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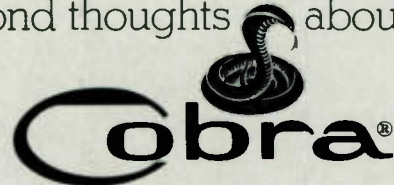
Receiver circuits have been redesigned to include dual FET mixers, a monolithic crystal filter and a ceramic filter to reduce interference and improve reception.

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*"It's about time
America gave **REACT**
its full support"*

Robert G. Paul, President
The Antenna Specialists Co.

the antenna specialists co. announces a major new **REACT** support program to help keep our highways safe.

"For more than 19 years, hundreds of thousands of REACT volunteers have been contributing their time, their energy and their own money to provide vital emergency communications services to the public.

"Over 80 million Americans have benefited directly from REACT's CB radio handling of emergencies and calls for assistance. Last year, for example, REACT responded to over *one million automobile accidents — one every 29 seconds, 24 hours a day.*

"There is no finer expression of the American way of helping each other than REACT—and it deserves more than token support.



A REACT team for every community...

"As successful and effective as REACT is, its capacity to grow and expand its services has until now been limited. REACT should be expanded drastically. It should implement important new public service programs it cannot now afford. Increase its service to cover *every community in the nation.*

"Even though REACT services are entirely free to the public, it costs a lot of money to organize, train and operate thousands of REACT teams. While some indi-

viduals and companies, including ours, have regularly made contributions each year to help support REACT, the simple truth is that REACTers themselves still pay over 70% of this cost.

It's time America and the CB industry paid their dues!

"As a citizen and motorist, I am constantly reassured on the highway, knowing that REACT is listening. And as the nation's largest manufacturer of CB antennas, we are grateful for the support we have received through the years from the CB community. Now we are determined to return that support ... to pay *our* dues.

"Some months ago I directed our people to find a way for our company to help REACT in a major way. They came up with a super program, which I have approved and which has the 100% support of all A/S employees:

1. the antenna specialists co. will provide massive direct financial assistance to **REACT.**

Very soon we will be introducing a brand new, professional quality mobile CB antenna. We believe it will be the best performing CB antenna available.

For every single one of these new antennas purchased during the entire year 1981, A/S will donate a dollar to REACT. This activity alone should generate tens of thousands of dollars in new income to expand REACT. But that's only the beginning...

2. the antenna specialists co. will help increase **REACT membership by funding and producing special programs:**

We will sponsor and advertise nationally a first quarter REACT membership drive to bring in new members and form new teams. Cash awards will be made directly to REACT teams achieving the greatest increases in membership... and to REACT Councils helping to establish the most new teams in a state. This is only the first of several special support programs of this type planned for 1981.

In addition, every CB product package shipped from our factory will carry a brochure describing REACT and its importance to highway safety.

3. the antenna specialists co. will exert all possible influence to encourage additional, important industry support for **REACT.**

"Our company has budgeted a major effort for 1981 in direct contributions, advertising support, national publicity and special action programs.

"We hope and believe our leadership and commitment will encourage other manufacturers, distributors, dealers and foundations to join this movement...to make REACT even stronger, to bring its outstanding services to every corner of the nation."

Robert G. Paul

CIRCLE 126 ON READER SERVICE CARD

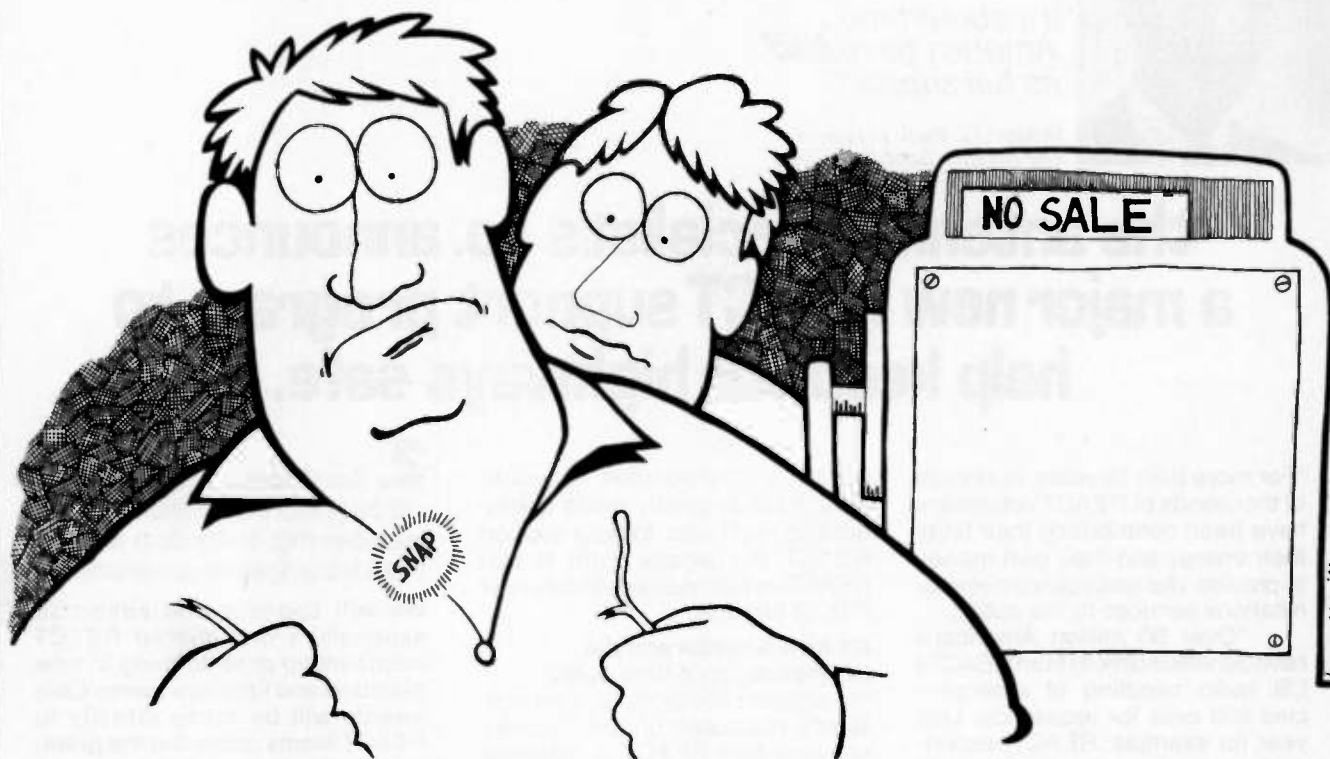
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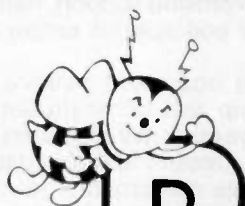
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S9 HOBBY RADIO

AMERICA'S OLDEST AND LARGEST CB MAGAZINE

VOLUME 21 NUMBER 3

MARCH 1981

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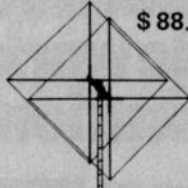
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Our Cover: Photo by Tom Kneitel. These antennas are used for an experimental radio astronomy project called PROJECT ASTARTE.


WARNING: INDIVIDUALS INSTALLING CB OR OTHER ANTENNAS ON THEIR HOMES SHOULD BE CAUTIONED THAT CONTACT WITH POWER LINES MAY CAUSE SERIOUS INJURY OR DEATH. READERS ARE ADVISED TO HANDLE ANTENNA INSTALLATIONS WITH GREAT CARE, AND TO WEAR INSULATED BOOTS AND RUBBER GLOVES WHILE WORKING NEAR POWER LINES.

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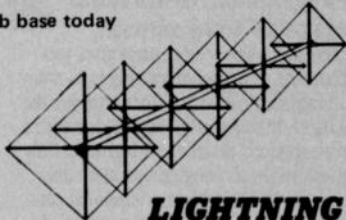
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You also build and keep for use in your work a standardized volt-ohm meter and digital CMOS frequency counter. NRI even gives you special lessons to get your Amateur License so you can go on the air with your VHF transceiver.

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In all, you get 48 lessons, 9 special reference texts, and 10 training kits...the training you need to become a professional. And NRI includes training for the required FCC radiotelephone license examination. You pass or *your tuition will be refunded in full*. This money-back agreement is valid for six months after the completion of your course.

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NRI's free, 100-page full-color catalog shows all the equipment you get, describes each lesson and kit in detail, tells more about the many specialized fields we train you for. It includes all facts on other interesting areas like TV and audio servicing or digital computer electronics. Mail the coupon and see how we can make you a pro. If coupon has been removed, write: NRI Schools, 3939 Wisconsin Ave., Washington, D.C. 20016.

S9 HOBBY RADIO
AMERICA'S OLDEST AND LARGEST CB MAGAZINE

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CB NEWSWIRE

YOUR CB NEWSPAPER

MARCH 1981

CB'ers For Cerebral Palsy

By Judy Buck, ("Blue Jay")

"CB'ers for United Cerebral Palsy" is a new concept in fund raising sponsored by the United Cerebral Palsy Assoc. of N.Y. State, Inc., Suffolk County Committee. Since its formation this spring the auxiliary has raised over eight thousand dollars for the Commack Cerebral Palsy Center. One of the main fund raisers this spring was a week-long "coffee break" held behind the "Ho Jo's" at exit 58 on the 495. A base station set up in a mobile home plus a tent to hold coffee and refreshments brought in over four thousand dollars from fellow CB'ers. A friendly eighteen-wheeler from Florida was recruited to fulfill the dream of a little boy from the Center of being a truck driver, by taking him for a ride in his rig. A "thank you" break was held during the summer in appreciation of the generosity of the CB'ers and to sign up new members for the auxiliary. A car-truck wash, again behind the Exit 58 "Ho Jo's" netted us four hundred dollars. Our big event last fall was a Country and Western Dinner Dance. With a lot of hard work by our



This crew demonstrates what the "break" was all about—a good cause.

members, most of the food and all (three bands) the entertainment was donated with proceeds of thirty-six hundred dollars given to the center. A softball game between Waldbaum's Supermarket drivers and White Rose drivers was another big success. White Rose may have won the game but Waldbaum's had the best cheerleaders! With a St. Patty's Day Dance, a play and of course, prepara-

tions for our spring break in the works, the next months were also busy but rewarding for us. With a membership of about sixty and growing, our auxiliary shows what a few people can do with the support of all of you CB'ers out there. For more information concerning our auxiliary please write: Ruth Wilder, 22 Harper St., Patchogue, NY 11772.

Distinctive Call Signs Assigned

In recognition of the important role that Citizens Band radio plays in public safety, the FCC is continuing to cooperate with State Police departments by assigning distinctive call signs upon application, where available (distinctive call signs are not authorized for law enforcement agencies at county, city or local levels).

The distinctive CB call sign consists of the letter "K" plus the two postal initials of the state, followed by 0911. For example, the Missouri State Police have been assigned KMO-0911. These call signs, based on the familiarity of 911 as an emergency telephone number, are intended to provide the public with an easy-to-remember number. CB channel 9 is designated by the FCC as an emergency channel.

Twenty-one states, the District of Columbia, and Puerto Rico have been assigned distinctive CB call signs to date. The states are: Alaska, Colorado, Georgia, Illinois, Iowa, Louisiana, Maryland, Michigan, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Dakota, South Carolina, Tennessee, Utah, Virginia, and West Virginia.



It was all smiles inside the base station tent.



This little feller took a big spin in a big rig.

CB Refund Notice Not Heeded!

Two months after launching its special fee refund program, the Federal Communications Commission was still wondering what happened to all those folks who were operating a citizens band radio between 1970 and 1975.

"Our response has not been that good; in fact, I'm rather disappointed," says Richard J. Keller, who heads the program. "Of an estimated 2.4 million eligible, we have only received somewhere in the neighborhood of 35,000 requests for refunds.

The fee refund program stems from a December, 1976 decision by the U.S. Court of Appeals, in which the FCC was found to be charging more money than it actually cost to process license applications.

The commission has (by last November) refunded more than \$50 million to eligible radio and TV stations, common carriers and electronic equipment manufacturers. Last September, the agency said it was ready to handle refunds for less expen-

sive licenses such as those issued to CB and ham radio users.

"We really worked hard to get the word out and there's been a lot of publicity," says Keller. "We didn't expect everyone to file, but we did expect to see requests from at least half the 2.4 million. I really don't understand why the response has been so low."

They key is the 1970-to-1975 time period. The estimated 13 million to 14 million Americans who received a CB license after March 1, 1975 are not eligible because they paid only \$4.

However, between Aug. 1, 1970, and Feb. 28, 1975, a CB license cost \$20 and those enthusiasts are now entitled to a \$17.99 refund. The program includes a number of other licenses, such as maritime, aviation and microwave users.

People who think they're eligible for a refund must obtain a form by either visiting or writing the nearest FCC field office or by writing to the FCC at P.O. Box 19209, Washington, D.C. 20036.

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Now Hear This

(via SSB-326B, Kelly)

Yes, the Utah Highway Patrol has heard about THAT traffic accident at Soldier Summit.

And so has much of the rest of North America.

The accident occurred on U.S. 6 at the tiny canyon-top community of Provo. Patrol Sgt. Richard Hall says there were only minor injuries.

But the accident had to be reported by radio because there was no telephone nearby. Highway patrolmen were not the only ones listening to CB that night.

The patrol says it got backup calls from Wausaw, Wis.; Chadwick, Ill.; a CB organization in Canada; another CB group in Macon, Ga.; Randolph County, Ind.; and a police department in Ohio.

Plus the Coast Guard in Sitka, Alaska!

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RK 76

Turner has combined noise cancelling features and the range-bocsting advantages of a power mike. Noise cancelling keeps your transmission free of background noise while the preamp circuit assures you full modulation, maximum range and optimum clarity.

If you're really serious about CB, put your money where your mike is.

Serious CB operators who want to get the most from their transceivers have been setting aside the microphones that came with their radios and replacing them with Turner Microphones. In the United States, they've been doing this since the 1950's. Now they are doing it in 33 countries around the world.

Why?

Radio manufacturers, in order to keep the cost of radios competitive, have designed simple, inexpensive microphones that are just that and nothing more. Turner amplified mobile mikes, on the other hand, with 0 to 15 dB gain controls can supply the extra "talk power" that will fully modulate the radio. Noise cancelling Turner mikes eliminate the unwanted background noise in truck cabs and tractors while delivering clear modulation of the desired signal. Amplified Turner desk mikes with gain controls, push-to-talk switches and lock levers allow the base station operator ease of operation, flexibility and much more "talk power" than the original microphone.

So, if you want to improve your radio's performance quickly, inexpensively and effectively, then get serious and put your money where your mike is — on a Turner Microphone.



RK 56

This is the "truckers' favorite" A combination of economy and exceptional noise cancelling, dynamic performance. In large truck cabs, an extra long rugged coil cord provides easy mike handling and the noise cancelling feature blocks out unwanted background noise for clearer transmissions.



Super Sidekick

This is an outstanding base station mike for SINGLE SIDEBAND operations. The Super Sidekick power mike has two gain adjustments to match the sensitive input requirements of both high and low impedance transceivers. If you're a sidebander — you'll be QSA-5 with this mike.



+3B

The rugged die-cast case, temperature-stable silicon transistors and humidity-resistant ceramic element make this power mike practically indestructible. Maximum -23 dB output is easily adjusted by a gain control on the front panel for powerful audio — free of QRM.

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How About This CB Bandit?

He's the "Wheelchair Bandit"—to his friends and to strangers, too. He's 57 years old—and he's known no other life except that in a wheelchair. He's a fellow who could complain all day, and no one would blame him—yet he smiles and laughs instead.

It's a pleasure to introduce this remarkable man to you. His name is Harold Doddridge. His home today is half of a small room at the Richmond Nursing Home, Richmond, Indiana.

The first thing you should know about him is that the appellation by which he is known does not reflect a life of crime. Instead, it's only his CB *handle!* Among those who know him through regular CB radio conversations are "Goldie," "Skinny Kenny," "Ma Kettle," "Pollyanna," "Bee Man" and "Newport."

They are his newest friends and admirers, but there are many others who have a similar regard and respect for the man of today who has fought his battles from childhood while bound to a wheelchair life.

A victim of infantile paralysis almost from birth, Doddridge's legs are always crossed. For him, that's not a method of relaxing. It's permanent. His hands are twisted. He cannot propel his wheelchair. He only weighs 100 pounds. His speech, affected by his infant ill-

ness, is difficult for strangers to understand. Yet, says Margo White, administrator of the Richmond Nursing Home, "He just never complains. He meets his own needs as best he can. He's very independent. He enjoys taking rides, and relatives and friends come to do that and to take him to church.

"They take him to the bank, too, to get his Social Security check cashed, and he knows where every penny of the money goes."

You should also know that Doddridge's mind is sharp and clear. Says Mrs. Howard B. Thomas, his one-time tutor:

"He'd never attended school when I worked with him for two years. At the end of the two years, he was in sixth-grade mathematics and reading second-grade books. He was interested in geography, science and history.

"He held a big fat pencil between his thumb and middle finger. He couldn't handle script because he couldn't join the letters. So he printed."

He laughs that he never liked to be called "Billie" so he has encouraged use of his middle name. He was one of nine children, seven of whom are still living. His father died when Harold was 13 and he lived with his mother in Centerville until her illness meant they both went to a nursing home. She died in 1967.

While he and his mother lived together, they washed and repaired Venetian blinds.

Doddridge's horizons were widened when Mrs. Thomas tutored him. She recalls:

"When he finished his first reading book, he asked me:

"'Do you know how old I am?' I said I didn't. Then he said:

"'I'm 30 years old and I've just read my first book.'"

Later, he tackled a typewriter and learned to use it, employing a single finger.

Today, his world is extending again beyond the wheelchair through his CB radio friends. Says Mrs. White: "In good weather, he enjoys sitting outside our building (which fronts on U.S. 27 North), and he'll talk to the truck drivers on the CB."

Near his narrow bed at the nursing home are things important to him—his CB license, a photograph of friends, a birthday gift from CB buddies, and a sheet of paper thumbtacked to the wall. On the sheet are about 150 telephone numbers—but there are no names beside them.

Doddridge just laughs when he's asked about that, and then it becomes clear: To the shame of some of us who forget our own home numbers, he's committed to memory all of the names to whom those seven-digit numbers belong.

Doddridge has had his CB radio for several years, but an outside antenna wasn't installed until recent months. With its installation, his radio range has broadened considerably. His call letters are KBJA 7697.

Today, as evenings near, he clasps his crippled hand around a microphone and goes on the air, announcing: "Break 3!"

Soon there is a round robin of conversation under way and the Wheelchair Bandit has exchanged his tiny place in a nursing home for a much larger world.

The affection between the CB'ers would be apparent to other radio operators. But it's obvious to strangers listening in when they prepare to sign off. Says Doddridge:

"I love you, Pollyanna!" And the answer always comes back:

"We love you, too, Wheelchair Bandit!"

Florida Air Force MARS Flying High

By George Hamilton Jr.
KA4ARZ/AFA2NV Florida PAC

Things are really popping within Region Two of Air Force MARS. They have a new Region 2 Communications Manager AFF2C, formerly AFF2C of Punta Gorda, and also a new Net Manager, AFB2AR of Raleigh, N.C. The local Assistant State MARS Director AFA2UW has taken a 6-month leave of absence.

There are more changes to come as Headquarters completely reorganizes the MARS national structure. The confusion has resulted in many old-timers resigning.

Recent graduates of the training course are: AFB2UE Coral Point, AFB2RG Orlando, AFB1WX Satellite Beach, AFB2UM Tampa, AFB2WP Miami, AFB2WV Tampa and AFB2VV Lake Placid. In addition AFB 2WT graduated from the Net Control Course and has been doing an excellent job as an NCS.

Statistics show that Florida was still leading in hours and participation during the second quarter of 1980 in all nets.

Steps are being taken to update the APO directory and all members are urged to listen to MARS broadcasts for interim changes.

ENTER THE WORLD OF ELECTRONIC SPYING!

**How Wire Taps and Room
"Bugs" are Rapidly Invading
Homes and Offices!**



While there are numerous books which toss in a couple of paragraphs or maybe even a chapter or two on electronic espionage (spying), and there are many others which are written for the advanced technician and professional electronic spy, we recently came across a unique book called **ELECTRONIC SPYING**.

