfare, then the two years they spent hand-picking the personnel for this station were a total waste.

Radio Marti's premise is that, via programs relating to news, music, religion, sports, drama, history, commentary and opinion, Cuban audiences will at long last find out what's really going on in the world. This is a noble cause, except that Radio Marti has (thusfar) displayed a strange lack of savvy about contemporary attitudes and lifestyles in Castro's island nation.

For instance, a humor program starring Pototo, Filomeno, and Nananina features routines and jokes that would have been passe even 25 years ago.

The music broadcast over Radio Marti leans toward popular Latin American music of the type preferred by American audiences. This is basically the same music that Miami broadcasters normally play for local audiences and can easily be monitored from the Miami stations by Cuban listeners. Certainly a change of musical approach (perhaps including contemporary Cuban artists and styles) seems in order.

In a 30-minute daily soap opera called *Esmeralda*, the storyline relates to the life and times of a wealthy Cuban land baron in the Cuba of the 1800's. In the program, the wealthy land baron is referred to as a *hacendado*. While this word would be accurately descriptive in Venezuela, Argentina, Colombia, and the rest of Latin America, in Cuba it has its own unique connotation. To Cubans, the word describes the owner of a sugar mill, a subtle point perhaps, but nevertheless one which probably reminds Cuban audiences of the fact that the programs are prepared by "outsiders."

A woman's program, "de Mujer a Mujer" (from woman to woman), gives beauty hints, plays flowery music and provides emotional poems. On Radio Marti's first day of operation, the major topic of discussion was centered on the topic of what to do when the man in one's life is no longer interested. This program approached the subject in terms of the old stereotype of the passive Latin American woman involved in the type of traditional relationship that would look to be an anachronism to most persons under the age of 40—and half of the potential Radio Marti audience is under 26!

In its first week of news programming, Radio Marti assured Cuban audiences that America's Star Wars program will become a working reality in only two years!

Hopefully, even by the time you read this, these and other assorted glitches in Radio Marti's approach will be smoothed out. If done right, Radio Marti has the potential for becoming a welcome visitor in Cuban homes. Despite Castro's anti-American pronouncements, the average Cuban harbors little hostility toward Americans. Indeed, the United States is where a great many Cubans would emigrate if only they had the chance to do so.

This radio station was named in honor of Jose Marti, the great Cuban patroit under whose leadership (and with the help of the United States) Cuba gained its independence from Spain at the turn of the century. By invoking the name of Jose Marti to the Cubans, our government is obviously seeking to remind its Cuban audience of the nearly 60 years of commerce and friendship that existed between our two nations prior to

(Continued on page 74)

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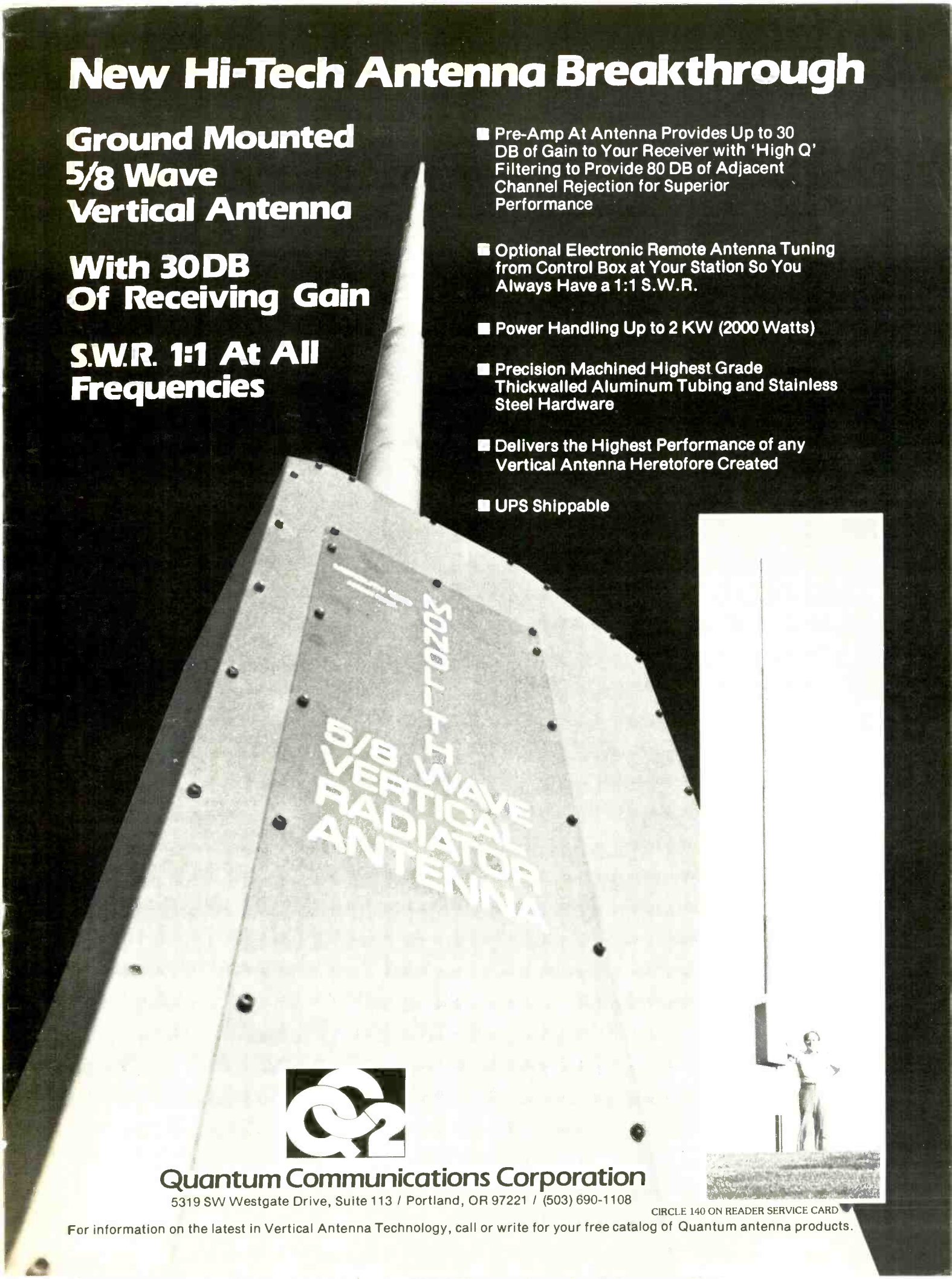

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MAILBAG LETTERS TO THE EDITOR

The most interesting questions we receive will be answered here in each issue. Address your questions to: Tom Kneitel, Editor, Popular Communications magazine, 76 North Broadway, Hicksville, NY 11801.

Numbers Station Commentary

After reading all of the "numbers" articles, here's the first thing that crossed by mind:

In Russia, a long time ago, someone suggested that they could really screw up American intelligence by transmitting random numbers constantly so that the Americans would spend lots of time and money trying to figure out what they were saying. It worked. It worked so well that the American intelligence community decided that even though they could not figure out what was going on, they would start sending encrypted messages using random numbers so that the Russians would not think we were behind in crypto-technology. So, as it stands now, the Russians are spending money to transmit garbage while attempting to decode our garbage. We are doing the same. Both sides are laughing at the other. The rest of the world is confused, and radio hobbyists around the planet are saying: "They're either very smart, or very stupid." There is only one thing I am very sure of—at several locations around our globe, there are over-worked, underpaid, very bored radio operators who know what the real story is. Some day, we too will know.

Keep up the very good work!

John Schuch
Phoenix, AZ

The mystery of spy numbers stations has been a matter of public record for several years. At least some of these broadcasts are transmitted by KGB controllers for reception by undercover operatives throughout the world. They are operating instructions using the one-time pad method of encryption. Any "closed-mouth" attitude on the part of our government agencies is strictly due to embarrassment at having to tolerate such a crude yet effective method for our "enemies" to communicate with their "spies."

Many moles are so deeply entrenched that they must rely on a minimum of personal contact or equipment with which to communicate with their superiors. An example of this is the case of Geoffrey Arthur Prime.

Prime was a long time employee of the British Government Communications Headquarters (GCHQ), which is the equivalent of our National Security Agency. He was an equally long time employee of the KGB. He routinely listened for orders from the Russians over a Grundig shortwave receiver. The communications came to him in the form of five-digit number groups, spoken in English by a woman with a German accent. He would then decode these messages using a one-time pad.

The documentation for this is in a book titled *The Puzzle Palace* by James Bamford, published by Penguin Books, New York, NY. The edition published with a new Afterword in 1983, decribes in detail:

Page 505, paragraph 1:
. . . "At the appropriate time on the specified days, Prime would tune in his short wave radio to the proper frequency and begin copying down the monotonous sounds of an East German voice reading long rows of numbers, spaced in groups of five. Often, to prevent errors, he would tape record the messages."

Page 506, paragraph 3:
"For the next year or so things went smoothly for Prime, but then panic struck. As if out of a nightmare, the veteran mole discovered that he had mislaid his one link to his KGB controllers: the one-time pads. . . ."

Page 532, last paragraph:
". . . weeks after Prime has been arrested and placed in jail and nearly a week after the scandal had hit the front pages. Coming from an East German station was the monotonous sound of a woman's voice reading in English five-number code groups: '04376 74989 30300 70901 82266 68375 81377 80734 61156 . . .' The question is, who else was listening?"

Broadcasts in other languages are directed toward operatives in other countries. Transmitter sights are chosen for economy and propagation. The difference in techniques and equipment is a matter of economy. The effectiveness of one-time pads is well known and one may assume that our government uses similar crude, economical, and effective techniques to communicated with our own moles.

By the way, I highly recommend *The Puzzle Palace* to anyone interested in covert communications. It's fascinating!

R. Scott Truesdell, KA6NLV
Corona Del Mar, CA

I also recommend Bamford's excellent book!—Editor

Overseas Enthusiast

You don't know how much I enjoy your magazine. I first discovered *POP'COMM* while I was studying in Pittsburgh. When I went home I subscribed so that I wouldn't miss a single issue. It's my favorite magazine. Being a shortwave and scanner fan, you cover lots of information that is very valuable to me. If I can be of any help from this part of the world to any readers, I'll be happy to try. Good luck in continuing *POP'COMM* forever and God Bless America!

Lt. Ahmed Alsayyed
Communications Dept.
Qatar State Police
Doha, Qatar

Many thanks for your kind words and wishes, Ahmed. Perhaps some of our readers might like to communicate with Ahmed.—Editor

Thank "Q," Barney

Permit me to thank *POP'COMM* for the recent feature story about getting started in monitoring radioteletype (RTTY). That story inspired me to add an Info Tech M-600 RTTY unit to my monitoring station and I've been having a great time with the unit. Now I have a question. Several RTTY stations (such as 6VU, Dakar, Senegal, on 9070 kHz) often send the message "PSE QJH1." I know that PSE is shorthand for "please," but QJH1 escapes me. It doesn't appear in any listing of "Q" signals, such as QSL, QRA, QRX, etc. What does PSE QJH1 mean?

"Barney" Barnes, KOR7JF
The Dalles, OR

There are plenty of "Q" signals other than the commonly noted ones running between QRA and QSZ, even though most lists don't include them. These "ignored" signals are for highly specialized communications uses including direction finding, message handling, navigation, weather, etc. Those signals ranging between QJA and QJK relate specifically to the technical aspects of RTTY transmission. In particular, QJH1 means "Run your test tape."—Editor

Bringing Home The Beacon

In the evenings I can easily hear beacon stations YWA (517 kHz) and NB (531 kHz) on my communications receiver. Where are these stations and is it possible to obtain reception verifications from them?

R. J. Ritter, KWV8JX
Elkins, WV

YWA is in Petawara, Ontario, while NB is in North Bay, Ontario. Most Canadian airways beacons can receive mail sent to Aeronautical Information Services Headquarters, Transport Canada, Place de Villa, Ottawa, Ontario, Canada K1A 9Z9. These stations have been pretty good with QSL'ing DX reports, and beacon NB has sent a very attractive postcard-type card in response to reports.—Editor

A Word Of Thanks

Last November you were thoughtful enough to run a letter of mine in the Mailbag column in which I requested that readers might furnish me with a technical manual I needed. What a pleasant surprise I had when I received about six beautiful letters and copies of the manual at no cost, plus plenty of information on where I might write for additional data. I responded to every letter and repaid all of the postage. I'm a 79-year-old radio nut. *POP'COMM* readers are tops. Thanks a million.

Ed Broholm
Havana, FL

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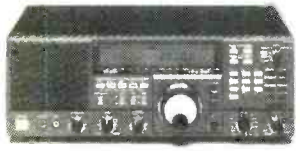

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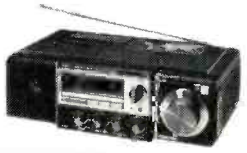

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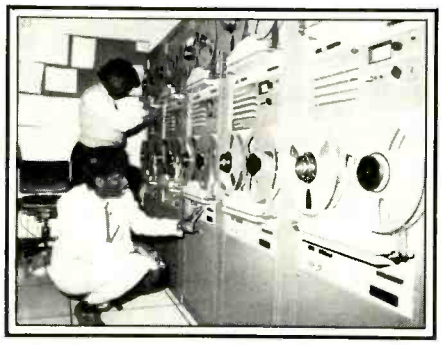
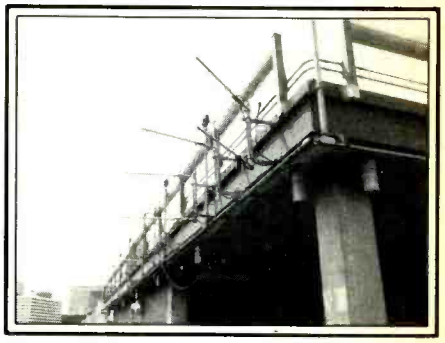
Bruno Johnson is shown here monitoring the emergency control stations standby, in the event of a main system failure.

Alvin Solomon of the NYPD checks the frequency and deviation of a transmitter.



Police Administrative Aides Ramonia Vick and Veronica Jones at the controls of the massive tape room. Here 911 conversations are kept, often indefinitely.



These UHF omni-directional, 7.5 dB gain antennas are atop One Police Plaza and are the main UHF antennas in the NYPD communications system.

Big City = Big System

An Inside Look At NYPD Communications: 50+ Busy Police Frequencies!

BY HAROLD ORT, JR.

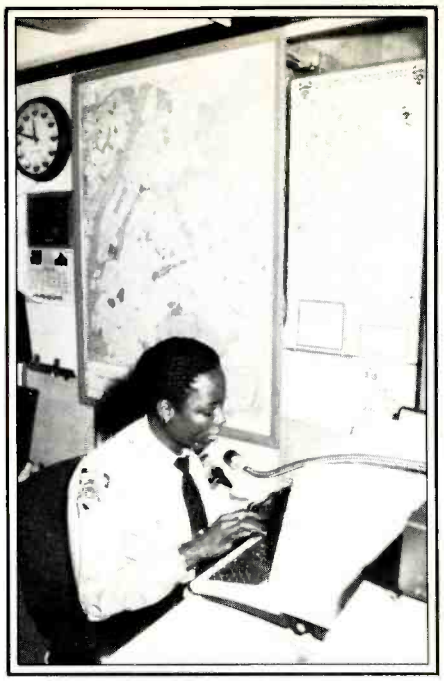
Imagine the average scanner listener in Anywhere, USA listening to the radio on a typical Friday night. It has been a long day and payday for most of the town's residents. Add it all up and the result is the beginning of weekenditis. A squad car has just been dispatched to a nearby hangout to remove a rowdy patron. Minutes later on the other side of town, one of the town's five police cars is sent to investigate an accident on Main Street. In many places, the ho-hum "business-as-usual" communications we've all heard could often best be described as a cure for insomnia. The real treat for scanner buffs is living within earshot of a large city, or taking your portable with you on vacation to places like the "Big Apple."

The sheer immensity of New York City, with its 7,200,000 residents in five boroughs (actually large cities themselves) boggles the mind. The city itself covers 22 square miles and is the business, commerce, and government capital of the east coast. It also ranks high with urban crime, a problem the New York City Police Department attributes directly to the large transient population. Its three major airports—Newark, Kennedy International, and LaGuardia—serve an estimated 74 million travelers every year. To this add the train stations, major interstate highways, and ships and you begin to realize the city's 26,200 police officers have their hands full every day of the week. Crime knows no holiday—just ask the cop on the beat. Better yet, tune in one of the 50 or so frequencies in use by the NYPD.

That same scanner listener here will find him or herself staying up through the wee hours to hear another dispatch from "citywide" or "central," as the main headquarters of NYPD is known. From high speed chases, drug raids, homicides, robberies, and crashes of all types and sizes, to simple five-mile traffic jams that test the nerves of homeward-bound commuters every rush hour, it's listening at its best! In fact, there's so much to hear, on so many frequencies, sometimes it doesn't pay to put the scanner in the scan mode. One channel can be so busy, it may not scan for a half hour or more.

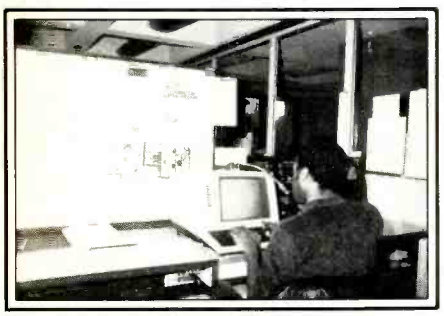
NYPD's Communications Division is responsible for operating and maintaining the multimillion dollar complex, which is one of the most modern in the world. Much like the glittering lights of Broadway, it's easy to imagine the communications console to be a fancy mile-long array of blinking lights and computer generated voices. Located at One Police Plaza are two entire floors housing 64 "911" operators, all with separate consoles equipped with a computer keyboard and telephone. Around the clock every day of the year, these civilian operators receive nearly 6 million calls annually for assistance and inquiries from the public. Nearly 99% are answered in less than 30 seconds. Cer-

Police Officer Gina Aponte maintains watch on citywide frequency 470.837 MHz.

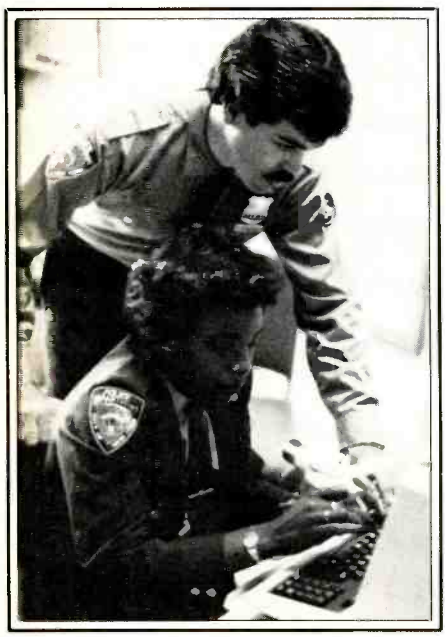


With the large detailed map of the city behind her, Police Officer Dolores Johnson contacts a patrol unit in midtown Manhattan.

A portable (?!) police radio used by the NYPD, circa 1930's. (Courtesy the NYPD Communications Division)



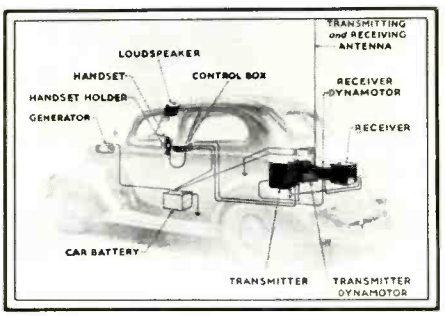
Duane Francis takes a call in one of the precinct radio rooms at police headquarters.



Police Officers Myra Wragg and Carl Difalco discuss the dispatch of a highway car to the Brooklyn-Queens Expressway during rush hour chaos.

NYPD 10-Codes

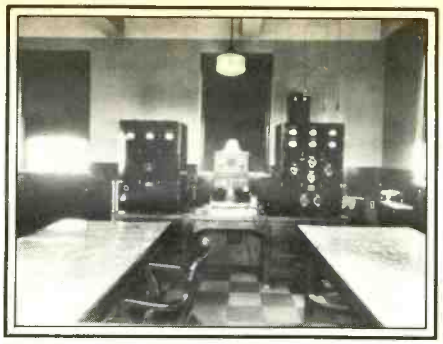
10-1 Call your command
10-2 Report to your command
10-3 Landline dispatcher
10-4 Acknowledgement of message
10-5 Repeat message
10-6 Stand by
10-7 Verify address
10-10 Investigate
10-11 Bank/holdup alarm
10-12 Pick-up case
10-13 Officer needs assistance
10-15 Verify stolen car
10-16 Vehicle reported stolen
10-17 Vehicle not stolen
10-19 Other possible crime
10-20 Robbery in past
10-21 Burglary in past
10-22 Larceny in past
10-23 Explosive report (in past)
10-24 Assault
10-29 Other crime in past
10-30 Robbery in progress
10-31 Burglary in progress
10-32 Larceny in progress
10-33 Report of explosive
10-34 Assault in progress
10-39 Crime in progress
10-50 Disorderly person/group
10-52 Roving band
10-53 Accident
10-54 Ambulance needed
10-58 Assist ambulance
10-59 Fire alarm
10-62 Out of service
10-68 See complainant
10-83 Dead on arrival
10-85 Additional unit needed
10-98 Resuming patrol



An old, vintage RCA radio wiring system from 1940. (Courtesy the NYPD Communications Division)

tain 911 positions are also equipped to answer calls from dual purpose fire alarm boxes located throughout the city. Police are dispatched instantly to the scene of emergencies and, once there, the IBM computer and sophisticated telecommunications hardware supplies them with the information they need to get the job done quickly, enabling them to become available for additional assignments.

The Division is arranged into five "radio rooms," one for each of the city's boroughs. Each has its own 911 operators and radio dispatchers. Incoming calls to the system are channeled to the appropriate borough operator, with any overflow redirected among a specially set up bank of operators and even to other borough rooms, if necessary, during certain peak periods of activity. The operators determine the caller's location, problems, and other details. This information is fed directly into another computer terminal, which links the operator to the radio dispatcher. On the average, there are between 9,000 and 10,000 radio runs each day. That doesn't count the "non-emergency"



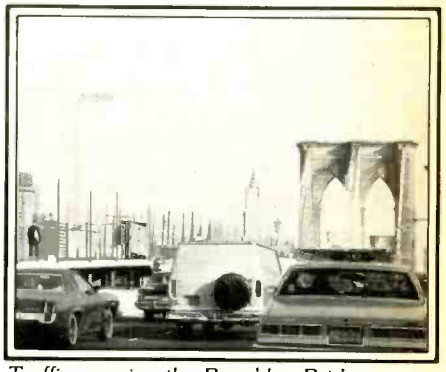
Queens radio station WPEE, 1937. (Courtesy the NYPD Communications Division)

A radio dispatcher, year unknown. Note the New York telephone directory at left. (Courtesy the NYPD Communications Division)

From 1932, the latest thing in police communications. (Courtesy the NYPD Communications Division)

NYPD officers at scene of a recent peaceful anti-military demonstration on Staten Island.

Work-bound motorists crawl along the Brooklyn-Queens Expressway toward the Big Apple on a Monday morning.



Traffic crossing the Brooklyn Bridge comes to a grinding stop with an accident ahead.

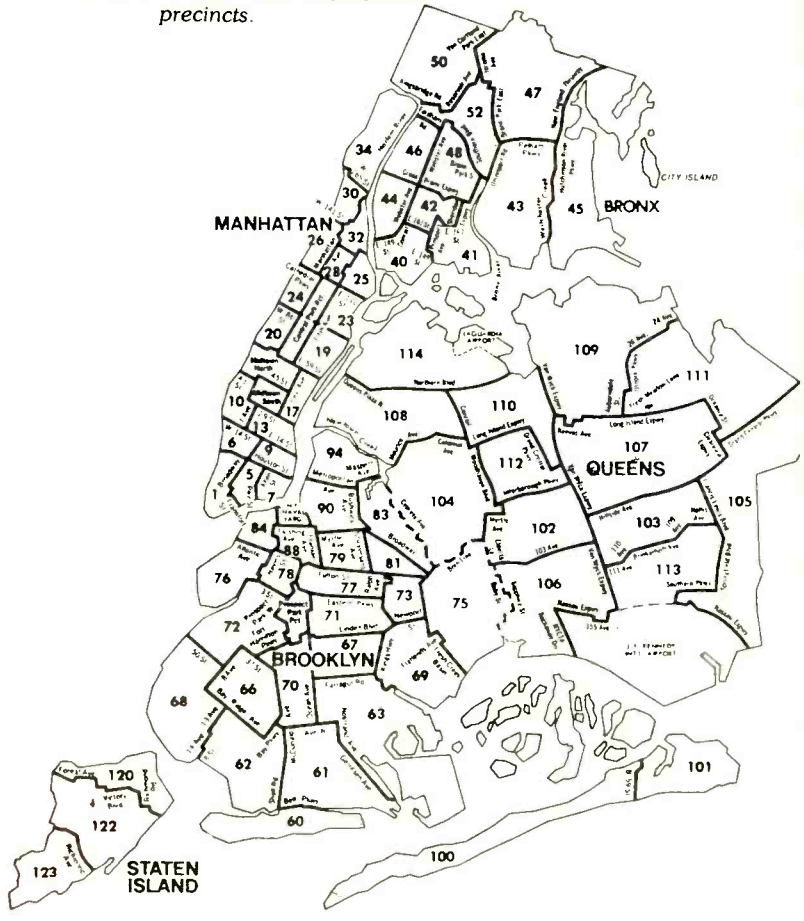
calls referred to other city, state, or federal agencies.

All information concerning a dispatch is shown on the screen. Among other information, it displays the operator's ID number, the date and time the message was received, and its numerical order among all other messages received during that 24 hour period. Below this is the ten-code for that job. Following the classifications, the operator continues to fill in pertinent details of the incident; for example, the robber's description and accomplices (if any), weapons used, direction of flight, etc. Any data that can aid patrol units to apprehend the suspect is provided. The system even has a built-in timing device to keep track of all dispatches. Once an assignment is given to a patrol unit, the computer sets a prescribed amount of time for its completion. If a job isn't completed during the specified time, it automatically generates an "overdue RMP" signal. The dispatcher then summons the unit for a response.

With a backup communications and power system that is tested weekly, communications are provided during virtually any emergency with repeaters, control stations, microwaves, and radiotelephone links ensuring uninterrupted service. The city even employs a full time staff of skilled FCC licensed technicians to keep their equipment up to government standards.

The actual communications system used by the NYPD is a duplex system, which, according to Lieutenant Louis Galetta, Commanding Officer of the Management and Monitoring Section, is 90% portable. Each

Map showing all of New York City's police precincts.



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Traffic approaches the Brooklyn Bridge on the inbound BQE.

An NYPD Communications Division seal.

NYPD Frequencies

Citywide—470.8375

Manhattan Precinct	Frequency
1-5-7-9	476.5625
6-10-13	.3375
14-17-18 Manhattan South/ North	.5875
19-20-22-23	.3125
24-26-30	.3625
34	.8875
25-28-32	.6375

Bronx Precinct	Frequency
40-44	477.0625
42-46-48	476.9625
41-43-45	476.9125
47-50-52	476.6625

Queens Precinct	Frequency
100-101-102-106	476.5375
103-105-113	477.1125
107	476.4875
109	476.9375
111	477.0125
110-114	476.8125
104-112	477.0375
108	476.5125

Brooklyn Precinct	Frequency
60-61-62	476.4625
63-66-70	.8625
68-72-76-78	.4125
67-69-71	477.0875
73-75	476.9875
77-79	476.7875
81-83-94	477.1375
84-88-90	476.7625

Staten Island Precinct	Frequency
120	476.6125
122	.3875
123	.4375

Detectives 470.7625
Street Crime 470.6625
Intelligence 470.7375
Traffic 474.1625 and .1875

Narcotics (MN-Manhattan North, MS-Manhattan South, BN-Brooklyn North, BS-Brooklyn South, SI-Staten Island, BX-Bronx)
Citywide 470.6375
MN 470.7875
MS 470.9125
BN 470.9375
BS/SI 470.9625
BX 471.0375

Other frequencies, *not* part of NYPD, but nonetheless vital to the scanner listener in this area:

Ambulance
155.34
478.0125 Citywide Emergency Med Service
477.8375 Manhattan Emergency Med Service
478.2625 Brooklyn Emergency Med Service
477.8625 Staten Island Emergency Med Service
477.9125 Queens Emergency Med Service
478.2125 Bronx Emergency Med Service

Traffic
Shadow Traffic (private company) 452.975
WNBC Helicopter 455.3375
WOR Chopper 450.25

News Services
ABC 455.0875
WABC 161.76
WCBS 450.0875
WABC 450.45
Daily News 173.325
WPIX 455.15

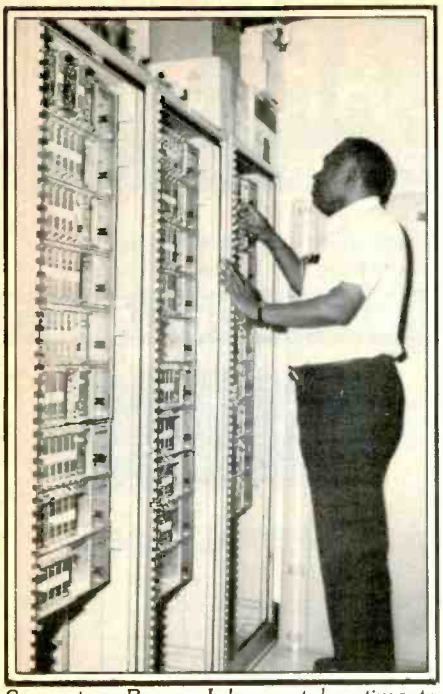
Miscellaneous
Transit/subways 158.88, 161.565, 160.695
Bridges/tunnels 453.55, 453.80
Air Force 407.475
Army 141.15, 141.25
Staten Island Ferry 156.95
Brinks 159.495
Wells Fargo 460.90

Fire Department
Citywide 154.43
Manhattan 154.25, 154.01
Brooklyn 154.37
Staten Island/Bronx 154.19
Queens 154.40

Note:
A couple of terms heard very frequently on these frequencies are:
EDP—Emotionally disturbed person. ESU—Emergency services unit.

of the 10,000 hand-held units puts out about 2 watts, which is picked up by one of the 110 receivers, located atop the city's higher buildings in each borough. Wherever an officer is needed, officials are quick to point out, he or she is well within range of one of the many pick-up points. Police officials emphasize that it's a very reliable communications system. This intricate network of over 50 frequencies with base stations, repeaters, and telephone systems ties the package together into a network that blankets the entire city with crystal-clear quality audible signals for 35-50 miles with a simple omni-directional antenna.

Galetta said that the city's 26 specially-trained dispatchers (always police officers, as opposed to the civilians manning the 911 system) transmit an average of nearly 10,000 calls daily. He proudly told of the department's plan to upgrade the entire 911 system to the point where, within one year, an operator will be able to see on a screen the caller's phone number and address in the event he or she couldn't convey the entire message to the operator. "This Auto-



Supervisor Bruno Johnson takes time to check the comparators.

matic Call Distribution (ACD) system will be a great advancement for us as will our plan to expand the use of mobile digital vehicle units in patrol cars," remarked Galetta. The department currently has 50 units operating on a test basis. A small video screen makes it possible for confidential car-to-car communications to be completely digital with no voice transmissions needed. While, according to Galetta, it isn't in their immediate plans, the digital system is capable of also dispatching from "central" at police headquarters. Also in the works is a plan to enable the NYPD officers to communicate below street level into the massive subway system. Presently only the Transit Police are capable of surface to underground transmission, and that department came under fire recently for a less than adequate radio system with many "dead spots."

While Galetta emphasized he cannot speak for the entire department, the impression one gets from talking to him and other officers at police headquarters is that the department actually frowns on scanner users either at home or portable. "Those curiosity seekers generally make the officer's job more difficult at accident scenes and other police business," he said.

So, for us armchair-bound curiosity seekers and those of us fortunate enough to live in or near the "Big Apple," we've compiled a list of some of the more common frequencies in use by the NYPD. Keep in mind that in a city such as New York, there are so many agencies with overlapping frequencies, to present a complete listing is nearly impossible. Where appropriate, I've noted the name of an agency, and next to it, its particular frequency.

For a complete list of frequencies for all of New York's airports, check a copy of Tom Kneitel's *Air Scan*.

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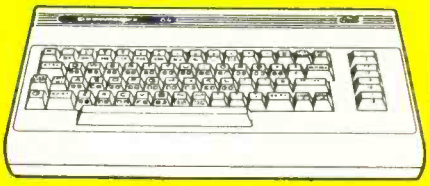

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- **Auto Log** - A simple press on a key and you have logged your station automatically entering U.T.C. Time, Frequency and Mode. If you wish to add a note, O.K.
- **Scanning** - Full feature Scan between any two programmable limits. You control sweep rate and signal level desired to stop scanning.
- **Memory Display** - All 32 internal Memory Channels of the R71A are displayed on the screen showing number, frequency and mode. Memories can be changed directly from the key board.
- **Higher Resolution** - R71A displays to 100Hz. M.E.C. 71 α gives you 10Hz resolution, control and memories to 10Hz.
- **Built-In UTC** (24 Hour) Time Display
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ICOM EX309 (interface connector) must be installed in the R71A (see options below)

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FL-44A:	SSB Filter 2.4 KHz (455 KHz) 8 pole crystal filter. (Read details in WRTH review this page). $159.00
FL-63:	CW Filter 250 Hz (9 MHz) narrower filter than FL-32 above $48.50
RC-11:	Remote control. Operate your R71A across the room by remote control. Controls most all functions. (Requires installation of circuit board inside R71A (included) $59.95

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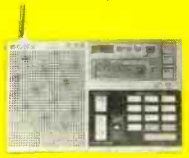

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- **Built-in ferrite bar antenna** for LW and MW reception
- **Telescopic antenna** for FM and SW reception

SPECIFICATIONS

Frequency Range: AM: 150-29,999.9 kHz; FM: 76-108 MHz; Air: 116-136 MHz

Antenna System: LW, MW: Built-in Ferrite Bar Antenna; FM, Air, SW: Telescopic Antenna

Inputs: DC-In 4.5V; External antenna input (minijack x 2)

Outputs: Earphone (minijack); Record output (minijack)

Speaker: 4-inch dynamic

Power Requirements: Batteries "D" x 3 (4.5V) (optional); "AA" x 2 (3V) (optional) for programmable clock/timer; AC 120 Volts, 60 Hz with AC Adaptor (supplied); DC-12 Volts with DCC-127A Car Battery Cord (optional)

Dimensions: 6¼" H x 11⅜" W x 2⅛" D

Weight: 3 lbs. 12 oz (with batteries inserted)

Color: Black

Supplied Accessories: AC Adaptor; Earphone; Shoulder Strap; Long Wire External Antenna; External Antenna Connector (x 2); Short Wave Handbook

Optional Accessories: DCC-127A Car Battery Cord; AN-1 Active Antenna

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Radio Secrets Of The French Underground

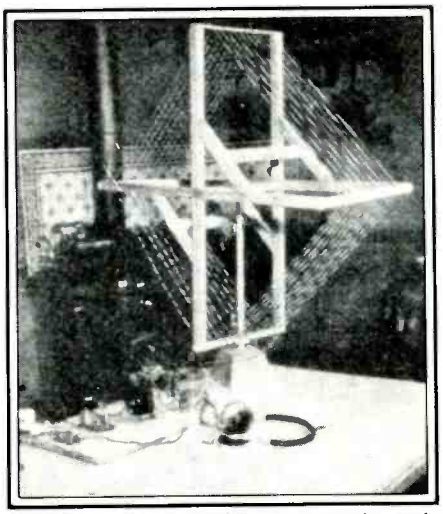
During The WWII Nazi Occupation of France, Radio Sustained Morale And Aided The Resistance Fighters!

BY TOM KNEITEL, K2AES

With the collapse of the French army in June of 1940, the curtain rang down upon one particularly sad phase of WWII. The people of France, however, never surrendered to despair or collaboration. Throughout four years of Nazi occupation, radio played an integral part in fighting back.

Prior to the Allied invasion of France, members of the Maquis (French Forces of the Interior) hiding in the rugged mountainous regions of the Savoy, the Ardennes Forest, or the barren marshes of the Landes, maintained almost uninterrupted communications with each other and the outside world by the aid of radio equipment either improvised on the spot or parachuted from Allied planes.

This radio equipment consisted mainly of shortwave (HF) transmitters having a range of hundreds of miles and which could be received on any receiver designed or modified for shortwave reception.



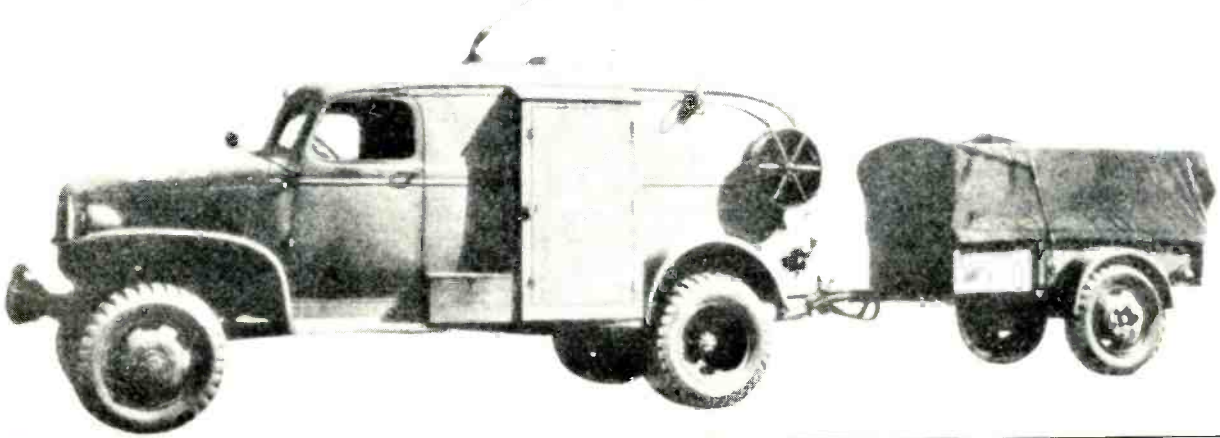
Crystal detector used by the French to obtain news during German occupation.

