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CIRCLE 123 ON READER SERVICE CARD

from the Publishers of POPULAR COMMUNICATIONS

CB Radio

AUGUST 1996

VOLUME 1, NUMBER 6



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FEATURES

Those Good Old CBs—Find 'em and Fix 'em!

The "Old Timer" shares his advice and expertise on radio restoration.

Don Patrick

Diversity Antenna Systems

Save those signals from fading away—diversify! Meet Dr. Jackpot and gain some valuable information.

Dr. Jackpot, SSB-777

Citizens Band Radio Service Rules

Here's your chance to brush up on FCC Part 95 Subpart D—the rules you need to know if you're operating a CB radio.

Federal Communications Commission

The American Truck Driver

Here's one reader's ode to truck drivers.

John T. Leavins

The CB Radio—A Hot Dog's Link to the World

A little mustard, some ketchup and CB keep the Wienermobiles rolling . . . Learn what it's like to be a "hotdogger!"

Jonathan Rhudy, aka "Little Oscar"

It's Contest Time!

If your truck is pictured here (and you can identify it), you may have already won!

Bill Simpson

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This month's cover: Tyler Mulcahy of Katonah, New York talks on a CB radio to his friends while his dog, Duncan keeps him company.



EDITORIAL

They're on the road most of the year, away from family and friends and the place they call home. If they're lucky, they're home for the major holidays. But too often the missed birthdays, anniversaries and school plays become one long chain of missed events, that they hope to catch "next time." Ah, yes, the life of the trucker.

This spring I had the opportunity to visit the Mid-America Truck Show held in Louisville, and meet hundreds of truckers from all over the world. Of course we were there to introduce our new *CB Radio* magazine, but the truckers were there, many with their families, to see the latest hot Peterbilt, Ford or Kenilworth; and let's not forget the hundreds of other exhibitors, from CB radios to well, you name it! With more than 55,000 in attendance, it makes some hamfests look like a family picnic!

The only way to go to a truck show is to drive. So that's what I did. And the closest I could get to a truck was a Ford Windstar. Not that driving one of those big rigs wouldn't be a real kick. It sure would, but I'm afraid it isn't for me. Keeping logbooks, constantly watching out for crazy four-wheelers, dealing with all the rules and regulations, and just driving the darned rig in all kinds of weather and traffic is frightening, at best. That's how it should be, too. Not everyone is cut out to be a trucker. You've got to be courteous, yet determined; business-like, yet fun-loving; tough, yet sensitive; and in the morning still have the drive and enthusiasm of a new recruit because it's a new day.

If you're thinking the same is true of other professions, think again. Aside from our public safety pros, some military and a handful of medical personnel, how many of us could really stand the regimen of hitting the road 300 days a year, calling the cab our home away from home? Let's face it, not many of us could cut it out there. So we rely on the thousands of truckers who can. Yet why is it that I get the nagging feeling that our truckers are always on the receiving end? From what I'm hearing, the outrageous tolls, taxes and general treatment they get from everyone else is far more than their share!

Sure, they're human, and from time to time they make mistakes with all those

thousands of pounds behind them. But so do we four-wheelers going 70 mph without seat belts, kids and pets climbing all over, impaired driving, and the list goes on and on. The only difference is that we have far more mistakes; and costlier ones, too, both in terms of lives and money. Mile-for-mile, and hour-for-hour, our truckers have us all beat by light years when it comes to safety.

Those truckers I had the privilege of meeting on the radio and later in person in Louisville were one dedicated bunch of men and women, as one lady trucker said, "just doin' our job."

Trucker, you say? Maybe "professional driver" is more appropriate.

What Do YOU Want to Read?

We don't have all the answers. You, our readers DO! And while we won't make overnight, instant changes to your *CB Radio* magazine, based solely on one or two letters, we're listening to you. Your letters, e-mail messages and calls all mean a lot to our staff.

We can be reached at 76 North Broadway, Hicksville, NY 11801, or via e-mail at OrtCB@AOL.com. Please be patient, as it usually takes two or three months from the time you write before you'll see a reply. If you'd like a personal reply, please enclose a self-addressed, stamped envelope. Remember, it's YOUR magazine!

National Scanning Convention

You still have some time to register for the National Scanning Convention to be held in Lancaster, PA. The convention will be held the weekend of July 12-14 at the Lancaster Host Resort/Holiday Inn, Route 30, Lancaster, PA. Advance tickets are available for \$10, they can also be bought at the door for \$15. For more information call 610-273-7823. Come join the fun!

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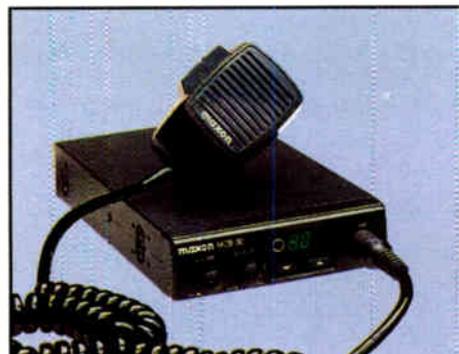


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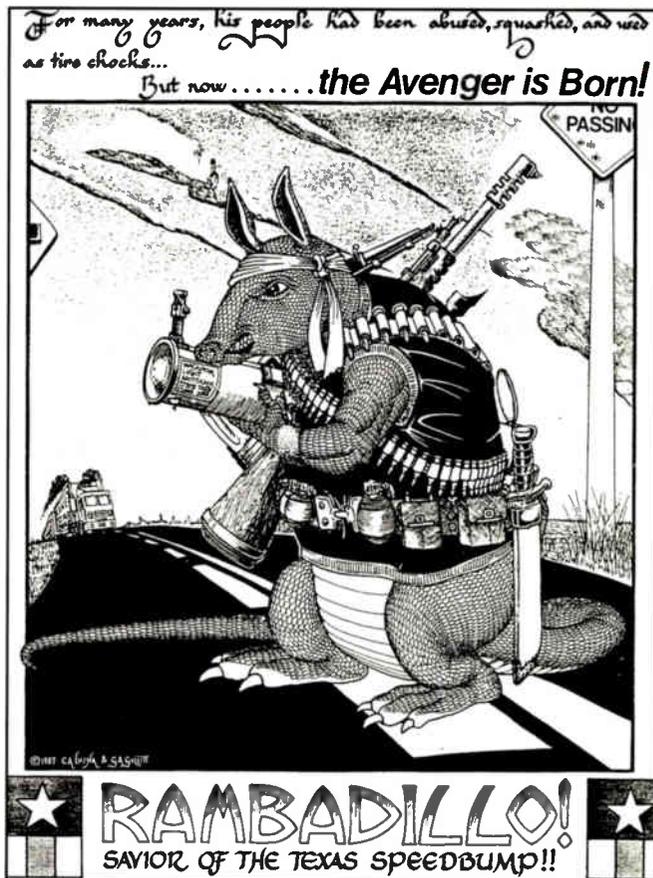
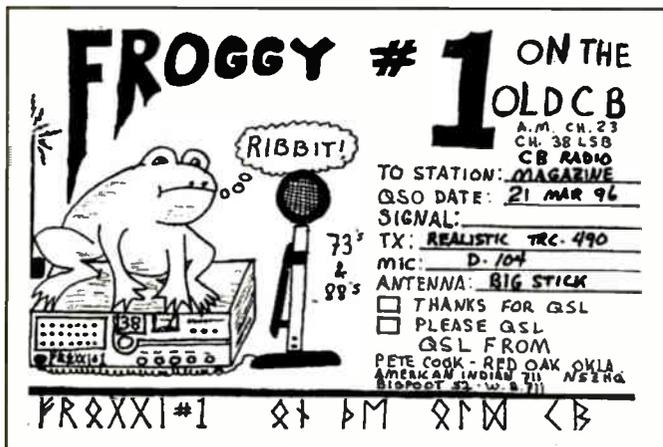
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CIRCLE 126 ON READER SERVICE CARD

LETTERS TO THE EDITOR

The Questions You Ask . . .



Dear Editor:

A friend gave me a copy of your March issue. After reading it cover to cover, I am pleased that there is finally a magazine for those of us who still use what the hams call "chicken band." I was especially interested in your CB club article.

I started out in the Froggy CB Club in 1980. It has grown steadily ever since. It is not a really large club, with near 700 members scattered across the USA, Canada and Central America. We talk locally on AM channel 23, and on channel 38 LSB for DXing nationwide and internationally. The requirements for membership are easy. You must: own a CB, have access to one, or know what one is. Profanity on the airwaves, dead keying and other such nonsense is discouraged. Enclosed is my personal QSL card, and a sample of our membership card. I do all the artwork for my club and several others.

P.S. Rambadillo is not my artwork.

P. Cook, OK, aka Froggy #1—American Indian 711

Hello Froggy #1:

Thanks for your letter, Pete. The longer I look at that Rambadillo fellow, the more familiar he looks. Could it be an old crusty major I once knew?

Dear Editor:

As an old CBer, pretty much since it was started (KFY-6168), I was on the frequency prior to CB existence, I'm really hopeful for your publication. It's really needed, indeed. I also hope that it conveys to the users of the 27 MHz band, the rules and regs of the FCC.

I don't expect CB Radio to do the job that the FCC is supposed to do. And in my opinion, they aren't doing what they are supposed to be doing either, and that's regulating and overseeing this radio spectrum.

And I suspect you know there are more linears in use than in the ham bands, and more out of frequency usage than one wants to talk about. The cat's out of the bag. A town in Ohio has stopped a foul-mouthed, linear-loaded, out-of-the frequency

operator, and FACES A JAIL term. I would like to see you do a follow-up story on this situation, to point out what's to come, because every town and city is a "me too" when it comes to facing such a problem. If the FCC doesn't want the job, the locals will do it, one way or another.

I would like to see licensing back, so the FCC can clean up the airwaves. Their previous excuses are a cop out! What the FCC needs is two trucks, one for surveillance equipment, and the second truck to carry away illegal gear. It's guaranteed to work. The way it is now, CB radio is uncontrolled, and not the nicest radio communications to listen to. And what you hear is NOT what the FCC intended. (And I bet you will get letters on this).

P.S. You have a good format—lots of luck. And please encourage the use of CB handles. Also if your publication advocates licensing, the FCC could raise money to police the CB band. They could hire field officials who could have the power to fine and confiscate illegal equipment such as linears and non-CB equipment, such as ham radios, etc. And I'm not opposed to a \$50 fee for a CB license, either. I'm sure this would give you some food for thought and something to write about, and I'm sure you will get letters.

Drive Shaft, NJ

Dear Drive Shaft:

You've hit on some good points, and some sore spots at the same time. You're right, we can't do what the FCC was ORIGINALLY designed to do—clean up the airwaves, or at least try. In the early days of CB, things simply got out of control. The FCC envisioned wasn't the CB that the rest of America envisioned.

Now, of course, the money has all but disappeared from the federal coffers, FCC field offices are being drastically cut back, and the radio spectrum is left to its own devices.

It would seem that self-policing is in order. We don't advocate running down the street and cutting another's coax or setting their pine tree on fire, but clearly there is a problem out there. Let's invite some suggestions for ridding the airwaves of problems. As far as bringing back licensing for CB, I'd bet that Uncle Charlie learned a hard lesson a few years ago. Licensing CB again would probably be a waste of time and what little money the FCC has left, and charging folks for a license when all these years its been free wouldn't work either.

I know a fellow with a couple of trucks (and a bridge) for sale they might consider buying.

Harold:

I recently tuned in on AOL and browsed through the Ham Radio Forum section, and clicked on the subject of *CB Radio* magazine. I couldn't believe the negative comments that were made about this fantastic publication. I hate to say this, I know you're a ham operator, and this comment doesn't go for all the hams out there, but I personally know quite a few hams who started with CB radio back when I was involved with the hobby. When individuals become hams they down CBers (not all, now). They must remember that CB was their roots! I have a feeling that those characters making the negative comments are hams . . . they seem to criticize everything that happens concerning communications. This is one of the reasons I have not, but can with no problem, wanted to become a ham. I can't deal with some of the smarties out there in my community who once were active CBers. In fact, one of the know-it-alls was using a scanner antenna to transmit on 27 MHz. I had to lead him in the right direction. Today he's a ham and a real smarty! Thinks he knows everything.

I have the confidence that *CB Radio* magazine will be a hit!
Ron Bruckman, Radio Monitors of Maryland

Dear Ron:

Oh, boy, you've said a mouthful, Ron. Thanks for your letter and positive comments about *CB Radio*. You're right, there will always be some people who will look for something to complain about. I hear it too on both ham and CB frequencies. Nothing wrong with being a ham AND CBER; there are plenty of folks who are adult enough to enjoy both modes of communication, then again there are those who aren't. You hear them coming a mile away; "I know this and that, and some more, and you down there—you've got to climb up my ladder before you can speak with authority."

It's not universally true, but all too often we CBers get trashed (and especially ham/CBers!) by those whose station in life is perceived to be a notch higher than our own. But like that wonderful on/off control knob on the TV when things get too wild and crazy, I turn it off.

Dear Editor:

Congratulations and thank you for a *CB* magazine after all these years. It is very long overdue! In 30 years of CB radio operating we still appreciate running older tube-type equipment

for a base, such as our Browning Golden Eagle Mark IVA and Eagle R-27, which is 32 years old now and runs like brand new.

Enclosed you will find a picture of our "Continental Base," which you might want to show in one of your issues. We hope your new *CB* magazine is a success and we will continue to read it monthly. 73's,

Bill Czuwara, Rockford, IL

Bill:

Thanks for your comments about *CB Radio*, and for showing our readers your radio gear. Seems like you've got lots of good-looking—and operating—CB equipment. Many years ago (too many, in fact!) I sold a brand new Tram CB, complete with D-104 mic. To this day I regret it, so now I keep everything!

Dear Harold:

I read with great interest Bill Orr's article on "Common Sense Mobile CB Installation Guidelines" (May '96, page 4). I would like to add one other source of information to help readers install their gear safely: fleet dealers.

Fleet dealers are automobile or truck dealerships that sell large quantities of vehicles to government entities such as police and fire departments, municipalities, turnpike authorities and federal agencies. They also sell to taxi cab and rental vehicle companies. Most of these vehicles require the installation of communications equipment. In recognition of this fact, the automobile/truck manufacturers usually publish guidelines/specification sheets to help ensure the equipment does not interfere with airbag deployment and other electrical equipment.

If a fleet dealer is less than forthcoming with installation guidelines, ask the police or state police who installs their equipment. Except for very large fleet dealers, most hire outside contractors to install the equipment. These contractors should have access to these guidelines and for a fee, can safely install your equipment.

Due to the hazardous nature of public safety (pursuits, chasing fires, etc.) their equipment installations take into consideration the weight of the equipment. Even a slow spin into a snow bank or grassy field could turn a sturdy CB unit into a lethal weapon. Public safety installations, while expensive, tend to be sturdier than what might be found in civilian arenas. I would encourage review of how their equipment might be utilized for a CB and other Road Warrior equipment. Hook and loop fasteners might be effective for lightweight CB units and speakers, but nut and bolt installations are inherently safer.

Remember, your equipment should be as well belted as you are.