If you are simply curious about the subjects of *bugging* and *wiretapping*, or are seriously interested in protecting your own privacy from the electronic invasion, **ELECTRONIC SPYING** is the book for you. It's packed with fascinating information that will give you a thorough education in the art and science of electronic surveillance. Once you've read this eye-opening book you will have a depth of knowledge which is virtually impossible to obtain from any other source.

ELECTRONIC SPYING explains the A-to-Z of the subject in crystal clear layman's language and is packed wall-to-wall with illustrations and photographs, facts and details, that no other material on the subject provides. Let's just say that it leaves little or nothing to the imagination in revealing and showing the latest techniques! All of the media nonsense, TV and Hollywood fiction and fantasy which surrounds this is denounced, and the reader is given the real facts pertaining to the working techniques, and the actual equipment used, in 95% of all electronic surveillances—legal and illegal! The reader is shown how professionals operate an audio surveillance, and what's even more important, how inexpensive and easy-to-obtain devices can be used by a rank amateur to tap your telephone and bug your living room, office,



The place is starting to crawl with amateur and professional eavesdroppers who seem to be interested in wiretapping and bugging homes, offices, stores, factories, and then sitting back and

hearing what folks like to talk about in private. This book reveals how they do it with easily obtained and inexpensive equipment!



Eavesdropping is conducted by direct ("hard") wire methods, or by wireless systems. It is conducted in rural areas, the suburbs, and in metropolitan areas. Besides the large number of illegal amateur eavesdroppers, all sorts of illegal professional wiretappers and room-bug "planters" are operating. This, in addition to local, state, and federal agencies who are doing it under legal sanction.

business, or bedroom! Frankly, you'll really be amazed at how startlingly easy it might be for you to become one of the many thousands who are victimized by the rapidly growing army of amateur electronics eavesdroppers every day—and night!

ELECTRONIC SPYING is divided into two separate sections which thoroughly cover the individual subjects of *bugging* and *wiretapping*. Some of the detailed subjects it covers include: Wireless surveillance transmitters, surveillance receivers, *bugged* appliances, installing *bugs*, direct (*hard wired*) microphone bugs, the telephone used as a room *bug*, bugging with a voice-controlled tape recorder, listening through walls with *spike mikes* and other devices, taps "on premises" and "off premises," telephone wiring, "direct taps" and how they are installed, recording telephone conversations, sending a phone conversation into an FM radio receiver, long distance room bugging, how the *wiretapper* locates the proper pair of lines to use, the famous "infinity transmitter" and how it's used, the amateur do-it-himself wiretapper, and lots more!

Everything is discussed in simple language and made even clearer with illustrations of the devices and techniques and exactly how they are deployed. No complicated schematics are used.

This book has recently been highly reviewed in some of the better law enforcement publications and apparently is quite popular with many police departments and private investigators. Even if you don't know how a flashlight works, this book will transform you into a comparable authority on this increasingly popular subject, and you'll enjoy every minute of it. It's one of those books you just don't want to put down.

A word of caution: Electronic surveillance is generally illegal. Except in the case of authorized

law enforcement personnel, actual use of the information contained in ELECTRONIC SPYING will be a violation of all sorts of laws and statutes. Interestingly, when I happened to notice (thanks to information in this book) that one of my neighbors had what appeared to be a tapped phone (all of their phone calls can be monitored by anybody in the area who has a communications receiver tuned to 1665 kHz), I reported the matter to the Chief Engineer of the FCC's New York office. At first he tried to convince me that you can't hear phone calls on a communications receiver, and finally as a last resort to get rid of me he suggested that I report it to *Ma Bell*. Basically, the FCC couldn't have cared less! After a dozen attempts at speaking to anybody beyond the level of telephone operator at *Ma Bell's* place, I finally got through to an Operator Supervisor who was uninterested in the matter and unwilling to put me through to anybody who might have been. Frankly, it appeared that the laws regarding all of this are possibly enforced mostly upon those occasions when the authorities happen to stumble upon a bugging during the investigation of some other crime. Maybe I'm wrong, but it seems to me that there is a lot more *bugging* and *wiretapping* going on than most folks generally expect; and the "authorities" and *Ma Bell* are far less interested in bothering with it than they'd like you to believe.

Anyway, here's *the* book on the subject—the book that I didn't think anybody would or could write. It's especially fascinating to those of us interested in electronics. The book is available by mail for \$7.95 per copy plus 50¢ postage (total price \$8.45, including postage) from CRB Research, P.O. Box 56, Commack, N.Y. 11725.

Reviewed by A. J. O'Connor, KNY2PJ

THE FCC WILL NEVER FORGET:

CB RADIO'S

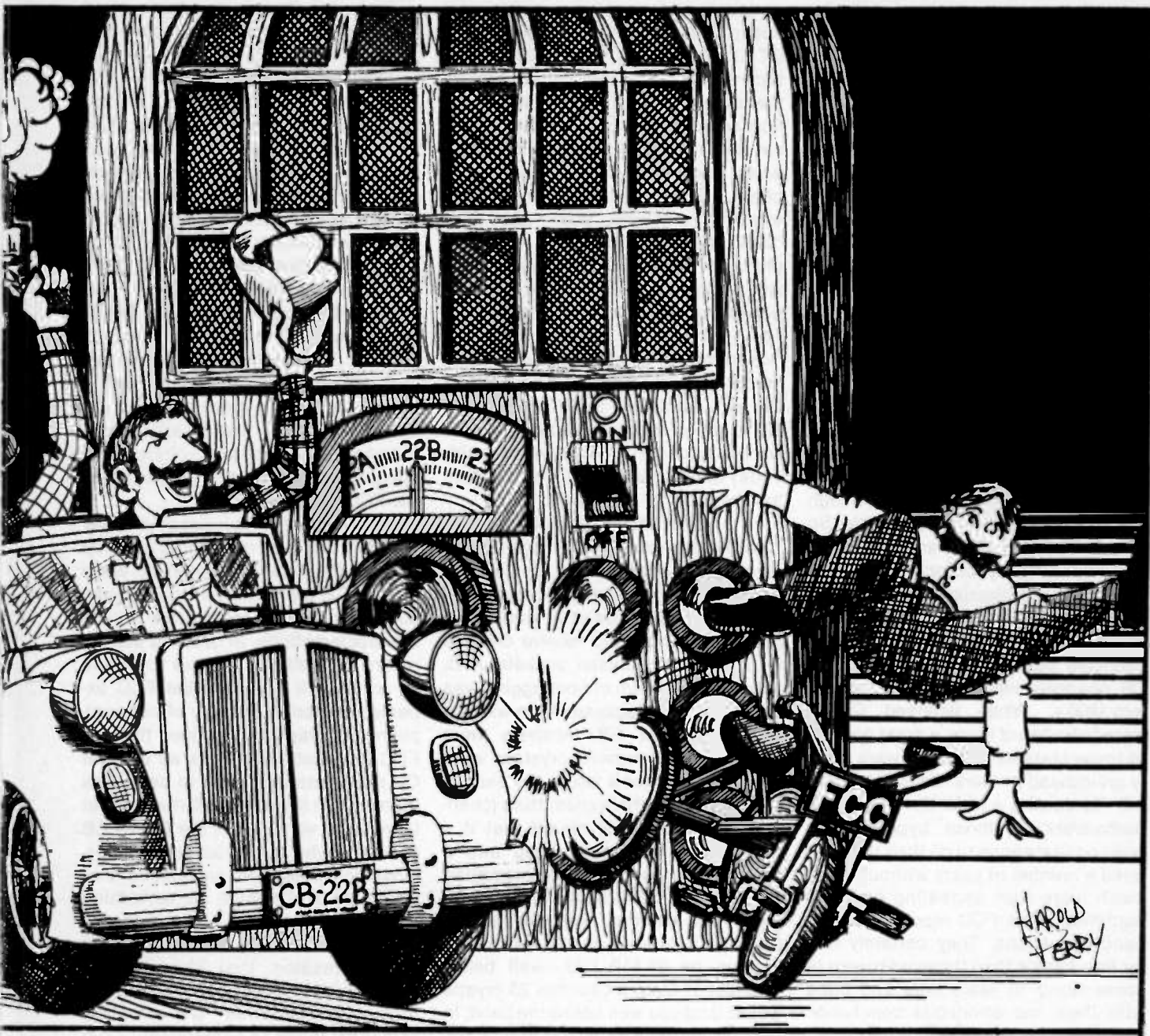
WILD & WOOLLY ERA!

**YOU THINK THE "ILLEGALS"
ARE A RECENT ADDITION TO
CB'S RANKS? NO WAY!**

by Tom Knetel, S9's Editor



I'm always amazed when I hear people speculating that in CB radio's early days there were no FCC hassles, and the operators consisted 99% of *Goody Two-Shoes* type timid souls who doted upon FCC Part 19 (that's what Part 95 was called in those pre-inflation days). The general consensus is that the massive influx of "instant CB'ers" in the mid-1970's is what pulled into CB's ranks large numbers of operators who either ignored or defied the FCC's rules—y'know, the linear users, *skip shooters*, *outbanders*, and other folks the FCC considers to be riffraff. Not so! In actuality, right from day-one, in



late 1958, there were "problems" in regard to the FCC's ability to maintain any control over this uniquely unruly radio service!

LOTS OF REASONS WHY

Right from the beginning, the original 27 MHz CB rules contained so many operating restraints that they appeared to have been deliberately stacked against any possible full legal use of the CB service. It was practically impossible to say as much as "hello" to another operator over the air without bumping into several FCC regulations. Fact was that the FCC had established regulations which demanded that the transmissions be-

tween CB'ers be "substantive." Most operators had to look it up in a dictionary to find out what that word meant; the FCC's Part 19 gave no definition, nor did it bother to explain what might comprise a "substantive" message—however if they happened to monitor someone transmitting a non-substantive message they let the guy know by means of a violation notice.

And, yes, there were restrictions against off frequency operation, against shooting skip, calling CQ, giving S-meter reports, running high power, over-height antennas, talking too long, and lots more! If you couple

these restrictions with the fact that there were far fewer CB'ers on the air then than what was to come later, and those operators were being monitored by an FCC staff which was essentially identical in size even after CB grew in size in the mid-1970's, you can immediately see that the probability of getting hamstrung by the FCC was far greater in those days than at any other time. Let's face it, the way they set up Part 19 it was inevitable that there would be more than a few unintentional but unavoidable violations. On the other hand, many operators viewed the rules as being so absurd that Part 19 became a juicy challenge

to see how many sections could be ignored, defied, and broken.

Linears? Right from the very earliest days the jargon of CB operators included high powered linears and transmitters, including transmitters with VFO's. Equipment such as the *Globe Scout* or the *Johnson Thunderbolt* existed; and even those who didn't own them knew what they were and where they could be obtained. After a while, CB manufacturers openly began selling linears ("illegal for use in the United States"); companies such as Sonar, e.c.i., and many others found a ready market for them.

Of course, the FCC had established CB radio on 27 MHz, which is a segment of the radio spectrum extremely prone to ionospheric skip. And, as fate would have it, when the band was opened for CB use, we were at a high point in the 11-year sunspot cycle. So CB skip was rampant, and it seemed that the majority of operators were eagerly and enthusiastically working as much of it as they could.

Operations on unauthorized frequencies both above and below the CB channels were first noted in the mid-1960's. While licensed CB'ers were to be heard there, a great number of these stations (as today) were totally unlicensed or were hams "stepping out" to unwind a little. Somehow, the *outbanders* of those bygone days seemed to manage to do their thing for quite a number of years without doing much more than appearing as some statistics in an FCC report on out-of-band operations. They certainly had far less hassle than those who were to come along 10 years later and bring with them the erroneous conclusion that they had either discovered or invented the practice. Most old timey *outbanders* feel that the hassles began when a couple of high-profile organizations appeared in the mid 70's making lots of noise about how they were defying the FCC regulations by telling their members to operate above the authorized band.

WEAK OF HEART?

For those who were weak of heart or stomach, not brave enough to venture into the frequencies above Channel 23 (the upper limits of CB before 1977), there were always Channels 22A and 22B. These weren't "real" (FCC authorized) CB channels, but they were nevertheless heavily populated by many operators. So-called Channel 22A was on 27.235 MHz, while 22B was

on 27.245 MHz, located in the "dead" space between CB Channels 22 (27.225 MHz) and 23 (27.255 MHz); technically the FCC records carried them as being assigned to industrial licensees. Crystals for these two strictly illegal non-channels could easily be obtained from most suppliers, and a great many CB rigs were even manufactured with "22A" and "22B" positions indicated on their channel selector switches. Later, when crystal synthesizers became popular on CB, some were factory set to operate on either or both "channels," or could be easily modified by the user to do so. When CB was expanded to 40 channels in 1977, these two wayward channels were included in the frequency grant. Today they are legal for CB and known as Channels 24 and 25!

SWITCHEROO TRICK

In the era when all CB rigs used 2 crystals per channel, one for transmit and the other for receive, someone got the bright idea to see what would take place if you plugged receive crystals in the transmit crystal sockets. And, behold, a new form of bootlegging was instantly born. Because of the way the IF sections of CB receivers were designed, the receive crystals were cut and tuned for a frequency exactly 455 kHz below the transmitting (channel) frequency. That meant that if a receive crystal was plugged into a socket intended for a transmitting crystal, a non-channel 455 kHz below a given CB channel was created. A Channel 9 receive crystal would set you up on 26.610 kHz—well below Channel 1! Even a Channel 23 crystal would land you well below the band, in fact on 26.800 kHz which was a frequency used by the military and the U.S. Dept. of Justice! Legend had it that the "ol' switcheroo" (as it came to be known) was developed by the KKK in an effort to remove their communications from the public's ears on the regular CB channels.

NOT UNNOTICED

The FCC did not let all of this go by unnoticed. Many was the CB'er who faced the FCC's own brand of justice and punishment for folly in skirting the rules. Not all went quietly, mind you, and there were several such operators, such as Ernie Walker (of New Mexico) who made a lot of noise before the took his "Friendship Station" off the air.

Back in the early days most operators didn't use "handles." Surprisingly enough, (except for the *outbanders*, who used an ever changing assortment of code numbers for identification), most folks just used their FCC assigned callsign. This was because the callsigns, operators' names and addresses, were all listed in callbooks which covered all CB licensees. You could therefore easily look up another operator in the book and you instantly knew where to send the QSL. It wasn't until the late 1960's that "handles" started to become popular. The main reasons were that the callbooks were no longer being published, and it became apparent that if you didn't use a callsign you stood a far greater chance of operating without getting caught by the FCC's monitors.

And catch the rule-breakers they certainly did; they hammered away as hard as they could. Also, in the early days of CB the FCC was much into issuing supposedly impressive sounding proclamations, in order to set the record straight and explain to CB'ers as to what it was that the FCC expected of them in the way of rule compliance. It was quite obvious that the FCC had their own ideas as to what CB radio was supposed to be. It was therefore all the more unfortunate that there were very few of the FCC's CB licensees who agreed with the agency. Most licensees had determined that CB could and should be something altogether different.

Nevertheless, the FCC was under the impression that the massive violations of their CB rules were primarily because CB'ers had somehow failed to comprehend what was expected of them; they did not understand that all other radio services were well stocked with licensees who hardly ever dared to even think about intentionally ignoring an FCC regulation. They felt that if it could only be made clear to CB'ers what the CB service was all about then things would straighten out; CB'ers would then come to their senses and behave like they were supposed to.

Probably the most clear cut and graphic example of this was the very first of these official FCC "setting the record straight" proclamations. This historical (some at the time said "hysterical") document issued forth on December 7, 1959, under the FCC

serial number 81482. CB'ers had been on the air for little more than a year when the FCC felt compelled to issue #81482 in response to all of the many CB'ers who were having fun with a radio service which was determined by the FCC to be useful but definitely not enjoyable. Since this priceless and quaint piece of prose has never before been published, here is your chance to see how the FCC was relating to CB'ers long before they fully realized that they had a panther by the paw:

FCC ANNOUNCEMENT #81482 OF DECEMBER, 1959

"The Commission has over the years established about twenty-four different radio services to provide for varied communications requirements of different segments of both local government and industry. Among these radio services are included the Police, Fire, Local Government, Forestry Conservation, Power, Petroleum, Manufacturers, Business, Railroad, Taxicab, and many others. While not specifically defining the rules of the type of messages to be transmitted, in each case the licensees are restricted to those communications considered essential to that portion of their activities which forms the basis of their eligibility in the particular service.

"In line with this policy, the Citizens Radio Service was created to provide a means of transmitting the substantive and useful messages, in connection with either business or personal activities, of private citizens who may not be eligible in any other radio service except amateur. Since the provisions of the rules governing the other radio services had not been misinterpreted, it was believed unnecessary to define in great detail the type of use which might be made of citizens radio stations.

"Accordingly, the service was defined as 'A radio communications service of fixed, land, and mobile stations intended for personal or business radiocommunication, radio signalling, control of remote objects or devices by means of radio . . .' There was no intention to create a service paralleling the Amateur Radio Service nor was it intended that the Citizens Radio Service be used as a hobby in itself, for technical radio experiments, or for general "contacts" of a random nature. Provision for this type of

operation had already been made in the Amateur Radio Service and is available to all persons who might be interested in this kind of operation.

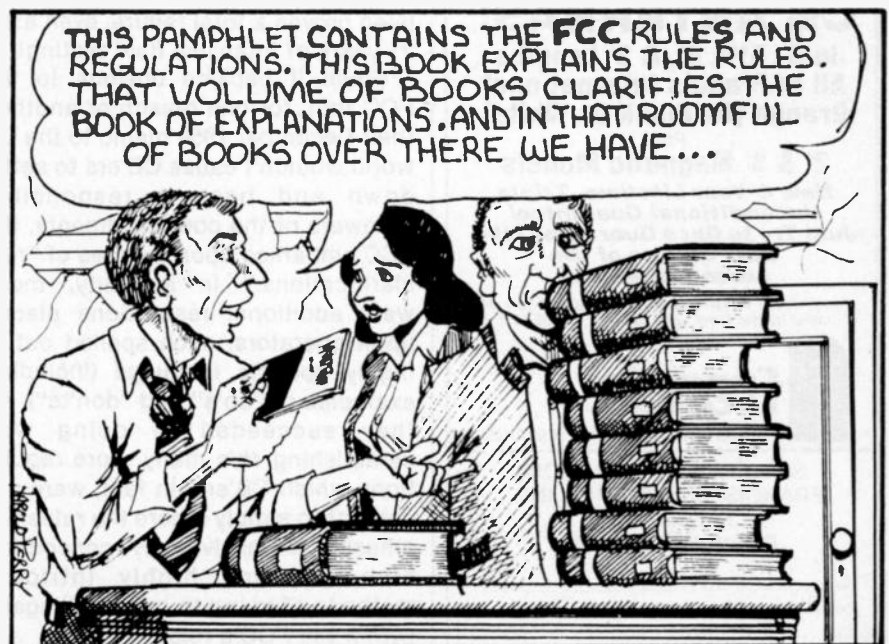
"However, it now appears that a number of licensees of citizens radio stations, particularly Class D stations, have either intentionally or mistakenly interpreted Part 19 of the rules to permit unrestricted use of the stations and amateur-type of this service and the limited number of frequencies available, that any substantial use of citizens radio stations for amateur-type or 'rag-chewing' activities would create intolerable interference and defeat the Commission's purpose in establishing the service. In an effort to stem this improper use, the Commission's field offices have begun citing stations observed engaging in such activities. In addition, the Commission has issued a Notice of Proposed Rule Making in Docket 12987 which, if adopted, will more clearly prohibit amateur-type activities in this service.

"The provisions most frequently misunderstood are Sections 19.1, 19.61(s) and (c) of the rules. Section 19.1, although written in terms of a specific limitation, does indicate the intended scope of the service as 'designed to provide for private short-distance radio communications.' The Commission believes that any reasonable interpretation of the term 'short-distance' would restrict a citizens radio station to local ground-

wave coverage as distinguished from transmissions which would depend on temporary 'skip' conditions.

"Section 19.61(a) reads as follows: 'Each station in the Citizens Radio Service is authorized to communicate with other stations in the same service. Communications with stations licensed in other parts of this chapter or with any United States Government or foreign station is prohibited, except for communications relating to civil defense in accordance with the provisions of Section 19.83.'