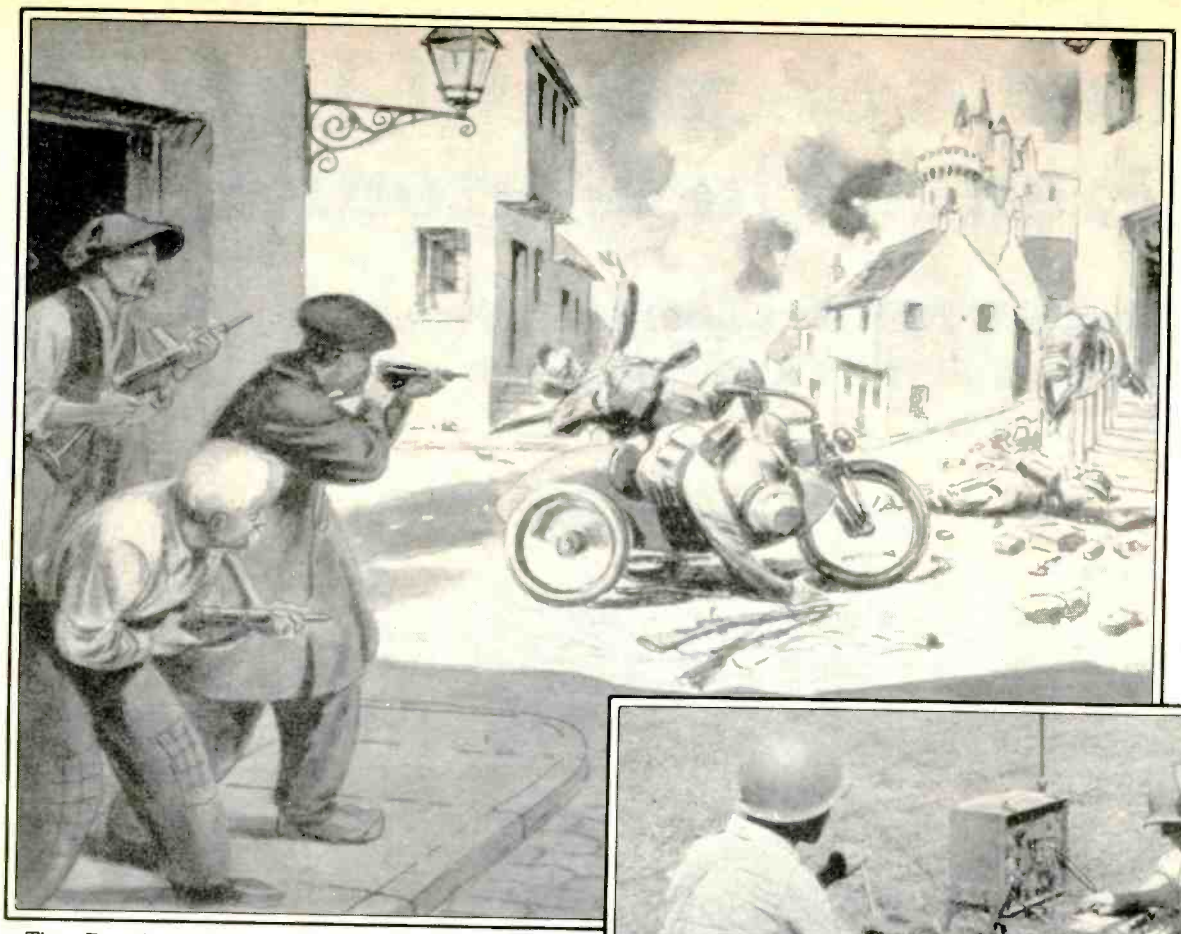
In the Spring of 1943, however, the German military authorities in France clamped down upon clandestine listening by confiscating all of the receiving sets they could lay their hands on.

The Maquis, in turn, shifted their transmissions to long and medium wave frequencies. Limited transmission power on these frequencies reduced the operational range considerably, which resulted in the gradual evolution of an ingenious network of secret relay stations linking virtually all centers of underground resistance in the nation.

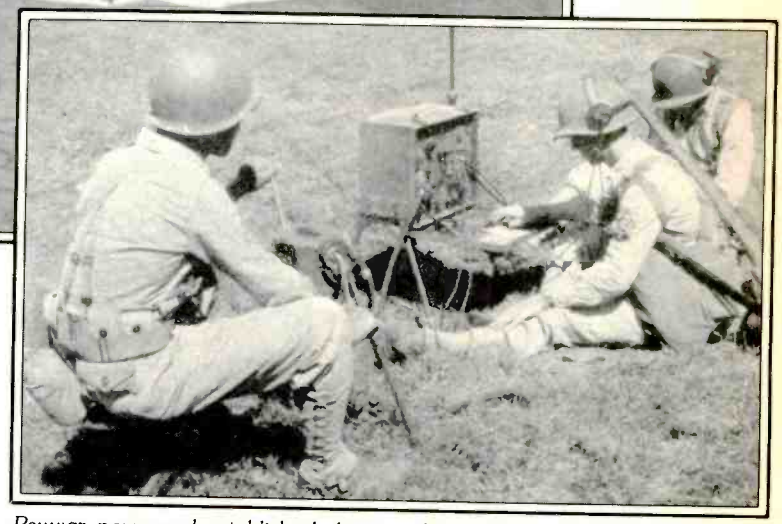
All of these stations worked together and by transmitting messages containing warnings, instructions, or naming suspected agents and collaborators from one end of the country to the other, played a vital part in

SCR-299 mobile communication transmitter specially adapted for the transmission of messages to the French Underground during initial invasion.





The French underground promptly went over to the offensive based upon instructions received from Allied HQ.



Psywar personnel established direct radio contact with Maquis groups.

the struggle of the French underground movement against the Nazi overlords.

Widespread

This sytem of underground radio communications assumed such proportions, that a special control council had to be set up by the Maquis leaders for assigning callsigns and frequencies in order to coordinate the communications and avoid confusion.

Thus some of the clandestine stations were assigned to maintain close liaison with General DeGaulle's Fighting French HQ in London. Others, like "La France Resistance," given the mission of transmitting the communiques of Maquis, or like "La Voix de la Liberation," assigned to the job of refuting and debunking the propaganda broadcasts emanating from the Nazi-controlled French station known as Radio Vichy.

This underground radio traffic went on continuously and almost openly despite frantic efforts on the part of the Gestapo agents and their informers to track down the stations and their operators.

The civilian population of France, in most parts of the nation deprived of their radio receivers by order of the German Commander, General Stuelpnaegel, nevertheless made every effort to keep themselves informed. They did this by tuning in the Maquis and BBC transmissions on small "cat's whisker" type crystal receivers.

After the liberation of France, the Maquis noted that these crude and (usually) homemade sets had been the main source of news and information for millions of Frenchmen—further observing that in peacetime such sets were regarded as toys for children. The sets had effectively sustained these people during the darkest and most humiliating period of the iron-fisted Nazi occupation.

The crystal detector shown in the photo is an installation outside of Paris during the war years and is typical of those utilized in dwellings ranging from rural cottages to elegant chateaux.

The person who built the receiver shown in the photo said that the unit had been built after his multi-tube receiver had been carted off by the Nazis to a storage depot in 1943. He said that he had not mourned its loss for long but went to work as soon as possible on the assembling of a crystal detector with the aid of specs that had been furnished by the BBC in London.

He managed to procure a pair of high-resistance headphones smuggled out of the German supply stores by a French worker. A variable capacitor was obtained on the black market by paying many times its pre-war value.

By dismantling the bobbin of an electric bell, insulated copper wire was obtained for the tuning coil. The coil form was made from a cardboard mailing tube. A small fragment of coal showing yellow specs as evidence of copper pyrites was located to serve as the detector, with a phonograph needle serving as the "cat's whisker" for making contact with the chip of coal.

The sensitivity and selectivity of this ingenious creation was less than had been desired, but all was not lost. Improved reception was provided by extemporizing a rotatable loop antenna. This eliminated adjacent channel interference as well as German jamming by the simple expedient of a wave trap.

Eventually, reception of the Maquis and BBC transmissions was quite sufficient. One nice aspect of this set was that it could be set up and dismantled in seconds without leaving a trace, thus surviving several inspections by German patrols looking for clandestine receivers.

A New Phase

A new chapter was added to the remarkable history of French underground radio traffic at the time of the Allied invasion when officers of the Psychological Warfare Branch followed in the wake of the amphibious landing troops in Normandy. The psywar people promptly established direct radio contact with the Maquis groups operating in the invaded areas.

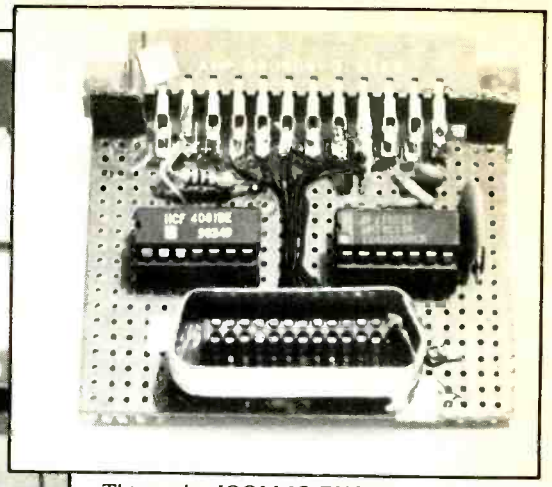
Six mobile communication transmitters were landed and put into operation within a week of D-day. This was an important phase of the general tactical invasion plan.

These transmitters were (Hallicrafters) SCR-299's that had been adapted specially for transmitting in the standard AM broadcast band (550 to 1600 kHz) in addition to their regular shortwave capabilities.

Members of the Maquis received instructions sent out via the SCR-299's. The 299's had a wide operating range and were far more efficient than the equipment previously available. The French underground promptly went over to the offensive and began to handle tasks specifically assigned to them by the Allied operations command, such as the blowing up of railway bridges and ammunition dumps, the derailment of trainloads of enemy troops and supplies bound for the invasion areas and the cutting off from base of their isolated garrisons.

In addition, SCR-299 transmitters were also employed for a variety of miscellaneous purposes and used as portable broadcasting stations on frequencies formerly used by regular French broadcasters put out of action by the retreating Germans (such as in Cherbourg). These stations were used for relaying BBC programs as well as broadcasts of the American Broadcasting Station in Europe. They were also used for disseminating news and information over P.A. systems.

One of the SCR-299's was credited with persuading a German garrison at a submarine base to surrender unconditionally!



This is the ICOM IC-EX309 parallel interface unit.

Computerized DX'ing

Low-Cost Computer Controlled Communications

BY RUSS KROEKER, N7HGE

This explains how to interface ICOM 8-bit processor-equipped transceivers and the IC-R71 receiver to the Commodore 64 computer. Two-way communication will be described. Both the hardware and software in BASIC, required for a demonstration of the interfacing capabilities, are detailed.

The ICOM company is currently producing a line of five products that make use of a common uPD781G, 8-bit processor. Except for the 50 and 220 MHz bands, these radios cover 100 kHz to 1250 MHz and include the IC-R71, IC-751, IC-271, IC-471, and IC-1271 models. They are designed so that a single external computer can control one or all of the models, simultaneously connected to a common data bus. This will first describe how to build an interface cable assembly, which includes a simple circuit. One end of this cable plugs into the user port of the Commodore 64. The other end connects to one or more ICOM models equipped with the optional IC-EX309 parallel interface unit. The operation of this interface will be described along with the software needed to program the Commodore 64. Finally a demonstration program is described to provide some guidance in writing your own custom software, in Basic, for a complete system. While not detailed here, an ICOM bus to Hewlett Packard Interface Loop (HPIL) interface has also been developed. This allows the HP-41 calculator or HP-75 computer to operate the radios.

To begin with, see the interface schematic in Figure 1. To build it you need buy only connectors, a 2.6″ by 2″ piece of perforated board, several feet of 24-wire ribbon cable, and ten inexpensive small parts.

In order to assemble this interface, begin by connecting the data bus and other direct wires between connectors. The circuit is best located at the Commodore end of the cable. This unit was wire wrapped using two IC sockets with solder connections to the connectors and discrete parts. Layout should not be critical. The interface took three hours to hand craft.

Here is how it works: Notice the ICOM service request line (SRQ) pin 10. This line informs all connected ICOM models to "Prepare for data transfer." When you send command data to ICOM or are receiving data from ICOM, this line is held at 0 volts. After each data transfer is complete, SRQ must be returned to its normal 5 volt level.

Now notice the Commodore PC2 line, pin 8. Commodore uses this line to tell the interface that either it has latched valid out-

put data onto the data bus (after you "POKE" to memory location 57566), or that Commodore is receiving data from ICOM (after you "PEEK" at 57566). In either case, Commodore drives the PC2 line to 0 volts for one microsecond and then returns it to its normal 5 volt level. PC2 is Commodore's "DATA VALID/ACCEPTED" handshake line.

Now let's look at the ICOM handshake lines. Write Pulse (WP), pin 21, when at 5 volts, tells ICOM models to look for incoming data. This line pulses up to 5 volts as each byte is sent from Commodore to ICOM on the data bus. After each byte has been sent, this line returns to its normal 0 volt state. If, for example, you are sending a frequency command to ICOM that always requires 12 bytes to be transferred, this WP line would pulse up to 5 volts, 12 times. WP is the ICOM incoming data direction line and its pulse needs to be about 80 microseconds long.

The ICOM Read Pulse (RP) line, pin 9, is used to direct an ICOM model on the bus to send data to Commodore. That model must first have been instructed to send a particular kind of data. Normally at 0 volts, this line is pulsed up to 5 volts to tell ICOM that Commodore is ready to receive each byte of data. ICOM responds by placing a byte (8 bits) on the bus. After Commodore has received the data byte, the RP line is returned to its normal 0 volt level.

An example might be helpful: Refer to the schematic in Figure 1. Suppose you send a data byte commanding a particular model to send the range over which it can be tuned. Your software would POKE the proper byte location 57566. Commodore would latch the data onto the bus and pulse down the PC2 line. The pulse would be coupled through diode, D1 to discharge capacitor, C1 which would slowly begin recharging through resistor R1. When C1 discharges to 0 volts, the output of inverter A goes to 5 volts. This is coupled through D2, to charge capacitor C2, which inverter B converts to a negative pulse for the ICOM SRQ pin. All ICOM models on the bus are now watching for a command. Now notice that inverter A and Commodore's ATN line are both connected to AND gate C. Since both inputs are at 5 volts, the output of gate C is 5 volts, as is ICOM's WP line. SRQ low, WP high, and a correct byte on the data bus, causes one ICOM model to become a listener and to prepare to send its tuning range data. One millisecond after the Commodore PC2 pulse, C1 has charged to 3 volts. This triggers inverter A to change state and WP goes back to 0 volts. Your software then POKEs location 56576 to the value 159. (It is normally 151). This changes the ATN pin from 5 to 0 volts, which is coupled through inverter D and gate E, to put 5 volts on ICOM's RP pin. ICOM promptly loads the first of 16 bytes of tuning range data onto the bus. After changing the port to an input, your Commodore software now takes 16 PEEKs at location 56577 to receive the range information. Each PEEK causes a PC pulse to discharge C1. This pulse is "stretched" to 1

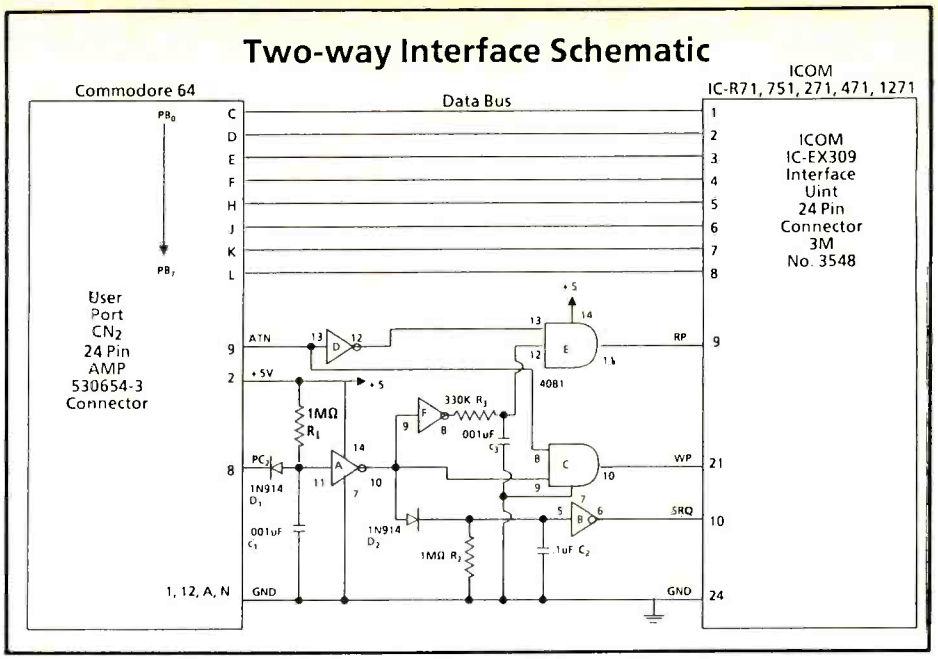


Figure 1: *Tie Inputs of Unusual Gates to Ground.*

Command / Command Code	Range 16	Frequency 32	Mode 48	Offset Mem 64	Read Mem 80	Write Mem 96
Model / Model Code	First Byte Equals:					
IC-R71 1	17	33	49	65	81	97
IC-751 1	17	33	49	65	81	97
IC-271 3	18	35	51	67	83	99
IC-471 5	21	37	53	69	85	101
IC-1271 6	22	38	54	70	86	102

Figure 2: *Table of First Bytes to Send.*

millisecond, and coupled through inverters A and F to a delay circuit made of R3 and C3. After 300 microseconds, the stretched PC2 pulse reaches AND gate E. This causes ICOM's RP line to go to 0 volts. After 1 mS, RP goes back to 5 volts. This signals ICOM to load the next data byte onto the bus. And the next PEEK follows, etc. During the POKE and all PEEKS the ICOM SRQ pin is held at 0 volts. One hundred milliseconds after the last PEEK, C2 discharges and SRQ returns to 5 volts. This completes the command. You now POKE 56576,151 to return Commodore's ATN line to its normal 5 volt state. This state permits Commodore-to-ICOM data flow again.

Software: In order to send commands to an ICOM radio you must first program your computer. This program could take many forms, but basically must accomplish three tasks: First the program must ask for and receive a command from the operator or another program. Next the command must be organized into a string of bytes to be sent to ICOM. And finally the task of sending each byte in the string must be accomplished. Perhaps the easiest way to receive a command is with an INPUT statement in BASIC. Next, a series of from four bytes for a mode change, to 12 bytes for a frequency change are assembled into a string variable. The first byte in every command opens a channel to a specific ICOM model connected to the data bus. The first byte tells a specific model to perform a specific command. You calculate the first byte by adding the radio's model code to your command code. Figure 2 shows all the command codes, model codes, and a table of first bytes. The following example may be helpful:

Example: Let's say you want to send a frequency change command to the IC-R71. The IC-R71 has a model code of 1. The command code for a frequency change is 32. The first byte sent would then be a CHR$(33), 1 + 32 = 33. The equivalent ASCII character is an exclamation mark (!). So, every frequency command sent to an ICOM IC-R71 (or IC-751) must begin with an explanation mark or CHR$(33). You would then send 11 more bytes to complete the frequency change command. If instead you wanted to change frequency on the IC-471, your first byte would be a CHR$(37) followed by 11 bytes. In a system with several models connected, only the IC-471 would become an active listener after a CHR$(37) was sent on the bus. If instead of sending 11 bytes of data after the first byte, you set the ATN line to 0 volts with

MEMORY CHANNEL	SEND DATA BYTES	MEMORY CHANNEL	SEND DATA BYTES
VFO	80,80		
1	80,81	17	81,81
2	80,82	18	81,82
3	80,83	19	81,83
4	80,84	20	81,84
5	80,85	21	81,85
6	80,86	22	81,86
7	80,87	23	81,87
8	80,88	24	81,88
9	80,89	25	81,89
10	80,90	26	81,90
11	80,91	27	81,91
12	80,92	28	81,92
13	80,93	29	81,93
14	80,94	30	81,94
15	80,95	31	81,95
16	81,80	32	82,80

Figure 3: *Read Memory and Tune Command.*

a POKE 56576,159 command, you could then PEEK 11 times as in the previous example, and receive the coded frequency to which the IC-471 is currently tuned. By subtracting the command code 32 from each received byte, you would be left with a marker byte, 9 decoded frequency digits, and another marker byte.

The second byte is used as a marker byte to denote the beginning of data transmission. This byte is equal to 13 + the command code. The second byte is the same for all models and varies only with the command. To send a frequency command, the second byte is 13 + 32 or CHR$(45). That is a minus (−) sign in ASCII. If sending a mode command, send 13 + 48 or CHR$(61), an equals (=) sign.

Next you send data. Every frequency command requires 9 bytes of data. Each byte is again made up of two added components. You add the command code for frequency, 32, to the number you want to send. The first data byte is the number of thousand MegaHertz. The second byte is hundred MHz, then tens, ones, hundred kHz, tens, kHz, hundred Hz, and lastly ten Hertz. If the digit to be sent is a zero, you must still send the command code CHR$(32). While a frequency command requires 9 bytes of data, a mode change command requires only one data byte. The mode command data byte equals the command code 48, plus a mode code as follows: 0 = LSB, 1 = USB, 2 = AM, 3 = CW, 4 = RTTY, 5 = FM, 11 = CW Narrow, and 12 = RTTY Narrow.

Finally, after having sent the first two bytes and all required data bytes, and ending marker byte is required. This last byte is always a two component character as with the others. The last byte always equals 14 plus the command code. The last byte of a frequency change is 46 or 14 + 32. For a mode command the last byte is a 62. Finally some complete examples:

Example 1: Command an IC-751 to CW mode on 7.12573 MHz. This requires two commands to be sent. You must always send the mode command first unless there is no mode change. The X is the decimal character code to be sent, then here is what to send, CHR$(X): For Mode: X = 49,61,51,62. These four bytes set CW mode. For Frequency: X = 33,45,32,32, 39,33,34,37,39,35,46. This sets 7.12573 MHz. Note: 12 bytes total.

Example 2: Command an IC-271 to FM mode and 145.33 MHz to work through a repeater. First command FM mode: X = 51, 61,53,62. Next send twelve frequency bytes: X = 35,45,32,33,36,37,35,35,32, 32,32,46. For a 600 kHz offset repeater send: X = 67,77,64,64,70,64,64,78. You send only 5 data bytes for an offset command representing 10 MHz to 1 kHz digits.

Memory read and write commands may also be sent. The read command recalls and tunes any one of the 32 memory channels or the VFO. This command requires two data bytes. See Figure 3. The write command takes one byte, and offers two choices: Command code + 1 is to store the current VFO in the current memory channel. Command code + 2 recalls the current memory channel to the VFO, setting both mode and frequency.

By further example a demonstration program, tested on the Commodore 64, is included. To use it, first load the program into your Commodore 64 from tape or by typing it in from the listing, Figure 4. Next, connect up the computer to your ICOM rig, type "RUN" and return. On your screen the program will request a frequency in MHz. Key in a valid frequency and hit return. It will be tuned and verified. Another frequency will be requested and you may enter another one in the same way. If you wish to exit the program type 33 and return. This was written for the IC-R71 or IC-751 so you must stay within the range 99 kHz to 30 MHz.

Here's how the program works: The entered frequency is stored in variable F. F is converted to a multiple of 10 Hz and then tested to ensure it is within the 99 kHz to 30 MHz range. F is then converted to a string variable: A$. On line 100, the length of A$ is measured. We then begin to form up the string to be transmitted. That string will begin with an exclamation mark (!) for a first byte and a minus sign (−) for a second byte. Next there will be from two to five blank spaces depending on how many initial zeros are needed, or rather how many digits are entered above 99 kHz. Next, two more string variables, H$ and F$ are cleared ready to fill. Then H$ is filled, one character or byte at a time. Each byte is equal to the digit to be sent plus the command code 32. Finally the command string, F$ is filled, consisting of the first two bytes and zeros (spaces), the digit string (H$), and the end marker byte, a period (.).

The Commodore 64 is then set up to send the string. On line 180, the output port B is set up to send data out. On lines 190 through 220, each of the 12 command bytes are sent. The program now waits until C3 discharges and SRQ is reset to 5 volts. Then it requests the radio to send the frequency to

```
10 REM COMMODORE TUNING FOR ICOM IC-R71 OR IC751 RADIOS
20 REM By Russ Kroeker 6/28/85
30 DIM F$(12)
40 INPUT "ENTER FREQUENCY IN MHz:";F
50 IF F=33 THEN END: REM ENTER 33 TO LEAVE PROGRAM
60 F=F*100000: REM CONVERT MHz INTO 10 Hz MULTIPLES
70 IF F>3000000 THEN PRINT "FREQUENCY TOO HIGH": GOTO 40
80 IF F<9900 THEN PRINT "FREQUENCY TOO LOW": GOTO 40
90 A$=STR$(F)
100 L=LEN(A$)
110 G$="!-      ":REM CMD BYTE, MARKER BYTE, SUPPLY OF LEADING 0s FOR LINE 170
120 H$="":F$="" : REM CLEAR STRINGS READY TO FILL
130 FOR N=1 TO L: REM CONVERT A$ INTO STRING TO BE SENT H$
140 H$=H$+CHR$(VAL(MID$(A$,N,1))+32) : REM ADD CMD CODE 32 TO EACH BYTE IN A$
150 NEXT N
160 REM NEXT WE FORM UP TRANSMIT STRING FROM G$,H$,AND AN END BYTE "."
170 F$=LEFT$(G$,11-L)+H$+".": REM LEFT$... ADDS CORRECT NO OF LEADING ZEROS
180 POKE 56579,255: REM SET PORT B DATA DIRECTION REG TO "SEND"
190 FOR N=1 TO 12: REM SETUP LOOP TO SEND 12 BYTES
200 M=ASC(MID$(F$,N,1)): REM SELECT & CALCULATE BYTE TO SEND
210 POKE 56577,M: REM LATCH BYTE ON PORT B AND SEND IT
220 NEXT N
230 FOR X=1 TO 200 : REM WAIT FOR SRQ TO TIMEOUT
240 NEXT X
250 F$="" : REM CLEAR F$
260 POKE 56577,33 : REM SEND FREQUENCY COMMAND BYTE
270 POKE 56579,0 : REM SET PORT B DATA DIRECTION REGISTER TO 'RECEIVE"
280 POKE 56576,159 : REM SET ATN & INTERFACE TO "RECEIVE"
290 FOR X=1 TO 11 : REM SETUP LOOP TO GET 11 BYTES
300 F$=F$+STR$(PEEK(56577)-32) : REM GET A BYTE, STRIP CMD CODE, ADD TO F$
310 NEXT X
320 POKE 56576,151: REM RESET ATN & INTERFACE TO "SEND"
330 F=VAL(MID$(F$,5,17))/100000 : REM EXTRACT FREQ, SCALE TO MHZ
340 PRINT "YOU ARE TUNED TO" F "MHZ" : REM CONFIRM TUNING
350 GOTO 40: REM LOOP TO START OVERENCY
360 END
```

Figure 4: *The "ICOM21" Program.*

which it was just tuned. A frequency command byte (33) is sent. Then two POKEs switch both the port B data direction register and the ATN line controlling the interface, to receive. The program then PEEKs 11 times to get the data from ICOM. While doing so it subtracts the command code, 32, from each byte and adds the digit to F$. After 11 passes through the loop, F$ contains a marker (13), nine digits, and another marker (14). Line 330 extracts the digits, converting them to a value and then scaling this value to MHz. This frequency is then displayed to confirm successful tuning and the program then loops back to line 40, to request a new frequency.

Receiving data: You can command ICOM bus radios to send four kinds of data. The procedure is to send the appropriate first byte. See Figure 2. You then set the ATN and port B data direction registers to receive, and PEEK the appropriate number of times: Range = 16, Frequency = 11, Mode = 3, and Offset = 7 times. Each group of received data is preceded by and followed by a marker byte. Since range data includes an upper and lower number, there are four markers in the 16 received bytes. Each received byte needs to have its command code subtracted to yeild its value. Command codes are: Range = 16, Frequency = 32, Mode = 48, and Offset = 64. A program is available from ICOM which allows complete remote control and data reception from one or more models connected to this interface.

You may want to write your own application program using parts of this program. Programs for the remote control of a number of ICOM models, channel by channel spectrum analysis, emergency channel scanning, and the scheduled operation on or programmed sequential recording of many channels is possible. The Commodore 64 and ICOM series of computer interfacing radios represent a unique opportunity to build a sophisticated communication system at a relatively low cost. Commercial and military systems with this degree of complexity are currently available at many times the cost now attaninable.

Specialized applications: You may have noticed that the two normal Commodore handshake lines, Flag2 and PA2, are not used by this interface. The circuit was refined several times to free up these lines for special applications. For instance: You could use a spare 40106/74C14 inverter to couple the ICOM squelch output on pin 11 to Flag2. You can then PEEK(56589) to see if the station tuned is breaking the squelch level set on the radio. If it is, the PEEK will yield a value of 16, if not, zero. Note: The squelch voltage on pin 11 is 8 volts and needs to be divided down to 5 volts. Another application would be to invert PA2 to the ICOM send line, pin 23. When you POKE 56576,155, grounding ICOM pin 23, you would then switch a connected transceiver to transmit mode. With the above two capabilities, a low cost repeater is possible. There are, of course, many other possibilities. I trust this has been a helpful introduction to the one you have in mind. PC

User Report:

The New Sony AIR-8 Hand-Held Programmable Scanner

40 Channel Unit Offers Interesting Coverage

BY ROD MCMICHAEL, KNM7DX

The SONY AIR-8 offers rather interesting frequency coverage for a hand-held programmable scanner. On the one hand, AM coverage goes from 150 kHz to 2194 kHz, offering beacons, low frequency weather broadcasts, the standard broadcast band and beyond. Next, it tunes FM from 76 MHz to 108 MHz, and that brings in the FM broadcasting band. Then it goes on to cover the 108 to 136 MHz VHF aeronautical band *plus* the 144 to 174 MHz VHF high-band! Yes, it's unusual!

Here are some of the features of the AIR-8.

Channels: The AIR-8 receives 40-channels in all, ten in each of its four general coverage ranges. When put into its scanning mode, it will receive up to ten channels selected from one of its four ranges (i.e., you can't scan a mix of aero and VHF high-band channels in one clip).

Scanning: The AIR-8 scans through ten channels in a little more than one second (assuming that there are no active signals during scanning).

Scan/Search: The AIR-8 can be programmed to search out active frequencies in any of its coverage bands, and it can do this in ascending or descending directions. Once it stops on an active frequency, it will remain tuned to that frequency until instructed to resume searching. If desired, the newly found frequency may be entered into the scanner's memory. Frequencies can also be manually "stepped through" one at a time. In the 150 to 529 kHz band the AIR-8 steps through frequencies in 1 kHz increments. In the 530 to 1600 kHz range, the user may adjust the increments for 9 kHz or 10 kHz channel separation, however, from 1601 to 2194 kHz it reverts to 1 kHz steps. In the FM broadcast band the set tunes in 50 kHz increments. The VHF aero band is set up in 25 kHz steps. The 144 to 174 MHz band is programmed for 5 kHz steps. Frequencies read out to 3 decimal places.

Frequency Display: LED's (black on a silver background) are ¼" high for the frequency readout. Small indicators advise which of the ten channels in a given range is being received, also the delay and priority status of each channel in the range in which the AIR-8 is operating.

SONY's exciting new AIR-8 scanner. Look ma, no crystals!

Delay/Priority: The delay feature (which can be deactivated for individual frequencies) holds the scanner on the channel for two seconds after transmissions. A programmable priority feature may be assigned to any one of the ten channels in each of the four coverage ranges. This causes the priority channel to be checked every three seconds while a signal is being received on another frequency.

Programming: The AIR-8 programs quite easily. Press a button to clear the frequency display, enter the desired frequency by means of the ten digital buttons, then press the "Execute" button to monitor the frequency. If desired, the frequency may then also be deposited in the scanner's memory, or another new frequency may be selected in the same manner. A "Memory Scan" button will start the set scanning through its memorized frequencies.

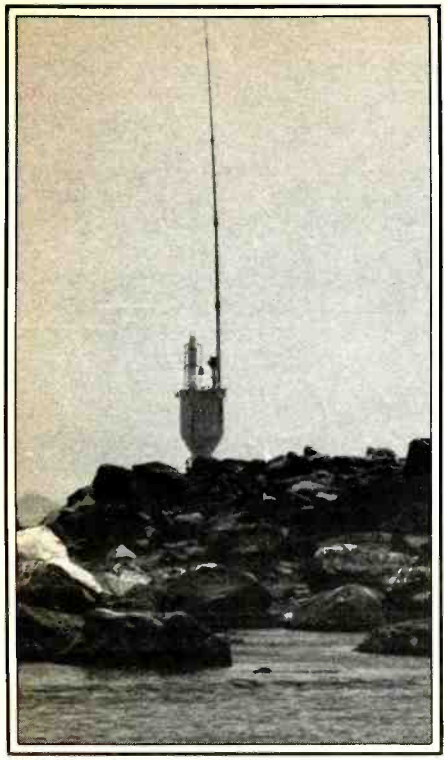
Other Features: The AIR-8 comes with an 11½" flexible rubber whip attached by means of a BNC connector. There is a built-in directional AM-band antenna (ferrite bar type) plus a provision for an optional external AM antenna. A light may be activated to backlight the LCD display. A little red indicator comes on whenever a signal is being received. Squelch is variable but may be set for automatic. The power on/off switch is located on the top of the unit. A "Key Protect" button locks all of the keys on the face of the AIR-8. A "beep" acknowledges programming instructions.

Audio: The speaker is about 3" × 1½" in size and there is an earphone jack.

Power Supply: The AIR-8 operates from 6 VDC. This can be supplied by four AA size batteries or an optional external power source (such as 117VAC/6VDC or 12VDC/6VDC devices).

Physical Specs: Housed in a rugged plastic case, it weighs 1½ lbs. and measures 3⅜" wide, 7⅛" high, 2" deep. The case is dark gray, and the buttons are green, black, gray, red, and turquoise. There is some brushed chrome trim around the LCD display area.

Instruction Book: At the first cursury glance, the AIR-8's book gives the impression of it being a complex unit to operate. Actually, the book is quite thorough and in-



The 200 to 400 kHz band swarms with radiobeacons, many even transmit weather information. The AIR-8 can receive these stations. This photo of a low frequency marine radiobeacon was taken by Michael Mideke.

Selected VHF Aero Frequencies

122.00	MHz Aero Weather
122.75	MHz Aircraft to Aircraft
122.775	MHz Airport vehicles
122.80	MHz Unicom stations
122.85	MHz Multicom stations
122.90	MHz Multicom stations
123.025	MHz Helicopter air/air
123.05	MHz Helicopter Unicoms
126.20	MHz Military Airports
128.85	MHz Pan Am
128.975	MHz Northwest Orient
129.00	MHz American
129.05	MHz Air Canada
129.10	MHz TWA
129.20	MHz American
129.30	MHz United
129.50	MHz Delta
129.75	MHz Piedmont
130.45	MHz Eastern
130.525	MHz Peoples X-press
130.55	MHz Ozark
130.70	MHz Republic
131.15	MHz Pacific S.W.
131.45	MHz Western
164.30	MHz USCG Helicopters
165.6625	MHz FAA Police
166.175	MHz Nat'l. Transp. Safety Board
173.5875	MHz USAF Fire/Crash Vehicles

Note: These are only a few of the active aero frequencies you can tune in with the AIR-8. These frequencies courtesy the *Air-Scan* directory.

formative, even to describing how to correct user errors. A troubleshooting guide is included. Unfortunately, no specs are provided to advise about things such as selectivity and sensitivity parameters. And no schematic is included, either.

In Use

We found the SONY AIR-8 to be a novel and welcome addition to the world of scanning, especially since it is the first hand-held programmable to cover the VHF aero band and the 200 to 400 kHz beacon/weather band. Fact is, SONY designed it for use by private pilots, although it is equally useful for boating enthusiasts. We would have been happy to swap either the AM or FM broadcast band coverage, or the 400 to 530 kHz or 1601 to 2194 kHz coverage for a shot at tuning the 460.65 to 460.875 MHz airline operations band used at major airports.

The AIR-8 is attractive to look at, and an optional carrying case makes it even better looking (the AIR-8 is supplied with a shoulder strap).

The unit is simple to operate and relatively goof-proof. If you attempt to program in a frequency outside of the AIR-8's design range, a little blinking "TRY AGAIN" sign pops up in the LCD display area.