Sincerely,

Robin W. Hartford, MA

Dear Robin:

It's always good to hear from you and read your enlightening ideas. You're right on target; we've all seen (and maybe even used) what I call the "killer" CB/scanner installation—it works like this: Lay the gear on the seat or floor or lightly tack it under the dash. It's a sure bet that if the radio equipment survives even a minor accident, the careless operator won't. Fiddling with a radio temporarily placed on a seat or dangling from a sun visor is an invitation for disaster.

If any of our readers have other ideas like Robin's, along with photos or sources for professional radio installations, let us know. We'd love to hear from you!

Those Good Old CBs—Find 'em and Fix 'em!

The “Old Timer” shares his advice and expertise on radio restoration.

BY DON PATRICK

Shhh! Don't tell anyone else, but you can still find CBs made in the 1960s in yard sales, closets, flea markets and such for next to nothing. That's not a real secret, but the fact that some of them will out-perform any brand or model on the market today is the little known fact. So, if you very quietly find one of them, before the price goes up, you can get in on the ground floor.

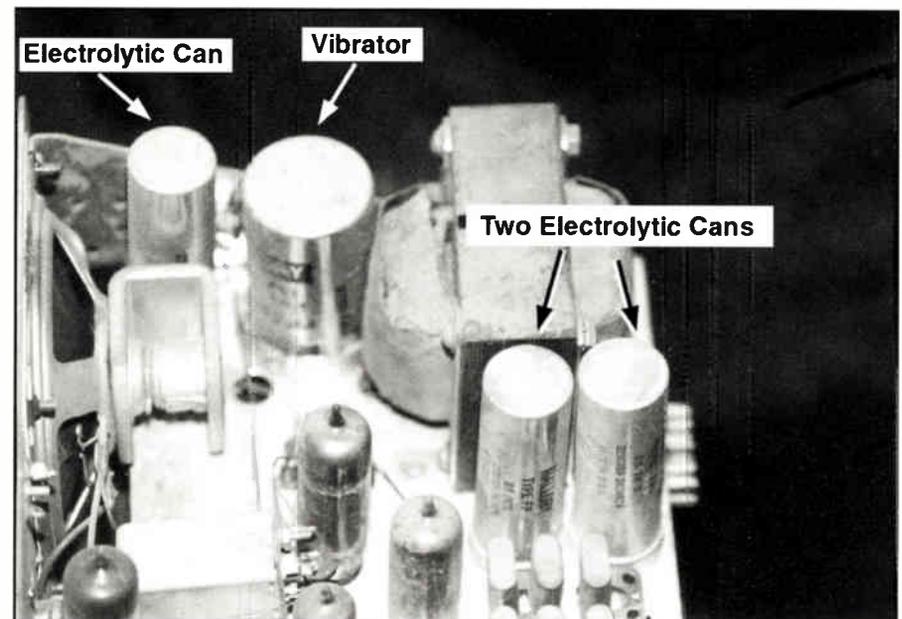
Not all brands of radios built then were better than those of today, but some were, and in ways that are more important today than when they were originally sold. We will go into how and why they were better later, but first let's discuss restoring old CBs in general.

They Can ALL Be Restored

Any, and I mean ANY of the old, tube-type radios of yesteryear can be repaired and restored to service as good as the day they were made. This cannot be said about transistor units in a few select cases and mainly involving some units using special “chips” in the “synthesizer or PLL” frequency-generating section. If that chip is bad and either no longer manufactured or only has the long since defunct radio manufacturer's part number on it, you may have a problem. This is not to say that it *can't* be repaired, but it may not be feasible or economical.

In this month's article, we are going to discuss only the tube-type units. Transistorized units will be dealt with in later months. The tube units were first; they are generally easier and less expensive to repair. A few will flat outperform any transistor unit ever made up to and including today. While more things may be wrong with a tube unit vs. a transistor one, if you are not a technician you can do more repairs on a tube unit than a transistorized radio.

It is a strange phenomenon in collectibles of any type (cars, guns, coins, etc.) that many times the poorer made or less popular items become the most valu-



able in later years because of scarcity. If an item was not widely distributed or not well received, then few were sold and even fewer survive today.

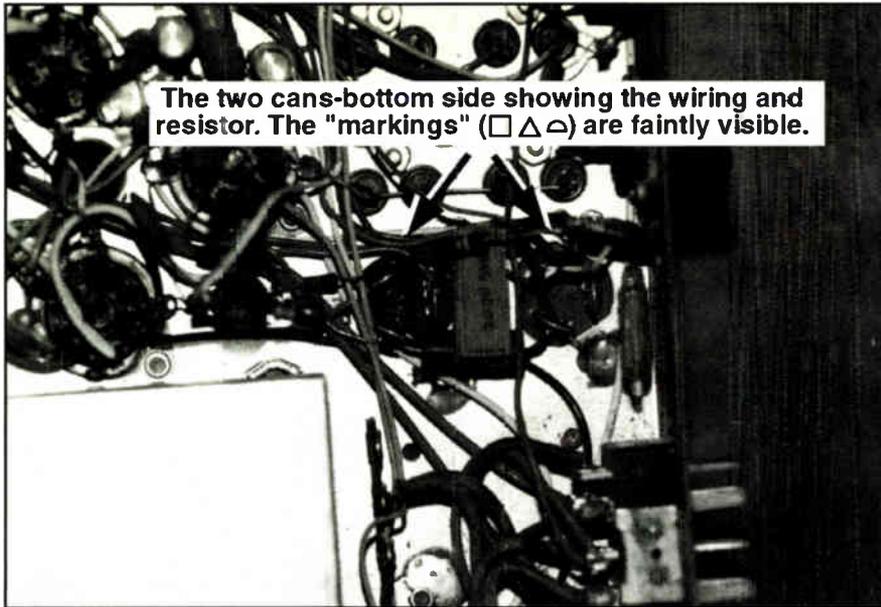
Many of the old tube units were made by manufacturers that are long gone and most of them were not great working radios. They were OK for their day, but as successive models were introduced, they became better and had more features. The Ford Model “T” was not a better car than those of later years, but for its day, it was great and lots were made. Price one today! Then there were manufacturers who made only a few cars, not as good as the Model “T” perhaps, but because so few were made and survive today—price one of these rare birds.

The old original CB radios manufactured by Eico, Heath Kit, Philmore, LaFayette and others were the Model “T”s of CB radio. Features that today we don't consider a “feature” were looked upon in the early '60s as wonderful. If you

went to buy a car today, would you be surprised to find it didn't have an electric starter and used a crank instead? Early CB radios didn't have “PTT” (push-to-talk) microphones. You held the mic with one hand and pushed a lever on the front panel of the radio with the other hand. As you might imagine, it made for some interesting driving episodes!

Some General Information

Before we look into restoring these old radios, let's consider a few generalities. When you first get the old unit, DON'T hook it up to power! Clean it up inside and outside. Remove all dirt and spider nests carefully with air and a soft paint brush, being careful not to move any of the resistor and condenser leads, causing a short. After removing all the visible loose dirt, use an electronic aerosol cleaning solvent that you can obtain at the local elec-



The two cans-bottom side showing the wiring and resistor. The "markings" (□ △ ⊙) are faintly visible.

tronics store to spray wash the chassis, tube sockets and parts, getting rid of any residual dirt, grime and grease. Be sure that the spray you use for this states that it is safe for all plastics and components. After washing it off, place it in a warm (70–80 degrees), dry area for 24 hours to thoroughly dry out.

While it is drying, you can check the tubes. Before you remove them, look and see if the chassis is marked with what tube goes where, or if the unit has a tube layout chart on it or somewhere inside the case. I have found many old units with some of the tubes in the wrong sockets! If there are no markings, then make a diagram of which goes where. Someone may have the wrong tube in the wrong socket, but at least it's a starting place. NOW would be a good time to see if you can locate a service manual for your unit. Sam's Photo-Fact made a series of CB service manuals that had three to five models in each issue. There were some 220 books published, and while not all brands or models were covered, it's a good starting place. Your local TV supply house may have some or can order one for you if they are still available from Sam's. I know they discontinued the series when the CB industry fell on its face in the late '70s, but they may still have some in stock. I'll check and let you know in a later issue. They have been a great help to me—we have a complete set, plus a lot of original service (or kit construction) manuals along with schematics clipped out of magazines. Sometimes a radio will come in for service, and if the owner brings the service manual, and we don't have info on that particular model, we photocopy the manual.

Call around and find a service shop that still has a tube tester, asking how much they charge to test your tubes. Advise the shop that you are testing the tubes to determine if you want to repair the radio. Tube prices have gone up over the past 15 years due to such a small market, so there is no need to pay retail price. Some shops still have some old tubes left over, and while a few shops might be greedy, many will be happy to get rid of old inventory! Shop around, check with the electronics wholesale house, plus some of the mail-order companies for tubes. The same goes for the vibrator, if this is a mobile unit or a combined base and mobile which you are going to use mobile. Don't jump at a high price for your tubes or vibrator, since you do have options. There are substitutes for a few tubes in some circuits where finding a certain tube is a problem. If you find a tube in your radio market with a four-digit number where a 12AU7, 12AT7, 6BH6 and others should have been, it may or may not be OK. Check before you panic. Now put your good tubes back into the radio (in the correct sockets!).

The Case of the Missing Microphone

Hopefully your radio has its original microphone with it. While you can purchase a new one that will work with the radio, for value and nostalgia, the original is best. A defective mic cord, PTT switch or cartridge can be replaced. In the case of the cartridge, be careful to replace it with the correct one. There were carbon,

crystal, dynamic (magnetic), ceramic, and condenser type cartridges used; except for the crystal and ceramic, they are NOT interchangeable! The ceramic has a slightly lower output than the crystal, but usually they are OK and more rugged.

Don't Power It Up Yet!

Not yet! I know you want to power up the unit and see if it works, but not quite yet. Before you plug it in, we need to make sure the power cord is correct, in good condition, and properly fused. Just because a plug fits the radio doesn't mean it is wired properly for that radio. So check it against the schematic, if you have one. Many of the old 117 volt power cords were made with "rubber" insulation which by now has deteriorated to an unsafe condition. If that's the case, get new cord and replace it, being sure to install it correctly. CAUTION: Some of the old sets had a double fuse plug on the end of the cord which plugged into the wall outlet. Be sure to check both fuses to insure they are the correct size. Your schematic will give you the proper value, or it may be marked on the radio. If it has a chassis-mounted fuse, check it for proper value. A few models, including one very popular one, were mistakenly made without ANY fuse. You should now install one! If you are in doubt, get one of the double fuse type plugs and add it to your power cord. Better two fuses than none! As a rough rule of thumb, one amp at 117 volts, 6 amps at 12 volts, and 12 amps at six volts will not be far off.

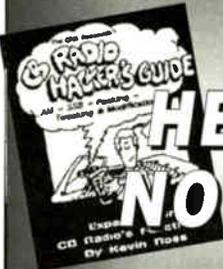
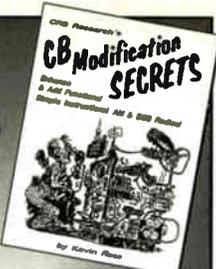
Powering It Up

Now you are ready to try your unit and see what else needs to be done. Rest assured that you have lots left to do. The crystals? Many people think that if a crystal is of the right size and shape, that it is the right one. Not so, as there are many different cuts, tolerances, types and circuit parameters. All you are testing at this point is that it doesn't blow the fuse, smoke or have lots of hum and noise. If it should actually transmit and/or receive, that will be a bonus. A 30-plus year old radio used "wet" electrolytic capacitors in the power supply and as cathode bypass caps; they will have dried out by now, causing hum, noise, low gain and general poor performance. Changing the capacitors is easy, not expensive and something you can do before turning the unit over to a technician to finish and save some money. I'm assuming you don't have any test equipment and training to give the unit its final tune-up and set the

YOU AIN'T

HEARD NOTHIN'

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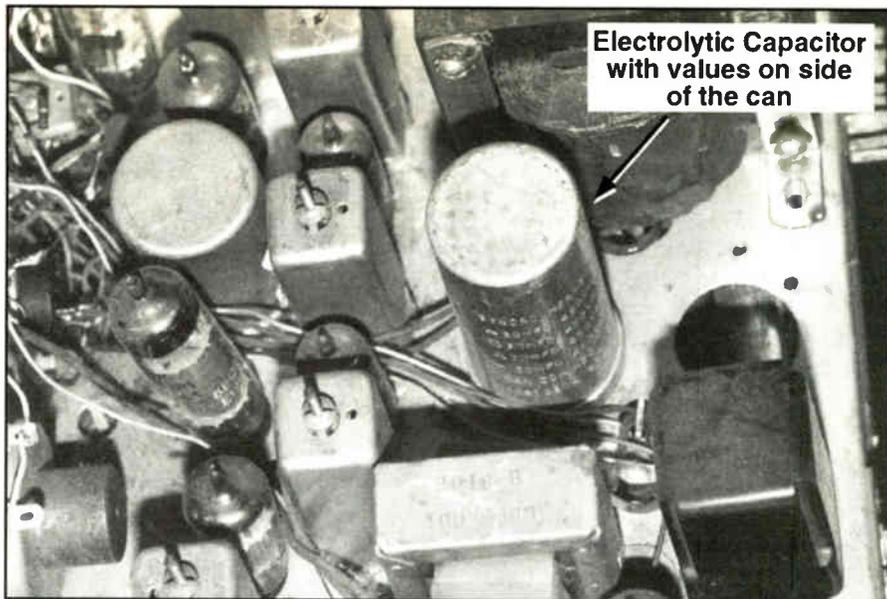
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Power Supply Capacitors

In most radios, the power supply capacitors are the metal cans mounted to the chassis and are usually 3/4 to 1 3/4 inches in diameter. They will be from two to five inches tall, and may have up to four capacitors inside the one can. Make a drawing of each wire (by color) or part attached to any tab or terminal so you can put everything back where it should go. Before you remove the old capacitor, look next to each terminal and you usually see special markings in the form of a square □, a triangle Δ and a half-circle ◐ and one that is blank, if it is a four-section capacitor. If it's a two or three-section one, then only some of the symbols will be used. Now look on the capacitor itself and you will see what the symbols indicate. Many of the multi-section capacitors have different values from section to section in capacity and/or voltage. You need to know which terminal had what value to ensure a suitable replacement.

Since a tab-mounted capacitor can be installed in three or four different positions, you could install it in such a manner that the wires will be hooked up to the wrong value.

When you look on the can, you will see something like the following (for a four-section electrolytic):

- 40-450 VDC ◐
- 40-450 VDC □
- 20-300 VDC Δ
- 10-25 VDC

As you can see, if you installed the new

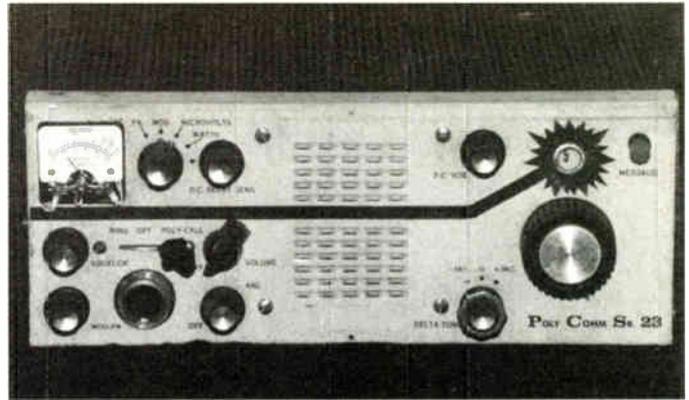
capacitor "turned" wrong, you could end up with 300 to 400 volts on a section built for 25 volts. Boy, that could get exciting!

