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2. It's made better...

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"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."

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—H.R. Castro, VRB, Monserrante D-67, Salinas, Puerto Rico

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S9 HOBBY RADIO

AMERICA'S OLDEST AND LARGEST CB MAGAZINE

VOLUME 22 NUMBER 2

FEBRUARY 1982

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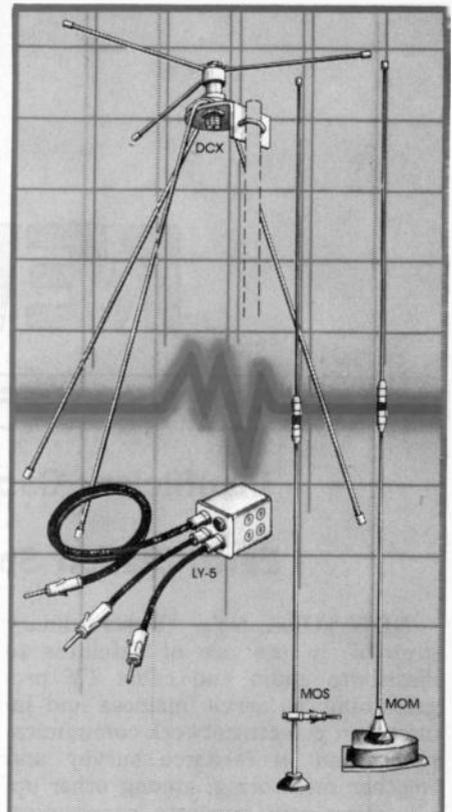
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WARNING: INDIVIDUALS INSTALLING CB OR OTHER ANTENNAS ON THEIR HOMES SHOULD BE CAUTIONED THAT CONTACT WITH POWER LINES MAY CAUSE SERIOUS INJURY OR DEATH. READERS ARE ADVISED TO HANDLE ANTENNA INSTALLATIONS WITH GREAT CARE, AND TO WEAR INSULATED BOOTS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



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S9 • February 1982 • 1

CB. NEWSWIRE

YOUR CB NEWSPAPER

FEBRUARY 1982

Insufficient Capacity Overhangs Satellite Communications; Earth Station Shipments in North America to Triple By 1991

NEW YORK, NY—“Extraordinary growth” in the use of satellites to distribute audio and cable TV programming, to serve business and industry in private network communications, and in resource survey and weather monitoring, among other applications, will generate communications traffic by the mid-1980s that will be far in excess of the then existing satellite capacity.

Such is the overall outlook forecast—and explained—in a comprehensive 339-page study, covering satellite communications markets and technology in North America, just released by Frost & Sullivan Inc. in New York City.

“Substantial opportunities exist for providing totally new services and expanding and improving on existing services,” in Canada, Mexico and Central America, as well as the United States.

New services will have an impact on education, health care delivery, emergency communications, public safety, computer data, environmental monitoring, electronic mail and teleconferencing. Some 16 major satellite systems will be generating \$3.3 billion in revenues by 1991, F&S says.

U.S. production of communications satellites, valued at \$300 million in 1980, will more than double to reach \$630 million in 1991. Sales of earth station for use in North American satellite systems alone, comprising a \$522 million market in 1981, will more than quadruple to reach \$2.1 billion some ten years later. Competing for this business will be some 29 major manufacturers of satellite earth station equipment identified in the report.

Of all earth station submarkets, moreover, TV receive-only units for

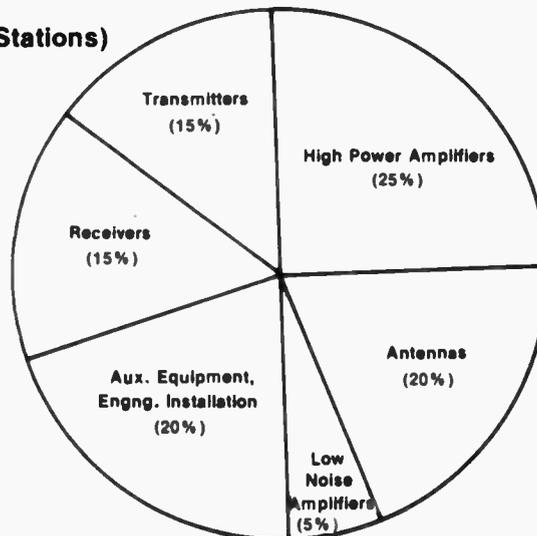
home use is forecast to be the tail that wags the dog. Sales at \$30 million in 1981 are forecast to increase nearly seven-fold to \$200 million in 1986 and then triple again to reach \$600 million in 1991.

Reviewing the current industry status, F&S finds that four domestic (U.S.) satellite systems are presently in operation, four new systems have been authorized and will become operational within the next few years, and that one direct broadcast satellite system is in a proposal stage. In addition, numerous military satellite systems, and scientific satellites used in resource survey and weather monitoring are also in operation or planned.

Elsewhere in North America, Canada has its own domestic satellite system; and Mexico plans to launch its own satellite during the early 1980s. As for the various countries in Central

Contribution to Earth Station Costs By Major Components

(Transmit/Receive Stations)



Source: Frost & Sullivan, Inc.
(Report No. 854)

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America, each already either has in place an earth station or is planning to build one.

Until late last year, all commercial communications satellites operating over North America utilized the C-band (6/4 GHz). But then came a traffic buildup, necessitating that the higher frequency Ku-band (14/12 GHz) also be used. Still, traffic is projected to continue to outstrip capacity. It will become necessary to develop satellites that can operate at even higher frequencies, in particular, the Ka-band (30/20 GHz), the study finds.

In addition to expanded frequency bands, other important technology developments will come into play. A key one: Eventual recourse to all-digital transmission. In addition, on-board satellite baseband processors will transfer the switching function from the earth station to the satellite.

R&D efforts back on earth focus on multiple access techniques to enable

many earth stations to access simultaneously a single satellite transponder. Another major effort is on the development of small antenna terminals for picking up direct broadcast satellite transmission. Still other nitty gritty, but necessary, earth station improvements will range from enhance mass production techniques to the advent of nontracking antennas and uncooled parametric amplifiers.

The Space Shuttle, besides representing an interesting technology advance, also enables critical economic improvements. Satellite launching typically accounts for half of the total expenditures on a satellite system; with the Shuttle, launch costs will drop to less than one-third, perhaps even as low as 20 percent, according to the F&S report. As a result, starting around mid-decade, all communications satellites will be launched by the Shuttle, with some 487 missions already scheduled.

**Team's Efforts Pay Off in Relaying
Urgent Message to Trucker in Transit**

CASCADE, MD.—Close cooperation between local REACT teams and excellent liaison with local radio operators

paid off in successfully relaying a message to a trucker passing through the Tri-State region. The trucker, who was traveling through the region, was requested to get in touch immediately with his home in Massachusetts.

Shortly after receiving the message via the Hagerstown 2-meter repeater, Bruce Francis, a member of Cascade REACT Team No. 2833, immediately relayed the information to Irene Brumage of Hotline REACT 4086, and to Milton Engle, Communications officer of Cascade REACT. The information was then broadcast on the Cascade GMRS repeater and because of the repeater's excellent location, more than 2,000 feet above sea level, the message was received by REACT teams as far away as Harrisburg, PA. Shortly after, Charles Paul, of Hotline REACT, advised that he had made contact with the trucker and that the message had been delivered. The information was then given to amateur radio servies who confirmed that the right person had been contacted, another REACT success story delivered in the face of seemingly insurmountable odds.

**ARE YOU A GOOD
OPERATOR? BE ONE—
IT'S EASY!**

Best communications practices dictate that, whenever possible, AM and SSB transmissions be isolated from one another on different frequencies. Sidebanders predominantly utilize the following channels (although there are local variations): 16, 17, 18 and 31 through 40.

AM operators are requested to avoid use of these channels, and, likewise, Sidebanders are requested to confine their operations to those frequencies which are normally used for Sideband operators. It is only through voluntary mutual cooperation in matters such as these, that maximum usefulness of both modes of operation, AM and SSB, can be achieved.

CB NEWSWIRE

Maine Minister Aids in Canadian Rescue

A Southport minister monitoring his CB radio was responsible for the rescue of a moose hunter injured in the remote wilderness of Canada.

Rev. Vernon D. Kelly, pastor of the First Apostolic Church, was putting on his shoes when he heard an emergency call from Lake Winnispogis, located in the western province of Manitoba due north of Montana and North Dakota.

The caller said a man injured during a hunting trip was being transported by boat to Oscar's Point, a campground in the remote region of lakes and spruce forests.

Rev. Kelly said after attempting to contact local help for the injured man, he telephoned rescue authorities in Canada and described to them where the hunting party was located. All the while, he was keeping the party on the CB. Assistance in relaying information was provided by a Canadian named Jim McCordle of Medicine Hat in the Alberta Province, he said.

To double-check his rescue instructions, the reverend said he called the Northwest Province Mounted Police to make certain the agency was aware of the accident.

Rev. Kelly heard no more of the unusual rescue until he received a letter from the injured man. Identifying himself as J.E. Stowe, the letter writer said he was resting at his home in Miniota in the Manitoba Province after spending six days in the hospital. The injury, which was not identified, interrupted the first day of the party's week-long hunting trip, the letter stated.

As could be expected, Stowe thanked Rev. Kelly for his assistance. The letter said the party was two hours by water and two hours by land from the nearest medical help when the accident occurred.

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Minnesota REACTer Rates Accolade in Hometown Newspaper

ST. CLOUD, MN.—The exploits of Dale McFeters, founder of St. Cloud REACT Team No. 3791, a white-haired samaritan of the CB airways, were chronicled recently in an article appearing in the St. Cloud Daily Times. According to the story, McFeters, whose enthusiasm for CB knows no bounds, day or night, stays tuned to his CB from 12 midnight to 6 a.m., catching a few winks when he can. Although he may sleep when the radio is quiet, he hasn't missed a call yet.

"He's not interested in the usual CB chatter...but spends his time helping people in trouble," the article said.

As McFeters is quoted in the story: "I'm an old-timer, and when it comes to CB, I always felt it should be more than a toy."

Last month, the story noted, McFeters noticed a mother and her baby were at a local hospital for treatment received in an accident, in which he had helped to relay aid via REACT. "All it takes is just one time like that to make all my hours worthwhile," he said.



Shakespeare's newest!
Fiberglass trucker antennas
"The Single Hauler" Style #5209
and
"The Double Hauler" Style #5210.

DEALER INTRODUCTORY SPECIAL!

Special note to dealers...about a super special deal! Here's your ticket to happy customers.

When you buy twelve (12) Hauler rigs... whether the "Double Hauler" or the "Single Hauler"...Shakespeare has authorized your distributor to give you a "Single Hauler" CB antenna package free! Hurry...this offer won't last long...and your customers expect you to stock the newest and the best!

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EVERY 12 YOU BUY ...GET ONE FREE

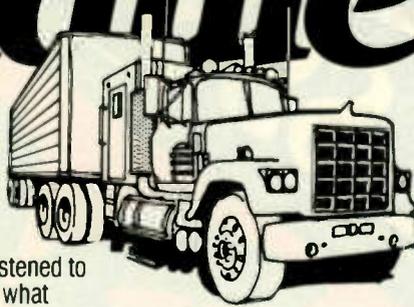
Mr. Dealer: Present this certificate to your Shakespeare distributor and get one free Single Hauler package with every 12 you purchase. But hurry, this introductory offer is limited and may end without notice.

Hauler Packages Purchased.....

	Single	+ Double	
	=		Total

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ADDRESS _____
CITY _____ STATE _____ ZIP _____

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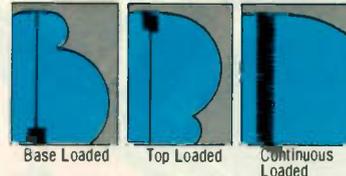


Shakespeare does it again! The number one name in CB antennas for the trucking industry (according to an independent study) announces the fantastic "Hauler" antenna package. Shakespeare listened to the professional driver and here's what you asked for:

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- 1000 watt power rating
- Continuous loading for expanded range
- Exclusive capacitive coupling for lower SWR...1.5 to 1

- You get all this plus:
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 - 48" of super delivery
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Talk about a load!



The Hauler is a continuous loaded antenna. More power when and where you need it! And the Hauler is a great replacement whip... fits any standard 3/8 24 thread mount!

AND BEST OF ALL...CHECK THE LOW, LOW PRICE!

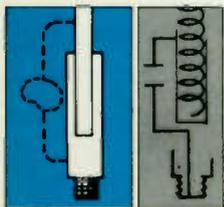
The Single HAULER

CB Mobile #5209
Mirror Mounted
Antenna

Exclusive capacitive coupling without the capacitor!

Exclusive Shakespeare mount

Coax cable complete with connectors



Exclusive Phantom Phasing!

Shakespeare introduces a major breakthrough in truck antennas. "Phantom phasing" means the Hauler mirror mounted truck antenna (single or double) gives you exclusive capacitive coupling! Shakespeare's Haulers have more talk strength on all 40 channels...power no matter where you go!



The Double HAULER

CB Mobile #5210
Co-phased Mirror
Mounted Antennas

Exclusive capacitive coupling without the capacitor!



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The Haulers buckle...it's big, it's tough, it's beautiful, and it's yours free! There is a coupon in every Hauler package.

FOR MY MONEY...HAULERS HAVE IT ALL!

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**BUILD
THE SSB**

**SUPER-
KILLER-
ANTENNA**

WATT NA

By Bill McGuire SSB/3A777

Ever wonder what you'd sound like with a 1,200 watt Sideband signal? Ever fantasize how it would be to have that signal while still operating legally on 27 MHz? Yup, you can do it—you don't really have to run 200 watts (you stay with your FCC approved 12 watt PEP too), you just *sound* like you're running 200 watts! This thing works with AM rigs, too, of course—except your stock AM rig (4 watts output) will sound like *only* 70 watts!

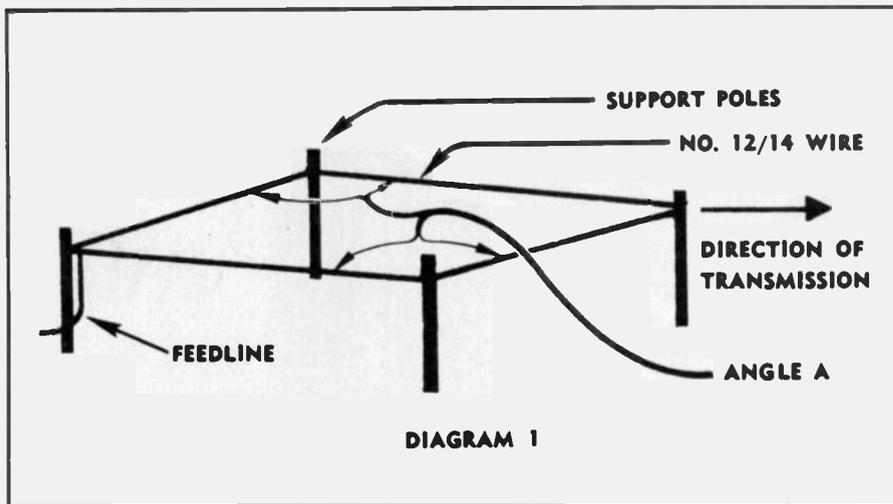
This is the antenna that can do it for you, complete with all of the physical and "putting the damned thing up" problems which must inevitably go along with anything so blasted advantageous. It's a monster and unless you've got some elbow room to put this thing up, you'll just have to let it remain a *dream* antenna in the most literal sense of the term.

What we are dealing with here is, to put it bluntly, an antenna technically termed a Rhombic type. It uses a lot of wire along with a sprinkling of ceramic insulators to keep it taut and away from foreign objects. It's large—very large—but it's truly spectacular.

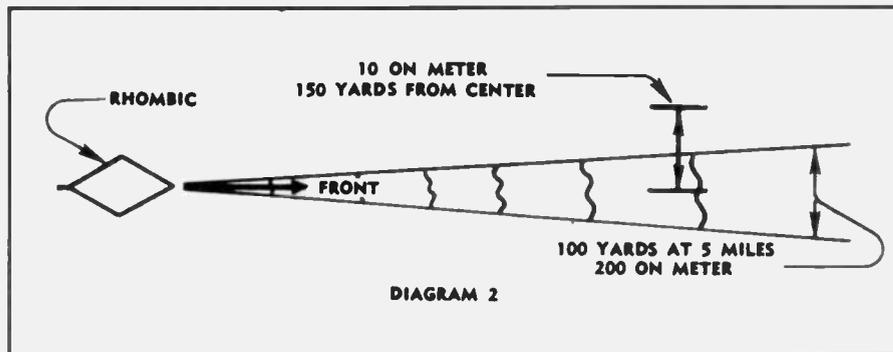
As Diagram 1 shows, the beast is diamond shaped and fires in only one direction, that direction being opposite from the end from which the signal is fed into it. The diagram shows how I built my flat-side (horizontally polarized) *Super Killer-Watt*, and you really can't imagine exactly how directional it is until you run out in front of one at a distance of about 5 miles with a field strength meter. On my test installation I found a reading of "200 (just relative strength, forget how strong this may or may not be) in a path 300 feet across at 5 miles—and then a reading of only "10" at 450 feet to either side of the center of the 300 foot strong signal area point. Running around the to the sides of the antenna, and remaining about 5 miles "out," the signal level registered from 0 to 15 all of the way around. In other words, the signal off the front end of the Rhombic is nearly 16 times as strong (in relative field strength) as off the nearest competing side lobe point! To say it's directional is almost an understatement.

SO WHAT GOOD IS IT?

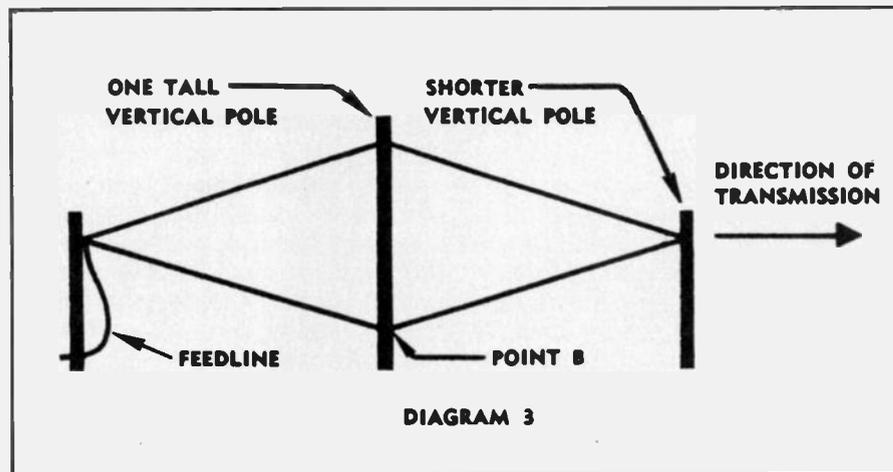
Well, you can't rotate the thing and it makes a poor clothesline—but it does really have a knack of giving you the total command over just about any frequency you might decide to use for communication—albeit, total command only in the basic direction in which it is pointed. If you live in the *boonies* this will give you a chance to have what amounts to local coverage of the operators in a major city many miles off into the distance, and without making a nuisance of your signal to operators using the same frequency in areas off to your sides



The basic horizontally-mounted rhombic.