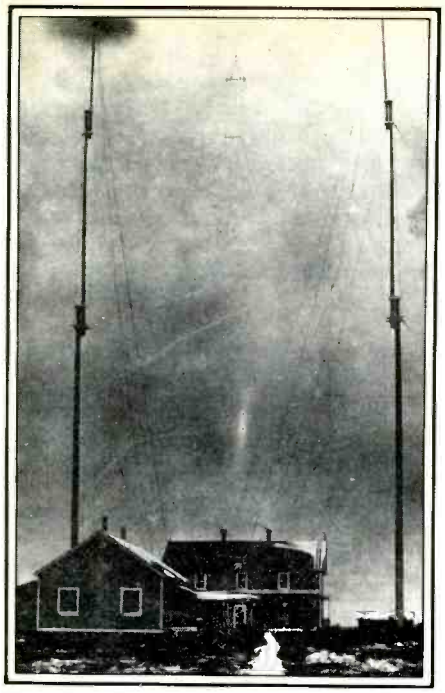
There have been no problems encounted with cross-modulation or reception of spurious frequencies as sometimes noted in programmables. The instruction book notes that internal *birdies* are to be found on four frequencies you'd probably have little reason to monitor; we found no others.

The four AA batteries offer about nine to ten hours of reception, although rechargeables or an optional battery case for four C-size batteries will make life easier.

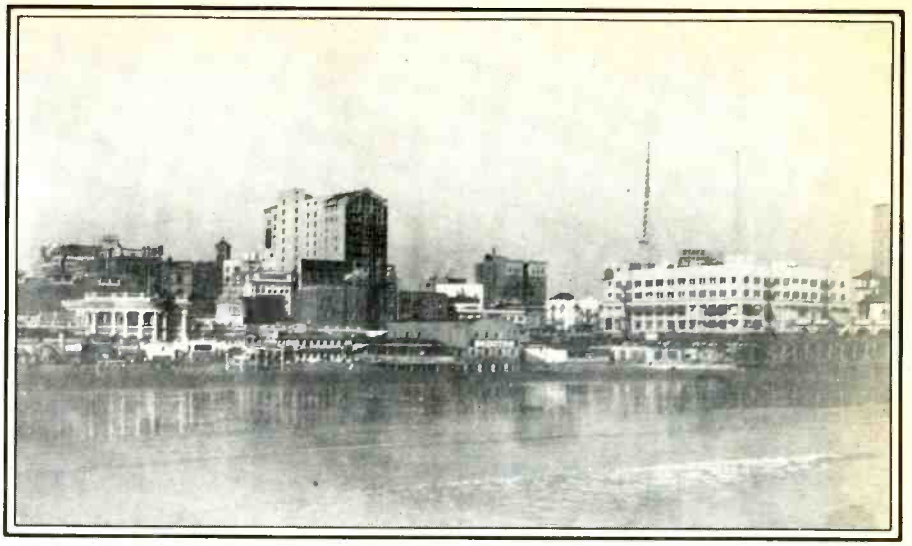
Reception was quite good, in fact it was excellent. Last summer I had the AIR-8 with me on vacation and was well satisfied with what it could bring in. For instance, on 157.10 (VHF maritime Channel 22) I could easily copy USCG base stations located 150 miles away (over-water signal path). Aircraft stations could be heard with good copy while contacting Unicom stations at airports well over 100 miles distant. In an interesting comparison, a 162 MHz NOAA weather broadcast transmitter located 30 miles away came in better on the AIR-8 than it did on a base-station scanner using an indoor telescoping whip. The best the base-station scanner could produce was a garbled and distorted signal that barely had the moxie to break through the squelch; the same signal on the AIR-8 was a knockout that offered full quieting.

My AIR-8 (Serial #18720) has provided me with many hours of reliable enjoyment and gives me the freedom of being able to drive around to numerous airports without a fistful of plug-in crystals. I load my AIR-8 into my Jeep along with a copy of the *Air-Scan* directory and I'm ready to tune in on all of the action in and around airports, be it taking place in the VHF aero band or high-band.

This is a well-made scanner, and it may suit your monitoring needs. But a word of advice; for some reason or other SONY's AIR-8 scanner does not seem (at the time this is being written) to be available from many electronics suppliers, including those who normally carry SONY products. Many suppliers told me that "there isn't any such set," or "I've heard of it but I don't carry it and can't get it." You may have to shop around a bit for the AIR-8. And, by the way, the AIR-8 sells for about $269. PC



The Army's wireless station at Saint Michael, Alaska, circa 1908.



Anybody out there know what city's skyline this is, huh? Maybe Buffalo, New York?

Radio: Then And Now

A Look Into History

BY ALICE BRANNIGAN

Lots to get to and look at this month—all sorts of assorted interesting and most unusual tidbits.

For instance, we came across a photo postcard postmarked Saint Michael, Alaska and dated December 2, 1908. According to the handwritten message on the back of the card, it depicts the "wireless telegraph station at Fort Saint Michael." Let me say that Saint Michael is in a rugged part of Alaska on Norton Sound. The population is about 200! Can't figure out why the chap who sent out this card was there in December.

What we can figure out is that Saint Michael did have an Army wireless facility there many decades ago. In the early days it used the callsign WVE and operated on 500 kHz for the purpose of providing public service to ships. By the early 1920's the station's callsign was changed to WXT. In 1930 records, WXT was shown as operating on 652 kHz.

Our (rather dark) photo shows a wooden building flanked by two tall wooden masts. The masts are approximately 120 feet in height and are heavily guyed. Although it is difficult to see (even in the original photo), there are wire supports strung between the mast tops which hold up a vertical cage-type antenna that terminates just above the roof of the taller building.

This is one of the earliest photos we've seen and represents one of the most remote and obscure early wireless stations we have ever come across in an "original" photo.

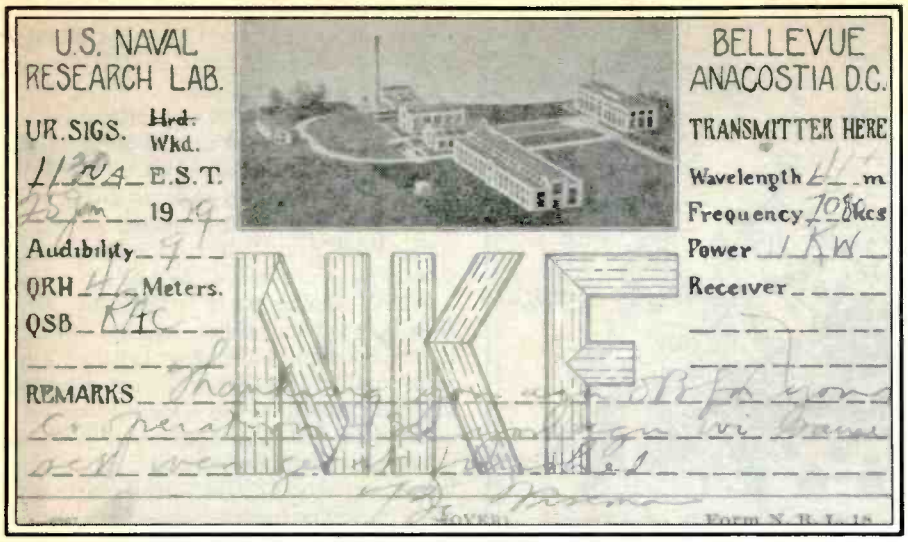
Next, courtesy of reader Eric Swedberg of Portland, Oregon, we have a mystery photo that he found at a garage sale. It shows the skyline of a big city as seen from across a river. Two radio towers are mounted atop the large white building at the right and a sign on the roof of that building *may* say "State Insurance." Elevated railroad tracks cross the river near that building. While the word "Skooter" appears on a building in the center of the photo, a partial word "Buff" shows atop another structure, leading Eric to the thought that perhaps this is Buffalo, New York at some point in the long distant past. Eric asks if any readers can identify the city and the radio station shown in his mystery photo.

QSL cards sent out by federal stations are indeed rare, but we came across a genuine U.S. Navy station QSL card from station NKF of the U.S. Naval Research Lab at Bellevue, Anacostia, DC. The card is dated 25 January 1929 and confirms the station's 1 kW signals on 7080 kHz. It was sent to a ham in Akron, Ohio. A handwritten message on the QSL reads, "Thanking you agn OB for your cooperation. See you agn wi same set wen we get it finished." This card confirms a two-way contact in the 40 meter ham band, although no explanation is given as to what NKF was doing there.

Here's an oddball QSL if there ever was one! It's from a station sporting the experimental callsign "W9XYJ" and is dated 10 October 1929. The card was sent to ham operator W8BJQ by "W9XYJ's" operator, John C. Cameron, 1485 Delevan Avenue, Chicago, IL. What's unusual about this card is that an experimental station should have been in a ham band. What's more unusual is that in 1929 experimental callsigns in the 9th Radio District were all between W9XA and W9XZ and also from W9XAA to W9XAZ. A callsign such as W9XYJ *at that time* seems absolutely impossible. There is the strong possibility that W9XYJ was a pirate with a good imagination for generating his own interesting callsign.

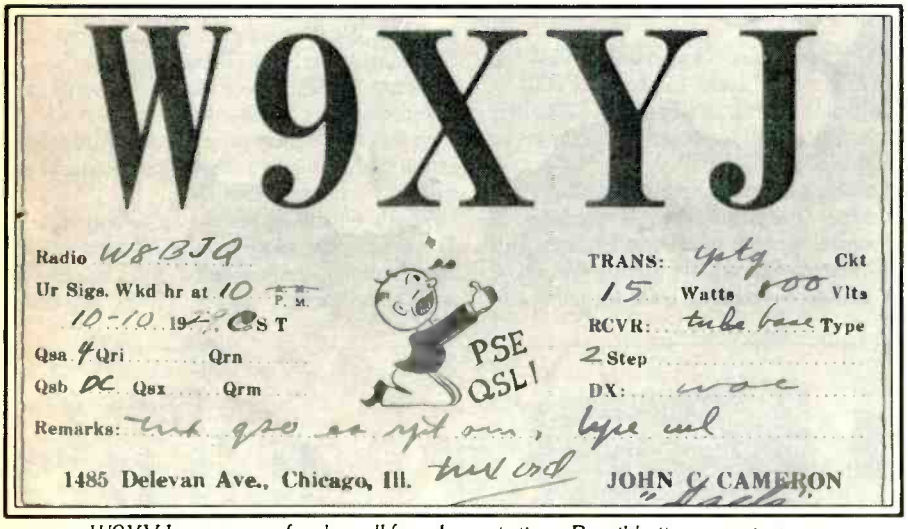
Unless one of our readers has a better explanation!

The next mystery was submitted by our dear old friend Daryll Symington, N8EBR.



This Navy QSL card came from NKF on 7080 kHz. Nice catch!

WHKY was once located in the Hotel Hickory, Hickory, North Carolina.

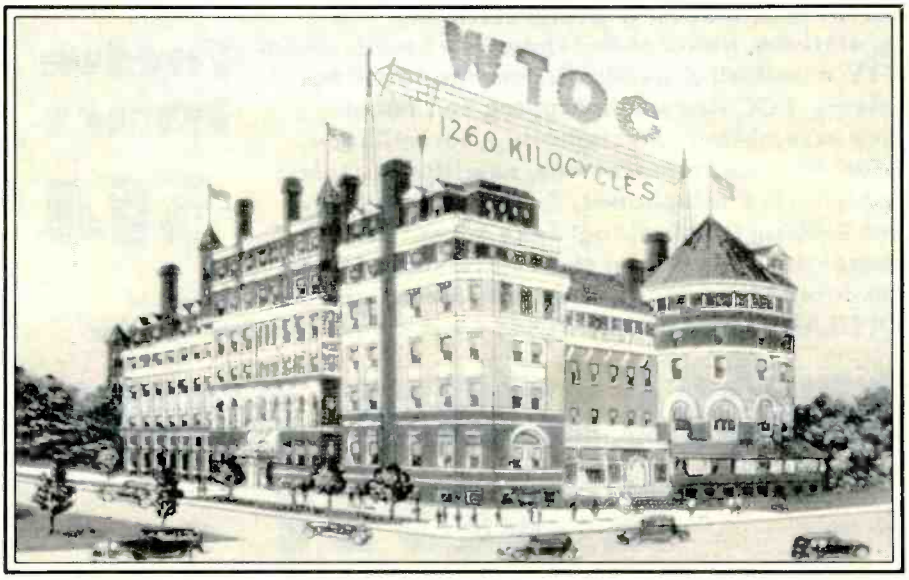


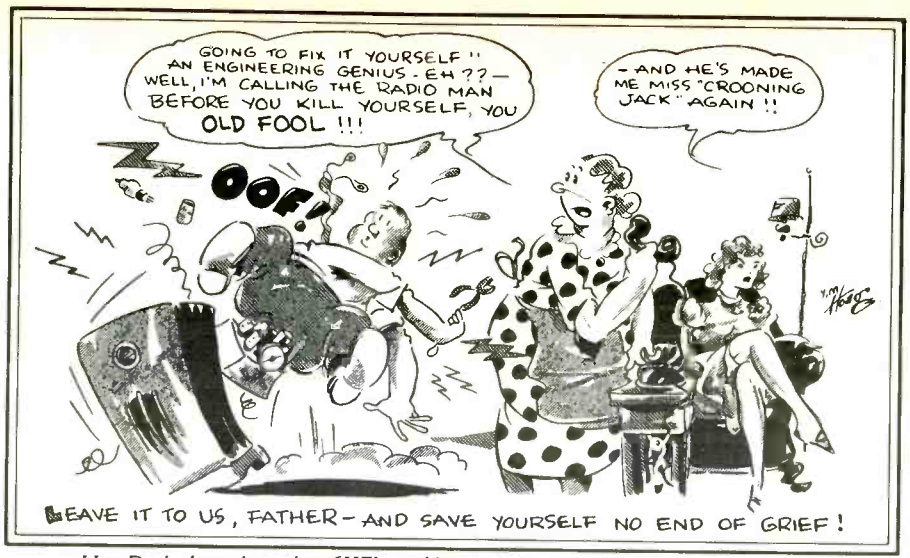
W9XYJ was a very freaky call for a ham station. Possibly it was a pirate.

San Antonio's Hotel Blue Bonnet; but what broadcaster did it house?

Daryll submits a picture postcard dated 1949 showing the Blue Bonnet Hotel ("San Antonio's Newest Hotel") in—you guessed it—San Antonio, Texas. Atop this hotel is a modest antenna system, perhaps too formidable for receiving only. Daryll speculates that the antenna system may be for an AM broadcaster since many hotels have hosted radio stations over the years. Even though the postcard is dated 1949, the vehicles in this photo look to be mid-1930's vintage, so one can take the slogan about San Antonio's newest hotel with a few grains of salt, especially since the hype for the Blue Bonnet talks of ceiling fans rather than air conditioning. If any readers can offer clues as to the broadcaster shown in the Blue Bonnet hotel postcard, please step forward and be recognized. By the way, Daryll found this card at a flea market.

The spectacular gingerbread Hotel De Soto was home to WTOC in the old days.





Hey Dad, drop those hot 6K7's and let a pro fix the ol' Midwest console!

Speaking of radio stations in hotels, the ornate and elegant Hotel De Soto wasn't at all bashful about letting it all hang out when they made up their own picture postcard. The Savannah, Georgia hotel (on this undated card) showed the antenna system plus large eerie looking letters in the sky radiating the callsign WTOC and the frequency (1260). WTOC began operations in 1929 with 500 watts. By 1946 it had moved to 1290 kHz and upped its power to 5 kW, so this card would seem to show WTOC at some point in the 1930's. The 1290 kHz spot in Savannah is presently occupied by station WWSA.

A station publicity flyer for WTOC in 1946 noted that "the half million people living in the coastal empire section of Georgia and South Carolina tune in regularly to WTOC." This station existed at least into the late 1960's (and possibly later). Chances are that WWSA is a continuation of WTOC but under a changed callsign.

And while we are checking out broadcasters located in hotels, let's not forget to take a look at the Hotel Hickory of Hickory, North Carolina. Our undated postcard shows this hotel along with the transmitting tower of station WHKY on 1290 kHz, same frequency as Savannah's WTOC/WWSA!

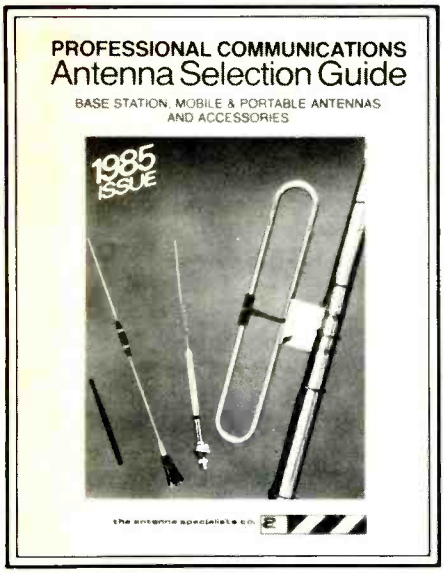
WHKY went on the air in 1939 but 1946 records listed the station location as the Radio Building (transmitter location 2.5 miles south of Hickory), so we can assume that our postcard of this station is from an earlier date. The current address of WHKY remains the Radio Building, and the station has remained on 1290 kHz, while the owners of the station have remained the Catawba Valley Broadcasting Co., Inc. since the station began operating. Now that's stability!

This month we'll leave you with a chuckle. We found a card from a dealer for National Union Radio Tubes, probably from the early 1930's. These cards were sent out to radio owners in order to get them to bring their sets to the shop for professional repairs rather than trying to fix them on their own by trial-and-error methods.

That's all the space we have this time. Thanks for the many wonderful letters and contributions submitted by readers; keep'em coming! PC

PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS



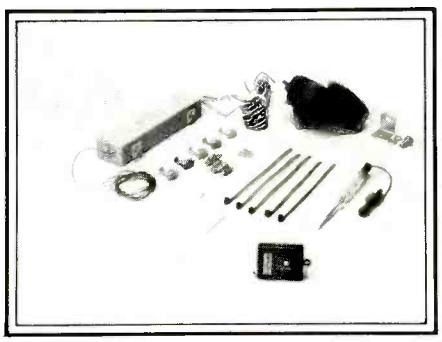
Antenna Selection Guide

The Antenna Specialists Co. has released an updated, 1985 edition of its unique "Professional Antenna Selection Guide." The new 28-page publication contains specifications on more than 300 products spanning the entire spectrum from low-band to 800 MHz antennas and accessories. Products are organized in sections by frequency range. Individual items are presented in groups according to mounting location, and cross referenced by type of mount, antenna style, and other mechanical and electrical specifications. This greatly simplifies the process of selecting the best solution to a given mobile, base or portable antenna requirement. The new 1985 "Antenna Selection Guide" is available at no charge from: The Antenna Specialists Co., Marketing Department, 12435 Euclid Avenue, Cleveland, OH 44106.

Docking Boosters

The new series of Docking Boosters from CMC docks with your HT and creates a powerful mobile unit with 30 watts of high performance output. To increase the sensitivity of your portable, the Docking Boosters include a 16 dB gain GaAs FET pre-amplifier. The use of quality transistors, strip-line techniques and a silver plated P.C. Board ensures a stable output and excellent sensitivity. A highly sensitive carrier sensor/controller is included. The Docking Boosters are mounted on a special "Handy-Bracket" for easy slip on mounting to most car doors. Cabling and in-line fuses are included for connection to the vehicle battery and an SO239 connector is provided for the outside vehicle antenna. Several different models are available to dock with Yaesu, ICOM, Kenwood, and Standard HT's in the 2 meter and 70 CM Bands. All are finished in an attractive black crackel surface and include a convenient mic hangup clip and a HI/LOW/OFF Power Switch. Primary voltage is 13.8VDC at 4 amps.

For information, contact CMC Communications, Inc., 5479 Jetport Industrial Boulevard, Tampa, Florida 33614, or circle number 111 on the reader service card.



DesignTech International Announces CarFinder, Model 007

Futuristic technology can now help you find your car in a crowded parking lot. CarFinder (model 007) is an ultra miniature transmitter with James Bond-type technology that can signal your car up to two blocks away! Just push the button on your keychain transmitter and your car will briefly honk its horn and flash its lights so that you can spot it from where you stand.

CarFinder provides *safety* and *convenience*. Besides helping you locate your car in the parking lot of the shopping mall, airport, or stadium, CarFinder helps you feel safer. You'll feel secure walking to your car at night knowing that at the push of a button, CarFinder can attract attention and scare away would be molesters since your car will seem "alive" with its lights flashing and its horn honking.

CarFinder retails for under $100 and is available nationwide. CarFinder is available from the Hammacher Schlemmer and Innovations catalogs.

CarFinder is designed and manufactured by DesignTech International, Inc. of Washington, DC. For more information, contact DesignTech International, Inc., 941-B 25th NW, Washington, DC 20037, or circle number 112 on the reader service card.

GCI 8300 Satellite Receiver

Geotech Communications, Inc., (formerly Gillaspie Communications, Inc.) has introduced its new GCI 8300 Satellite Receiver. Geotech Communications believes this model will become the "Standard of the Industry" for basic satellite receivers. GCI designed this unit to offer the finest video quality and maintain a very competitive price.

Along with its unparalled picture, the GCI 8300 features quality craftsmanship and a sound design. This model comes with both variable audio and video channel tuning. An "odd or even" button and skew adjustment on the front of the receiver makes changing and tuning polarity a snap. An easy to read, illuminated signal strength meter aides the user in finding and maintaining the optimum picture quality.

The GCI 8300 comes with an attractive brushed chrome face plate and is placed in a wood grain-styled case. GCI designed the Model 8300 to complement the GCI 8200 Antenna Control 16-position system. These two units stack neatly together to form a complete and concise satellite receiving center.

For more information, contact: Geotech Communications, Inc., 355 Sinclair Frontage Road, Milpitas, California 95035, or circle number 113 on the reader service card.

Selected English Language Broadcasts

Fall, 1985

BY GERRY L. DEXTER

Note: This list of English language broadcasts was accurate at the time of compilation, but stations often make changes in the hours and frequencies with little advance warning. Hundreds of broadcasts in English are on shortwave every day, many of them directed to North America. This is a representative sampling and not a complete reference. Some broadcasters air only part of their program in English during a given hour, or may run the English segment into the following hour. These are not necessarily carried over here. Major broadcasters such as the Voice of America, Radio Moscow, and the BBC operate virtual 'round the clock services in English and are not included in this list. Numbers in parenthesis indicate a starting time for English within the hour listed. All times are GMT.

Time	Country	Frequencies
0000	Israel	9.440, 9.815, 11.655
	East Germany	9.730, 11.975
	Canada	5.960, 9.755 (not weekends)
	Japan (0015)	11.710
	China (PR)	15.385, 15.520
	Bulgaria	9.700, 11.720
	Ecuador-HCJB (0030)	9.745, 11.910, 15.115
	Portugal (0030)	6.095
	Spain	6.125, 9.630
	Belgium-BRT (0030)	5.910
	Albania	7.065, 9.760
	Ukraine SSR (0030)	9.685, 9.750, 11.790, 15.100, 15.240
	Vatican (0050)	6.015, 9.615, 11.845
0100	Israel	7.412, 9.440, 9.815
	E. Germany (0130)	9.730, 11.975
	Canada	5.960, 9.755, 17.820 (not weekends)
	Austria (0130)	6.000, 9.635
	Argentina	9.610, 11.710
	W. Germany	6.040, 6.085, 6.145, 9.545, 9.565, 11.785
	USA-AFRTS	11.790, 15.320
	Nicaragua	6.015
	Cuba	6.140, 11.725
	Italy	5.990, 9.575
	Czechoslovakia	5.930, 7.345, 9.740, 11.990
	Netherlands (0130)	6.165, 9.590, 9.895
0200	Brazil	11.745
	So. Africa	5.980, 6.010, 9.585
	Switzerland	6.135, 9.725, 9.845, 11.925, 12.035
	Canada	5.960, 9.795 (not weekends)
	Sweden (0230)	9.695, 11.705
	Japan	15.195, 17.875
	Taiwan	5.985, 6.065, 11.825
	Romania	5.990, 6.155, 9.510, 9.570, 11.810, 11.940
	Poland	6.095, 6.135, 7.145, 7.270, 9.525, 11.815, 15.120
	Hungary	6.025, 6.110, 9.520, 9.585, 9.835, 12.000
	Egypt	9.475, 9.675
	Albania	7.120, 9.760
	Netherlands (0230)	6.165, 9.590, 9.895
0300	New Zealand (0345)	11.780, 15.150
	Sweden (0330)	11.705
	France (0314, 0345)	6.175, 7.135, 9.535, 9.545, 9.550, 9.800, 11.880, 11.995
	Austria (0330)	5.945, 6.000
	Neth. Antilles (0315)	9.535
	Portugal	6.090
	Belize	3.285
	Kenya	4.915
	Guatemala-TGNA	3.300, 5.955
	Poland	6.095, 6.135, 7.145, 7.270, 9.525, 11.815, 15.120
	Uganda	5.026
	Greece (0340)	7.395, 9.490, 11.645
0400	Switzerland	6.135, 9.725, 12.035, 15.305
	France (0415, 0445)	6.055, 7.135, 9.535, 9.545, 9.550, 9.790, 9.800, 11.705, 11.880, 11.995
	Austria (0430)	6.000, 9.635
	Bulgaria	7.115
	Argentina	9.690, 11.710
	Lesotho	4.800
	Botswana	4.820, 7.255
	Turkey	9.560, 9.730
	Nicaragua	6.015
	Swaziland-TWR (0430)	5.055
0500	Ecuador-HCJB	6.095, 9.745, 11.910
	Spain	5.970, 6.125, 9.630
	Nigeria	7.255
	W. Germany	5.960, 6.130, 9.545, 9.690, 11.705
	USA-AFRTS	6.030, 11.790, 15.320
	Cameroon	4.795, 4.850, 5.010
	Netherlands (0530)	6.165, 9.590, 9.895
0600	New Zealand	11.780, 15.150
	Cook Islands	11.760
	Liberia - ELWA	4.760
	Taiwan	5.985
	Cuba (0630)	9.525
	Ghana	4.915
	E. Germany (0630)	6.010, 6.080

Time	Country	Frequencies
0700	Ecuador-HCJB	9.655, 9.745, 9.870
	USA-KNLS	11.850
	Japan	9.505
	Belgium-BRT (0715)	9.880
	Monaco-TWR (0725)	9.495
0800	Switzerland (0830)	9.560, 15.305, 15.570, 17.830
	Australia	6.045, 6.060, 9.580, 11.910
	Saipan-KYOI	15.190
	USA-UN Radio	9.680, 11.740, 11.825
0900	Japan	9.505
	Falkland Is.	3.958
	Portugal - AWR	9.670
1000	New Zealand (1030)	9.600, 11.780
	Australia	6.045, 6.060, 9.580
	Ecuador-HCJB	6.130, 11.925
	Papua New Guinea	4.890
	Vietnam	9.840, 12.020
	Singapore	5.010, 11.940
1100	Finland	15.400, 17.800
	Pakistan	15.595, 17.680
	Thailand (1130)	9.655, 11.905
	Japan	9.505, 9.575, 15.195
	China	11.860
	Neth. Antilles (1110)	11.815
	N. Korea	9.745, 9.977
1200	Finland	15.400
	Canada	9.650, 11.955, 15.440, 17.820 (not weekends)
	Australia	5.995, 6.045, 6.060, 7.205, 9.580, 9.710, 9.770
	Austria	6.000, 6.155, 9.770, 15.320
	China	11.650, 11.860
	Ecuador-HCJB	15.115, 17.790
	Argentina	15.345
	Syria	17.510
	Bangladesh (1230)	11.935, 17.665
	Uzbek SSR	7.340, 9.650, 9.715, 11.785, 15.115
1300	So. Africa	15.220
	Finland	15.400, 17.800
	Switzerland (1330)	11.955, 15.570, 15.585, 17.785, 17.830
	Japan	9.505, 9.605, 11.840
	UAE-Dubai	21.605, 21.695
	Belgium-BRT	15.590
	Vietnam (1330)	10.040, 15.010
	Canada	9.650, 11.855, 11.955, 15.440, 17.820
1400	Finland	15.400
	Sweden	15.345, 21.570
	S. Korea	9.570, 9.750, 15.575
	Norway	15.175 (Sundays)
	Ecuador-HCJB	11.740, 15.115, 17.890
	Sri Lanka	15.425
1500	Finland	15.400
	Switzerland	15.430, 17.570, 17.820, 21.770
	Seychelles	11.895
	Ethiopia	9.560
	Philippines-Veritas	9.660
	Japan	9.505
	Greece (1540)	11.645, 15.630, 17.565
	Yugoslavia (1530)	9.620, 15.240
1600	Pakistan	11.675, 15.595, 17.660
	France (1605)	6.175, 11.705, 17.620, 17.795
	Japan	9.505, 9.575, 9.605, 21.550
	UAE-Dubai	15.300, 15.320, 17.775
	Vietnam	10.040, 15.010
	Canada	11.955, 17.820
	Vatican (1610)	9.645, 11.740
1700	USA - WMLK	15.110
	Cuba	17.710
	Japan	9.505
	Norway	9.565, 11.865, 15.220 (Sundays)
	Saudi Arabia	11.855
1800	Argentina	15.345
	Kuwait	11.675
	USA-AFRTS	11.890, 15.330, 15.345, 15.430
	Brazil	15.270
	Ivory Coast	11.920
	Libya	15.450
	Saudi Arabia	11.855
1900	Ecuador-HCJB	15.295, 17.790, 21.480
	Libya	15.450
	Eq. Guinea	15.106
	Kuwait	11.675
	Iran	9.022, 9.770
2000	Portugal (2030)	9.740
	Algeria	9.640, 15.215, 17.745
	Syria (2005)	12.085, 17.825
	Israel	9.009
	USA-WINB	15.185
	Cuba	15.300, 17.750
2100	So. Africa	9.585, 11.900
	Switzerland	9.585, 12.035, 15.570
	Taiwan	11.825, 15.270, 15.345, 17.890
	Hungary	9.835, 11.910, 12.000
	USA-UN	15.120
2200	Bulgaria (2230)	9.700, 11.720
	Libya (2230)	11.815
	India	9.910
	Malta (2230)	6.110
	USA-WYFR	15.215, 15.365, 15.380
	So. Korea	15.575
	Canada	9.760, 11.925 (not weekends)
	Israel (2230)	7.412, 9.425, 9.440, 9.815
2300	Israel	9.440, 9.815, 11.655
	E. Germany (2315)	9.730, 11.975
	Canada	5.960, 9.775, 11.710 (not weekends)
	Sweden	9.695, 11.705
	Thailand	9.655, 11.905
	Japan	9.575, 15.195, 17.755
	Turkey	9.560, 9.730, 9.755
	Vietnam	10.040, 15.010
	Lithuanian SSR	9.685, 9.750, 11.790, 15.100, 15.240
	No. Korea	9.745, 15.230
	Czechoslovakia	9.630

RTTY

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

BY ROBERT MARGOLIS

For many years, monitors of HF Radio RTTY transmisions from news services around the world have been noticing those stations slowly disappearing from the bands, either being shut down by their governments, or being closed during economic hard times, or because the services opted to beam their news from satellites.

Now, one of the most famous news services in the world—the Associated Press—which already has shifted most of its news transmissions to its own transponder on the Westar III satellite, is considering shutting what's left of its HF radio news service.

The reason? Its high cost.

Richard G. Atkins, the AP's communications director, explained the situation in a letter to *POP'COMM*:

"HF radio services are now being curtailed. While they have been the backbone of service distribution in certain parts of the world, with advent of satellite communications continuation is unlikely.

"United Kingdom and U.S. carriers have over a period of years been reducing service availability. The British post office, how BTI since privitisation, and ITT (International Telephone and Telegraph Corp.), the U.S. record carrier, still offer HF radio services, but have increased operating tariffs to the extent we are reviewing the possibility of closing down within two years."

Atkins continued, "This decision may in fact be taken out of our hands because ITT recently filed a request with the FCC to close down their Long Island radio station by the end of this year.

"The ITT service is limited to radiophoto transmission to South America. This is an extremely important service to those countries because satellite tariffs are generally more expensive than subscribers are willing to finance.

"News transmission to South American countries have been sent by satellite for 10 years; leased from one or more of the four prime U.S. record carriers and the respective PTT administration in each country.

"The Associated Press still transmits from the U.K. both RTT (radioteletype) and RDP (radiophoto) by HF radio," Atkins said. "The service first originated in the early sixties from the then British post office radio station at Rugby, Warwickshire.

"The British PTT," Atkins continued, "then moved services to a semi-automatic station at Ongar, Essex. However, they notified us at the beginning of this year the operating costs of that station are too high and it's no longer economical to provide the service. BTI offered AP and other users the opportunity of transferring services back to Rugby, but at such a high expense we are now analyzing the marketplace to see whether continuation of service is possible."

So, those of you who have printers connected to your RTTY demodulating apparatus should consider getting hard copies for souvenirs of AP's HF radio news transmissions. After its facilities are shut down, you'll have your own mementos of the bygone days when the AP used HF radio to send news around the globe.

Please remember, however, after making those hard copies, to put them away in a scrapbook and not pass them around to your friends. If you do give copies to other people, you'll be violating Section 605 of the 1934 Communications Act, and Uncle Sam might take away what's left of your copies—and the gear you used to make them.

QSL reports may be sent to the AP at 50 Rockefeller Plaza, New York, NY 10020.

According to Atkins: "We do respond to QSL reports from amateurs. Whenever such reports reach this office they are generally sent to our London regional headquarters or to our technical engineering center at this (New York) address. We have no general policy but in practice respond to all those received."

Unfortunately, Atkins would not reveal to *POP'COMM* the times and frequencies used by the AP to transmit news, or technical details about the news agency.

"Because the Associated Press RTT and RDP services are available only on a fee paying basis to media companies such as newspapers and radio stations," Atkins explained, "the specific technical details and operating specifications of our transmission services are not released to the general public. As you can appreciate, we are concerned about unauthorized monitoring and usage of the information contained in our transmission."

(Your editor's logbook shows English language transmissions from London, England on 6984, 9349, and 10649 kHz during the late afternoon and evening hours here in the United States. During the morning hours, news broadcasts can be found on 14974 and 18548 kHz. Set your demodulators to 425/66R.

Spanish language transmissions of AP news originate at Montevideo, Uruguay. Tune in 4482 and 6993 kHz during the evening hours and 9207.5 in the afternoon to receive these broadcasts.

"However," Atkins added, "in the past certain publications have distributed technical information. While some of this is incorrect, we have not tried to have it brought up to date for the reasons already given.

"Obviously AP subscribers receive all the technical information and in the majority of cases are assisted by our own technical staff in setting up reception monitoring capabilities," he said.

Atkins did reveal this about the AP's international service: "The news and picture services transmitted from England are beamed for the Indian, Middle East and African areas. The majority of AP subscribers are individual newspapers, radio stations and domestic news agencies which monitor the AP news and picture HF radio transmission.

"For example," Atkins said, "it is also known that the Russian news agency, Tass, have monitored our U.K. RTT news service transmissions during those times when our leased landline circuits terminating in Moscow fail due to technical difficulties.

"A typical news file by RTT to Africa would consist of approximately 95,000 words per day," he continued.

"HF radio services probably now constitute less than one percent of our international facilities," Atkins said. "We have over the last few years upgraded and developed our network internationally. Satellite, cable and microwave links are common.

"In the United States we have developed a sophisticated, integrated terrestrial and satellite private network. This year we will have 3,400 of our own satellite receiving antennas operational, fed from services distributed from AP owned transponders on Western Union's Westar satellites," he said.

The AP had planned to transfer receiving and transmitting tasks from the Westar III satellite to the Westar VI-S satellite, upon which the news agency owns another transponder. It was not learned in time for this report whether that change was made. The newer satellite has a life expectancy of about 10 years.

Here are some facts about the AP, the world's oldest and largest news agency:

It was formed in 1848 by six newspapers in New York City that wanted to reduce their news-gathering costs. In that era, news was sent in Morse code over telegraph line strung across the continent.

According to *The Encyclopedia of American Journalism* by Donald Paneth, the AP opened its first news bureaus in Europe before World War I.

The news agency opposed selling its news copy to radio stations from 1922 to 1940. But, as more radio stations were acquired by newspapers, the AP backed down from its policy.

World Press Encyclopedia edited by George Thomas Kurian, says that the AP was the first news organization to convert from Morse code to teleprinters (in 1914). It was also the first news agency to transmit pictures by wire, also in 1914; the first to send news via typesetter tape, in the early '50s; and the first to beam news via satellite.

Various AP house publications provided this insight: The last state in which AP news was transmitter by Morse code before switching over to Teletype was New Jersey.

Conversion to Teletype was made on Dec. 5, 1935.

The AP's first picture sent by wire was in 1935, and, in 1951, the AP became the first agency with regular photo transmissions to South America.

The last time the AP used a Morse code network is believed to be in July 1960, when John F. Kennedy accepted the Democratic Party's Presidential candidate nomination during its convention in Los Angeles. The telephone company in L.A. couldn't provide a requested Teletype circuit and set up, instead, a Morse wire upon which the Kennedy nomination story was tapped.

The AP's radio monitoring facility is at its technical center at East Brunswick, New Jersey. There, signals of its radiophoto and radioteletype transmissions are checked.

There are 122 domestic and 65 foreign bureaus in the AP and they are manned by 2,500 full-time employees, according to the *World Press Encyclopedia*. The news service is owned by 1,400 newspapers and more than 5,000 radio and TV stations. Worldwide, there are more than 10,000 subscribers in 115 countries serving over one billion people.

More on Tuhobic

Last month, an RTTY logging of YUFS, the Yugoslav freighter *Tuhobic* on 16668 kHz was noted in this column. Since then, more information about this vessel has been learned.

For the past two decades, more and more people have been shunning slow and leisurely travel by ocean liners for the fast pace of transoceanic airliners. Because of this, many ocean liners end up as scrap or are used for purposes other than carrying passengers. The *Tuhobic* was one such victim.

This vessel, built in 1965 at 3 Maj Shipyard, Rijeka, Yugoslavia, carried passengers from the east coast of the United States to ports throughout the Mediterranean Sea. It had 20 first class and 30 tourist class cabins.

Now, the *Tuhobic* hauls cargo from the Mediterranean to Venezuela, Central America, and New Orleans, Louisiana.