"This provision of the rules was intended as a limitation on stations rather than a permissive key to open the service to amateur-type communications. Thus, the Commission feels, in the light of the foregoing and the whole of Part 19, that the proper interpretation of that section is that although citizens radio stations are intended to communicate primarily with other units of the same station, when necessary for purposeful and substantive communications in connection with the business or personal activity involved, such station may communicate with other citizens radio stations. Under no circumstances, other than civil defense activities or similar emergencies, may they communicate with stations not licensed in the Citizens Radio Service. Examples of permissible intercommunication include an exchange of messages between boats, hunting or fishing parties,



or coordinated business activities.

If a licensee restricts his transmissions to only those communications which are substantive, he will automatically comply with the requirements of section 19.61(c) that, 'All communications shall be limited to the minimum practicable transmission time.'

"Accordingly, a licensee of a station in the Citizens Radio Service should neither call nor answer distant stations which are located outside the local groundwave coverage area of his station, nor should he relay messages from a distant station or a local station. Even within his local area he should refrain from communicating with other stations unless he has a definite and purposeful communication requirement. The practice of using a 'test' call for the purpose of inviting 'DX contacts' will be considered by the Commission to be a subterfuge in lieu of the general call 'CQ' and in violation of the rules. In short, the Amateur Radio Service is available to all persons who seriously desire to engage in amateur-type activities, and the

Citizens Radio Service was intended to provide the average citizen with a means to communicate by radio when necessary in the conduct of his personal affairs or business activities. If you are interested in using radio in a manner which is normal in the Amateur Radio Service, you should obtain a license in that service and avoid misusing the privileges that might be granted under a citizens radio station license. The fact that there are over 190,000 licensed amateur radio operators in the United States indicates that the knowledge and skills necessary to pass the examination and obtain a license are not difficult to acquire."

DEAF EARS

The FCC proclamation, looking back on things, had no curative effect on any of those matters about which the FCC was indignant. From a historical viewpoint it's interesting to note that the famous FCC shriek of "interference" being caused by those who fail to follow the rules was first trotted out against CB'ers in this proclamation. More than 20 years later, it still appears to be their first line of attack in attempting to convince CB operators that this dread curse *still* stalks those who refuse to follow the FCC's rules. At this point, you'd think that the FCC would have gotten the message that attempting to get CB'ers to follow the rules mainly by continually reminding them of the evils of causing "interference" has been proven a total failure, even after 21 years of intensive field testing!

When it became obvious to the FCC that, for one reason or another, their December 1959 memo to the CB world wouldn't cause CB'ers to settle down and become responsible followers of the commandments, the FCC embarked upon a series of "rule clarifications." In actuality, these were additional restrictions placed upon operators, each spelled out in highly specific language (including examples of "do's" and "don'ts"). All they succeeded in doing was establishing *this* many more regulations which CB'ers, in fact, were not content to simply ignore the rules but amused themselves by concocting elaborate and highly intricate methods of trying to operate illegally *within* the FCC's rules!

When the FCC, for instance, said the majority of CB channels could be

used only for communications between units of the same licensee, there were those who suddenly became "units" of one-another's licenses. One character went so far as to start a national CB "club" which made each "member" a "unit" of one particular CB license." Thousands of "Memberships" were to be issued, each to be accompanied by the right to be a "unit" of the central club license. The only problem was that when the club's founder sent out his memberships, each accompanied by a copy of the FCC CB license authorizing several thousand "units," he neglected to mention that the FCC had issued the license for only 5 units—the club's founder had added his own "zeros" in order to "expand the license." The FCC eventually went after the fellow for issuing counterfeit FCC licenses! He was actually convicted and given a jail sentence!

These were only some of the wild and woolly antics of CB radio's early days—who ever said that the FCC's headaches with CB'ers began when the public "discovered" CB five or six years ago? By that time they had already well come to understand that, in general, CB'ers didn't much care for the way the FCC had set up the rules. And CB'ers, on the other hand, had only too well come to accept the fact that if one wanted to use common sense, follow good communications practices, get the most from one's equipment, and fully enjoy the benefits of personal radio communications, 27 MHz style, that it would probably be necessary to bend or totally break at least several of the rules. It's a poor situation at best, and probably unique in the history of the United States; millions of citizens in open rebellion again a regulatory agency which is supposed to license and "control" them! This is, truly, the so-called "silent majority" (as they used to call the little guys) in action—people who would normally consider their own violation of a federal regulation totally unthinkable now become "illegals" in the eyes of the FCC! And these people number in the millions!

So, before you look back at the early days of CB and think about its quiet tranquility—and the times when the FCC perhaps thought better of their 27 MHz licensees—know that those were far more unquiet days than you might have imagined!

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CIRCLE 28 ON READER SERVICE CARD

HELLO SKIPLAND!

By Craig, VX-42/Unit 342-X-ray/SSB-7042

Readers of this column are requested to let us know any overseas addresses they come across or hear on the air. We would also like to receive copies of any DX cards received by our readers so we can run them in the Hello Skipland Column. Since we don't wish to be responsible for the "safety" of any rare DX QSL's we request that readers send in copies (Xeroxes or other office type copying machine prints are fine) and not the original cards.

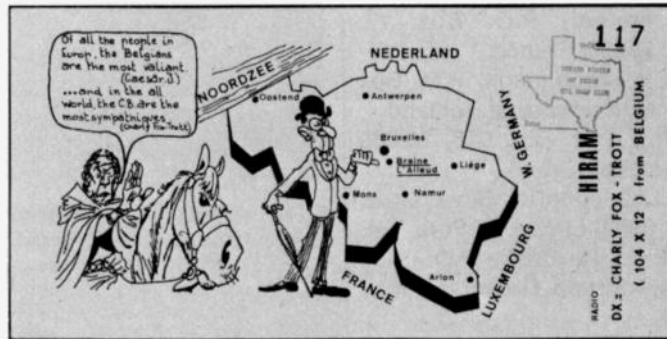
Albie, SSB-0011, of the British Sideband Network (an affiliate of the SSB Network) reminds all S9 readers that at this time CB operation has not been authorized in Britain. He therefore requests that anybody sending QSL's to CB'ers there be sure to do so with discretion; which is to say to enclose the QSL card in an envelope rather than sending it "open," and not to mention anything about CB on the envelope (handles, call signs, Sideband numbers, or the letters "CB" themselves). Albie says that what with CB operators getting hassled by government agents trying to charge them with violations of the Wireless Telegraphy Act, there are very few who welcome mail which readily identifies them to postal workers as CB'ers—although Albie is quick to point out that they do like to receive the QSL's. It's just that they'd like to keep their interest a little on the private side. So, at least until they get things legalized there, keep those

QSL's going there "undercover." (By the way, CB is illegal in France, too, so you might wish to keep these guidelines in mind when sending your QSL's there.)

So-called "undercover" mailing to radio operators is nothing new and has been used for many years for a wide variety of radio services not authorized by various governments. Even the prissy *QST Magazine* used to carry a considerable amount of information on how their readers could send QSL's to "underground" ops in nations where ham operation wasn't authorized, in the 1930's and 40's.

having his QTH printed in a magazine which is probably read by the CB hunters in his country.

Another reader in England is Lez Carrol, founder and president of the English International DX Club, who says that he's "please to see that S9 is a real CB publication, and not like other publications which call themselves CB publications but seem to have little to say in behalf of CB and CB operators." Lez asks specifically that we run his QTH, which is 225 Arnold St., Boldon, Tyne & Wear, NE-35 9BA. He reports that CB is getting to be known in England as "Open Chan-



Albie says that he's trying to assemble a collection of CB handbooks and manuals which might be donated for use by members of the British Sideband Network; they especially need schematics of current equipment. Readers who wish to pass any of these items along to Albie can contact him in care of this column. We will forward the items as Albie isn't keen on

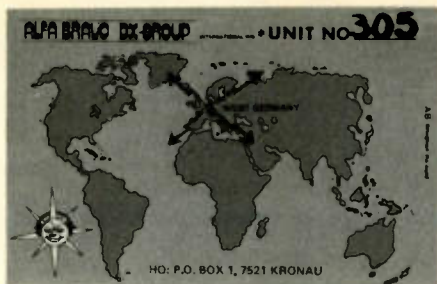
nel" and says he hopes to hear from those who are interested in Open Channel. Lez is part of a movement in England to get CB legalized on 41 MHz inasmuch as he feels they are little inclined to legalize it on 27 MHz.

OVERSEAS ADDRESSES

- DELTA CHARLEY, P.O. Box 699, Karakoy, Istanbul, Turkey
- WHISKEY KID, Peter, P.O. Box 492, Aken 5100, West Germany
- ECHO ALPHA, John, P.O. Box 81, Varviers 4800, Belgium
- SIERRA KILO, Willli, P.O. Box 151, Wetter 5802, West Germany
- UNIT 162, Frans, P.O. Box 29, Sprundel 4714, Netherlands
- 3-WW-73, Mark, P.O. Box 7018, Genova, Italy 16148
- ECHO CHARLEY ALPHA, Werner, P.O. Box 1472, Castrop-Rauxel, West Germany

(continued)



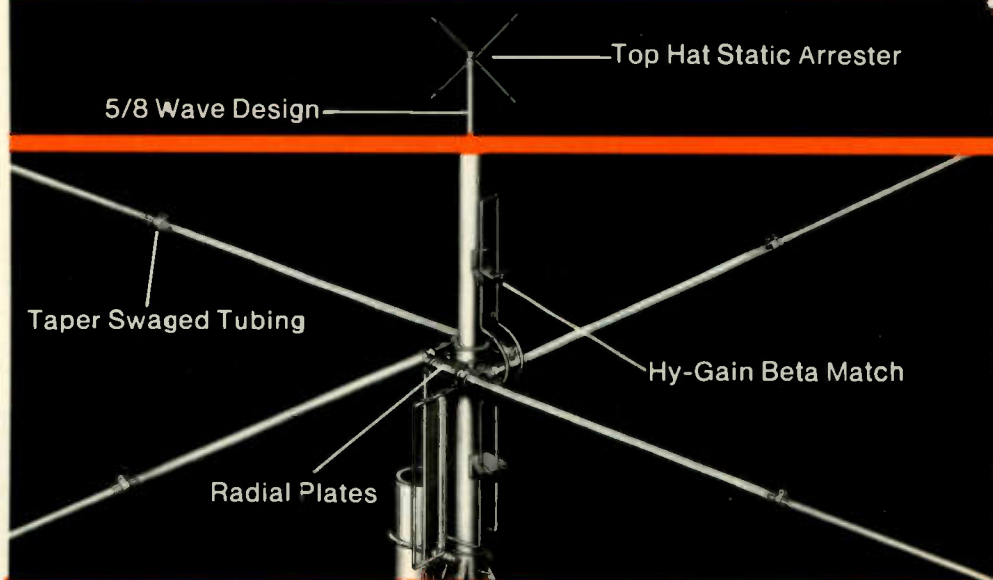


WHISKEY BRAVO MIKE, Claude, P.O. Box 13, Gosselies, Belgium 6200
 ALPHA 2, Alex, 6330, Stolberg 5193, West Germany
 ALPHA ROMEO, Albert, P.O. Box 9, Bornem, Belgium 2680
 INDIA TANGO, Tanju, P.O. Box 699, Karakoy, Istanbul, Turkey
 25-E-32, Tadao Matsumoto, P.O. Box 23, Kudamatsu, Yamaguchi 744, Japan
 SILVER BEAR 17, Kim, Box 2035, DK-8900, Randers, Denmark
 MIKE ROMEO, Maureen Ryan, Tullovin Bridge, Croom, Co. Limerick, Rep. of Ireland
 14-E-229, Pascal, P.O. Box 17, Bougival 78380, France
 27-WW-1, Sig. Johannson, P.O. Box 22, 900 Vestmannaeyjar, Iceland
 YZ-615, Tony, P.O. Box 918, 30.000 Belo Horizonte, Brasil
 CARIBE 1175, Alberto Silva Cruz, P.O. Box 3999, Lima 100, Peru
 NANOK, Erik Kuvdahl, P.O. Box 115, 3900 Godthob, Greenland (may not QSL)
 JH5CAO, Kozo Morimoto, 19-19 Ohura, Tachibana-Cho, Anan City, Tokoshima, Japan 779-13
 91-E-006, Yan, P.O. Box 595, Bandung, Indonesia
 91-E-005, Bry, P.O. Box 595, Bandung, Indonesia
 ECA-1423, Neville, Box 1620, 1930 Vereeniging, South Africa
 SP9-1252, Henryk P. Szopa, P.O. Box 5, 41-501 Chorzow 1, Poland
 UNIT 100, Edgardo Sarmiento V., P.O. Box 151.059, Bogota, Colombia
 1-E-01, Sergio L. Torres, P.O. Box 20-650, Sao Paulo SP, 01.000 Brasil (Sergio advises that the new Earth International roster is now available from him for U.S. \$10.)
 TORRO 1, Lothar Zeiwulski, Henrichenburgerstr 34, 4350 Recklinghausen, West Germany. (Lothar has a large multi-colored QSL that's worth having in any collection.)
 BOY WANNES, Postbox 25, Kalmthout, Belgium 2180

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Two 12' (3.7m) beams on a 14' (4.3m) cross boom for 12.7 dB forward gain.

- ASC-239, P.O. Box 19, Essen, West Germany
CFW-8, Roberto Saad Yunez, P.O. Box 666, San Andres Island, Colombia (A very rare country.)
DAM-BUSTER, A.J. duToit, P.O. Box 2167, Primrose 1416, Republic of South Africa
Erik Pedersen, Engboulevarden 41, 8900 Randers, Denmark
CHARLEY FOXTROT, Claude, P.O. Box 1171, 1420 Braine l'Alleud, Belgium
ALPHA BRAVO 7, Dirk, P.O. Box 4, Oedelem 8330, Belgium

ZRAM-9334
Q.S.L.
CB Station

AM Station Blue Sky
SSB Station Bravo Sierra
Operator Nick Vlavianos
P.O. Box 564
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- BRAVO SIERRA, Nick Vlavianos, P.O. Box 564, Evander - T.V.L., South Africa (QSL 100%)
TANGO WHISKEY 124, Willy, P.O. Box 6, Zedelgem 8260, Belgium
21-E-87, Joens, P.O. Box 5055, Sala, Sweden 73300
DELTA LIMA 1, Henry, P.O. Box 1312, Wyk 2270, West Germany
ROMEO DELTA, Jeen, P.O. Box 8, Erembodegem, Belgium 9440
WHISKEY OSCAR 385, Joop, P.O. Box 43364, Den Haag, Netherlands
RADIO Okinawa, Antonia, P.O. Box 2, Aradeo, Italy
DELTA ROMEO, Rudy, P.O. Box 10, Ekeren 1, Belgium 2070
e-E-423, Claudio, P.O. Box 27, Cavaria, Italy 21044
DELTA WHISKEY, Steve, P.O. Box 10, Geel, Belgium, 2440
KILO DELTA 26, Paul, P.O. Box 9, As, Belgium 3668



**THE GREAT
CIRCLE**

**START ABOUT FIFTY
MILES FROM THE**

WEST COAST OF AFRICA

65

111

As an amateur radio operator, I spend many enjoyable hours on the radio, talking with people in faraway countries. This leisure time is often shared with friends who are fervent CB'ers and radio hobbyists. They come by from time to time to swap stories about on-the-air experiences and their latest homebrew projects. Such was the case recently when my pal *Cactus Whacker* (he's a desert landscape specialist!) dropped by for a chat. I was just finishing up a contact with a ham in Australia when *Cactus* began shaking his head.

"What's the matter?" I asked, flipping off the switch.

"You hams have it made!" he exclaimed. "You can run 2000 watts *legally*, and shoot skip to Australia or Africa or wherever, anytime you want!"

"I wasn't running 2000 watts," I told him.

"How much, then?" *Cactus* had an accusing look on his face.

"About a watt; maybe a little less."

"One watt?! What's the secret?"

"There isn't any secret," I explained. "It's more a matter of technique. If you have a good antenna and use it properly, you don't need much power."

"Now, look here!" *Cactus* was starting to turn red. "I have a beam that I know for a fact cost twice as much as your antenna, and sometimes when the skip is in I can hardly talk across town, much less single out skip from Australia!"

"Well, how do you aim it?" I asked him.

"What do you mean, 'aim it'?" I just point it in the general direction of where I want to talk to. What difference does it make anyway?"

"It makes all the difference in the world. That's why I was talking to Australia on one watt."

Cactus and I continued the discussion for some time. He complained that hams were "too technical" and that they used "secret techniques." CB'ers and radio hobbyists are *communicators*, he wanted me to know, and he wished that hams would share some of their operating secrets without heaping on the technical snow job.

Well, that really hurt, but *Cactus* was right. So I leaned back in my chair and thought it over. Here's what I told him.

HOW TO AIM YOUR ANTENNA

Radio waves constantly decrease in strength as they travel around the earth. The farther they travel, the weaker they get. To compensate for this basic fact of nature, the radio operator should aim his or her antenna over the shortest possible path between his or her station and the distant one. That holds true for both receiving and transmitting.

The direction that an antenna is aimed is called the bearing or heading. It is measured in degrees, from 0° to 360°, clockwise from true north. Most antenna rotator controls have a bearing scale printed right on the direction indicator. How do you know what bearing to set the antenna on? That's related to knowing where the shortest path is.

Due to the fact that the earth is spherical, the shortest path between any two points on its surface is not a straight line, but a curved one. This curved line is called the *great circle path*. The angle that the great circle path forms with a straight line running due north through your station is called the *great circle bearing*. That's the bearing (heading) that you want to set your antenna on to point at the distant station.

How important is all this? Well, let's look at an example. Suppose you lived in Denver, Colorado, and you wanted to talk to someone in Japan. Tokyo is just about due west of Denver—in fact, just a little bit south of west (i.e., a heading of 270 degrees) ought to do the trick, it would seem. Unfortunately, it doesn't work out that way.

Believe it or not, the great circle path between Denver and Tokyo passes through Alaska. As incredible as that might seem, you can easily prove it yourself by stretching a piece of string between the two cities on a globe. In other words, a radio operator in Denver who wants to listen or talk to his counterpart in Tokyo should point his antenna toward Alaska!

Great circle paths are so bewildering that it's virtually impossible to mentally picture where they lie. Here's another example: A great circle path from Australia to South America passes through Antarctica. Ham radio operators on these two continents routinely point their anten-

nas toward the South Pole to talk to each other.

You can see, then, that without knowing the correct great circle bearing on which to set your antenna, there is little chance that you will be able to point it in the direction most favorable for the desired radio contact. How do we find out what the bearing is? The answer is by using mathematics.

Great circle bearings are computed from a set of equations involving spherical trigonometry. You must know the latitude and longitude of both your station *and* the distant one to get the answer. Solving the equations gives you the bearing for your antenna, as well as the exact distance between the stations.

"Wait a minute!" *Cactus* interrupted my explanation. "You're getting technical again. You know as well as I do that I can't figure out that mathematical mumbo jumbo, and I would bet that there aren't many hams who can either. Are you trying to pull the wool over my eyes?"

COMPUTERS SOLVE THE PROBLEM

It took a few minutes to get *Cactus* calmed down again before I could go on. The truth of the matter is that it isn't very practical to try to figure out the bearings yourself. Even if you had a sophisticated calculator, or even a home computer, it would take too long to do it. Most hams spend a few dollars to have a giant IBM computer do the work for them. The computer, knowing your station location, can make a customized printout which gives the bearings and distances to hundreds of other cities. It can even draw a special map of the world, centered on your station, that will show at a glance what the bearing and distance is to any other place in the world.