The signal path from a rhombic is pretty potent. Five miles from the beam width is about 100 yards across. 150 yards from the center of the beam the signal gives a 95% lower S-meter reading.



Vertical mounting of a rhombic requires only 3 poles. Below, you get the layout for actual construction. (see text).

and towards the rear of your signal pattern. You can, in fact, almost pinpoint your signal within a fraction of a mile at 35 to 50 miles. Since my own Super Killer-Watt is installed flat sided, it doesn't bother with vertically-polarized signals from mobile units—all I'm interested in talking to are other flat-side operators.

You may not have these exact requirements for an antenna, so I'll give you a few ideas how such an antenna might serve other needs. Mounted in a vertical mode, the *Super Killer-Watt* could be oriented on a city or town off into the distance and you'd be assured of rock-solid contacts with all vertically polarized base and portable stations.

The *Super Killer-Watt* is truly a gain antenna of the highest order. Depending upon its size "per leg," gains of up to 12.5 db over a reference dipole aren't uncommon. In terms of ERP (effective radiated power), this means that your legal 12 watt PEP Sideband rig will come out of the business end of a 20 db Rhombic sounding like it was 200 watts! A 4 watt AM rig will sound like 70 watts. This is a healthy improvement, and that same antenna gain will help out equally on receive! Imagine what the communications reliability of two similarly equipped distant base stations—easily well over 100 miles day in and day out with constantly 100% copy. I won't even get into what kind of ERP it might produce when fed with more power than the FCC authorizes, providing the power didn't sizzle up the wire used to construct the antenna!

LET'S BUILD IT!

The author has had no experience with vertically mounted Rhombic antennas. It is assumed, however, that all one needs to do is to flip the "diamond" up on its side as shown in Figure 3, mounting it sufficiently above ground at point B to be at least one wavelength (36 feet) between the insulator and the ground level.

The horizontal Rhombic antenna shown is a terminated device, with a terminating "load resistor" across the wires at point A in Figure 4. This resistor is an 800 ohm noninductive (carbon-only!) type. This resistor is very important, as it keeps your signal from floating off the back side of the antenna. The wattage of the resistor should approximately equal your transmitter power output.

Point B in diagram 4 shows an in-

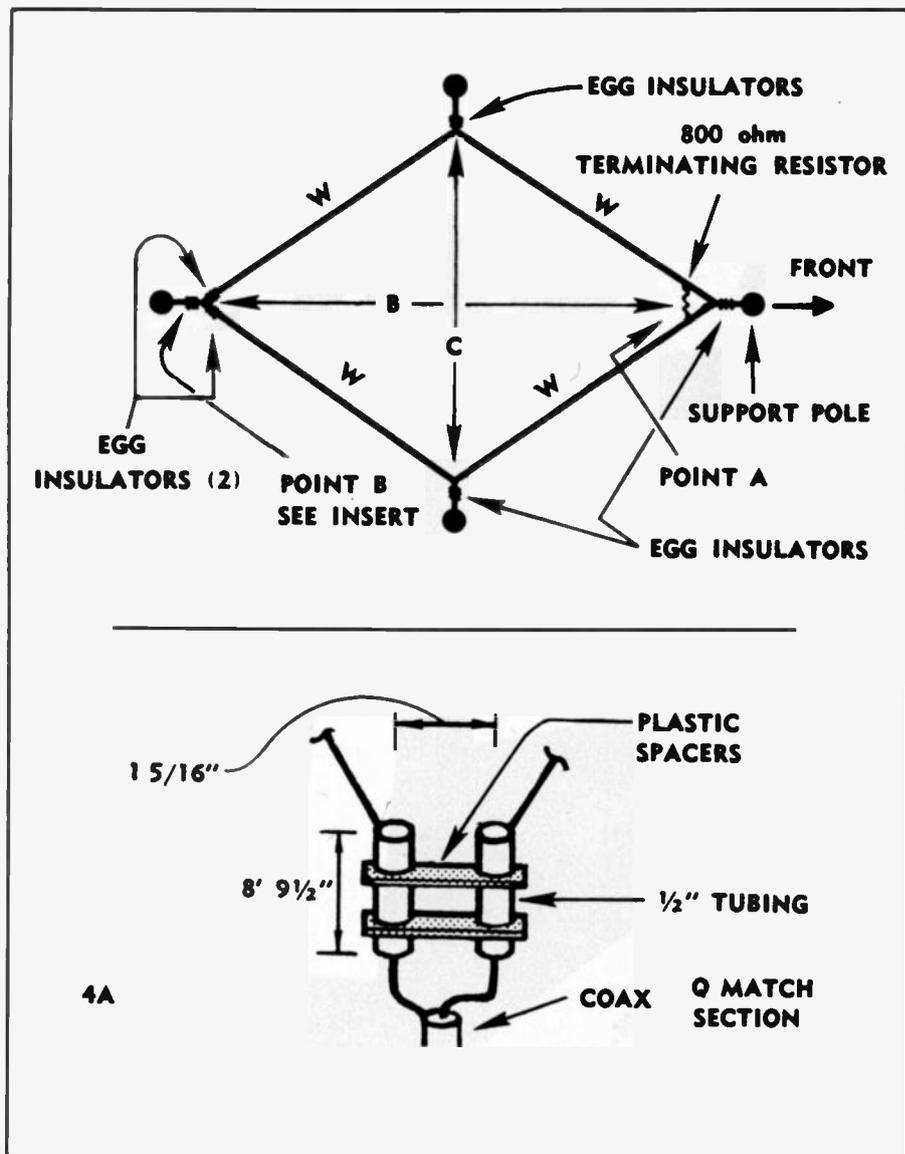
sert, 4A, which explains how you match the 800 ohm Rhombic antenna to your 52 ohm coaxial transmission line. This is a "Q matching section," constructed from 1/2 inch O.D. aluminum or copper tubing, spaced apart by plastic spacers 1-5/16th inches center to center. The Q Matching section is 8 feet 9 1/2 inches long, from the top where it attaches to the fire-end of the Rhombic, to the base where the RG-8U coax cable from your transceiver attaches on. The Q Matching section transforms your feed impedance to 800 ohms, matching the antenna. If there is sufficient interest in this matching system, we can go into it further at a later time.

Length W is equal on each of the four legs on the Rhombic. A table (table one) lets you decide how large or how small you wish to make your Rhombic. Gain figures are also given. Distances B and C are also given for each of the three W dimensions. These vary with size (W).

It is suggested that you mount the Rhombic on wooded treated poles (try your local phone or power company for some they have recently pulled from the ground), using heavy duty egg insulators where they are indicated on diagram 4, to keep the wire away from the pole. Nylon rope, running through pulleys mounted at the top of the four poles, can attach to the back of each insulator. This will allow you to erect the antenna on the ground level, and then pull it into place with the nylon rope over the pulleys. The rope-pulley combination will also aid you in leveling off the antenna (horizontal to the plane of the earth). I have small bags filled with sand suspended on the bottom of my nylon ropes. This allows the wires to give in the winds we have here in the midwest (as the winds blow the antenna wire grows taut, pulling on the nylon rope. The sand-bags raise and "give" with the wind, but lower again because of gravity when the wind slows down or stops).

No. 12 or 14 copper clad steel wire is recommended for the actual construction. The steel adds strength, while the copper gives the antenna electrical conductivity.

I hope you find this to be a very useful antenna, if you too have a SSB communications problem over long haul distances. If any antenna design known to man will do the job, the *Super Killer-Watt* is it!



Wave lengths per leg (length W)	Angle A (diagram a)		Ft Measurement (length W)	Gain in db
2	70	degrees	63	4.25 31.5
4	50	degrees	126.5	6.0 31.625
8	35	degrees	252	9.25 31.5
12	22.5	degrees	378	12.5 31.5

This will give you the different measurements and gains for the various sizes of rhombics.

A SIDEBAND

SLIDEE

By Lou Frankln, KZB4389/K6NH

With the popularity and communications advantage of SSB now well established, the most efficient use of limited CB frequency space occurs when an operator can track the received signal around within the channel by a slight shift or "slide" in his own transmitted signal. Without this ability, a QSO could occupy excessive bandwidth if for example each operator happened to be drifting towards opposite edges of a particular channel. This needless waste of spectrum space happens at the expense of other operators, who may be forced to move completely off to some other channel just to maintain their own QSOs. Hams have always enjoyed total frequency flexibility by the use of a *continuous* main tuning

control rather than fixed CB-type channels; even older-generation 23-channel CB rigs provided for some SSB transmit frequency shifting. Eventually though the FCC changed their technical rules and decided that somehow CBers were not as deserving as Hams in allowing such "privileges." The purpose of this article is to teach the concerned SSBer how to make the current CB equipment perform better by simple modifications to regain the TRANSMIT shift feature. Hopefully this will allow common sense to prevail once again as we all enjoy greater efficiency on today's crowded channels.

Modifications needed to make the typical Clarifier or Fine Tune control

operate during both TRANSMIT and RECEIVE are actually quite simple. We'll illustrate the general principles in the most non-technical terms possible; any operator who can follow his rig's schematic circuit diagram should then have little trouble making the wiring changes.

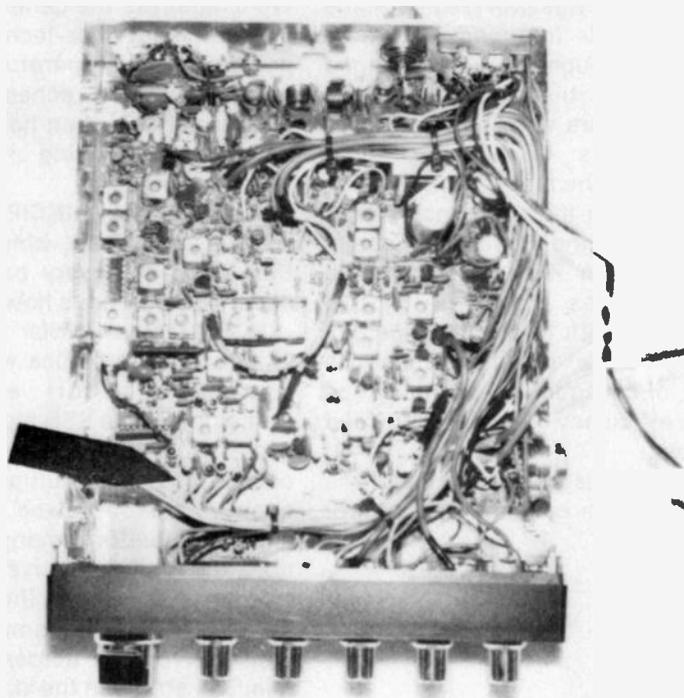
BASIC PRINCIPLES

Refer to Figure 1, which illustrates the wiring of a very basic Clarifier slider circuit. Here's how it functions:

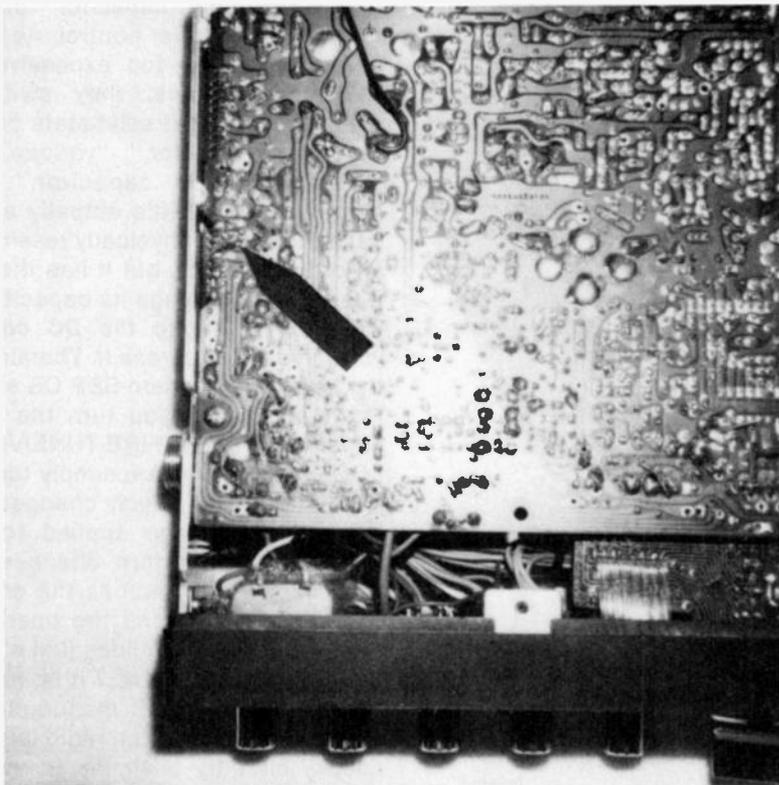
1. The actual carrier frequency at 27 MHz always begins with a crystal oscillator circuit somewhere. Remember, even SSB signals contain a carrier, only it's suppressed. This oscillator is often multiplied up in frequency and/or mixed with other signals to perform many other functions too. The exact crystal operating frequency is set at the factory by simply wiring a small trimmer capacitor or coil across the crystal itself, as shown in the sketch. In addition another capacitor is then hung across the crystal, *the carrier frequency will shift or slide*. That's exactly the purpose of the Clarifier control: to add a slight bit of *adjustable* capacitance. In the good old days, this was often done by using an actual air-variable capacitor for the front panel Clarifier control. As such controls became too expensive for the manufacturers, they switched over to a very neat solid-state device called a "varactor," "varicap," or "voltage-variable capacitor." The name says it all; it's actually a tiny capacitor which physically resembles an ordinary diode, but it has the unique ability to change its capacitance value *by changing the DC control voltage applied across it*. Therein lies the key to the modern SSB CB slider. Nowadays when you turn the front panel CLARIFIER/FINE-TUNE/VOICE LOCK control, you are simply turning a potentiometer which changes the DC control voltage applied to the varactor. This in turn changes the total capacitance across the crystal oscillator circuit, and the operating frequency shifts or slides just a bit.

2. Sound easy so far? It is, except for one "slight" FCC manufacturing requirement. Inside the radio is some sneaky circuitry designed to control the operating carrier frequency differently during the RECEIVE mode than during the TRANSMIT mode. This is shown in FIGURE 2, which is





Removal of 1 or 2 parts and re-routing of "hot" Clarifier control wire restores TX slide capability to this very popular AM/SSB CB rig.



Closeup shows "hot" Clarifier control wire resoldered at a chassis point providing a constant DC source voltage.

actually the complete TRANSMIT/RECEIVE Clarifier control circuit as it's now found in almost all modern PLL SSB rigs. Notice how several extra parts have been added; namely, D1, D2, R2, and a TX FREQ. adjustment timpot/fixed resistor. This extra circuitry does two things:

A. Applies the DC frequency control voltage to the Clarifier control *during RECEIVE mode only*;

B. Applies the DC frequency control voltage through a *fixed* resistance during the TRANSMIT mode. This fixed resistance is typically a resistor or trimmer pot located inside the radio on the main chassis PC board, and was factory-adjusted so that the transmitted frequency remains only on center-slot of each channel.

Now that you're seen how they do it, you'll note that the key to "unlocking" the Clarifier circuit is to simply A) eliminate the fixed voltage/resistance completely from the circuit, and B) make sure that the DC control voltage passing through the Clarifier control on the front panel comes from a *continuous* DC source present during *both* TRANSMIT and RECEIVE modes. This usually involves nothing more than unsoldering the "hot" wire of the Clarifier control and moving it to another part of the radio chassis where a *constant* RX/TX DC source is present. That's all there is to it!

Finding a constant DC source voltage in your rig is easy; if you can read the schematic diagram, examine the Power Supply area where all operating voltages branch off from the main +13.8 VDC input. If you can't read a schematic, you can always use a cheap DC voltmeter to probe around directly in the Power Supply area. By keying and unkeying the rig, you'll eventually find a voltage source that doesn't change. This voltage source is typically about 6-9 VDC. Make sure that the constant source you decide to use is at least as high as the original.

RECEIVE-only Clarifier voltage; i.e., if the Clarifier originally ran on, say, 8.3 VDC, you'll need a constant DC source in the 8-volt range to properly slide the varactor circuit.

The tricky part now is to disable the fixed TRANSMIT-only voltage source. This will definitely require the schematic circuit diagram and the ability to read it! Two basic methods are used to switch between the

variable (Clarifier Control) and fixed tuning control voltages:

1. Electronic diode steering, shown in A;
2. Mechanical relay switching, shown in B.

Since diodes are much cheaper than relays, they are used almost exclusively now. All that's required is to remove the diode coming from the fixed TX-only control voltage source. In addition, there is often a resistor (R2 of FIGURE 2) connected to the same source which if not also removed will cut off diode D2 and the Clarifier control during TRANSMIT mode. Remove both parts as illustrated. For relay type radios, a simple jumper wire across the appropriate relay contacts on the PC board will provide the constant source voltage, as illustrated. This concludes the basic "strapover" modification; the rig will now slide continuously.

INCREASING THE SLIDE RANGE

Once you've unlocked the Clarifier to operate constantly, you'll probably be left a bit unsatisfied with the amount of frequency shift available, typically only about 1-2 KHz from center slot Clarifier position. Here are a few tips on how to increase the slide capability by as much as 10 KHz:

METHOD #1: ADD SOME SERIES INDUCTANCE TO THE VARACTOR

A simple, inexpensive RF choke of about 5.6 uH works quite well on the newer rigs, while values closer to 10 uH may be required for the older 23-channel crystal-synthesized radios. The 9310 or 9320 molded chokes available from J.W. Miller are perfect for this purpose. As shown in FIGURE 3, simply unsolder the (#) end of the varactor diode from the main PC board and add the coil.

METHOD #2: INCREASE THE DC CONTROL VOLTAGE TO THE CLARIFIER

In almost all radios there is some fixed resistance in series with the Clarifier control, usually ranging from about 1K to 10K. This is indicated as the "Minimum Range Resistor" in both FIGURES 1 and 2. By simply replacing this resistor with one of less value, there will be more DC control voltage available to be impressed upon the tuning varactor. CAUTION: Never eliminate this fixed resistor by simply jumpering around it; damage to the radio's power supply regulator IC may result. Instead, replace the

resistor with a very low value of say, 47 Ohm, or even a simple silicon diode as shown in FIGURE 2. This will act as a fuse to protect delicate power supply components.

Another way to increase the available tuning control voltage is to simply take it from a higher source in the radio, or make your own *regulated* DC source from the main #13.8 VDC supply, as shown in FIGURE 4. One popular SSB chassis used a 6-volt Zener diode for Clarifier control; the simple replacement of this diode with one of 8.2 or 9.1 VDC increased the slide range dramatically. Do not exceed these suggested values; many rigs have terrible voltage regulation and the added strain on the power supply can cause a warble or "chirp" on the transmitted SSB signal. However you decide to supply voltage to the Clarifier circuit, make sure it is rock steady at all times!

METHOD #3: INCREASE THE PARALLEL CAPACITANCE ACROSS THE VARACTOR

Refer to FIGURE 5. In many newer rigs there is a small fixed capacitor of about 10-22 pf, wired directly in parallel with the varactor or crystal-trimming capacitor. Removal of this fixed value increases the effect of the varactor or crystal trimmer and often the slide range with it.