Mysterious Call Letters

Have you ever wondered why some utility stations use call letters other than those assigned to them? It's like having an alias, so that other people don't know who you are. A smile should come to the ute monitor when such a station pulls off its disguise and shows you who it really is.

Case in point: Your editor was seeking out RTTY stations on a Friday in June, when this was noticed on 18470.5 kHz at 1524: "THE QUICK BROWN FOX JUMPED A LAZY DOG'S BACK 1234567890 DE RUES."

Line after line of those foxes spewed from the Teletype machine for a little over a minute, and then: "DE KKN5O U FIVERS INBOUND ON THIS LOWERS TEST HOW ME? K. KFB9O DE KKN5O RYRYRYRY THE QUICK BROWN SO AND SO K."

More foxes were run with the call letters "RUES" until 1529, when KKN5O again sent manually-typed messages to KFB9O, telling it that its signal was "fivers," and asking "how me?" Communications between the two stations ceased as they went off the air at 1538.

So, the next time any of you see the call letters "RUES," you can wager a good buck that it is being used by KKN5O, the U.S. Department in Washington, DC. The setting for that transmission was 850/100N.

By the way, does anyone know what agency is assigned the call letters KFB9O? If you do, please drop a note to this column with the revelation.

Loggings

Now to the latest batch of RTTY loggings. A ribbon of Teletype tape goes to Ed Flynn, Robert French, and Roger Pettengill, all of the Association of DX Reporters (ADXR) and Roger Aked, Brian Alexander, Mike Chabak, Fred Hetherington, and Alex Moore, all of the Society to Preserve the Engrossing Enjoyment of DXing (SPEEDX) for their contributions.

2312: KNEW, National Weather Service, New Orleans, LA, with Gulf of Mexico weather forecast at 0100 and oil platform HAB, Jupiter, FL, with telex in Spanish to

Carmen Base at 0112. Both were at 170/66N. (Fred Hetherington, FL)

5457: Tape of continuous RY's sent by an unidentified station. The tape contained no carriage returns or line feeds. Was at 425/66R. No time given. (Roger Pettengill, ME) Roger, my records show the same thing occurring at 0029, some months prior to your logging it. Any reader ever spot an ID for this station? (Editor)

5473.5: LPAZ, Santa Maria Aero, Azores, with RY's test, 850/66R, at 0148. (Robert French, MD)

5612: SUC, Cairo Meteo, Egypt, noted at 0100 with RY's transmission, 850/66R. (Brian Alexander, PA)

5830: RWD52, TASS, Moscow, USSR, with news in English at 1745. Was 425/66R. (Roger Aked, France)

5848: TUH, Abidjan Aero, Ivory Coast, testing with RY's, 425/66N at 0222. (French, MD)

5875: RIFMCF, Rome Naval Radio, Italy, with RY's test slip, 850/100R, at 2346. (Alexander, PA)

6264.5: UJOB, Krymskie Gory, a Swedish-built Soviet fish carrier, sending a "kryptogramma" consisting of five-letter groups to UJY, Kaliningrad Radio USSR, 170/66N, at 0519. Now why would a fish carrier need to send coded messages? Must be that the vessel is used for purposes other than hauling sturgeon. (Editor's logging)

6736: ERD3, Addis Ababa Aero, Ethiopia, running RY's, 850/66R, at 0121. (French, MD)

6824: GHH, Jamestown Meteo, St. Helena, with coded weather, 425/66N at 0230. (Editor's logging)

7956: HSJ31, PTT, Bangkok, Thailand, sending a transmitter test to Hanoi, Vietnam at 0015. Was 425/66R. (Alex Moore, United Kingdom)

7972: XVH, Ho Chi Minh City Meteo, Vietnam, with weather reports, 425/66N, at 2030. (Aked, France)

8083: Chilly weather conditions noted from ROM5, Tashkent Meteo, USSR, 425/66N, at 0045. (Editor's logging)

9353: OLX5, CTK, Prague, Czechoslovakia, presenting English edition of the news at 1944, 425/66N. (Editor's logging)

10477.7: BCX22, PTT, Shanghai, China, sending RY's at 1151, 850/66R. (Mike Chabak, AZ)

10795: JAG5O, Kyodo, Tokyo, Japan, testing with RY's at 0441, 425/66R. (Dallas Williams, CO)

11010: Broadcast in Spanish of news from EFE, Madrid, Spain, was 850/66R at 2330. (Editor's logging)

11035: The Soviet Arctic Meteo station at Murmansk, USSR, was noted sending traffic in Russian and encrypted messages at 1440, 425/66R. (Editor's logging)

11065: YAV, Kabul Aero, Afghanistan, with RY's test. This was followed at 0147 with a message in the Pushtu language and coded aviation weather. Was 425/66N. (Editor's logging)

11448: Unidentified station noted at 1300 sending 5-letter groups, 425/133N. (Ed Flynn, CA) Ed, the sender was Y7A48, MFA, Berlin, German Democratic Republic. Whenever it sends coded messages, it sends them at a fast speed, probably to prevent garbling of the text. At all other times, when routine messages or news are transmitted, a speed of 66 WPM is used. (Editor)

12070: JAL32, Kyodo, Tokyo, Japan, with English news broadcast, 425/66R. No time given. (Williams, CO)

13556: KGA64 sending foxes at 1620, 850/75N. Apparently a federal operation, but which agency, and what location? (Tom Kneitel, NY)

14901: CLN451, Havana, Cuba, TASS news in EE at 1635, 425/50N. (Tom Kneitel, NY)

20350: NBA, the United States Navy's communications station at Balboa, Panama, with a test tape of RY's and SG's at 1605, 850/100R. (Jerry Brumm, IL) Welcome to the column, Jerry. What you thought was encryption was in reality garbling caused by atmospheric conditions. (Editor)

Send your RTTY loggings to me at: Bob Margolis, Popular Communications, 76 North Broadway, Hicksville, NY 11801. We also accept FAX, ARQ, FEC, SITOR, etc. loggings.

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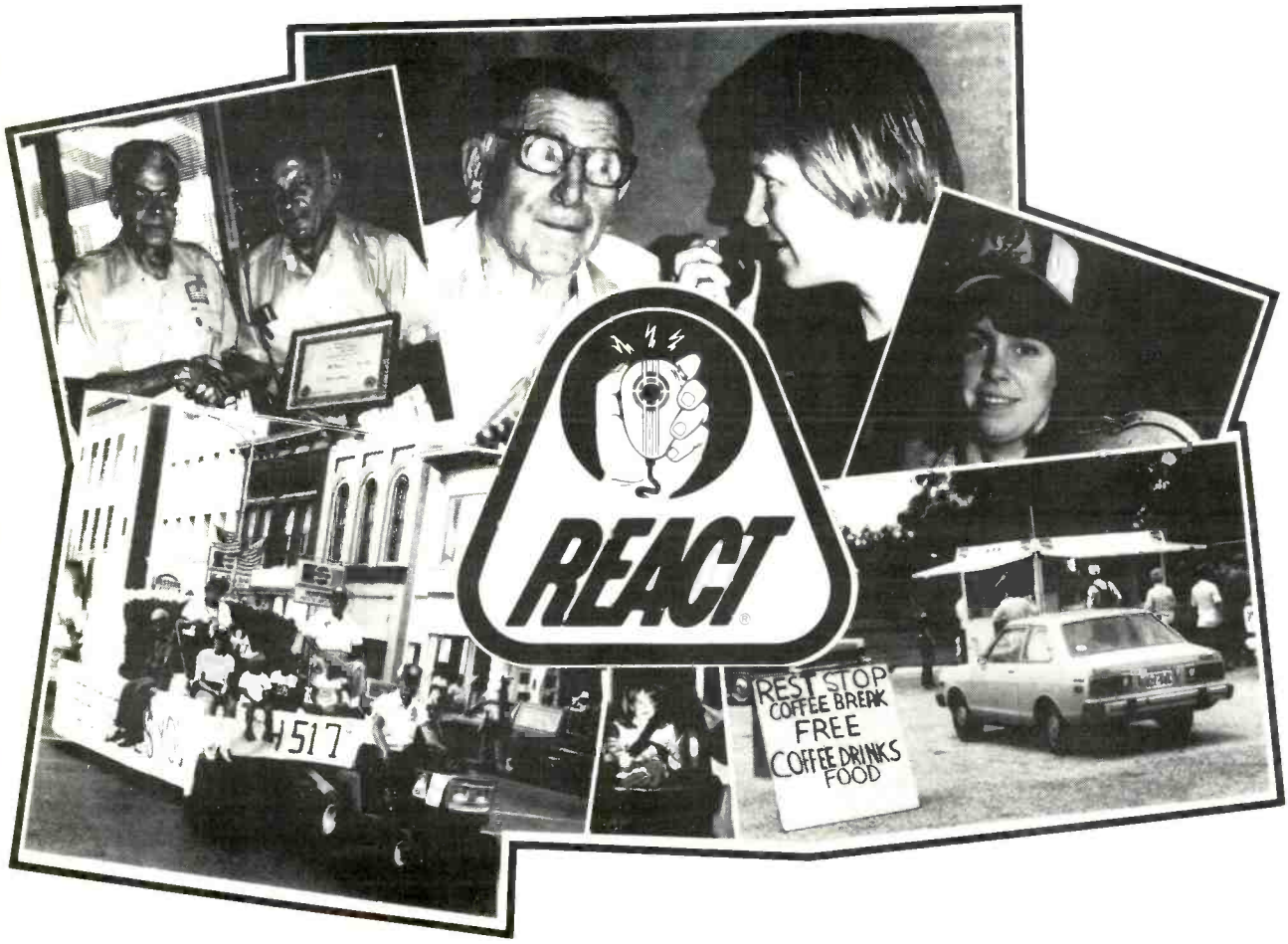

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SATELLITE VIEW

INSIDE THE WORLD OF TVRO EARTH STATIONS

Satellite Receivers With Downconverters Introduced

Three new satellite receivers with downconverters, all with high performance features previously available only on higher priced, comparably equipped models, are being introduced by Star Tech Corp.

From the state-of-the-art ST-1000, featuring matrix stereo and detent channel tuning, to the durable ST-9000 and economical ST-3000, Star Tech's family of receivers with downconverters delivers capabilities to meet wide-ranging needs and budgets.

Offered at prices below comparably equipped models, Star Tech receivers feature automatic polarity switching between horizontal and vertical, and polarity fine-tuning (skew) control to further refine the picture in either position. Downconverters are included as separate units with each receiver and install on the antenna rather than on the receiver, thus allowing more flexibility in the location of antenna with respect to the house. Modulators for switching the satellite between channels three and four are built in, eliminating the need for external wiring and boxes.

ST-1000 Satellite Receiver With Downconverter

Star Tech's top-of-the-line receiver, the ST-1000, offers high fidelity sound capability with matrix stereo audio and high performance picture reception, plus other extras—all at a price competitive with other units possessing similar features.

Quality stereo sound is available on the ST-1000 via the matrix stereo mode, or the user can maintain monophonic sound by selecting the discrete audio mode. Audio can be fine-tuned through primary and secondary demodulators.

The ST-1000 achieves its high grade picture reception through enhanced noise filtering and tuning features, such as polarity fine tune control (skew control). Polarity control interfaces with the Polarotor 1 to provide fine-tuning of polarity in either the horizontal or vertical position. The unit's Automatic Frequency Control (AFC) locks the reception onto the frequency chosen and maintains the signal. Upside-down reception can be righted via the video invert switch. Picture quality is achieved by maintaining a signal-to-noise ratio (at 15 dB C/N) of 50 dB (weighted), while the unit's downconverter maintains a noise figure of 15 dB (nominal) and image rejection of 23 dB (nominal).

Once the desired reception is achieved, the user can lock in the channel selection and reception with push-button detent tuning, eliminating the need to fine-tune every time a selection is made. A signal strength meter and center tune LED provide visual guides for precise adjustment of the detent tuning for optimal gain. The LED digital display indicates the channel selected. Using the scan button, the user can also skip from channel to channel, pausing briefly at each, to obtain a sample viewing of each channel across the entire range.

ST-9000 And ST-3000 Receivers With Downconverters

The ST-9000 and ST-3000 satellite receivers offer many of the same features of the ST-1000 at a greatly reduced price.

The ST-9000 offers high quality picture reception through automatic polarity selection between horizontal and vertical, and polarity fine tuning (skew) control. A scan button allows the user to preview channels. Channel selection is made through continuous variable tuning, and a video invert button corrects upside-down reception. An LED indicates strength of signal as well as channel tuning.

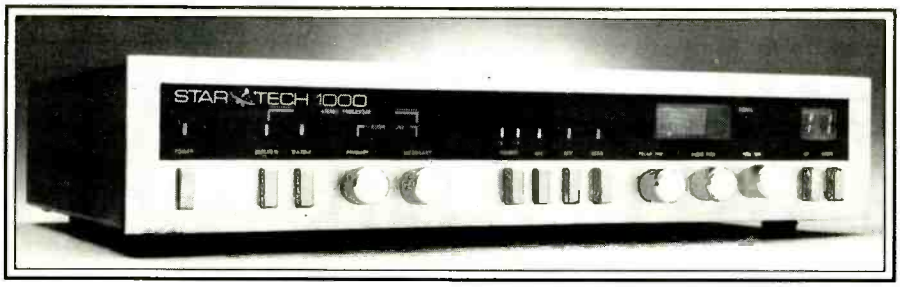
The ST-9000 achieves a quality picture with a signal-to-noise ratio (at 14 dB C/N) of 50 dB (weighted) and enhanced downconverter noise filtering, as demonstrated by a noise figure of 13 dB nominal and image rejection of 16 dB (nominal).

The ST-3000 provides a high quality satellite receiver with downconverter in one of the least expensive units currently available. It features built-in modulator, polarity fine tune (skew) control, continuous variable tuning channel selection, video invert and signal strength meter. It maintains a signal-to-noise ratio (at 15 dB C/N) of 50 dB (weighted) and its downconverter maintains a noise figure of 15 dB nominal and image rejection of 20 dB (nominal).

Star Tech's warranty provides for free repairs for one year after purchase. In addition, the company will exchange any faulty equipment for up to 90 days after purchase. Warranty service can be made available to dealers and owners within 48 hours through repair facilities located in Chicago, IL, Omaha, NE, and Sunnyvale, CA. Large inventories are maintained so that shipments can be made on a same-day basis.

Star Tech Corporation provides component parts and engineering service for the electronics industry, in addition to Satellite-Television-Receive-Only Earth Station Systems (TVRO) for home and business users. Star Tech also designs and markets Video Security Systems as well as a wide variety of high quality audio products, including automotive sound systems. Star Tech products are manufactured exclusively by Gold Star, Hyundai, OPC, and Sun Kwang.

For more information on Star Tech's complete line of satellite receivers with downconverters, contact Star Tech Corporation, 5225 Old Orchard Road, Suite 27-C, Skokie, IL 60077.



Luxor DBS System

Luxor North America Corp. has a new DBS or "direct broadcast satellite" television reception system. Luxor DBS equipment is based on the Ku-band, which has a frequency of 12 GigaHertz (GHz). Luxor's parent company, Luxor AB, Motala, Sweden, helped develop DBS in Europe.

Luxor's prime market for its satellite TV products is the 4 GHz C-band, currently the most popular frequency in the U.S. and Ca-

nada. Luxor is demonstrating its 12 GHz system to dealers in response to growing interest in DBS on the part of home satellite earth station owners.

The Luxor DBS System consists of a one-meter fiberglass antenna, a microwave head consisting of an LNB (Low Noise Block Downconverter) and the Luxor 9570 Mark 2 Satellite Receiver. The LNB converts the 11.7-12.5 GHz band to 950-1,750 MegaHertz (MHz), which is the input frequency of the Mark 2, Luxor's most advanced satellite TV receiver. Its block conversion technology permits independent channel selections on TV sets throughout home, building, or neighborhood while sharing one TV antenna.

The Luxor microwave head consists of the low noise pre-amplifier, mixer, local oscillator, and IF (intermediate frequency) amplifier, combined in one unit to form the LNB. This LNB (noise factor 2.5 dB), together with a 3 to 4-foot antenna, gives an excellent picture in the inner portion of the broadcast footprint (coverage area) of 12 GigaHertz satellites. For so-called overspill reception (at footprint edges where signal strength is weak), a larger antenna (6 foot) is needed.

Contact Luxor North America Corp., 600 108th Ave., NE, Ste. 539, Bellevue, WA 98004 for more information.

R.L. Drake Unveils Top-Of-The-Line Earth Station Receiver

With the introduction of the ESR 424 earth station receiver, R.L. Drake Company unveils a new level of sophistication in satellite reception technology.

Available in single (ESR 424) or block (ESR 424B) conversion models, this state-of-the-art receiver combines high-quality workmanship, an assortment of deluxe features, and a sleek, scaled-down design in one unit.

At the head of its long list of features is the receiver's full, infrared remote control for the convenience of armchair viewing. The ESR 424 also offers audio seek tuning (to automatically locate favorite audio channels), easy-to-read fluorescent display and a

redesigned weatherproof downconverter.

In addition, this deluxe receiver provides descrambler compatibility through a bottom panel, clamped/unclamped video switch. And with its microprocessor design, the ESR 424 is guaranteed to perform reliably for many years to come.

The ESR 424B Block System adds multichannel capability to the ESR 424 package. Utilizing a 950-1450 MHz IF output frequency, the block conversion model features dual input switching to eliminate the need for external relays or switching splitters. The ESR 424B is compatible with Drake's 85- and 100-degree LNB's or its BDC 24 block downconverter.

"The ESR 424/ESR 424B represents the best value currently available for the consumer who wants a top-quality, full-featured earth station receiver," stated Michael Brubaker, Vice President of Sales. "We're proud to be in the forefront of the satellite TV industry as it developed increasingly sophisticated products at reasonable prices."

Programmable Satscan™ Antenna Drive Offers Computerized Positioning

Microprocessor technology incorporated into the new Channel Master Model 6254 Programmable Satscan™ antenna drive offers consumers quick, accurate dish positioning with convenient remote control.

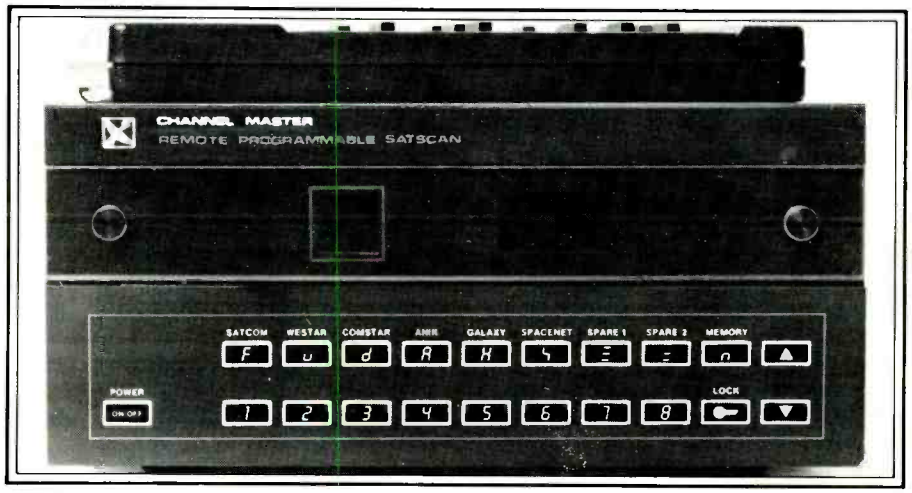
The latest addition to the Satscan™ line, like all Channel Master antenna drives, features reliable solid-state operation, with no mechanical relays to stick.

The Model 6254 Satscan™ allows users to access satellites directly via pre-programmed location. For example, to move the antenna to Satcom III-R, simply press the Satcom key and the number 3 key. The antenna then moves to that position automatically.

The unit's microprocessor memory also allows coded parental control. Using the lock function, access to specific satellites may be restricted, or the antenna may be locked onto a particular satellite.

Outdoor components of the Satscan™ drive system include a heavy-duty actuator drive with low 36-volt DC operation, protected by a weatherproof expandable jack sleeve and motor boot. Automatic shutoff prevents motor wear by stopping movement beyond the range of the satellite arc.

The Channel Master Model 6254 Programmable Satscan™ will be available from distributors nationwide. PC



LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Despite early speculation and hopes to the contrary, Radio Marti officials maintained all along that the new service to Cuba would be aired only on the 1,180 medium wave frequency from Marathon, Florida. So SWL's got a surprise when Radio Marti finally got on the air for the first time on May 20. Shortwave was, indeed, put to use for the Radio Marti service, via the Voice of America's Greenville transmitters.

So far there has been no radio retaliation from Cuba in response. Radio Havana Cuba has, however, recently smoothed out some longtime rough edges in their programming style, but we don't know if this was a reaction to Radio Marti or simply a case of natural growth.

QSL letters for the Radio Marti transmissions come from Fran Masterman, Management Assistant, Radio Marti Program, c/o The Voice of America, Washington, DC 20547. QSL's are promised at a later date.

Radio Marti's current schedule on shortwave is 0930-1200 on 6.075, 1200-1400 on 9.570, 1400-1730 on 11.815, 2030-2300 on 11.960, and 2300-0300 on 9.660 (where it suffers interference from Radio Rumbos in Venezuela). All broadcasts are in Spanish, of course.

Also on the U.S. scene The Assemblies of Yahweh station, WMLK, has been testing fairly regularly during the past few weeks. Programs consist of Bible readings and sermons and are interrupted every few minutes by stations IDs. Scheduled between 1700 and 1900 on 15.110 and 0400-0600 on 15.150. The station may well be on with its regular schedule by now. Reports go to WMLK, P.O. Drawer C, Bethel, PA 19507.

Don't look for KRSP in Salt Lake City to be on the air much before the end of the year, if then. Construction was scheduled to begin this spring and take at least six months to complete. Once it gets on the air, the programming will be a simulcast of the station's local AM format—Top 40—beamed towards Ontario for ten hours per day.

High Adventure Ministries' KVOH at Rancho Simi, California is still under construction. The antenna site on Chatsworth Mountain is ready to receive the antenna; the studio is finished but there's no definite word on how much longer it will be before this one gets going. Once it does, Gospel programming will go out in Spanish to Cuba, Nicaragua, Mexico and all points south.

Radio Netherland's Media Network Program reports that uncertain times lay ahead for RadioBras and the international service from Brazil. The Brazilian government sees the service as a low priority item in a time of budget cutbacks so the service could be off the air by the time you read this.

It's hard to imagine why it happened, but Radio Beijing has put the blade to its North American schedule. Both the 0100 to 0200 and 0200 to 0300 transmissions have been cancelled. That leaves Radio Beijing broadcasts to North America only at 1100 to 1300 and 0000 to 0100 to the east coast and 0300 to 0500 to the west coast.

Give the woodpecker the whack! Robert Horvitz who heads up the Association of North American Radio Club's Over The Horizon Radar Committee advises us of *The Woodpecker Project*. It's a plan designed to gather reception data on the Woodpecker Over the Horizon transmissions and the interference it causes. The data gathered will be analyzed and used as part of a presentation to the telecommunications ministries participating in the 1987 World Administrative Radio Conference for high frequency broadcasting. The Committee hopes to convince the conference to support a protocol statement condemning the interference.

The project needs a minimum of 720 monitors to check portions of the shortwave band during specified days and hours during the month of October. This is your chance to make a worthwhile and perhaps very significant contribution to the betterment of shortwave listening. Time is short, so please act immediately.

Send an uncancelled First Class 22¢ U.S. postage stamp on a self addressed envelope (foreign listeners can send 3 IRCs) to The Woodpecker Project, 1634 15th St., NW, Washington, DC 20009. You'll receive instructions and logging report sheets.

Incidentally, the project is being undertaken on a non-profit, all volunteer basis. In order to raise money to pay for operational costs, the Project is selling Woodpecker t-shirts. They show a woodpecker in a circle with a bar through the center, sort of like a "no smoking" sign. The shirts are $10 each (small, medium or large), and may be ordered from the above address.

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AUSTRALIA - Radio Australia, 9.580 at 1330 in English with
news, Australian Insight, good signal. (Paszkiewicz, WI)

EGYPT - Radio Cairo, 9.475 at 0200 in English with Letterbox.
(Paszkiewicz, WI)

GHANA - GBC-1, 4.915 at 0615 in language, possible news,
local African music.  (Paszkiewicz, WI)

MONTSERRATT - Deutsche Welle Relay, 9.545 at 0200 in German
with news and commentary.  QRM  from VOA on 9.540. (Paszkiewicz, WI)

NEW CALEDONIA - RFO Noumea, 7.170 at 0800 in French with US
pop music, talk by man, news.  No ID so tentative. (Paszkiewicz, WI)
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This is the preferred format for logging reports to the Listening Post. Note spacing between items and last name, state abbreviation after each item.

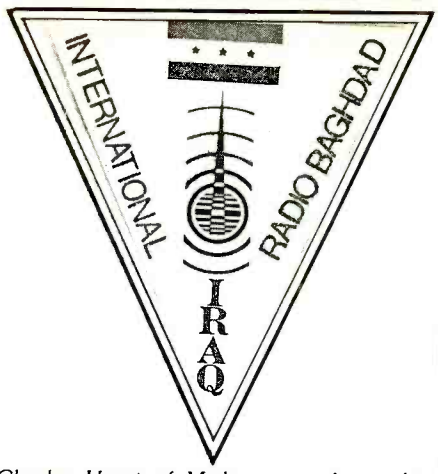
Mark Bills with his Hammarlund HQ-180 and other equipment making up his shack in Mystic, Iowa.

From The Mailbag

Let's look at some letters. S. Lyster of Keremeos, British Columbia has a new club going that he believes is the only one in the province. The club is still small and is looking for some experienced hands. Membership is apparently not restricted to people in British Columbia. Club members simply send in their loggings and a bulletin is produced when enough material is on hand. The only cost is the equivalent of 34 cents Canadian postage with each log you mail in. For more details, write the Okanagan DX-SWL Club, Box 211, Keremeos, BC, Canada VØX 1NØ.

David Troth in Ford City, Pennsylvania wonders about the strange animal noises he hears on 4.820. That's the interval signal for Radio Botswana, David.

Eric Gardner of Cambridge, Maryland advertises himself as a "loyal Popcomm'er." Receiver is a Radio Shack DX-400.



Charles Vesei of Michigan sends us this Radio Baghdad pennant.

Old timer Rafael C. Diaz of Fort Wayne, Indiana got interested in shortwave after listening to the 1936 Olympics broadcast in Spanish over Nazi radio. In the early 1950's he was a reporter to Ken Board's famous shortwave column in the then *Radio and Television News* magazine (as was ye editor). Rafael now uses a Panasonic RF-4900 and recently heard Radio Marti on 11.815.

Robert M. Weiss of Fairfax, Virginia wants some help in logging Iceland. He's tried many times on 13.797 around 2230-2305, but without success. Try that frequency around 1215-1315 or their new frequency, 9.859, from 1855-2045 or 2230-2305, Robert. As for Radio Finland's QSL policy, it seems to have gone into the "no deal" column again.

Speaking of non-QSLers, Jerry Brumm in Chicago notes that Radio Nacional da Amazonia has stopped QSLing, citing a lack of time and personnel and suggesting listeners tune and report RadioBras. Ah, but they seem to find the time to send non-QSL letters! Jerry also notes that replies from Africa Number One have started again. He got a QSL after five tries over a year and a half.

Mark Bills in Iowa would like to correspond or exchange tapes with members of the SSB network or enjoy trading equipment and magazines. Mark's address is P.O. Box 116, Mystic, Iowa 52574.

Charles P. Vesei in Niles, Michigan complains about some of the "trite" loggings in the column and offers to send in his own if we're short. What's trite to one person may well be pretty good stuff to someone else, Charles. Send in your loggings by all means and hopefully we'll have less mundane material as a result!

Here's your chance to help expose the CIA. A well known writer and editor is doing research for a book which will deal with domestic CIA activities. He needs input from any readers who might have knowledge of activities by any U.S. government agency within the shortwave community between 1960 and 1968—activities particularly involving the CIA's Radio Swan/Radio Americas. Also wanted is information on the whereabouts of the principals involved with stations WRUL/WNYW (now WYFR), especially persons involved with the listener club operated by WNYW about this period. Readers may send any information they may have to your editor here at *POP'COMM* for forwarding.

Next month, we hope to have your letter in these pages. We always welcome your comments, questions, suggestions, QSL copies, shack photos, program schedules, and press clippings. Let's not forget loggings, too. Please leave space between each logging item so we can cut them up, place your last name and state abbreviation after each, and use only one side of the paper. Thanks.

Listening Reports

Here's what's on. All times are GMT.

Afghanistan Radio Afghanistan in English on 9.665 with news and commentary at 1900. (Cronkright, MI) Via USSR. (Editor)

Albania Radio Tirana, 7.120 at 0255 with program schedule and into Spanish to Latin America at 0300. (Abernathy, TX) 11.985 in Italian at 2140. (Lukas, NY)

Algeria Radio Algiers in English at 2200 with news and pop music on 17.745. (Batman, LA)

Antigua BBC Relay at 0550 on 9.825 with English to Central and South America. (Gardner, MI) 6.175 at 0100 requesting reports. (Abernathy, TX) Good with news at 0400. (Troth, PA)

Antarctica Armed Forces Antarctic Network, McMurdo heard at 0705 on 6.012, music and talk. Weak and eventual fade out. (Goetsch, OH)

Argentina RAE on 11.710 at 0102 with frequency announcements and news. (Abernathy, TX)

Ascension Island BBC relay on 21.660 at 1527 with music and rock star interview, promoted BBC T-shirts. (Brumm, IL)

Australia Radio Australia, 15.395 at 0210 with "Talkback." (Abernathy, TX) 2306 in English with world news, good. (Paszkiewicz, WI) 15.320 English at 0420 looking at front page of afternoon Melbourne newspapers. (Hunt, NC) 11.760 in Chinese at 1015 with English by Radio. (Salmi, MI) 6.060 at 0749 with IS, world news at 0800, parallel 9.580. Usually not here this early as far as I know. (Alpert, NY) 9.580 and 9.710 around 1530. (Lyster, BC) At 1400 in English, but weak. (Gardner, MD) 5.995 at 1100 with news. (McDonough, PA) 1140 with sports, parallel 9.710. (Abernathy, TX)

VNG time station on 7.500 at 0712 with ute QRM. (Gardner, OH)

Austria ORF on 6.000 with listener letters at 0128. (Abernathy, TX)

Belgium BRT on 5.910 with music and reports 0115. (Abernathy, TX)

RTBF on 17.675 at 1600 with music and French announcements. (Weiss, VA)

Benin La Voix de la Revolution Beninoise, tentative on 4.870 at 0631 in French. (Shute, FL)

Bolivia Radio Illimani, 6.025 and parallel 4.945 at 0936 with the latter frequency QRM'd by the Colombian CARACOL station. Andean flutes. (Shute, FL)

Brazil Radiobras, 11.745 at 0235 in English with talk on raising hogs in Brazil. (Hunt, NC)

Radio Nacional da Amazonia at 0801 on 6.065. ID 0801. (Shute, FL)

Radio Rio Mar, Manaus, 9.695 at 1037 with jingle ID. (Shute, FL)

Radio Nacional Macapa with Latin pops and Portuguese announcements from 0315-0400 on 4.915, infrequent IDs. (Batman, LA)

Radio Nacional Manaus at 0229 on 4.845 with announcements by man and woman in Portuguese, and music. (Goetsch, OH)

Radio Brazil Central at 0610 on 4.985 with music and man announcer. (Goetsch, OH)

Radio Cultura do Para at 0724 on 5.045 with music and man announcer. (Goetsch, OH)

Radio Nacional Boa Vista on 4.875 at 0751 in Portuguese. (Goetsch, OH)

Cameroon Yaounde on 9.745 at 2145 with news in English. (Batman, LA) News at 2107. (Weiss, VA)

Canada Radio Canada International on 5.960 with talk show and listeners letters at 0048, parallel 9.755. Also at 1829 in English on 15.260. (Abernathy, TX)

CBC Northern Quebec Service, 11.720 from 1530 in Eskimo?, English ID at 1600 and into French. (Batman, LA)

Cape Verde Islands Tentative Voz de Sao Vicente, 3.941 at 2344 to 2359, local music, announcements, possibly news, in Portuguese. (Weiss, VA)

Chile Radio Nacional, 15.140 at 1800-2000 in Spanish with play-by-play soccer. (Abernathy, TX)

China Radio Beijing in English on 9.880 at 0200, poor. (Lukas, NY)

Clandestine Turkiye Komunist Partiye (Voice of the Turkish Communist Party—Editor) on 11.818.4 at 0155 in Turkish with IS, anthem, IDs, news, and talk. Good til BBC took over at 0217. (Paszkiewicz, WI)

Colombia La Voz del Llano, Vilavicencio, 6.117 at 0656 with music, announcements and IDs. Excellent. (Goetsch, OH) 0627 with ID and time check. (Shute, FL)

Radio Super, Medellin, 4.875 with phone-in program at 0550 in Spanish. (Batman, LA)

Radio Sutatenza, Bogota, 0124-0200 on 5.095, frequent announcements, jingles, all Spanish. (Batman, LA) 0300 with Latin music. (Hunt, NC) 0323 with classical music. CW QRM. (McDonough, PA)

Radio Macarena, Vilavicencio, 5.975 in Spanish at 1050. (Shute, FL)

Radio Cultural Surcolombiana at 0309 with man announcer, music on 5.010. (Goetsch, OH)

Caracol/Colosal on 4.945 at 0616 with man in Spanish. (Goetsch, OH)

Radio Sonar at 0633 on 4.915 with music and man announcer in Spanish. (Goetsch, OH) Did you get an ID on this? (Editor)

Cook Islands Radio Cook Islands heard on 11.760 from 0500 to 0612 in Maori and English. (Salmi, MA) 0732 in Maori with island vocals, ID, pop music, possible news. Poor. (Paszkiewicz, WI)

Bill Cordes, KIL9H9, operates a Yaesu FRG-7700 shortwave receiver and a Realistic 2008 scanner at his Chicago shack.

Costa Rica Radio Impacto from 0150 past 0230 on 6.150 in Spanish with excellent signal and excellent music—if you like soft rock. (Batman, LA)

Radio Reloj, 6.006 at 1145, Spanish news and public service announcements. Parallel 4.832. (Abernathy, TX) 4.832 good at 0230. (Troth, PA)

Cuba Radio Havana Cuba 17.750 in Spanish at 1742 and 15.125 in Spanish at 1825. (Abernathy, TX) 11.950 in Spanish at 1900. (Lukas, NY) 6.140 in English at 0245. (Lyster, BC) 6.090 in English with "For Your Listening Pleasure" at 0535. (Salmi, MA)

Czechoslovakia Radio Prague, 5.930 with "Newsview" at 0111. (Abernathy, TX)

Denmark, Radio Denmark in Danish on 15.165 at 1257-1315. (Weiss, VA)

Dominican Republic Radio Clarin, 11.700 at 2220 in Spanish with political program. (Batman, LA)

East Germany Radio Berlin International from 2230 sign on in German on 6.125 and parallel 9.620. In English at 2315. (Batman, LA)

Ecuador HCJB on 9.745 at 0231 with "DX Party Line." (Abernathy, TX) 9.870 in German at 0625, into French 0630. (Salmi, MA)

Radio Quito, at 0247 on 4.920 with man in Spanish, IDs and music. (Goetsch, OH)

Radio Nacional Progresso, on 5.065 at 0306, pop music, all Spanish. (Goetsch, OH)

Emisora Gran Colombia on 4.911 at 0230 with talk about the Festival de Banda Pueblos and news. (Shute, FL)

Radio Rio Amazonas, Macuma, 4.870 at 0348 with talk. (Shute, FL)

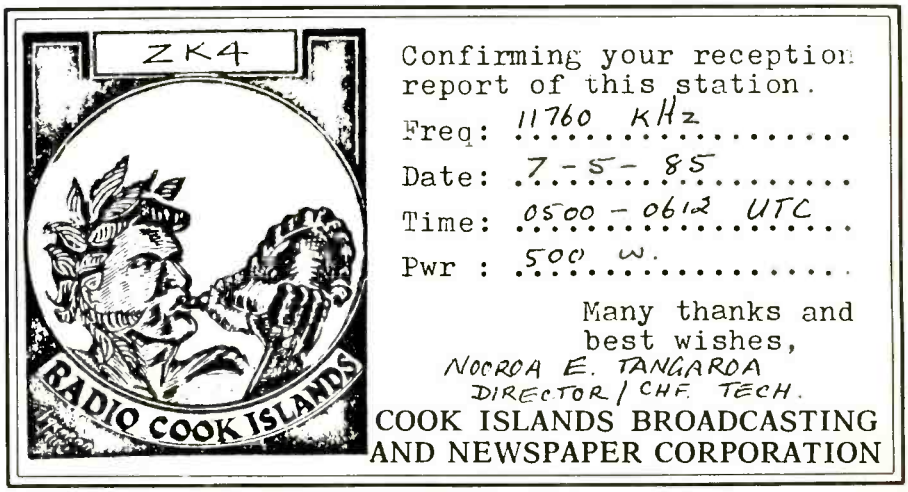
HI2IOA time station, 7.600 in Spanish with time announcements at 0206. (Abernathy, TX)

Egypt Radio Cairo 9.475 at 0320 in English. (Hunt, NC) 0209 with music, parallel to 9.675. (Abernathy, TX)

England BBC African service on 9.600 at 0735 in English featuring music from Senegal. (Shute, FL) BBC feeder on 4.467 at 0158 in English but QRM from Civil Air Patrol in SSB. (Lukas, NY)

Finland Radio Finland International, with "Northern

David Salmi in Massachusetts is proud of this Radio Cook Islands QSL card.