You may find an exact replacement capacitor; all you have to do is install and wire it up correctly. If your parts house doesn't have one, don't despair, as it's no problem to find an acceptable substitute. First, you have to replace it with one of the same physical size in diameter and no taller than will allow the case to fit over it. The electrical values can vary. For example, the capacity can be a little less OR a lot more. A 40 μF can be replaced with a 30 μF to 100 μF or more, but the voltage CANNOT be less. A higher rated working voltage (up to 50 per cent more) is fine, so if it's rated 400 volts, you could use a 600 volt one. If you have a four-section cap, you could use a three-section replacement with the fourth section being a tubular capacitor mounted outboard.

Troubleshooting

After doing all of this, the unit is ready for trouble-shooting any circuits that are not up to specifications. Depending on your level of experience and test equipment available, you might need to take the radio to a qualified shop to finish it up. Finding a professional shop that knows tube equipment might get interesting, but the reward can be well worth it.

Would you buy a CB that was guaranteed to give you five miles range mobile-to-mobile and 10 miles mobile-to-base? Or one that had receiver specs for sensitivity, selectivity and adjacent channel rejection that rivals the best commercial two-way radios made today? Or one that was guaranteed to withstand a 15 G drop or 10 G shake for 30 minutes? There used



to be one sold coast-to-coast that was very popular. There should be some still around in garages, sheds and attics. It was the "Poly-Comm" series of radios.

Put the word out and see if you can find a "Poly-Comm" in one of the various models made by Polytronics, which started in Clifton, New Jersey, and later was in West Caldwell, NJ.

First there was a four-channel unit, then an eight-channel, followed by a 23-channel model. They were the Poly-Comm "II", the "N" and the "Poly 23" and "Senior 23". They also had one called the "Pro", but few were made. If you can find one, you will have a radio that will outperform (on receive) ANYTHING you can buy today.

Next Time . . .

In our next article we will take a Poly unit and rebuild it as we have described this month, but including some specifics on parts, tuning and a few modifications. Pictures of some Poly-Comm models are included to help you recognize them. We will also include the name and addresses of some sources of tubes and other parts for many of the models of old tube units that you might want to restore. It's fun, can be profitable in the future (remember what you and I thought about baseball cards?) and you can also drive your Model "T" across the airwaves, having a radio with unbeatable performance. So start looking—you never know where you will find one! I'm still looking for a few models myself, such as the Heath CB-1 and CB-10 or an Eico 770 series unit.

If you have any technical or historical questions on old CB radios, write me and I will try to help. For a direct, personal reply, enclose a #10 SASE. Provide any brand names, manufacturing names, model numbers, serial numbers and a photo of the unit if you have one. Send it to: Don Patrick, 3701 Old Jenny Lind, Fort Smith, AR 72901.

Until next time, this is . . .

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Diversity Antenna Systems

Two antennas are better than one! How to cut signal fading . . .

BY DR. JACKPOT, SSB-777

“Hey Ed, the signals are starting to fade badly. Didn't get much of your last transmission, so I'd better pass along my address, which is 34 (awk . . .gurgle . . .gibble . . .arrwk . . .). Hope to catch you again.”

Its happened before. The weak and fading signal that just seems to slip below the threshold of readability at exactly the wrong moment. You sat there, squelch wide open, headphones pressed to your ears, straining as you listened. He told you more than you ever wanted to know about his job as a marshmallow taste tester, about his XYL's traffic cone collection, and how he trained his goldfish to tap dance. Most of this was poor copy at best, but you managed to bear up under it in anticipation of the magic moment when he passed along his address.

That was only the second time in the history of Western Civilization anyone every heard an operator from this location—some remote corner of the world. The one other time the station was heard, he sent out a parchment QSL printed in gold leaf, countersigned by his grandfather, the Sultan! Well, you missed your chance, and true to form, fading (QSB) was worst at JUST the wrong moment.

Curse You, QSB!

Fading, as you may know, results from shifts in the ionosphere, those high-up layers responsible for refracting shortwave signals around our planet. Because of things like fading, satellites have taken over some of the jobs that used to be handled by shortwave. Satellites haven't taken over CB and other shortwave hobby comms, so those signals are still at the complete mercy of fading. Nobody knows what to do about fading . . . or do they?

There *is* a remedy. Commercial shortwave receiving stations have used it for decades. It's called **Diversity Reception**. In its usual form, it requires at least two receivers. If you have two receivers (including the one already in your CB rig), you're almost in business. Even for the operator with a single receiver, there are a few tricks to know if you are a CBer, ham or SWL.

First, let me point out that diversity



Enjoy CB more when you reduce signal fading. Here's Tod, SSB Net member SSB-3A99, at the controls of his dual-diversity station.

antenna systems used at commercial and military facilities are large, sophisticated, expensive, high-tech affairs. While the basics are the same, here we are dealing with very simplified manual approaches.

Two receivers normally are used for diversity reception in order to take advantage of two antennas which are not connected or coupled to one another. Figure 1 shows it all. Ideally, the two antennas should be at right angles to one another, perhaps one a vertical, and the other a flatside (horizontal). Some operators like both antennas to be rigged for flatside operation, which is OK so long as they are set up at right angles. Running them parallel to one another would offer no benefits.

Polarization and Phase

Why two antennas? Fading often is the result of polarization shifts in the signals, along with what are called phasing effects. You understand that a signal is polarized as it propagates from the transmitting site. If the antenna is a vertical,

then the signal is vertically polarized, while a horizontal antenna sends out a horizontally polarized signal. But after the signal has been propagated some distance and taken at least one bounce off the ionosphere, its polarization loses its integrity. In fact, the signal arrives at a distant receiving point with some of its energy horizontal, some vertical.

None of this really matters much, of course, so long as the polarization remains constant. But if the ionosphere has any kind of ripple or turbulence in it, or if the earth's magnetic field is acting up, the polarization keeps changing. This makes for polarization fading.

Fading from phasing effects is perhaps simpler to understand. It results from multipath transmission. Some of the signal reaches the receiver, say, via refraction from the ionosphere. But some more of the signal energy arrives after having bounced back from the ionosphere to earth to earth to ionosphere and back again. This makes one signal path longer than the other.

With two sets of signals arriving, everything is fine as long as their crests and

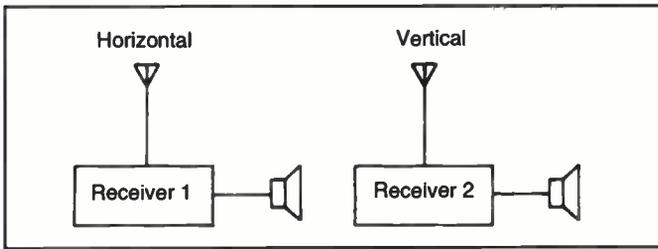


Fig. 1. Simplest setup uses two receivers and two antennas—one horizontal and one vertical.

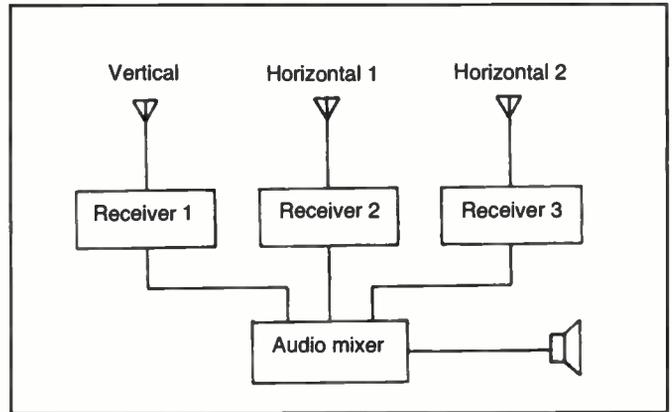


Fig. 2. Commercial receiving stations have a more complex setup. Three receivers feed one speaker. →

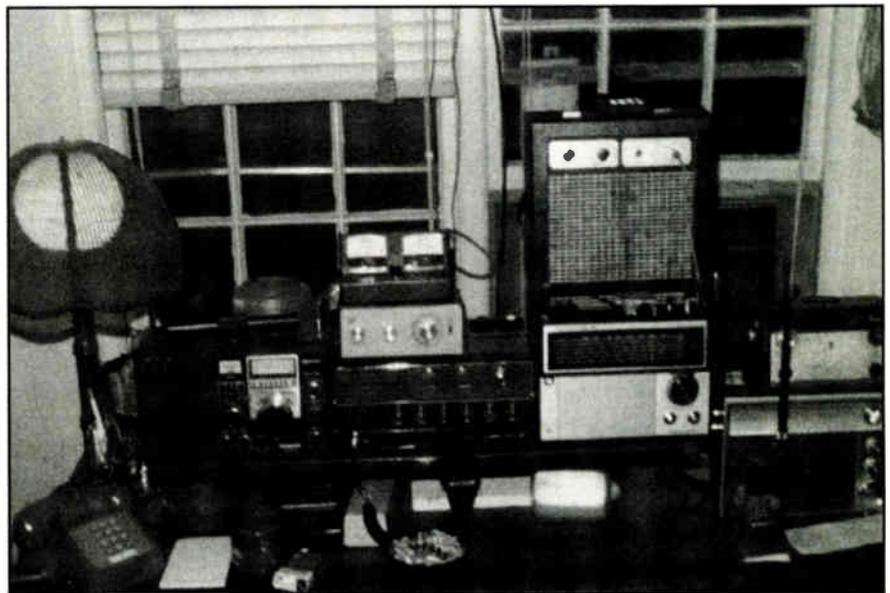
troughs happen to match. If there is a slight mismatch, the signal will be weaker, though still readable. But let the ionosphere get restless and wave crests may begin to overlap wave troughs. In this case, the signal will fade and at times drop out.

These fading effects can be dodged to some extent with two well separated, or two neighboring antennas run at right angles. While two incoming wave trains may be overlapping the wrong way and canceling at one antenna, they may be arriving in step and adding at the other one. With the next ionosphere shift the wave might start to add on the first antenna, but cancel on the second. Then it's time to switch back again.

How They Handle It

Commercial diversity installations are hardly as basic as our Figure 1. Also, they use three antennas, each feeding its own receiver (see Figure 2). The outputs from the three receivers are fed to a mixer and finally go through one audio amplifier and speaker. You don't need to be so fancy.

Fact is, if you don't own two receivers, try Figure 3 with your transceiver or receiver. Simply erect the additional antenna(s), and rig a low-loss switch to enable manual changing of antennas in a snap. Fades often last several seconds, especially the deeper ones, and it takes



Can't go wrong with several receivers available!

only a split second to try another antenna. This means you can catch that important information. Besides, having this antenna-switching capability will enable you to determine which antenna is best for a given signal at any particular time.

If you like this three-antenna system and have a second receiver handy, you might want to try the hookup in Figure 4.

This setup enables you to see which is the best combination.

Special 11 Meter Considerations

When thinking about diversity antenna systems for 27 MHz as shown in Figure 1, "Receiver 2" is simply a standard CB

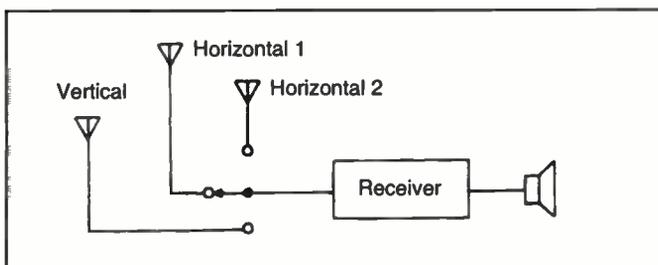


Fig. 3. Three antennas and one receiver (or CB transceiver) typically cost-cutting hookup. Switch selects antenna.

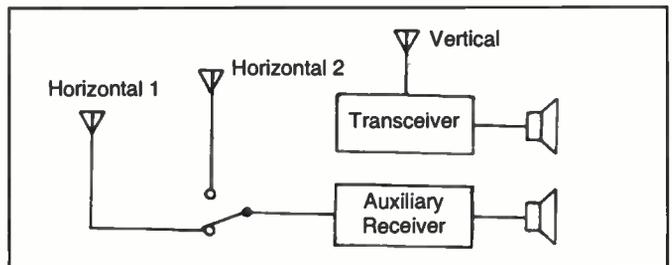
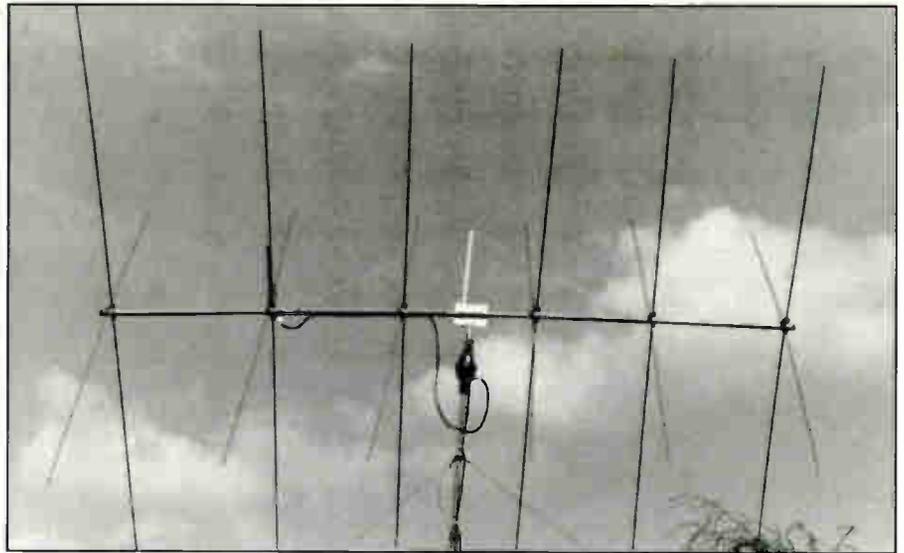


Fig. 4. Adding second receiver to installation brings better all-round operation



A basic CB vertical is perfect for one of the two antennas.

rig connected to a regular CB vertical antenna. "Receiver 1" can be a communications receiver, which you will have to manually tune to the desired receive frequency. Most modern comms receivers have rear panel connections that will mute them when they are used in conjunction with a separate transmitter. This is so that when the mic is keyed, the set will mute and the antenna will be temporarily disconnected from the set's front end. The owner's manual shows how it's done, and you would need to do it here.



You could roll your own dipoles, but (unfortunately) they offer no signal gain.

The system shown in Figure 3 has its own considerations. Use a rotary coaxial switch for CB. While the "vertical" antenna can be any standard CB omni-directional type, the flatside antenna(s) can actually be a single horizontally polarized beam (yagi) used with a rotor. Rotate it towards the best signal path to the other station. If two stationary flatside antennas are to be used, they will have transmission and reception capabilities. This means dipoles, which (unfortunately) don't offer any gain.