CAUTION: Once you've unlocked the Clarifier, don't get carried away with the use of added capacitance or inductance! Often you'll get all the slide you need after making only the basic modifications described earlier. Remember, there's no such thing as a free lunch; a critical balance must be maintained between the total inductance/capacitance present in touchy SSB oscillator circuits. Leave unusual problems to be solved by an experienced technician. Good luck and Happy Sliding!

NOTE: The preceding article represents only a small sample of all the useful information to be found in the completely revised, International Edition of THE "SCREWDRIVER EXPERT'S" GUIDE TO PEAKING OUT & REPAIRING CB RADIOS by Lou Franklin. Order your postpaid copy by sending \$15 to CB CITY INTERNATIONAL, P.O. BOX 31500, PHOENIX, AZ 85046. Mention S9/HOBBY RADIO and receive a free catalog of many other unusual CB items.

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THE MONITOR POST

RICK MASLAU/KNY2GL SCANS THE CHANNELS

PRO-48 6-BAND 10-CHANNEL SCANNER

Radio Shack is now offering an advanced 6-band 10-channel scanning receiver for home or car. The new Realistic® PRO-48 Patrolman® UHF/VHF/AIR Scanning Receiver (20-143) is available now at Radio Shack stores and participating dealers.



The PRO-48 scans up to 10 crystal-controlled channels (crystals not included—available for \$4.95 each through Radio Shack stores and participating dealers), automatically locks onto any active channel, and waits two seconds before advancing at the end of a transmission to avoid missing replies to messages.

The advanced features of the PRO-48 include automatic switching to AM and automatic noise limiting for aircraft band frequencies, automatic frequency control for UHF band frequencies and sensitive, crystal-controlled dual conversion receiver circuitry.

Individual channel lockout switches permit bypassing any combination channels when scanning. Individual LED indicators light to show the selected channel. Both automatic and manual scanning modes are available.

The Realistic PRO-48 operates over six bands, covering both VHF and UHF frequencies: VHF-low, 30-50 MHz; Aircraft, 108-136 MHz; VHF Ham, 144-148 MHz; VHF-high, 148-174 MHz; UHF, 450-470 MHz; and UHF "T," 470-512 MHz. The dual conversion receiver circuitry features crystal and ceramic filters and offers 1 μ V or better sensitivity for 20 dB quieting on all bands.

The PRO-48 is U.L. listed for 20 VAC operation, or it may be powered by 12 VDC negative ground car, boat or trailer batteries. In addition to its built-in speaker, there is a jack for headphones or an external speaker. The compact 2-5/8 x 7 1/2 x 9-7/8 inch size of the case makes mobile installations easy, and a mobile mounting bracket is included.

REALISTIC® PRO-2020 LOW-COST 20-CHANNEL PROGRAMMABLE SCANNER

Radio Shack now offers an advanced feature 20-channel programmable scanning receiver for under \$300. The new Realistic® PRO-2020 FM/AM Direct Entry Programmable Scanner (20-112) offers keyboard entry, six bands of VHF and UHF coverage including *aircraft*, priority channel monitoring and more at Radio Shack stores and participating dealers.

Because the PRO-2020 is controlled by a built-in microcomputer, it can offer a number of advanced features that add up to operating ease, convenience and flexibility. These include direct keyboard entry of any of 20,480 channels in six bands; two scan speeds; scan delay to avoid missing call-backs; automatic and manual scanning; an all-band *searching* mode that scans all channels between upper and lower frequency limits entered into the keyboard; and electronic individual channel lockouts.

The PRO-2020 is fully synthesized, and requires no additional crystals for access to any channel. In addition, it includes Zeromatic® circuitry for precise signal tuning, automatically. And a *priority* feature permits constant monitoring of the channel 1 frequency while scanning other frequencies.

Both the assigned channel number and the actual frequency being monitored are displayed on a bright fluorescent readout. Channel information is maintained in the scanner's memory even when the unit is turned off, unplugged or during power failures by a built-in 9 Volt battery backup circuit (battery not included). The scanner is U.L. listed for AC operation, or may be operated from a 12VDC (negative ground) power source, such as a car, boat or trailer. Power cords, mobile mounting bracket and an operating manual are included.

The six VHF and UHF bands covered by the Realistic PRO-2020 include fire, police, railway, air-



craft, weather, mobile telephone, amateur radio and other services. The frequencies covered are 30-50 MHz, 108-136 MHz (AM aircraft band), 138-148 MHz, 148-174 MHz, 410-470 MHz and 470-512 MHz.

The PRO-2000 includes both a built-in speaker and jacks that permit the use of headphones or an external speaker and connection of a tape recorder. This compact scanner measures just 2-5/8 x 7-1/2 x 9-7/8 inches.

NEW EXPERIMENTAL STATIONS

KK2XBQ, PALOMAR COMMUNICATIONS, INC., San Diego County, Calif. Granted CP and license for a new experimental developmental station to operate on frequencies specified in Part(s) 22, 87 and 90 of Rules to make field strength surveys and demonstrate equipment to prospective customers.

KK2XIZ, ARITECH CORPORATION, Framingham, Mass. Granted CP and License for a new experimental research station to operate on 152.87, 457.125 and 825.0 MHz to conduct RF susceptibility test on newly developed and existing Burglar and Fire Alarm Systems.

KK2XJE, MOTOROLA, INC. Downers Grove, Ill. Granted CP and License for a new experimental developmental station to operate on 800 MHz to develop land mobile radios.

KE2XKF and KE2XKI SOUTHERN REGIONAL MEDICAL CONSORTIUM, Hattiesburg, Miss. Granted CP and License for new experimental research stations to operate on 149.195, 149.220 and 149.245 MHz to conduct engineering study of requirements and value of satellite communications in a realistic emergency medical/emergency response environmental using ATS-3 Satellite.

Granted 20 CP and License to the State of California, to operate at various locations on 401.7895 MHz for remote data collection platform communicating with the GOES satellite for fire, weather forecasting.

KK2XIO, EXXON COMMUNICATIONS CO.,

Various drilling rigs in the Continental US; Alaska and adjacent offshore waters. Granted CP and License for a new experimental research station to operate on 88-108 MHz band to telemeter data from a torque transducer or drilling rig.

KK2XJJ, ZIP-CALL, INC. Northeastern Mass. Granted CP and License for a new experimental developmental station to operate on 821.100 MHz to conduct field strength surveys prior to preparation of applications to establish a cellular system in the area.

KK2XHU, GTE PRODUCTS CORP., New York, NY. Granted CP and License for a new experimental developmental station to operate on 22-45 kHz to develop RF electronic ballast to be used with fluorescent lighting.

KK2XIY, WESTINGTONHOUSE COMMUNICATION SERVICES, INC. Anne Arundel, Md. Granted CP and License for a new experimental research station to operate on various discrete frequency between 600 and 750 MHz as required by contract with U.S. Govt.

KK2XJK, TEXACO MINERALS CO., San Ardo, Calif. Granted CP and License for a new experimental research station to operate on 154.585 MHz to telemeter data from oil wells on effects of foam injection on oil recovery.

KK2XJM, R.P. HAVILAND, Daytona Beach, Fla. Granted CP and License for a new experimental research station to operate on 10100-10150 kHz; 18068-18168 kHz and 24890-24990 kHz to develop data about sharing and transfer of frequencies allocated to the Amateur Service by WARC 1979.

KK2XJR, JONATHAN WARNER BAYLESS, Mason Neck Wildlife Refuge, Virginia. Granted CP and License for a new experimental research station to operate on various discrete frequencies between 163.626 and 164.700 MHz to study box turtles.

KK2XJS and KK2XJT, UTAH STATE UNIVERSITY, So. Pole Station and Siple Station Antarctica. Granted CP and License for a new experimental research station to operate on various discrete frequency bands between 1000-22600 kHz to study high-latitude space physics using swept-frequency ionospheric sounder.

KK2XJW, KK2XJX, KK2XJY, KK2XJZ and KM2XAA. AERONAUTICAL RADIO, INC. New York, NY, South Bend, Ind.; Arlington, Va; Youngston, Ohio. Granted CP and License for new experimental stations to develop a public air-ground telephone system at 900 MHz.

KM2XAB, KM2XAC, KM2XAE, TERA CORP., Four-mile Canyon, Oreg., Alder Ridge, Wash., Tower Ridge, Wash. Granted CP and License for new ex-

perimental research stations to operate on 159.625, 160.425, 160.515, 160.995 and 161.385 MHz to telemeter seismic activity in the vicinity of a proposed nuclear power plant site.

KM2XAG, MOTOROLA, INC. Fort Worth, Texas. Granted CP and License for a new experimental developmental station to operate on every 25 kHz beginning 860.4875 ending 860.9625 and 815.4875 ending 815.9625 MHz to develop 800 MHz trunked land mobile radios.

KM2XAI, AMERICAN RADIO CORPORATION, Indianapolis, Ind. Granted CP and License for a new experimental developmental station to operate on various discrete frequencies between 151.575 and 458.475 MHz to field and factory test Land Mobile Transceivers on 150 and 450 MHz.

NOTIFICATION TO APPLICANTS FOR NARROWBAND DEVELOPMENTAL AUTHORIZATION IN THE PRIVATE LAND MOBILE SERVICES

The Commission recently closed the periods for submission of comments and reply comments in the Commission's Notice of Inquiry (PR 80-440) concerning the introduction of new spectrum efficient technologies in the land mobile radio services. The comments have raised a number of issues, particularly technical ones, which must be resolved prior to further rule making. As announced in the Notice of Inquiry and requested by many respondents, the Commission intends to conduct a liberal developmental authorization program for new technologies. This Public Notice seeks to provide guidance to those persons who, pursuant to the provisions of Subpart Q, Part 90 of the Rules, may wish to file applications for developmental authorizations in the Private Land Mobile Radio Services to test radio systems having narrowband emissions.

Although other frequencies may be authorized to test equipment performances, the Commission suggests that proposed developmental narrowband systems utilize the spectrum space identified below. We are encouraging the utilization of these particular channels because they are midway between frequencies assigned to existing stations, thus, the chances of harmful interference to adjacent-channel assignments would be minimized.

In the VHF range between 150 MHz and 161.565 MHz, the following spectrum may be used by narrowband land mobile systems for developmental operations:

Eleven channels with nominal widths of 10 KHz are available in the Business Radio Service. The channels are spaced at 30 kHz intervals and have no

geographic restrictions related to adjacent channel assignments. The specific channels are:

MHz	MHz
151.635-151.645	151.815-151.825
151.665-151.675	151.845-151.855
151.695-151.705	151.875-151.885
151.725-151.735	151.905-151.915
151.755-151.765	151.935-151.945
151.785-151.795	

The Channel 151.965-151.975 MHz would be available for developmental use by Telephone Maintenance eligibles.

The channel 151.995-152.00 would be available for developmental operations in the Special Emergency Radio Service.

A nominal 10 kHz is available between all other 150 MHz mobile service frequencies that are *assigned* at 30 kHz spacings in the Industrial, Public Safety and Land Transportation Services. Use of this spectrum may have certain geographic limitations due to frequency assignments on channels spaced 15 kHz apart. Each in-between frequency would be available to the radio service to which adjacent channels are allocated. Guard band frequencies between two different services will be dealt with on a case-by-case basis.

The foregoing would not preclude narrowband operation in channels currently available in the Rules for assignment on a regular basis. A licensee of existing wideband facilities may utilize all or part of his assigned channel bandwidth for testing narrowband equipments provided he makes application for a developmental grant authorizing such tests. The operation of narrowband stations must not cause harmful interference to stations regularly licensed under the Commission's rules.

Narrowband transmitters to be used in developmental operations must meet the out-of-band emission standards of Section 90.209(g)(2) of the Commission's Rules. A description of the narrowband equipment and out-of-band emissions should accompany each application for developmental authorization.

Applicants proposing to locate narrowband systems near the Canadian border are reminded that the Commission must effect coordination with Canada for frequency assignments north of Line A (within approximately 75 miles of the Canadian border).

Under certain circumstances, such as the funding problems and lengthy procurement cycles encountered by local government agencies, the Commission will be receptive to requests for waiver of the

one-year limit on the license term for developmental authorizations. In addition, to encourage the investigation of narrowband techniques, the Commission will look favorably upon requests for renewal of such developmental authorizations.

DIGITAL MODULATION

The Federal Communications Commission defined digital modulation in Part 21, Section 21.2 of its Rules and Regulations as follows:

Digital modulation. The process by which some characteristics (frequency, phase, amplitude or combinations thereof) of a carrier frequency is varied in accordance with a digital signal, e.g. one consisting of coded pulses or states.

Within the scope of this definition, a digital signal must modulate the carrier directly, not by means of a subcarrier which is digitally modulated. For example, radioteletypewriter and radiofacsimile transmitters, type-accepted to operate pursuant to Part 90, Section 90.237(c) of the Rules, for the use of F3 emission may also be used for F2, F4 or F9 emissions, provided the keying signal is passed through the low pass audio frequency filter required for F3 emission. The keying signal in this case would normally modulate a subcarrier and the transmitter would not be considered a digital modulation transmitter under the above definition.

At present the "Y" suffix of the emission designator denotes digital modulation, identified by F3Y and F9Y. New designators will be developed as part of the implementation of the Final Acts of the 1979 World Administrative Radio Conference.

AND NOW FOR SOMETHING COMPLETELY DIFFERENT

Proud to say that *The Monitor Post* is one of the most popular features of this magazine. This column, which has been running continuously since the late 1960's appears to be the longest running scanner news feature in any national publication.

Our incoming mail mostly asks questions, also it often clues us in on interesting and new developments in the field of communications above 30 MHz. It's a rich and varied cross section of news and views from this column's ever-growing army of readers. At this point, the field of scanner enthusiasts has expanded to the point where it's time to stop and get a better look at ourselves, see what we are all about at this point in the evolution of our hobby, decide which aspects of scanning are the most popular and which are least popular. Heh, heh...it's mainly intended to help your columnist direct the focus of this column on those areas

which will be of the maximum interest to the largest number of readers.

What I'm going to ask you to do is to participate in a short survey we are taking to find out your preferences. It's simple and won't take up much of your time; but it will be invaluable in seeing that you get the best possible Monitor Post as we continue to forge ahead into the 1980's. Won't you please let me know your thoughts on monitoring? A form is included here for your convenience; you can fill it in, tear it out of the magazine and send it back to me; or you can make a photocopy of it and send that to me; or you can answer it on a separate sheet (but please print clearly or type it so I can make it out). Please address your response to: The Monitor Post, S9/Hobby Radio Magazine, 14 Vanderverter Ave., Port Washington, N.Y. 11050.

MONITOR POST SCANNER SURVEY

1. I own ___ base station scanners: ___ mobile installed scanners; ___ hand held scanners.
2. My scanners include the following brands: _____

3. In my opinion, _____ brand scanners are the best ones available.

4. I have been a scanner user for ___ years. I am ___ years old.

5. My favorite types of stations to monitor are: (Circle no more than 3):

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6. I like to read new product information in S9:
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I would like to see the following coverage added to The Monitor Post Column (if present coverage is agreeable, please say so): _____

8. Do you presently own a communications receiver which can receive frequencies between 5 and 25 MHz? Yes: ___ No: ___

9. I would like to see the following scanner accessories brought out by one or more manufacturers: _____

10. My name: _____
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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.

A recent issue of a British CB publication happened to come my way recently; *CB World* it was called, and it had a lengthy story which proclaimed considerable woe over the fact that clubs in the U.S. are a thing of the past, that they are sinking fast in other parts of the world, and might soon be a matter of history in England.

I don't know where the author obtained his information, and I can't deny that the club scene in the United States is quite different than it was 5 or 6 years ago but, to paraphrase Mark Twain, reports of its death are greatly exaggerated.

When I dig back into the files from the mid-1960's I find that certainly there was no shortage of "clubs." Egads, there were an endless number of groups commencing operation on a daily basis. Some were for AM'ers and others were for Sidebanders; a couple were intended to be everything to everybody. Problem was that, while the number of such groups announcing themselves as being open for membership was astonishing, the

fact was that most never got more than a dozen or two members and a great many such groups closed up shop twice as fast as they had started up, and more often than not within 3 or 4 months after said commencement. The end usually came after the club found that its members were far more interested in sitting home and yakking on the radio than they were in sitting at a lengthy and boring club meeting during which nothing interesting took place except for a few people mumbling things like, "Mr. Chairman, point of order!"

Yes, if one were to superficially compare the U.S. 27 MHz "club" scene today with the bountiful harvest of mid-1970's groups, I suppose that you'd have to come to the inevitable conclusion that there are only a relatively small number of groups around today when compared to those *supposedly* in operation a few years back. To an outsider it might well look like 27 MHz groups are, indeed, few and far between. On the other hand, we wonder which is the more important, quality or quantity? To an insider it would appear that we are, in fact, somewhat better off (from an organizational standpoint) than we were during all of the commotion.

Sidebanders, in particular, have seen more "groups" come and go than they'd like to remember. Remember the days when everybody, and I mean *everybody*, had a turn starting a Sideband group, issuing a couple of "numbers" to their pals and then having each of their cronies issue, in return, one of "their own" numbers. Seems like every time you flipped on the damn rig there were 8 folks sitting there waiting to assign you to a number of one sort or another. Unfortunately the average Sidebander of a few years ago had an assortment or collection of identifications which could fill both sides of a QSL card, out of which 99% of the groups ceased to exist even before the printer's ink on the QSL's was dry.



Here's the Sideband station of Bill Burnette of Washington, D.C. Bill's been on the air since 1963, a real old timer, and is a member of the SSB Network.

Some groups, in fact, appeared to have no purpose other than to assign membership identification numbers to all who were willing to accept them and when a few months had passed, so did all vestiges of the club which had issued the numbers. When everybody who had wanted a number had received one there just wasn't any further reason for the group to exist! Simple as that! History shows such a large number of those localized short-term groups that there is no way to even try to count them. Within a few months they were all but forgotten and new groups came forth to take their places—and then they too drifted off to never-never land. That meant starting out with one set of identification numbers, using them for a few months or a year, and then starting all over again with another "new" set of numbers which were being issued from a currently known source.

I can't think of anybody who doesn't have *this* many of such numbers! Some are local, others are from a country-wide group, a few may be from statewide groups, almost all are of only short-lived value and, even then, only within a limited geographic area. Many operators (and I'm in that happy band) really came to find that, all others notwithstanding, really one *permanent* number of *national* status, meets just about all on-the-air needs



Another active member of the SSB network, Ted, SSB-3A99, who says that he just can't get enough of that good ol' 27 MHz Sideband operation. Ted's also a scanner enthusiast. Ted is on active duty with the U.S. Navy at the present time, but reports that he can always find some time to operate. Ted adds, "Thanks to my membership in the SSB Network, I've made many new friends and have become a part of a worldwide organization of top notch operators."

which might ever come up. I've had that number since 1965—it's SSB-295, and it's more than "just a number," it is an identification which lets me say to all within monitoring range that I stand squarely behind the national Sidebanding "movement" which calls for a fair shake, more operating privileges, and closer unity for all Sidebanders—newcomers, old timers, and even *future* Sidebanders.