Report" at 1500 on 15.400. (Batman, LA) 1420 with world news and BBC QRM. (Gardner, MD) 1257 with IS and ID in Finnish, Swedish, English. Also 17.800 at 1300 with "Sunday Best" program. (Salmi, MA)

French Guiana Radio France International relay now best on 9.800 for 0415 and 0445 English news directed to South America. 6.055 and 7.135 okay but not nearly as strong. (Alpert, NY) 9.800 in French at 0151. (Lyster, BC)

Gabon Africa No. One at 0610 tune-in in French on 4.810. (Salmi, MA)

Greece Voice of Greece on 9.420 at 0330, world news. (McDonough, PA) 0130-0139 with news. (Abernathy, TX) 9.905 at 0130 with talk in English. (Hunt, NC) 0135 with news. (Lyster, BC)

Guam Trans World Radio's KTWR in Chinese on 9.530 at 1000, translating Biblical passage into Chinese. (Batman, LA)

Guatemala TGNC, Radio Cultural, at 0330 with English religious program to after 0400. (Batman, LA) 3.300? (Editor)

Guyana Guyana Broadcasting Corp., heard at 0258 on 5.950 with woman announcer in English, mention of GBC on the hour. (Goetsch, OH)

Haiti 4VEH on 4.930 in French at 0400. (Lukas, NY)

Hawaii WWVH at 0608 on 5.000 with time signals by woman. (Goetsch, OH)

Honduras HRVC, La Voz Evangelica on 4.820 with religious songs in Spanish at 0330. (Hunt, NC) Classical music at 0213. (Weiss, VA)

Hungary Radio Budapest, 6.025 at 0200 sign on with brass horn interval signal. (Abernathy, TX)

India All India Radio on 11.620 at 2001 with news in English. (Weiss, VA)

Indonesia Radio Republik Indonesia, Jakarta, 7.270 from 1200-1300 with "Programa Nasional" featuring Indonesian pop music with "Love Ambon" IS and ID at 1300. (Batman, LA)

Iran VOIRI, Radio Tehran, 15.084 in Persian (Farsi) 1800-1900. (Troth, PA)

Israel Kol Israel, 15.585 English closing at 1030, into French. (Alpert, NY) 7.412 at 0106 with news to North America; parallel to 9.815 and 9.440. Severe QRM on latter frequency. (Abernathy, TX)

Italy RAI on 9.575 at 0102 with news by woman—she sounded very sleepy. Better on 11.800. (Abernathy, TX) To 0120 sign off on 9.575. (Johnson, NE)

Adventist World Radio requesting reports on new Forli station on 7.125 at 0600. Gospel program, Bible study at 0617. Reports to Lisbon address. (Alpert, NY)

Japan Radio Japan with news in English and "Current Affairs" at 2300 on 17.755. (Batman, LA)

JJY time station, tentative at 1155 with time ticks but no ID on 8.000. (Abernathy, TX)

Kampuchea Voice of the People of Kampuchea on 11.938 with news at 1245. (Cronkright, MI)

Lesotho Radio Lesotho on 4.800 is Lesotho and English at 0400. (Cronkright, MI)

Liberia VOA relay on 3.990 at 0640 in English with "Daybreak Africa." (Alpert, NY)

ELWA on 11.830 with religious programming in English from 2015 to 2115, best for the last half hour. (Batman, LA)

Libya Radio Jamahiriyah, 11.816 in English, MOR style song extolling "Take Up Arms for Palestine" followed by U.S. "trucker" tunes. (Gardner, MD) 2120 with propaganda and "Libya stands for peace, prosperity." (McDonough, PA) Still here for English 2200-2300. (Alpert, NY)

Voice of the Greater Arab Homeland, 7.245 at 0100-0345, sometimes 0400. (Batman, LA)

Madagascar Radio Television Malagasy 5.010 with sign on 0258 in vernacular. (Batman, LA)

Malaysia Radio Malaysia Sarawak on 4.895, 1130-1230. No ID so tentative but Sarawak mentioned frequently. (Batman, LA)

Mauritania ORTM Nouakchott, 4.845 at 0658 in Arabic with talk, IS, ID. French news at 0700, back to Arabic vocals and talk. (Paszkiewicz, WI)

Monaco Trans World Radio with interval signal on 6.215 at 0342 but severe interference. (Shute, FL) Think you may have had the new TWR station at Forli, Italy. (Editor) 7.160 at 0623 with interval signal, music box. Programming in English from 0625. (Salmi, MA)

Mongolia Radio Ulan Bator, 12.015 at 1200 in English with interval signal, anthem, ID, schedule, into news. (Paszkiewicz, WI)

Montserrat Deutsche Welle Relay station on 11.705 with transmitter ID in English at 1200, into German. (Batman, LA)

New Caledonia Radio Noumea, tentative, on 7.170 at 0728 in French with pop music. (Shute, FL)

New Zealand Radio New Zealand at 0930 on 9.620. (Lukas, NY)

Netherlands Antilles Radio Netherlands English to North America on 6.165 at 0530. (Gardner, MD) 6.165, 9.590, and 9.895 at 0139 and 0233. (Lyster, BC) 6.020 at 0150 with talk show. (Abernathy, TX)

Nicaragua Radio Sandino, 6.200 at 0645 in Spanish with music, ID. Relay of the medium wave. QRM'd by Tirana at 0300. (Goetsch, OH) 0614 IDs and Spanish songs. (Salmi, MA)

Voice of Nicaragua, 6.015 in Spanish at 0250. (Lyster, BC) 0230 in Spanish. (Abernathy, TX) 12.015 at 1100 with Spanish ID. (Shute, FL) Didn't know they were on this frequency. (Editor)

Nigeria Voice of Nigeria at 0530 on 7.255 Lagos, English and West African service with news update. (Gardner, MD)

North Korea Radio Pyongyang, 9.745 in English with sign on at 1100 with news and features, parallel 9.977. (Batman, LA) 1102 on both frequencies. (Shute, FL) Anti-U.S. talk by woman on 9.745 at 1215. (Abernathy, TX)

Northern Marianas KYOI, Saipan at 1100 on 11.900 with rock music, announcements in Japanese and English. (Batman, LA)

Papua New Guinea NBC Port Morseby 0845-1000 in English including some country-western. (Batman, LA) 4.890? (Editor)

Peru Radio Huancayo, 5.955 noted at 0712, WRTH shows 24 hours a day. (Shute, FL)

Radio Atlantida, Iquitos, 4.790 man in Spanish, occasional drum rolls at 0220. (Goetsch, OH)

Radio Oriente, Yurmaguas, 6.188 with sign on at 1032 with National Anthem and frequent IDs. (Shute, FL)

Radio del Pacifico, 4.975 at 0353 with classical music. Severe QRM from Radio Rumbos, 4.970 (Shute, FL)

Radio Bagua, Bagua, Spanish at 1100 on 3.315 with Latin pops. (Batman, LA)

Poland Radio Polonia, North American service in English at 0345 on 9.525 with classical music. (Gardner, MD)

Portugal Deutsche Welle relay on 13.510.3 upper sideband in Russian with German lessons, intrumental and classical music. Is this a feeder? (Paszkiewicz, WI)

IBRA Radio on 9.670 at 2000 in English with religious broadcast. (Cronkright, MI)

Romania Radio Bucharest, 7.195 in English with letters and music at 2115 tune in. Moscow on in mid-program at 2125 wiping out Bucharest. (Alpert, NY) 9.570, 0247 with propagation forecasts, parallel 5.990, 6.155, 9.510, and 11.810. (Abernathy, TX) 11.940 at 1300 sign on in English. (Batman, LA)

Saudi Arabia BSKSA on 0259 on 5.875 talk by man and severe utility QRM. (Goetsch, OH) 0330-0400, Arabic. (Batman, LA)

South Africa Radio RSA, English on 21.535 at 1509, news and commentary. (Brumm, IL) 6.010 at 0252 with news and sign off. (Lyster, BC) 5.980 at 0205 news, in parallel to 6.010 and 9.615. (Abernathy, TX)

SABC on 4.880 in Afrikaans from 0500 with a "Radio Johannesburg" ID? (Batman, LA)

Capital Radio, Transkei at 0553 to 0615 in English with rock, commercials. News at 0600 on 9.765. (Batman, LA)

South Korea Radio Korea on 15.575 at 1345 with news in English. (Weiss, VA) 0145 in English. (Hunt, NC) 11.810 in English at 0200, inaudible most nights. (Batman, LA)

Spain Spanish Foreign Radio 0000 to 0200 on 9.630, 6.125 and on 9.630, 6.125 and 5.970 from 0500-0600. One hour English program from 0000, repeated 0100 and 0500. (Batman, LA) English on 11.690 at 1930, 0530 on 6.135, Spanish at 1758 on 9.580. (Lukas, NY) 0220-0301 in Spanish on 9.630. (Abernathy, TX) 0530 on 9.630 music and "Perspective" and brief world weather. (Gardner, MD)

Sri Lanka SLBC tentative on 15.425 at 1451-1524 with vocal music and male announcer in Arabic. (Weiss, VA)

Sudan Omdurman Radio on 5.039 at 0455 to 0510 fade out in Arabic. (Batman, LA)

Swaziland TWR Manzini on 9.725 at 0601 in English with ID, religious talk. (Shute, FL)

Sweden Radio Sweden International at 1415 on 15.345 with English. (Gardner, MI) At 1430. (Lukas, NY) 1415 in English. (Hunt, NC) 9.695 at 0235 with classical music. (Abernathy, TX)

Switzerland Swiss Radio International at 1330 on 17.785 with "Dateline Thursday" in Asian service. (Gardner, MD) 9.885 at 0145-0200 uninterrupted Swiss music, ID 0200, parallel 9.725 and announcing also 11.925 and 12.035. (Abernathy, TX)

Syria Radio Damascus, ending English news at 2104 with woman ". . . the end of this English transmission. Until we meet again I wish you a very good night. This is Damascus." Anthem and off 2105. (Alpert, NY) English 2005-2100, 12.085. (Hunt, NC)

Tahiti Radio Tahiti, 11.825 being heard again at 0530, in Tahitian with woman announcer, island songs, ID. (Salmi, MI)

Taiwan Voice of Free China, via WYFR 5.985 at 0120 with letters, riddle contest, ID. (Abernathy, TX) 0200 with world news, mailbag. (McDonough, PA)

Tunisia Radiodiffusion Television Tunisienne, 0600 to 0645 sign off in Arabic on 7.225. (Batman, LA)

Turkey Voice of Turkey, in Turkish at 1700-1900 on 15.220. (Troth, PA)

United Arab Emirates UAE Radio, Dubai on 15.300 at 1640 in English. (Hunt, NC) 17.745 at 1845 in Arabic, Arabic music. (McDonough, PA)

United States WMLK, Bethel, PA 15.110 with tests at 1802, mentioned "FCC authorized equipment test." Also announced 15.150 from 0400-0600. (Shirer, WI) 1709 announced tests for voice modulation adjustment. (Shute, FL) Bible scriptures and test announcements, per announced schedule. (McDaniel, LA)

AFRTS on 9.700 at 1530, news, public service announcement. (Lyster, BC)

WRNO 11.965 with rock and commercials at 1520. (Lyster, BC)

Radio Marti 11.815 at 1443 with countdown of U.S. and Latin pops, IDs, "Musica de Exitos" program, IS and news at 1500. (Paszkiewicz, WI) 6.075 with music and talk at 0930. 11.930 at 2142. (Kokinda, OH)

KNLS 11.850 at 0700 sign on with big band music in English. (Kokinda, OH)

WYFR Family Radio, religious programs at 1752 on 17.845, 1725 on 9.535. (Abernathy, TX) 0830 on 6.175. (Lukas, NY) 11.830 at 1420. (Gardner, MD)

WINB on 15.185 from 2200 with easy listening music, ID 2230, religious program. (Batman, LA)

USSR Radio Moscow 9.655 with talk in English at 1531. (Lyster, BC) 9.700 at 0137 with talk. Also parallel Cuban relay on 9.600 at 0110. (Abernathy, TX) 9.765 at 1944 in English. (Goetsch, OH) 15.135 at 1341, also on 12.010 in Russian at 1830. (Lukas, NY) 9.765 at 0600 with U.S. "aggression" in Afghanistan. (Gardner, MD)

Radio Moscow International (French service, Editor) in French with sign on on 12.020 at 1800. (Alpert, NY)

Venezuela Radio Universal 4.880 in Spanish at 0225. (Batman, LA)

Radio Nacional, 5.020 with American pop at 0245, all Spanish. (Hunt, NC) 0459 in Spanish. (Lukas, NY)

Radio Rumbos, 9.660 at 0240 Spanish and music. (McDonough, PA)

YVTO time station at 0317 on 6.100, time announcements in Spanish. (Goetsch, OH)

West Germany Deutsche Welle, 6.040 at 0100 in English, 17.860 at 1800 in German. (Abernathy, TX) 9.565 in English at 0100. (Lukas, NY)

Radio Free Europe in Bulgarian on 15.115 at 1800. (Cronkright, MI)

Yugoslavia Radio Yugoslavia, 9.620 at 2115 in English with talk of national liberation struggle in Yugoslavia. (Hunt, NC)

That's it. And our gratitude to: David E. Salmi, Mynard, MA; Miles Abernathy, Austin, TX; S. Lyster, Keremeos, BC; Robert M. Weiss, Fairfax, VA; David Troth, Ford City, PA; John Kokinda, Marblehead, OH; Billy Hunt, Durham, NC; Jerry Brumm, Chicago, IL; Alex Batman, Baton Rouge, LA; Michelle Shute, Pensacola, FL; Mike Shirer, Green Bay, WI; Roy McDaniel Jr., Sorrento, LA; Pat McDonough, Pittsburgh, PA; Elmer J. Cronkright, Wyoming, MI; Steve Johnson, Omaha, NE; Michael Goetsch, Berea, OH; David R. Alpert, New York, NY; Eric Gardner, Cambridge, MD; Hank Lukus, Plainview, NY; and Sheryl Paszkiewicz, Manitowoc, WI.

Til next month, good listening! **PC**

PIRATES DEN

FOCUS ON FREE RADIO BROADCASTING

BY DARREN LENO, WDØEWJ

With high-power radio stations broadcasting to European listeners from ships anchored in the North Sea, an industry analyst feels that it is just a matter of time before someone takes free broadcasting one step further. Commercial radio transmissions originating from satellites orbiting the earth may be close at hand. According to International Resource Development Inc. (IRD) of Norwalk, Connecticut, the satellite pirates could broadcast news and entertainment programs to audiences throughout Europe, just as offshore pirates like Laser 558 and Radio Caroline are doing now. The biggest difference between the two cases, IRD says, is cost.

In their report, IRD suggests that the story may unfold in one of three ways. First, it states, a private company already using a satellite for some other purpose may find the lure of international advertising and programming revenue irresistible and decide to become a pirate on its own. The study concludes that such a company would be taking a considerable risk; angry government agencies could easily revoke that company's right to do business in their country. This would leave the company in the broadcasting business alone, which may or may not be what the planners originally had in mind.

A second possibility the report raises is that a well-financed private company or individual may build a satellite and hire a private launch firm like those just beginning in the U.S. to place the craft in orbit. According to IRD analyst Steven Weissman, "This would take a tremendous amount of money, and there's so much stuff in space that a renegade spacecraft could easily collide with other satellites or interfere with their radio signals." Still, he stressed, there would be little anyone could do to stop a determined pirate. "Once a bird (satellite) is up there," he said, "it's tough to bring down short of aiming a 'Stars Wars' gun at it."

The high cost of a satellite project leads IRD to suggest a third possibility: an ambitious country waiting for transborder broadcasting issues to be resolved before sending up a domestic-service satellite may be tempted to launch anyway. Because of the finality of a launch, IRD concludes that the country would probably feel it could haggle over the ramifications from a position of relative strength. "At worst," IRD says, "it would have to either tightly focus the satellite's beam to (broadcast) within its borders or monitor programming to avoid international arguments. Either way, the satellite would remain in the sky and the country would have achieved its aims."

IRD believes that one nation ready for such a move is Luxembourg, which has been planning to broadcast via satellite for a while. Hiring a launch vehicle would be its most difficult task. Such organizations as Ariane, NASA, a private space contractor, or even Soviet or newly-developing Chinese agencies could be approached to send the satellite into orbit.

For more information about the study on European Satellite Systems and Services, write Int'l Resource Development Inc., 6 Prowitt St., Norwalk, CT 06855.

The startling QSL from Ohio's Radio Dead Man. The station, operating on 7425 kHz, lists its schedule as: Sunday, 10:30 a.m. to 7 p.m. EST; Monday, 4:30 p.m. to 11:30 p.m. EST; Tuesday, 6:30 p.m. to 10:30 p.m. EST; Wednesday, 5:30 p.m. to 10:30 p.m. EST; Friday, 5:30 p.m. to 9:30 p.m. EST; and Saturday, 5 p.m. to 10 p.m. EST. (QSL courtesy of Tom Kneitel)

Pirate Band Scan

KFAT "We're only in it for the money" the station admitted when Artie Bigley in Texas heard them on 7427 kHz at 0710 GMT.

KLS This pirate was heard on 7426 kHz at 0715 GMT by Paul Johnson of Arizona; they played some great hits from the late 60's and early 70's.

KROK When Paul Walkendorf of Michigan heard KROK on 7435 kHz at 0000, he was treated to some George Carlin comedy and musical "oldies." Listen for the "Close Encounters" theme, then mail your reception report with three First Class stamps to KROK, c/o PO Box 245, Moorhead, MN 56560.

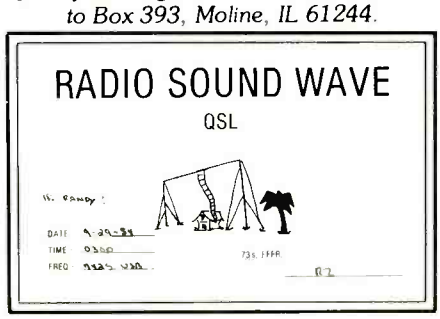
Radio North Coast Int'l George Zeller of Ohio heard RNCI broadcasting from the "USS Sphincter on the brown waters of the polluted Great Lakes" on 7430 kHz at 0030 GMT. Reception reports can be sent to RNCI, c/o PO Box 245, Moorhead, MN 56560.

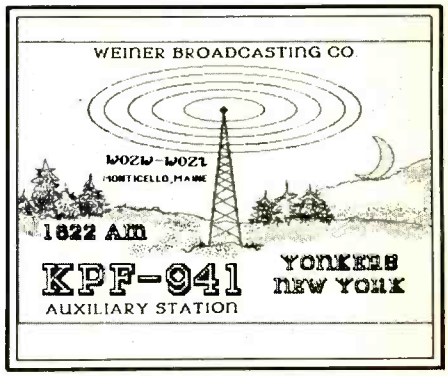
Radio USA Mr. Blue Sky and company were telling listeners like Joe Talbot in Alberta how to convert a toaster into a pirate transmitter on 7430 kHz at 0250 GMT. They announced plans to add a medium wave frequency by the end of the year.

Secret Mountain Laboratory Sam Alcorn of New Jersey only heard them for two minutes, from 0800 to 0802, but what he did hear on 9925 kHz came in "loud and clear." Send reception reports to PO Box 5074, Hilo, HI 96720.

Union City Radio Rock and bluegrass music and a Mr. Rogers comedy skit were heard by Joe Talbot on 7430 kHz after 0330

Randy Kaeding of Michigan received this QSL by sending a detailed reception report to Box 393, Moline, IL 61244.





GMT. Their address is PO Box 5074, Hilo, HI 96720.

Voice of To-morrow Ken Suess of Wisconsin tuned in the VOT on 6240 kHz after 2230 GMT. The announcer was talking about the "American media monopoly." Additional frequencies of 15040 kHz, 7410 kHz, and 1616 kHz were mentioned.

WEAK Between static crashes and fading, Paul Johnson in Arizona managed to pull in this pirate's WEAK signal on 7411 kHz after 0500 GMT on a Friday evening. Send your reports to PO Box 5074, Hilo, HI 96720.

WBRI Bill Smith in Ohio heard DJ Bob Balor as he entertained listeners with rock music and comedy skits on 7435 kHz after 0200 GMT. An address was announced for reception reports: WBRI, c/o PO Box 8365, Silver Springs, MD 20907.

Honorable Mention

Greg Jenkins in New York heard an interesting transmission one evening on 1610 kHz after 2200 GMT. An unidentified pirate was relaying WMKQ 92-FM in Rochester, New York. Also, taped and edited material was played from stations:

WAMS	1380	kHz	Wilmington, DE
WABC	770	kHz	New York, NY
WGAR	1220	kHz	Cleveland, OH
WAFM	99	MHz	Rochester, NY
WZAU	98	MHz	Philadelphia, PA

KNRH

"I just purchased my first copy of *POP'COMM* and you can be assured I will be an avid reader.

"I have been operating a "pirate" for a few years now, and have a regular broadcast schedule. I have yet to be visited by the FCC, probably because my power output is small (one watt) and my program material is un-offensive.

"My call letters are KNRH, 'the NRH memorial station' named in memory of pioneer broadcasting station NRH of Costa Rica which entertained the Americas in the mid-1920's. KNRH operates on 11975 kHz from 1000 to 1130 GMT daily. Program material is usually pre-war records and occasionally religious sermons and gospel music."

signed, T.S.

If anyone stays up late enough and pulls in this weak station, be sure to report back to Pirates Den.

Pirate Fined $1,000

A Canadian pirate that was raided last fall by Royal Canadian Mounted Police has been fined $1,000 for his activities. Marty Young, 24, of Burnaby, British Columbia, pleaded guilty to owning and operating an unlicensed radio station from his 17th floor apartment in Burnaby. Young was in violation of the Canadian Federal Radio Act and was fined $500 for each charge by Provincial Court Judge Kenneth Page. His station, valued at $5,000, was seized by RCMP officers. Nothing was mentioned about its return.

Bruce Quinn Controversy

"My complaint is with the comments in your May, 1985 column. It is about your encouragement for Bruce Quinn of Jolly Roger Radio to be awarded a broadcasting license by the FCC. Sure, he's a nice guy who provides decent programming and a quality signal, and perhaps has had a wrong done to him by the FCC. Does this mean that he now has the right to break the law—even if it is unfair? As a licensed amateur radio operator, maybe you will better relate to some similar hypothetical actions:

"Award an amateur license to all those CB'ers who obey the FCC regulations and transmit quality signals;

"All those people who 'deserve a license to broadcast' should start transmitting tapes of their personal religious beliefs on 80 meters;

"Give back the amateur license to the nice, blind operator out here in the L.A. area who had been jamming a 40 meter ham net.

"I respect your right to have a pirate column and report the findings, but I cannot see an amateur radio operator endorsing the breaking of FCC regulations. With all the deregulation taking place, it doesn't need any help.

Sincerely, Brian Greer, CA"

Thanks for writing, Brian. I think you missed the point of my May, 1985 column, and I hope you'll read it again. As an individual and, coincidentally, a licensed amateur radio operator, I don't encourage activities that are illegal. As for Bruce Quinn, I talked with him just moments before writing this column. He is still pursuing an FM broadcast license in a serious and proper manner. Mr. Quinn says that his plans to put WXJR on the air are "coming along fine." His team of lawyers and technicians are not asking for an FM broadcasting license—they are applying for one. They have just filed the extensive technical and financial study the FCC requires and hope WXJR will be on the air in Delphi, Indiana within one year. No one should be "given" anything. "Hardened criminals" like Bruce Quinn deserve a chance to do things properly, especially when the only victims are the listeners who miss his station.

In Conclusion

The Association of Clandestine radio Enthusiasts is a good source for immediate pirate and clandestine broadcasting and spy-numbers station information. For information, send a long, self-addressed and stamped envelope to A*C*E, PO Box 452, Moorhead, MN 56560.

The Clandestine Confidential newsletter is filled with excellent research on worldwide clandestine broadcasting. Send a long SASE for information to Gerry Dexter, RR 4, Box 110, Lake Geneva, WI 53147.

Much thanks to this month's contributors. I'd like to hear from you. Send your contributions of loggings, stories, QSL reproductions, photos, comments, complaints—anything you can share that you feel Pirates Den readers would enjoy—to Pirates Den, 76 N. Broadway, Hicksville, NY 11801. In fact, even if you don't have anything to send us, how about a friendly sentence on the back of a postcard? Let me know how I'm doing. It's always a pleasure to hear from our readers, and I hope that by next month, I will have heard from you. PC

BROADCAST TOPIX

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

BY MARK MANUCY, W3GMG

Don't think you're alone when it comes to having brother Murphy breathe down your neck. Last month's article hadn't been in the mail to New York more than a few hours when my copy of *Consumer Electronics* arrived. In the column on "Autosound" by Paul Thomason in the May issue, he says that Sony has finally released their multimode auto radio. The model is XR-A33 and it sells for $250. To the best of my knowledge this is the only auto radio that decodes the Kahn system as well as C-Quam. Still a big drawback to AM Stereo, according to Thomason, are the radio stations themselves. Does one really care to hear news and sports and Howard Cosell in stereo? In other words, CD players are apt to outsell AM Stereo until the AM stations provide stereo programming worth listening to.

Some stations are taking that positive response to AM Stereo. I would like to congratulate WCCO for just such an attitude. Beginning October 2, they will be in stereo. The station released a newsletter (thanks for including me) explaining the process the engineering and programming department have to go through in order to prepare for stereo broadcasting. Jerry Miller, WCCO's Chief Engineer, has been preparing the equipment for over a year. WCCO will be using the C-Quam system. According to Jon Quick of WCCO, the station is the most listened-to major market station in America.

On a similar note, I attended the NAB seminar on Directional Antennas over the Memorial Day holiday in Washington. The NAB lab had set up a demonstration of AM Stereo for us and had five different receivers that we could listen to for comparison. Ed Miller of NAB was using a local FM station for the audio source, so we were able to compare AM with FM with the flip of a switch. One of the AM receivers Ed was using in his demonstration was the Sony SRF-A100, which I talked about in this column. When he switched between the source station and his "C-Quam" AM station, one was hard pressed to tell which was which. Several of the other receivers perform very well also, but this little Sony (for the money) is by far the best AM radio to come down the pike in many a year! If this can be done with a small portable radio, then AM radio is not dead—nor will it die. There is excitement in my blood when a manufacturer can make a $80 portable sound this good, especially when I know the auto and home systems can do even better.

FM DXing

This is the season of FM DXing. Actually this past summer was not shabby for DXing, as there were many days with inversion openings. Just last night I was driving between the Delaware state line and Baltimore on I-95 and getting good DX across the FM band at 4 a.m.! There are still some stations that do not operate 24 hours a day, and these frequencies can provide good DX in the wee hours of the morning if one happens to be up and awake! For example: There is a station in northeast Maryland on 103.7 MHz that signs off no later than midnight. Last night I was receiving Atlantic City, New Jersey (WMGM) while only a few miles from the Maryland station's location. Down the dial I was also able to get WFPG in Atlantic City. Many times, if you can hear one station in a distant city there is a good chance you will be able to hear other stations from (or near) the same city also. Inversions can occur most anywhere, however, they are more apt to occur near coastal areas. The Chesapeake Bay is large enough that inversions can be created along the length of the Bay and even across the relatively small width of the Maryland eastern shore and Delaware. That is why we frequently hear New Jersey coastal stations as well as Norfolk and Richmond, Virginia stations. Last night the Richmond station WEZS was sharing my dial with WMGM while WLAN in nearby Lancaster, Pennsylvania was being bumped by WFPG when the FPG signal would be stronger. Just a couple of examples.

Shack of Ken Cobb.

For those of you who are friends with TV weathermen (or other weathermen), they may have an inside track on keeping tabs on temperature inversions. Here's how you might be able to get some more information on the same. The reason I mention TV weathermen is because of the popularity of TV weather radar today. These guys (and gals) love to show their color radar pictures during the weather forecasts. Many of the weather radar units of today readily show temperature inversions in some of their many modes of operation. The level of intensity is also known. Make a telephone call to your nearest TV weather person and discuss with them how their particular unit responds to inversions and how they are shown on the weather programs the station has on the air. If they are not on the air maybe they could be coaxed into airing them when they occur, which is not every day. Anyway, by observing the outlines on the screen, one can determine in which directions the inversions will take place.

Another interesting inversion is caused by lightning. Again, by seeing the weather radar for thunderstorm locations, it might be neat to compare the resulting DX possibilities. I'm sure you are aware of how poor the AM band becomes during a thunderstorm. The FM band can yield the DX the AM band lacks during a storm if you are sharp with a knob. Here's how it works: First, be aware that a big tall outside antenna in a storm might not be the way to go due to the likelihood of a lightning bolt striking your antenna. This aside, the lightning bolt creates a momentary inversion as it heats the cold air surrounding it in the thunderstorm. This inversion can support the conduction of distant radio signals if it occurs in the same direction as the signal for which you are seeking. Now normally one would think the earth-to-ground bolt is not the one we're after. We seek one of those tremendous cloud-to-cloud jobbers in order to carry our radio signal over long distances from point A to point B. But let us not be fussy. However the signals arrive, we are happy.

The method is this: If you can determine which way the storm is running, so much the better. Select a frequency of a station you can't normally hear (FM) and wait (I hope your receiver has a mute or squelch circuit). If a lightning strike supports ionization, the resulting conduction of the FM signal from the station to your antenna will be for a very brief moment. I would advise the use of a tape recorder to pick up this brief transmission for analysis at a later time.

The normal method of inversion is the rapid heating or cooling of the ionosphere, which causes a "trough" to be formed in which the radio signals travel. The rapid heating or cooling most frequently occurs in the spring and fall as the seasons change from cool to hot or vice versa. Anyway, some fun things to do with FM DXing!

Mail Call

I received a very interesting piece of paper from Larry Waggoner that I think we will all enjoy. He sent me a copy of a license for a Land Radio Station from 1925. The license is for WNAD, now WWLS in Norman, Oklahoma. Larry is a consulting engineer and this is one of the stations for which he does work. Larry, along with Jerry Starr, men-

PROVISIONAL

No. 830

LICENSE FOR LAND RADIO STATION

CLASS "A" - LIMITED COMMERCIAL

DEPARTMENT OF COMMERCE
BUREAU OF NAVIGATION
RADIO SERVICE

Pursuant to the act to regulate radio communication, approved August 13, 1912,

UNIVERSITY OF OKLAHOMA, DEPARTMENT OF ELECTRICAL ENGINEERING

***

a citizen of the State of _____, a company incorporated under the laws of the State of OKLAHOMA, having applied therefor, is hereby granted by the Secretary of Commerce for a period of THREE MONTHS on and subject to the restrictions and conditions hereinafter stated and revocable for cause by him, this License to use or operate the apparatus for radio communication (identified in the schedule hereinafter) for the purpose of transmitting to and receiving from ship stations and other land stations public correspondence, Government and service correspondence, and distress signals and messages, at rates of compensation not in excess of those fixed by the international agreement to which the Government of the United States has adhered, which have been submitted to and approved by the Secretary of Commerce, as included in the schedule hereinafter, or for the purpose of conducting experiments for the development of the science of radio communication or the apparatus pertaining thereto, to carry on special tests, using any amount of power or any wave lengths, at such hours and under such conditions as will insure the least interference with the sending or receipt of commercial or Government radiograms, of distress signals and radiograms, or with the work of other stations, the purpose of the station being designated by the classification at the head of this License.

2. Public correspondence or limited commercial correspondence authorized by this License shall be limited to certain stations, ships or lines of ships named hereinafter, which designation is authorized in view of the nature of the service and is independent of the radio system employed.

3. The use or operation of apparatus for radio communication pursuant to this License shall be subject also to the articles and regulations established by the International Radiotelegraphic Convention, ratified by the Senate of the United States and caused to be made public by the President, and shall be subject also to such regulations as may be established from time to time by authority of subsequent acts and treaties of the United States, in so far as they apply to the class of station indicated by this License.

11—8071

Radio station license from 1925. (Courtesy of Larry Waggoner)

tioned again about the NRC night pattern book of which I spoke last month. Two months ago I mentioned using the printed night patterns of stations in order to select the easier (or more difficult) ones to hear. Some 30 years ago Carl Smith, another consulting engineer, published a "pattern book" which was quite expensive. I spoke with Carl at the antenna seminar in Washington (he conducted it) and he said that the book he published will be re-published when it is finished. It is being completely computerized for day and night patterns. He has completed from 540 to 1100 kHz so far. Again he said it would be expensive to purchase. So for the general DXer (you and me), the NRC pattern book is the way to go if you want a pattern book.

Ken Cobb sent me a raft of material on the continuing battle between WCCO and WNYC on WNYC's operating on 830 kHz at night. The FCC granted limited night operation to WNYC in 1943 to assist in the war effort. In 1954 WCCO renewed its efforts to get WNYC returned to daytime-only status. Finally, in 1982, the courts said WNYC would have to cease its limited operation at night. Meanwhile, WNYC has filed for 820 kHz and hopefully, with a directional antenna, will be able to operate at night with WBAP in peace. Some years ago WNYC had asked for 50 kw day, but I understand due to financial problems was not able to build the facility. They are a public station. Ken also sent along a picture of his shack, which is really nice looking!

Bill Hennessy sent a nice letter describing his DXing with his R-70.

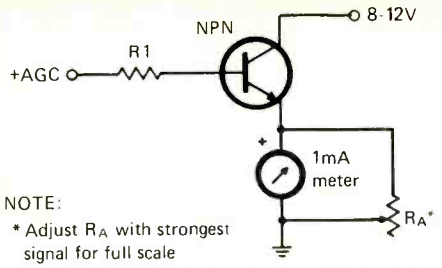
Mark Stricket tells me of a club within a club. "DecalcoMania" is for radio/TV sticker collectors and traders. If you want more information, write to him. His address is Box 355, Berkeley, CA 94701.

From Australia, Michael Blockley writes telling of local radio in Aussy country, which I'll share with you at a later date.

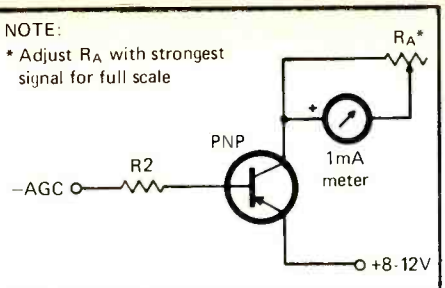
Several readers have asked from time to time what clubs I am a member of or support. Actually, I have never belonged to any club. I am somewhat of a loner when it comes to my DXing, as I find many people are. I have nothing against any group and enjoy reading the newsletters that some groups send to me. By not belonging to a group I am not prejudiced for or against anything they may do, and my writing and information in this column is from you the readers or my first-hand knowledge. I certainly could not afford to belong to every club, but I am happy to support all clubs that I can. The way to do this is from information that is sent to me by the individual club or its members. The projects you have seen in Broadcast Topix are designed and built by the author and are not copies of anyone else. So feel free to send club info along, if it pertains to *POP'COMM* readers; I'll be glad to put it in the column.

S Meters

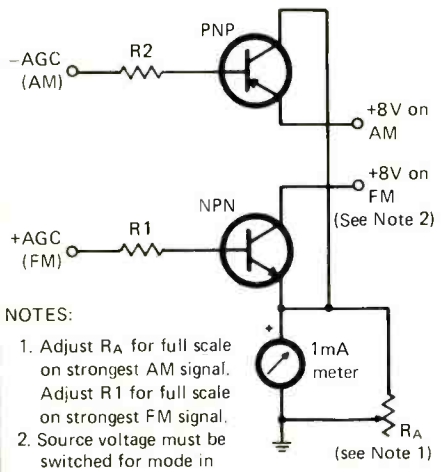
How many of you have 'S Meters' on your car radio? Come now . . . am I the only nut among us? Well, let's get some converts. I first put an 'S' meter on my 1960 Ford radio.



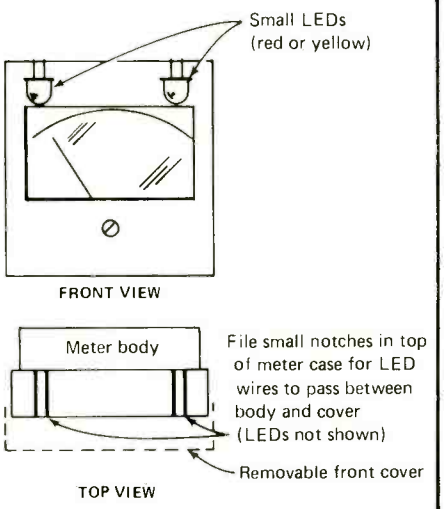
(A) 'S' METER CIRCUIT FOR POSITIVE AGC VOLTAGE



(B) 'S' METER CIRCUIT FOR NEGATIVE AGC VOLTAGE



(C) 'S' METER CIRCUIT FOR POSITIVE AND NEGATIVE AGC VOLTAGE



(D) HOW TO ILLUMINATE METER FOR USE AT NIGHT

R_A = 100-500Ω – Adjust for full scale on strongest signal. Value depends on meter movement and source voltage.
R1 = 1KΩ – Isolation
R2 = 1KΩ – Isolation
NPN = TCG123 – Most any NPN
PNP = TCG159 – Most any PNP
Use shielded cable to run meter, mounting components inside the radio. R_A can be mounted on back of the meter.

(E) PARTS LIST AND LEGEND

That was a neat job, because it was my first car. I bought a mini meter and mounted it inside the radio in the center of the dial. That radio had those 12 volt tubes, no high voltage and it worked well but it was very hard to see because it was so small! I've had several meters since then, but my current meter is a 50 microamp meter that reads AM and FM signal strength automatically. It is mounted in a piece of foam wedged between the windshield and top of the dash to keep vibration to a minimum. It is difficult to explain every possible way to connect a meter to a car radio due to so many different radios on the market. The FM metering is a bit more complicated than the AM, although it works on the same principle. My FM section has a positive voltage used to trigger the sensing circuit to reduce the high frequency response in the audio when the signal gets noisy. This voltage varies a good bit and is excellent for 'S' meter applications. Most AM sections still use a negative voltage for the AGC, although my set also has a positive voltage as well as a negative. I use a couple of red LEDs to illuminate my meter at night.