"Hey, I've seen those printouts," *Cactus* remarked. "Don't you have one around your rig here somewhere?" There was one on the desk by the radio and I pushed it toward him. A small portion of that printout is reproduced in the illustration in Figure 1. The entire printout lists 220 cities, and gives the bearing and distance to each of them. It also gives the return bearing, which is the setting that the *other* radio operator should set his antenna on. The return bearing, incidentally, is not just a simple 180

S9 MAGAZINE

		GCB	MILES	RTN
ALABAMA,	BIRMINGHAM	239	880	51
ALABAMA,	MOBILE	233	1063	45
ALABAMA,	MONTGOMERY	234	909	47
ALASKA,	ANCHORAGE	321	3368	78
ALASKA,	FAIRBANKS	326	3260	83
ALASKA,	JUNEAU	316	2857	88
ARIZONA,	FLAGSTAFF	272	2085	68
ARIZONA,	PHOENIX	269	2155	65
ARIZONA,	TUCSON	266	2135	63
ARIZONA,	YUMA	269	2310	64
ARKANSAS,	FT. SMITH	258	1184	65
ARKANSAS,	LITTLE ROCK	253	1095	62
ARKANSAS,	TEXARKANA	252	1227	60
CALIFORNIA,	ANAHEIM	273	2451	65
CALIFORNIA,	BERKELY	282	2569	70
CALIFORNIA,	FRESNO	279	2469	69
CALIFORNIA,	GLENDALE	274	2459	66
CALIFORNIA,	LONG BEACH	273	2466	65
CALIFORNIA,	LOS ANGELES	274	2460	66
CALIFORNIA,	OAKLAND	282	2571	70
CALIFORNIA,	PASADENA	274	2453	66
CALIFORNIA,	REDDING	286	2517	73
CALIFORNIA,	RIVERSIDE	273	2417	66
CALIFORNIA,	SACRAMENTO	283	2514	71
CALIFORNIA,	SAN BERNADINO	273	2409	66
CALIFORNIA,	SAN DIEGO	271	2443	64
CALIFORNIA,	SAN FRANCISCO	282	2579	70
CALIFORNIA,	SAN JOSE	281	2563	69
CALIFORNIA,	SANTA BARBARA	275	2526	66
COLORADO,	COLORADO SPRGS.	275	1648	75
COLORADO,	DENVER	278	1642	77
COLORADO,	FT. COLLINS	280	1635	79
COLORADO,	GRAND JUNCTION	278	1838	75
COLORADO,	PUEBLO	274	1648	74
CONNECTICUT,	HARTFORD	38	84	219
CONNECTICUT,	NEW HAVEN	49	51	230
CONNECTICUT,	STAMFORD	26	18	206
CONNECTICUT,	WATERBURY	33	60	213
DELAWARE,	DOVER	221	150	40
DELAWARE,	WILMINGTON	234	123	53
DISTRICT OF COLUMBIA		234	221	52
FLORIDA,	FT. LAUDERDALE	202	1080	18
FLORIDA,	JACKSONVILLE	214	851	30
FLORIDA,	MIAMI	202	1103	18
FLORIDA,	ORLANDO	210	952	25
FLORIDA,	PENSACOLA	231	1043	43
FLORIDA,	TALLAHASSEE	223	931	37
FLORIDA,	TAMPA	212	1018	27
GEORGIA,	ALBANY	226	863	39
GEORGIA,	ATLANTA	234	764	47
GEORGIA,	COLUMBUS	231	850	44
GEORGIA,	SAVANNAH	217	730	32
HAWAII,	HILO	280	4897	52
HAWAII,	HONOLULU	283	4973	52
HAWAII,	PEARL HARBOR	283	4975	52
1		GCB	MILES	RTN

FIGURE 1. A small portion of a great circle printout computed by a giant IBM computer for S9 headquarters. The entire printout lists data for 220 cities. It gives the antenna bearing (heading), the distance, and the return bearing. The return bearing is the setting that the other radio operator is supposed to use for his antenna.

degree difference from the outward bearing (though it sometimes is by coincidence). Instead, it must be computed independently, using the spherical trigonometry equations.

"Well, I'll be a son of a *smokey!*" *Cactus* whooped. "And here all along I thought these were some kind of secret code sheets you guys were using! But, just a minute." His eyes were narrowing. "You said something about a map. What does it look like, and how can a computer draw a map anyway?"

I pointed to a large map hanging on the wall of my shack, similar to the one illustrated in Figure 2. It's a special kind of map called an azimuthal equidistant projection. More commonly, it's called a great circle map. This kind of map is made specially for finding radio bearings, and the one you use should have its center based on your station location. A scale of great circle bearings is printed around the perimeter. To use the map, you draw a line from the center (i.e., your station location), through the location of the distant station, out to the edge of the map. The correct great circle bearing can be read directly from the scale at that point.

"I get it," *Cactus* ventured. "It's just like if you were up on the moon, looking down at the earth, but with numbers around the edge!"

Actually, no. That's a common misconception, but if you were on the moon, you would see only half the earth at any one time. The great circle map shows the whole world. It's not the way the earth looks physically from any point. What it really amounts to is a mathematical representation of how radio waves would picture the earth if they could do such a thing.

To illustrate this point dramatically, refer to Figure 3 which shows a great circle map centered on a station in New Guinea. Now *that's* a funny looking world! Every time the center location is changed by a few miles, similar startling results occur.

Incidentally, with a minimum of effort you can incorporate a few additions of your own to make one of these maps even fancier. The distance scale can be duplicated on a circular piece of clear acetate. A pin or tack is inserted through the zero point of the scale, then through the center of the map. The scale on the overlay can then be quickly rotated to line up with

NSKR AZIMUTHAL EQUIDISTANT MAP CENTERED ON
S9 MAGAZINE

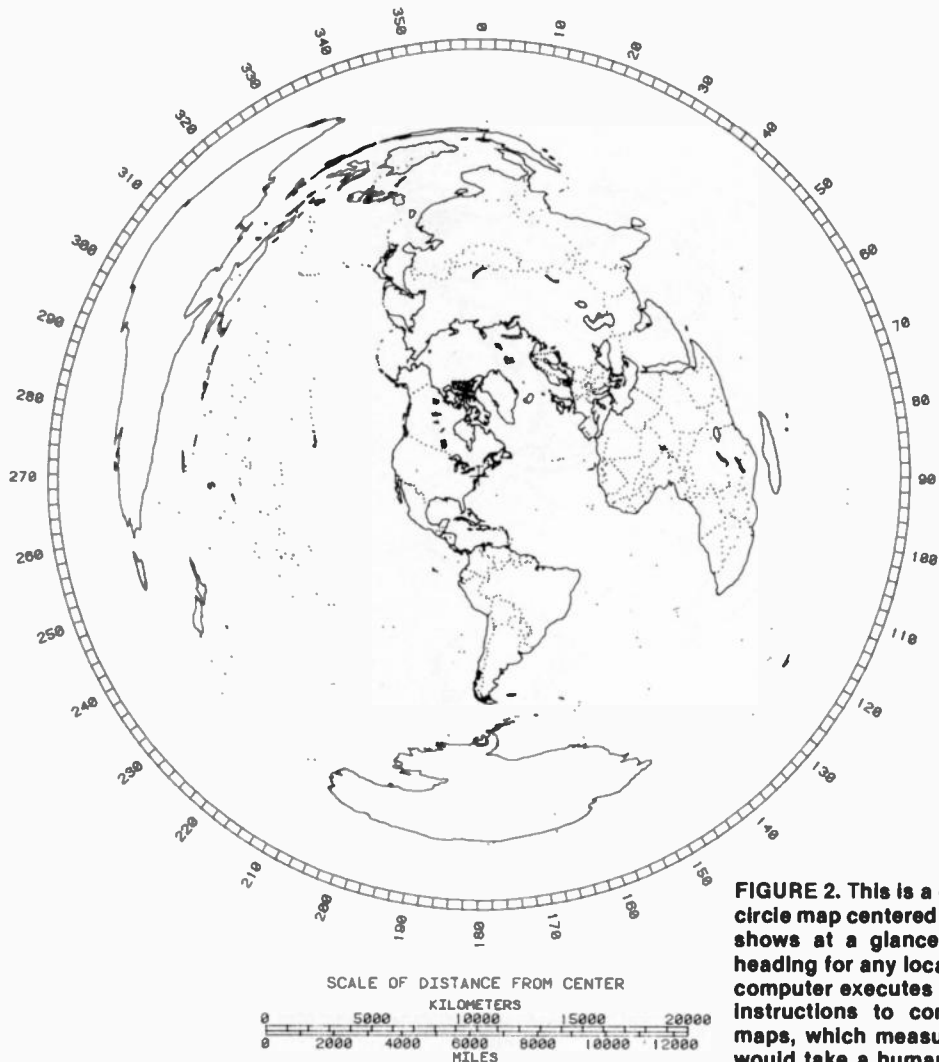


FIGURE 2. This is a computer-drawn great circle map centered on S9 headquarters. It shows at a glance the correct antenna heading for any location in the world. The computer executes more than 125 million instructions to complete one of these maps, which measures 11 x 14 inches. It would take a human more than a year to do the same job.

the distant station and the bearing can be read at the edge of the map. The distance is read directly from the scale. All in all, using a customized great circle map is the quickest and easiest way to find great circle bearings and distances.

"That's amazing! But how in the world can the computer draw a map—any map—much less one centered on your location?" *Cactus* demanded.

To tell the truth, it isn't easy. Every map made is completely different from every other map, and must be calculated and drawn individually. Stored in the computer is a "data base" of 20,000 numbers (latitudes and longitudes) which describe all of the geographical features and major political boundaries on the earth. Given the latitude and longitude of

your station location, the computer calculates the great circle bearing and distance to *each* of these many thousands of points. In all, this requires the solution of some 200,000 trigonometric functions for each map.

Once this is done, these figures are converted to map coordinates. These in turn are converted to special plotter commands which are transmitted over a high speed data link to a high precision pen-and-ink plotter.

The plotter itself contains a microprocessor which decodes the incoming commands and issues the appropriate instructions to the drawing mechanism. For each map that it draws, the plotter processes about 750,000 bits of data, and the computer itself executes more than 125 million instructions.

The end result is a customized map

projection centered on your own exact location. The computer, of course, works at incredible speed, but it would take a human using an electronic calculator a full year to make an equivalent map!

CUSTOM-MADE MAPS FOR RADIO HOBBYISTS

I noticed that *Cactus* was slumped back in his chair, his eyes glazed over. The thought of all that work had exhausted him. "But, but . . . he stammered, "how much does all this *cost*?"

"Not much. The map runs about twelve dollars. The printout is a few dollars less because it doesn't require as much equipment to make. Some time ago we worked out a volunteer project arrangement with my company to supply customized great circle maps and printouts to interested radio

NSKR AZIMUTHAL EQUIDISTANT MAP CENTERED ON
P29XA

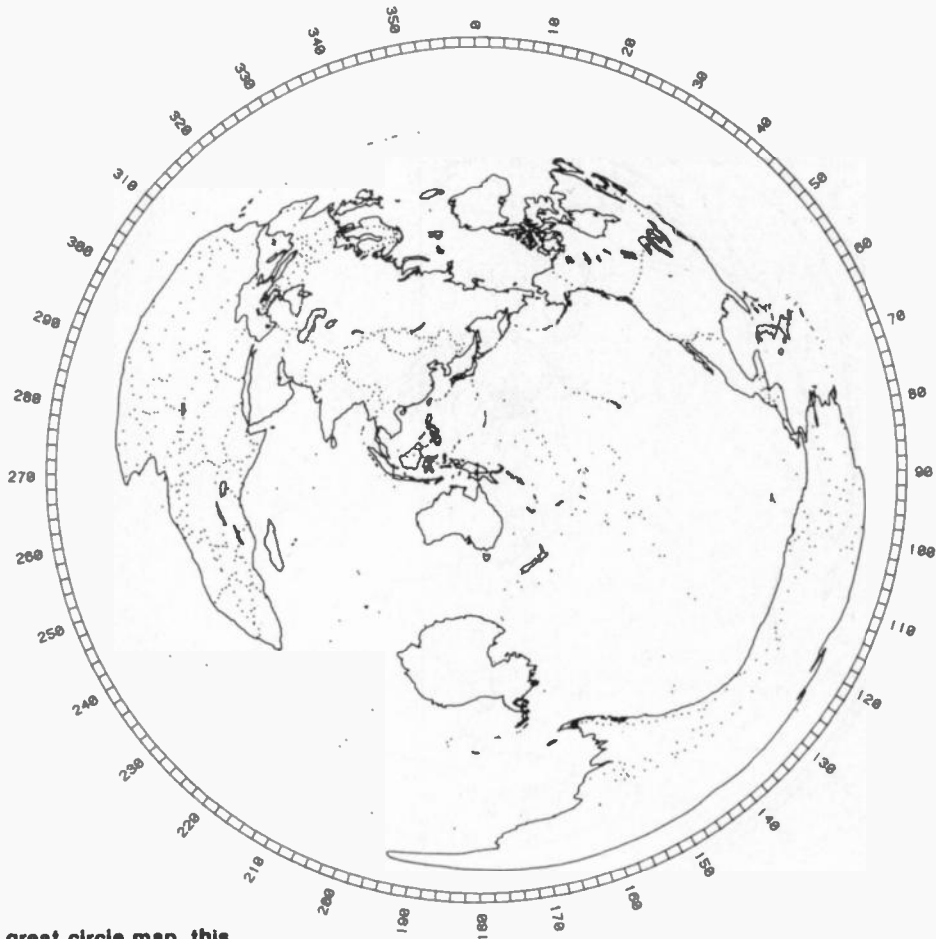


FIGURE 3. Another great circle map, this time centered on a station in New Guinea. Similar startling results are obtained every time the center location is changed by a few miles.



hobbyists. The work has to be done during "off" hours (nights and weekends), and the company gets reimbursed for the cost of the necessary computer time and materials."

"Will they do this for anyone, or just for hams?" *Cactus* asked.

"Well, it was originally set up for hams," I told him, "but it can be done for *anyone* who is interested. If you want, we can run off a map and printout for you next weekend."

That's what we did, of course, but before the weekend rolled around *Cactus* had told all of his friends and we ended up making quite a few maps and printouts. Since then the word spread, and many, many CB'ers and radio hobbyists have inquired about the "big secret." This enormous continuing interest was one of the

things that prompted me to write this article to introduce radio hobbyists to the basics of antenna pointing.

CONCLUSION

Virtually all of the people who have contacted me have also requested customized great circle maps and printouts. In fact, it got completely out of hand at one point and we had to shut down for a while to avoid interfering with regular computer operations. After working out new ground rules, however, we were able to start up again. Those interested in getting a great circle map and/or printout should contact: Mr. William Johnston, Attn: Maps and Printouts, Applied Computing Co., P.O. Box 1120, Las Cruces, New Mexico 88001. Ask for prices. Enclose a self-

addressed, stamped reply envelope.

This was meant to take some of the mystery out of the so-called "secrets" of long distance radio communication. It can't be denied that the underlying mathematical and physical principles are extremely complex. But the power of the gigantic digital computer has now made the operational techniques very simple. Whether we are highly technical amateur operators, radio hobbyists, or armchair DX listeners, we all deserve to benefit from this modern marvel of science.

What became of *Cactus*? A couple of days after he got his great circle map he called me on the landline. "How much," he wanted to know, "does it cost to send a postcard to South Africa?"

AUTOSOUNDING

Another Dimension of Sound for CB Mobiles

by "Shutterbug"

CAR RADIO FEATURES AUTOMATIC REVERSE CASSETTE

A new AM/FM-stereo radio with automatic reverse cassette has been added to the RCA line. The tape will automatically change programs when it reaches the end, or the program can be switched manually at any time, and the tape automatically ejects when power is turned off.

Suitable for in-dash installation in most domestic and import cars, model 12R816 also features a locking fast forward and reverse control that provides rapid tape movement without holding the switch. Tape direction lights show which program is playing.

The model 12R816 is engineered with an FM mute switch to remove background noise when tuning between FM stations; an automatic power antenna connector lead that permits hook-up to a power antenna; an antenna trimmer located behind the tape door for easy access even after installation is completed; a stereo/mono selector switch to improve fringe area reception; a local/distance switch to reduce interference from strong local stations; an FM stereo indicator light to show when a station is properly tuned; and automatic frequency control (AFC) circuitry to keep FM signals locked in.

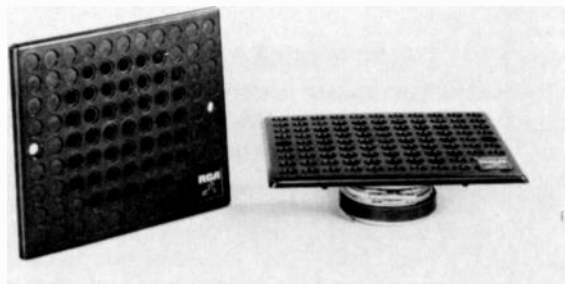
The model 12R816 also provides fader and balance controls for adjustment of front-to-rear and left-to-right sound balance; a 3-coil tuner for maximum interference rejection and sensitivity; a permanently tuned ceramic IF filter for optimum FM selectivity; and universal "DIN" type noseplate, trimplate, adjustable shafts and bullet-type speaker lead connectors for convenient installation.

Technical specifications include IF frequency of

455 kHz (AM) and 10.7 MHz (FM); sensitivity rated at 20 dB (10 uV) for AM and 10 dB (3 uV) usable for FM; audio amplifier frequency response ranging from 30 to 15,000 Hz + 3dB; speaker impedance for each channel of 2 to 8 ohms; continuous average power output per channel at 10% THD of 4.5 watts into 4 ohms and 9 watts into 2 ohms; 0.2% wow and flutter; and channel separation greater than 20 dB.

TWO NEW STEREO SPEAKER KITS

RCA has announced two new stereo speaker kits designed for easy installation in narrow spaces. This makes them particularly suitable for flush mounting



in imports and other cars with limited space in doors, side panels and rear decks.

Model 12R418 boasts a 30-watt power rating, 10 oz. ceramic magnets, and dual-cone speakers. Model 12R417 features a 10-watt power rating with 3 oz. ceramic magnet.

High compliance rim suspension provides maximum cone excursion with minimum distortion. Impedance is rated at 4 ohms, for use with radio or tape player specifying 4 to 8 ohm load.

The speaker in the 12R417 kit measures just 1-11/16" thick overall, requiring only 1-1/4" space behind the panel to which it's mounted.

Model 12R418 speaker and grille assembly is 1-13/16" thick, requiring 1-3/8" mounting depth.

Further information on these products is available through RCA autosound distributors and dealers, or from RCA Distributor and Special Products Division, Deptford NJ 08096, attn: Sales Promotion Services, or mark number 150 on the Reader Service Card.



IN ONE YEAR OUR **K40**™ AN LARGEST SELLING CB AN

1. It's more expensive ...

2. It's made

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And when you pay more, you expect more!

MORE PERFORMANCE:

The K40 is guaranteed to transmit further or receive clearer than any antenna it replaces. We know it will. We've tested it with 771 CB'ers just like you for one year.

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You can fit your K40 to any mounting surface. It will fit any vehicle you'll ever own! That includes choppers, dune buggies, gutters, mirror mounts, luggage racks, trunks, hatchbacks, through roofs, semis, pick ups and RV's.

MORE QUALITY:

It's not imported. It's not made in Taiwan, Korea or Japan. It's American made in an American town. It's made with better materials that cost more and by professional people we pay more. And we designed it right here in the U.S.A.

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4 WHIP ADJUSTABLE OVER 2" for fine-tuning SWR—NO cutting!

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9 FULLY ASSEMBLED with 18' of co-ax with in-line connectors for trouble-free mounting!

10 Optional UNI-VERSAL MOUNT adapts for mounting anywhere you want it; mirror, luggage rack, gutter, etc.



RUST PREVENTION—all metal components plated to MIL-SPEC QQ-C-320B MIL-STD868 and 870.

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DOUBLE GUARANTEE

GUARANTEE I: The K-40 will transmit farther and receive more clearly than the antenna it replaces or the customer will receive a prompt and full refund from the Registered K-40 Dealer who installed and tuned it.

GUARANTEE II: Unconditionally guaranteed for 12 months. Guaranteed against cracking, chipping, or rusting. Guaranteed against mechanical failure. Guaranteed against electrical failure. Guaranteed against accidental breakage. No exclusions. No gimmicks. For a full 12 months.

... Sold exclusively by 3500 Am

TENNA HAS BECOME THE ANTENNA IN THE WORLD

...better...

3. It's proven best!

...Here's what the leading CB publications said.



1 RADIUSED 180° TIP provides static dissipation without requiring ball. No ball loss—ever!

2 CRITICAL ASSEMBLY, material and specifications adhere to U.S. Government Spec's for mobile antennas (MIL-A-55288B-EL). So unique—77 new patent claims pending or issued including U.S. Patent 3,326,051. Canadian Industrial Design Patent 45,497.

3 FULL LENGTH 56" WHIP ground from 17-7PH Stainless Steel for 300% increase in signal-transmitting surface over 36" and 42" whips.