As differentiated from local or regional identification, a national identification is quickly recognized and accepted by other Sidebanders throughout the world whether I'm operating from the base or from the portable or whether I'm driving locally or even if I'm 2500 miles from the base station. With my national number I don't have to worry that I'll motor into some distant county where some of the local numbers I have are duplicated by other groups who may not enjoy hearing some arrogant snip from far away "using Big Ed's number." On the other hand an even worse fate is if my local numbers are all tried on the air at some distant location but bring no response because the Sidebanders in the area are not too keen on talking to someone with "unknown" numbers. Permanent national identification solves *all* of this.

They do a dandy job everywhere and in all possible situations, and please note that they are *permanent*. That means that they have a long standing history behind them, it's an identification system which won't

fold-up in a couple of months or a year. My opinion is that every operator who is interested in the continuing growth and advancement should have a permanent national number.

The "source," as I prefer to call it, is *The SSB Network*. This group, which has been in operation since 1964 (and how much more long-standing can you get than that?) is the world's oldest and by-far largest national and international organization of Sidebanders. For sixteen years it has been committed to maintaining and increasing the prestige and status of Sidebanders, increasing the operating standards and enjoyment of Sidebanding. *The SSB Network's* well-known system of uniform identification (with prefixes commencing with the letters "SSB") is in use throughout the entire world. They make their users welcomed everywhere.

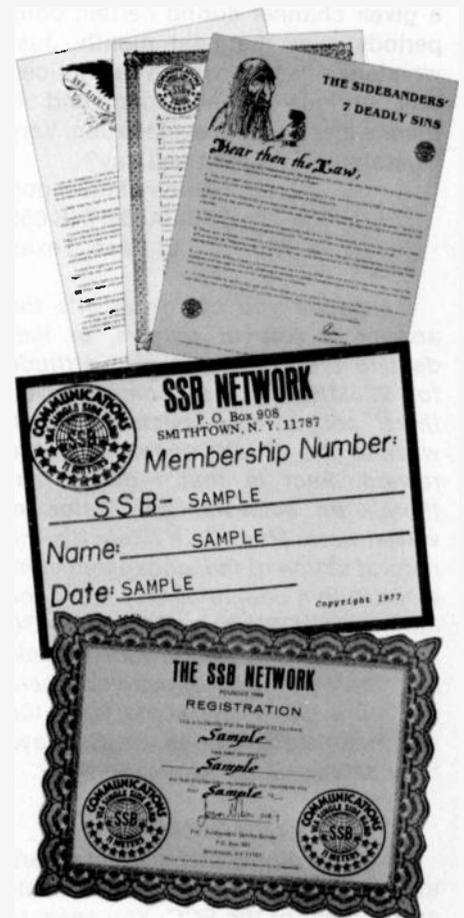
The SSB network has no annual dues, just a nominal 1-time affiliation fee, and they welcome all persons seriously interested in Sidebanding, present or future. The complete membership package costs only \$8; it includes the assignment of a permanent national/international Sideband identification number for on the air use; a nifty looking membership card showing your name/number/date of affiliation; a handsome gold/black wall certificate with this same information inscribed by a professional calligrapher; two 3-color SSB Net decals; a handy chart of the most popular AM-codes and words converted into Sidebanding terminology; the current edition of *SSB Net Notes* newsletter which is a dandy operating guide for old timer and newcomer alike—it tells how to get maximum use and enjoyment out of Sidebanding without any of the horrors which have sometimes faced those using Sideband; describing the Q-codes, accessing a frequency, rules of the road, etc.

The *SSB Network* needs your support, *deserves* your support, and as a member you receive the unity and status which can be offered only by this large international organization of Sidebanders. As a special bonus to those S9 readers *who mention this month's column when applying for membership*, *The SSB Network* will include with memberships (until the end of March '82): a copy of The

Sidebanders' Creed; 2) a copy of the Sidebanders' 7 Deadly Sins, 3) a copy of The Sidebanders' Bill of Rights—the 3 most important documents ever set for outlining how Sidebanders feel about our hobby. These are all colorful and suitable for framing. As an *extra extra*, you'll get a copy of the absolutely outrageous "Sidebanders 22 Code," which should kick up quite a storm if you try using it on the air!

The SSB Network is at P.O. Box 908, Smithtown, N.Y. 11787. When you apply for membership, enclose a self-addressed stamped (39¢ in uncanceled U.S. stamps please) #10 of-fice sized envelope (that's about 9 by 4 inches in size). That's all there is to it—your initial registration fee and the SASE described—and you're on your way to being part of the oneness and brotherhood which Sidebanding requires in order to maintain the solidarity of purpose and resolve to continue to provide top-notch communications.

Won't you affiliate? No, the CB club movement is indeed not departed from the scene—it's that it has narrowed down to the groups which we really need!



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 Vanderverter Ave., Port Washington, N.Y. 11050.

HEAVEN CAN'T WAIT

Did you ever notice that the skip openings always seem better on Sundays than they are during any other day of the week? Being retired, I get to spend many pleasurable hours at my base station and I have taken a survey which proves this, based upon the number of skip stations heard on a given channel during certain daily periods over the past month. Just wondered if anybody else has noticed this curious phenomenon and if there's any suitable explanation. Very mysterious, wouldn't you say?

Barney McGregor,
SSB-3A655/TXS-655
El Paso, Texas

I suppose you could say it's the answer to lots of prayers, or that despite the FCC's anti-skip attitude for 27 MHz) maybe "somebody up there" sets aside a special day each week to give 27 MHz operators a little reward. Fact is that I doubt that there's an ecclesiastical factor involved here. More than likely it's the natural action of the ionosphere combined with a couple of very mundane factors: A) CB'ers feeling that FCC monitoring is strictly a 9-to-5 week-day operation, and B) because there are more CB'ers at home from the saltmines and yakking on Sundays than on any other day of the week.

A RAY OF SUNSHINE

I'd like to clarify one point in regard to your generally accurate and timely assessment of the FCC. You seem to



give the impression that it is the entire agency which has made such a mess of things in CB and other radio services. This is not really fair since the policies and decisions propagating from the FCC are within the sole domain of a relatively small number of people "at the top," including department and division heads, regional supervisors, and the Commissioners themselves. The vast majority of the average FCC employees are just poor schnooks trying to eke out a living. They are in no way responsible for FCC decisions, regulations, politics, and attitudes with many things they see going on within the agency. The working conditions for the average FCC employee are far from great, the pay isn't good, the office policies are depressing, and most employees feel as if they are being treated like they were just so much cattle. While your analyses of many FCC problems have certainly hit the target, you imply that

all FCC employees are part of the problems. You'd be surprised at the number of "outbanders," "skip workers," and other "illegals" who are employed by the FCC in clerical and other lower echelon jobs. Some of these people process the paperwork relating to FCC violators and as soon as quitting time comes they rush home to see if there's any good skip rolling in! Keep up your direct and badly needed opinions on FCC policies, they've made you a hero with many "real" people inside the FCC, but please let your readers know that it is only a very small percentage of the people at the FCC who are responsible for the dumb policies you mention.

(name withheld by request)
Takoma Park, Md.

A point well made—thanks for saying it!

THERE'S A CATCH

You've run several articles telling how long runs of coaxial cable produce signal loss, and the higher the frequency the more that loss will be. This brings up the question of the advantages of putting a scanner antenna on a roof and running the signals through 50 feet of coaxial cable, versus eliminating the cable altogether and just using an indoor whip connected directly to the scanner. Wouldn't that be easier and eliminate cable losses?

Harry Mahaffey,
Searcy, Ark.

I can't argue with you on that point, Harry. It will most certainly be easier and less prone to coaxial cable losses. Unfortunately these advantages will come at the more serious expense of the ability of your scanner to pick up those weak signals from off in the distance. Don't forget that one of the first considerations of VHF communications is getting the antenna up as high as possible, and you can't simply toss that concept in the dumper without wondering how it fits into what you hope your station will do for you. While you may have some negligible loss from (only) 50 feet of cable, the signals which will be getting to your scanner will nevertheless be more than you'll be getting with a ground-level indoor whip connected directly to the scanner itself. If all you want is reception of strong signals from local base stations then go ahead with the indoor antenna trick, otherwise forget it.

MICRO CW STATIONS

One day while listened to my AM radio I noticed a squealing type of interference. A friend of mine next door also noted the same interference and we then decided to try to find out what it was. Within a week or so of looking for the source of the problem and comparing notes we came to the conclusion that my receiver was the cause of the squeal in his receiver, and his receiver was causing the same noise in my set. Now we can't decide who should get their set repaired. Can you?

Bobby McQuade,
Desert Hot Springs, Ca.

The problem is one which is inherent in superhet type receivers being used in close proximity to one another. Not much you can do about

It except figure out how to enjoy it. One way of enjoying it is to place telegraph keys in the antenna circuits of each of the two receivers and then use the sets as a local CW communications system. Not only will it drive all of your neighbors batty but it's a good way to bone up on CW.

THE SONAR THE BETTER?

I was a little dismayed when I read the recent Pioneers Corner which discussed various public safety monitor receivers over the years. I don't know what your columnist, Judy, has against Sonar equipment but she sure let her feelings against Sonar radios made known rather bluntly. For many years I owned a Sonar Model G CB transceiver and was extremely well pleased with the rig. I think that maybe she came down a bit too much on Sonar's equipment.

Arthur Swenson,
Omaha, Nebraska

That's what makes horse racing, Arthur, and everybody is entitled to their own opinions one way or the other on various equipments; just as you are entitled to express your own and I have given you the opportunity to do so. For my own part, I always felt that Sonar's early equipment was above average but somewhere along the line it became fair to rather mediocre, overpriced, and overrated (probably coasting along on the reputation of its early gear). I would hardly put it in a class with e.c.i. Courier, Browning, Tram and other high quality equipment producers of the 1960's; at best, Sonar gear was adequate.

NO RED TAPE AT ALL

I was given a bunch of pre-recorded cassettes for my birthday and I was unhappy to note that not one of them was even remotely relevant to my musical tastes. They were just sitting there gathering dust for 2 months when it crossed my mind that I could use them for either taping some of my better 27 MHz DX contacts or re-recording on them new music taken from LP discs or the radio. Problem is that they've made the pre-recorded cassettes so that you can't record on them again, the two little tabs on the cases of each have been snapped off by the manufacturers. A dirty trick and I was hoping for advice on how to extract myself from either throwing

all of these cassettes out or else playing them and listening to "101 Strings" for the rest of my life.

Irv Korminsky,
Ft. Lauderdale, Fla.

Not really too dirty a trick since it can be cured by simply pasting a small strip of clear plastic tape across each of the openings which previously held those little tabs. That instantly causes the tapes to be made ready for new recording sessions! I wonder how the new restrictions against taping TV programs on home Betamax machines will be reflected in the allied wide-spread practice of home taping of records onto cassette tapes for private and personal use. Suggest you tape early!

EASIER THAN ON CB

CB stations are required, according to the FCC, to give their FCC call signs at the end of each communication. Considering that we are runt-sized 4-watt stations it appears to me that we have to give this ID a lot more frequently than TV and radio broadcast stations which run thousands of times more power. Exactly how often are these stations supposed to identify? They don't seem particularly consistent.

Harry Esquivel,
Hagerman, N.M.

The FCC requires that broadcast stations identify by their call sign and also their location once every hour and close to the hour. This aids the FCC in tracking down stations causing interference or violating any of the rules. One commonly encountered non-technical violation until recently had been stations in smaller suburban communities giving their location as their adjacent large city for the purposes of attracting advertisers; although now stations serving specific communities must identify correctly. It isn't required that a station interrupt its program several times an hour saying, "We pause for station identification." They usually do it as an excuse to introduce commercials. If the station is presenting a concert, a dramatic presentation, or religious service that does not have natural break, or if an announcement is made in advance that a TV station is going to present an uninterrupted movie they don't have to break in for a station announcement.

SAY IT ISN'T SO

I've grown a tad weary of hearing about all of the many things which shouldn't be mentioned over the air. At this point, if I were to combine everything I've been told then all I'd be able to say was my *handle*! What's your own personal list of things *not* to say? Whatever you suggest is what I'll follow.

Joe Bienstock
Elko, Nevada

Since you spoke of having a handle, I assume that you operate on AM and, that being the case, my suggestions include never announcing your last name, landline number, or street address over the air. Also don't discuss when you will not be home for either long or short periods of time. Other good subjects to stay clear of are discussions of political philosophies, religion, racial matters, or knocks at nationalities. Don't hassle with other operators over the air, or run them down behind their backs over the air. When you move on to Single Sideband frequencies, it's all of the above PLUS—but the "plusses" make SSB all the better for it.

JUST STANDING AROUND

How can I cut down on the SWR of my antenna? Will an antenna matcher do the job for me? My SWR is 2.5 to 1.

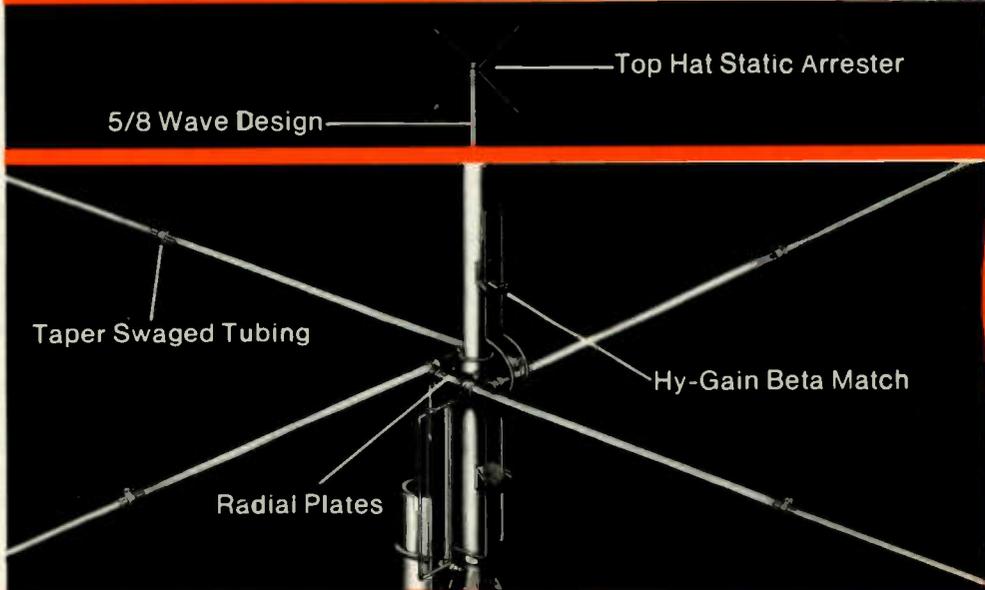
W.S. Richter,
THE LAUGHING MAN,
Allegan, Mich.

I suspect what you really want to know is how to reduce the SWR on your feedline; if you didn't have a standing wave on the antenna itself your signal wouldn't get anywhere! The standing wave is what does the actual radiating of the signal, and this is one reason why low SWR on feedlines is usually considered a major goal in antenna system engineering. If the feedline is radiating too, the system radiation pattern will be screwed up. But if the feedline SWR (more accurately, VSWR) is 1:1, no radiation will occur from the feedline. This reason isn't of drastic importance on CB since antenna patterns aren't of critical consequence to us, but it's where the original emphasis came from. More important to us is the fact that high VSWR can damage the rig and also prevent maximum performance. The only way to reduce VSWR on a feedline is to make a more perfect

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- 1. Hy-Gain's pioneering innovations in CB base antenna design.**
This powerful 5/8 wave base station antenna design was an original Hy-Gain concept. Efficiency is increased substantially over conventional designs. Furthermore, Hy-Gain's CB antennas are subjected to the same demanding requirements established for amateur, military and commercial antennas.
- 2. The Exclusive Hy-Gain Beta Match.**
The Beta Match provides proper matching between feedline and antenna for optimum performance. The Beta Match also puts the antenna at dc ground, thus draining off precipitation static.
- 3. Taper Swaged Tubing.**
Hy-Gain uses taper swaged, heavy-gauge, aircraft quality, seamless aluminum tubing for all radiators and radials. This gives our collinears less wind loading and more stability than with most other designs available.
- 4. The Top Hat Static Arrester.**
Hy-Gain engineering expertise developed what we call the "Top Hat" Static Arrester. This wire configuration atop many of our base station antennas is designed to reduce precipitation static to an absolute minimum, resulting in crystal-clear, two-way communication.
- 5. Radial Plates.**
High wind survival and extra years of high performance are assured because of our rugged construction techniques. A good example of this is the machine-formed radial plates fitted to each Hy-Gain omnidirectional antenna. These precision plates hold the radials firmly in place, thus preventing them from loosening or even falling off.

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The world's most popular CB base antenna Hy-Gain was the first to design a 5/8 wave collinear antenna. It was the ultimate omni when we invented it and it still is. Its impressive 5.3 dB gain in all directions has become the industry standard that other 5/8 wave omnis are measured against.

The Penetrator's signal is compressed at the horizon for extra power and distance because of its extra long 22' 9" (6.9m) radiator length. Its unique top hat discharges static buildup to nearly eliminate noise. This is not just another ground plane antenna; its superb design and heavy-duty construction will handle 1500 watts of power with no problem because there are no power-robbing loading coils to burn out.

Model 500 The Super Penetrator

- 5.3 dB gain
- 1500 watts power handling capability
- Low signal-to-noise ratio
- Compressed signal for extra power

Model 473 CLR II

This is the most copied 5/8 wave collinear antenna on the market. The CLR II achieves a powerful, no-nonsense 4.2 dB gain at the horizon, and a big 500 watts of power handling capability. This is, by far, the best value in Base Station Antennas available today.

Model 410 The Original Long John

This five-element yagi with 24' (7.3m) boom delivers an amazing 12.5 dB forward gain with 31 dB front-to-back ratio. For long distance, high powered action, this one has all other five-element yagis beat. This famous Hy-Gain Long John can handle 2000 watts of power with ease. Top quality materials and exclusive Beta Match feedpoint system with direct dc ground guarantees efficient power transfer and increases your talk power 18.4 times the normal output of your radio

Model 542 SDB 6

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

match between the feedline and the antenna. Most commercially made antennas have this taken care of at the factory; if you get a drastically high VSWR with one of these, something is wrong either with the antenna itself or the way you have it installed. Check first for bad connections; they can look perfectly alright but still be open for RF. Similarly, it's easy to melt out the insulation on coax and put a short circuit where you don't want one. There are some other ways of cutting SWR, but they're too lengthy to detail here. In any event, all an antenna matcher will do for the situation will be to possibly fool your rig and an SWR meter into thinking that everything's hunky dory up at the antenna, when the fact is that you really haven't done anything at all to solve whatever it is which caused your antenna system to cop out with a 2.5:1 VSWR reading. If my antenna had a 2.5:1 VSWR, I wouldn't be doing much laughing.

BOXING MATCH

The various times I've purchased electronic equipment (everything from TV sets to CB rigs), most of the sales people have suggested that I keep the boxes in which the equipment was packed. What's the reason for this and why would I want to hang on to a bunch of empty boxes?

Harry, SSB-0A477
Roda, Va.

Several reasons I can think of include using the box to re-pack the set should it need to be sent back to the factory for repair. Not that a factory requires you to send it back to them in the original box, but the box and all of its packing innards is conveniently custom fit to accommodate your rig. Besides, keeping the box is good insurance since it's a well known law of electronics that if you keep the box for a while just until you're sure the equipment works well, within a few days of deciding that everything works so well that you can throw out the boxes, the equipment is certain to sustain massive failures in all of its circuits. Another reason to keep the boxes is to put the equipment in it when you want to re-sell it in used condition. For some mysterious reason, used equipment "still in the original carton" has much more sales appeal than when offered in an old Del Monte canned pineapple carton.