Figure 4 represents a good all-around approach to sticking your sandal in the door of diversity with a minimum of fuss and cost. It presumes you have a communications receiver. You will have to mute the auxiliary receiver when the CB rig is keyed up. The secondary receiver



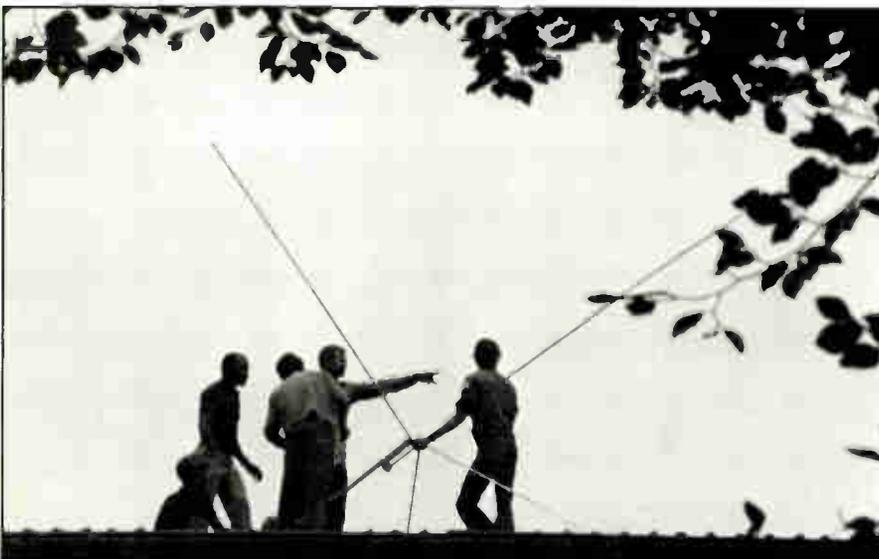
If you shop around, you can find some excellent dual-diversity CB beams on the commercial market.



Use a beam? Don't forget you will need a good rotor.

antennas aren't required for transmitting, so you can get away with using simple random-length longwire types (about 40 feet each should do fine). With the lashup in Figure 4, you can try the vertical antenna in combination with either of the two horizontals to obtain the best results.

Save those important signals from fading away. Diversify!!



As you put up the vertical, start pointing out possible end-points for your horizontal.

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Citizens Band Radio Service Rules

FCC Part 95 Subpart D

General Provisions

§ 95.401 (CB Rule 1) What is the Citizens Band (CB) Radio Service?

The CB Radio Service is a private, two-way, short-distance voice communications service for personal or business activities. The CB Radio Service may also be used for voice paging.

§ 95.402 (CB Rule 2) How do I use these rules?

(a) You must comply with these rules (See CB Rule 21 for the penalties for violations) when you operate a station in the CB Service from:

(1) Within or over the territorial limits of places where radio services are regulated by the FCC (see CB Rule 5).

(2) Aboard any vessel or aircraft registered in the United States; *OR*

(3) Aboard any unregistered vessel or aircraft owned or operated by a United States citizen or company.

(b) Your CB station must comply with technical rules found in Subpart E of Part 95.

(c) Where the rules use the word "you," "you" means a person operating a CB station.

(d) Where the rules use the word "person," the rules are concerned with an individual, a corporation, a partnership, an association, a joint stock company, a trust, a state, territorial or local government unit, or other legal entity.

(e) Where the rules use the term "FCC," that means the Federal Communications Commission.

(f) Where the rules use the term "CB station," that means a radio station transmitting in the CB Radio Service.

§ 95.403 (CB Rule 3) Am I eligible to operate a CB station?

You are authorized to operate a CB station unless.

(a) You are a foreign government, a representative of a foreign government, or a federal government agency; *OR*

(b) The FCC has issued a cease and desist order to you, and the order is still in effect.

§ 95.404 (CB Rule 4) Do I need a license?

You do not need an individual license to operate a CB station. You are authorized by this rule to operate your CB station in accordance with the rules in this Subpart.

§ 95.405 (CB Rule 5) Where may I operate my CB station?

You are authorized to operate your CB station from:

(a) Within or over any area of the world where radio services are regulated by the FCC. Those areas are within the territorial limits of:

- (1) The fifty United States
- (2) The District of Columbia

Caribbean Insular areas

- (3) Commonwealth of Puerto Rico
- (4) Navassa Island
- (5) United States Virgin Islands (50 islets and cays)

Pacific Insular areas

- (6) American Samoa (seven islands)
 - (7) Baker Island
 - (8) Commonwealth of Northern Mariana Islands
 - (9) Guam Island
 - (10) Howland Island
 - (11) Jarvis Island
 - (12) Johnston Island (Islets East, Johnston, North and Sand)
 - (13) Kingman Reef
 - (14) Midway Island (Islets Eastern and Sand)
 - (15) Palmyra Island (more than 50 islets)
 - (16) Wake Island (Islets Peale, Wake and Wilkes)
- (b) Any other area of the world, except within the territorial limits of areas where radio services are regulated by—
- (1) An agency of the United States other than the FCC. (You are subject to its rules.)
 - (2) Any foreign government. (You are subject to its rules.)
 - (c) An aircraft or ship, with the permission of the captain, within or over any area of the world where radio services are regulated by the FCC or upon or over international waters. You must operate your CB station according to any applicable treaty to which the United States is a party.

§ 95.406 (CB Rule 6) Are there any special restrictions on the location of my CB station?

(a) If your CB station is located on premises controlled by the Department of Defense you may be required to comply with additional regulations imposed by the commanding officer of the installation.

(b) If your CB station will be constructed on an environmentally sensitive site, or will be operated in such a manner as to raise environmental problems, under § 1.1307, you must provide an environmental assessment, as set forth in § 1.1311, and undergo the environmental review, § 1.1312, before commencement of construction.

How to Operate a CB Station

§ 95.407 (CB Rule 7) On what channels may I operate?

(a) Your CB station may transmit only on the following channels (frequencies):

Channel	Frequency (MHz)
1	26.965
2	26.975
3	26.985
4	27.005
5	27.015
6	27.025
7	27.035
8	27.055
9	27.065 ¹
10	27.075
11	27.085
12	27.105

13	27.115
14	27.125
15	27.135
16	27.155
17	27.165
18	27.175
19	27.185
20	27.205
21	27.215
22	27.225
23	27.255
24	27.235
25	27.245
26	27.265
27	27.275
28	27.285
29	27.295
30	27.305
31	27.315
32	27.325
33	27.335
34	27.345
35	27.355
36	27.365
37	27.375
38	27.385
39	27.395
40	27.405

¹ [see paragraph (b)]

(b) Channel 9 may be used only for emergency communications or for traveler assistance.

(c) You must, at all times and on all channels, give priority to emergency communication messages concerning the immediate safety of life or the immediate protection of property.

(d) You may use any channel for emergency communications or for traveler assistance.

(e) You must share each channel with other users.

(f) The FCC will not assign any channel for the private use or exclusive use of any particular CB station or group of stations.

(g) The FCC will not assign any channel for the private or exclusive use of CB stations transmitting single sideband or AM.

§ 95.408 (CB Rule 8) How high may I put my antenna?

(a) "Antenna" means the radiating system (for transmitting, receiving or both) and the structure holding it up (tower, pole or mast). It also means everything else attached to the radiating system and the structure.

(b) If your antenna is mounted on a hand-held portable unit, none of the following limitations apply.

(c) If your antenna is installed at a fixed location, it (whether receiving, transmitting or both) must comply with either one of the following:

(1) The highest point must not be more than 6.1 meters (20 feet) higher than the highest point of the building or tree on which it is mounted; *OR*

(2) The highest point must not be more than 18.3 meters (60 feet) above the ground.

(d) If your CB station is located near an airport, and if your antenna structure is more than 6.1 meters (20 feet) high, you may have to obey additional restrictions. The highest point of your antenna must not exceed one meter above the airport elevation for every hundred meters of distance from the nearest point of the nearest airport runway. Differences in ground elevation between your antenna and the airport runway may complicate this formula. If your CB station is near an airport, you may contact the nearest FCC field office for a worksheet to help

you figure the maximum allowable height for your antenna. Consult Part 17 of the FCC's Rules for more information.

WARNING: Installation and removal of CB station antennas near powerlines is dangerous. For your safety follow the installation directions included with your antenna.

§ 95.409 (CB Rule 9) What equipment may I use at my CB station?

(a) You must use an FCC type-accepted CB transmitter at your CB station. You can identify an FCC type-accepted transmitter by the type-acceptance label placed on it by the manufacturer. You may examine a list of type-accepted equipment at any FCC Field Office or at FCC Headquarters. Use of a transmitter which is not FCC type-accepted voids your authority to operate the station.

(b) You must not make, or have made, any internal modification to a type-accepted CB transmitter. (See CB Rule 25.) Any internal modification to a type-accepted CB transmitter cancels the type-acceptance, and use of such a transmitter voids your authority to operate the station.

§ 95.410 (CB Rule 10) How much power may I use?

(a) Your CB station transmitter power output must not exceed the following values under any conditions:

AM (A3)—4 watts (carrier power)

SSB—12 watts (peak envelope power)

(b) If you need more information about the power rule, see the technical rules in Subpart E of Part 95.

(c) Use of a transmitter which has carrier or peak envelope power in excess of that authorized voids your authority to operate the station.

§ 95.411 (CB Rule 11) May I use power amplifiers?

(a) You may not attach the following items (power amplifiers) to your type-accepted CB transmitter in any way:

(1) External radio frequency (RF) power amplifiers (sometimes called linears or linear amplifiers); *OR*

(2) Any other device which, when used with a radio transmitter as a signal source, are capable of amplifying the signal.

(b) There are no exceptions to this rule and use of a power amplifier voids your authority to operate the station.

(c) The FCC will presume you have used a linear or other external RF power amplifier if—

(1) It is in your possession or on your premises; *AND*

(2) There is other evidence that you have operated your CB station with more power than allowed by CB Rule 10.

(d) Paragraph (c) of this rule does not apply if you hold a license in another radio service which allows you to operate an external RF power amplifier.

§ 95.412 (CB Rule 12) What communications may be transmitted?

(a) You may use your CB station to transmit two-way plain language communications. Two-way plain language communications are communications without codes or coded messages. Operating signals such as "ten codes" are not considered codes or coded messages. You may transmit two-way plain language communications only to other CB stations, to units of your own CB station or to authorized government stations on CB frequencies about—

(1) Your personal or business activities or those of members of your immediate family living in your household;

(2) Emergencies (see CB Rule 18);

(3) Traveler assistance (see CB Rule 18); *OR*

(4) Civil defense activities in connection with official tests or drills conducted by, or actual emergencies announced by, the

civil defense agency with authority over the area in which your station is located.

(b) You may use your CB station to transmit a tone signal only when the signal is used to make contact or to continue communications. (Examples of circuits using these signals are tone-operated squelch and selective calling circuits.) If the signal is an audible tone, it must last no longer than 15 seconds at one time. If the signal is a subaudible tone, it may be transmitted continuously only as long as you are talking.

(c) You may use your CB station to transmit one-way communications (messages which are not intended to establish communications between two or more particular CB stations) only for emergency communications, traveler assistance, brief tests (radio checks) or voice paging.

§ 95.413 (CB Rule 13) What communications are prohibited?

(a) You must not use a CB station—

(1) In connection with any activity which is against federal, state or local law;

(2) To transmit obscene, indecent or profane words, language or meaning;

(3) To interfere intentionally with the communications of another CB station;

(4) To transmit one-way communications, except for emergency communications, traveler assistance, brief tests (radio checks), or voice paging;

(5) To advertise or solicit the sale of any goods or services;

(6) To transmit music, whistling, sound effects or any material to amuse or entertain;

(7) To transmit any sound effect solely to attract attention;

(8) To transmit the word "MAYDAY" or any other international distress signal, except when your station is located in a ship, aircraft or other vehicle which is threatened by grave and imminent danger and you are requesting immediate assistance;

(9) To communicate with, or attempt to communicate with, any CB station more than 250 kilometers (155.3) miles away;

(10) To advertise a political candidate or political campaign; (you may use your CB radio for the business or organizational aspects of a campaign, if you follow all other applicable rules);

(11) To communicate with stations in other countries, except General Radio Service stations in Canada; *OR*

(12) To transmit a false or deceptive communication.

(b) You must not use a CB station to transmit communications for live or delayed rebroadcast on a radio or television broadcast station. You may use your CB station to gather news items or to prepare programs.

§ 95.414 (CB Rule 14) May I be paid to use my CB station?

(a) You may not accept direct or indirect payment for transmitting with a CB station.

(b) You may use a CB station to help you provide a service, and be paid for that service, as long as you are paid only for the service and not for the actual use of the CB station.

§ 95.415 (CB Rule 15) Who is responsible for communications I make?

You are responsible for all communications which are made by you from a CB station.

§ 95.416 (CB Rule 16) Do I have to limit the length of my communications?

(a) You must limit your CB communications to the minimum practical time.

(b) If you are communicating with another CB station or stations, you, and the stations communicating with you, must limit each of your conversations to no more than five continuous minutes.

(c) At the end of your conversation, you, and the stations com-

municating with you, must not transmit again for at least one minute.

§ 95.417 (CB Rule 17) Do I identify my CB communications?

(a) You need not identify your CB communications.

(b) [You are encouraged to identify your CB communications by any of the following means:

(1) Previously assigned CB call sign;

(2) K prefix followed by operator initials and residence zip code;

(3) Name; *OR*

(4) Organizational description including name and any applicable operator unit number.]

(c) [You are encouraged to use your "handle" only in conjunction with the methods of identification listed in paragraph (b).]

§ 95.418 (CB Rule 18) How do I use my CB station in an emergency or to assist a traveler?

(a) You must, at all times and on all channels, give priority to emergency communications.

(b) When you are directly participating in emergency communications, you do not have to comply with the rule about length of transmissions (CB Rule 16). You must obey all other rules.

(c) You may use your CB station for communications necessary to assist a traveler to reach a destination or to receive necessary services. When you are using your CB station to assist a traveler, you do not have to obey the rule about length of transmissions (CB Rule 16). You must obey all other rules.

(d) You may use your CB station to transmit one-way communications concerning highway conditions to assist travelers.

§ 95.419 (CB Rule 19) May I operate my CB station transmitter by remote control?

(a) You may not operate a CB station transmitter by radio remote control.

(b) You may operate a CB transmitter by wireline remote control if you obtain specific approval in writing from the FCC. To obtain FCC approval, you must show why you need to operate your station by wireline remote control. Send your request and justification to FCC, 1270 Fairfield Road, Gettysburg, PA 17325-7245. If you receive FCC approval, you must keep the approval as part of your station records. (See CB Rule 27).

(c) Remote control means operation of a CB transmitter from any place other than the location of the CB transmitter. Direct mechanical control or direct electrical control by wire from some point on the same premises, craft or vehicle as the CB transmitter is not considered remote control.

§ 95.420 (CB Rule 20) May I connect my CB transmitter to a telephone?

(a) You may connect your CB station transmitter to a telephone if you comply with all of the following:

(1) You or someone else must be present at your CB station and must—

(i) Manually make the connection (the connection must not be made by remote control);

(ii) Supervise the operation of the transmitter during the connection;

(iii) Listen to each communication during the connection; *AND*

(iv) Stop all communications if there are operations in violation of these rules.