7 QUARTER-TURN QUICK RELEASE removes antenna from mount.

8 30° ROTATING BASE permits vertical adjustment on any angled surface.

CB TIMES: "... it's not often that a product bursts onto the market scene, dominates and improves CB'ing for everyone. American Antenna and the K40 are doing it—repeated tests showed the K40 could out-perform the major competitive brands.

RADIO ELECTRONICS: "The results of our tests showed that, in three different positions of the monitoring receiver, the model K40 equaled or outperformed the competitive antenna. Apparently, American Antenna's advertising is not merely Madison Avenue showmanship.

PERSONAL COMMUNICATIONS: "... an impressive 95% of the trials, the K40 out-performed the existing mobile antennas. We had to try one for ourselves. "... in every case, the K40 either equaled or out-performed its competitor. "No ifs, ands, or buts! The K40 Antenna from American Antenna would have to be just about the best antenna around."

CB MAGAZINE: "Introduced in October, 1977, the K40 quickly became the top seller and in mid 1978, became the number one selling antenna in the nation."

...Here's what CB'ers all across the country said.

ANTENNA SPECIALISTS: "... truck driver and CB'er for 10 years ... 50% further than my M410 'Big Momma'." —J.H. Collett, 207 McFee, Bastrop, LA

AVANTI: "I'm an electronic technician with a Second Class FCC license ... I was able to transmit 70% further and tune the SWR 75% lower than my Avanti." —H.R. Castro, VRB, Monserrante D-67, Salinas, Puerto Rico

PAL: "... 20% better in transmission and reception than my 5/8 wave Pal Firestik." —John A. Blum, Box 446, Zelenople, PA

SHAKESPEARE: "... I've been a CB'er for three years and the K40 is the best I've ever had. Better in reception and transmission than my Shakespeare." —H. Bachert, Jr., 15 King Rd., Park Ridge, NJ

HUSTLER: "Compared to my Hustler XBLT-4, the K40 can consistently transmit 40% further and the reception was better. The K40 is the perfect way to complete a CB system." —Jerome R. Brown, 7800 S. Linder, Burbank, IL

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TOMCATTIN' WITH TOMCAT!

ACROSS THE CHANNELS WITH S9'S EDITOR
TOM KNEITEL, TOMCAT/SSB-13



CONFLICTING REPORTS

At any given point in time there are several opposite opinions available on matters concerning CB radio! For instance, I've heard and read reports on how CB is substantially changing in its orientation. One school of thought reports that it is (in their own terminology) "growing up." This is supposed to imply that there is a shifting away from the hobby use of CB and a heavier use of the service for business and utilitarian (road emergency and information use, for instance) purposes. This isn't just "one more" lightweight rumor; lots of people have been making much noise along this line for the past few months. General Electric, fully convinced of this, is devoting lots of effort to promoting their excellent HELP unit which is intended to capture the interest of the person who wants to know that he has at his disposal emergency radio communication during any highway difficulty—the person who is totally disinterested in hooking up with anybody on the band for friendship purposes, or shooting skip, or whatever. Certainly there is "room" for these people, and there's no doubt about the fact that a CB rig tossed into the vehicle's trunk for a potential time of need can be worthwhile aid, even to a person who isn't looking to be anybody's pal.

But, and there's a *but* to this image of CB radio, I have not myself been able to verify that any shifting taking place within CB is necessarily a shift away from the person who is essentially a hobbyist and/or person who monitors Channel 19 for highway and *Smokey* information. If the "growing up" theory was correct, in the sense of road safety uses replacing all other uses, then we would, at this point, expect to see organizations such as REACT enjoying a renaissance. Such, however, is definitely *not* the case. Unfortunately "Channel 9" teams and other such potentially worthwhile groups have not enjoyed nearly as much support or interest from within the ranks of CB as one would imagine, especially during a period when so-called

serious use of CB is supposedly crowding out everybody else. In fact, only last week I received a letter from a member of a REACT team in a major Texas city saying that unless they could attract some new members the team might shut down from lack of interest!

To be candid, I honestly do not see any significant movement towards what some have called the "serious" use of CB, in the sense that emergency-only communications people are tipping the balance away from others on the band. Also, business users (who are also considered in the "serious user" camp) are not to be detected on the channels, even by the most sensitive instruments.

If you run your receiver across the band you'll instantly notice that all of the stations you hear are hobbyists, with some non-hobby use to be heard only on Channels 9 and 19. The basic "thing" of CB remains personal communications, and in its highest and most personal aspect—people talking to one another and enjoying the ability to do so via modern technology! Some have sniffed at this opinion, saying that this sort of outlook is a put-down to Amateur radio; however I would remind such people that ham radio was originally conceived as a radio service for experimenters and even ham radio has of late turned into "only" a hobby and personal communications service. Wasn't it a big wheel at the FCC who said that the only difference between CB'ers and hams are the things they talk about?

Nevertheless, there are indeed changes to be noted in CB-land. Communications equipment dealers seem to be noticing that the long and lean days of slow CB sales appear to be ending. More than one has told me that there have been some equipment shortages—a phenomenon not noted since about 1976! Mobile sideband transceivers, especially, were cited as having been in short supply at times recently. I take this to mean that the interest in Sidebanding continues on its steady increase; I also think that when you're speaking

about a person being a Sidebender you're talking about a very serious communicator—serious in the primary area of hobby use, with road emergency communications a secondary consideration.

Other healthy signs include some of the neighborhood CB clubs starting to get up steam again after a couple of years of being gone from the scene. Several readers have sent me copies of recently begun local CB newspapers—I haven't seen those in a very long time.

In another area I hadn't realized exactly how much things had changed until I took a look at a CB "lingo" dictionary which was published in early 1977. It really brought home how different things sound on the band now than only 4 years ago. When was the last time you heard words like *bodacious*, *mercy sakes*, *radidio*, *convoy*, *front door*, *keep the shiny side up and the greasy side down*, and other similar CB gems?

I think that this was the actual answer to the great mystery about how CB has supposedly grown up and become serious! Notably absent from our ranks are 95% of the clowns, pranksters, signal chuckers, and other assorted transient characters who latched onto CB in the mid-1070's and were with us for a couple of years. These were the people who pretty much invented and thrived on that phony cornpone image. Brought onto the band by the gigantic mass media hype CB received, those were the people who tend to casually drift into everything they read or hear is the "latest fad." Other than spending a lot of money on equipment, they contributed little to the betterment of the CB service and many would say that maybe, in the long run, they damn near ran it into the ground.

Some of those people eventually seasoned, matured, and evolved out of that unfortunate bag—they remain in CB today as responsible and dedicated members of our fraternity. Most of those who were driving around 4 years ago shouting into their microphones things like, "Hey, goodbuddy, we be tearing up the tar at milemarker 725 and we be down, we be out, we gone,"—have now moved on! Probably today they are walking around in designer jeans, fringed satin shirts, \$75 Stetsons, and \$200 boots pretending they're cowboys. So long as they're no longer pretending to be CB operators we can only wish them the best of luck. Let them give cowboys a bad name!

In the sense that these clowns are no longer to be heard on our frequencies, one might well come to have the impression that CB has rather suddenly "grown up" and taken a more serious approach to life; noting that what you hear on the band today is vastly different than what things sounded like a

couple of years ago. But it was overwhelmingly the short-term "fad" users who were responsible for almost all of the cutesy lingo, and *they gone, they be down, they be out!* Regular operators were hardly ever into much of that kind of talk in the first place. To be sure, the regulars had their own idiosyncracies (and nobody has ever accused them of being 100% angelic), but they never caused the channels to sound like a non-stop 24-hour per day version of *Hee Haw*. It is incorrect to attempt to see CB as a pack of *Goodbuddies* based upon listening to a bunch of short term operators who are no longer here. It is equally incorrect to think that because those good folks have left our channels that CB radio is *essentially* anything different than it was before they arrived on the scene—except that we ourselves have become more efficient operators and more dedicated hobbyists as the years have rolled by.

The CB hobbyist has nothing about which to apologize. It is a noble calling, and he is, in fact, the operator to whom listeners are monitoring when they happily report that CB is *growing up* and has gotten *more serious*. Serious hobbyists welcome other serious users—even those mainly seeking CB as a highway emergency aid.

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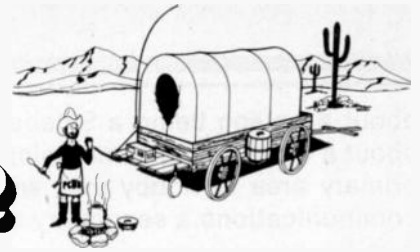
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CIRCLE 47 ON READER SERVICE CARD

THE CB PIONEERS' CORNER



By Judy, SSB-99/PCBS-99

THERE WERE NO STANDARDS

An interestingly curious aspect of CB operation in the early days was the total lack of standardization which was to be noted. Every manufacturer, it seems, had its own individual conception of *the* correct approach to almost any aspect of operation or equipment.

You came across this everywhere, and for many years. One very commonly noted problem for operators, for instance, was caused by the fact that various pieces of CB equipment did not come from the factory with a standardized antenna connection. For instance, these days all CB equipment will accept a PL-259 coaxial connector and there's no two ways about it. Not so in the early 1960's, however!

While it's true that some equipment did come through with the ability to accept a PL-259 connector, others required so-called "Motorola" plugs or RCA type "phono-pins." This confusion was further complicated when it was noted that some production runs of certain transceivers were made with one connector while later production runs emitted rigs with another type. The user response was to either buy a supply of one favorite type of connector (usually to accept the PL-259) and then perform minor surgery on all of the gear at the shack to make it so that the antenna could be used without heartache on all sets. Or, you could simply take all of this into account when you shopped for a rig and buy only equipment produced with one type of connector!

Another area of non-standardization was the circuitry in use which determined the frequency to be transmitted and received. In those times you required a pair of crystals for each channel. A fully loaded 23 channel rig required the installation of 46 separate crystals. It was *no* great news to find out that it was very difficult to use a particular crystal designed for one piece of equipment in any other rig. Indeed, like antenna connectors, there were often noted

instances when a specific crystal which was used in one particular rig was useless in later production runs of the same set! An operator who had an assortment of rigs over the early years usually ended up with several tin-cans full of crystals of various shapes, sizes, and design specs. And if you were foolhardy enough at any given point, to decide that you would always be able to distinguish one from the other you would later find out that after 3 months they all started looking like one another—you couldn't tell if the crystal was a Channel 5 receive crystal for the Browning or a Channel 5 transmit crystal for the Lafayette. The only solution was to mark them in some way, like a color code. I used nail polish—red were the Browning transmit crystals; the receive crystals were green. Blue, blue, the Lafayette HE-15A transmit crystals, while the transmit crystals for the Lafayette HE-20 were blue and red or were those the receive crystals

for the Heathkit? You got the idea.

And, oh yes, there was one more little problem. It took a very long time for the FCC to get around to accepting the little fact that CB frequencies were known by channel numbers. For many years the FCC rules simply listed a bunch of frequencies—26.965, 26.975, 26.985, 27.005, etc., etc.—without any other identification to guide the user or manufacturer. Nobody really knew why they decided to handle it this way, and certainly many operators and manufacturers had begged them to use channel numbers to designate the available frequencies. As a result of their refusal there were also several channel identification systems, all strictly unofficial, in use—and people were all inventing their own systems and trying to get others to accept them as "the standard."

While the majority of operators and manufacturers tended to use the system with which we are familiar today (the one the FCC eventually was



International Crystal Mfg. Co. started proposing Channel 9 almost from the start. Of course, one man's Channel 9 was another man's Channel 11!

forced to include in the CB rules because of the continued public outcry), there were those who for a long time suggested that the channels be called by letters of the alphabet (A through W), or by colors, or by the last 3 digits of the actual frequency (Channel 3, for instance, which is 26.985, was suggested to be called Channel 985) in much the way as Sidebanders (even today) prefer to identify frequencies. Most confusing of all were several whose concept of channel numbers was similar to the more popular "Channel 1 to Channel 23" numbering system, but the numbers related to different channels. This was a distressing situation, and many was the surprised owner of the Gonset G-11 "Gooney Box" transceiver which came from the factory marked as being operational on "Channel 9" but which was on a frequency which many other people were inclined to unofficially call Channel 11 (27.085). Somehow Gonset had devised their own unique numbering system; of course they had as much right to do so as anybody else! And the FCC couldn't have cared less. As I said, it took years for the FCC to standardize anything in this area. Think about how much fun it was to ask your friends to meet you on Channel 11, except that you had to tell a few of them you'd meet them on Channel K—or Purple Channel, or Channel 085, or (if they were Gonset owners) Channel 9!

From the very earliest days there were those who were attempting to establish one single uniform in-transit and calling channel which could be relied upon to contain at least several local base or mobile stations monitoring to give instructions or help. Roy Freeland, of International Crystal, had suggested 27.065 (Channel 9) because it was at about the middle of the band. Since CB rigs then came equipped for operation on only 2 or 3 channels (even though they may have had an actual operating capability of 10 or more channels), Roy was trying to get manufacturers to all agree that at least 1 of the factory-installed channels should be Channel 9. He met with some limited success, but still nothing standardized for many years. Even early REACT teams were much into monitoring some of their own locally favorite channels which had evolved "on their own" and which local operators refused to give up. The list of channels monitored by individual

REACT Teams in local areas contained everything from Channel 1 to Channel 23 until one day REACT HQ finally issued an edict that all stations had to tune up on Channel 9, many going only grudgingly and after a lengthy period of politicking in an effort to get the rest of the organization's members to QSY to their own channel of preference—11, or 3, or whatever! Channel 11, which was a close favorite in many areas, gave Channel 9 a run for its money and was monitored as a secondary channel along with Channel 9 for several years after the forced standardization.

Other things which resisted standardization included language (lingo) and operating practices. Every individual local area had its own pet CB lingo words and its own favorite ways of gaining access to a channel. In those days the word "Break" was what you said when you wanted to join a conversation taking place, as opposed to later years when it was something you humbly asked for when seeking permission of a self-appointed channel manager in order to use your equipment. Most areas had 10-codes in use then; however, each area's 10-code was highly localized and unique to that one area. Saying 10-6 would mean "I'm standing by" in Dubuque, while it meant "I can't copy your signals" in Amarillo. In the mid-1960's S9 asked readers to submit copies of their local 10-codes in an effort to try to standardize their meanings on CB channels. After several months of hard work by Tomcat and the staff, a uniform 10-code for CB use was pieced together based upon hundreds of different versions sent in from around the U.S. and Canada. Most modern-day CB'ers are scarcely aware that the popular CB 10-code, in its present form, was the result of this process and, in fact, is the copyrighted property of S9 Magazine!

As you can see, it took quite a number of years for the dust to start settling on some of the many divergent ways of the fledgling CB radio service. Things are, of course, always in stages of transition, change, and growth—even today—but 15 to 20 years ago they were really in their early and formative states, and it's perhaps difficult these days to think that so many of the "standards" which are taken for granted as having "always been that way" had their own birth pains those long years ago.

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TRANSPARENCY

As everyone who read the October issue must now know, CB skip is made possible by two parts of the ionosphere: the sporadic E layer and F region. Of course, this applies equally to all distant reception above 20 MHz, but what you may not know is that sporadic E layers (yes, there are more than one) are often very thin and only partial refraction of the signal back to earth is achieved. In fact there is a theoretical frequency where exactly half the signal is returned to earth and the other half goes on to the F region. Thus, while sporadic E doesn't necessarily cut off F paths it does usually weaken them. A similar problem is posed by the normal E layer (which effects much lower frequencies) at night for BCB DX'ers.

A good rule of thumb would be that if you find short skip on CB these days, i.e. less than 900 miles, expect more distance signals above 20 MHz to be weakened. It should be noted that by far the most active international DX band in this frequency range is that marine territory around 22.5 MHz. Here the following have all been logged in North America with cw ID markers: XSC Shanghai (China), UJY Kalliningrad (USSR), 9VC59 Singapore, HLC Seoul (S. Korea), VIX Canberra and VIS42 Sydney (both Australia), 4XO Haifa (Israel), JFA Matsudo (Japan), IAR2 Rome (Italy), LGR Rogeland (Norway), ZLB Awarua (New Zealand), PPR Rio de Janeiro (Brazil), CCS Santiago (Chile), SVG7 Athens (Greece), and SAG Goteborg (Sweden). As explained in an earlier column, during a marker the call is sent repeatedly and anyone with the slightest knowledge of Morse code can eventually decipher it. A tape recorder helps and the complete code is contained in Figure 1.

Meanwhile, the effects of transparency on the BCB have never been fully explored, so far as we know. It might explain why transatlantic signals are currently least heard in the middle of the band (that

theoretical point where the signal is supposedly split in half). The most commonly heard European signals now are at both ends of the band; e.g., Lisbon on 666, Radio DDR (East Germany) on 783, Tunis on 1566 and Langdenberg (West Germany) on 1593 kHz.

SCANDINAVIA

Last month we made some complaints about Radio Canada International's "DX Digest" program withholding pertinent information from its listeners. A DX program which gets much higher marks for honesty is "Sweden Calling DX'ers" aired by the international service of Radio Sweden. On the other hand, maybe we're prejudiced because Radio Sweden is the only international SWBC station with guts enough to mention this column on the air. Anyway, "Sweden Calling DX'ers" is beamed to North America at 1800 and 2130 EST on 11705 and 9695 kHz. These transmitters, incidentally, are operated by the Swedish Telecommunications Authority which also runs the earlier-mentioned coast station Goteborg Radio. Another frequency for that one is 12880.5 where they ID as SAT.

All the other Scandinavian countries are much more interesting DX via the utility rather than the broadcast route. We have already mentioned Nor-

ALPHABET					
Meaning	Symbol	Meaning	Symbol	Meaning	Symbol
A.....	.-	H.....	Q.....	---..
B.....	.-.-	I.....	..	R.....	.-.-.-
C.....	-.-.-	J.....	.-.-	S.....	...-
D.....	.-.-	K.....	-.-	T.....	---
E.....	..	L.....	.-.	U.....	..-
CH.....	-.-	M.....	-.	V.....	..-.-
F.....	..-	N.....	-.-	W.....	.-.-.-
G.....	.-.	O.....	---	X.....	-.--
H.....	P.....	.-.-	Y.....	-.--.
I.....	..	Q.....	---..	Z.....	---.-
J.....	.-.-				
K.....	-.-				
L.....	.-.				
M.....	-.				
N.....	-.-				
O.....	---				
P.....	.-.-				
Q.....	---..				

NUMERALS		PUNCTUATION		
Meaning	Symbol	Meaning	Sign	Symbol
1.....	.-	Period (full stop) (.) and decimal point.....	AAA	.-.-.-
2.....	.-.-	Bar indicating fraction (/).....	XX	..-.-
3.....	.-.-.-			
4.....	.-.-.-.			
5.....	.-.-.-.			
6.....	.-.-.-.			
7.....	.-.-.-.			
8.....	.-.-.-.			
9.....	.-.-.-.			
0.....	.-.-.-.			

FIGURE 1: The international Morse code.



FIGURE 2: Radio Sweden program brochure.

way's Rogeland Radio which, by the way, has reportedly suffered more interference from Russian SW radar than any other utility station in the world. Another Rogeland outlet is LKR on 12727.6 kHz. Operating in that same band is OFJ3 on 12669.3 (Finlands Helsinki Coastal Radio) and OX26 on 12916.5 at Lybby, Denmark. As on the 22.5 MHz band, marker signals are the key to these loggings.

CLANDESTINE FUTURE

On Hallowe'en 1980 Jolly Roger Radio (6210 kHz) made the most artistically sophisticated bootleg shortwave broadcast ever. There were satires on the FCC and local newscasts, very professional sounding station promos ranging all the way from pirate ship to UFO themes, and every conceivable kind of music—English folk ballads, Russian pops, Nashville pops, the "Hallelujah Chorus," hobo songs, Benny Goodman, and Pink Floyd. The broadcast, which was widely heard, will probably inspire better and more complex programming from other North American pirates—even though the FCC claims to have busted Jolly Roger's operators a week later.