The Radar Column

by "Jammer"

SENSITIVE SUPERHETERODYNE X-K RADAR DETECTOR

Radio Shack now offers a top-of-the-line radar detector with superheterodyne circuitry for enhanced sensitivity and selectivity. The long-range Micronta® Road Patrol XK Superheterodyne Radar Detector (22-1603) is available at Radio Shack stores and participating dealers.



The high sensitivity and selectivity of superheterodyne circuitry virtually eliminates falsing from out-of-band signals while providing early warning of speed radar signals.

The Micronta Road Patrol XK detects all currently-authorized bands and types of speed enforcement radar, including pulse, moving and hand-held "gun" units.

A variable sensitivity control can be adjusted to permit reception of weak signals—including those reduced by hills and curves. Alternately, it can be adjusted to reject these weak signals in "radar-busy" areas, like freeway junctions. A buzzer and/or warning light may be selected as the detector's alarm warning signal.

The 2-7/8 x 4-1/8 x 5-1/2 inch Micronta Road Patrol XK mounts on the windshield or dash; mounting bracket and adhesive are included with the unit. Power is provided through a 58-inch cigarette lighter power cord (12 VDC, negative ground), and a green front-panel LED services as a pilot to confirm the power connection. The radar detector's housing is diecast aluminum, prepared in a non-glare finish.

MOSCOW DRIVERS AREN'T EQUAL

In a country that boasts of its social discipline, the roads are a jungle. The Soviet Union has its highway code, its traffic police, its radar traps, and its drivers license penalties. But in the end it is power that counts: If you have it, you can get away with almost anything. If you don't, better stay in the slow lane.

In the world of the Soviet automobile, power has a color. All communist part and government cars—about 80,000 in Moscow alone, a quarter of all vehicles on the road—are black.

The speed limit in the city is the equivalent of 38 miles an hour but it is a nominal restriction for the privileged. Several foreign correspondents have reported that it is not unusual to see these black cars charging past the Kremlin at 75 mph, going through red lights in full view of unblinking policemen.

Since these black Zils and Chaikas belong to an elite class—the highway code calls them "vehicles with special signals"—they are authorized to travel in the center lane. This is a Soviet innovation, a strip of roadway bordered by solid white lines for the exclusive use of emergency vehicles and those carrying passengers with clout.

In recent years, with the introduction of United States-style radar guns, and decree authorizing speed traps to be situated where they are hard to detect, the traffic police have stepped up surveillance of ordinary motorists.

The most feared sanction is the hole punch. Standard equipment for traffic officers, it can be used on the spot to perforate a drivers license. If a driver who has two punches in the space of a year is halted for an infringement, officers are authorized to confiscate his license on the spot and to submit the case for review.

The driver may be informed by letter that his license has been withdrawn or he can be called to account. However, if he wishes to save himself the trouble he can fall back on the expedient, not unknown outside the Soviet Union, of offering the officer inducement. Drivers in the know say that many a ruble has passed hands in this way.

SKATEBOARDER TO TRY AGAIN

Michael Coyer of San Bernadino, California, has received permission from state highway officials to make another "banzai run" down U.S. 395 in a second effort to hit 72 MPH plus on a skateboard.

"The California Highway Patrol is going to use radar to clock my speed," Coyer said last week in announcing his official try to surpassing the 71 MPH skateboarding record in the *Guinness Book of World Records*.

Coyer, a 19 year-old plasterer from Hesperia whizzed down I-15 in the nearby Cajon Pass last month at an unofficial speed of 75 MPH.

Coyer was finally stopped by a CHP cruiser, but he wasn't cited for speeding. His violation was listed as "failure to obey signs that limit the use of highway to motorized vehicles."

MORE MPG OR MORE TICKETS

(Reprinted from the Ventura, California Star-Free-Press)

What's happened to the California Highway Patrol's sense of sportsmanship?

Commissioner Glen Craig proposes to remove those distinctive roof top emergency lightbars from his patrol cars and simply use blinking head lights as emergency signals. Mr. Craig says it all in the name of fuel economy.

Removal of the bars will cut the wind resistance of CHP cruisers, he claims, resulting in more miles per gallon of gas.

Some California motorists, however, have a different perspective. Those who drive with the pedal to the metal, one eye on the speedometer, another on the road ahead and the third on the rearview mirror, can attest that the emergency lightbars make it easier to spot a CHP cruiser miles away.

With the CHP now using airplanes and helicopters and continuing to push for the use of radar, there's a nagging suspicion that Mr. Craig's real objective isn't more miles per gallon but more tickets per cruiser.

There's real cause for concern about relying on blinking head lights as an official signal that makes it hard for a motorist to be sure the blinking car is a CHP unit.

A strong case also can be made that the CHP would do everyone a service, not by trying to camouflage its units, but by making them just as distinctive as possible.

You may recall that the CHP used to use visible deterrents in the form of billboards built to look like CHP cars. That gimmick is no longer used, but it illustrates the usefulness of visible deterrents.



NEW POLICEMAN WORKS FOR NOTHING

Several members of the Ft. Walton Beach, Florida Police Department were snickering at having duped drivers through the city during last Labor Day weekend.

Safety officer Jose Sotuyo strategically placed a cruiser complete with a radar unit in the median on Miracle Strip Parkway to slow down Labor Day traffic, but what many of the drivers didn't know was that the officer was a dummy dressed in a department uniform.

Traffic through the city was apparently heavy and the decoy seemed to do its job—drivers hit their breaks when the cruiser came into view, checked their speedometers and when they had the chance to look up they were past the radar unit.

Sotuyo said he was mulling over ideas for traffic surveillance for the holiday weekend.

This first idea was to put two wrecks in the median with some sort of safety message but he figured that might cause an accident when drivers slowed to see what was happening.

CHP EXPANSION PROPOSED

California motorists would pay an extra \$1 a year to finance 670 more highway patrolmen, under a bill passing its first State Senate test.

The Senate Transportation committee voted 5-0 on AB 202 by assemblyman Lou Papan, sending it to the Finance Committee, the last stop before the Senate floor.

The extra \$1 on vehicle registrations would be required for four years. It would bring the California Highway Patrol up to 1974 staff levels. The CHP now has about 4,160 officers.

Currently, the registration fee is \$11 a year.

Papan, the legislature's leading opponent of CHP efforts to obtain radar, criticized the administration of Gov. Brown for allowing CHP staff levels to drop.

STIFFER FINES FOR SOME SPEEDERS

Speeding. It can be hazardous to your health. And in Cape County, Missouri, it can lighten your wallet substantially as a result of stiff fines being handed down by Associate Circuit Judge William Rader.

Since being appointed Associated Circuit Judge, Rader has been issuing much stiffer fines for speeding than had previously been the case. The judge reasoned that low speeding fines did not act as a sufficient deterrent to highway drivers.

Speeding fines, the judge says, now range from \$15 to \$500.

UNCERTIFIED RADAR VOIDS 54 TICKETS

A technicality the Vero Beach, Florida Police Department overlooked regarding radar calibration certification has prompted that agency to void 54 traffic citations written during the last two weeks of January.

Deputy Chief Roland Hood reported that the radar units' calibration certificate, which was valid for six months, had lapsed on January 11th.

The unit was used for several weeks until police realized that the certificate had expired.

All city police issued traffic citations for speeding that were written from January 11th to January 29th, 1981 are being voided. Police Chief Sam McCall says the radar unit has been recalibrated and is back in service.

GUILTY BUT NOT GUILTY

Westbrook, Maine Police Sgt. Robert Abbott was speeding, but he's not guilty of any offense.

District Court Judge Simon Spill made that decision finding that the Abbott was on duty and following the orders of the officer who issued him a speeding ticket.

In the incident, Sgt. Tim Farr clocked Abbott at 44 miles per hour in a 25 MPH zone. That occurred, according to the testimony of a dispatcher Laurie St. Jock after Farr told her to radio Abbott to return to the station for information on a case.

Noting that the speeding incident had received widespread publicity, Judge Spill said he wanted to explain the reasons for his verdict. Basically, he said, law enforcement officers and others have a limited exemption from observing traffic ordinances when they are on duty. And although they remain obligated to protect citizens' lives and property in such circumstances, Spill said, both the law and previous court opinions offer police, firemen, and ambulance drivers, among public officials, a reasonable amount of driving discretion.

KANSAN DRIVERS NOT SLOWING DOWN

Figures released by the Kansas Department of Transportation show that 87% of the motorists clocked on State highways during the next 3 months will have to be at or below the 55 MPH speed limit for the state to meet federal requirements.

Congress has set compliance standards which states must meet every year or face the threat of losing up to 10 percent of their federal highway funds. At the moment, there is still a question of how strict Congress will be in enforcing the law.

Radar clockings of vehicles at 22 locations during the spring showed 81 percent of drivers on rural interstate routes violated 55 and 71 percent of those on urban interstate routes breaking the limit.

This could be another indication that the 55 MPH limit is going to be with us for awhile. There does not seem to be the resistance to it of a few months ago. The repeal pledged by then presidential candidate Reagan has not materialized and is not likely to, the administration says.

COSTLY FIGHT WAGED OVER TICKET

Larry Bruce spent hundreds of hours and dollars to fight a \$27.00 speeding ticket.

But the time and money paid off in the end: for example, he was able to show that radar will sometimes erroneously clock the speed of immobile objects such as trees.

Last year, Bruce was pulled over by a state trooper who showed him that 66 mph had registered on a radar unit. He was then issued a ticket.

Bruce felt that he had not been speeding. He went to court the first time without a lawyer and lost the case without a chance to explain how the radar unit could be wrong.

He then hired a lawyer and appealed the conviction. But the District Attorney in Winston-Salem, NC dismissed the case without a hearing. Again he did not have the chance to explain the problems of radar tracking.

But he finally got his chance after a trooper in Greensboro, using the same type of radar equipment, gave him a ticket for doing 60 mph in a 50 mph zone.

Bruce went to court, and the judge dismissed the case after Bruce showed it was possible for the radar unit to be affected by strong radar waves in the area.

North Carolina has no regulations for training operators although that will change by July 1982, when a state law requiring training and certification for radar operators becomes effective.

FLORIDA COMMISSION FINALIZES RECOMMENDATIONS FOR TRAFFIC RADAR USE

A Florida radar commission, convened to develop standards for police radar use by a 1980 mandate in the state legislature, finalized their recommendations for minimum officer training and equipment performance standards in Tallahassee. The recommendations on which the commission voted included both the final standards and also the interim standards for the operation and use of radar equipment. These standards will be adopted following approvals by the Department of Highway Safety and Motor Vehicles and Gov. Bob Graham.

Following a widely publicized trial in Miami in 1979 where radar was found to be unreliable, the legislature of the State of Florida enacted a law for the regulation of police radar equipment and training. A five member commission was established and chaired by Representative Ron Silver who introduced the legislation. Judge Alfred Nesbit, who presided over the Miami case is also a member of the radar commission.

Colonel Lee Nichols, an independent radar expert consulted by the commission, detailed measures needed to improve the accuracy of police radar. Using preliminary standards developed by the federal government as a foundation, Nichols expanded the Florida structures to include other areas of technology heretofore unchallenged in the manufacture of radar. In so doing, the Florida standards will be more stringent than those adopted at the federal levels which are expected to be released by the National Highway Traffic Safety Administration in the near future.

Among those measures recommended by Nichols and adopted by the commission are the removal of automatic locking devices found on most radar units in use today. These devices allow the traffic officer to set the unit at an arbitrary speed while he concentrates on other duties. An alarm indicates when a vehicle has exceeded that speed and the officer must then determine from which vehicle the signal is being returned to the unit. Since the radar units are subject to spurious readings, the removal of the automatic lock systems will require the officer to first visually identify a suspected speeder rather than guessing.

The single most problematical issue surrounding radar use is acknowledged by many radar experts as difficulty with accurate target identification. Where once officers were trained that the first vehicle in a line of vehicles was the speeding offender, recent studies have shown that, in fact, the radar registers the strongest signal rather than the

closest. Most radar units have microwave beam widths which cover an expanse exceeding the width of a four lane highway and thereby encompass numerous vehicles from which signals may be returned. Florida radar commission standards move to reduce beam widths to twelve degrees—a restriction of several degrees narrower than the beam width in existence today.

Interference from numerous sources including, but not limited to, CB radios, AM and FM transceivers, heater and windshield wiper motors and air conditioners have been found to cause erroneous and excessive radar readings. To reduce the opportunities for this phenomena, Florida will convert its radar to all K-band units, those which operate at the higher frequency than the X-band, the other frequency used by police radar.

These and other measures found within Florida's newly established standards for police radar will not only surpass the minimums soon to be set at the federal level, but are anticipated to set the groundwork for regulations over police radar established by other state legislatures.

JACKROCK DAMAGE

Someone is retaliating against state police radar traps in Staunton, Virginia by strewing crossovers, ramps and other favorite police locations on I-81 with jackrocks—devices made with metal and nails—resulting in numerous flat tires on state police vehicles and private passenger cars.

A spokesman for the police said that the use of homemade devices—rooting nails, razor blades or nails with metal bases—began about July.

Police speculate that, since the practice is widespread, it is not being done by local vandals but truckers, presumably angered by tickets from radar traps. The spokesman did say that it was almost impossible to catch the person or persons involved, since the implements are probably thrown from moving vehicles at night.

POLICE VIOLATE RADAR BAN

A Wrens, Georgia police dispatcher has been relieved of duty and a ranking officer has been suspended for using radar equipment inside the Wrens city limits, officials say.

The Wrens city code bars its law enforcement personnel from using radar. No motorists were stopped or ticketed in the incidents, Police Chief John Terry says.

Dispatcher Jimmy Miller, 19, of Louisville, was told that if he didn't resign, he would be fired for using a radar device in his car.

LAWBREAKERS EXCUSED

In Harrisburg, Pennsylvania, a woman said she was speeding because she was low on fuel and wanted to get to a gas station before she ran out.

In Hershey, a man claimed he was an elevator mechanic rushing to free a car load of trapped people.

And in Wyoming, a woman claimed she ran a stop sign and sped into a crowded intersection because she didn't want to hit a squirrel.

Whatever the excuse, chances are the policeman has heard it before. And chances are, it's not going to work.

Still there are excuses that work better than others. Here are some to give; others to avoid.

Do tell the trooper you are heading for a funeral preferably the funeral of someone close. Do have tears in your eyes.

Do tell the trooper it is a medical emergency. It helps if you have a pregnant woman next to you.

Don't say you have to go to the bathroom. This ploy has been tried repeatedly—almost exclusively by women—with little success. It worked only once on a trooper from the Jonestown barracks, who said the grimace on the woman's face convinced him it might be real.

RADAR USE SLOWED

Portable radar units have been removed from five Pittsburg, Kansas patrol cars so more time can be spent on security of businesses and residences.

But Police Chief Ralph Shanks said the units will be reinstated if speed related accidents show an increase. He emphasized that the units are still being used for selective enforcement in areas where speed could be a contributing factor in accidents.

RADAR GUN LICENSE EXPIRES

The licenses have expired for two radar guns used by police in Sheridan, Colorado, says a Federal Communications Commission official.

The big question is whether or not the police can make the speeding tickets given on these units stand.

Under FCC law, the license must be renewed every five years, the officer said.

According to Perry Murrieta, field representative for the FCC in Denver, a city that fails to renew its license on a radar gun must begin the application process all over again.

Approximately 40 municipalities throughout Colorado—mostly on the western slope—failed to renew licenses on radar guns. Sheridan was the only city in metropolitan Denver to miss the renewal date.

RADAR GIFTS FOR FHP

Aiming to improve highway safety but also mindful of the positive impact of their decisions on counter offers, two Alachua, Florida county commissioners have recommended buying the Florida Highway Patrol more radar guns.

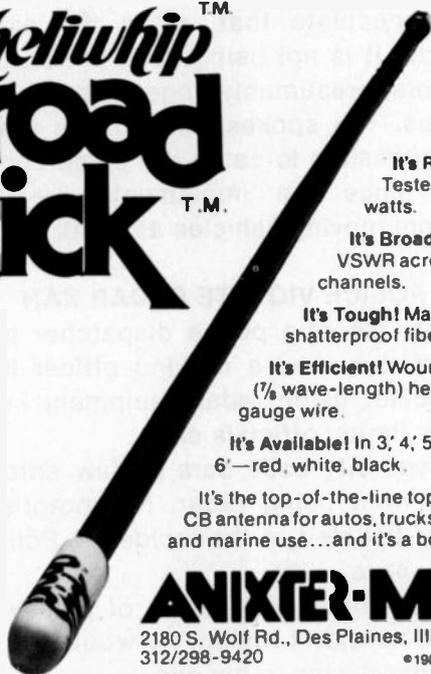
Commissioners Ed Turlington and Sonny Lee back FHP Sgt. Fred Sowell's suggestion to purchase outright or lease-purchase 15 to 17 radar guns for the county based, 19 man highway patrol unit. The proposal will get a full board review.

Sowell has explained that the state legislature has not provided money for radar equipment in years, and counties are supplying the patrol with the speed measuring devices in increasing numbers.

If given final approval, the purchases for the patrolmen, which is estimated to have about a \$35,000 price tag, could produce an extra \$183,000 per year in unrestricted funds for the county treasury. At present, with only five workable radar guns, the highway patrol makes about 600 speeding cases per month, but Sowell said he could "assure" that the patrol would have 1500 cases a month with another 15-17 radar guns.

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ON THE COUNTERS

S9'S MONTHLY PRODUCT REVIEW

POWER CHARGER

Mobile amateurs and CB'ers can operate and recharge their handheld radios anytime with the new HT POWER-CHARGER™ from Valor Enterprises.

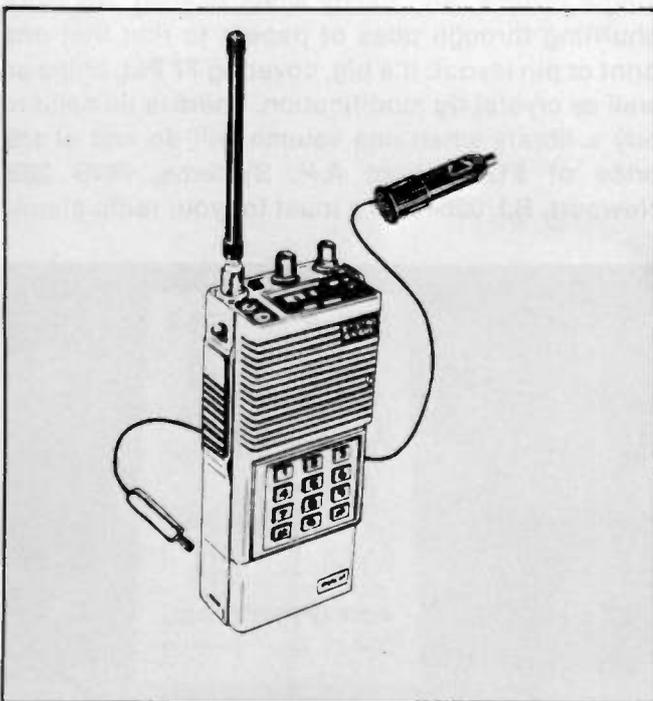
They simply insert the HT POWER-CHARGER™ into the lighter socket and attach the mating plug into the radio. Charge handheld radios in less than an hour and use them for transmitting and receiving while driving.