(2) Each communication during the telephone connection must comply with all of these rules.

(3) You must obey any restriction that the telephone company places on the connection of a CB transmitter to a telephone.

(b) The CB transmitter you connect to a telephone must not be shared with any other CB station.

(c) If you connect your CB transmitter to a telephone, you must use a phone patch device which has been registered with the FCC.

Other Things You Need to Know

§ 95.421 (CB Rule 21) What are the penalties for violating these rules?

(a) If the FCC finds that you have willfully or repeatedly violated the Communications Act or the FCC rules, you may have to pay as much as \$10,000 for each violation, up to a total of \$75,000. (See Section 503(b) of the Communications Act).

(b) If the FCC finds that you have violated any section of the Communications Act or the FCC rules, you may be ordered to stop whatever action caused the violation. (See Section 312(b) of the Communications Act).

(c) If a federal court finds that you have willfully and knowingly violated any FCC rules, you may be fined up to \$500 for each day you committed the violation. (See Section 502 of the Communications Act).

(d) If a federal court finds that you have willfully and knowingly violated any provision of the Communications Act, you may be fined up to \$10,000, or you may be imprisoned for one year, or both. (See Section 501 of the Communications Act).

§ 95.422 (CB Rule 22) How do I answer correspondence from the FCC?

(a) If it appears to the FCC that you have violated the Communications Act or these rules, the FCC may send you a discrepancy notice.

(b) Within the time period stated in the notice, you must answer with:

(1) A complete written statement about the apparent discrepancy;

(2) A complete written statement about any action you have taken to correct the apparent violation and to prevent it from happening again; *AND*

(3) The name of the person operating at the time of the apparent violation.

(c) If the FCC sends you a letter asking you questions about your CB radio station or its operation, you must answer each of the questions with a complete written statement within the time period stated in the letter.

(d) You must not shorten your answer by references to other communications or notices.

(e) You must send your answer to the FCC office which sent you the notice.

(f) You must keep a copy of your answer in your station records. (See CB Rule 27).

§ 95.423 (CB Rule 23) What must I do if the FCC tells me that my CB station is causing interference?

(a) If the FCC tells you that your CB station is causing interference for technical reasons you must follow all instructions in the official FCC notice. (This notice may require you to have technical adjustments made to your equipment).

(b) You must comply with any restricted hours of CB station operation which may be included in the official notice.

§ 95.424 (CB Rule 24) How do I have my CB station transmitter serviced?

(a) You may adjust an antenna to your CB transmitter and you may make radio checks. (A radio check means a one-way transmission for a short time in order to test the transmitter).

(b) You are responsible for the proper operation of the station at all times and are expected to provide for observations, servicing and maintenance as often as may be necessary to ensure proper operation. You must have all internal repairs or

internal adjustments to your CB transmitter made in accordance with the Technical Regulations (see Subpart E). The internal repairs or internal adjustments should be performed by or under the immediate supervision and responsibility of a person certified as technically qualified to perform transmitter maintenance and repair duties in the private land mobile services and fixed services by any organization or committee representative of users in those services.

(c) Except as provided in paragraph (d) of this section, each internal repair and each internal adjustment of a CB transmitter in which signals are transmitted must be made using nonradiating ("dummy") antenna.

(d) Brief test signals (signals not longer than one minute during any five minute period) using a radiating antenna may be transmitted in order to:

(1) Adjust an antenna to a transmitter;

(2) Detect or measure radiation of energy other than the intended signal; *OR*

(3) Tune a receiver to your CB transmitter.

§ 95.425 (CB Rule 25) May I make any changes to my CB station transmitter?

(a) You must not make or have any one else make any internal modification to your CB transmitter.

(b) Internal modification does not include:

(1) Repair or servicing of a CB station transmitter (see CB Rule 24); *OR*

(2) Changing plug-in modules which were type accepted as part of your CB transmitter.

(c) You must not operate a CB transmitter which has been modified by anyone in any way, including modification to operate on unauthorized frequencies or with illegal power. (See CB Rules 9 and 11).

§ 95.426 (CB Rule 26) Do I have to make my CB station available for inspection?

(a) If an authorized FCC representative requests to inspect your CB station, you must make your CB station and records available for inspection.

(b) A CB station includes all of the radio equipment you use.

§ 95.427 (CB Rule 27) What are my station records?

Your station records include the following documents, as applicable.

(a) A copy of each response to an FCC violation notice or an FCC letter. (See CB Rule 22.)

(b) Each written permission received from the FCC. (See CB Rule 19.)

§ 95.428 (CB Rule 28) How do I contact the FCC?

(a) Write to your nearest FCC Field Office if you:

(1) Want to report an interference complaint; *OR*

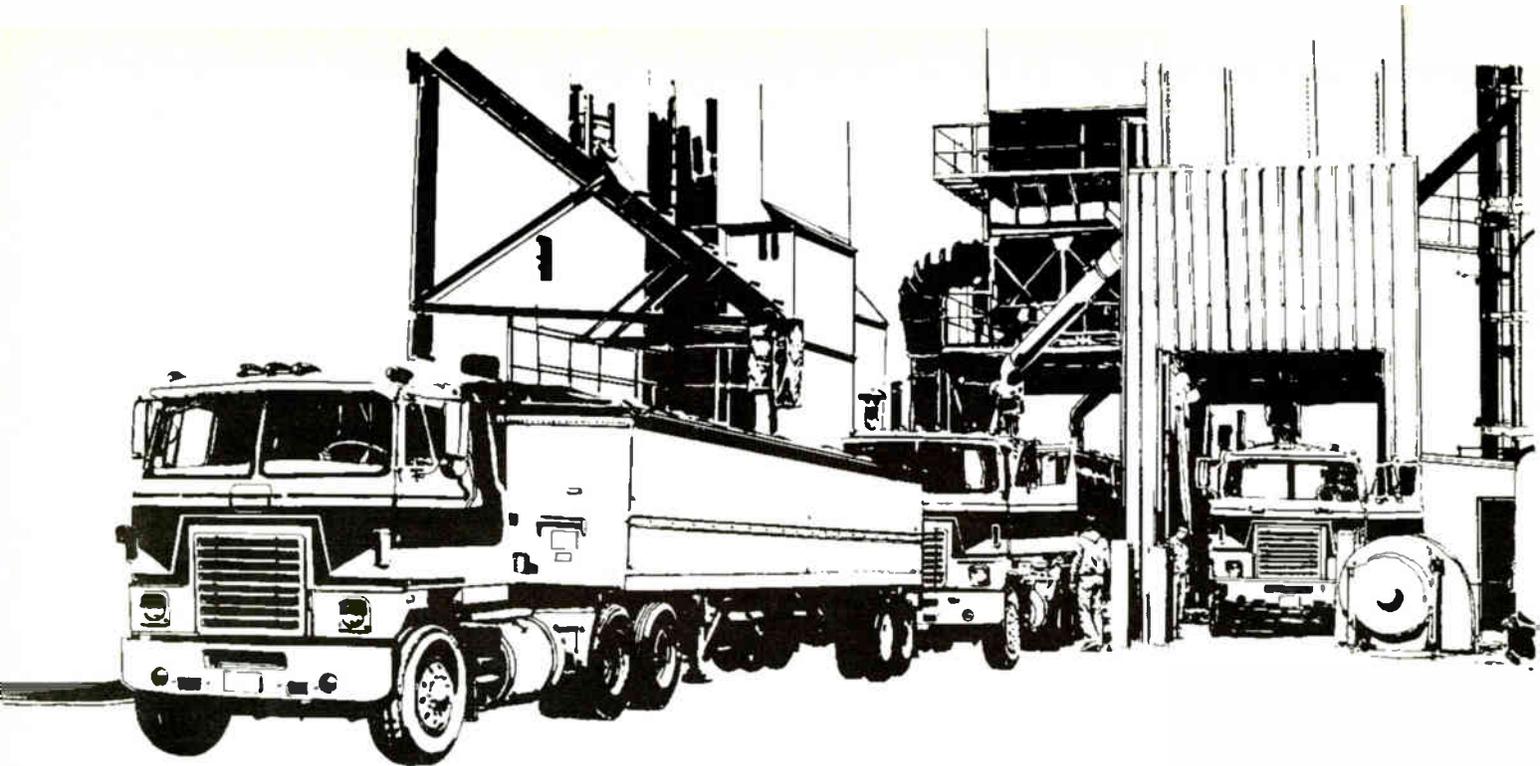
(2) Want to know if the FCC has type-accepted a transmitter for CB.

(b) Write to the FCC, Private Radio Bureau, Personal Radio Branch; Washington, D.C. 20554 if you have questions about the CB Rules.

NOTE: I'm sure all of you are familiar with these rules; and I know they are usually included in many of the base and mobile radio packages; but the staff here thought it might be handy to have them printed here. You can easily misplace the rules and sometimes you spill a cup of coffee on them or whatever. So here's your chance to clip this out and hang it in your shack for easy reference.

73's

Nancy



The American Truck Driver

Although they are called "America's Backbone," I think there are a few more facts that should be known about these men handling the rigs on our highway.

First dispatchers jack them around causing lost time. They wear out their rigs running for a leasing line. Bankers, Brokers and Agents cut deep into their pay.

On important occasions, seems they are never home. They must give their love long distance by phone, from any and everywhere; Boston, Houston or L.A.

For hours and hours of driving not a second can they relax, and you'd think from the way they're taxed, the national debt is theirs alone to pay.

When their rigs are ready, whether solid, liquid or perishable load, They must know all the facts and the cares to be shown, just like the chemist, farmer or manufacturer shipping it.

They must know the temperature, pressure or humidity, All the gasses, fumes and their combustibility, and the precautions to be taken in case they're hit.

They just have to know their destination and the best route.

There are many other things they must worry about, Like clearances, wipers, brakes, running lights and friar.

Also their hoses, clamps, tires, fuel filters and batteries, weather conditions, log books, tarp-straps to name a few of these.

The list would reach clear across the city square.

They are over-charged and hassled a lot. They've been lied to, and hustled at every stop. They've seen every con-game and every type of scheme.

They've been ripped off, dumped on and ticketed, They've been cut short, high-beamed and picketed. But all of this just serves to make them tougher, NOT MEAN.

John T. Leavins

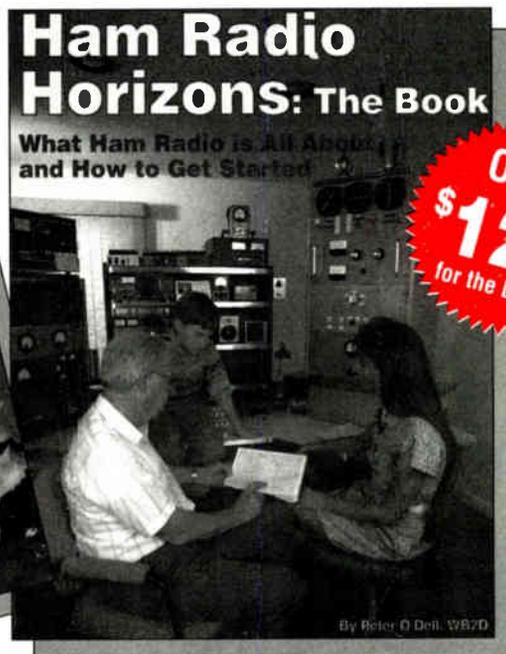
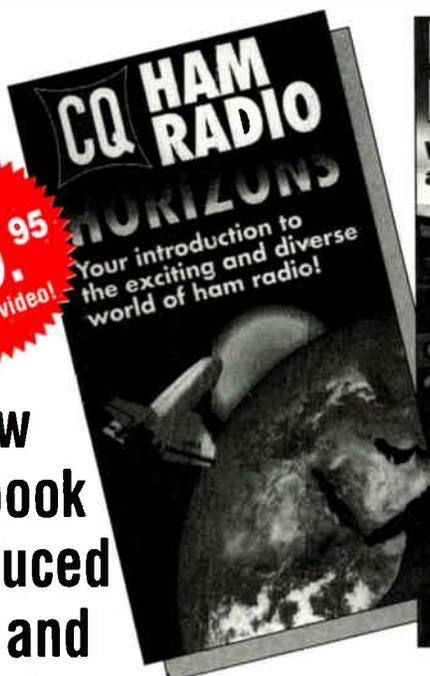




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CBer of the Month



OUR SALUTE TO TOP-NOTCH CBERs

By Bill Price, A/K/A The Chiseler

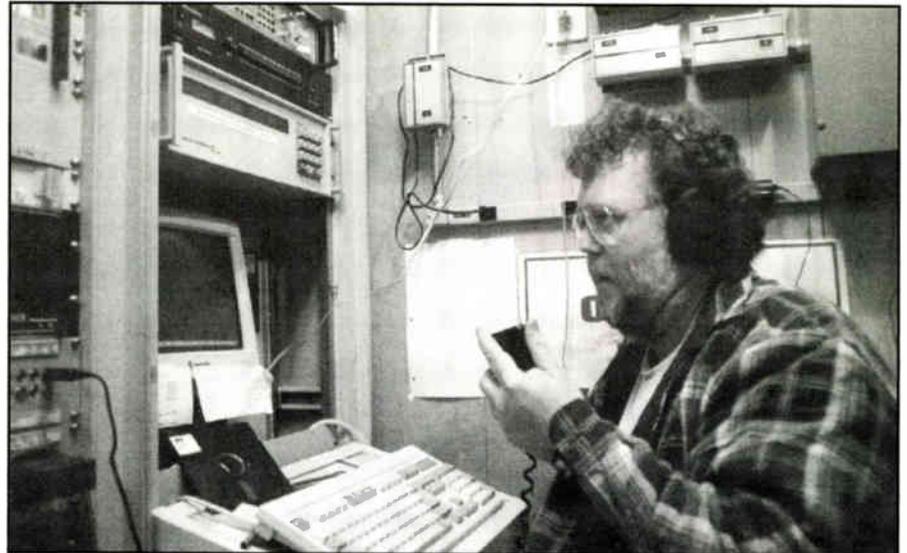
I Found "Waldo"

I found this month's CBer of the Month, Kurt Gandolph, aka "Waldo," lurking about the CB airwaves in New York's Albany-Schenectady-Troy area—one of broadcasting's few double-hyphenated markets. Kurt came to my attention when I was driving through the area because his voice had all the polish of an AM-broadcaster—a morning drive-time announcer. I asked him about it, and sure enough, that was one of the more interesting jobs that was able to hold Kurt's interest for a while. Although Kurt enjoys broadcasting—and knows his radio & TV trivia—he tells me he's spent most of his life earning a living with a small, but efficient video production business.

"CB has always been a way for me to kick back and relax," Kurt tells me. "My brother's a ham—he often tried to get me interested in that, but I've peaked enough grids and dipped enough plates, thank you. With CB, I pick a channel and talk. If nobody answers, I tell a couple of jokes on an "empty" channel and sure enough, someone who's been listening opens up and comes back to me." It's certainly a novel approach. "Another reason I chose CB over ham radio is that I just can't be bothered memorizing one more regulation." I asked Gandolph if he does any material like that used by Howard Stern or Don Imus.