Four days after JRR's historic Hallowe'en transmission, Ronald Reagan was elected President. Some observers feel we should expect the FCC to impose at least some further restrictions on what licensed stations can broadcast—resulting in still more pirate activity (despite the *alleged* bust of Jolly Roger). Simultaneously, possibly increased militancy in Washington might well mean more politically oriented clandestine stations—both governmental (CIA, KGB *et al.*) and non-governmental, right, left, and in the middle. Along will all this, don't be surprised to hear Radio Noticias del Continente in Costa Rica undergo yet another political metamorphosis. That's the one on 9615 kHz we detailed in the July 1980 column.

Still on the subject of clandestines, and more pre-

cisely those coded numbers transmissions, we have heard again from the former head of Project Morning Star (see October DXK). With reference to our allegation that some of these messages emanate from Communist embassies in the U.S. and/or Canada, he notes, "For almost 15 years...the Spanish language number transmissions have been in continual operation. In all that time, no one connected with them has ever stepped forward to blow the whistle." Well, Washington has never told anyone about such a defector. Maybe the new administration's intelligence agencies will have more information.

Regarding his own earlier hunt for the location(s) of these transmitters, he tells us, "I am out of it. I have no desire or intentions of ever getting involved again in any project, group, or probe of these transmissions. Let's just say that I have a gut feeling about them. It's not a game, for the secrecy, lies, deceptions and double talk surrounding them convinces me that a blanket of national security covers them. I got burned, and that is why I'll let someone else put his - - - on the line." We could make a few witty comparisons here between these comments and some of the bits once used by peddlers of flying saucer literature—except that, unlike UFO's, number (and other clandestine) stations are real.

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 CIRCLE 24 ON READER SERVICE CARD

The Radar Column

by "Jammer"

ANOTHER RADAR COURT CHALLENGE

A Normal, Illinois man who was attempting to have one of the city's radar units judged inaccurate was found guilty a few weeks ago of speeding.

Jon Svensson said he intended to show that the radar unit, a K-15, can be inaccurate. Svensson, however, was not allowed to have two radar experts testify at his trial. The judge ruled that the testimony would be prejudicial to the jury because it was not relevant to the case.

Jay Schreiber, one of the radar experts, said that because of the angle between the police car and Svensson's car, (Svensson claims he was driving 28 mph in a 30 mph zone) the radar gun should have read slightly less than 20 mph.

But, Schrieber said, the mph gun does not read speeds less than 20 mph, and what will result is a "double bounce" effect which would double the speed readout—hence, the 39 mph clocking.

The jury, after 3 hours of deliberation, found Mr. Svensson guilty of the speeding charge. An appeal is questionable at this time.

EISENBERG CHARGE DROPPED

A speeding charge against Milwaukee attorney Alan Eisenberg was dismissed recently by Fond du lac Circuit Judge Jerold Murphy after he said the District Attorney did not introduce sufficient evidence.

Murphy refused to return \$627 in court costs Eisenberg had paid in May for failing to appear for an earlier trial date on the charge. Eisenberg said he would file a lawsuit to recover the money.

This was the fourth traffic violation against Eisenberg dismissed this year.

DEPUTY IRATE OVER SPEEDING TICKET

An Arkansas deputy sheriff on vacation in Iowa discovered last month that law officers in Clinton, Iowa have no sense of "professional courtesy"—they gave him a speeding ticket.

Instead of conceding to the regional peccadillo that law officers are not immune from speeding tickets in Iowa, Bobby McMillan of Paragould, Arkansas stormed into the law center to protest his \$20 ticket.

In Arkansas, explained McMillan, commissioned Greene County deputy, "professional courtesy" means officers don't give speeding tickets to off duty law officers no matter where the speeding officer is from.

Greene County, Arkansas Sheriff Johnny Nations freely admitted a few weeks ago that officers in his area routinely afford their off duty brethren "professional courtesy."

While the irate Mr. McMillan did not pay his fine he added that vacationing Iowa law officers better watch their step in Arkansas.

SPEEDING ARREST DISPUTED

Unwary motorists rounding a curve or coming over the brow of a hill and then suddenly crossing a pair of cables across the highway that automatically record their vehicles' speeds on a monitor in a police car may be victims of illegal arrest if they subsequently are charged with speeding.

At least that was the contention of Robert Gleason, a Johnstown, Pennsylvania lawyer, and the opinion of Pennsylvania District Justice Joseph Piurkowsky.

Mr. Piurkowsky's decision to dismiss speeding citations against three local men was twofold.

The judge dismissed the citations on the basis that signs were obstructed and the people weren't being made aware of the 25 mph speed zone, and on the basis that there were no signs erected informing the people that there was a speed trap ahead.



Mr. Piurkowsky pointed out that a state law specifies that the existence of signs along roads where the monitoring equipment was in force is a necessary element in the prosecution of a speeding case.

The warning signs are required to be posted every 10 miles.

DRIVER CLEARED

George Nice, appealing his conviction in Newport News, Virginia traffic court for speeding and using a radar detector, has been found not guilty of both charges.

Nice was ticketed last June for driving 39 mph in a 25 mph zone. A month later, Nice was stopped by another police officer who had noticed a little black box on his car's dashboard. The box, a radar detector, was seized and Nice was issued a summons.

James Bradberry, Nice's attorney, read from the statute prohibiting the use of radar detectors and noticed a change made in that statute two years ago. For a conviction, police must prove more than single possession. They must also show there was a power source available for the device. The arresting officer tested the detector in his police car, not in Nice's car, the judge noted. The defendant was found not guilty of possession of a radar detector—and, after an inspiring speech by Mr. Nice, the judge also dismissed the speeding case.

STOPWATCH USE UPHELD FOR MONITORING SPEEDERS

The use of stopwatches to clock speeders along streets in Oil City, Pennsylvania has passed its first test in court, local officials report.

Two men, accused of speeding, challenged the validity of using stopwatches to clock speeders, but the decision went in favor of the police.

Officers using the stopwatches are stationed in cruisers between speed limit signs, several hundred feet apart. Each has a calibrated and certified stopwatch to use.

When a vehicle travels by the first sign, both officers start their watches and keep them running until the vehicle reaches the other sign.

If a driver is found speeding, the second officer pursues the vehicle and makes the arrest.

Since the use of the system has been upheld, police are expected to begin clocking drivers on other city streets.

"POPPING" RADAR GUN?

Don Watson, the manager of the Royal Cinema Theater in Spartanburg, South Carolina, claims this isn't a fish story.

Mr. Watson says he was talking with a patrolman in the officer's car, which was parked in front of the theater, when the radar needle started to zoom to 74 miles an hour. "Something awfully fast is going on in your movie house," the officer said.

"The radar was picking up the corn popping in my popcorn machines. It was popping at 74 miles an hour," said Mr. Watson.

RADAR FOE WINS CASE

A Ypsilanti attorney who has been staging a one man crusade against "northern Michigan speed traps" won his case when a judge decided there wasn't enough evidence to prove he was speeding.

District Judge James McCormick dismissed speeding charges against attorney John Collins, ruling that radar readings alone don't offer enough evidence for conviction.

The arresting officer told the judge he had to rely on radar, because it was dark and he could not see how fast Collins' car was traveling.

The 1979 arrest was made under then accepted state standards. The new radar guidelines were issued by the State Police Office of Highway Safety Planning in December 1979, and adopted by the state's district court judges in February of this year. The judge applied the new guidelines to this case because he considered them reasonable.

POLICE UNHAPPY WITH RADAR RULING

Police in Delaware, especially those in small towns, are not happy with a ruling from the attorney general's office concerning the use of radar.

Based on a court decision by Superior Court Judge Joseph Longobardi, the attorney general's office has directed all police agencies to test the K-55 radar unit with a speedometer from another police vehicle, the speedometer of which is known to be accurate.

This test, which is in addition to internal calibration, light tests and external checks with a certified tuning fork, means police must have two vehicles operating to run radar.

In addition, both officers must be present at all trials involving the K-55 radar unit along with the officers whose police car was used for the speedometer test.

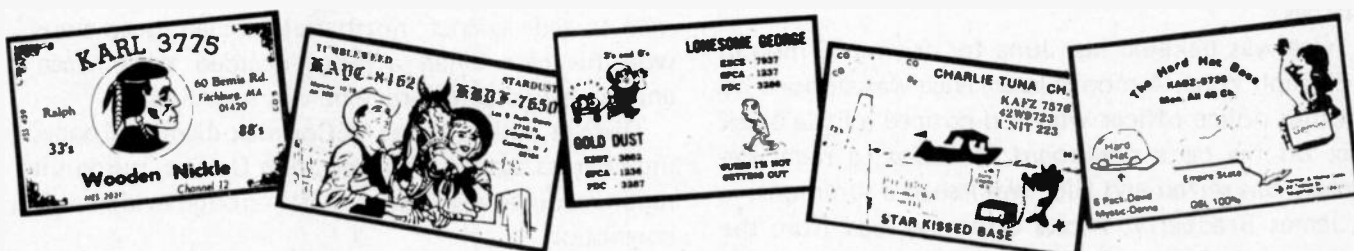
According to the Sussex County Deputy Attorney General, the test should be run at the beginning and end of each officer's shift, and must be made whether the unit is run in the stationary or moving mode.

Small towns in Delaware are expected to receive reduced speeding revenues, especially in those towns in which there is only one officer.

Cardswappers Unlimited

S9's Column for QSL Cardswappers

Conducted By: Dottie Iacone



The Cardswappers Unlimited Column is dedicated to the hobby of swapping or exchanging CB QSL cards (wallpaper). The below listed CB's have submitted their names to this column to indicate that they invite other CB's to send them QSL cards for swapping purposes, and will respond to all who do so with a QSL of their own. Those readers wishing to swap cards with these people, should mail QSL cards directly to the addresses indicated, and NOT to the offices of CB RADIO/S9.

Readers wishing to be listed as Cardswappers are requested to obtain a copy of our rules and standards for becoming a part of this column. These rules were outlined in the December (1979) issue of CB RADIO/S9; a reprint is available for 25 cents and a self-addressed stamped envelope. Address all requests to: Dorothy Iacone, Cardswappers Unlimited, CB RADIO/S9 Magazine, 14 Vandeventer Ave., Port Washington, NY 11050.

- | | | | |
|--------------------------|---|----------------------|---|
| Unit 720 | Fay, P.O. Box 5983
Augusta, GA 30906 | KPM 0221 | 78 Hudsonale St., Wea-
therly, PA 18255 |
| 6W132 | Henry M Koski 19 Squam
Rd., Rockport, MA 01966 | SSB-1406-A | Chip Lucas P.O. Box 265
Verona, PA 15147 |
| SSB-1406-A | P.O. Box 265, Verona,
PA 15147 | Magic Man | John Jesse, 727 Webster
Mexico, Missouri 65265 |
| KGC-1045 | The Blanchettes, 1 South
St., Danielson, CT 06239 | Country
Gentleman | Bill Davey, 2716 N.
Congress Rd., Camden,
NJ 08104 |
| Big John/
Snuggles | P.O. Box 9266, Phoenix,
AZ 85068 | The Oldies
Fan | Jay Ehret, PO Box 173
Oaklyn, NJ 08107 |
| SSB-4392-A | M Spranger Jr., Rt 1
Perry Lake, Fairview, MI
48621 | PSA-001/
Unit 859 | P.O. Box 11483, Phila-
delphia, PA 19111 |
| KPM 0221 | 78 Hudsonale St.,
Weatherly, PA 18255 | Unit-451 | 11632 Las Lucas, Santa
Ana, CA 92705 |
| KAST-6919 | Mildred S. Bugbee Route
1, Box 39, Pennville, IN
47369 | Unit 431 | Ethel, P.O. Box 931, Wap-
pingers Falls, NY 12590 |
| Hard Hat | 22 Teetsel St., Saugerties
NY 12477 | SSB-9718 | Jack B. Richter, 23 E.
George Street, Yoe, PA
17313 |
| KAXO-9558 | Paul H. Miller, 361 Tracy
Lane, Grand Island, NY
14072 | | |
| KMV-2120 | Jim Thompson, Route 6
Box 90A Ada, OK 74820 | | |
| KHN-4892 | Mike Zimmer, 2917 Cov-
entry Blvd., N.E., Canton
OH 44705 | | |
| Big Dollar/
Unit 183 | Pres, U.S. of Texas QSL
Swap Club, P.O. Box 183
Henderson, TX 75652 | | |
| KQL 5845 | John J. Vinsko, 34 Weston
Place, Shenandoah, PA
17976 | | |
| Captain
America | David Haire, 2406 Prince
Ave., Tifton, GA 31794 | | |
| Mr. Magic/
Rag-Muffin | Harold & Betty Martin
101 Diplomat Plaza,
Norton, IL 61550 | | |

- | | |
|----------------------|--|
| Bar-B-Q/
Seal | The Roberson's Box II014
Parkwater Stat. Spokane,
WN 99211 |
| Buffalo
Skinner | P.O. Box 7515, Lexington
KY 40555 |
| Double A
SSB-296A | The Parm's, P.O. Box
126 Nashville, MI 49073 |
| Tango 5 | Box 292, RR 3, West
Hotdog, IL 62896 |
| Turtle/
Muttley | Loys & Rosemary Marsh
4971 Hwy. H. Kewaskum
WI 53040 |
| KJO-4014 | Old Samsula Rd., Rt. 1
Box 71 H6B, Daytona
Beach, FL 32014 |
| KFN-4010 | 218 E. Vine St., Osceola
IA 50213 |

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Get 12 Giant Issues of S9/HOBBY RADIO for \$10.

103E

If purchased on the newsstands 12 issues would cost \$24. I'd like to save money by receiving CB RAOIO/S9 by mail for the next 12 months.

Enclosed is \$_____ remittance. Charge to my Master charge VISA Account My account number is _____

My sub is to be mailed to: Allow 8 weeks for delivery of first issue. Add \$3.00 for foreign subs. _____

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(Please Print Name & Addresses Clearly)
Send the following gift subscriptions to
my friends at my expense.

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Street _____	Street _____	Street _____
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THE MONITOR POST

RICK MASLAU / KNY2GL SCANS THE CHANNELS

NEW VEHICULAR REPEATER

Aerotron, Inc. recently announced its new Relay 2 vehicular repeater systems.

Designed and built in the tradition of quality and serviceability established by its public safety proven Mpac mobile radios, Relay 2 offers users of portable radios an effective method of extending their portable range by gaining access to the greater communications coverage provided by their mobile radios.

Currently Relay 2 is available in the 450-512 MHz band and will be followed by additional models covering other radio bands.

Additional information and a copy of the Relay 2 brochure may be obtained from Aerotron, Inc., P.O. Box 27500, Raleigh NC 27611, or mark number 151 on the Reader Service Card.

NEW TWO-WAY BUSINESS RADIO

An economically priced, high performance, 30 watt VHF FM two-way business radio is now available from Standard Communications. It is available with either one or two channels.

Designed for mobile use or as a base station, this radio, designated 867L, operates in the 150-174 MHz frequency range.

The advanced Hi Q receiver on the front end assures excellent sensitivity and selectivity of signal reception. The automatic transmitter power control maintains a steady transmission at the rated power output over a widely varying input voltage.

A micro-strip RF power amplifier reduces tuning



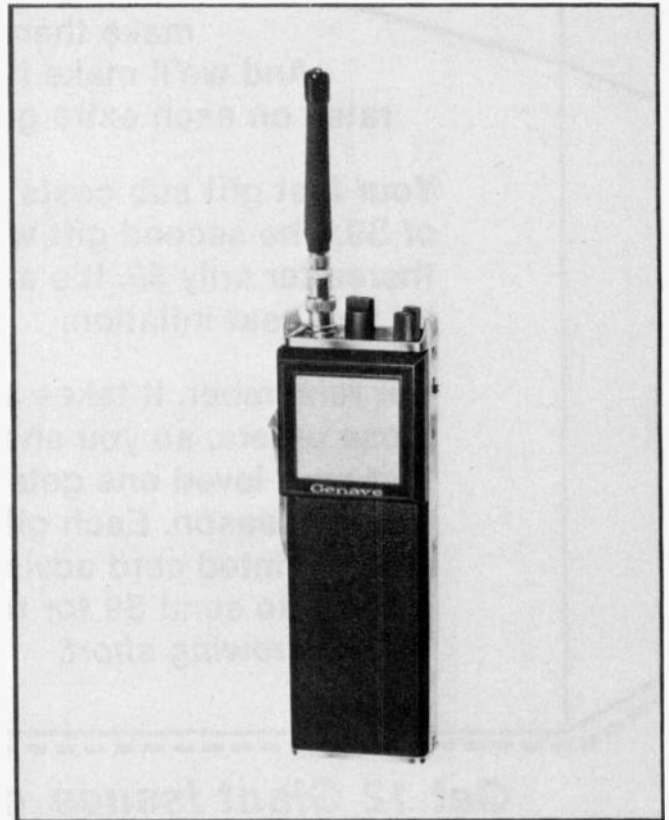
time and makes for over-all easier alignment and service. Private channel (CTCSS) operation is available as an option.

For additional information on the 867L, write Standard Communications Corp., P.O. Box 92151, Los Angeles CA 90009, or mark number 152 on the Reader Service Card.

UHF HAND HELD

Genave, Inc. has introduced the GHT 6U, a rugged and durable UHF-FM handheld transceiver, and the first UHF handheld offered by Genave.

Enclosed in a shockproof metal case, the GHT 6U



is designed to withstand years of rough handling in hostile working conditions. Vinyl-clad aluminum covers protect the components from physical damage, dust and moisture.

The GHT 6U offers six channels for the flexibility of operating on six different frequencies where radio traffic is heavy or for "talk-around." Added convenience is provided by a plug-in remote speaker microphone. A tone override switch turns off the subaud-

ible tone installed in the transceiver, permitting communications with transceivers not equipped with the tone. This feature overrides the tone on all channels, expanding communications capacity and enabling the user to monitor the channel before talking.

Included with the GHT 6U are a low-profile, helically loaded vinyl-clad antenna; a long-life, rechargeable battery pack; and a security wrist carrying strap.

The unit can be equipped with a SA-44 subaudible tone controlled squelch system.

Genave manufactures airport communications equipment as well as a complete line of land mobile transceivers.

For more information contact Genave, Inc., 4141 Kingman Drive, Indianapolis IN 46226, or mark number 153 on the Reader Service Card.

NEW EXPERIMENTAL STATIONS

KK2XCI, RCA CORPORATION, Lancaster, PA. Granted CP and license for a new experimental developmental station to operate on the 48-72 MHz band to develop, test and demonstrate a high-quality security surveillance system using a monochrome television camera and microphone system.

KK2XCN, ZENITH RADIO CORP., within continental US. Granted CP and license for a new experimental station to operate on 54-72 MHz band to field test Class I type devices prior to filing for type acceptance.

The following stations were granted for experimental research to provide further information on the seismic activity of faults in the vicinity of the Humbolt Bay Nuclear Power Plant: **KK2XCO**, TERA CORP., Eureka, CA. 161.085 MHz. **KK2XCP**, TERA CORP., Walker Ridge, CA. 160.515 MHz. **KK2XCQ**, TERA CORP., Hanson Hill, Eureka, CA. 161.385 MHz. **KK2XCR**, TERA CORP., Squaw Tit, Eureka, CA. 160.335 and 160.425 MHz. **KK2XCS**, TERA CORP., Gas Wells Road, Eureka, CA. 160.425 MHz. **KK2XCU**, TERA CORP., Buzzard Peak, Eureka, CA. 160.335 and 160.995 MHz.

KK2XCV, PAR SYSTEMS CORP., within continental US. Granted CP and license for a new experimental developmental station to operate on 151.625, 151.805, 151.995 MHz to demonstrate for sales purposes a remote control transmitter/receiver system intended for use in the industrial radio service.

KK2XCW, OCLA, INC., Columbus, OH. Granted CP and license for a new experimental developmental station to operate on the 54-60 MHz band to investigate public response to broadcasting library oriented information to individual homes using view-data technology, via home television receiver and telephone lines.

KK2XCX, LITTON SYSTEMS, INC., Van Nuys, CA. Granted CP and license for a new experimental research station to operate on various discrete frequencies between 232 and 349 MHz as required by US government contract.

KK2XCY, HARRIS CORP., Palmyra, MO. Granted CP and license for a new experimental developmental station to operate on various frequency bands between 54-88 MHz; 174-216 MHz; 470-608 MHz and 614-806 MHz to improve signal radiation quality through research and development as well as testing antennas for broadcasting stations.

KK2XCZ, HARRIS CORP., Palmyra, MO. Granted CP and license for a new experimental station to operate on various frequency bands to improve signal radiation quality through research and development as well as testing antennas for broadcasting stations.