The HT POWER-CHARGER™ is not just a dropping resistor and diode, but a pair of silicon transistors in a variable current regulator that is self-adjusting depending on the battery state of charge.

Mobile amateurs will appreciate the convenient package—all circuitry is enclosed in the plug with no box dangling on the cord. And the HT POWER-CHARGER™ features a built-in LED to indicate lighter socket function, with a five-foot connecting cable and plug to mate with the radio.

The HT POWER-CHARGER™ comes in six models designed to fit most popular amateur handheld radios.

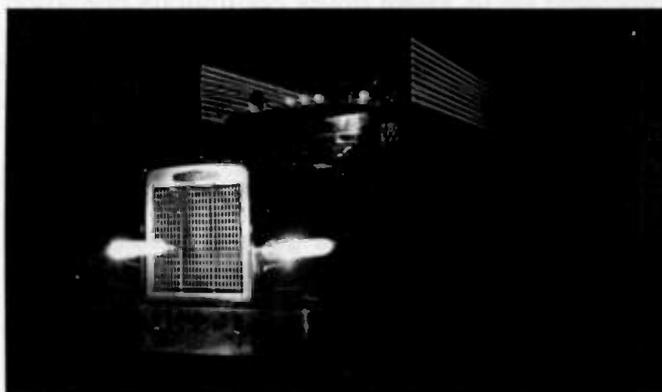
Valor Enterprises adds the HT POWER-



CHARGER™ to its wide spectrum of personal and amateur communications products and accessories. For a complete products catalog, write Valor Enterprises, Inc., 185 W. Hamilton Street, West Milton, Ohio 45383, or mark 61 on our Readers Service.

LASER ROD

It's the rod of the future that lights up the road in a blaze of color...LASER ROD™ extended-wave lighted CB antenna, exclusively from Valor Enterprises.



The LASER ROD™ revolutionizes the world of CB antennas with its dynamic combination of clear, crisp transmission and striking good looks.

The LASER ROD™ operates on a 12-volt system and is equipped with the following features:

- Tunable tip antenna with 500 watts of power
- Sturdy long-life replaceable bulbs
- Wire for easy hook-up
- Parallel wired bulbs
- Optional switch and bracket, extra conductor wire, and cigarette lighter plug
- Available in two-foot and three-foot models

It's the all-weather, completely shock-resistant CB antenna that transmits and receives with lights on or off. And CBers can select from a spectrum of colors—red, blue, amber, green or clear.

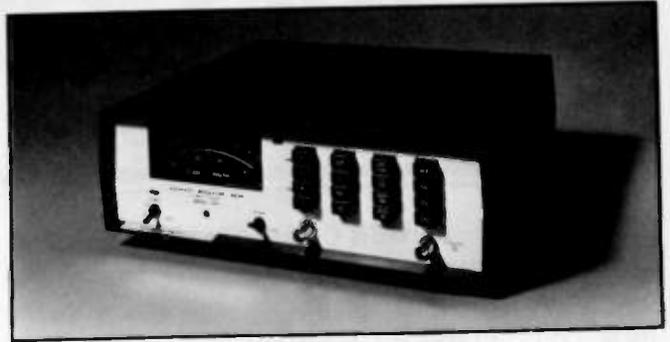
For more information about LASER ROD™ and additional products and accessories, contact Valor Enterprises, Inc., West Milton, Ohio or mark 57 on our Reader Service.

AUTOMATIC TUNING MODULATION METER

Wavetek Indiana introduces a new Modulation Meter capable of automatically measuring either AM or FM Modulation of R.F. signals in the range of 1.5 MHz to 2.0 GHz at levels as low as 3 mV. Either +, - or difference modulation may be measured, the later mode being very useful when balancing transmitter modulators.

Quick and easy push button control determines operating mode, range, audio filters and de-emphasis networks. Standard de-emphasis network of 50, 75 and 750 usecs are selectable, making the model 4101 useful for checking FM broadcast transmitters and hand held two-way transceivers. De-emphasis networks may be turned off when checking signal generators or other linearly modulated signals.

A re-chargeable battery pack option is available providing up to seven hours continuous operation



before re-charging for field use.

Modulation is indicated on a fast responding large mirror back meter for quick and accurate reading. A wide variety of ranges are selectable to assure maximum meter deflection for any modulation level. For more information write Wavetek Indiana, Inc. 5808 Churchman, P.O. Box 190, Beech Grove, Indiana 46107 or mark 60 on Readers Service.

NEW GENERAL COVERAGE COMMUNICATIONS RECEIVER

Trio-Kenwood Communications, Compton, Ca., has just announced a new general coverage communications receiver, Model R-600, covering 150



KHz to 30 MHz in 30 bands. The use of PLL synthesized circuitry results in highly accurate frequency control, with maximum tuning ease. The unit features an easy-to-read digital display, AM, SSB, and CW reception, built-in IF filters, noise blanker, RF attenuator, "S" meter, front mounted speaker, and can be operated from power sources of 100, 200, 220, and 240 VDC, 50/60 Hz. Operation on 13.8 VDC is also possible, using the optional DCK-1 DC power cable kit.

Contact: Trio-Kenwood Communications, P.O. Box 7065, Compton, Ca., 90220 or mark 59 on our Reader Service.

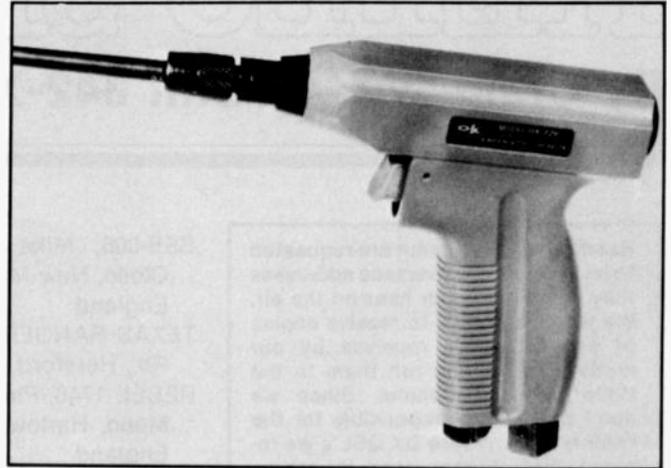
THE BOOTLEGGER'S BIBLE

The Bootlegger's Bible, first introduced in 1977, and in its 6th generation of growth, has become the undistributed handbook for the CB professional. Its clear and simple approach to the world of modifying the CB radio lets even the most novice individual modulate with the old pros. For the oldtimers it's a library of information packed into a single volume, and handy when needed. No more shuffling through piles of papers to find that one print or pin layout. It's big, covering 77 PLL chips as well as crystal rig modification. There is no need to buy a library when one volume will do and at the price of \$12.95 from A.P. Systems, POB 263, Newport, R.I. 02840 as a must for your radio shack.



NEW WIRE-WRAPPER

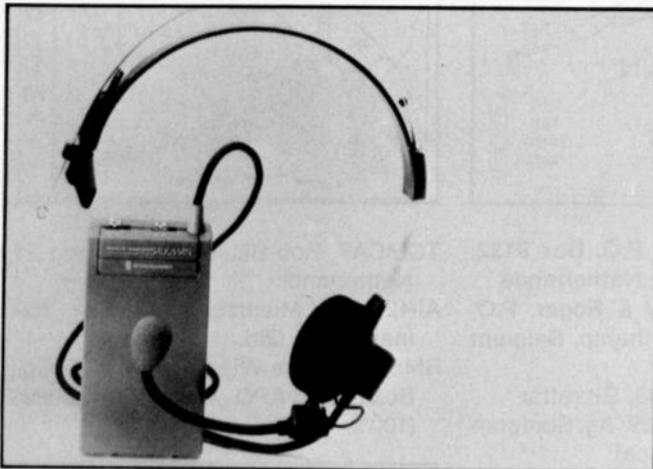
The new OK-729 pneumatic wire-wrapping tool from OK Machine and Tool Corp. is the lightest available—a mere 11 oz. (300 gm)—yet is packed with heavy duty features. The uniquely compact tool is perfectly balanced and features precision steel drive components enclosed in a reinforced Lexan™ housing for maximum performance and reliability. An especially effective new muffler, a positive indexing mechanism with adjustable stop location, and a 6 ft. (2m) flexible air hose round out the features of the new tool. The tool is available in 2 versions: "Standard" at 5,000 R.P.M., and "CSW"



NEW HANDS-FREE TWO-WAY RADIO

Talkman, a miniature, lightweight, voice activated, hands-free two-way radio with sophisticated solid state circuitry, has been developed for both the business and communications markets according to an announcement by Standard Communications.

Talkman is ideal for active motorcyclists, bicyclists, snow skiers and hunters as well as those in construction, security and manufacturing. It has application in almost every segment of business and outdoor recreation life.



Measuring only 2½" wide, 4½" high and ¾" deep, Talkman weighs less than one pound. It is available in any one of five channels and will transmit up to ¼ mile. It is powered by an easily obtainable 9 volt battery. The headset features a stowable whip antenna and an adjustable boom-mounted miniature voice activated microphone.

For a free brochure on Talkman, write Standard Communications Corp., P.O. Box 92151, Los Angeles, California 90009, or mark 44 on our Readers' Service.

with higher torque and a lower 3,000 R.P.M. speed for cut/strip/wrap applications. Designed to operate at 80-100 PSI (6-7ATU) OK-729 is fully rated for "heavy duty" applications on wire as large as AWG 18 (1,0mm) yet its unique light weight and balance make it ideal even for the most delicate 30-32 AWG (0,25-0,20mm) work. Available ex-stock from industrial distributors or directly from O.K. MACHINE AND TOOL CORPORATION, 3455 Conner Street, Bronx, New York 10475. More info is available by marking 62 on our Reader Service.

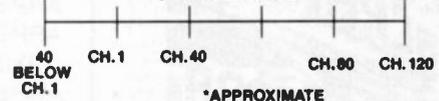
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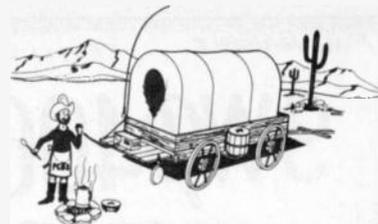
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THE CB PIONEERS' CORNER



By Judy, SSB-99/PCBS-99

SOME OLD TIME OPERATORS

Robert Knight, now of Congers, N.Y., came on the air as the Unit 2 of station 2W2590. His own callsign, 2A4802, arrived in early 1961—those were the days when callsigns were used instead of *handles*.

2 A 4 8 0 2

ROBERT KNIGHT
 72 Roosevelt Street
 Pearl River, N. Y.
"The Town of Friendly People"

President
 Citizens Radio Association
 of Rockland, Inc.
 Rockland County, N. Y.

Towards the mid-1970's Bob had to make up a handle (Green Dragon) because the complexion of CB had changed so much that people wouldn't talk to stations who didn't have *handles*! Bob's first rig was a Lafayette HE-15, then an HE-15A, later an HE-20 and then an HE-20C. At that point Bob got a Sonar FS-23 which was in service until 1971 when it was replaced by a Cobra 28 and a Teaberry. Bob has a complete collection of all S9 Magazines right back to the very first issue in 1962. Bob was a founding member of the Citizens Radio Association of Rockland, one of the earliest CB organizations on the band. Bob's most recent callsign is KMD-4178.

From the Garden State (New Jersey, in case you forgot), we received a note from Gus Maier, a/k/a Jersey Spirit and KAA-5622. Gus says he was on back in the early days but he can't locate the license and can't recall his old callsign—shame on him. That's like forgetting your

Gus Maier
 "Jersey Spirit"
 KAA-5622

CHANNEL 21 CLUB

P.O. Box 404
 Willingboro, N.J.
 08046

middle name! He got started with a homebrew rig built from plans in a magazine and it operated only on Channel 4. Of late, Gus has a Courier Centurion and is known on the Sidebands as SSB-9153-B and RAM-1978.

In 1965 a station known as KKD-8511 took to the air. That would have been John W. Slack's Johnson Messenger operating from New York State. In those days he used to get 25 miles base to mobile using only a ground plane at the base station! Nowadays John lives in Texas and has a Ham ticket, WA2BGB.

Elmer and Mildred Miteff (the Duke and Dutchess) of Lafayette, Indiana, began CB'ing with a Citi-Fone CD-5 which they managed to buy for \$15. The antenna at that time was a telescoping curtain rod. It was only after operating on CB for a while that they came upon the June '64 issue of S9 Magazine and realized that people were supposed to have licenses to operate on 27 MHz! An application was filed and the callsign KBH-0027 was received from the FCC. They like the *Pioneers' Corner* in S9 and say that they enjoy reading about CB's historic days.

DICK & LUCILE GOLDEN

R. D. No. 3, McCoy Avenue
 EAST LIVERPOOL, OHIO

KLN6503

Wheel Horse Tractors

KLN-6503 was the callsign the FCC gave to Dick Golden, who now hails from Calcutta, Ohio. That was in August of 1964. His current callsign is KBIZ-0628, quite a mouthful, I'd say! In the old days, Dick was a devotee of the Johnson Messenger rigs, and he owned two of them. He also had rigs by Pace and Pearce-Simpson. Currently Dick runs Royce and Cobra units at the base, and the mobile rig is a Hygan.

73's From The City Of The Hills

ONEONTA, NEW YORK

KID-5449

PSE
 QSL Bob & Mabel Palmater
 To Temporary 10-20 _____ TNX

Member of "POWER FOR PEACE" Club USAF

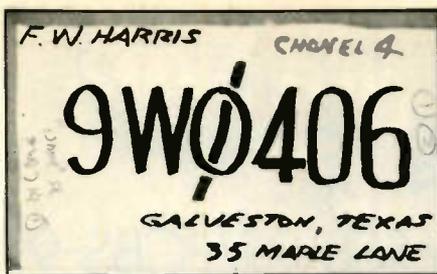
"Papa Golf," better known as Bob Palmater of Crest View, Fla., commenced his CB career as KBA-2292 in 1961 when he had a Hallicrafters CB-3A rig and lived in Cape Cod, Mass. In 1963 Bob moved to Oneonta, N.Y., and received the callsign KID-5449. At the present time, as KAPE-1498, Bob runs a CP-2000 at the base and another CPI rig in the mobile. Sky hook is a Moonraker 4 at home, a K-40 on the wheels.

KGE-0184

OTHER DATA: 216-7136
 29 10-10
 29 27
 you sure will
 write in here

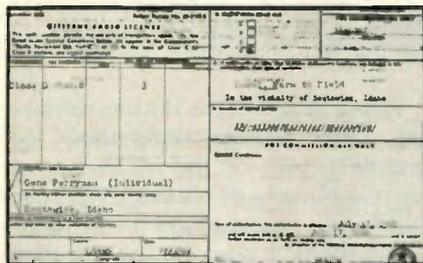
Henry Way figures that he received his original license along about 1961 and he's been on the air ever since. He dug out one of his early KGE-0184 QSL's and sent it along for us to see, and behold it was one of the cards printed by WRL, the World Radio Club—a company whose QSL cards were quite well known 20 years back down the line. Henry lives in Carter, S.D., at this time, and still owns his original Hallicrafters CB-5, now a museum piece!

In 1965 the FCC issued callsign KNA-2413 to Bob Schmulian, Pasadena, Calif. He owned an Eico 772 which he had built from a kit. Later came a Hallicrafters CB-5 and an early Regency, also a Johnson Messenger. The Messenger was able to let him rule the airwaves in



Pasadena as "Pasadena Radio." Eventually Bob moved to San Jose, Calif., which is still his headquarters. Bob is an old time Sidebender too, and now devotes most of his operating time "on the Sidebands."

Fletcher Harris, 9W0405, had the very first CB license in Galveston County, Texas! He had to wait several months for a friend 15 miles away to build a Heathkit in order to have someone to talk to on the band. Fletcher then graduated to a Polycomm PC-1—a set he liked so much he saw to it that the local Civil Defense and American Red Cross communications centers obtained about 25 of them. Fletcher reports that after signing clear on the air one day with the comment, "And we bid you a fond farewell from the Tropical Paradise of Galveston Island, just south of the Republic of Texas, and surrounded by the sparkling blue waters of the Gulf of Mexico," he received a citation from the FCC monitoring station in Nebraska. Fletcher says his citation contained an exact transcript of the remark, so he sent it



in to his local newspaper. As a result of that, the newspaper said that he was one of the few persons ever pointed out by the FCC for bragging about the island—and that earned him a Chamber of Commerce award!

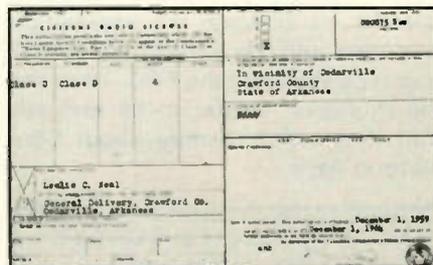
Gene Perryman, now of Kendrick, Idaho, began CB'ing from Southwick, Idaho, in 1961. His license read 14Q0787.

East Liverpool, Ohio, is the QTH of Brooks Mayfield, who started out with the callsign KHI-3070, and later received the callsign KCU-3034 from



the FCC. His XYL, Ruth, had an early license too, KHI-7984.

Les Neal, Cedarville, Arkansas, still has the Hallicrafters CB-3A he began with when he was first issued the callsign 8W0875 in 1959. His present callsign, KKR-5734, was originally issued to him in 1964—how he managed to hang onto it is probably a long story.



J.W. Steinhof of Franklin Park, Ill., commenced operation as KNF-1002 in the early days, and later received the callsign KDZ-0960. He's still very active on the band.



Fletcher Henderson's original communications station, circa early 1960's.

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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.



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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 sidebender — 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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TOMCATTIN' WITH TOMCAT!

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



PRIORITIES DEPT.: Seems like every time you see a newspaper or watch the news on TV the lead story has to do with Washington's budget crunch, and no wonder since we've spent a number of decades tossing money around inside and outside of our borders like a couple of San Diego sailors. In fact we have built up a rather substantial line of assorted people and governments who stand there with outstretched palms waiting for alms to be doled out to them. Now things seem to be doing a bit of a flip-flop—and maybe it's long overdue, even though some of those who are, as they used to say, "on the dole" aren't very happy about this sudden turn of events. On the other hand, we haven't yet quite mastered the knack of severe budget cutting without zapping some of the wrong people along the way—like pouring countless millions in El Salvador while we talk about serving school kids catsup instead of vegetables with their lunch, or weaseling a couple of bucks out of the Social Security checks of those who have paid into the system since as far back as the mid-1930's with the understanding that when they finally retired they would be able to do so with those monies.

Oh well, we are new at all of this and maybe we haven't yet ironed all of the bugs out of the system—but it does seem that there is some willingness to tighten up some expenditures in various areas. Along with the general budget-mania, most of the various government agencies have been told to make do with less funds—some of the agencies are being dismantled altogether. Those that remain are squawking long and loud about their allowances being trimmed by some 12%.