One installation that always drew comments was in my 1961 VW Beetle. I put a real 'S' meter, which I bought from Lafayette, right in the dash (where VW later put a gas gauge). This meter had mini lamps, which I wired to my dash lights. People riding with me never could figure out why my 'gas gauge' jumped around so much and always read zero when the radio was turned off!

While digging around in the innards of your AM radio, you may, by snipping out a few capacitors around the diode detector, improve the frequency response. Some care must be taken in this area because some

Call Letter Changes

Old	New	Location
AM Stations		
WPIK	WRBK	Flomaton, AL
WSGN	WZZK	Birmingham, AL
new	KHTK	Dillon, CO
new	WECC	St. Marys, GA
WUSA	WMSH	Mishawaka, IN
new	WACN	Franklin, KY
KZYM	KZIM	Cape Girardeau, MO
new	KROL	Laughlin, NV
WMHN	WWJZ	Mount Holly, NJ
WHNI	WMYT	Mebane, NC
WJW	WRMR	Cleveland, OH
WHEX	WNZT	Columbia, PA
WORG	WBLO	Orangeburg, SC
KVAA	KJJQ	Volga, SD
KSAX	KHVN	Fort Worth, TX
KXVI	KTNS	Plano, TX
WMBG	WQSF	Williamsburg, VA
FM Stations		
WZZK	WZZK-FM	Birmingham, AL
WEXP	WSGN	Gadsden, AL
KLPQ	KHLT	Little Rock, AR
new	KSUR-FM	Greenfield, CA
KNTN	KFSO	Visalia, CA
new	KCYM	Colusa, CA
new	KSUR-FM	Greenfield, CA
new	WOVU	Ocean View, DE
WHCG	WQKK	Metter, GA
WTKZ	WLYZ	Nashville, GA
WMJB	WRDW-FM	Wrens, GA
KRPL-FM	KZFN	Moscow, ID
WYFE-FM	WKMO	Winnebago, IL
new	WFEF	Terre Haute, IN
WTAA	WTGY	Charleston, MS
KPBT	KIXQ	Webb City, MO
new	KWCJ	Willow Springs, MO
new	WJQZ	Wellsville, NY
new	WLLG	Lowville, NY
WMRL	WERV	Rotterdam, NY
new	WJQZ	Wellsville, NY
WRQK	WKSI	Greensboro, NC
WGSS	WKML	Lumberton, NC
WITN-FM	WDLX	Washington, NC
WFTD	WOTL	Toledo, OH
new	KEWP	Newport, OR
WVCD	WWSH	Hazelton, PA
WWON-FM	WNEF	Woonsocket, RI
KVXL	KKQQ	Volga, SD
new	KTDN	Palestine, TX
KDCI	KTXX	Devine, TX
new	KALP	Alpine, TX
new	WWWP	Franklin, VA
WPUF	WZZR	Mechanicsville, VA
WQKS	WQSF-FM	
WNLT	WILV	Baraboo, WI
WMTT	WRIO	Ponce, PR

Station Updates

Call	Location	Freq	Pwr	Ant
AM				
new	Siesta Key, FL	780	5/1	DA-N
KBOA	Kennett, MO	830	10/0	DA-D
KTRB	Modesto, CA	860	50/1	DA-2
WGRR	Prichard, AL	960	1/1	DA-N
KLVI	Lake Isabella, CA	1140	1/0	0
WASG	Atmore, AL	1140	50/0	£
WONQ	Orlando, FL	1140	2.5/0	O
WYRU	Red Springs, NC	1160	5/.25	DA-2
WEZG	No. Syracuse, NY	1200	1/1	DA-N
new	Mt. Carmel, TN	1200	10/.25	O
KTOL	Lacey, WA	1280	1/1	DA-N
KRIZ	Renton, WA	1420	1/0	O
WCLK	Asotin, WA	1430	5/1	DA-2
WEXY	Wilton Manors, FL	1520	1/.25	DA-N
FM				
WAMP-FM	Toledo, OH	88.3	1.0	197′
KVNE	Tyler, TX	89.5	100	899′
KMRA	Harrisonburg, VA	90.7	24.5	710′
new	Frederick, OK	91.5	100	390′
KRCC	Colorado Spgs., CO	91.5	.055	2102′
KSMU	Springfield, MO	91.9	40	322′
WCWS-FM	Wooster, OH	91.9	.89	75′
KUUL	Madera, CA	92.1	N/C	295′
WWLT	Bamberg, SC	92.1	3.0	310′
WTWE	Manning, SC	92.5	98.24	1170′
WAAC	Valdosta, GA	92.9	100	502′
KIXS-FM	Killeen, TX	93.3	100	1968′
KMGK	Des Moines, IA	93.3	N/C	1055′
WAMX	Ashland, KY	93.7	100	590′
WKXZ	Norwich, NY	93.9	26.1	677′
KWKS	Winfield, KS	94.3	N/C	N/C
WGSX	Bayamon, PR	94.7	32.5	1766′
WJIM	Arlington, TX	94.9	100	1509′
KIJK	Prineville, OR	95.1	N/C	473′
WAYV	Atlantic City, NJ	95.1	N/C	293′
KNYN	Santa Fe, NM	95.5	19.1	1851′
WPLJ	New York, NY	95.5	6.9	1335′
WMGZ-FM	Sharpsville, PA	95.9	3.0	328′
WBWB	Bloomington, IN	96.7	1.66	440′
KCAL-FM	Redlands, CA	96.7	1.77	376′
WJIB	Boston, MA	96.9	12.3	N/C
KRYO	Crystal River, FL	98.5	100	1332′
KSCO-FM	Santa Cruz; CA	99.1	1.1	2618′
WJSO-FM	Elizabethton, TN	99.3	2.47	328′
KGVM	Minden, NV	99.3	N/C	−816′
WLKI	Angola, IN	100.1	3.0	328′
KHOK	Hoisington, KS	100.7	N/C	894′
WHKK	Erlanger, KY	100.9	1.27	466′
WGMR	Tyrone, PA	101.1	8.5	N/C
KZMT	Helena, MT	101.1	95	N/C
WWAV	Santa Rosa Beach, FL	102.3	3.0	328′
KSEI-FM	Pocatello, ID	102.5	N/C	1025′
KKBB	Aurora, NE	103.1	3.0	306′
KZEV	Clear Lake, IA	103.1	3.0	328′
WYAV	Conway, SC	104.1	100	600′
KBEQ	Kansas City, MO	104.3	100	986′
WITK	Belfast, ME	104.7	10	N/C
WVVV	Blacksburg, VA	104.9	3.0	300′
WWCK-FM	Flint, MI	105.5	3.0	N/C
WXET	Woodstock, IL	105.5	1.45	474′
KRPL-FM	Moscow, ID	106.1	59.3	960′
WNVI-FM	North Vernon, IN	106.1	N/C	486′
WAZX	Georgetown, SC	106.3	3.0	328′
KAJJ	Greenwood, AR	106.3	1.7	434′
KRNO	Reno, NV	106.9	N/C	2956′
WNUS	Belpre,OH	107.1	2.31	N/C
WXKS-FM	Medford, MA	107.9	23.5	N/C

KEY: D = Daytime N = Nighttime DA = Directional Antenna DA1 = Same Pattern Day & Night DA2 = Different Pattern/Power Day/Night O = Omni Antenna Day and/or Night £ = Special Operation or Critical Hours

sets may be using some of these capacitors for AGC purposes also and removing them would affect the way the AGC operates. The high frequency response can now be adjusted by using the tone control(s) on the radio. Some sets may require the installation of a 10 kHz 'whistle' filter if the response is improved to the point of annoyance. Usually the tone control can adjust the high end to suit. Many AM stations are now boosting their high frequencies to the extent as to be hard to listen to unless the receiver high frequency response is poor. These stations attempt to compensate for the poor response of many AM radios at the expense of the newer radios that are finding their way to the consumer. The newer sets have much improved high frequency response.

Thanks for the many nice comments on the column and I'm getting some more pictures now, so keep them coming. For information on Commodore 64 computer programs for DXing and keeping track of stations, drop me an SASE. A list of AM Stereo stations is $2.50 post paid. The address for all correspondence is P.O. Box 5624, Baltimore, MD 21210. See you next month. PC

SURVIVAL

ESTABLISHING SURVIVALIST COMMUNICATIONS SYSTEMS

BY R. L. SLATTERY

Vietnam Survival Radio

One of the more fascinating and virtually forgotten survival communications systems was established in the very early days of the war in Vietnam. At the time, our government felt that this system would be the deciding factor in winning the war—yes, it was *that* important!

We are talking here about 1962, shortly before the large-scale troop infiltration began in 1964 with Soviet and Chinese assistance. At this time the American presence consisted of 13,000 "advisors" who were involved in the conflict against the Viet Cong.

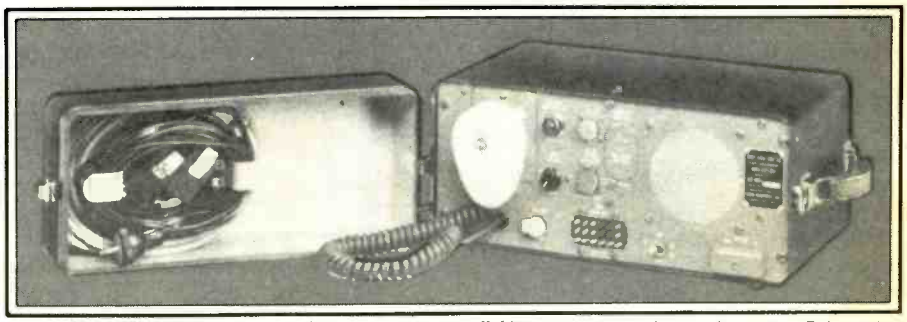
Our government came up with a novel survival communications concept pegged on the usefulness of a small voice transceiver weighing about 18 lbs. and not unlike a CB rig. Most likely, the concept for the use of these transceivers was based upon the early success and popularity of American CB radio (which got started in 1959).

The transceiver designed for Vietnamese use was dubbed the TR-20 and it was produced by the Radio Industries Co., a Kansas City (KS) subsidiary of Hallicrafters. RI manufactured about 2,400 TR-20 units for the U.S. Operations Mission in Saigon. By early 1963, 2,000 of the single-channel transceivers were installed in key villages throughout South Vietnam.

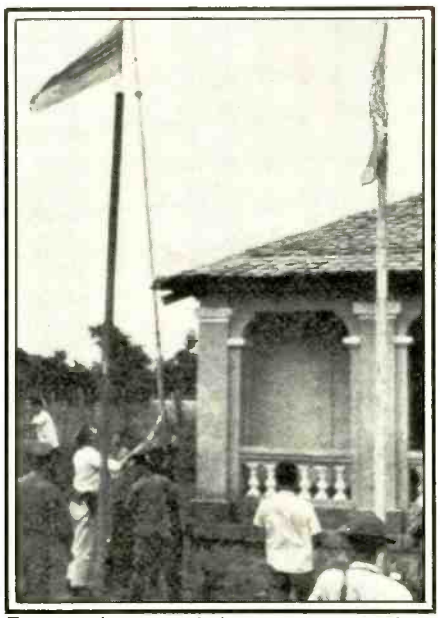
The concept was simple. Communications between villages had been so poor that it was too easy for the VC to conduct their operations without being detected by the authorities. An increasing number of assaults, murders, kidnappings, burnings, robberies, and other intimidations against civilians made it apparent that there would be a genuine advantage for the remote and scattered villages to be able to communicate with one another. Telephones didn't exist. Railroads and roads were minimal in the country. For one village to warn another of VC marauders it meant hacking through jungle at only 300 feet per day and also trekking over rugged mountains.

A radio network seemed the obvious answer, with rugged and portable transceivers, voice mode, easy to operate, and sufficient range to reach nearby villages and also Vietnamese military forces.

The TR-20 was specifically designed for this application. It operated on only one single frequency and it required no tuning adjustments. That meant that even the most uneducated Vietnamese peasant couldn't put it out of operation. Since the villages didn't have access to electric power, the TR-20 operated from a 12-volt battery. The 20 watt radio, which could be set for a frequency between 30 and 40 MHz, was partially designed around a printed circuit that could stand up to the heat and humidity of the jungle.



The TR-20's transmitter used "instant heating" filament type tubes in both the PA and oscillator/tripler stages. The transmitter's modulator and power supply was transistorized, as was the complete receiver circuitry.



Erecting the ground plane antenna used at a TR-20 installation was a major social event attended by local residents.

Simple operation and jungle-resistant design were only two of the special qualities of the TR-20. Here's a TR-20 in full operation by village leaders.

American USOM personnel aided the villages in establishing the networks.

One interesting little "extra" of the TR-20 was a special "Destruct" switch. When activated, it shot 300 volts through the TR-20 and fried all of its components so that it would be useless in the event it fell into enemy hands. Within a few months after the sets were installed some 20 of the TR-20 were destroyed in this manner when they came into jeopardy of falling into VC possession.

Installation

As the TR-20's arrived at USOM headquarters in Saigon, the task of distributing

and installing them faced our personnel. While actual installation took only an hour or so, getting the equipment to a particular village meant an armed trip into hostile territory lasting days or weeks.

The 6-man teams wore flak jackets, carried sub-machine guns, a knife, ration, canteen, and jungle survival gear. These teams were accompanied by at least a platoon of South Vietnamese troops carrying machine guns, grenades, mortars, and other gear to fend off VC ambushes.

While some sets were brought into villages by helicopter, others arrived by armored barges. Most, however, were lugged in on people's backs. The VC fought fiercely to prevent the TR-20's from getting through, for the radios had the potential to rob the VC of their two greatest assets—isolation and surprise.

The most grisly and vicious devices and booby traps were set up by the VC in order to thwart the distribution and installation of the radios. At least 11 Americans lost their lives while engaged in these operations.

Despite the hardships involved, the TR-20 program was marked down as an initial success. Villages often called in helicopter troop drops or directed Vietnamese forces in rocket, bomb, and strafing runs. Plans were underway to install a shorter range transceiver—the TR-5—in 3,000 additional villages. Further escalation of the war put a crimp in those plans.

But there were more than 2,000 radios that did go into operation, and the headquarters of the Vietnamese army was operational on the primary channel, 30.692 MHz (their callsign was XVX30). It was a great idea, and a noble experiment. Although eventual expansion of the war precluded much use of the network after only a year or two of full operation, the little 18 lb. transceivers, far too complex for the peasants to even understand, were simple enough to operate in order to lessen the terrors of VC attacks at least for a while! PC

WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Criminal Prosecution For Marketing Illegal CB Equipment

The FCC's Field Operations Bureau initiated a criminal prosecution against Fix It Man CB Sales and Service stores located in Millbury, Ohio, and Monteagle, Tennessee, for the marketing of illegal Citizens Band (CB) Radio equipment.

As part of this action, engineers from the Atlanta and Detroit District Offices, along with U.S. Marshals, seized as evidence equipment from both establishments. The equipment, valued at $18,000, consisted of external RF power amplifiers capable of operation at CB radio frequencies, and radio transeivers capable of operation on frequencies that are not authorized for use in the CB Radio Service. Such devices are not type accepted, as required by FCC Rules, and can produce interference to other licensed radio services and home electronic entertainment equipment.

The prosecution of Fix It Man CB Sales and Service is part of the continuing effort of the Federal Communications Commission to eliminate interference to authorized radio users from the operation of illegal radio devices by enforcing the rules prohibiting the sale of such equipment. The possible penalties for the sale of non-type accepted equipment include a monetary forfeiture of $10,000 and one-year imprisonment for the first offense.

Private Radio Bureau Re-Opens All Areas For New SMRS Applicants

The FCC's Private Radio Bureau will accept new applications for Specialized Mobile Radio Systems (SMRS) in areas that had been closed because of an excess of pending applications. Such areas include all locations within 100 miles of Buffalo, Chicago, Dallas-Fort Worth, Houston, New York City, Philadelphia, Washington, D.C., and most of California.

Pending SMRS applications in all of these areas have gone through lottery proceedings, so there is no longer any need to keep any area closed. New applicants may now request any location that would be at least 70 miles from all other stations using the same channels.

The Bureau will accept and process new applications day by day as follows:

Applications will be stamped with the date they are received in the Commission's Gettysburg office. It is the date of actual receipt in the Gettysburg office that will control. Applications will not be time-stamped.

Applications will be processed on a first-received, first-processed basis. On "new" channels, all applications filed on the same date for an area will be considered together. If there are sufficient channels available to grant all applications filed on the same date for an area, the applications filed on that date will vie for the remaining available channels by comparative hearing or lottery, and all applications which were filed after that date for that area will be dismissed.

Spectrum Relief For The Los Angeles County Sheriff

The Commission proposed three additional alternatives for making spectrum available to the Los Angeles County Sheriff's Department for public safety use in Los Angeles County.

On October 11, 1984, the Commission proposed making spectrum available from television Channel 19 (500-506 MHz), for use by the Los Angeles County Sheriff's Department. The Sheriff's Department had requested sufficient spectrum appropriate for supporting a public safety communications system using portable hand-held units.

The Sheriff's Department had conducted a laboratory test to determine the feasibility of using Channel 19 frequencies without causing interference to TV reception, particularly to KSCI-TV, Channel 18, San Bernardino, California.

The test results and the comments of other parties caused concern over potential interference to Channel 18, particularly from use of the lower three MegaHertz of Channel 19. These results also suggested that the Sheriff's Department might be able to use some frequencies from the first adjacent channel to an existing TV station consistently with the land mobile-television sharing standards in Part 90 of the FCC's Rules.

The Commission's Further Rulemaking Notice proposes two alternatives using some portion of first adjacent channels to television stations that offer the possibility of relief. It also proposes to consider allowing use of Channel 16, the alternative requested by the Sheriff's Department.

Specifically, the FCC proposes to:

1. Permit Channel 16 (482-488 MHz) to be used by the Sheriff's Department in Los Angeles County;

2. Permit portions of Channel 19 (503-506 MHz) and portions of Channel 15 (476-479 MHz) to be used by the Sheriff's Department within Los Angeles County;

3. Permit portions of Channel 19 (503-506 MHz), matched with portions of Channel 14 now licensed for Sheriff's Department use, to be used within Los Angeles County.

The Commission noted that the proposal to use frequencies from both Channel 19 and Channel 15 appears to offer the Sheriff's Department adequate communications capacity without precluding or adversely affecting any full service TV operation. The Commission also tentatively concluded that reallocation of Channel 16 is not desirable because it would require substantial modification of two pending applications for this Channel.

Reorganization Of Maritime Rules

The Commission proposed rewriting and reorganizing the maritime rules contained in Parts 81 and 83 to produce a new Part 80.

The changes would be primarily editorial, would not alter the substantive requirements applicable to the various maritime services (except in limited instances), and would preserve existing safety provisions.

The new Part 80 would reduce the maritime rules by approximately 40 percent by (1) eliminating duplicative sections, such as definitions and application procedures; (2) removing unnecessary language and rules, background material and recommended practices; and (3) reorganizing the rules and frequency tables to avoid repetition.

Substantive changes include eliminating the requirement that coast stations using telegraphy report the establishment of new transmitter dispatch points, and substituting type acceptance for type approval for certain radio equipment required on large ocean-going ships.

The Commission specifically asked for comments on its proposal to centralize the listing of frequencies regularly available for assignment in the maritime services along with any applicable conditions or limitations. The frequencies would be organized in major categories in accordance with the communications service for which they are used. For example, telegraphy, a major category, would be subdivided into tables of frequencies available for manual Morse telegraphy, narrowband direct-printing teletype, and facsimile communications.

Amateurs Authorized To Develop, Test And Operate Spread-Spectrum Systems

The Commission authorized spread-spectrum techniques in the Amateur Radio Service.

(In a spread-spectrum system, an information signal is combined with a much wider bandwidth noise-like signal to yield a transmitted signal which is both broad band and noise-like. At the receiver, a copy of the original noise-like signal is used to derive the information signal. Because the energy of the transmitted signal is dispersed in the spreading process, it is less likely to cause in-

terference in narrow-band receivers than a conventional signal of the same power. Spread-spectrum systems were originally developed for military applications where covertness and jam resistance were sought.)

The Commission's action will provide licensees in the Amateur Radio Service with the opportunity to experiment with, and take advantage of, this technology which has been, until now, almost entirely limited to costly military systems. Spread-spectrum transmissions have been implicitly prohibited by FCC rules without regard to potential benefits which include:

- Reduced power density resulting in reduced interference to narrow-band communications systems
- Significant improvements in communications under conditions with poor signal-to-interference ratio
- Improved communications performance in selective fading and multipath environment
- Multiple, nearly independent communication channels functioning simultaneously in the same spectrum.

The new rules will authorize Amateurs to develop, test, and operate low-cost spread spectrum systems in the Amateur bands above 420 MHz. The Commission said that by removing regulatory barriers to innovation, technical advances in radio technology can be stimulated. The effective date of the new rules will be 12 months after release of the text of the Report and Order. This delay is intended to encourage the Amateur community to develop voluntary interoperability standards as they have in packet radio. In the interim period, special temporary authorizations will be available to interested Amateurs.

The Commission said that while this proceeding dealt only with the use of spread-spectrum transmissions in the Amateur Radio Service, the experience gained, especially on the subject of compatibility between spread spectrum transmissions and conventional narrow band systems, along with the rules adopted today granting limited authorization for use of spread-spectrum systems in the Public Safety and Industrial, Scientific and Medical Service bands. (Gen. Docket 81-413), will be a stimulus to the general radio technology community.

Spread-Spectrum Systems

The FCC approved a limited authorization for the use of spread-spectrum systems in the Public Safety and Industrial, Scientific, and Medical (ISM) Services bands.

In a separate but related action, the FCC authorized Amateurs to develop, test, and operate spread-spectrum systems.

(Spread spectrum is a form of communications in which transmissions are spread over a much larger bandwidth than needed to transmit information by conventional means. Spread-spectrum systems have several advantages over other forms of communications in that they can provide short-range overlays on other emissions, they are resistant to inteference from other transmissions, and they have a low detectability.)

The Commission noted that authorization of spread-spectrum systems would be limited to law enforcement officers under Part 90 of the rules and as low-powered, limited-range devices under Part 15. The rules also would allow spread-spectrum operations in the 902-928, 2400-2483.5, and 5725-5875 MHz ISM bands. An earlier proposal in this proceeding to permit very low-power use of Part 15 devices on most frequencies above 70 MHz was deferred, without prejudice, for further study.

With spread spectrum, law enforcement agencies will be able to set up communications links to be used in physical surveillance, stakeouts, raids and other activities, without detection by criminal elements that may be monitoring the airwaves, the FCC pointed out. However, operations will be on a non-interference basis to the operations of other licensees who have been authorized the use of these frequencies under Part 90 sections. In addition, police use of the frequencies will be subject to approval of the Public Safety Radio Service frequency coordinator for the district in which the license and equipment are to be used; if non-police Public Safety frequencies are to be used, they must be coordinated with other services. Initially, only the frequency topping form of spread spectrum will be allowed, but the Commission will continue to consider the use of other forms.

With the exception of the 5850-5875 MHz band, which has been excluded from spread-spectrum use due to possible interference with the Fixed-Satellite Service, the Commission said these systems will be allowed to operate, with a maximum output power of 1 watt, within the ISM bands only on a non-interference basis to other authorized operations. Not only must they not interfere with other operations, but must accept any interference to their own operations.

All spread-spectrum devices permitted under Part 15 will have to be certified before they can be marketed, the FCC said.

Noting two interesting proposals made by the Hewlett-Packard Corp. dealing with carrier current data systems and 2 GHz wireless data terminals, the Commission indicated it would try to take further action on these in the near future.

Construction Requirement For Private Operational-Fixed Microwave Radio Service (OFS)

Section 94.51 of the Commission's Rules and Regulations requires that all stations licensed in the Private Operational-Fixed Microwave Radio Service (OFS), excluding stations licensed for the reaccommodation of systems displaced by the DBS service, must be placed in operation within twelve months of the date the station authorization was granted. (See also Section 94.187, which provides separate construction requirements for private Digital Termination System (DTS) stations.)

Section 94.51 also provides that when an OFS station is not placed in operation within the required period of time, the authorization shall be invalid and must be returned to the Commission for cancellation.

In the past, it has been the policy of the Private Radio Bureau to grant automatic one-year extensions of the construction period when a licensee, upon proper application, was granted authority to make either a substantial or minor amendment to its licensed station within twelve months of the date of issuance of the initial license. Notice is hereby given that this policy will no longer be followed. In the future, the Bureau will require that a station be placed in operation within twelve months of the grant date of the initial station license regardless of whether the licensee has been granted an amendment to its station authorization. Requests for exceptions to this policy will be considered on a case by case basis. Such requests must be accompanied by a detailed showing of need for the requested relief.

This change in policy will apply to all licensed stations for which modification applications are received after the release date of this public notice.

F2A Emission On Frequencies Between 29.5 And 29.7 MHz

The Commission proposed the use of F2A emission (telegraphy for aural reception) on Amateur frequencies between 29.5 and 29.7 MHz (10 meters).

The 29.5-29.7 MHz sub-band is used substantially by Amateurs for frequency modulated (FM) repeater operation. The Commission said the use of F2A emission in that sub-band would further the development of FM repeater technology.

Comments are invited on any adverse effects that might occur from this additional emission in the 10-meter repeater sub-band.

Spectrum Management Policy Report

The FCC's Office of Plans and Policy released a report entitled "Spectrum Management Policy in the United States: An Historical Account" by John O. Robinson. The report recounts the early history of spectrum management by federal regulations culminating in the Radio Act of 1927 which, with little change, became Title III of the Communications Act of 1934.

Using the land mobile radio services as a case study, the results of spectrum management by regulation are reviewed. It was found that long delay in arriving at management decisions, especially in the matter of spectrum allocation, has been a prominent feature of regulation. This delay has been due primarily to the inability of the regulatory process to acquire the necessary information on which to base decisions with the "public interest" as the sole criterion. This

delay has resulted in social costs in the form of foregone spectrum use.

The report concludes that the deficiencies cited are inherent in regulated spectrum management and that they will persist unless market forces are permitted to influence spectrum management decisions.

A limited number of copies of the Working Paper are available from the Office of Plans and Policy, Room 822, 1919 M Street, N.W., Washington, DC (202) 653-5940. The Working Paper is also available for purchase from International Transcription Service, Inc., FCC, 1919 M Street, N.W., Room 246, Washington, DC (202) 296-7322.

VEC Maintenance Of Amateur Question Pools Proposed

The Commission proposed that Volunteer-Examiner Coordinators (VECs) assume maintenance of Amateur operator examination question pools, a function currently performed by the FCC.

The FCC now maintains question pools for each of the four written Amateur operator examination elements (PR Bulletins 1035 A, B, C, and D). Under the proposal, VECs would maintain these question pools instead.

This action was proposed because it is unnecessary for the FCC to continue to maintain the question pools. VECs experience in coordinating Amateur operator examinations are more than capable of performing this task.

Other Associated actions also proposed included accelerating entry of volunteer examiners into the examination design process and clarifying rules regarding examination grading.

FCC Denies Request For Hearing On Deletion Of Channels

The Commission denied Black Electric Co.'s request for hearing, as well as its protest over the Private Radio Bureau's action deleting 15 of 20 channels assigned to Texas Two-Way, a Specialized Mobile Radio System (SMRS) base station operator.

Black receives service from Texas Two-Way's SMRS station WQA-505. In February 1983, the Bureau had deleted the channels because the system was not serving enough mobile units to warrant all 20 channels. Under Section 90.366 of the rules, Texas Two-Way's station was required to have at least 350 mobile units in operation by September 4, 1982, but by the following November it had only 129 units in operation. In response to Texas Two-Way's request for review, the Commission subsequently affirmed the Bureau's action, which was later upheld by an appellate court.

Protesting the FCC's affirmation of the Bureau's deletion, Black asked for a stay until all users of WQA-505 had a chance to be heard. It claimed the Bureau was modifying the licenses of all users by reducing the number of frequencies on which they could operate, and such action entitled the users to a hearing under Sections 303 and 316 of the Communications Act. Moreover, Black argued that the deletion of 15 channels would not be in the public interest because it would degrade service to all of Texas Two-Way's customers who, Texas Two-Way claimed, operate more than 1,400 mobile units.

The FCC disagreed with Black's interpretation of Sections 303 and 316 of the Act, stating that "our action did not constitute a modification of the licensees' rights under their licenses." It pointed out that Black's license remains unaltered and it is free to contract with other base station operators able to provide SMRS service in the area.

Because Texas Two-Way had failed to meet minimum loading requirements for WQA-505, the FCC said, its authorization for channels in excess of five cancelled automatically under Section 90.366. In addition, after being notified of the deletion of the 15 channels, Texas Two-Way apparently neglected to tell its customers of the reductions in the 20-channel service.

The FCC said while it would not pass judgment on Texas Two-Way's business practices, it could not allow it to create equities which it does not have under the rules.

Model "L" Amateur Satellite Operation

The FCC authorized temporary Amateur satellite operation by FCC-licensed Amateur Extra operators in the 1269.05-1269.85 MHz frequency band pending final action on that band in this proceeding. This enables these operators to engage in Mode "L" operation in conjunction with the Oscar 10 Amateur satellite.

Mode "L" operation uses a 1269.05-1269.85 MHz uplink and a 436.95-436.15 MHz downlink passband. Model L is activated on Oscar 10 on certain days of the week by the AMSAT-DL operator in the Federal Republic of Germany.

This action, in response to a Motion for Interim Operating Authority filed by the American Radio Relay League, is effective immediately.

New Experimental Stations

The Commission, by its Office of Science and Technology, Frequency Liaison Branch, took the following actions:

KO2XEK, Westinghouse Communication Services, Inc., Ann Arundel, Maryland. Experimental station to operate on the 1250-1350 MHz band to test and evaluate AN/TPS-63 Radar as required by U.S. Government contract.

KQ2XAL, Semcor, Inc., Middletown, Rhode Island. Experimental research station to send computer data by HF.

KQ2XBW, Martin Marietta Corporation, Within five (5) mile radius of Waterton, Colorado. Experimental station to operate on 2050.5; 2084.5; 2458.5; 2492.0 MHz for use as required by U.S. Government contract.

KQ2XBX, Wilcox Electric, Inc., Kansas City, Missouri. Experimental station to operate on 979 MHz for development of Distance Measuring Equipment.

KQ2XBZ, Eaton Corporation, Farmingdale, New York. Experimental station to operate on 1030 MHz for development of Air Traffic Control equipment.

KQ2XCA, Bendix Products Corporation, Towson, Maryland. Experimental station to operate on 1030 and 1090 MHz as required by U.S. Government contract.

KA2XAC, Radar Devices, Inc., San Leandro, California and mobile San Francisco Bay area and coastal waters. Station to operate on 9300-9500 and 2900-3100 MHz bands for development of marine radars to provide increased reliability, reduced costs, and improve interference to operator.

KA2XAD, Westinghouse Communication Services, Inc., Ann Arundel, Maryland. Station to operate on 1025, 1035, 1084, and 1096 MHz for production and development testing of IFF interrogator antenna.

KA2XAE, University Of Arizona, mobile 5 mile radius of Maricopa, Arizona. Station to operate on 154.45625 MHz to provide data via telemetry from multi points regarding weather and irrigational needs on state farm.

KA2XAF, Transwave Corporation, mobile 10 mile radius east of Vanderbilt, Pennsylvania. Station to operate on 154.45625 MHz to collect meterological agricultural data for use in better crop management.

KA2XAI, RCA Corporation, mobile 50 radius Moorestown, New Jersey. Station to operate on 123.175 and 123.2 MHz to provide communication between ground to air in order to give aircraft direction and instructions in connection with research project.

KA2XAJ, Georgia Tech Research Institute, Marietta, Georgia. Station to operate on various and discrete frequency bands between 500-95000 MHz for antenna test range.

KA2XAK, Marconi Electronics, Inc., Grand Canyon Nat'l Airport, Arizona. Station to operate on 2740, 2860, and 1030 MHz for demonstration and development of Approach Control radar.

KQ2XAK, Westinghouse Communication Services, Inc., Anne Arundel, Maryland. Station to operate on 2700-2820, 2830-2880, 2890-2900 MHz bands to test and evaluate ASR-9 radars.

KE2XPN, Gulf Oil Exploration & Production Co., No. Slope, Alaska and within 1 km. Station to collect data using Argos satellite system.

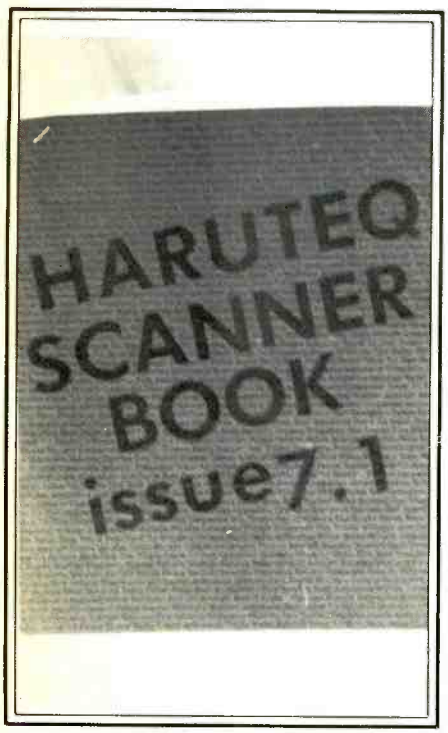
KE2XPP, Northern Colorado Water Conservancy District, 14 fixed locations in the State of Colorado. License on 401.7925 MHz for collection of data using the GOES satellite.

KE2XPQ, State Of Alaska, Kotzebue, Alaska. Station to operate on 401.7655 MHz to collect data using GOES Satellite.

BOOKS YOU'LL LIKE!

Ontario Scanner Directory

Scanner users in Ontario now have available a highly detailed directory of communications facilities in that area, including more than 4,500 listings of governmental departments, industrial radio, security firms, police, fire, tow trucks, ambulances, and more.



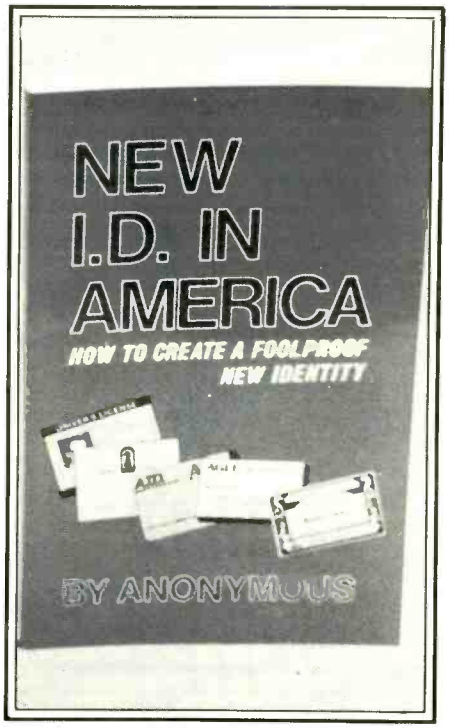
This new 110-page publication is called *Haruteq* and is in two parts. In part one, the listings are according to frequency. The second part has listings according to city.

This publication is available at $13.95 per copy from Haruteq, P.O. Box 9268, Stoney Creek, Ontario, Canada L8G 3X9. (A Quebec issue is presently under consideration but is not yet definite.)

Paper Tripping

There are any number of reasons people have sought to establish changed or secondary identities—for security purposes, for credit reasons, privacy, etc. To security professionals, this is commonly known as "taking a paper trip" and, if it's done correctly, it is a trip without a trail.

A new book entitled *New I.D. In America* is rapidly becoming a classic on identity change. It's all-new information on the latest



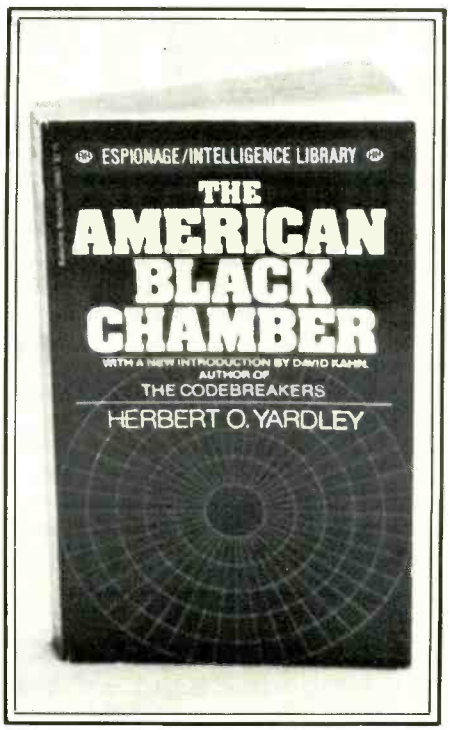
and most efficient methods, revealed by a professional "paper tripper." The author, a private investigator who wishes to remain anonymous, specializes in helping his clients "get lost"—permanently! On the other hand, he also specializes in locating persons who thought they'd never be found. Here are all of his most successful techniques for both aspects of his job.

He offers step-by-step details for creating a totally new person with a *bona fide* birth certificate, passport, driver's license, credit cards, Social Security number—everything needed to assume a totally different identity. Learn how persons can project any image they want and even prove they are who they say they are. Also find out how careless paper trippers can eventually get located by those who know the tricks of the trade, such as the author of this fascinating 120-page security manual.

New I.D. In America is available from CRB Research, P.O. Box 56, Commack, NY 11725. The price is $13.95 plus $1 postage to addresses in USA/Canada/APO/FPO.