KK2XDA, COMMUNICATIONS SATELLITE CORP., Frederick, MD. Granted CP and license for new experimental developmental station to operate on 35.02 MHz to conduct research to determine how reliably data can be transmitted at 35 MHz over non-line-of-sight paths at distances up to 15 miles.

KK2XDB, E.F. JOHNSON CO., within continental US. Granted CP and license for a new experimental station to operate on 813.0375 and 858.0375 MHz to carry out continuing efforts to improve transmitters and receivers used in the land mobile service.



Here's a photo of the CB and scanner station operated by "The One Redbird," an Ohio operator who happens also to be known as Bryan Mobley. Bryan says S9 is "the best," and reports that we inspired him to buy his first scanner. A recent addition to his station is an Ameco preamp which he read about in S9's November issue. Bryan says he's also got Tomcat's "Top Secret" Registry and has been spending many fascinating hours scanning those exotic government frequencies in that book. If you have a photo of your scanner installation, send it along and tell us something about your interests!

Tomcat's Mailbag

By S9 Editor
Tom Kneitel



Tomcat answers some of his more interesting mail in this column from time to time. Address your letters to Tomcat's Mailbag, S9 Magazine, 14 Vanderventer Ave., Port Washington, N.Y. 11050.

TVI IN REVERSE?

My CB rig is picking up the sound from my neighbor's TV set; it's all "mushy" sounding and makes the incoming mail so that it can't be understood whenever he's watching his set. This seems to be a unique case of TVI in reverse! Any explanation or cure for this?

"RELAY JOE" Andressen,
Wallingford, Conn.

Before shaking an accusing finger at TVI-in-reverse, understand that this problem represents a curious conspiracy of some rather unrelated signals. One of the commonest causes of hearing non-CB signals on a CB receiver is due to "images." Strong signals on other frequencies spill into the receiver and create the correct frequency "needed" by the IF stages. In your case, strangely, the TV channel is so far removed from the CB channels that it is not likely that images are your problem.

In checking out your symptoms it would appear that you're being plagued by a "phantom" frequency. You are, for instance, located near both Hartford and Waterbury. Hartford has a TV station on Channel 3 while Waterbury has an FM station on 92.5 (WWYZ, which is one of my favorites). The problem is that it's possible for the TV and FM frequencies to mix, either at a poor joint somewhere in the antenna system or directly in the CB rig's mixer stage. The result of this strange marriage is a new signal which drops in precariously close to the CB channels. As it turns out the sound for TV Channel 3 is 65.75 MHz.

Combine this with the FM signal on 92.5, and you have a phantom signal on 26.750 MHz—the difference between the other two frequencies! The little fact that it's outside of the CB band only makes matters worse.

This is because TV sound is transmitted via FM; the CB rig is designed to pick up AM, but it can also reproduce FM signals by means of slope detection. This requires that the incoming FM signal be slightly off the frequency to which the AM receiver is tuned; that results in the mushy type audio you are reporting. The FM station audio isn't being heard because in the mixing process, the modulation on the weaker of the two carriers predominates.

You might try either of two tricks to straighten out the mess. If it's a poor antenna joint acting as an RF mixer, check all antenna connectors and connections to make certain that they're still shiny, clean, and fully intact. If it's the receiver mixer stage itself which is to blame, the interfering frequencies must be squashed in the antenna circuit; best bet is a low-pass filter—since it can "work in reverse" and filter out any incoming signals above 30 MHz. If you've already tried a low-pass filter without success, try running a heavy, direct wire between the rig and a good electrical ground such as a cold-water pipe or the cover screw on an electrical outlet.

COMMENTS ON 49 MHz NO-LICENSE HOBBYING

Your story on 49 MHz no-license hobby band DX was very interesting. Several years ago I worked it on 50 mw. with CW and managed a couple of QSL's. I have always thought this band could be the bridge for many CB'ers who would like to learn to send and receive code. With interest and participation it could start major interest in this hobby. S9 must con-

tinue to bring readers more information on 49 MHz to help this band develop; you're the pioneers in this type of coverage and it's right down your alley!

E. D. Barber
Stanton, Calif.

Now you really went and did it. Why did you have to go and blab about our great "secret" frequency 49.86 MHz in the October S9? Nobody is supposed to know that it is possible to work skip on 6 meters around the world on less than 1 watt. Drat! Next thing you're liable to do is tell your readers that companies such as Hamtronics make .2 uv AM receivers for this frequency, in addition to all kinds of other goodies. Next you'll be running a regular Part 15 column in S9 (I don't say I won't read it). Oh well, you really did a great service in bringing this exciting and little known no-license hobby radio service to the attention of readers who might not have heard about it. Maybe I'll hook up with some of them there!

Bruce Mallon, WA4GCH
Largo, Fla. (.099 watts on 49.86 MHz)

I find S9 extremely informative and was very interested in your coverage of the 49.86 MHz low-power no-license hobby channel. Where can I get more information on equipment for this band?

John J. McLaughlin
Vernon, N.J.

John, meet Bruce—the address of Hamtronics is 65 Moul Road, Hilton, N.Y. 14468. Readers seeking information on products they offer for the 49 MHz Part 15 hobby band might contact them directly. We'll be happy to run any information/photos/QSL's our readers might wish to send in con-

cerning operations on the 49 MHz band and, who knows, maybe it could eventually develop into a monthly column if it appears that reader interest warrants such a column.

CARRY ON, CB'ING

I read with great interest Gus Howard's story on dealing with the FCC (October issue). Interestingly enough, it could have been written about the troubles we here in England are having with CB. As you are probably aware, the British Post Office has the monopoly hereabouts on communication and they don't want to lose it. We have been generously offered "Open Channel Radio" (so-called) on 928 MHz. That would mean somewhere between 150,000 to 200,000 CB'ers (us illegal 27 MHz types, that is) would have to abandon our rigs which cost upwards of the equivalent of U.S. \$100 for legal ones costing many times more. Not a chance!

There is a frequency (200 to 250 MHz) which was used by aircraft during the last war. This band would be far more acceptable to CB operators than the band on 928 MHz. However, the Air Ministry still retains control of that band and I doubt that they would relinquish it.

So we also have a government which doesn't have its ears on. The risk of a fine of up to more than what amounts to \$800 in U.S. funds applies to those caught operating on 27 MHz. For this reason, CB'ers in the U.K. may be reluctant to give their addresses or specific locations over the air.

WHEELER DEALER
Manchester, England

For the reason you mentioned at the conclusion of your letter, we no longer list the addresses of U.K. operators in our "Hello Skipland" column unless we are specifically requested to do so by the operator involved. For whatever it's worth, all of us on this side of the big pond are cheering for you folks to get your problems ironed out as soon as possible!

ALBERT MERRILL FOLLOW UP

When reading your recent coverage of the Albert Merrill "Incident," I couldn't help but get the feeling that there was a lot more to the story than appeared on the surface. You will recall that Merrill was the California operator who was accused by the FCC of bootlegging on the ham bands using the callsign of a ham operator whose name was similar, then later when Merrill applied for a ham license

of his own the FCC refused to issue it and simultaneously revoked his CB license which had been obtained after the original ham incident. Later you said that the FCC reinstated his CB license after deciding (perhaps with S9's help) that it shouldn't have been revoked in the first place. Guess the FCC didn't care for your making a fuss about this situation.

(name withheld by request)
Tulare, Calif.

No, they did not regard my story as one of their favorites and they were especially bent out of shape at my expressing opinions which cast some suspicion upon the fairness, intelligence and/or competence of their "administrative law judges" and their hearing process. Merrill claims that he was lured on to the ham frequencies by FCC entrapment, and he says the ham who appears to have been put up to it seems to have been amply rewarded for his handiwork by means of receiving an "upgraded" ham license. Merrill also contends that although the FCC denies that they had ever actually issued him a ham callsign (they say they denied the license before it was ever issued), he has proof that he was, in fact, actually issued the ham callsign KA6DMI—although the FCC never sent him the license! He has received advertising bearing that callsign from companies selling ham equipment which buy the names of new licensees from the FCC. And, by the way, Merrill is an almost wholly disabled Vietnam vet! It's a messy business, at best, and it certainly requires the attention of someone with some clout in Congress to investigate the situation.

ARE YOU FROM "BIG D"?

As sales representative of a manufacturer I travel throughout the west and midwest, most of the time with my CB rig grinding out Channel 19. In fact, I have become a student of CB "Inlgo" just from listening to the activities on "19." But here's a real brain buster; the CB nickname "Big D" seems to apply to no less than three different major cities! I hear them use it to refer to Dallas (TX), Denver (CO), and Des Moines (IA). It's really getting to me, so help me untangle this 3-way switcheroo. Does this bug you as much as it does me?

Stewart McCafferty
Tulsa, Okla.

Stew, everybody seems to have to live with their own personal and totally unsolvable brainbuster which can

haunt them for years. Personally, I couldn't care less which city is entitled to be "the" one and only "Big D;" however, if you could tell me where the razor blades go when you shove them through the little slot in the medicine chest I'd be much obliged. Fifteen years ago that puzzler caused me to grow a beard so I wouldn't have to think about it any longer. What's been bugging me more recently is wondering about, after almost 80 years of automobile and truck use in this country, at the rate of 4 tires per vehicle which get used up so fast, why we don't have a 5 foot thick layer of rubber build-up vulcanized to our highways. Like you, Stew, I am much into pondering the deeper philosophical questions of life in contemporary American society.

TURNUED ON

In your October Issue Mailbag column you spoke of wiseacre CB'ers who play the drive-in theatre audio over their CB rigs so their friends parked outside the theatre can hear the films in addition to seeing them. Some drive-in theatres actually run their sound systems over low power broadcast band transmitters so cars can tune the sound in on their radios instead of having to use the old style clip-on window speakers. That way you might be able to take in the show from outside the theatre if your car radio was good enough to pull in their low-powered signal.

Lew Marocchia
Temple, Texas

A drive-in not far from me runs 2 different films on 2 different screens. The sound for one of the screens is sent out on 530 kHz while the other screen's sound is transmitted on 540 kHz. Oddly enough there is a nearby broadcaster who operates on 540 kHz and the drive-in can't start running the film until the broadcaster (WLIX) clears the frequency—but since the station goes QRT at sunset there's no problem. What is unusual is that WLIX plays only gospel music, and the sound track of some of the raunchy films the drive-in plays sounds a bit odd when one follows the other—the drive-in starts minutes after the broadcaster goes off the air! The result is that you sit in the drive-in before the show starts and listen to 15 minutes of getting salvation, and within 10 minutes you're reveling in the depths of some sleazy flick; you don't even have to change the dial! And, no, I haven't figured out how to get a QSL from the drive-in yet!

Alternative Radio



Pirates-Spies-Clandestines

by John Santosuosso

The dawn of the administration of President Ronald Reagan raises an intriguing question for the followers of clandestine radio. What does the future hold for the anti-Castro broadcasters who were so prominent during the first eight months of 1980? It is difficult, and usually impossible, to operate a clandestine transmitter for any lengthy period of time without the toleration, if not the outright support, of the host country. In the past most clandestine broadcasts beamed to Cuba have originated in the Miami, Palm Beach County, or Keys areas of Florida. The attitude of the new administration is thus critical to their continued existence.

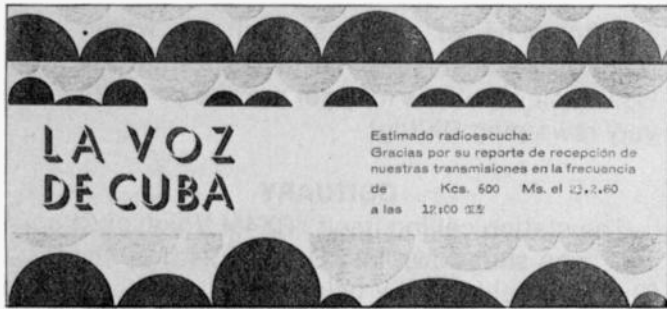
At first glance the anti-Castro broadcasters would appear to have few worries. In early March, while campaigning for the Florida primary in a Cuban section of Miami, candidate Reagan condemned the Carter administration for shutting down a clandestine radio transmitter. He was undoubtedly referring to the FCC's claim that it had busted a supposed Radio Giron, said to have been operated by the Bay of Pigs Veterans' Association, Brigade 2506, and allegedly transmitting on 7025 kHz. It seems likely that both the station and the raid were complete figments of the FCC's imagination, cooked up in an attempt to appease angry amateurs who had been complaining about interference from the Cuban clandestines, particularly *Comandante* David's Radio Libertad Cubana. However, it is unlikely that Mr. Reagan knew all the details of the FCC's action, and his statement may have been made with the full belief that indeed the Cuban exiles had been hampered in their attempts to harass Castro. If this is the case, why should the exile groups be concerned? They would appear to have a president who is sympathetic to their cause and their methods.

In reality the situation is far more complex than it looks. Throughout the first half of 1980, while sometimes seeming to crack down on the exiles, the Carter administration probably was a friendly bystander if not an outright sponsor. From January through August SWL's who scanned the shortwave frequencies between 7000 and 7100 kHz, and also between 7300 and 7400 kHz, were rewarded for their efforts by frequent, sometimes nightly, clandestine broadcasts. Until the end of July normally the most

often heard were those of the mysterious and elusive *Comandante* David. The *Comandante* favored the frequencies around 7080 and 7090 kHz and made both taped and live transmissions. Often he could be heard communicating with his allies Francisco, Ricardo, and Rene. Occasionally others would join in the conversations, including a woman known as Mariana. The *Comandante* attracted a larger audience in Cuba than any other radio personality, and many acts of sabotage were attributed to his broadcasts and the enthusiasm of his followers. Eventually the Cuban government put a price on his head.

Several of the exile groups also made regular broadcasts. Among the most active were Abdala, which at one time claimed the *Comandante* worked for them, and Alpha 66. In April, after dissident Cubans broke into the Peruvian embassy in Havana, a whole host of groups took to the airwaves. These included old established exile organizations such as Antorcha Martiana and Brigade 1450. At least one operation which transmitted for a few days seems to have been the work of a militant, fundamentalist religious organization. Still others were nothing more than impassioned speeches of irate Cuban-exile amateurs who believed the downfall of Castro was imminent. In May the Cuban Patriotic Junta, an umbrella organization of over 150 exile groups, also began broadcasting on 7400 kHz. Evidence exists that at least *some* of the more sophisticated operations were actually getting technical assistance from Washington! By November only Alpha 66, on 7050, was still broadcasting on a regular basis. We are left with the obvious question of what happened.

The month of July may have seen a change of heart by the Carter administration. During that month the FCC claimed it had arrested *Comandante* David and seized his equipment. A man allegedly known as Jose Gonzalez of Hialeah, Florida, was brought into court, and the FCC proceeded to declare that he was the *Comandante*. It also charged him with operating an unlicensed transmitter. In reality he was not *Comandante* David, but after mid-August, broadcasts by that colorful personality ceased except on a most irregular basis. The Cuban Patriotic Junta continued to transmit through



Havana's English language Voice of Cuba broadcasts on 600 kHz mediumwave may have brought about more support from Washington for anti-Castro clandestines during the first half of 1980.

September, often identifying as Radio Mambi and announcing Caracas mailing addresses. However, in October it also fell silent. It appeared that the Carter administration had ordered the exiles to turn off the transmitter. Support for clandestine broadcasting had turned into disillusionment.

At first the broadcasts may have been welcomed for several reasons. Washington may have seen them as appropriate retaliation for increased Communist radio activity. In February of 1980 Havana began English language Voice of Cuba broadcasts on 600 kHz mediumwave between midnight and 6:00 a.m. EST. The transmissions can still be heard over most of the eastern United States by listeners using nothing more sophisticated than a car radio. Even more irritating was Radio Moscow's use of the same transmitter to relay its World Service and North American Service programs from 6:00 to 9:00 a.m. and from 3:00 p.m. to midnight EST. In Miami listening to Radio Moscow while being caught in rush hour traffic briefly became a fad.

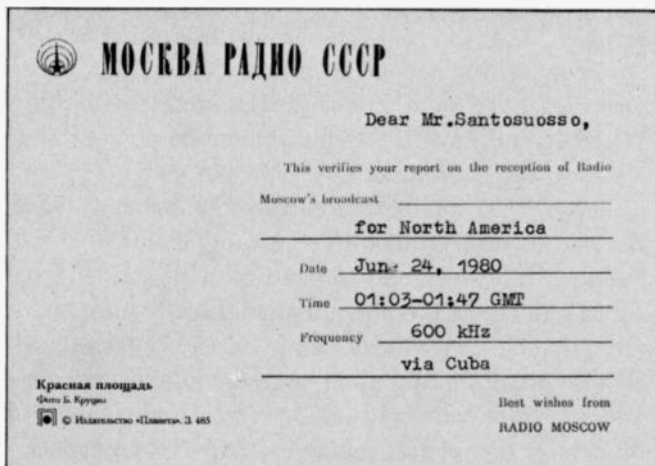
Far more important may have been Washington's belief that the clandestine transmissions might help to inspire an uprising in Cuba that could lead to the downfall of the Castro regime. Sources in the exile

movement claim that *Comandante* David urged Cubans to take refuge in embassies in Havana. After some did storm the Peruvian embassy, clandestine transmissions consisting of the addresses of foreign embassies were monitored in Florida. Broadcasters such as Antorcha Mortiana sometimes ended their programs with emotional calls to undermine the Castro government. To be sure, clandestine broadcasts to Cuba had been made long before 1980, but the increased activity in 1980 may have been due to both anger and hope for a revolution on the part of the United States government.

What Washington got was not an end to Castro, or even English language radio broadcasts from his island, but a flood of refugees out of the port of Mariel. The Cuban leader had been too clever. He allowed the disenchanteds to leave, thus making it unnecessary for them to revolt. However, there is little doubt that the entire situation had created embarrassment for him, as the revolution's image had been tarnished. For reasons of mutual benefit Washington and Havana must have agreed it was time to reach an understanding. Castro stopped the exodus of refugees, returned hijackers, and freed Americans in his prisons. Washington ceased to worry about Russian troops on the island and became more conciliatory in its statements. Also, it pulled the plug on the exiles' transmitters!

But we have a new administration and a president who at on least *one* occasion expressed sympathy for clandestine broadcasters. He may agree to support anti-Castro broadcasts. On the other hand, he may feel that he has inherited a state of affairs from the former administration which makes these transmissions undesirable from Washington's point of view. Still another possibility is that some exile groups may decide to take the risk and broadcast no-matter what the new administration thinks. In the past, anti-Castro clandestines have disappeared only to surface once again.

All of this means that SWL's would be wise not to forget those frequencies between 7000 and 7400 kHz, especially those from 7050 to 7090. Recent jamming by Cuba in the vicinity of 7075 means it certainly has not forgotten the *Comandante* and other clandestine broadcasters. Even before you read this there is a possibility that anti-Castro broadcasts may have increased. If not, there is a good chance that they will some time in the future. The *Comandante* has already been heard with occasional brief transmissions around 7070 and 7075. Another part of the spectrum which should be watched is the "European pirate band," the frequencies above 6200 kHz. In the past exile broadcasters, such as Radio Cuba Libre, have found a home there. Nor should those outside the southeastern United States ignore these opportunities. *Comandante* David has been



Radio Moscow's Cuban mediumwave relay may have inspired temporary closer cooperation between the Carter administration and the Cuban exile broadcasters.

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Partners in our
children's future.

nea
national education
association
Washington, D.C.
20036



monitored as far away as Manitoba, while Radio Mambi has been received in California. The anti-Castro clandestines may yet provide you with some very rewarding DX'ing!

OBITUARY

The station calling itself "RX4M Voice of Clipper-ton" was shut down last October 24th by the FCC. The FCC said that by using "sophisticated mobile direction finders," they "traced the signals to the home of James T. Dolan of Seattle." The FCC further claimed that RX4M's 7 and 21 MHz operations "employed transmitters capable of world-wide coverage." The FCC said that the "operation of pirate broadcasting stations can cause interference to legitimate radio services, including emergency communications involving safety of life or property." However, in RX4M's specific case, they did not claim that the station had actually caused any such interference or was operating on frequencies where there was any likelihood that such interference *might* be caused. Nevertheless, RX4M's alleged operator was given a \$750 fine for unlicensed broadcasting.