What it translates into is that they will have fewer employees performing whatever tasks the agencies perform, fewer facilities available in which to perform those services, and equipment which is probably going to be patched together instead of replaced as it becomes obsolete or too ancient to be of any

significant use. This is serious stuff, large Public Health Service health facilities are being shut down because of these developments, the V.A. may have to curtail some veterans' services, and social programs from Albuquerque to Atlanta, and from Alabama to Alaska are passing along the word to their clientele that the milk train may no longer be stopping at their local stations.

That brings us to some of those agencies whose operations concern the radio communications aspects of our daily activities. For instance, the Consumer Products' Safety Commission (CPSC). This is one of those "do gooder" agencies whose efforts always seem to be well meaning but somehow end up as more of a nuisance than a help to industry and the general public. It's the old story, government, which can't handle its own affairs, trying to tell industry how to cope. At this point, CPSC has been told to back off from most of the dumb and unworkable regulations it has spent years generating. There are a few noticeable exceptions, one of the most notable is CPSC's proposal that omnidirectional CB base station antennas manufactured after some (not yet specified) future date be manufactured to be capable of coming into contact with 14,500 volt power lines without frying up anybody who happened to be holding the antenna at the time of contact. Although in 1976 there were 1,175 fatalities because of such accidents, in more recent years the numbers have dropped to only 45 per year. Every person electrocuted by means of a CB antenna versus a power line wouldn't have had the accident had they not stupidly attempted to erect the thing in close proximity to a power line. Out of the millions of CB antennas which have been erected over the last few years, 45 people per year didn't realize that clunking a metal antenna into a 14,500 volt power line would kill them is a percentage so infinitesimally small that it has a decimal point

and a bunch of zeroes in front of it. Anyway, when the CPSC manages how to get this new regulation passed, you can figure on paying anywhere from 20 to 50% more for base station omni-directional antennas!

Next we come to the FCC. Granted they do have some important functions, I have never argued that point. And also they have been shedding various little extra frill services which they had formerly provided, like keeping records on several different callsigns which might be allocated to one single Amateur operator (now they allow only 1 callsign per operator). They then decided to back away from giving special distinctive callsigns for Amateur repeaters and for special events. Then they said that hams could take their callsigns with them when moving from one part of the country to another. The broadcast industry is currently in the process of being turned loose mostly under its own control since the FCC just can't keep up with it any longer—no manpower, no equipment, no interest in doing battle any more with broadcasters' high-clout lobbyists. Even the CB service, which is the world's largest radio service, has been under some discussion as being a candidate for some changes which will relieve the FCC of workload. One such change relates to the licensing of CB stations, some say they are mulling over the possibilities of making radical changes in that system. One approach might be to let equipment dealers issue licenses, another might be to let CB users send a registered letter to the FCC signifying their intent to operate on CB, yet one more voice suggests letting everybody operate on CB without any license whatsoever.

Not that anybody asked me, but one way I could see of cutting FCC expenditures and conserving manpower would be to limit CB enforcement only to those cases where an actual interference complaint has been received by the FCC. Everything else is strictly hogwash—shooting skip, making use of out-of-band frequencies which nobody else is using anyway, running more than the FCC's limit of 4 watts, not announcing a callsign. Unless somebody is willing to step forward and complain that their communications or lifestyle are threatened by a specific operator doing one or more of these things, I fail to see any point in the FCC's sending out their wolves to hunt down 27 MHz operators who aren't bothering anybody and whose "violations" are only those which relate to operating outside a set of arbitrary and relatively meaningless

"rules and regulations."

As it is, even now, the best the FCC can do is selectively harass only the smallest percentage of 27 MHz violators and the entire enforcement program is a laughable sham. So why bother with it at all on a random basis? Just keep it on hand to respond to interference complaints. It's not going to substantially reduce the national debt but it will shave a goodly chunk of *Uncle Charlie's* operating expenses—and probably make a lot of folks happier in the bargain!

OFFICIAL WORD: An official communique has been received from the Federal Office of Worn Out Phrases, Washington, D.C. Effective immediately, the CB expression "Have a good day today and a better day tomorrow" has been withdrawn and replaced by "See ya' around' huh?" Also, "Catch you on the flip/flop" has been replaced by "Take it easy, I'll talk to you again someday." The following CB words have been removed and not replaced: Negatory, Bodacious, Whoo-ee, and Mercy Sakes. The following word has not only been withdrawn, but all written records of its existence have been destroyed: Goodbuddy.

SIDEBAND STAR: From time to time I've made reference to Gary U.S. Bonds, who is not only an old friend, but also (as SSB-17 on the Sidebands) was one of the early members of the SSB Network. I suppose it's no secret to anybody who follows pop music that Gary has recently skyrocketed back into national attention with a gold record. Gary's concert and TV appearances haven't been able to take away from him time he's set aside for Sidebanding, although maybe now he just doesn't get as much of it as he used to. Gary still says that, so far as he's concerned, Sidebanding's the way to go. I tend to agree with Gary and I can't help recall that a knowledgeable FCC official once observed that Sideband is probably the future of all voice communications systems operating below 30 MHz. This would therefore probably be an especially good time for you to check out the *On The Side* column in this issue of Hobby Radio. It contains some information which those presently into Sidebanding, as well as those who will inevitably turn to it, will certainly want to take note of and heed.

Tomcat!

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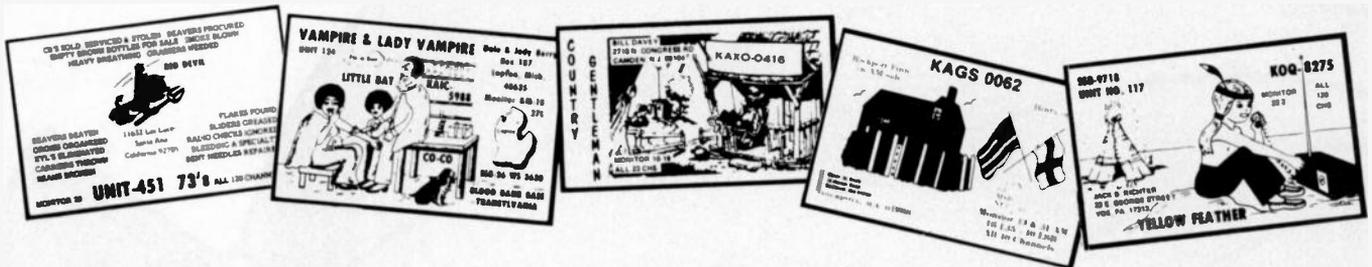
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Cardswappers Unlimited

S9's Column for QSL Cardswappers

Conducted By: Kim Christian



The Cardswappers Unlimited Column is dedicated to the hobby of swapping or exchanging CB QSL cards (wallpaper). The below listed CB'ers have submitted their names to this column to indicate that they invite other CB'ers 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: Kim Christian, Cardswappers Unlimited, CB RADIO/S9, 14 Vanderverter Ave., Port Washington, NY 11050.

Green Eyes!

- KBRR-7594** Mildred Poole, 606
Woodsdale Rd., Wilm-
ington, DE 19809
- KFO-3678** John P. Tinker, Rte. 2, Box
61, Jefferson, MD 21755
- KIS-9009** David Procner, Shuler
Road, Box 15, Stoneboro,
PA 16153
- KAPT-1586** Kentucky Colonel QSL
Swap Club, P.O. Box 5715,
Lexington, KY 40555
- XM65-14955** P.O. Box 44, Juniper, N.B.
Canada

- KAIF-3799** P.O. Box 509, Glg Harbor,
WA., 96335
- KBRE-9298** Claudia Mitchell, Box 2607,
Providence, RI 02907
- KAIC-5988** Dale & Judy Berry, Box
187, Lupton, Mich. 48635
- MR. MAGIC** Harold Martin, 101
Diplomat Plaza, Morton, IL
61550
- KMV2120** Jim Thompson, Rt. 6, Box
90A, Ada, OK 74820
- KPM-0221** Hazel Gettlinger, 78 Hud-
sondale ST., Weatherly, PA
18255
- KAPZ-7857** Jay Ehret, P.O. Box 173,
Oaklyn, NJ 08107
- UNIT 183** Vernon Ferguson, P.O. Box
183, Henderson, TX 75652
- KDO-0025** Jean M. Delphart, 160
Smith St., Buffalo, N.Y.
14210
- SSB-451** 2000 Center, Box 1134,
Berkeley, Ca. 94704
- KAST-6919** Mildred S. Bugbee, Rt. 1,
Box 39, Pennville, IN 47369
- UNIT 776** Jerry Willis, FMC TMC 1
Box 43, APO 19710, N.Y.
- RED DEVIL** 11632 Las Lucas, Santa
Ana, Ca. 92705
- UNIT 803** John Jesse, 727 Webster,
Mexico, MO 65265
- KPM-0221** The Raccoon, 78 Hud-
sondale St., Weatherly, Pa.
18255
- SSB-451** 2000 Center, Box 1134,
Berkeley, Ca. 94704
- KAYL-1977** P.O. Box 3288, Marion, IN
46952
- UNIT 541** Tom, P.O. Box 214, Staten
Island, N.Y. 10310
- KAPZ-7857** Jay Ehret, P.O. Box 173,
Oaklyn, NJ 08107
- OWL** Op: Sylvain, P.O. Box 2,
4170 Comblain, Belgium

- DEER
HUNTER** Gary Bensler, 165 5th Ave.,
Kitchener, Ontario, Canada
N2C-IPG
- KOW-7555** Richard W. Boekel, Sr.,
P.O. Box 37426, Jackson-
ville, FL 32236-7426
- MS1126-
/MS1263** Kevin & Noeleen Sutton, 13
Atkinson Street, Woodville,
New Zealand
- 26-AT-188** Op. Mike K. Johnson, 154,
Allington Place, Chester,
CH4-7DU, England
- IBM1002** Vernon Ferguson, Pres.,
P.O. Box 183, Henderson,
TX 75652
- UNIT 555** Bill Lumpp, 4822 Ingram
Dr., Corpus Christi, TX
78415
- KAOZ-9736** Herman & Mamie Daley, 22
Teetsel St., Saugerties, NY
12477
- UNIT 443** Harvey & Irene Blanchet-
tes, 1 South Street,
Danielson, Conn 06239
- SSB-1186-B** L.P. Sell, Sr., 923 Waverly
Dr., El Paso, Texas 79924
- KFO-3678** John P. Tinker, Rte. 2, Box
61, Jefferson, MD 21755
- KES-1734** Walter Cummings, 106
Haskell St., Westbrook,
Maine 04092
- KBBY-1862** Robyn, Pres., Ind. Card
Swappers, P.O. Box 2681,
Kokomo, Ind. 46901
- KFO-3678** John P. Tinker, Rt. 2, Box
61, Jefferson, MD 21755
- KBLX-6051** Radio Man, P.O. Box
14756, Philadelphia, PA
19134
- R-CAT-6** Al Eisner, Box 58, Vinnell
(SANG) Corp., APO, N.Y.
09038



SHOP TALK

On The Technical Scene of HOBBY RADIO

By Doctor Rigormortis, the Radio Doctor
PO Box 10723, Edgemont Sta., Golden, CO 80401

Each month, "Dr. Rigormortis" answers questions on technical, procedural or performance aspects of Hobby-Radio. Got a question? Send it to: "S-9 SHOP TALK," P.O. Box 10723, Edgemont Station, Golden, CO 80401. Personal replies are not assured, but might be possible sometimes. Questions appealing to widest interest will be answered in "SHOP TALK" on a space-permitting basis.

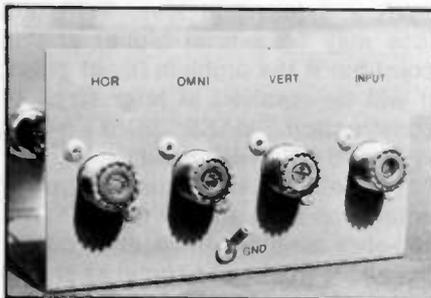
We will complete construction of the S-9/Coaxial Switch this month. New readers should obtain a copy of last month's S-9/"SHOP TALK" for a complete parts list, schematic diagrams and discussion of this project.

The most difficult part of this project is drilling holes in the metal chassis-box and the application of a finish to the surface. Some advance planning will be useful before doing any drilling and painting. See the photographs for this project for hints and details of holes and parts placement. Here are the steps of procedure for assembling the S-9/Coaxial Switch:



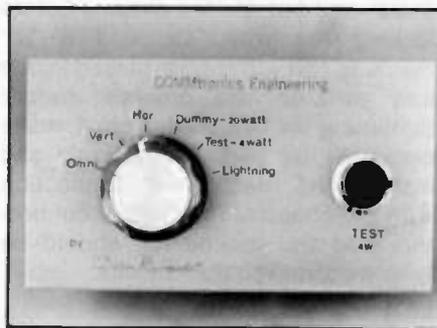
1) The metal box must be punched or drilled to provide mounting holes for the rotary switch, lamp bulb assembly, the four SO-239 connectors and a grounding lug. See the photographs. The rotary switch requires a 3/8" hole while the lamp bulb

assembly and the four SO-239 connectors each require a 5/8" hole. The SO-239 connectors will be mounted through the 5/8" holes in the rear of the chassis and secured by means of rivets or machine nuts and bolts. The holes for rivets or the machine nuts will be 1/8" and two per connector are required. Some machine shops will be happy to punch the larger holes for you at nominal cost, but a 3/8" drill and arduous application of a rattail file will work quite well. Hardware stores carry special grinder bits for the purpose of enlarging previously drilled holes. The first step, then, is to plan the drilling layout and to drill all the holes. Enlarge the holes as necessary to accommodate the particular parts. Once the SO-239 connectors are properly fitted into their respective holes, hold them in place one at a time, and drill a 1/8" hole through any two diagonal corners of the connector flange and into the metal chassis-box. Holding the SO-239 in place while drilling the mounting holes will ensure that the 1/8" holes in the SO-239 connector match those in the box. Drill a hole in the lower, center-rear of the chassis to accommodate a ground lug later. This hole may be 1/8" for a rivet or 1/4" for a machine bolt.



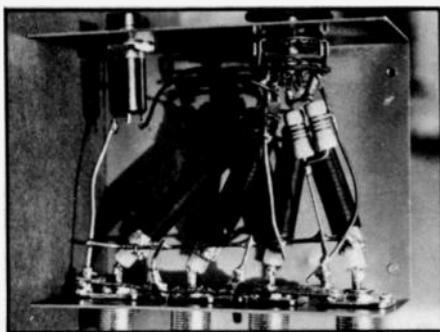
2) Once all the parts have been inserted into their respective holes to ensure proper fit, remove them so the box may be sanded and painted or

finished as desired. I prefer using the "krinkle" or "wrinkle" finishes available at most hardware or auto-parts stores. These and most other finishes can then be baked in a preheated oven at 140°F for about twenty minutes to hasten the curling of the finish. Allow the box to cool.



3) Lettering, if desired, should be applied to the box. Electronics and engineering supply stores carry "dry-transfer" lettering of all shapes, sizes and styles and is easy to apply with a ball-point pen. Label tape may also be used. Letter the box (see photographs) according to your own artistic ability and available lettering media. Temporarily install the rotary switch so that its positions may be calibrated onto the surface of the box. Place a knob on the shaft of the switch and then rotate the switch for proper symmetry of the six positions we will be using. Mark the positions onto the surface of the box; remove the rotary switch and lay it aside.

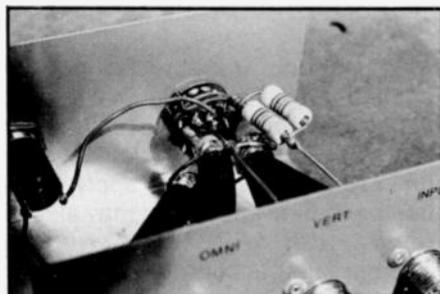
4) Install and secure the four SO-239 connectors in the rear of the box. Secure the SO-239's with rivets (1/8" x 1/4") or with small machine bolts and nuts. Slip a small solder lug or solderable washer over the *inside* end of one rivet or machine bolt *prior* to tightening. Do this for each SO-239 connector. The lug or washer will be used to make solder connections later.



5) Install and tighten the rotary switch. Install the knob and rotate the rotary switch so that it aligns with your calibration marks prior to final tightening.

6) Insert and tighten the lamp bulb assembly.

7) Install and tighten the ground lug in the special hole on the rear of the chassis. Use a 1/8" x 1/4" rivet with one solder lug placed on the rivet both *inside* and *outside* the chassis before locking the rivet. Or, use a 1/4" machine bolt with solder placed *inside* and *outside* the chassis before tightening the bolt. At this point, make sure that all parts fit securely and make good mechanical connection with the chassis. The SO-239 connectors and the ground lug should be tightly bonded to the chassis.



8) Cut a section of RG-8 variety coaxial cable (Belden 8214 or RG-214/u is best) about 6" long. Hold it inside the chassis with one end touching the center terminal of one of the SO-239 connectors and the other end near the matching lug on the rotary switch. Trim the length of this coax so that it fits perfectly between the chosen SO-239 and its matching lug on the rotary switch. Label this coax for the position it was just measured and cut for and lay it aside. Prepare the remaining three coax sections in an identical manner, making sure that each coax section fits perfectly between its assigned SO-239 and corresponding rotary switch lug. See the photographs for details of how to

prepare the coax sections. The shield of each end of every coax section must be peeled back over the outer black insulation to expose about 1/2" of the white inner insulation. Trim off all but 1/4" of the folded-back shield. Then trim away about 1/16" of the exposed white inner insulation to expose the center conductor. Do this for both ends of the four sections of coax. Keep the fine wires of the shield from shorting to the center conductor!

9) Carefully solder one of the coax sections to its assigned SO-239. Solder the other end of this coax to the assigned rotary switch lug. Do this for the INPUT position first, since it will be hardest to get to after the other coax sections are soldered in place. NOTE: The INPUT signal line connects to the common lug on the rotary switch while the other three, OMNI, VERT, and HOR will connect to the first three positions of the rotary switch. Once the INPUT (the most difficult section) is soldered in place, solder the remaining three coax sections in place, keeping in mind that there is a particular position on the rotary switch for each SO-239! Ensure a complete soldering of each end of each coax section!

10) Lightly solder around the peeled-back shield on both ends of each of the four coax sections. Solder completely around the circumference of the shield at each end. This will prevent the shield wires from bending around to short against the center conductor and it will also facilitate the connection of ground wires to the shields later.

You may now wish to review your work and perform a preliminary test of the coaxial switch to make sure there are no errors or faults in your work thus far. The coaxial switch may be hooked up, as is, to your station in the customary manner and tested for SWR and insertion loss. SWR and loss *may* be a little higher at this point but if the problem is not gross, it will be resolved in later steps of construction. **MAKE SURE YOUR WORK IS OK THUS FAR!**

11) Refer to the photographs for details on how to connect the two 100-ohm resistors in parallel. Solder the two resistors in parallel as shown and then connect one end of the resistor combination as shown to the appropriate (4th) position of the rotary switch. Let the other end of the resistor combination hang free for

the moment.

12) Connect a wire from the center lug of the lamp bulb assembly to the appropriate (5th) position of the rotary switch.

13) FINAL WIRING - grounding

A. Lay a #14 wire along the width of the chassis at the rear so that it touches each of the four coax section shields. Solder this wire to the shields wherever the wire touches them. Trim the excess ends from this wire. Solder a connecting wire from each of the shields to the solder lug securing each of the SO-239 connectors. This individually and collectively grounds each shield to each other and to the metal box.