"If I had to use their material, I'd hang up my mic," he told me. It's not that they're pigs—well—they are pigs, but that's not the issue. They're boring. How many times can you listen to that stuff? Two? Three? When I worked the morning drive-time shift, the only way you ever found me off-color was if you were quick-witted enough to catch an occasional double-entendre. If I had to hit you in the face with a verbal pie to get a laugh, then I wasn't doing a very good job. There were wonderful people on radio in the fifties and sixties—Jean Shepherd comes to mind—you know he wrote 'A Christmas Story'—the movie you see every year on TV—the one where the kid wants a Red Ryder BB-Gun but everyone tells him he'll shoot his eye out. He used to do some of that material on WOR-AM in New York. Now there's a brilliant mind. He had a good radio voice, too," he said.

Although Gandolph has spent many professional hours maintaining broadcast radio and television equipment, his Dodge van sports an extremely simple Kraco 23-channel rig that has "never let



Here's Kurt Gandolph aka "Waldo" on the air at his Upstate New York shack.

him down," and a 3-foot center-loaded mag-mount antenna that probably never had a brand name—he's had it that long. "I've got a nice old Browning Eagle at home that I dust off and fire up every once in a while," Gandolph told me. "I used to use an old Turner 'Plus-2' power mic with it—that's the one the dog used—and if you were within three or four miles of my base, you'd hear a really sweet signal." More recently, though, Kurt resurrected an old Sennheiser broadcast mic from his attic and set it up through an active mono equalizer. "It really makes the Browning sound like my AM days," he told me. I asked him to tell me more about his dog using his microphone; he promised to tell me while we had desert.

Gandolph's been collecting leftover broadcast equipment wherever he can find it, as his photo shows. "It's hard to get the broadcasting business out of your blood," he told me, "so I keep active by collecting and maintaining some of this stuff. It has a market value, and from time to time I sell some of it when I need some cash to buy something new." He's got a line on a satellite uplink system, complete with a 30-foot dish, "but moving it and setting it up would be more than a weekend job for a few friends," he told me.

He was suffering from "hat-hair" when we ate, so instead of posing for a picture by his bowl of chili or in the driver's seat of his van, he gave me a couple of pic-

tures a friend took at the satellite-uplink he was considering buying. "The owners let me run it for a week, and I had put my CB rig in the back of an equipment rack—I patched my mic through the audio patch-panel 'cause there was no room to mount the radio up front. The cooling fans on the main uplink amplifier were so loud I had to wear headphones, and I had an old noise-canceling mic from the early days of CB. I couldn't have used the Sennheiser there."

He was back in Schenectady "visiting a few friends," he told me. "I live further down the northeast corridor now—still dabbling in broadcasting, but now I make most of my money buying and selling used equipment. My maintenance skills have helped me to avoid disasters and actually turn a small profit."

Kurt is a "decent cook," he tells me, and loves good chili as much as anything. We each had a couple bowls at a local diner while he gave me the information for this column. Back home, he has two kids, Bill and Kirk, who are "grown up, but still hang around the house." Bill's main interest is food, but young Kirk says he wants to be an engineer. Kurt says he always wanted girls, but has "made do" with Bill and Kirk. He says he even thought about dressing them up in girl's clothes when they were little, but their mother wouldn't hear of it.

I asked Kurt if he had any memorable CB stories to share with our readers. He

chuckled and told me, "It's not very memorable, but it was sure cute. I used to have a Pug dog named Nikki—you know—those dogs that look as if they chase parked cars. Anyway, Nikki was smart, as Pug dogs go, and she would stand on my chair, lean onto my desk, put her paw on my mic switch and snort into the mic whenever I'd call her name on the radio. Now it helps to understand what a Pug dog sounds like when it snorts. Think of an eight-year old kid with a really runny nose and no Kleenex. Now give him some popcorn so he can get the hulls lodged in his throat and start to choke on them. That's roughly what a Pug dog sounds like when it's happy.

Back when I had Nikki, everyone followed the FCC regulations pretty much to the letter, so I would call her every so often, using all the proper call signs and 10-codes, and she would come running to the rig, key the mic, and start snorting. I knew my neighbors were listening to me, so I acted as if we were carrying on a conversation. I'd talk to Nikki (and she'd snort back to me) for most of the full five minute limit (you remember that?). I'd ask her if the roast was almost done, if anyone had called, if there were any messages, or if the termite man had been by that afternoon. When she'd snort, I'd act as if she was answering me—I used to do this a couple times a day. Only one of my friends ever had the nerve to mention it to me, but I'm, sure they all heard it.

"Any message for the FCC?" I asked.

"It's too late now. They made CB what it is, now they have to live with it. It's getting better, though—isn't it amazing how people are capable of making something work all by themselves—without government intervention? It sure has taken time."

"And for the CB public?"

"Yeah—transmit about half as much as you do—it'll be like having 40 extra channels. Besides—most of the noise that clutters the airwaves could go unsaid—just listen to it—then decide."

Kurt likes Cherry Coke, apples 'n Velveeta, fifties TV trivia and hummus. His favorite music is from the '60s and '70s. When I asked if he could share any of his technical expertise with our readers, he said, "Absolutely! There's one thing that's an absolute—a rule of thumb, almost. When something stops working, or begins working intermittently, you look for three things:

- A cracked printed-circuit board
- A visibly-burned component
- A cold-solder joint

If you don't find any of those things, start changing the electrolytic capacitors (the big, cylindrical ones), starting with the biggest ones first. You'll be right more

times than not, and people will begin to respect you as an electronics wizard, when in fact you're just pursuing the most logical course in troubleshooting. I call it the Gandolph method. I've earned a pretty good living knowing that, Ohm's law, and how to solder. Naturally, you always check the AC plug and the fuse before taking anything apart, no matter how loudly someone else says they checked those things, check them yourself. You'd be surprised . . .

Kurt picked up the tab for our chili. "Thanks," he told me. "My treat—I've

always been the interviewer before—never the interviewee. It's been fun."

Dr. Safety adds: Hey all you tinkers out there in CB land—remember, soldering, adjusting and repairing things electrical can be dangerous. Be sure you know the basic rules of electricity safety before attempting such activities. If you're not sure—ask someone who is, or call your local radio store or library and ask if they have a book on electrical safety. We want you to stay with us for a long time. ■



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A little relish, some mustard or ketchup and CB keep the Wienermobiles rolling . . .

BY JONATHAN RHUDY, AKA "LITTLE OSCAR"

Imagine driving down the road and being passed by a large food object. Well, for many motorists cruising American highways, seeing a 27-foot-long Oscar Mayer Wienermobile is a reality. You see, as a pilot of one of these super sausages, I encounter all types of people in my travels. Most folks just honk and wave, while some take pictures.

Channel 19 on the CB buzzes with truckers and motorists singing the Oscar Mayer Wiener jingle or the Bologna Song. You remember, "My bologna has a first name, its O-S-C-A-R." Wienermobile sightings are frequent and CB enthusiasts always ask where we are going. Channel 19 suddenly becomes busier than any chat room on America On-Line! Everyone on their CB has questions and comments about my company car. Whether at a gas station or over the airwaves, the Wienermobile always stirs up a lot of attention. Life aboard the Oscar Mayer Wienermobile is unpredictable.

Wiener Pit Stops

On a recent journey traveling I-65 North from Panama City, Florida to Nashville, Tennessee, the CB was blaring with ques-

Editor's note: Jonathan Rhudy of Richmond, Virginia is a graduate of James Madison University with a B.A. in mass communications. After working with the Virginia State Lottery for two years, Jonathan says that he has struck it rich with his job as a Hotdogger. Donna Grady of Oklahoma City, is a graduate of the University of Missouri with degrees in journalism and history. Honk if you want extra mustard!

tions about the hot dog rod. "Why's that weenie wagon going double nickel?" asked one driver. "It's not a lamborweenie," I responded. Requests for the world famous wiener whistles poured in over the CB speaker. Well, thanks to our Uniden PRO 520XL CB we were able to appease the demands of our Wienermobile fans. We pulled off at a rest area for our new trucker friends and passed out whistles and photos. As word spread on the CB, truckers just kept pulling off I-65 for an opportunity to see our touring tubesteak.

Getting Out of Pickles

In addition to creating impromptu events, our CB radio has gotten us out of many pickles. Last week, we were cruising south in Alabama on Route 231 with a dirty dog. Grit from the road and hundreds of insects were plastered on the bright yellow buns. Traveling 1,000 plus miles each week makes it difficult keeping the Wienermobile clean. After sending out a couple of requests for truck wash locations, we were in luck. A woman identifying herself as Roadrunner directed us to the Lady Bug Truck Wash in Dothan, Alabama. After giving out some wiener whistles and posing for some photographs, we were back on the road with a shiny, clean hot dog.

What is a Hotdogger?

As a Hotdogger for Oscar Mayer Foods of Madison, Wisconsin, I thrive off this excitement. Sharing the magic of



An inside view of the Wienermobile.



Jonathan Rhudy and Donna Grady, Southeastern Hotdoggers take a quick break outside the Wienermobile.

Wienermobile with others is the best part of my job. I travel the Southeastern United States with another Hotdogger, Donna Grady, from Oklahoma City. We pilot WEENR to events from Virginia to Florida. Donna and I split up the driving and of course the time on the CB. We usually share the handle "Little Oscar", but sometimes she goes by "Queenie Weenie."

Currently there are 12 Hotdoggers in six Wienermobiles who make hundreds of appearances at food shows, elementary schools, and grocery stores. So far this year, we have attend-

ed Super Bowl XXX in Tempe, Arizona with the Wienermobile and drove it in New Orleans' Mardi Gras parades. Our mission is to spread miles of smiles. Each week we pass out thousands of red, plastic wiener whistles to hot dog lovers around the country. These world-famous wiener whistles date back to 1951.

Wienermobile History

Speaking of history, this year marks the 60th Anniversary of the Wienermobile. The 1936 Wienermobile was a 13-foot metal hot dog on wheels. Carl Mayer, the nephew of the company's founder, came up with the revolutionary marketing idea. This open cockpit wiener transported Little Oscar, the world's smallest chef. Since 1936, Oscar Mayer has had six different Wienermobile models. The 1988 fleet of six tubesteaks was the first to feature CB radios and cellular phones. After logging close to a million miles, the 1988 fleet of Wienermobiles, complete with microwave and refrigerator, was retired.

Meaner, Leaner, Keener Wieners

In February 1995, the meaner, leaner, keener wieners were introduced in Chicago. CB radios again were standard equipment. The new Wienermobile is built on a one-ton GMC chassis. It has a futuristic appeal with seating for six, a big-screen TV and a hot dog-shaped dash. Other features inside the rolling frank include front and rear watch dog video cameras and a computerized condiment control panel. Wind tunnel tested at a top speed of over 100 miles an hour, its aerodynamic design truly is the latest in wiener-technology. By the way, the new franks don't have a bed, a bathroom or grill in them.



Jonathan Rhudy aka "Hotdogger" keeps in tough using his Uniden PRO-520XL CB.

These super sausages sizzle—and so does our Uniden PRO 520XL CB. We've mounted external PA speakers underneath WEENR's massive buns. We use the external PA system to chat with folks when we are sandwiched in traffic. However, traffic updates on Channel 19 help us get to events on time.

A Link to the Outside World

As true road warriors, traveling 350 days a year, we believe the CB is a valuable communication tool. Truckers are mobile travel guides—they know where to get gas (unleaded mustard), where to eat, and where to park. The Wiernermobile is not only the world's greatest promotional vehicle, but is also a mobile

office. Maintaining a strong communication link with the public is crucial to our success.

Between our CB, cellular phone and pager we are constantly communicating with others. Sometimes our cell phone service goes out, especially in remote parts of the country, but not our CB. It always works, plus there are no roaming charges or fees for using it. CBs are excellent, inexpensive links to the outside world, even for the Oscar Mayer Wiernermobile. When people ask me what I want on my hot dog, I tell them a little ketchup, a little mustard, and of course a four-foot high CB antenna! ■

Wiernermobile Facts

- Wiener Whistles were first developed in 1951.
- They became so popular they were attached to packages of hot dogs.
- Last original whistles were produced in 1971; Little Oscar Rings took their place.
- The Wiener Whistle was re-introduced in 1989. New edition was modeled after the Wiernermobile.
- This year marks the introduction of a new Wiener Whistle designed to look like the 1995 Wiernermobile.
- Wiernermobile banks were first offered in the early 1950's for \$1. These replica Wiernermobile toys now fetch anywhere from \$75 to \$100.
- Replica banks have been made for every version of the Wiernermobile since 1950 with the exception of 1958. The 1995 version also features a remote control model.
- Nine men have played Little Oscar, one woman played Little Oscar's wife. She was also Little Oscar's wife in real life!
- The last Little Oscar retired in 1971.

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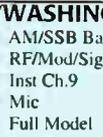


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Dear Bill:

I was about to sell a lot of my CB stuff, then I got hold of the first issue of *CB Radio* magazine and I've renewed my interest in the hobby. Now I have a couple questions for you and some article suggestions for your compatriots: 1. I have an old (early '80s) RadioShack Crossbow base station antenna. It worked fine for a long time, but eventually the SWR varied on windy days. I eventually isolated the problem—part of the choke had shorted against the center conductor of the input connector—and I insulated it with heat-shrink tubing. The trouble is, while I fixed one problem I created another—I broke a nearby capacitor. I set it aside to get a replacement, but I've lost it in the shuffle. I went to look at another Crossbow at my local RadioShack store, but the capacitor is now sealed in epoxy and I can't see it. I have a capacitor meter, but it won't do me much good now. 2. Tell me about receiver antenna tuners, transmatches, and antioxidant compounds for various metals.

Tom Markwell, Meeker, OK

Thanks for your kind letter, Tom, and forgive me for shortening it so much—I've passed all your article ideas on to Kent Britain, who is light-years ahead of me on some of the subjects you asked about. Let's go to the Crossbow antenna.

As you know, RadioShack, just like Sears and K-Mart, has many products manufactured to their specifications, and some antenna manufacturers jealously guard their component values so they don't make it too easy for competitors to copy their products—this is possibly why your friendly store manager seemed to reach a dead end when asking the manufacturer for the capacitor value. The good thing about your capacitor checker is that even though you can't disassemble the antenna at your local dealer, if the store manager is the good-guy you say he is, he'll probably let you measure the capacitance across the input connector of his Crossbow antenna, and even if the capacitor value has changed slightly, or if you pick up some variation in the overall capacitance of the antenna's feed system, the reading you get will be close enough for jazz—close enough for you to pick up a replacement capacitor for your antenna. When you replace it, you might want to "pot" it (seal it in epoxy) the way the manufacturer has chosen to do) to make it

more impervious to weather conditions. Be sure to test it before you pot it.

Now your second question, about tuners and anti-oxidants.

Bill's first law of antennas is that they're identical with respect to transmitting or receiving. That means that an ideal *transmitting* antenna is an ideal *receiving* antenna, and an ideal antenna tuner for transmitting is also ideal for receiving, so you don't need to deal with separate antenna tuners for transmitting and receiving, though, is that transmitting antennas and tuners have to handle more power than receiving antennas—though not much for legal CB power levels—so transmitting antennas and tuners must have heavier, larger components that are capable of handling the power levels encountered at the output of a transmitter.