Readers with QSL's or monitoring data relating to spies, pirates, clandestines are invited to write to me in care of S9 Magazine, 14 Vanderventer Avenue, Port Washington, N.Y. 11050.

CB RADIO/S9 FIX'M-UP

TAKE ADVANTAGE OF THESE USEFUL FREE SERVICES:

EVERYONE FOR A.M. "UNIT NUMBERS"?

As you tune the AM channels these days you'll note that a great many CB'ers are now using "Unit Numbers" in addition to or instead of "handles." Many people think "handles" have pretty much *had it*, as they are heavily duplicated and all-too-often difficult to copy through the chatter on a crowded channel, also, a growing number of operators tend to think of AM "Unit Numbers" as sounding a lot more professional and less "cutsey" than "handles." There are other advantages too, all of which makes the idea of 'Unit Numbers' on AM channels sound even more appealing. For more information on AM "Unit Numbers" and an application for receiving or registering your own AM "Unit Number," send a self-addressed stamped return envelope to Z-Tech, P.O. Box 70-FXM, Hauppauge, N.Y. 11787. AM "Unit Numbers" are a strong trend as CB Radio continues to evolve, expand, and mature.

SIDEBAND ID NUMBERS?

They don't use "handles" to ID on the sideband channels, stations use "Sideband ID Numbers." If you're an active Sidebander you may already have several local or regional group ID numbers—if you're a newcomer or a future Sidebander, you may not have any Sideband ID numbers at all. Whether you have a dozen numbers or none at all, it's easy and important to you to get yourself a set of *national ID numbers* from the *SSB Network*, and become a vital part of the growing national Sidebanding movement by affiliating with the oldest (1964) and most prominent national sideband group. Old timers, newcomers, and future Sidebanders should obtain information and an application for national *SSB Network* numbers by sending a self-addressed stamped envelope to: SSB Network, P.O. Box 908-X, Smithtown, NY 11787.

ON THE COUNTERS

S9'S MONTHLY PRODUCT REVIEW

PEAK READING WATTMETER

The MFJ-825 lets you operate 3 rigs simultaneously and monitor each rig's output with just the flip of a switch. There are three sensors available: High power (MFJ-830), VHF (MFJ-831), and QRP (MFJ-832). The sensors may be mixed or matched in any combination. The MFJ-825 is con-

structed to house all three sensors, or sensors may be mounted externally.

The user may read forward or reflected power in two ranges or read SWR directly from any rig.

The MFJ-825 uses a 9 volt battery or 110 VAC with optional AC adapter for the peak reading circuits and for the lighted meter. The meter can also be used to check battery or adapter voltage.

The cabinet is black steel and measures 6-7/8 x 5-3/8 x 5-3/4 inches. The front panel is black with white lettering.

The MFJ-830 HF sensor covers 1.8 to 30 MHz and the scales are 200 and 2000 watts forward and 20 to 200 watts reflected, with 5 watt SWR sensitivity.

The MFJ-831 VHF sensor covers 50 to 175 MHz and the scales are 20 and 200 watts forward and reflected, with 1 watt SWR sensitivity.

The MFJ-832 QRP sensor covers 1.8 to 30 MHz and the scales are 2 and 20 watts forward and reflected with 500 milliwatt SWR sensitivity.

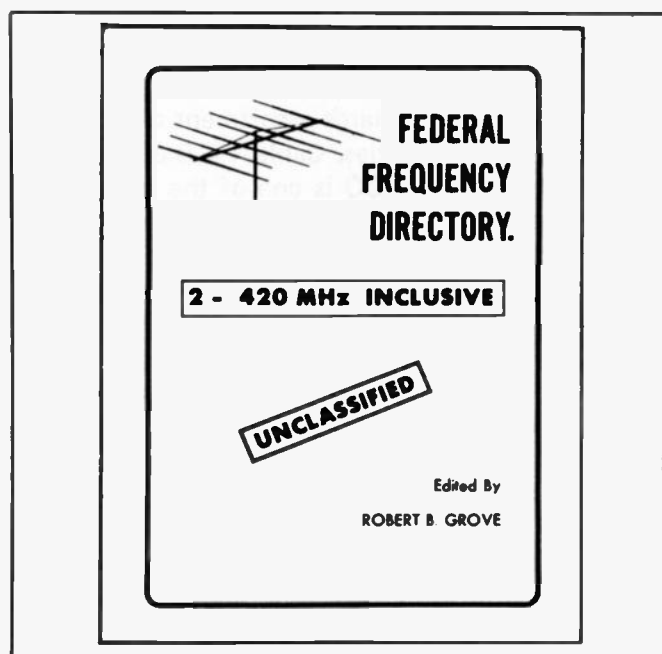
For more info contact: MFJ Enterprises, Inc., P.O. Box 494, Mississippi State MS 39762.

Mark number 160 on Reader Service Card.



INTERESTED IN MONITORING DX?

There has been some interest in finding out exactly what the federal government has in its frequency computer regarding unclassified radio operations of its various agencies. Since the Freedom of Information Act permits the public to have open access to such information, somebody decided to find out about it. Bob Grove has taken this data and put it into his own computer. What came out is a book which he calls his Federal Frequency Directory. It shows thousands of frequencies between 2 and 420 MHz which the government says it's using for non-sensitive communications; each frequency listed is shown with the names of agencies registered to use it and city/state authorizations for same. This interesting book is now available by mail for \$17.95 (\$14.95 for the book, plus \$3 shipping/handling charge) from Grove Enterprises Inc., Brasstown NC 28902.

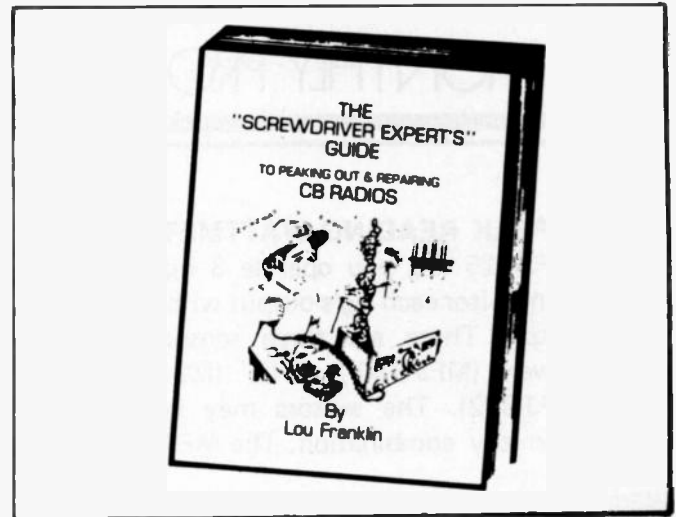


LAYMAN'S CB REPAIR BOOK

When was the last time you tore into a CB radio without really knowing what you were doing? Most electronic newcomers, as well as seasoned technicians, can often use a helpful hint. A new book called *The "Screwdriver Expert's" Guide to Peaking Out & Repairing CB Radios* is just the thing you need. This plain-language guide is loaded with tons of facts, illustrations, typical problems and cures, and a very unique troubleshooting approach that practically eliminates expensive test equipment or special schooling. Perfect for beginner or expert!

For more information, contact CB City International, P.O. Box 31500, Phoenix AZ 85046.

Mark number 67 on Reader Service Card.



1 KW OIL FILLED DUMMY LOAD

The MFJ-250 dummy load is rated at 1 KW on CW and 2 KW PEP for 10 minutes, 500 watts CW and 1 KW PEP for 20 minutes, and 200 watts CW and 400 watts PEP continuous (the derating curve appears on the label).

The MFJ-250 comes complete with 1 gallon of transformer oil (contains no PCB). The non-inductive 50 ohm resistor gives you a VSWR of less than 1.2:1

up to 30 MHz and less than 1.5:1 up to 300 MHz.

For convenience the MFJ-250 has a coaxial type connector on the top and a vent cap to allow for expansion of oil during use.

The MFJ-250 is 7½" high and 6-5/8" inches in diameter and has a convenient carrying handle.

The MFJ-250 is made by MFJ Enterprises, Inc., P.O. Box 494, Mississippi State MS 39762.

Mark number 70 on Reader Service Card.

NEW EDITION OF THE ETCO CATALOG

The sixth edition of this catalog contains 96 pages packed with unusual items and thousands of hard-to-find parts.

ETCO offers a very large assortment of cable TV converters and accessories. Cable TV is enjoying explosive growth and ETCO is one of the few sources for these converters and information on their use.

Other new items include: microwave radiation detectors, wireless intercoms, wireless microphones and wireless telephones, long distance parabolic and shotgun microphones, VTR accessories, disco items, TV screen magnifiers, educational kits, hundreds of new surplus offerings, metric hardware, printed circuit materials and one of the world's largest assortments of receiving and transmitting tubes—including hundreds of impossible-to-find obsolete types.

This "K" issue of the ETCO catalog is available free! Just write to: ETCO Electronics, Dept. 280, Box 796, Plattsburgh NY 12901.

Mark number 162 on Reader Service Card.





600 MHz PRESCALER

The TP 600 is a high sensitivity prescaler which will extend the upper frequency limit of most frequency meters by a factor of 10 times, up to a maximum of at least 600 MHz.

Input and output are via 50 ohm BNC connectors. Input impedance is nominally 50 ohms and input sensitivity better than 10 mV from 40 MHz to 600 MHz.

Power requirements are 6 VDC to 9 VDC from an external power supply or optional AC adapter. A lead is supplied fitted with the correct connectors to allow the unit to be powered from the auxiliary power socket fitted to Thandar frequency meters. Current consumption is 150 mA nominal, 170 mA maximum.

Case size is 4.5" (114 mm) x 1.7" (43 mm) x 1.1" (28mm). Weight is 4.3 oz. (120 grams).

For further information contact: Henrick K. Gille, Energy Electronic Products, 6060 Manchester Ave., Los Angeles CA 90045.

Mark number 161 on Reader Service Card.

LONGWAVE FREQUENCY DATA

A new publication containing listings of 5568 worldwide longwave marine and aeronautical navigational beacons has recently been announced. Called Longwave Beacon List, by John Clements and Ken Stryker, it required 5 years in research and preparation. Persons interested in longwave (below 540 kHz) monitoring have long sought such a comprehensive and all-inclusive listing and it looks like it's finally arrived. The price of the book is \$7, and copies can be obtained from the Longwave Club of America, Box 33188, Granada Hills, Calif. 91344. Be sure to say that you read about it in S9. And ask LWCA to send you some membership information.

HIGH PERFORMANCE WHIP

Avanti has introduced a new higher strength fiberglass whip that is said to combine super flexibility with high performance.

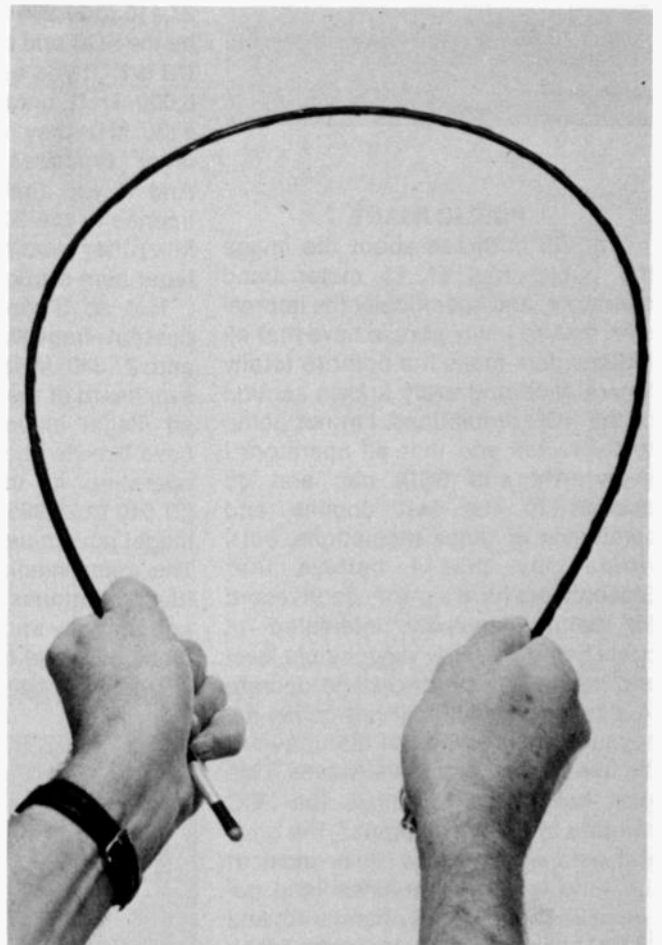
Called the Skinny Stick, the 48" whip has a ¼" diameter and can be bent 360° without breaking, to better resist impact.

Available in black or white, the Skinny Stick also has a new tuning band feature. There are no wire tips to snag or bend, and no windings to cut or unravel. The foil band allows for precision tuning and is retunable. The top loaded coil gives the whip added punch for better reception.

The Skinny Stick fits standard 3/8-24 thread mounts. Its power capacity is 150 watts (250 c-phased). The whip is tunable to a SWR of 1.5:1 or less. Another exclusive feature is pin tightening—no tools are required.

For more information on the Skinny Stick, contact Avanti Research and Development, Inc., 340 Stewart Avenue, Addison IL 60101.

Mark number 156 on Reader Service Card.



ON THE SIDE

S9'S MONTHLY COLUMN FOR SIDEBANDERS
BY BILL SANDERS / SSB-295, KW-5304, KBAH6794

FIXEM-UP: GETTING NATIONAL NUMBERS

Single Sideband operators don't use "handles." Instead we identify by special sideband numbers. Those many readers who write to us asking how they may obtain a set of these numbers are advised that we recommend obtaining a set of permanent national numbers from the SSB Network, which is the largest, most prominent, and oldest Sidebanding organization in the world. There are no dues! We suggest that ALL Sidebanders now avail themselves of the opportunity to become part of the vast network—future sidebanders, new sidebanders, and even experienced old-timers with "this many" local and regional numbers. A self-addressed stamped envelope sent to The SSB Network, P.O. Box 908, Smithtown, N.Y. 11787, will bring you information on how you can become a vital and important part of the national Sidebanding movement, and at last obtain a number which is part of the uniform international Sideband identification system, recognized throughout the world.

PUBLIC IMAGE

I'm still bothered about the image the public has of 11 meter band operators, and specifically the impression that so many people have that all Sidebanders make it a point to totally ignore each and every known section of the FCC regulations. I'm not going to try to tell you that all operators I know (AM and SSB) can and do operate to the last comma and semicolon of those regulations, but I would say that I believe that Sidebanders have a pretty good record for being genuinely interested in operating on a fairly responsible level and making every attempt to operate in a manner which will not cause annoyance, interference, or disruption to the use by others of the airwaves. This even holds true for those the FCC delights in calling "illegals," the guys and gals who operate all or most of the time in the never-never land between 27.045 MHz (CB channel 40) and 28.000 MHz (low frequency edge of the 10 meter ham band). Yes, some of those *outbanders* are actually li-

censed CB'ers. Some of them are not licensees in any radio service at all. Some are holders of licenses in several radio services. Many apparently hold licenses only in the Amateur Radio Service.

Sometimes these folks get hauled off the air by the FCC; operating on these frequencies is not permitted to those the FCC has not granted licenses for such operation, and even the FCC does not have the right to issue licenses between 27.405 and 28.000 MHz since those frequencies are reserved for government agency use. Now here's the thing, and I've mentioned this before—why is it that every time somebody gets nailed operating in the no-man's land of 27.410 to 27.995 MHz, he or she is said by the FCC and others to be an "illegal CB'er?" If you set up an unauthorized 5,000 watt broadcasting station on 1130 kHz they would call you an illegal *broadcaster*, wouldn't they? And if you fired up a rig minus a license in the 20 meter ham band (14 Mhz) they would say you were an illegal *ham* station. No?

Not so if you operate on the industrial frequencies between 27.410 and 27.540 MHz. Never once have I ever heard of these stations being called illegal industrial stations. And I have likewise never heard of anybody operating in the government band (27.540 to 27.995 MHz) being called an illegal *government* station! Have you? The mass media, and even the FCC itself, continues to perpetuate the image that any and all operations taking place on these frequencies are due to "illegal CB operation." This despite

the fact that many of the operators caught there are not, and never were, licensed in the CB service, and chances are that they were not using equipment designed or sold for use in the CB service.

As if it weren't bad enough when the general news media gets things screwed up (recently my local paper referred to a locally prominent long-time Amateur operator as a "CB'er), it is absolutely inexcusable when we see official press releases coming out of the FCC itself assigning the term "unlicensed CB operator" to all who are caught operating "upstairs."

Let's face it, if the guy has no license, then why has he anything more to do with CB than with the maritime mobile or broadcasting services? Why is CB radio made to carry the guy's unfortunate demise in our column of the Book of Life? Why can't he just be an unlicensed *station*, and that be the end of it? Or, if he had a CB and ham license, or maybe only a ham ticket, why can't he be an illegal *ham* operator?

Chuck Hensarling (whose thoughts on how the FCC handled the recent exclusive Sideband frequency matters appeared in the last two installments of *On The Side*) comments that he thinks this little stunt would seem to be a manifestation of the FCC's general prejudice against the CB'er as well as a seeming eagerness to create and perpetuate a false and damaging image of 11 meter band denizens. Can't say that I disagree with Chuck, either! Of course, since the majority of transmissions to be heard "upstairs"

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Closing Date—All advertising in this section will now close the 10th of the third preceding month; i.e., January 10th for the April issue.

PAYMENT — All ads must be pre-paid by check or money order (payable to Cowan Publishing Corp.), or through Bank Americard (Visa) or MasterCard. On charge orders, include card number, expiration date and inter-bank number.

Permanent address and phone number must be supplied if not identified in actual ad copy. Publisher reserves the right to refuse any advertising deemed unsuitable or inappropriate. Because advertisers, services, and equipment contained in CB Shop have not been investigated, the publisher cannot vouch for the merchandise or services listed therein.

Direct all orders and correspondence to: Eileen Lucey, S9/Hobby Radio, 14 Vanderventer Avenue, Port Washington, N.Y. 11050. Phone: (516) 883-6200.

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SECRET CB VOLUMES 1 through 10; \$12.95 each. TECHNICAL CB APPLICATION 2nd and 3rd Edition; \$14.95 each. SSB ENGINEERING PRACTICE VOLUMES I and II; \$14.95 each. SECRETS OF SATELLITE TV VOLUME 1; \$13.95 each. Cobra's Two Way Discount Supply, Rt. 5, Box 123, Hope, Arkansas 71801. 501-777-3220.

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SCANNER OPERATORS! Are you registered? Be assigned your own personal monitoring ID letters inscribed on beautiful 2-color bordered certificate, plus discounts and goodies! Thousands already registered! Only \$5, ppd. from **CRB Research**, Box 56-T, Commack, NY 11725.

CB'ers SSB HANDBOOK by S9's Tom "Tomcat" Kneitel! The standard reference book on 11 Meter Sidebanding. Every SSB Station should have a copy of this valuable 119 page book. Your own personally autographed copy only \$7.15 plus 70¢ postage and handling (outside USA add \$1) from the SSB Network, P.O. Box 908, Smithtown, NY 11787.

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BROWNING RADIOS: Send \$1.00 and self addressed stamped envelope to **Browning Collector**, P.O. Box 468, Pittsfield, MA 01202, for price list and two photographs of collection and radios for sale. R27-S23 Golden Eagle, Mark II (5 pcs.), Mark III, Mark IVA, Browning Drake Mobil (1962) and Mark II 180 Business Radio Telephone Amplifier, also Browning Plaques. For price only send self addressed stamped envelope. This is my hobby, not a business. I buy, sell and trade to help people get Browning Radios they are looking for. Also prices and radios available change.

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CB'ers... DISCOVER THE UNLIMITED EXCITEMENT AND FUN OF AMATEUR RADIO!! At last, Ham Radio becomes easier...no electronics background necessary. Write for free details. **C'mon... YOU CAN BE A HAM!** Arjay Press, Dept. S3, P.O. Box 342, Lindale, GA 30147.

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NASSAU COUNTY CB'ers: Don't sit back... Join REACT. Central Nassau County REACT is now admitting new members. Participate in one of the largest and best REACT Teams in the world! Send now for information to: Central Nassau County REACT, P.O. Box 406, Westbury, NY 11590.

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