B. Loop a #14 wire around the four shields of each coax section near where they terminate at the rotary switch. Pull this wire tight so that it touches each shield. Solder this wire to each shield and clip the excess ends. Solder at least two #14 wires from this loop near the rotary switch to the cross wire interconnecting the four shields at the rear of the chassis.

C. Solder the free end of the two-resistor combination to one of the ground wires installed in (B) above. Solder a wire to the remaining lug on the lamp bulb assembly and the other end of this wire to any nearby ground-wire or to one of the coax shields.

D. Solder a #14 wire to the last or sixth position of the rotary switch. Solder the other end of this wire to a nearby ground wire or to one of the coax shields.

E. Solder a #14 wire to the *inside* ground lug and the other end of this wire to the cross wire interconnecting the four shields together near the rear of the chassis. Solder a #14 or larger wire to the *outside* ground lug and let at least 18" hang free. This will be your grounding strap later.

THIS COMPLETES ASSEMBLY OF THE S-9/COAXIAL SWITCH.

SUMMARY OF THE PROJECT

A little creativity or ingenuity may be required in certain cases where non-standard parts and components were used. In cases of difficulty, just remember that your goal is to provide a completely shielded, switchable, loss-free signal path between your radio station and the various antennas in use. The coax sections with all shields interconnected and con-

ected to the metal chassis perform this purpose.

The *DUMMY—20 WATT* (two-resistor combination) provides a near-perfect load for the transmitter when off-the-air testing is desirable. The *DUMMY* can handle up to 20-watts for short periods of time, but is limited to 4-watts continuous power handling. The SWR of the *DUMMY* should be less than 1.05 to 1 and is suitable for the most exacting tests and analytical efforts.

The *TEST 4-watt* (lamp bulb) is a lamp-type dummy load with an SWR of less than 2 to 1. The lamp will glow when the transmitter is keyed, and will flash brighter or dimmer as modulation is applied. The *TEST 4-watt* function is not suitable for precision transmitter tests, but is a good indicator of modulation and of transmitter alignment. The lamp bulb will occasionally burn out, especially if more than 4-watts carrier is keyed into it or if modulation peaks exceed 20-watts. Replace it with a spare if it burns out.

The *OMNI*, *VERT* and *HOR* positions are for antennas. These positions will handle up to 3 KW or more with negligible loss. This maximum rating applies **ONLY** if the ceramic wafer switch is used as specified last month.

The *LIGHTNING* protection position disconnects all antennas from the *INPUT* to the equipment, and places a direct short circuit across the *INPUT* to the equipment. If the antennas are struck by lightning, the charge will have no easy access to the equipment and should discharge to ground if your ground system is functional. Since no one can reliably predict the effects of a high energy lightning bolt, it is always best to completely disconnect antenna cables before a thunder storm. Yet, during an actual storm, it is dangerous to handle the cables, so if no warning of an impending storm is available, setting the coaxial switch to the *LIGHTNING* position will offer some degree of equipment protec-

tion. In actual installation, the ground strap on the rear of the coaxial switch should be connected to a heavy wire that goes to a good earth ground. Your cold-water-pipe system is one normally-good earth ground, however it is best to drive an 8 foot rod or pipe into the ground near the antenna support structure. Connect a strap between this rod or pipe and the tower or antenna structure, and another 12 ga or larger wire into the station where it should be connected to the ground lug on the rear of the coaxial switch. You may connect any other existing ground systems to this point so long as your earth ground remains connected.

I am interested in reader feedback and opinion on this project. Please drop me a card or note telling of the problems and successes you encountered. Let me know if you would like to have more construction projects in future editions of *SHOP TALK*. I won't be able to provide personal replies about this project but I will publish a sampling of reader responses in the near future. Let me know what **YOU** think. Until next month...73's...

(Photos this month by the author.)

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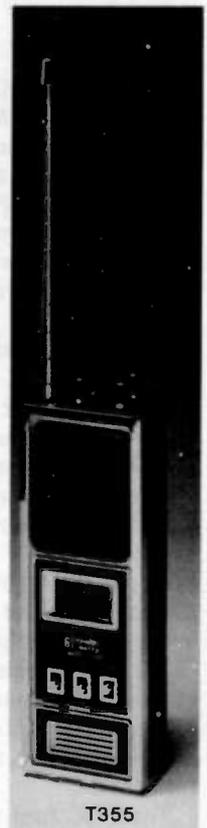
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WASHINGTON OUTLOOK

WHAT'S HAPPENING AT UNCLE CHARLIES'

TIME EXTENDED FOR RESUBMISSION OF APPLICATIONS FOR PLMRS FREQUENCIES BELOW 470 MHZ

The Commission has extended from 30 to 60 days the time required for resubmission of previously deficient applications for frequencies below 470 MHz in the Private Land Mobile Radio Services.

In amending Parts 1 and 90 of the rules, the Commission said in many cases 30 days was insufficient for an applicant to perform the necessary research and administrative tasks necessary to resubmit the application. Plus, a greater administrative burden was placed on agency personnel since the late resubmitted application is treated as an entirely new one and must be reviewed. Therefore, it was extending the time to 60 days.

FCC REVOKES LICENSE OF BALTIMORE HAM RADIO OPERATOR

The Private Radio Bureau of the FCC has revoked the amateur radio station license (KA3ARF) of Marc A. Chappelle, of Baltimore, Maryland, for malicious interference and other rule violations in the Amateur Radio Service.

The Bureau ordered the revocation October 7, 1981. Chappelle's General Class operator license had been suspended on August 14, 1981. Both actions were based on evidence collected by engineers from the FCC's Baltimore District Office which showed that KA3ARF had deliberately interfered with other amateur communications and transmitted obscene and profane language, one-way broadcasts, music, false messages and unidentified communications. Chappelle had also refused to cooperate with the engineers while they were inspecting his station.

The FCC had first detected the interference by monitoring an amateur radio maritime net on 14.313 MHz. The Baltimore Office traced the transmis-

sions to Chappelle's station, inspected it, and later sent him an Official Notice of Violation detailing the offenses.

In its Order of Revocation the Bureau stated that "jamming or interfering with another amateur's transmissions cannot be tolerated... Even a single instance would warrant revocation."

HIALEAH, FLA., AMATEUR'S RADIO STATION LICENSE REVOKED, OPERATOR'S LICENSE SUSPENDED

FCC Administrative Law Judge Thomas B. Fitzpatrick has revoked the license of Armando M. Rodriguez, Hialeah, Fla., for radio station WD4FPY in the Amateur Radio Service and suspended his Amateur Advanced Class operator license for term for willful and malicious interference with a repeater station's communications.

He also determined that Elio Mencia, Rodriguez' cousin and the licensee of Amateur station KA4DWA, was not guilty of similar interference and vacated an order to show cause why his license should not be revoked.

In early October 1979, Rafael M. Estevez, president of a Miami-based Amateur group called the Sociedad Internacional De Radio Aficionados, Inc. (SIRA), asked Southern Bell Telephone & Telegraph Company security to monitor SIRA's repeater station, due to interference which had been going on since May of that year.

Southern Bell determined that on October 4, 16 and 19, telephone calls were made from Rodriguez' residence to the SIRA repeater, and on October 27 calls were made from Mencia's home. Moreover, Estevez and two other SIRA control operators identified Rodriguez as the caller on several occasions.

(The SIRA repeater has two telephone lines. The first is an

unlisted number used in conjunction with a walkie-talkie to activate an autopatch. The second line also has an unlisted number which can be used to control the repeater. For example, if the control operator dials a seven-digit unlisted number at the repeater, the control system automatically answers and waits for a command. If the control operator pushes number nine of a push button telephone, the control system automatically shuts off the autopatch. If no command is given, the repeater's automatic timer will disconnect the call after one minute and forty-five seconds have elapsed, during which time the control operator would be unable to access the repeater.)

As for Mencia's part, Judge Fitzpatrick pointed out that Rodriguez had been visiting his cousin on October 27 and had ready access to Mencia's telephone. Apparently, the comment heard by Estevez and attributed to Mencia, he said, was in the background and Mencia had not known about Rodriguez' call to SIRA. The judge added that since Mencia has been an employee of Southern Bell for over nine years, it was unlikely he would jeopardize his position by providing his cousin with an unlisted telephone number, even had he been able to obtain it.

CLEARWATER, FLA.

CB OPERATOR'S LICENSE REVOKED

An FCC Administrative Law Judge has revoked the CB license of Judith M. Stevens, Clearwater, Fla., for operating a CB transmitter with unauthorized modifications, operating on unauthorized frequencies assigned to the Navy, Commerce and Energy Departments and other violations of FCC rules.

In an Initial Decision Judge Joseph Stirmer imposed the revocations penalty in addition for using "skip" transmissions to transmit from Florida

to a station in Saskatchewan, beyond the 150-mile authorized transmission limit, transmitting continuously for more than five minutes and failing to identify herself by call sign.

Stevens' violations were monitored on November 15, 1979, by FCC technicians who were taking part in a team enforcement effort investigating CB violations in the Clearwater and St. Petersburg areas. Her transmitter also slightly exceeded authorized power limits as a result of the unauthorized modifications.

Stevens admitted the violations. She said she used the unauthorized channels to avoid obscene language and sexual innuendos and propositions heard on the 40 authorized CB channels. Judge Stirmer said her explanation was unacceptable as a justification for illegal actions.

The judge refused to revoke Stevens' Amateur radio station and Novice Class Operator licenses and dismissed an order suspending the operator license. Stevens had no amateur equipment on the date of the violations and did not violate amateur rules, the judge found.

Under a 1980 ruling by the FCC Review Board, he said, a violation of rules in one service cannot authorize revocation in another service. Revocation of the amateur license is not legally justified, the judge said, and, in the circumstances of the case, would be "unwarranted overkill" even if legally permissible.

BOATERS NEED NEW RADIO LICENSE WHEN CHANGING BOATS

The Federal Communications Commission is receiving numerous inquiries from recreational boaters concerning their ship station radio licenses and call signs. The two most frequently asked questions are:

1) If I sell my boat, but keep the radio, do I retain the license and call sign?

2) If I buy a boat, with a radio, is the license transferred to me?

The answer to both questions is—NO! A ship station license may not be transferred or assigned from one licensee to another. When a boat changes hands, its former owner must return the license to the Commission and its new owner must apply for a new license, using FCC Form 506.

As for call signs, no boater can keep a particular call sign when changing boats. However, boats documented by the U.S. Coast Guard do keep the call signs despite changes in ownership. All such changes require the license to be cancelled and a new one issued.

It takes approximately 60 days from the date of application to obtain a ship station license. However, an applicant who has a state, federal or documented registration number for a boat may fill out FCC Form 506A, which grants temporary authority (60 days) to operate the radio station pending receipt of a license.

For more assistance, boaters may call the Private Radio Bureau's Consumer Assistance staff in Gettysburg, Pennsylvania. Call (717) 337-1212.

MAN DENIED CB LICENSE AND RENEWAL OF AMATEUR LICENSES

FCC Administrative Law Judge John M. Frysiak in an initial decision has denied the applications of Harold C. Graham of Franklin, Ohio, for a new CB license and for renewal of his amateur (WD8SEM) and general class operators licenses.

Graham's applications were designated for hearing on December 31, 1980, on issues to determine whether he had operated his amateur station on unauthorized frequencies and failed to identify his station as required by FCC rules.

Judge Frysiak found that Graham had operated on frequencies used by the RJ Club, a club that advocated operation on unauthorized frequencies and had identified himself by using his RJ Club number rather than his FCC assigned call sign. Furthermore, the judge noted, Graham did not possess a license authorizing him to transmit voice communications and he had his radio equipment modified so he could transmit on unauthorized frequencies.

Judge Frysiak noted that Graham's illegal operation could seriously interfere with the communications of other operators as well as cause interference to neighborhood televisions, stereos, telephones, kidney machines, heart pacemakers and aircraft communications. Such conduct disrupts the FCC's program of spectrum allocation which depends on licensee respect for the Commission

assignment of specific frequencies to the various services, Judge Frysiak said.

Therefore, he concluded, Graham had demonstrated he was unfit to be a Commission licensee and grant of his applications would not serve the public interest.

UNLICENSED OPERATOR PAYS FINE

Jack B. Sensabaugh, Church Hill, Tenn., has paid a \$750 fine for unlicensed operation of a CB radio station that was said to be interfering with radio communications of aircraft in flight.

After completing an investigation, the Field Operations Bureau's Powder Springs, Ga., Special Enforcement Facility issued a notice of apparent liability for monetary forfeiture in October, 1980.

CANADIAN CLEARANCE FOR U.S. LAND MOBILE FREQUENCIES (30-470 MHz) ABOVE LINE "A"

Our agreement with Canada on Coordination and Use of Radio Frequencies Above 30 MHz requires that U.S. stations proposed to be operated above Line "A" (a line approximately 75 statute miles south of the U.S./Canada border) be coordinated with, and approved by, Canada prior to FCC granting a license. However, a larger percentage of new U.S. station applications are returned with the annotation, "Harmful Interference Anticipated" on the requested frequencies to existing licensed Canadian stations. If applicants follow the suggestions below, the probability of obtaining Canadian concurrence of the proposal may be increased.

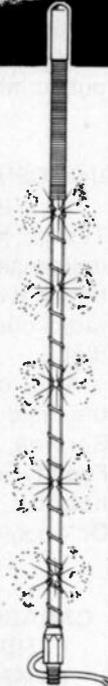
Check Canadian Data Base

Careful frequency selections for stations above Line "A" can enhance the chances for grant of a license. In addition to the normal frequency coordination requirements of Rule Section 90.175, a thorough search of the Canadian frequency data base for stations below Line "B" (the Canadian equivalent of the U.S. Line "A" zone) prior to submission to the Commission should be made. A quarterly updated copy of the Canadian data base (in microfiche) is available for inspection at selected FCC offices. Copies are maintained at the Licensing Division in Gettysburg, PA. and in

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FCC District Offices near Canada.

If this research indicates no co-channel Canadian stations within 75 miles, or adjacent channel stations within 35 miles, of the proposed transmitter (fixed) location, there is a high probability of successful coordination. If co-channel or adjacent channel frequency assignments (stations) are found within these ranges, it is advisable to select a different (second) frequency. It is acceptable to submit a request to the Commission designating both a first and second choice of frequencies. Please note that in this case, the alternative (second choice) should be submitted on a separate application (Form 400) including a letter of explanation.

Minimum Technical Parameters

To improve the probability of a grant, it is desirable to keep the proposed system technical parameters at a minimum level sufficient to cover the desired service area. Many applications are received specifying higher output power and antenna height than is necessary.

Applicants may be able to provide additional information, that could increase the probability of approval. This would include antenna lobe pattern and gain in all directions towards the Canadian border and front to back ratios. This information would provide Canada a better description of the proposed system. While not required on the present FCC Form 400, supplying this data as an attachment may be the difference between acceptance or rejection of the proposal. Note, with no antenna information provided on the application, Canada assumes "worst case," i.e., an omnidirectional pattern with a 6 dB (VHF) or 10 dB (UHF) gain. Losses between transmitter and antenna are considered to be zero.

Under present Commission policy, applications may be granted if a proposed station is located within 15 miles of a previous successfully coordinated co-channel station having the same general technical parameters. That is, the output power and antenna height specifications should not be greater than those of the previously successfully coordinated station. Please note that this new station is not officially "cleared" and cannot be used as a reference point for yet another clearance of a station.

The agreement between both coun-

tries covers the use of power in excess of 5 watts ERP for protection purposes. Therefore, applications with a transmitter power level of 5 watts or less located above Line "A" may be granted without being coordinated with Canada. Further, the recent implementation of "instantaneous add-on" licensing (i.e., for multiple licensed relays) directed that the 5 watt ERP level be made applicable for all new control criteria. Unless the applicant specifically requests that the proposed control station be cleared with Canada when the application is filed, then the license will automatically be special conditioned with a 5 watt ERP control station limit. Control stations with antenna height exceeding 20 feet and/or using more than 5 watts ERP cannot be added on without the prerequisite coordination and approval.

It is reasonable to expect that applicants who have proposals requiring Canadian clearance will be somewhat concerned with the lengthy processing time necessary for coordination. However, please do not call the Canadian Department of Communications to determine your status. Any inquiries should be addressed to the Federal Communications Commission in Gettysburg, PA 17325. Telephone calls for status may be directed to (717) 337-1511.

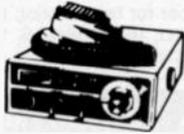
Following the above guidelines will greatly assist the evaluation process that should decrease the number of rejections and also reduce the processing time.

coming events

APRIL

Cranston, Rhode Island. The New England Council of CB'ers presents a Public Charity Rally, to be held April 4th, 1982, 12 noon to 5 p.m. featuring live entertainment, a variety of booths, and more. 50% of all money raised will be donated to the R.I. Chapter of the Leukemia Society of America and the other 50% divided between nongranted charities. For more information call Harry Sherman, (401) 766-5177.

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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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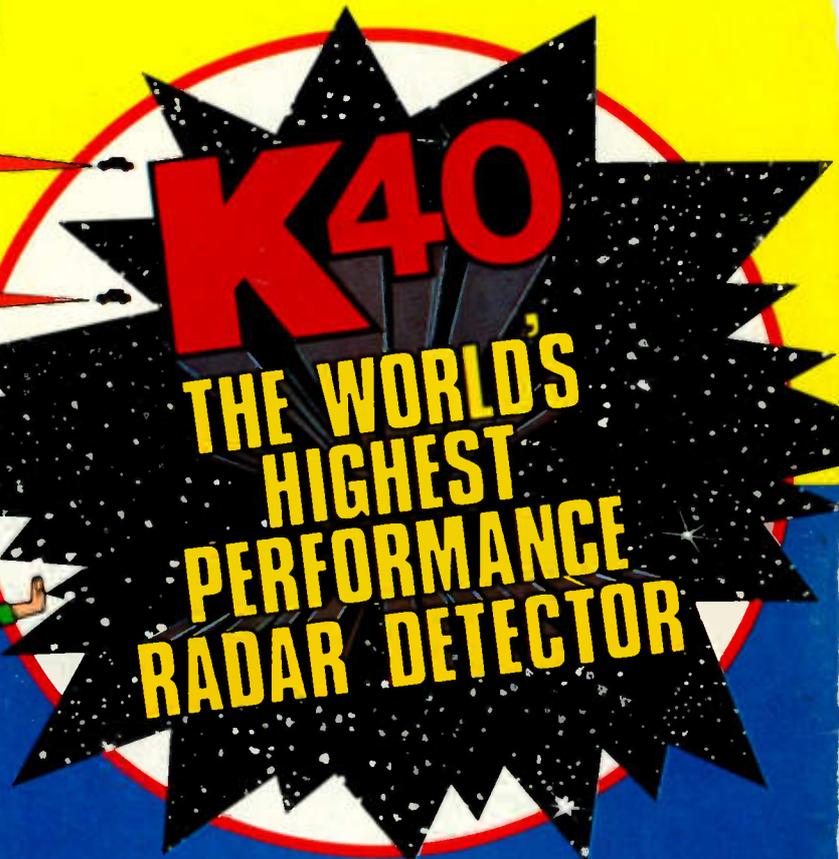
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