Spy Stuff

In 1931, author Herbert O. Yardley produced a fascinating book entitled *The American Black Chamber*. It became a famous (although eventually suppressed) work on code-breaking. When the revealing book first appeared, it created a number of shock waves since it offered a highly detailed look at Uncle Sam's code-breaking activities as done in a mysterious room. From that "Black Chamber," from 1917 to 1929, our government decoded the supposedly secret communiques of virtually all of the nations of the world, friend and foe alike. Yardley, of course, was one of the brains behind this amazing operation and his story of American cloak-and-dagger operations is spellbinding.



Chapters include German Wireless Intercepts, Secret Inks, Japanese Secret Codes, and plenty of information on how to use secret codes (including number codes such as those often noted on today's shortwave frequencies). This new edition is enhanced with an excellent intro by David Kahn, author of *The Codebreakers*.

If you are into codes, numbers stations, and reading about espionage, this book is worth your time. *The American Black Chamber* is published by Ballantine Books (Catalog #29867) and sells for $2.75. Most bookstores will either have it in stock or can get it for you on special order. PC

RADAR REFLECTIONS

RADAR DETECTORS AND THEIR USE

BY JANICE LEE

Speedtrap Lawsuit Is Ruled Class Action Case

A federal judge has ruled a 3-year-old lawsuit brought by the American Civil Liberties Union over civil rights abuses in San Jacinto County, Texas, will be a class action case that could involve up to 1,000 people.

U.S. District Judge Norman Black recently approved an ACLU request to include in the suit all people arrested between August 1977 and August 1982 on U.S. 59 in San Jacinto County who were victims of sheriff's deputies, bondsmen, or wrecker drivers in an alleged highway trap.

"Potentially the class could reach 1,000 people, and that may be a conservative estimate," said Ruben Rendon, attorney for the plaintiffs.

Black said he may limit the class of plaintiffs as the suit gets closer to trial.

The alleged abuses included stopping cars without legal justification, illegal searches, improper arrests, denying suspects the right to contact attorneys, coercing defendants into pleading guilty and denying defendants the right to trial.

Most of the defendants in the suit, including former Sheriff James "Humpy" Parker, either pleaded guilty or were convicted in a jury trial of the highway trap scheme. Some defendants also were convicted of torturing prisoners.

Black ruled people who fit that description will be plaintiffs in the upcoming trial unless they formally drop out of the case. Lawyers for both sides said they would spend the next several months notifying people named in arrest records.

Defense attorney Ed McAnnich urged Black not to make the case a class action suit, claiming the group is so large some members may not be contacted and unwittingly would become parties to a suit with which they disagree.

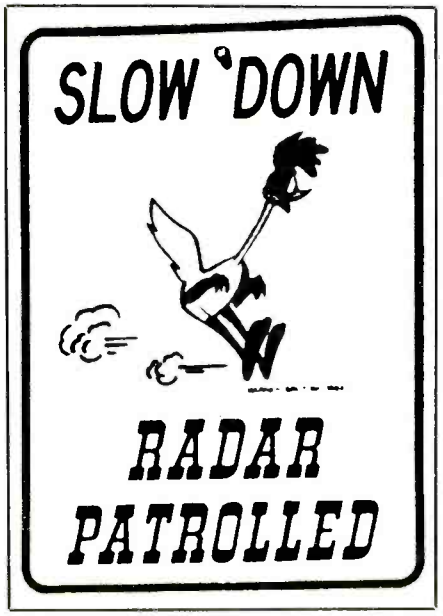
The suit accuses sheriff's officials and others of conspiring to enrich themselves and the county through a system of illegal arrests, bond payments, and fines.

Victims in a series of criminal cases testified deputies stopped them for no reason, broke headlights or taillights on cars to justify the stops, strip-searched them on the side of the road, and forced them to pay high bonds. Many of the victims never were notified of court appearances and their bonds were pocketed by the defendants.

Parker, several ex-deputies, and bondsmen James Browder and Herbert Atwood pleaded guilty in 1984 to participating in the scheme. Parker was sentenced to a five-year prison term to run concurrently with a 10-year sentence he received in 1983 for water-torturing prisoners.

San Jacinto County is about 70 miles northeast of Houston on U.S. 59, the main route driven from Shreveport, Louisiana to Houston, Texas. Parker's deputies often targeted cars with Louisiana license plates.

Meep, Meep



It took the Danville, CA police department a year to get permission from Warner Bros. to use the Roadrunner on the town's new radar warning signs. Now they're up, and their message is:
WILE E. COYOTE HAS RADAR

1981 Law Casts Shadow Over Validity Of Municipal Charters

Instead of sharpening the sometimes fuzzy line between the authority of state and local governments, a 1981 law inadvertently may have made every municipal charter in Connecticut illegal.

Some municipal attorneys fear that many actions taken by town governments in the past few years—referendums, town meetings, elections and appointments—may be invalid.

The reason is, at least in part, because a legislative study committee that recommended the law "ran out of steam."

"It may be nothing more innocuous than changing the speed limit on a street," said Donald W. Goodrich, vice president of the Connecticut Public Expenditure Council. "The general consensus is that this could be a very, very serious problem."

The law was supposed to spell out the jurisdictions of local and state governments. But, because of an oversight, the wording of the law may have imposed state statutes on the 105 municipalities that have local charters even though the law was intended to affect only the 64 that do not.

The state statutes spell out the functions of local government for towns without charters—including how many members shall be on specific boards, the length of terms, and the authority for hiring and appointments.

Some attorneys fear that all local charters that differ from the state's standards could be declared illegal because of the 1981 law.

That was not the intention of the 19-member committee that examined the issue for a year before recommending the law. But the committee dissolved before it was able to recommend a companion law that would have identified several areas of the state statutes that would not apply to local charters, Goodrich said.

"We ran out of steam," said Goodrich, a member of the study committee. "We wanted consistency (between local and state laws) in some areas, but we quit before identifying which areas those were."

Just how damaging the law could be is uncertain until it is tested in court, officials say. Some attorneys believe the law would only affect those towns that have revised their charters since 1981. Others believe that if recent referendums, local committee findings or town meeting decisions are challenged in court, they could be rejected.

A worst-case scenario might involve a local bonding referendum used to approve funding for a major construction project. Almost under their breath, some attorneys say the problem in the law could cause such a vote to be overturned.

"There are 125 Superior Court judges and you never know which way they're going to fall," said Ralph G. Elliot, a lawyer who participated in a Connecticut Bar Association review of the issue. Although Elliot said he believes the law does not supercede local charters, "It's a terrible law (and) I completely understand that interpretation."

Before the issue reaches a judge, however, municipal officials are trying to get the law corrected by the General Assembly. A bill has been proposed that would correct the problem.

ACLU Claims Court Decision "Invites" Police Abuse

The American Civil Liberties Union says a Supreme Court decision fine-tuning the Miranda rule is an "invitation" to police to avoid proper procedures while making an arrest.

The justices, voting 6-3, ruled recently that police deserve a second chance to advise a suspect of his rights and obtain a confession after bungling the first.

The decision overruled the Oregon Court of Appeals, which had thrown out the burglary conviction of Michael James Elstad on the grounds his confession was improperly introduced as evidence at his trial.

The 1966 Miranda decision requires officers to tell suspects of their right to be silent, to have an attorney, and to avoid self-incrimination.

The hight court said Elstad's second confession was legitimate, even though he did not know his first admission of guilt could not be used by police because they had failed to advise him of his rights.

ACLU spokesman Burt Neuborne said the court was "unwittingly" chiseling into the Miranda protection.

"What's particularly dangerous about the opinion is it creates an invitation to the police to extract—to get as much as they can—without giving a Miranda warning and they say, 'Very sorry, forgot to give you a Miranda warning.' "

"Having tricked you the first time, they give the Miranda warning and take the statement again," Neuborne said.

But William Summers of the International Association of Chiefs of Police said, "I don't believe it's going to have that effect."

The percentage of Miranda violations will continue to be miniscule, Summers said. "Miranda has been around long enough that everybody knows it."

State To Fight Federal Penalty For Exceeding 55 MPH Limit

Vermont officials will try to persuade federal officials later this month not to withhold $1.7 million in highway funds as penalty for having too many speeders on state roads.

State Transportation Agency officials were told that the Federal Highway Administration was planning to find Vermont out of compliance with a mandate that the national speed limit of 55 mph be enforced.

Based on electronic surveillance done last year, Vermont officials have determined that 51.8 percent of vehicles traveling on the interstate were speeding. That meant the state was exceeding the compliance rate of 50 percent demanded by the federal government and was risking the $1.7 million "fine" in forfeited federal highway funds.

Capt. Lane Marshall, state police field force commander, said he believed the state could convince the FHA not to penalize Vermont for the speeding problem.

"I don't think 51.8 percent (of speeders), based on our traffic volumes, is a significant number," he said. "I think we as a state, or at least we in the Department of Public Safety, want to comply with the 55 (mph) speed limit, but we're limited by resources and sources, we do the best we can."

The commander said the machines which determined that 51.8 percent of interstate motorists were driving too fast are too heartless, since they make no distinction between drivjng 56 mph and driving 80 mph.

From 1979 to 1983, the number of motorists cited in Vermont for speeding on the interstate roughly doubled. In 1979, there were 16,232 citations; in 1982—25,964; and in 1983—32,887.

Senator Leahy Raps Feds On Road Funding

Senator Patrick Leahy, D-Vt. has spoken out sharply against Washington for threatening to withhold Vermont highway funds to punish Vermonters for not observing the 55-mile-per-hour speed limit.

Leahy recently told reporters that federal funds would be much better spent dealing with the problem of drunken driving than with enforcing the speed limit.

"We can send our state troopers out every day to catch drivers going 1.8 mile over the speed limit, or we can tell them to pick up drunken drivers," he said. "But if you ask me, I'd rather have our state troopers doing that.

"If the federal government wants to spend its money on something, they should put it into drunken driving. That's where people are getting killed," he said.

Suit Over Faulty Radar May Soothe 1,700 "Speeders"

A Gibbstown, New Jersey man, issued a speeding ticket in Waterford in the spring of 1983, recently filed a complaint in U.S. District Court to clear his record.

He also wants his $70 fine and costs back. And, he wants the same thing for up to 1,700 other motorists.

Dennis Egan is basing his complaint on what last year became the widely publicized failure of the Waterford police department to calibrate its radar equipment.

The officer who had the responsibility of maintaining the equipment, Philip Mendel, has pleaded guilty to misconduct in connection with filing false reports to certify that he checked the equipment.

The attorneys who filed Egan's lawsuit, Philip Stephen Fuoco and Philip J. Iapalucci, have asked that it be expanded into a class action suit. It then would include all motorists who received speeding tickets while the equipment was not legally inspected and certified.

Iapalucci said he believes this could include 1,700 motorists.

When Mendel was indicted—on charges including perjury, false swearing, tampering with records, and fabrication of physical evidence as well as misconduct—the prosecutor's office asked that motorists convicted in Waterford municipal court on the basis of radar contact that office.

The unchecked radar equipment came to light last summer when one speeding conviction was reversed and 67 pending tickets were dismissed by Municipal Court Judge Angelo DiCamillo.

Mendel had testified routinely in municipal court hearings that he ran township police cars through a measured course every 30 or 40 days to check their speedometers.

The lawsuit also seeks compensatory, punitive, and exemplary damages from Mendel, state motor vehicle director Clifford W. Snedeker, and former Camden County treasurer Nicholas Rudi. **PC**

Janice Lee is the Editor of Monday, A.M., *the newsletter of Electrolert, Inc.*

SCANNER SCENE

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

Are Problems On The Horizon?

For years, we've consistently put up with *this* agency or *that* department switching over to scrambling to evade us "terrible" eavesdroppers. You know, we're all sitting around waiting for the big dope bust to go down so we can tip off the dopers, *right*?

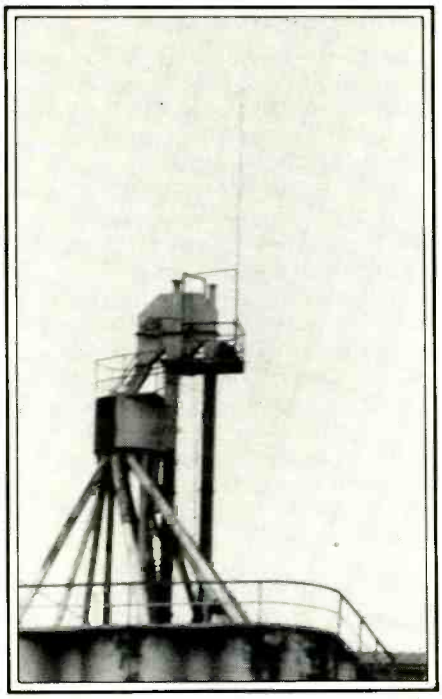
What do we do when our favorite department starts sounding like Donald Duck underwater? Either we tolerate the garble, cuss it out every time they switch over to "scramble," or we go out and buy an unscrambler to listen in on what's really hot.

A friend of mine did that one time. A suburban police department put some scramblers on its radios, but every time my friend turned on his unscrambler, it seemed the officers were calling in their sandwich orders for lunch rather than nailing nerds with narcotics. Thus, instead of calling it the Upper Podunk Police Department, my friend usually referred to this force as the Upper Podunk Deli for its fine placement of "top-secret" corned beef sandwiches.

Scrambling and unscrambling is no big deal; we scanner buffs have been doing it for years. Scrambling is effective in that the normal guy with a scanner doesn't realize an animal such as unscramblers exist and never bothers to seek one out. Only the diehards with all of their electronic gadgetry plunk down the bucks to decipher an occasional "warb la vir gur lep zilm," or however that might sound all scrambled up.

Then came along the invincible—Digital Voice Protection. DVP is an invention of the two-way radio market's main purveyor—Motorola, Inc. Upon its introduction to the market, DVP was touted as the ultimate; the only thing scanner listeners would hear would be "rushes" of sound. DVP was designed so that it could not be deciphered, and to date has remained that way. That's not to say that some smart cookie out there won't crack its case some day. In fact, at least a couple of times each year some fellow buff will ask me whether it's true: Someone in California (or Illinois or New York, etc.) has broken DVP and is expected to start selling "unscramblers." All I can say is it isn't so until you see ads in the back of *POP'COMM* for three-inch square gadget boxes called "DVPbusters." From a not so qualified point of view, I'd say don't count on seeing such a bird for some time to come.

Who finds it necessary to scramble their communications? Well, a quick check of the radio spectrum will find the FBI using both scrambling and DVP units, the Secret Service using DVP, county detectives using scrambling, and nuclear power plant security using scrambling. It's all in the name of tuning out our ears. Some agencies will use scrambling on a full-time basis, so as to effectively render their frequency "unlistenable," or at least undesirable to the human ears.



This photo, taken with a telephoto lens, shows a 151 MHz base station antenna on top of a grain elevator of a rural co-op. The business band radio system is used for dispatching fuel oil trucks making deliveries to homes. (Photo by Chuck Gysi, N2DUP)

In this day and age, we now see pay-TV services carried by satellite converting to scrambling to prevent unauthorized (and non-paying) viewers from tuning in to their broadcasts. What else could possibly go next? How about mobile telephones?

For years, scanner listeners have tuned in mobile telephone users on VHF low, VHF high, and the UHF bands. We all have a favorite conversation we overheard that we tell fellow listeners over and over again. But when cellular mobile telephones became available in the 870-890 MHz band, the companies offering cellular service touted the fact that cellular phone calls could not be intercepted by scanners, as conventional VHF and UHF mobile phones could be heard. And, for a while, it was true. There were no 800 MHz scanners on the mass market, and converters that were available still had some bugs to be worked out.

That's no longer the case. Regency's HX2000 hand-held and HX7000 mobile scanners are real; they're here and they tune the 800 MHz band. So does the new Yaesu. And the cellular telephone companies aren't the happiest. A recent headline in *USA Today* read: "Scanning snoops could hear your car phone call." In any event, Bell Atlantic Corp., which provides cellular mobile telephone service in Washington, Baltimore, Philadelphia, Pittsburgh and some smaller markets as well, is planning to test market a scrambling device for cellular phones that could help tune out 800 MHz eavesdroppers. Apparently one of the most interested customers for such a device is the federal government, which can be seen using a lot of cellular equipment, particularly in the Washington area. The federal government has its own VHF and UHF radio networks that can support its own mobile telephone calls over wide areas, but has come to rely on cellular service as well now, even though it isn't secure these days. Meanwhile, California is considering passing a law against owning an 800 MHz scanner!

Even business band communications can be secure and out of hearing range of scanner owners these days. While some businesses have taken it upon themselves to employ scramblers like some police departments, others have moved off crowded FM frequencies onto narrowband sideband channels. Called amplitude campandored sideband, or ACSB, this technique squeezes more channels into a given space, thus allowing more users. Because only 5-kHz spacing channels are needed, six channels can be fitted in where two 30-kHz spacing channels currently exist in the 151 MHz band. For instance, between the standard FM channels of 151.745 and 151.775, ACSB channels can exist on 151.7475, 151.7525, 151.7575, 151.7625, 151.7675, and 151.7725. So what's the catch? Why are we even mentioning ACSB? First of all, present standard FM scanners won't receive these transmissions (you'll hear stuff, but it will be unintelligible). Second of all, there are a lot of businesses using these frequencies, especially since repeaters can be used on the high-band channels. We'll discuss ACSB more in detail in the future, but for now we just want you to be aware that it exists and probably is in use in your area right now.

As long as there are scanners, there will probably always be scrambling, DVP, or whatever else they may call it in the future. There's always somebody with a secret and ciphering the message will keep the message

secret. While there always seems to be something new to keep many of us honest and sincere listeners from dropping in on a radio conversation, there always will be a way to decode a secure conversation. The technology or know-how may not exist yet, but true hobbyists eventually will unlock the secret for others eventually. This is, of course, unless they keep it a secret.

Who's Beeping?

Last year, there were more than 4.6 million pocket pagers in use in the United States. One firm predicts that by 1990 there will be a market for more than 12 million pagers. Better marketing and more advanced models will help contribute to the growth of pocket pagers over the next five years.

Signal In A Bird Dog

Expanded from a listing in Tom Kneitel's *Top Secret Registry*, the All Ohio Scanner Club sends the following list of radio code words commonly used by some federal agents:

Bird dog—Surveillance aircraft
Break off—End surveillance
Eyeball—Surveillance subject under agent's view
Half-signal—Field agent's spouse
The O—The office
Outside agency—The news media
Package—Suspect or item under surveillance
Plank—Bridge
In the pocket—Suspect in the surveillance net
Port—Motel or hotel
The R—Residence
Red-balled—Stopped at a traffic light
Red-boarded—Suspect and agent red-balled
Signal—Agent
Solo—Agent alone in the field
S.W.—Search warrant

Do you know of any common code words as well? If so, send them in to share with others.

Scanner Clubs

Kenneth J. Windyka of Gambrills, Maryland, writes in to suggest we publish a listing of local scanner clubs by area. He was particularly interested in whether there is a club in the Annapolis-Baltimore area. We would like to compile such a list for our readers. If you are a member of a local or regional scanner club, we'd like to hear from you. Send us the name of your club, what activities your club is involved with (newsletter, tours, etc.), the name and address of a member to contact for more information, annual dues, and number of members in your group. If you cover a specific regional area, also let us know. Even if you have only three members, there probably are many more people like yourself who would like to get together with other monitor hobbyists, but don't know who to contact. Send your information to the address at the end of this column. If you include us on your mailing list for club bulletins and newsletters, we'll help let others know of your activities.

Your Turn

We'd like to hear from you here at Scanner Scene. What types of things would you like to read about in this column? What unusual frequencies have you logged? What routine frequencies do you have that you'd like to share with others? We also need black-and-white photographs of your monitoring station to help others see how to set up a listening post. Have photos of two-way radio in use? Send them in, too. Write to: Chuck Gysi, N2DUP, Scanner Scene, Popular Communications, 76 North Broadway, Hicksville, NY 11801-2909. PC

ON THE LINE

BY GORDON WEST, WB6NOA

NEW AND EXCITING TELEPHONE TECHNOLOGY

The 49 MHz Phonies

One minute you're talking with your grandmother, and the next minute your cordless phone conversation is over-ridden by a kid babbling out every 4-letter word known to mankind. Miraculously, Granny doesn't quite hear what he's saying, and you immediately hang up the phone and call her back on the setup attached to the wall.

An isolated case of cordless phone interference from one of those talkman sets? Not at all—commonplace, more and more.

Part 15 Devices

The Federal Communications Commission has carved out a little niche in the 49 MHz band and labels these low-powered transmitting devices "Part 15" equipment. Some Part 15 transmitters operate on cordless telephone channels, and some cordless telephone channels are independent of other Part 15 devices. (We'll tell you which channels to avoid when purchasing a cordless telephone in just a few more paragraphs.)

The technical specifications for a Part 15 transmitter are fairly loose. The frequency tolerance must be kept reasonably close to within 0.01 percent of the operating frequency. This would allow a small transmitter to wander around by as much as 1/2 kHz.

The assigned frequencies would be the following:

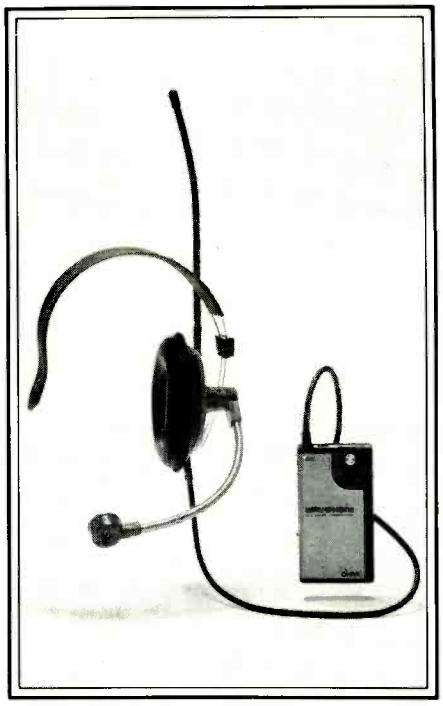
49.83 MHz
49.845 MHz
49.860 MHz
49.875 MHz
49.890 MHz

Any type of modulation may be used—voice, tone, digital, or pulse. Emissions shall be confined within a 20 kHz band centered on the carrier frequency.

Harmonics shall be attenuated to a reasonable level.

Now let's go for the most important rule—how much power can the small devices radiate? Instead of listing power output in watts as measured at the antenna terminal of these units (which would be very hard to do), the Federal Communications Commission specifies that the unit may not transmit more than 10,000 microvolts per meter measured at 3 meters. In other words, you would stand 9 feet away from this tiny device and adjust the power output transistor so that your laboratory field strength meter (about a $10,000 proposition) does not register more than 10,000 microvolts.

To save you the trouble of calculating microvolts per meter to estimated power input and output, 10,000 microvolts per meter at 3 meters is about the same as 1/10th of 1 watt input, which would give us just about 1/20th of a watt output into an antenna that is no longer than a yard.



The Walkphone 49 MHz transceiver.

So your next question is probably how far does 1/20th of a watt at 49 MHz go? Just about a block. No more under ideal conditions, and quite likely less in areas where there may be a lot of electrical interference or large steel masses to block the signal.

So what we have here are one block radiating devices that could include any of the following: cordless telephones, two-way 49 MHz communicators, toy walkie-talkies, garage door openers, toy robot controllers, toy car controllers, security alarm senders, wireless microphones, hidden transmitter "bugs," digital remote controls for TV and hi-fi's, or wireless intercoms.

I think you get my drift. Our cordless telephone channels are right in the middle of the 49 MHz low-power junk band.

To make matters worse, anyone with a programmable scanner can easily tune into your telephone calls on 49 MHz. Most 49 MHz/46 MHz cordless telephone sets duplex the audio so you hear both sides of the conversation on either the talk or the listen channel. Even though we have all heard the pitch for the new ten channels, by no means are these channels uncrowded or free from eavesdroppers. I can tune in with a regular scanner and an outside antenna phone calls as far as ten houses down the street. I hear both conversations loud and clear!

G.E.'s "Voice-1" entry into the 49 MHz market.

What channel should you avoid when purchasing a cordless telephone? Stay away from the new sets that may operate on Channel 2, 5, and 7. All other channels side-step the common Part 15 transmitters and you have some degree of assurance that your calls will be uninterrupted by your next door neighbor's garage door.

Some of the ways to cut down on outside interference would be to relocate your cordless telephone transponder more centrally to where you plan to talk over the portable phone. If you usually sit by the pool to gab, try relocating the cordless transponder near a telephone jack and AC wall outlet as close to the pool deck as possible. The further you get away from the cordless transponder, the less signal strength you'll have, and the greater the chance of outside interference.

Trying to modify your portable unit for more power or the base transponder for more power is usually ineffective. They squeeze just about as much power out of these tiny sets as possible for their transistorized circuitry—and while you may have heard that the FCC made certain manufacturers turn down their power outputs, there was almost no difference in the ultimate range.

If you're thinking of buying a remote-controlled Part 15 transmitter for a family member, look on the label and see where it transmits. If the label clearly indicates the same frequency as your cordless phone, look for a unit on a different channel. If no channel is identified, you may wish to look in the instruction manual for the specified frequency. If all else fails, you can read the transmitted frequency by an inexpensive frequency counter providing the Part 15 device is with-

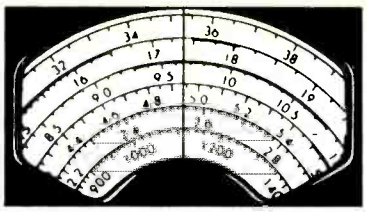
These 49 MHz units don't have to be licensed and are absolutely great for short-wave communications.

in one foot of your counter's antenna.

Manufacturers of cordless telephones are still vying for frequencies at 900 MHz. The Federal Communications Commission has not yet released the reserve pool of frequencies for general public use. The likelihood of getting cordless telephone channels at 900 MHz seems remote. It will probably take another two years of saturated cordless talk before the Commission sees fit for additional channels on a different band free from the toy walkie-talkies.

So until then, watch out what you say, and be prepared to hang up quick when you spot the kids walking down the street with those 49 MHz low-power hand-helds.

PC



COMMUNICATIONS CONFIDENTIAL

BY MIKE CHABAK

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

In the last CommCo column we examined America's efforts down on the ice. This month we'll briefly look at the radio activities of other nations, who, like the United States, are also conducting Antarctic research. Unlike the United States, some of the information pertaining to these stations is not readily available. This is primarily in the areas of current status and mailing addresses. As for frequencies, so as not to waste anyone's time and effort, those shown reflect the most active, and those actually heard in North America (unless otherwise stated).

United Kingdom

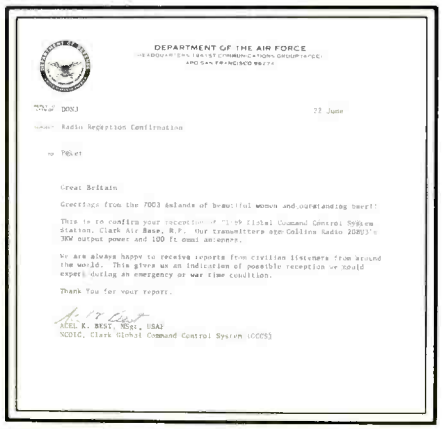
The British have a major presence in the Antarctic region, although the bulk of their stations are on periphery islands or the Antarctic peninsula. These stations operate under the authority of the "British Antarctic Survey," or BAS for short. The most active frequency is 9106 kHz USB voice. During our fall through spring season, BAS stations can be heard daily, roughly between 2300 through 0100 GMT. The frequency 11255 kHz is an alternate USB voice frequency. The frequency 12300 kHz is known to be an active RTTY frequency, using 50/850n mode. The current BAS stations are:

ZBH	Grytviken, South Georgia Islands
ZBH 22	Bird Island, South Georgia Islands
ZHF 33	Signy, South Orkney Islands
ZHF 44	Faraday (Antarctic peninsula)
ZHF 45	Rothera, Adelaide Island (Antarctic peninsula)
ZHF 88	Port Stanley, Falkland Islands
VSD	Halley (Antarctic proper)

It is best to mail reception reports via BAS headquarters in England. As with all Antarctic stations, be sure to include a prepared reply card or letter and return postage. Two IRCs will do. The mailing address is: (station name/call letters), c/o British Antarctic Survey, High Cross Madingley Road, Cambridge, CB3 OET, United Kingdom.

West Germany

The Federal Republic of Germany recently established an Antarctic proper station. Its name is: Georg-von-Neumayer, call letters DB-9020. So far the Neumayer station has been heard on 9106 kHz USB working BAS stations, and on 11552 kHz USB working USA stations. Monitoring time line would be in the 2200 through 0500 GMT period. No other frequency data is known at this time. The mailing address is: Georg-von-Neumeyer Station, c/o Alfred Wegener Institut Fur PolarForschung, Burgermeister—Smidt Strasse 20, D-2850 Bremerhaven—Mitle, Federal Republic of Germany.



DEPARTMENT OF THE AIR FORCE

Great Britain

Greetings from the 7003 Aolands of beautiful women and outstanding beer!!

This is to confirm your reception of "Clark Global Command Control System Station, Clark Air Base, R.P. Our transmitters are Collins Radio 208U3's 3KW output power and 100 ft. omni antennas.

We are always happy to receive reports from civilian listeners from around the world. This gives us an indication of possible reception we would expect during an emergency or war time condition.

Thank You for your report.

ACEL R. BEST, MSgt, USAF
NCOIC, Clark Global Command Control System (CCCS)

Peter, in Great Britain, received this very pleasant and friendly QSL letter from Clark AFB in the Philippines.

Australia

Australian stations operate under the auspices of ANARE, the Australian National Antarctic Research Expedition. All stations, except for MacQuarie Island, are on Antarctic proper. The stations are:

VJM	MacQuarie Island
VLV	Mawson
VLV3	Moore Pyramid
VLZ	Davis
VNJ	Casey
????	Mount Cresswell

They can be heard working each other or VNM Melbourne Australia. Primary USB voice frequency is 14415 kHz. Alternates are 6850 and 9940 kHz. RTTY—50/850n has been monitored on 7922.5, 9940, 12255, and 14415 kHz. Time line appears to be 0330 through 0630 GMT. Although not currently known, at one time there was a regular exchange between ANARE stations and Melbourne on Thursdays. Station to station activities are daily, but catch as catch can from a monitoring standpoint. Mailing addresses are: (station name/call letters), c/o Antarctic Division—ANARE, Department of Science, Channel Highway, Kingston, Tasmania 7150, Australia.

USSR

The Soviet Union has several stations. Those thought to be active include:

RULE	Vostok
RUZU	Molodezhnaya
UDY	Novolazarevskaya
UFE	Mirnyy
UGE2	Bellingshausen (Antarctic peninsula)
UMA4	Leningradskya

Soviet stations almost exclusively transmit in either CW or RTTY. In the few instances when they did use voice, it was in comms with U.S. stations on 11552 kHz.

As with all Antarctic comms, USSR stations will best be heard during the 2200 through 0600 GMT periods. Known active frequencies are:

9280-CW and RTTY (primarily 75/425r)
10100-CW
10140-CW/RTTY
10555-CW
12843-CW
13385-CW (the most active freq)
13715-RTTY

The chances of obtaining a QSL from Soviet Antarctic stations is nil. The USSR almost never verifies any of its radio transmissions, except for its shortwave broadcast outlets. Not even a correct address is known, but if you want to take the gamble, try: (station name), c/o Soviet Academy of Sciences, Antarctic Research, Moscow, USSR.

France

France has one Antarctic proper station, Dumont d' Urville (FJY-3), known to be active on 9268.2 and 14940.0 kHz with 50/425n RTTY. Periphery island, FJY-2, Port-aux-Francais, Kerguelen Island is known to use 10112 kHz 75/425r RTTY. Mail care of: Administration des Terres Australes Ant-

John Godber of Obrian, Oregon says that POP'COMM *has been a great help to him. Here's his listening post.*

List A: *Federated States of Micronesia.*

KUP66 Ponape (PS/FSM)
KUP67 Truk/Moen (TS/FSM)
KUP68 Koror (ROP)
KUP69 Yap (YS/FSM)
KUP70 Woleai Isl. (YS/FSM)
KUP76 Kosrae (KS/FSM)
KUP81 Lukunor Isl. (TS/FSM)
KUP82 Ulol Isl. (TS/FSM)
KUP83 Colonia, Yap (YS/FSM)
KUP88 Pingelap Isl. (PS/FSM)
KUP89 Kapingamarangi Isl. (PS/FSM)
KUP90 Kayangel (ROP)
KUP91 Ngerchol, Peleliu (ROP)
KUP92 Losap Isl. (TS/FSM)
KUP93 Puluwat Isl. (TS/FSM)
KUP94 Namwin Isl. (TS/FSM)
KUP96 Namoluk Isl. (TS/FSM)
KUP97 Satawan Isl. (TS/FSM)
KUP99 Angaur (ROP)
KUS80 Falalop, Ulithi (YS/FSM)
KUS87 Asor Isl. (YS/FSM)
KUS91 Mokil Isl. (PS/FSM)
KUS92 Ngaremlengui (ROP)
KUS93 Ulimang, Ngaraard (ROP)
KUS94 Garadmau, Ngardmau (ROP)
KUS95 Ogiwal Pt., Ngiwal (ROP)
KUS96 Melekeok (ROP)
KUS97 Ngarechelong (ROP)
KUS98 Ngchesar (ROP)
KUS99 Aimeliik (ROP)
KWQ21 Ollei, Ngarechelong (ROP)
KWQ22 Ruo Is. (TS/FSM)
KWQ24 Pulusuk Is. (TS/FSM)
KWQ25 Ngatik Isl. (PS/FSM)
KWQ26 Satawal Isl. (YS/FSM)
KWQ27 Ifalik Isl. (YS/FSM)
KWQ28 Lamotrek Isl. (YS/FSM)
KWQ40 Ngatpang (ROP)
KWQ41 Pisaris Isl. (TS/FSM)
KWQ42 Tobi Isl. (ROP)
KWQ43 Sonsorol Isl. (ROP)
KWQ44 Fais Isl. (YS/FSM)
KWQ45 Eauripik Isl. (YS/FSM)
KWQ46 Faraulep Isl. (YS/FSM)
KWQ47 Malakal, Koror (ROP)
KWQ48 Uman Isl. (TS/FSM)
KWQ49 Wenekiti Isl. (PS/FSM)
KWQ54 Nikalap Isl., Pakin (PS/FSM)
KWQ55 Elato Isl. (YS/FSM)
KWQ56 Sorol Isl. (YS/FSM)
KWQ57 Ngulu Isl. (YS/FSM)
KWQ58 Nama Isl. (TS/FSM)
KWQ59 Puloanna Isl. (ROP)
KWQ61 Airai (ROP)
KWQ62 Chol, Ngaraard (ROP)
KWQ77 Oroluk Is. (PS/FSM)

By Location:

Aimeliik	KUS99	Lukunor	KUP81	Pingelap	KUP88
Airai	KWQ61	Malakal	KWQ47	Pisaras	KWQ41
Angaur	KUP99	Melekeok	KUS96	Ponape	KUP66
Asor	KUS87	Mokil	KUS91	Puloanna	KWQ59
Chol	KWQ62	Nama	KWQ58	Pulusuk	KWQ23
Colonia, Yap	KUP83	Namoluk	KUP96	Puluwat	KUP93
Eauripik	KWQ45	Namwin	KUP94	Ruo	KWQ22
Elato	KWQ55	Ngarechelong	KUS97	Satawal	KWQ26
Fais	KWQ44	Ngaremlengui	KUS92	Satawan	KUP97
Falalop	KUS80	Ngatik	KWQ25	Sonsorol	KWQ43
Faraulep	KWQ46	Ngatpang	KWQ40	Sorol	KWQ56
Garadmau	KUS94	Ngchesar	KUS98	Tobi	KWQ42
Ifalik	KWQ27	Ngerchol	KUP91	Truk/Moen	KUP67
Kapingamarangi	KUP89	Ngulu	KWQ57	Ulimang	KUS93
Kayangel	KUP90	Nikalap	KWQ54	Ulul	KUP82
Koror	KUP68	Nukuoro	KWQ24	Uman	KWQ48
Kosrae	KUP76	Ogiwal Point	KUS95	Wenekiti	KWQ49
Lamotrek	KWQ28	Ollei	KWQ21	Woleai	KUP70
Losap	KUP92	Oroluk	KWQ77	Yap	KUP69

arctiques Francais, 27 Rue Oudinot, Paris, France.

If at all possible, submit report in French.

New Zealand

They have two stations, both near the US McMurdo facility. They are: Scott and Vanda. The most recent active frequency is 14655 kHz USB voice, with Scott using a ZLQ8 call. Vanda uses ZLEM. Although not heard in North America, you can check out: 5400, 5785, 7490, 9435, 10570, 10688, and 10760 kHz. Mail care of: New Zealand Antarctic Support Headquarters, Christchurch, New Zealand.

Other Involved Nations

The remainder of Antarctic stations are both vague as to their current status, radio activities, and mailing addresses. Briefly these include:

South Africa SANAE station (ZRP). Assigned frequencies include: 6780, 9843, 11145, 12442, 13560, 14445, and 14495 kHz. Unknown if voice, CW, or RTTY.