Antenna tuners as we know them today are really transmitter (or receiver) foolers. They trick your transmitter, receiver, or transceiver into believing that the antenna they're connected to is a perfect 50 ohm load. They really don't change the characteristics of an antenna; they merely *fool* the transmitter or receiver into *thinking* that they have. They present a perfect 50 ohm load to the output port of your transmitter or receiver, and this in turn lets your transmitter put out its maximum signal into your still out-of-tune antenna. This is why the names matchbox, or transmatch are more accurate than "antenna tuner."

In selecting a tuner, you need to determine whether it has enough tuning range (its values of inductance and capacitance must vary from "low enough" to "high enough,"), and enough power-handling capability (your coils shouldn't be wound with wire thinner than a hair).

Tuners can give you an inductive load on one end of the scale, a capacitive load on the other end of the scale, or a purely resistive load in the middle. A resistive load is more desirable, and just like everything else that's desirable, it's harder to obtain (remember that girl in 11th grade who wouldn't have anything to do with you? She was a resistive load.) Ain't that just like mother nature? I've asked my smarter brother, Kent "Microft" Britain to address the theory of antenna tuners in an upcoming article, and he said that so long as we're not off pursuing Professor Moriarty, he'd be glad to.

Antioxidants are pretty simple—you just buy the right one and use it. Let's start with some basic facts:

- Aluminum is light, so it's used in most antennas.
- Aluminum corrodes (oxidizes) when exposed to air.
- Oxidized aluminum is called (are you ready for this?) aluminum oxide.
- Aluminum oxide is an *insulator*—not a conductor.

Do you see a problem here? Most electrical supply houses and ham-radio stores sell anti-oxidant compounds. Electrical supply houses also sell compounds for joining dissimilar metals, so remember: *You want the anti-oxidant compound that's specifically meant for joining aluminum to aluminum.* It's grey, it's sticky, it seems to get stickier with age, and it seems as if it never comes off your clothes or your hands—but it works, and it works well! I can never remember if it's called No-Ox or Anti-Ox or Penetrox or Penetrex, but if you start mumberling names like that, your friendly counter person will likely know what you want and get it for you (my apologies to the manufacturer). The reason that electrical supply houses carry the stuff is that for a while, people thought it might be a good idea to use aluminum wire to wire your house. It is not. One of the things required to keep a house with aluminum wiring from burning down is a compound which prevents joints in aluminum wiring from corroding and heating up. There was also the problem of homeowners grabbing an aluminum wire and attaching a copper wire to it with a wire-nut (see the next paragraph), but you can thank this short but stupid period in home-building for the availability of the chemicals which you need for your antenna hobby.

With regard to joining dissimilar metals (I'm not talking about soldering here—just *mechanical* fastening), there are certain metals that should not be brought into direct contact with certain other metals when building an antenna, and perhaps no one's ever told you about them. Aluminum and copper, for instance, should *never* be fastened together, because they are situated far apart on what I think is called the "activity scale," (though I once heard it called the "galvanic scale").

Copper and aluminum make up a "voltaic couple,"—a pair of metals that produce electricity when dipped into an electrolyte (acid). One metal will want to give up electrons to the other, and if you

get any acid rain falling on your connection, you'll end up with a battery—and corrosion at the point where they join. If you *must* join copper and aluminum, you'll have to use the right chemical compound, or fasten each one to a nice neutral metal such as stainless steel. The aluminum may touch the stainless, the copper may touch the stainless, but the copper must not touch the aluminum. Just before spell-checking this month's column, I brought home The MacMillan Visual Desk Reference, a fascinating book which contains (in section 224) a list of elemental metals in order of their chemical activity—that is, the ease (or “willingness”) with which they give up electrons and form positive ions. Here is a list of metals you might encounter, ranging from most active (at the top) to least active (at the bottom):

Magnesium
Aluminum
Zinc
Chromium
Iron
Nickel
Tin
Lead
Copper
Silver
Platinum
Gold

No—I don't expect to see silver, platinum, or gold antennas, but I thought you might like to know how they fit into the master-plan. Note that metals that appear immediately above or beneath one another are metals that join readily with no galvanic interaction (Chromium and Iron, Nickel and Tin, Tin and Lead (solder, pewter), Copper and Tin (bronze).

If you must join copper and aluminum (the two most common antenna metals), visit your local electrical supply house and tell the counter person you need a compound that'll let you join copper to aluminum. Remember, he'll give you a chemical that'll let you bind them physically—with a nut and bolt, or some such fastener—there's no realistic way of soldering those two metals together. For more information on metals, metallurgy, galvanic couples and related neat stuff, look up your old science teacher (or your kid's science teacher), or stop by your local library.

Hey Bill! I have recently begun talking on the CB again after a two-year hiatus (too many *%\$@%! with big amplifiers) but now I'm back, and my question is about “dynamic speech processing.” I own a Browning Sabre 40-channel rig and use an echo-power mike. I'd like to junk the power mike in favor of a stock mike; the only problem I have with that is the resulting loss in

“audio,” or modulation. In “The Screwdriver Expert's Guide,” Lou Franklin mentions dynamic speech processing on several occasions. So what's the deal? Is this a worthwhile investment or just another way for someone to make money?

A.R., “589-Button-Man,” Daytona Beach, FL

Hi, Button Man: I'm glad you didn't ask me whether to buy a Ford or a Chevy.

First of all I don't know Lou and I haven't read his book, but that won't stop me from offering an opinion. His ad looks interesting, and if Lou would like me to talk about his book to our readers, he could lend me an old dog-eared copy which I would return as soon as I'm through with it. So far as I can see, I like the title, and the name “Lou Franklin” conjures up an image of a pretty ordinary guy who's probably about my age and has put a bunch of his own experience down on paper. Like me, he probably works another day job in the industry and would rather be caught stealing sheep than give you bad information.

Kidding aside, though, good dynamic speech processing is worthwhile. It helps even out the level of your voice—raising it when you speak a bit too softly, clipping it when you yell a bit too loudly, and generally putting all the modulation onto your carrier that you can use. A power-mic is not the same as speech processing, but it's better than a stock mike if you adjust it correctly. In my humble opinion, speech processing is worth a few bucks. You've spent good money on a Browning radio when you could have found a bare-bones factory-refurbished scratch-n-dent rig in a mail-order catalog for \$30—obviously, you got some quality for your money—good audio circuits, good RF circuits, convenient controls, and quality workmanship—it seems logical that you'd spend a few bucks to improve the sound of your signal.

I don't know any particular manufacturers of dynamic speech processors, but here are two ways to find out if one's right for you:

If you live near a good CB radio shop (or even an interstate highway truck stop) I'll bet there's someone there ready to sell you an outboard, add-on dynamic speech processor. You could stop in, ask to try it out for an hour, hand the man the price of the gadget if he'll agree, and take it out to the lot. Have a friend a few miles down the road to listen and tell you what he hears. Obviously, the guy you station down the road should have the kind of judgment you respect. Another wrinkle on this is to take your radio into the shop and see if you can “hook up” to his power supply and antenna and try the processor right there.

The second way is mail/phone order. A phone call is definitely in order here, and the question you've gotta ask is “Can I have my money back if I'm not happy with it?” Remember, that's not the same as a product warranty where you get a repair or replacement if the thing doesn't work—you're asking for a “satisfaction guarantee” where you can have your money back in a reasonable period—usually 30 days—if you don't like how the thing works. Usually, the “money back” part of this won't include money you pay for shipping and handling, but that's about the same as the money you'd have spent driving to a store to get the thing, and that's the way most people offer a money-back guarantee nowadays. You should also realize that if you return something to a dealer, it should be undamaged, unscratched, and with all the original packaging. In my humble (but boisterous) opinion, anyone with a good product to sell will offer you that kind of deal.

There are also going to be some processors which must be installed (as in “soldered”) inside the radio. It will be a rare dealer indeed who would give you a money-back guarantee on something that you have to solder (remember—he has no idea whether you're going to use an arc-welder or a blowtorch), but some will, and until you know a dealer well enough to have confidence in him, you should always look for a way to get most of your money back if you're not satisfied.

Dear Bill: Last year the cost of calling my dad—only 17 miles away—really became unreasonable, so I invested in a pair of Uniden Grant XL AM/SSB radios and Solarcon A99 antennas. Let's pretend that when I bought the radios, the guy who sold them to me offered to “boost” the output via some internal tweaking—to give me about 20 watts output. Let's also pretend that after he did this, one of the rigs was involved in a fire and I took it to another shop for servicing. While I was impressed to learn that the radio still worked fine, let's pretend I was a little annoyed to learn that the output of the radio was 4 watts—precisely the factory output which I'd have had if the guy who sold them to me hadn't pretended to “tweak” them. Was I had (hypothetically, of course)?

Dan M., Hypothetical, CA

Dan, Dan, Dan. We show you those training flicks, the medics give you lectures, and you still go out and get a hypothetical disease. Guess it's penicillin time.

Seriously, Dan (or as serious as I can get), I don't think you were had. Everyone likes everything operating at peak performance, and obviously, all manufactur-

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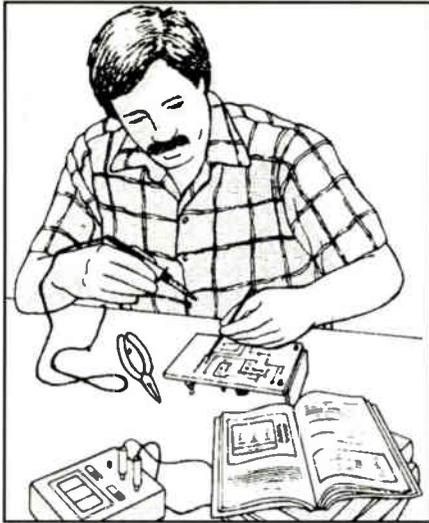
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ers build a little headroom into their transmit circuitry—it insures linearity—quality performance. A five-watt AM transmitter working at four watts is an example of such headroom; a 100 Mph car running

at 55 will run all day without a hiccup, but after a few hours at 100 it'll probably want a trip to the shop.

On the SSB side of your radio, the PEP (peak envelope power) allowed by regulation is 12 watts. That's probably the part your technician pretended to adjust, and most likely he was able (hypothetically) to get 20 watts PEP out of the SSB part of the rig. You can only measure that part when you modulate the radio (in this case, whistle into it, at about 1000 Hz) while reading the PEP on a power meter.

Either the technician really did *pretend* to adjust the AM side of the radio, or he just thought you wanted the output tweaked on the SSB side. I can tell you that no stock AM CB radio out there has enough headroom to be tweaked to 20 watts, and since most dealers know that too, the guy probably thought you understood he was talking about the SSB side.

Now—was it worth it? In my way of thinking—no. The increase from 12W to 20W is about 2dB. The average ear can't hear an increase of less than 3dB.

Certainly 20 is a touch better than 12, and if you were at a communication threshold, the extra 8W would put you over the edge, but because your specific purpose for these radios was to maintain two-way communication with your dad, you should have gotten a pair of directional antennas. Your main purpose was to talk to each other, so you could have aimed the antennas and fixed them in place—no need for costly rotors. An omni antenna has (for purposes of conversation) no gain. A small beam or quad has about 6dB of gain. If each of you has a 6dB gain antenna, the combined system has 12dB increase—that's as if each of you had your transmitter power upped from 12W PEP to 192 watts! Even if only *one* of you had room for a beam or quad, it would have been a 6dB increase to the overall system, equivalent of each of you upping your transmitter power to 48 watts—a noticeable difference.

Willie: What's a "High-Pass Filter"? I've heard people talk about them, and they batted the term around so "matter-of-factly," I didn't want to sound stupid by asking.

A.B.D., Birmingham, AL

Hey, A.B., If somebody fools you by sending you looking for a left-handed smokesifter, you could feel stupid when you catch on, but not for asking about an electronic device. Filters are electronic devices, usually made out of several components (coils and capacitors for the most part). Filters are also, for the most part, *passive*, (they don't use electricity) as opposed to an amplifier, which does use electricity. Filters let some signals (at either audio frequency [AF] or radio frequency [RF]) pass through them, while keeping other frequencies from passing. Think of a strainer letting water through while holding carrots back.

There are three basic types of filters—High-Pass, Low-Pass, and Band-Pass. A High-Pass filter holds back all frequencies *below* a certain frequency, and allows all the HIGHER ones to PASS. A Low-Pass filter holds back all the frequencies *above* a certain frequency, and allows all the LOWER ones to PASS. A Band-Pass filter holds back all frequencies *above and below* a certain Band of frequencies, letting all frequencies within that BAND PASS through it. High-Pass filters are usually used on the input of a television set that is being interfered with by a CB radio. Low-pass filters are usually used on the output of a CB radio that is interfering with a television set. Band-Pass filters usually have specific applications, such as making certain radio signals easier to hear among many other nearby signals. ■

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CB Reclaims It's Glory Days

This is a tale like the old-timers often weave, of a time when CB was king. It wasn't all that long ago, just about everyone had a CB. Friends and neighbors, even celebrities and politicians did, too. CBers were the good guys in the neighborhood. If you had a flat tire, the local CB club would pick you up. When the daughter of the local minister came down sick and needed hospitalization, it was the local CBers who came to the rescue with a fund raiser of one sort or another. Even more important than all of the good things that CBers did was the friendship. It didn't matter if one operator was the chief executive officer of a Fortune 500 company and the guy on the other end of the signal was an unemployed sanitation engineer. They had something in common. Each was an equal in the world of CB.

Once in a while, all of these people would get together, filling a local park or arena to overflowing. It was a gathering of CBers, the good guys in the community. And the fun would last all night. CB, from all indications, is on its way back to reclaiming those glory days. Every month, more and more people are firing up CB rigs and going on the air. And that posi-

tive spirit of CB is coming back, too.

CB Radio magazine is doing its part, as well. We're here to serve the CB community, to act as a kind of bulletin board, as the hobby's national voice. We invite you to be part of CB's second "Golden Years."

This year, *CB Radio* is joining *National Scanning* magazine in the hobby's only national convention in Lancaster, Pennsylvania. Here you'll find the opportunity to see the latest products, go to seminars on all aspects of radio, and, best of all, meet others who share your love of the hobby, including *CB Radio's* editor, Harold Ort, columnists Bill Price and Larry Miller, as well as special guest Gordon West, who promises to load a signal into an actual pickle!

It's still not too late to sign up in advance, if you hurry. Call 1-610-273-7823 and use your credit card to order your tickets. They're \$10 in advance or \$15 at the door. Either way, we're looking forward to meeting you at the Lancaster Host Resort/Holiday Inn, Route 30, Lancaster, Pennsylvania this July 12, 13, and 14.

Radio Operator in Trouble

A 19-year old radio operator from Great Neck, New York is in big trouble with the police. Michael Abbey was allegedly the source of a lot of on-the-air chaos. According to local news reports, Abbey would re-route taxicabs and even gave advice to police during arrests. In one case, he reportedly interrupted a burglary arrest saying, "Why don't you let the guy go?"