Japan Syowa station (JGX). As far as I know, Syowa has never been heard in

List B: *Republic of the Marshall Islands.*

KUP65 Majoro Isl.
KUP73 Ebeye Isl., Kwajalein Atoll
KUP75 Kwajalein Isl./Atoll
KUP79 Toka Isl., Ebon Atoll
KUP84 Inroj Isl., Jaluit Atoll
KUP85 Kili Isl./Atoll
KUP88 Jabor Isl., Jaluit Atoll
KUP95 Rongelap Isl./Atoll
KUP98 Ujelang Isl./Atoll
KUS81 Ebon Isl./Atoll
KUS82 Namorik Isl./Atoll
KUS83 Ailuk Isl./Atoll
KUS84 Wotje Isl./Atoll
KUS85 Mejit Isl./Atoll
KUS86 Likiep Isl./Atoll
KUS88 Kaven Isl.,Maloelap Atoll
KUS89 Namu Isl./Atoll
KUS90 Mili Isl./Atoll
KWQ29 Airik Isl., Maloelap Atoll
KWQ30 Airik Isl., Ailinglaplap Atoll
KWQ31 Lib Isl.
KWQ33 Tabal Isl., Aur Atoll
KWQ34 Lae Isl./Atoll
KWQ35 Aur Isl./Atoll
KWQ37 Wotho Isl./Atoll
KWQ38 Utirik Isl./Atoll
KWQ52 Enyu Isl./Bikini Atoll
KWQ60 Bikini Isl./Atoll
KWQ63 Arno Isl./Atoll
KWQ64 Ine Isl., Arno Atoll
KWQ65 Jabwot Isl.
KWQ66 Jeban Isl., Likiep Atoll
KWQ67 Jeh Isl., Ailinglaplap Atoll
KWQ68 Kilange Isl., Arno Atoll
KWQ69 Lauro School, Majuro
KWQ70 Mae Isl., Namu Atoll
KWQ71 Majkin Isl., Namu Atoll
KWQ72 Jaluit Isl./Atoll
KWQ74 Wormej Isl./Ailinglaplap Atoll
KWQ76 Rairok, Majuro
KWQ78 Arabwe/Biggerann Isl., Kwajelein Atoll
KWQ79 Japtan Isl., Enewetok Atoll

By Location:

Ailuk	KUS83	Japtan	KWQ79	Mili	KUS90
Airik, Ailingl.	KWQ30	Jeban	KWQ66	Namorik	KUS82
Airik, Maloelap	KWQ29	Jeh	KWQ67	Namu	KUS89
Arabwe/Biggerann	KWQ78	Kaven	KUS88	Rairok	KWQ76
Arno	KWQ73	Kilange	KWQ68	Rongelap	KUP95
Aur	KWQ35	Kili	KUP85	Tabal	KWQ33
Bikini	KWQ60	Kwajalein	KUP75	Tjan	KWQ73
Ebeye	KUP73	Lae	KWQ34	Toka	KUP79
Ebon	KUS81	Laura School	KWQ69	Ujae	KWQ39
Enyu	KWQ52	Lib	KWQ31	Ujelang	KUP98
Imroj	KUP84	Likiep	KUS86	Utirik	KWQ38
Ine	KWQ64	Mae	KWQ70	Wormej	KWQ74
Jabor	KUP88	Majlin	KWQ71	Wotho	KWQ37
Jabwot	KWQ65	Majoro	KUP65	Wotja	KWQ75
Jaluit	KWQ72	Mejit	KUS85	Wotje	KUS84

North America. Some of its assigned frequencies are: 5947, 7771, 11523, 11565, 14450, and 14570 kHz. Mode, if Syowa is still active, is probably CW or RTTY.

Belgium Roi Baudouin station (ORU prefix). Frequencies: 7750, 9272, 10649, and 12152 kHz.

Poland Arctowski and Dobrowolski stations. No other data available.

Argentina Before the Falkland Islands war, LOK Orcadas on South Orkney Islands was the only Argentine Antarctic station heard in North America. It is doubtful if the British would allow Orcadas to resume operations, since it, like all the other stations, was under the command of the Argentine navy. Almost all of the Argentine stations are/were on the Antarctic peninsula. They include:

Alferez Sobral
Almirante Brown
Decepcion
Esperanza
General Belgrano

General San Martin
Orcadas
Petrel
Teniente Matienzo
Vicecomodoro Marambio

Frequencies used by LOK (and presumably by the others) include: 6464, 9983, and 11147 kHz CW mode.

Chile Nothing is known except for the station names. In all probability they are under the control of the Chilean navy. They are: Captain Arturo Prat, General Bernardo O'Higgins, Presidente Frei Montalva.

For those of you who are interested in logging or QSLing Antarctic stations, 8997 kHz USB is the best spot for U.S. air/ground activity. As many of the Antarctic stations do work one another, between 2200 through 0600 GMT (primarily from October through February), it would be wise to check out 9106, 11552, and 14415 kHz.

The big question mark will be this season's reception conditions here in North America. They should be better than last season, but remember that these are utility communications and will be catch as catch can. So if you

Masahiro Nada, JH3IIU, of Kobe Hyogto, Japan, sent us this photo of his monitoring station.

don't hear anything one day, try again. All that will be required is a combination of fair propagation conditions and station activity for you to connect.

Trust Territory Pacific Comms

The U.S. Dept. of the Interior is the agency responsible for administrating the U.S. Trust Territories of the Pacific Islands. These include: the Marshalls, Carolines, and Mariana Island groups. Principally during the winter months, a wide ranging variety of stations located on islands and atolls can be easily heard in North America; easy, that is, for the western U.S., but to one degree or another, even on the eastern seaboard, too.

The communications net operates primarily on 5205 kHz USB voice, and normally from 0500 GMT until local dawn, a host of stations can be monitored. Alternate frequencies to watch are 3990, 5470, and 7876.5 kHz USB.

This is a multi-purpose network that passes weather data, radiotelephone phone patches, ship/shore, and air/ground comms.

Extensive monitoring of 5205 kHz reveals several things; the most obvious is that the R/Os know one another. Because of this, comm procedures are what can be described as informal. This is most apparent in their radio callups. For you novices to the utilities, normal callup procedures are that the station being hailed is mentioned first, followed by the ident of the station attempting to establish comms. An example of this is: "Station XYZ this is Station ABC." It can also be shortened to "XYZ, ABC."

Using KUP 66 Ponape and KWQ 42 Tobi as examples, we'll run through their range of callup possibilities.

"KWQ 42 Tobi this is KUP 66 Ponape" . . . "Tobi, Ponape" . . . "42 Tobi, 66 Ponape" . . . "42, 66." The phrase "this is" may or may not be included in the callup.

Primarily stations only work other stations within the same island chain. Hence if you heard Ponape, it's all but certain that the other station will be in the Caroline group.

Understand these aspects and you'll have an easier time of it when you tune them in. The reason for this is twofold. First, over 50% of all two-way comms is conducted in the local dialect. Often only the callup will be understandable. Second, some of the island station names defy pronunciation. If you're a World War II history buff, then many of the names are familiar. Yap, Truk, Kwajalein, and Saipan are such examples. Others are not. Som elike KUS 97 Ngarechelong are mind benders. Even a relatively simple one such as KUP 76 Kosrae can be deceptive. How would you pronounce it? Phonetically it is "Co-sigh." On the other hand, KUP 89 Kapingamarangi is spelled almost as it sounds: "CA-pinga, Ma-ranga."

Although we know these island groups by their long time names, each has an official title. The Carolines are the "Federated States of Micronesia." These include the "states" of Truk, Yap, Ponape, and Kosrae. Palau is by itself as the Republic of Palau. The Marshalls are the "Republic of the Marshall Islands." The Marianas, not including the island of Guam, are the "Commonwealth of the Northern Mariana Islands."

All stations use one of three basic call letter prefixes: KUP, KWQ, or KUS. Each is assigned two numbers, and fortunately for us, the same numbers are not assigned to each call letter prefix. So if you heard "66" calling "24," by checking the lists you'll be able to ID them. The lists are presented in dual modes, and by individual island chains. First by call letters and name, then by name and call letters. In this way you'll have a better chance of quickly IDing the stations via this cross reference.

In the list for the Federated States of Micronesia (Caroline Islands), the following items are in parentheses. These denote island stations belonging to a particular state (one reason for this is for QSLing purposes).

(PS/FSM)	Ponape State
(TS/FSM)	Truk State
(YS-FSM)	Yap State
(KS-FSM)	Kosrae State
(ROP)	Republic of Palau

QSLing

Very little has been done with QSLing. As all locations are under U.S. administration, you need only use the standard U.S. First Class postage to send your report, and a First Class or postcard stamp to cover return mail. As no station is known to have an official QSL card, be sure to include a prepared care or letter form. Your best bet is to mail "care of" a centralized address, per island group.

For ALL Federated States of Micronesia stations: (station name/call letters), c/o Federated States of Micronesia, Telecommunications Corporation, (now add in the appropriate State—Pohnpei State, FSM 96941; Yap State, FSM 96943; Truk State, FSM 96942; Kosrae State, FSM 96944). You will note how Ponape is spelled.

For Palau stations: (station name/call letters), c/o Palau National Communications Corporation, Koror, Republic of Palau 96940.

For the Marshalls: (station name/call letters), c/o Director of Communications, Republic of the Marshall Islands, Majuro, Marshall Islands 96960.

For Mariana Islands: (station name/call letters), c/o HF Radio Communications, Trust Territory Headquarters, Capital Hill, Saipan, Commonwealth of the Northern Mariana Islands 96950.

For Guam: (station name/call letters), c/o Dept. of the Interior Radio Station, Guam 96910.

KUP 66 Ponape will be the best and most often heard station on 5205 kHz, for Ponape is the national capital of the FSM, and therefore the overall net control station. Those facilities with a "KUP" prefix are the primary stations and have greater output power than the KUS or KWQ types; so there will be obvious QSA differences in the comms.

Comm activity follows the utility pattern. You may hear nothing for a time, then seemingly a whole group of stations will decide to transmit at the same period. Because of the somewhat informal nature of this net, it will take time and effort for you to properly ID the stations. Although Ponape and others can be heard year round, winter time will offer the best monitoring wise conditions. So here is an opportunity to log/QSL locations that, in most instances, cannot be done so in any other manner.

Continental Airlines—Pacific

Another interesting network to check out involves the comms of Continental Airlines in the same Trust Territory locations. These stations are non-government types, located at the major island airports. Comms deal with flight reservations and freight operations conducted by Continental, its subsidiary airlines, and those doing business with Continental.

The stations ID by location and include:

Honolulu (Hawaii)
Agana (Guam)
Saipan (Mariana Islands)
Rota (Mariana Islands)
Koror (Palau, Caroline Islands)
Majuro (Marshall Islands)
Kwajelein (Marshall Islands)
Truk (Caroline Islands)
Ponape (Caroline Islands)
Yap (Caroline Islands)

The primary frequency is 11401 kHz USB voice. The best time to monitor is roughly 0000 through 0500 GMT. Alternate frequencies include: 3990, 7935, and 13812 kHz. Often the voice IDs, in addition to location name, will include words such as Operations, Flight Reservations, Dispatcher, and so on.

List C: *Commonwealth of the Northern Mariana Islands*

KUP71 Kagman Pt., Saipan
KUP72 Rota Isl.
KUP74 Saipan/Capital Hill
KUP78 Saipan Int'l. Airport
KUP87 Tinian Isl.
KWQ20 Pagan Isl.
KWQ32 Agrihan Isl.
KWQ53 Alamagan Isl.

By Location:

Ahrihan	KWQ32
Alamagan	KWQ53
Kagman Pt.*	KUP71*
Pagan	KWQ20
Rota	KUP72
Saipan/Cap. Hill	KUP74
Saipan Int'l.	KUP78
Tinian	KUP87

*KUP71 is the major relay and control station for the entire Trust Terr. Pacific Islands.

GUAM

KUP77 Agana
KUP86 Finegayn

By Location:

Agana	KUP77
Finegayn	KUP86

The QSLing policy is unknown, as is any formal address. It may be difficult to QSL any of the stations, since this is a company business activity. If you do want to QSL, try this basic address (Saipan as an example): Continental Airlines HF Communications, Saipan International Airport, Saipan, Commonwealth of the Northern Mariana Islands 96950.

Same postage rates apply here as with the Trust Territory stations. Be sure to include a prepared form and return postage.

If anyone is successful in QSLing this net, I'd appreciate full details, so I can pass on that information.

Northwest Pacific Loran

The U.S. Coast Guard maintains a Loran-C navigation network in the northwest Pacific. Their activities were covered in the March '84 issue of *POP'COMM*, so here is a recap of them.

To assist the Loran-C operations, the USCG has a voice net of frequencies, with Yokota Monitor as its net controller. When the precise Loran-C pulsations are to specifications, little voice traffic will be encountered. In fact, long periods of time could go by with only occasional radio or SELCALL checks. Under these conditions, an increase in radio activity will occur when Yokota Monitor switches frequencies, requiring all stations to acknowledge. But when a glitch develops, comm activities will become much more profuse.

Yokota transmits on all three frequencies (primary, secondary, and backup), but the other net stations only transmit on the primary. So if you hear Yokota but not the reply from the other station, you're not on the primary frequency. If you do latch onto comms, Yokota often announces the active frequencies (often just by a MegaHertz designation, such as 9 MHz), so once heard, you can adjust accordingly.

Usually the NW Pacific Loran net can be heard from 0500 GMT through local dawn, on the below listed frequencies.

By 0800/0900 GMT, 3786.1 kHz USB is most often the primary frequency. For this reason, winter is the best season to monitor this net. The frequency 3786.1 is in the 75 meter ham band, and one may have to fight off LSB mode ARO QRM. The exact freqs utilized depend on many factors, which include time of day, season and propagation conditions, QRM and so on. Below is a roster of voice freqs that can be active during this period:

2660	5315.5	9223.6
3786.1	7836.6	10523.6
4550.1	7918.5	11606.0
5063.6	8063.6	13608.6

Around local sunset up to 0500 GMT, you could check out: 19297.1, 17488.6, 15922.0, or 15875.0 kHz for similar voice activity.

For you RTTY buffs, slightly below or above most of these listed frequencies (depends on the frequency), you may encounter TTY from this net. They run either 75/170 or 75/850.

The Northwest Pacific Loran stations are exotic in their locations. They are:

NRT Yokota Monitor (Japan)
NRT2 Gesashi Loran (Okinawa, Japan)
NRT3 Iwo Jima Loran (Volcano Islands, Japan)
NRT9 Hokkaido Loran (Japan)
NRV6 Marcus Loran (Marcus Island, Japan)
NRV7 Yap Loran (Yap, Caroline Islands)
NRV USCG Guam . . . not a Loran facility, but often found working this net.

In addition, there are two USAF Loran-C stations in South Korea that interface with this net. They are Hampyong and Pohang Loran.

All stations are good verifiers, providing you include a prepared reply card/letter and return postage. Since all can be reached via FPO or APO, just the standard U.S. postage is required.

Addresses are as follows: USCG LORMONSTA Yokota, APO San Francisco, CA 96328; USCG Loran-C Station NRT3, FPO Seattle, WA 98781; USCG Loran-C Station NRV6, FPO Seattle, WA 98782; Hampyong Loran, OL-E 2146 Comm Gp, APO San Francisco, CA 96324; Pohang Loran, OL-F 2146 Comm Gp, APO San Francisco, CA 96218; USCG Loran-C Station NRT2, Box CG, FPO Seattle, WA 98770; USCG Loran-C Station NRT9, FPO Seattle, WA 98763; USCG Loran-C Station NRV7, Yap- Caroline Islands, Federated States of Micronesia 96943.

Utility Station Mailing Addresses

Several columns ago I asked for mailing address inputs from the readers. George Zeller, Mike Hardester, and Julian Harris responded with a nice assortment. Those of you who do have mailing addresses that successfully enabled you to obtain verifications, I'd appreciate you sending them in so they can be shared with your fellow utility buffs. Whatever is sent in, I will publish in the space permitting. Any left over will be held for following issues.

The following are not presented in any type of order. If any explanations are required, they will be made in parentheses.

Mauritius Radio—3BM3
Telecommunications Department
Edith Cavell Street
Port Louis, Mauritius

Marine Station 6YI
Jamaica International Telecom, Ltd
P.O. Box 138
15 North Street
Kingston, Jamaica

Singapore Maritime Radio—9VG
Telecommunications Headquarters
Telephone House
15/33 Hill Street
Singapore 6,
Republic of Singapore

Time Station BPM
Shaanxi Astronomical Observatory
C S A O
P.O. Box 18
Lintong, Shaanxi,
Peoples Republic of China

Telecommunicaciones Navales—CCV
Instituto Hidrografico de la Armada
Armada de Chile
Comandancia en Jefe
Valparaiso, Chile

Empresa Publica de Telecom—EPTEL
Estacao Costeira Luanda Radio—D3E51/61
C.P. 625
Luanda
Republica Popular de Angola

North Post Radio—9YL
Trinidad & Tobago External
Telecommunications Company, Ltd.
P.O. Box 3
Port of Spain, Trinidad

Marine Station 5BA
Cyprus Telecommunications Authority
121 Prodromos Street
P.O. Box 4929
Nicosia 116, Cyprus

Horta Naval Radio—CTH
9900—Horta, Azores

RCA Global Communications, Inc.
KPH Point Reyes Station
17400 Sir Francis Drake Blvd.
Point Reyes Station, California 94956

Marine Nationale—FUV
c/o Sylvain Affinito (J28DQ)
Office Des Postes et Telecommunications
Djibouti, Republic of Djibouti

Marine La Reunion Radio—FUX
St. Denis, Reunion Island

Teleregion 1
Lynby Radio—Drift
Bagsvaerd Mollevej 3
2800 Lynby, Denmark

Marine Nationale—FUJ
Le Capitaine de Port Corvette
Officer Des Telecommunications en
Nouvelle Caledonie
B.P. 38
Noumea, New Caledonia

(good for all Choshi Radio stations)
Choshi Radio
7756 Kobatake—Shinmachi
Choshi City, Chiba 288
Japan

Marine Radio Station VCS
Ketch Harbour
Halifax County, N.S. BØJ 1XØ
Canada

Radiografica Costarricense—TIM
Apartado 54
1000 San Jose
Costa Rica

(for all Indonesian marine coastal)
(station name/call letters)
Departemen Perhubungan
Direktorat Jenderal Perhubungan Laut
Medan Merdeka Timur #3
Jakarta, Indonesia

Marine Radio Station KFS
ITT World Communications Inc.
2601 East Bayshore
Palo Alto, California 94303

(for LPL and LPD stations)
General Pacheco Radio
Encotel Argentina
Lomas de Zamora #252
1876 Don Bosco
Republic of Argentina

Estacao Costeira de Rio—PPR
Empresa Brasileira de Telecomunicacoes
(*) Avenida Presidente Vargas, 1.012
Rio de Janeiro, Brazil
(*) if you have any problems with above,
substitute this:)
Estrada de Matriz 2960

Paramaribo Coastal Station—PZN
Lands Telegraaf en Telefoonbedrijf
P.O. Box 1839
Paramaribo, Suriname

RCA Chatham Radio—WCC
P.O. Box 397
North Chatham, Massachusetts 02650

Karl A. Holt, Delhi, New York listens from this well-arranged station. How about sending us a photo of your station?

Marine Radio Station—WLO
Mobile Marine Radio, Inc.
7700 Rinla Avenue
Mobile, Alabama 36619-1199

Marine Radio Station WOE
Lantana Marine Radio
RR 2, Box 133
Lake Worth, Florida 33460

Tampa Marine Radio—WPD
1330 McKay Street
Tampa, Florida 33602

Centre Radiomaritime de Noumea—FJP
Office des Postes et Telecommunications
14 Rue Edouard Glasser
Noumea, New Caledonia

Marine Nationale—FUM
Chef des Stations
Marine Nationale Service a la Mer
Papeete, Tahiti
French Polynesia

Time Station HD210A
Instituto Oceanografico de la Armada
P.O. Box 5940
Guayaquil, Ecuador

Intercepts

236: "GNI" beacon, with voice transmission of weather for Louisiana. (Daryl E. Duckworth, Loveland, CO)

404: YSL beacon, St. Leonard NB, Canada, no time given. (Jeff Hollis, Martinsburg, WV)
2598: Canadian Coast Guard in USB at 0330 with weather for Halifax and Newfoundland. (Tom Lewandowski, KNY2NI, Staten Island, NY)
3110: ALPHA WHISKEY to various stations at 0005 in USB. Strong UK accent. One message was, "Track unknown, 5143 Green." Other stations in network included YØC, T3S, A9C, L5A, D8I, 8UY, WØM, ØGV. (L. Street, Hudson, MA)
3170: OLB5, Czech, time signal station. Pulses every second at 0002 with AM voice announcement. A good but slow QSL'er. (George Osier, Norfolk, NY)
3380: WGY908, FEMA station in CW with 5-letter groups at 0158. (Duckworth, CO)
4525: Y3S, Nauen GDR, with time signals at 2357. (Osier, NY)
4607: 78KLP calling 72HVY and sending CW marker at 0156. Sounds like Spanish naval, similar to 72JKL. (Ken Eichman, Gahanna, OH)
4746: Y5G in USB at 0945 reporting radar spottings such as "Friendly 1017." ("Peter," Great Britain)
4780: WGY912, FEMA station weak at 0903. (Duckworth, CO) Also noted in CW at 0915 with cipher groups. (Matt Blaze, WB2SRI, New York, NY)
5290: C5Y to G8C in USB at 1430. Military stations mentioned motor pool and spoke about making "sure you have your gray box." (Lewandowski, NY)
5375: Oilrigs near Scotland in USB, no time given. (Teun Feldman, Utrecht, Netherlands)
6100: YVTO, Caracas, Venezuel , ime signals at 0700. (Jerry Simon, Far Rockaway, NY)
7919: COTTON, sending coded message to PALACE, USB at 1100. ("Peter," Great Britain)
8921: This is an active Lufthansa working channel (USB). (Feldman, Netherlands)
8933: Listen here for "Springbok" (South African) airliners, USB. (Feldman, Netherlands)
8967: Coded message for APPLE FLAVOR in USB at 1740. (Peter, Great Britain)
8972: ALPHA JULIET to 7 PAPA QUEBEC with USB radio check at 1800 then into scrambled. (Jake Rosen, Baltimore, MD)
10563: FTK56, Agence France Presse, Paris, France, news in French via CW at 1940. (Raymond K. Rocker, KA5KWX, Poplarville, MS)
11200: Drayton, England, weather information for Europe in SSB at 1928. ("El Lobo," PA)
12763: DAM, German Hydrographic Institute, Elmshorn, with time signals from 2355 to 0006. (Osier, NY)
11448: KNY37, GDR Embassy, Washington, DC, with CW marker at 1409 and again at 1739. At 1802 H6A21 appeared here with a CW marker and then made contact with Y7L36. H6A21 not shown in any listings, perhaps it's the GDR Embassy in Managua. (K. Eichman, OH)
12856: XSG, Shanghai Radio, PRC, with CW marker at 2018. Very weak signal. (Eichman, OH)
12865: XSW, Kaohsuing, Taiwan, CW marker at 2017. (Eichman, OH)
13008: JOR, Nagasaki, Japan, CW marker at 0058. (Eichman, OH)
13012: AQP, Karachi Naval Radio, Pakistan, CW marker at 0058. (Eichman, OH)
13248: NATO military ops network, USB at 1940. (Blaze, NY)
14686: ATLAS working PANTHER (Bimini), 04 Alpha, JAGUAR 200 (Panama?), and others in anti-smuggler operations. This was called frequency "papa." (Newell, FL)
16049.9: RCE54, Moscow, USSR with English voice marker in USB at 1642. (Al Quaglieri, N2DQV, Albany, NY)
18666: ATLAS, FLINT 354, SUNDANCE 800, JAGUAR 100, and other anti-smuggler stations. Frequency code name "Hotel." (Newell, FL)
20873: XQ8API, Cerro Tololo Observatory, Chile, working KFK92 (Kitt Peak, AZ or Washington, DC) in USB also ASCII (850/110) at 2120. (Brad D. Clark, NP4AI, Phoenix, AZ)

Send all of your SSB/CW/AM utility station loggings to Don Schimmel, Intercepts Dept., Popular Communications, 76 North Broadway, Hicksville, NY 11801. Arrange listings according to frequency and include callsign or ID, location, time (in GMT), transmission mode, and information on transmissions monitored.

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BETTER SIGNALS

ANTENNAS AND SIGNAL IMPROVING ACCESSORIES

BY ED NOLL, W3FQJ

Sleeping Sunspot Special

Get the most signal current to your receiver input for easier ID's and more enjoyable listening! It's not always easy during the low solar flux years, but a little planning and something better than a random hunk of wire may help you deal with some of the frustrations of SWLing during the bottom years.

At this time much of the consistent DX is to be found on the 31, 41, and 49 meter bands. The 19 and 25 meter bands cannot be neglected for those times when they are alive. An antenna that performs well on 31, 41, and 49 should be a primary objective. A bonus would be good pick-up on 19 and 25.

Adequate antenna length is a factor if there is to be good sensitivity on the lowest frequency band (49 meters) for good nighttime reception. Often an inverted-V style of antenna is preferred when you wish to avoid long spans of wire and/or have a modest-size erection site. Inverted-V's and slopers are good performers and are also attractive because they require but a single mast.

Dipole Adaption

The dipole, straight or inverted, is a fine SWB receiving antenna. It has a limitation in the fact that it performs best for the band to which it is cut, however, one can work around this condition and come up with an antenna that is considerably better than the routine and inconsistent end-fed piece of wire of some random length. This guess stretch of wire, too, is acceptable on some bands and woefully poor on others as a function of its length.

A dipole cut for operation on the 49 meter band does not do as well on 31 and vice versa. The frequency separation between the 31 and 49 meter bands is too great. An alternative plan is to cut dipoles for both bands and connect them to a single transmission line as shown in Figure 1. Optimum performance for both dipoles requires that they be mounted at right angles. Angular separation between dipole wires is 90°. As the separation becomes less than 90° there is interaction between the two dipoles cut for 31 and 49 meters that becomes more pronounced as the two dipoles are mounted in nearly the same plane. Try to maintain an angular separation of at least 60°.

Inverted Dipole Construction

Cross-dipoles can be supported on a single mast as shown in Figure 2. Any type of a mast can be used. The arrangement of Fig. 2 shows how two telescoping lengths of PVC piping can be used to assemble a low-cost and easy-to-erect support. Three holes are drilled through the piping at the very top. Two of these are used for a pair of bolt/nut terminals. The coaxial line is fed through the third hole and the inner conductor and braid are fastened to the two terminals using solder rings. A cap can then be purchased for the PVC piping and placed over the top to provide weather protection for the coaxial line dressed ends and PVC terminals. If you prefer, sealant tape can be used to close off the top. Solder rings are attached to the an-

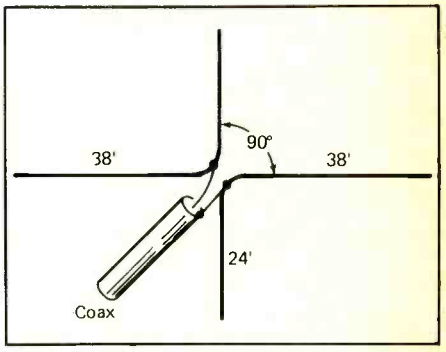
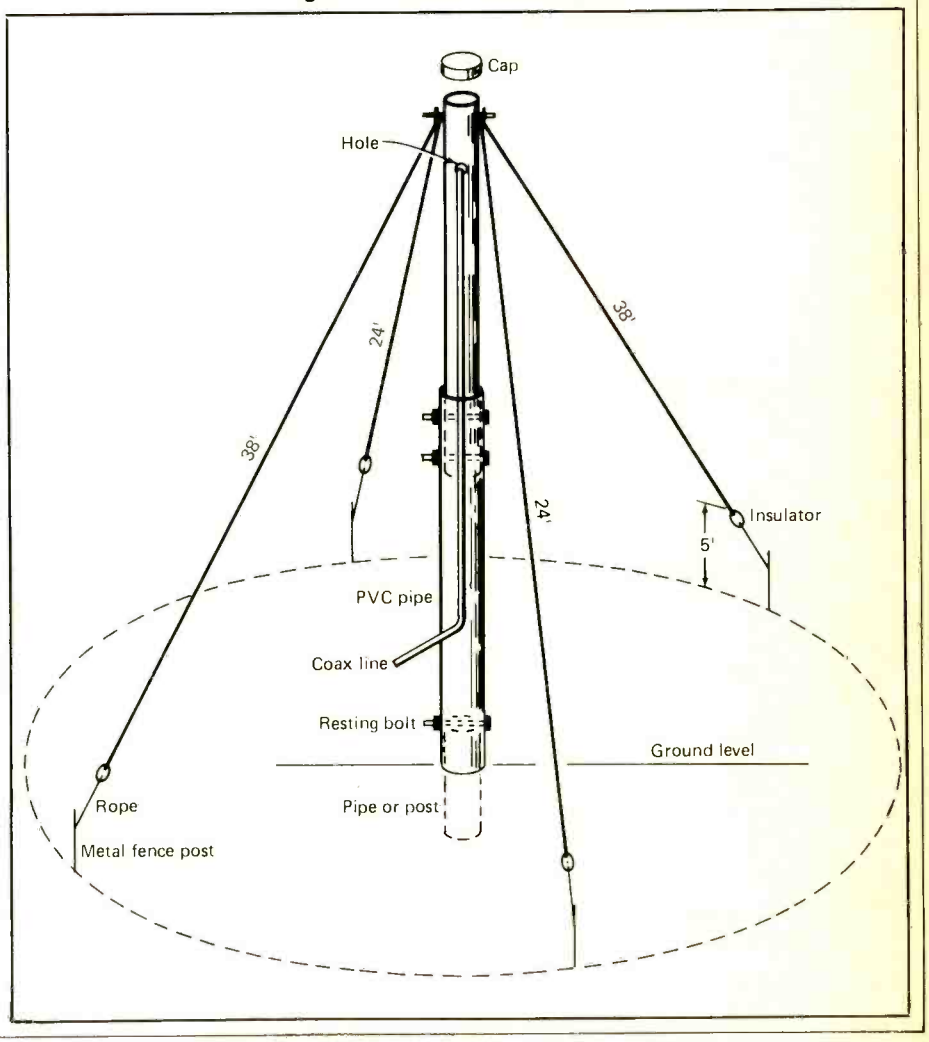


Figure 1: These are crossed dipoles for 31 and 49 meters

Figure 2: Crossed inverted dipoles



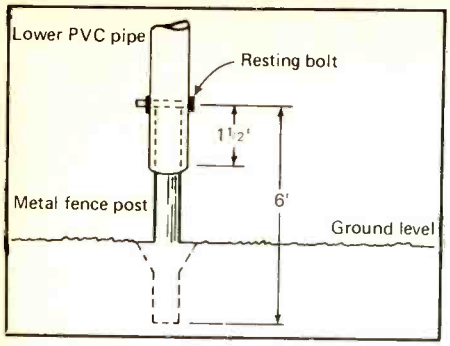


Figure 3: Setting mast on metal fence post

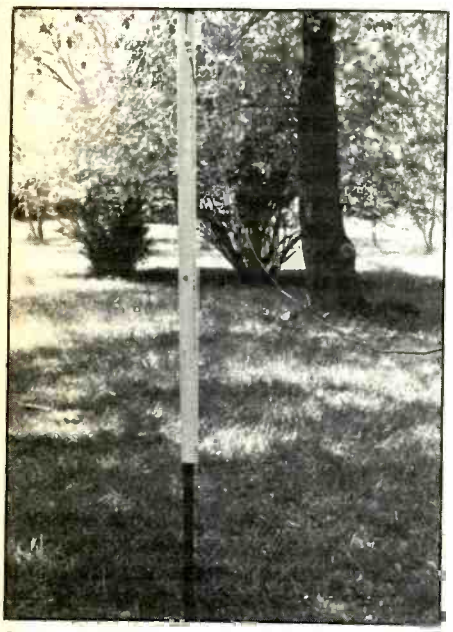


Figure 4: PVC mast elevated above ground by metal fence post and resting through bolt

tenna wire ends and they are fastened to the terminals using the external nuts.

The previous column detailed the construction of a PVC piping mast. If you wish to raise the top of the mast several feet higher you can use a 6 foot metal fence post as the mast support as shown in Figures 3 and 4. Drill an appropriate hole for a resting through bolt about 1½' above the bottom of the mast. When the mast is erected, it will rest on this bolt, holding it above the ground level.

The antenna ends are stretched to metal fence posts in such manner that they are about 5-7 feet above ground. Spacing between posts is 90° and the antenna elements themselves act as excellent guides for the mast. If desired a piece or two of electrical tape can be used to hold the coax line to the outside of the mast down to the position you wish to swing off toward the radio room.

Adding 60-Meter Tropical Band

You can perk up the antenna for receiving the Latin American countries and African countries with a simple addition. A simple add-on length of antenna wire (Figure 5) will improve the antenna pick-up on 60 meters. Use this assembly at the ground-level fence

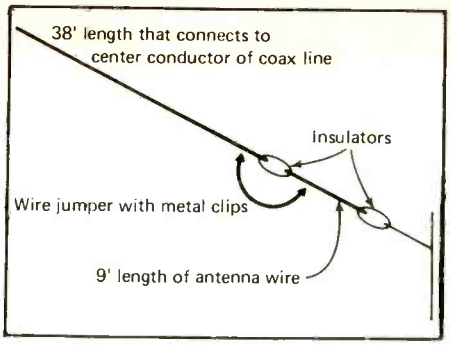


Figure 5: 60 meter add-on

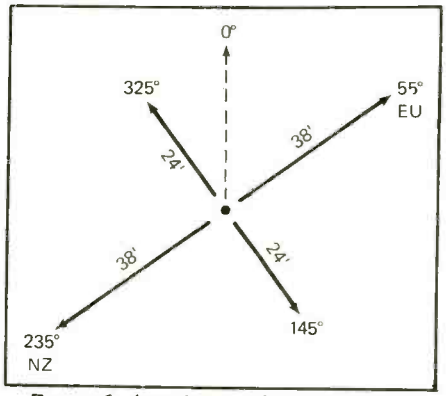


Figure 6: Angulation of crossed dipoles

post that holds down the one end of the 49 meter inverted dipole. Choose the end to which the antenna wire connects to the center conductor of the coaxial line as it is attached to its terminal at the top of the mast.

Connect a 9-foot length of antenna wire between the two insulators. Assemble a short wire jumper with appropriate metal clips on its ends that can be connected across the higher insulator when 60-meter reception is to be improved. When the clip is present there is some limited decline in 49 meter performance. Thus it is appropriate to provide the means for connecting and disconnecting the 60 meter add-on.

More improvement can be obtained by doing the same thing at the other end of the 49 meter dipole. This may not be convenient, and just taking care of one end does make quite a significant improvement in antenna sensitivity. The improvement of antenna sensitivity on these low-frequency bands (49 and 60 meters) is not all that significant when atmospherics are high, however, the additional gain is a factor when the bands are quiet and there is an opportunity to log weak and low-powered stations.

19 And 25 Meter Performance

Acceptable-to-good performance is obtained on the 19 and 25 meter bands. When the sixty-meter add-on is used, performance is good on the 19 meter band. In fact, each wire length (in this case) is an electrical three quarter-wave length and there is a low impedance where the transmission line attaches. Performance on the 25 meter band is somewhat better when the add-on segment is not attached. On these two bands the antenna acts as a long wire and there is some limited directivity off the ends, particularly off the ends of the longer 49 meter pair. In our own installation, as shown in Figure 6, one side of the 49 meter dipole was directed toward Europe. Its opposite leg here in Eastern Pennsylvania extends toward Australia and New Zealand. As yet I've not done much checking of the antenna on 11, 13, and 16 meter bands. Results might be surprising when these bands are active, especially off the wire ends. Why don't you give it a try?

Please send your comments and questions relating to antennas to: Ed Noll, Better Signals Dept., Popular Communications, 76 North Broadway, Hicksville, NY 11801.

Beaming In *(from page 4)*

Castro's takeover in February of 1959. Let's hope that Radio Marti will get its act together and be of some genuine value in cooling down the rhetoric that has separated these two (formerly) good neighbors for far too long.

Scanning Problems?

Several readers, including Hugh Stegman (NV6H) and others in California have written with alarm to discuss proposed (or pending) California legislation seeking to outlaw (in California) scanners capable of tuning the 800 MHz band.

The legislation, which is being pushed by the Cellular Telephone industry (and backed by big bucks), seems to be going through the legislative process faster than greased BB's pouring through a funnel.

This is a very frightening turn of events, one that has been predicted in several of *POP'COMM*'s previous editorials. Those who have read *POP'COMM* over any respectable amount of time will recall that we foresaw just such an eventuality in the aftermath of successful legal actions brought against persons found to be tuned in on TV "MDS" stations.

One's first reaction is, "How can a state government get away with forbidding a person from tuning in on federally licensed airwaves?" Of course, they can't—but they can probably get away with making the sale or use of equipment capable of doing so illegal; same way that use of mobile scanners is either illegal or regulated in many areas of the nation.

Despite the sight of something like this looming ominously on the horizon, the electronics industry has been strangely silent. So have clubs organized to serve listeners. By now you'd think that there would have been a howl both long and loud at this type of legislation.

One can only wonder about what's next—and what then after that—once they begin passing laws saying what one may and may not monitor on the public's airwaves. How far is it, after outlawing Cellular Telephone scanners, to the outlawing of public safety scanners, or even HF communications receivers? You tell me, because it seems like once one of these laws gets shoved through the door, the nightmare begins.

The total apathy of monitoring enthusiasts—and those who manufacture and sell monitoring equipment—is perhaps as eerie as the concept of passing laws stating what may no longer be monitored. If someone came along to tell folks what things they could no longer look at, or upon which public roads they could no longer drive, there would be a violent outcry about trampled rights.

But what went wrong here? Maybe you can tell me? PC

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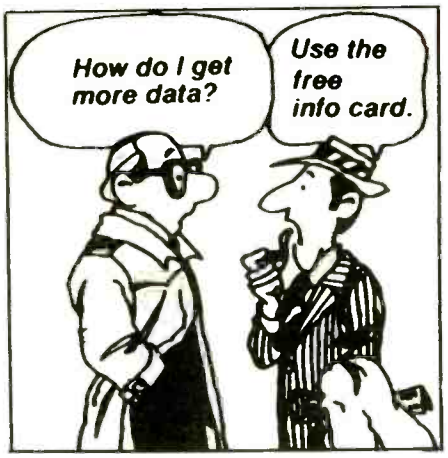

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