Police arrested the Queens College computer administration student after police zeroed in on radio transmissions coming

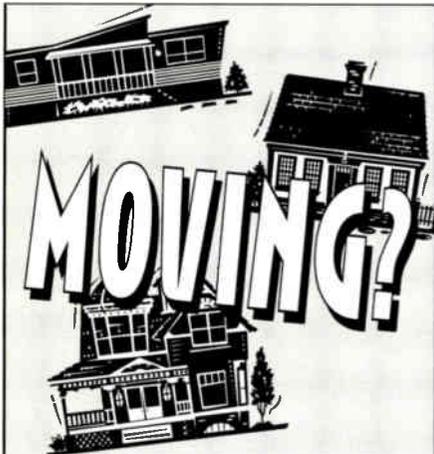
from his bedroom. Detective Lt. Shaun Spillane later displayed thousands of dollars worth of radio transmitting equipment and guide books taken from Abbey's room. Police also say that they recovered audio tapes of Abbey playing music over the airwaves and jamming police communications.

Interestingly, Abbey was charged with two counts of eavesdropping, a felony, and one count of obstructing governmental administration, a misdemeanor. He faces eight years in prison, if convicted.

Tube Resurrection

It's amazing. Tubes are making a comeback. CBers who remember operating by the warm orange glow of their rigs often say that solid state equipment simply can't hold a candle to tube-type rigs. But no one makes tubes any more. All that's about to change. AT&T's Kansas City Works is gearing up to once again begin production of the glowing orange wonders. Operated by Atlanta entrepreneur Charles Whitener, Jr, he will even employ some of AT&T's old tube vets to work at the plant. AT&T closed the operation in 1988. Since then the tube market has fallen into the hands of the Russians and Chinese.

Full scale production at Kansas City is scheduled to begin next month and the initial output of the factory, some 30,000 Westrex 300B tubes, is already spoken for. Currently an original AT&T Westrex 300B goes for \$700 and up. Whitener plans to offer his for \$350.



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Leave it at Home

It's hard to believe, but CB operators are being told not to bring their radios to the Olympics in Atlanta this summer. Leave it at home—you won't be allowed inside the gate, says Andrew Funk, KB7UV and a member of the Olympic Broadcast Frequency Coordination Committee. It's not only CB, either. According to Funk, all RF radiating devices will be strictly controlled at the event. In fact, according to one broadcasting magazine, even radio station gear will be required to pass a separate Olympic certification inspection in addition to normal FCC certification.

Motor-Talker Tragedy

Anyone who has ever watched the person's car in front of you weave as they talk on their cellular phone (Oops! Off the shoulder of the road again!) already knows this story. Researchers say that people with a cell phone in the car have a 34 percent higher risk of having an accident than people who do not have cell phones. What's more, people who use their cell phones a lot (50 minutes or more a month) are five times more likely to crash than motorists who talked less.

The Cellular Telephone Industry dismissed the study, saying, "It has glaring research shortcomings." But what about other people who use radios in their cars? Researchers ignored the question of 2-meter and CB users.



Satellite Saves Driver

Truck driver James Foster was not particularly happy when they installed a satellite tracking device in his rig. An invasion of privacy, sniffed the driver. A CB would be plenty.

Some time later, Foster, who has diabetes and high blood pressure, collapsed in his truck after leaving Orlando, Florida. Transcontinental Refrigerated Lines, Foster's employers, used the global positioning system to locate Foster's truck and then call local paramedics. When the EMTs arrived, they reportedly found Foster only hours away from death. There is no word on whether the event has changed the driver's opinion about the satellite device.

Tune in Cell Phones

There's an inexpensive, new book that will be of interest to anyone with a scanner called "Monitoring Cellular Phones is a Violation of Federal Law." It tells you how to tune in cell phones on your scanner. There is background information, a complete list of cell phone frequencies, and even modifications you can perform to restore 800 MHz coverage to your scanner. It's 76 pages and costs just \$9.95 postpaid. You can get yours by using your credit card and calling 610-273-7823. Or you can send a check or money order to National Scanning, Box 360, Wagontown, PA 19376. Tell them you read about it in *CB Radio*. (Editor's note: In next month's issue we'll be taking an in-depth look at this hot new book and let you know what we find!)

Let's hear from you! Write to CB Report with news from the world of CB in your neighborhood. Write to us! Our address is Larry Miller, c/o *CB Radio* magazine, 76 North Broadway, Hicksville, NY 11801.

Return to That Hot Dumpster: Hamfests (Part II)

Last month's column started to delve into the junk and other assorted goodies that you can find at a hamfest. For those of you who missed out on last month's column and are clueless about hamfests and amateur radio culture, a "hamfest" is an amateur radio event where you can preview new equipment from manufacturers, sell and trade used equipment (flea market-style), get together with old friends, and raise some money for the local amateur radio club.

Considering the amount of tailgating space that is available at hamfests, most are a big radio flea market. Remember, hamfests are for amateur radio operators. However, at most of these events, you can find varying amounts (plenty at some hamfests, little at others) of CB equipment and other electronics. Likewise, the attitudes vary among the various hamfests: Some events seem CB-based, others look disparagingly toward CBers.

Going to a Hamfest

The first important information to determine when going to a hamfest is: Where and when is it? One of the best sources of information is the events calendar in *CQ Amateur Radio* magazine. This amateur radio magazine lists the hamfests and other activities in a monthly special events calendar. The calendar contains the date, location, and contact information for the hamfests. Don't confuse the hamfests with the other special events that are listed; sometimes amateur operators will have a DXpedition from an interesting location, such as from a radio museum. These special-event stations are included with the hamfests.

Some of the other good sources of hamfest information are: *Nuts'N'Volts*, *Worldradio*, *73 Amateur Radio*, *QST*, *Amateur Radio Trader*, and *Monitoring Times*. Even though hamfests are rarely advertised in the general-interest mass media, they are easy to attend, once you get into the "hamfest subculture." Just going to a hamfest will net loads of information about other hamfests. At nearly every event that I go to, five or so flyers are out for upcoming hamfests. Also, *Amateur Radio Trader* and *Nuts'N'Volts* are represented at the larger hamfests with plenty of free copies!

Last month's column featured the contact information for some of the hamfests



Here's a look at some of my latest hamfest "treasures."

around the country. That was a start, and you might have even checked out a show since that time. This column covers more of the things to do while you're at the hamfest. So, if you need listings, check out the events calendar in one of the magazines listed in this section.

Buying

Why does anyone need any information on buying? People buy things every day; you pick out something you like, go to the counter, and pay for it. Big deal. Well, hamfests are a bit different, and you need to have a method to your shopping madness if you want to get good deals and purchase only what you want and need.

Knowing what you want and need is the key. The worst thing that you can do at an event with hundreds of sellers is to be a clueless, impulsive buyer. I've done it plenty of times, so I know! The night before the hamfest (or, better yet, earlier), write a list of things that you want and/or need, think about what you would be willing to pay for those items, and see how much available money you have. Chances are good that you will want or need more things than you have available money. By "available money," I don't mean next month's rent check and cash for food, I mean *extra* money that goes above and beyond your bills!

Once you have written up your wish list and good prices, and determined the amount of money that you have available,



Just a "few" of the many radio magazines that are in my reference library—most of them are from hamfests.

"Sometimes you can get a really great price by offering to buy several items together at a discount"

prioritize what you want/need. You might "want" a beautiful Golden Eagle base station with a gold D-104 microphone, but you "need" a computer for work at home. If the funds are limited to one or the other, go with what you NEED!

Sometimes a really great deal might turn up that's too good to turn down. For example, when I was at last year's Virginia Beach hamfest, I found a few things that I needed. But then I saw a huge, rusted black box on the floor with big knobs (big knobs are the best!). It was a National NC-120 shortwave receiver from the World War II era. I looked it over and it was complete and the knobs worked fine. No price was listed, but upon querying, the owner said "\$25." Sold! I took it home and, believe it or not, it worked fine—really "hot" reception with nice audio from a truly classic receiver—and only about 25¢ per pound!

Remember to always be prepared for great deals. Some deals are really good, but given your own particular circumstances, they really aren't worth pursuing. Others are a "drop everything" type of deal.

Another important consideration is that of fixed prices. Almost no prices are fixed at hamfests (except from the major vendors); you can haggle for better deals. It's

fun to offer a bit lower than the asking price or to ask for the lowest price that the seller will accept. Or sometimes you can get a really great price by offering to buy several items together at a discount. I've gotten some neat stuff by finding out the price and saying "would you toss this in for free?"

Another trick for getting good deals is to go early in the morning on the first day of the show and grabbing up the great deals before other people get there. By contrast, staying until the end of the last day can also net some great prices—especially from large, heavy equipment (usually pre-CB amateur and shortwave equipment). By the end, many people start thinking about the possibilities of loading the equipment back into the car and hauling it back into the already-packed basement. Ugh! The price suddenly drops!

It's best to check out the stuff sold by vendors *after* you've made a quick run-through of the flea market area. The vendors probably won't sell out of their products during the course of the show because their prices are fairly well set and they bring enough equipment to last. The flea market folks, however, are selling used stuff that you might not see again. So, take notes of the good deals and grab the great deals before they disappear.

The last tip for this section is cooperation. That word doesn't seem applicable when buying things, but it could be handy. Here's an example from just this past weekend. I was at a shortwave-listening fest, which has a silent auction of radio books and equipment every year.

Another man and I were bidding on a stack of *S9 Hobby Radio* and *S9 CB Radio* magazines. The magazines in question were published between 1978 and 1981, when the CB fad was quickly fading and when the magazine was making a transition to hobby and shortwave radio from CB. The famous radio author, Tom Kneitel (who currently writes a column for our own *CB Radio*) was the editor of *S9*. I have been looking for copies of *S9* for years and I wanted those! But it was getting to be an all-out bidding war and I wanted to at least photocopy some of the magazines. So, I asked the man if he would consider splitting the stack with me. To make the situation easier, he was mostly interested in the older magazines and I was mostly interested in the newer ones. We split the stack and looked over each other's copies for articles that we wanted to photocopy. In the meantime, we had fun talking about the radio hobby and exchanging stories. If it sounds corny, maybe it was, but it turned out as well as the sharing segment on any Sesame Street episode!

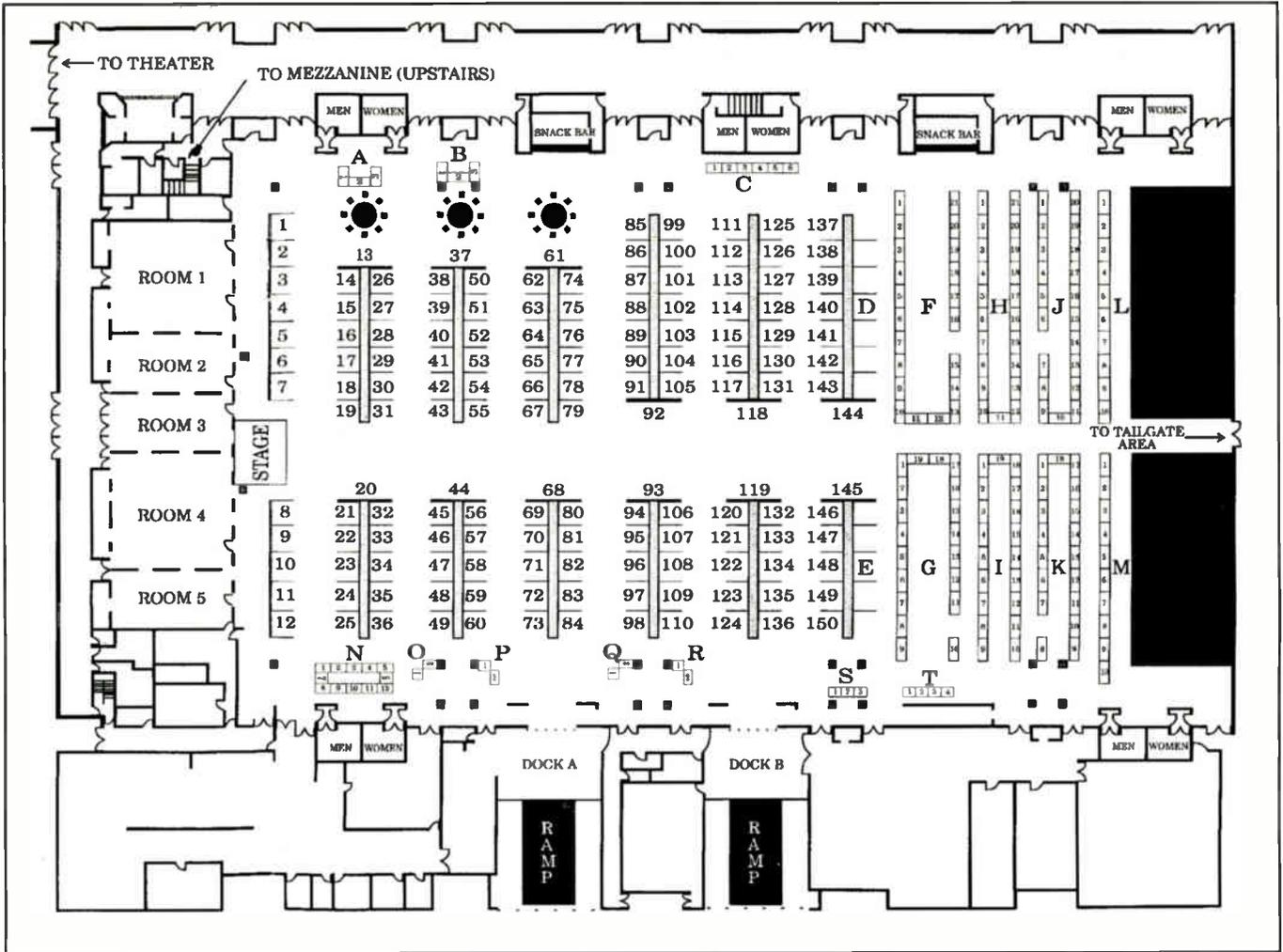
Selling

Selling at hamfests is easy . . . if you've got the junk to sell. Some hamfest committees have a limit on the percentage of non-radio-related items that you can sell, and most do not allow food sales. So, if you have stuff to sell, check through the upcoming hamfest listings and pick out one that you would like to go to. Call the contact person so you can receive registration information and you can ask what the typical hamfest attendance is. For obvious reasons, chances are better that you will sell your old equipment if there are more people in attendance. Also, two-day (Saturday/ Sunday) hamfests are usually much larger than the others.

Be very careful about selling CB linears and high-power CBs. Some hamfest organizers will make sellers remove these products. At one hamfest I attended a few years ago, a man was selling a CB linear. The head of the local FCC field office also happened to be checking through the equipment. After looking over the linear, he forced the seller to smash his own linear or face a \$2,000 fine! Although I would question the legality of such an action, the seller would have been much better off if he had left the linear in his basement!

The Moral of the Story

I guess the moral of the story is have fun and be decent to everyone. If you're buying or selling, being friendly and honest goes a long way. Not only is following

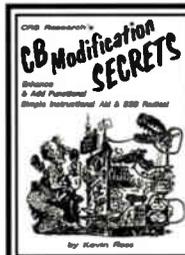


A look at the layout of last year's Virginia Beach Hamfest and Computer Fair. Plenty of commercial exhibitors and zillions of flea-market tailgaters are found here every year! (Courtesy Tidewater Radio Conventions, Inc.)

this advice more fun (in turn making the hobby more fun), but it will make buying and selling easier; dishonesty can quickly lead to being blacklisted in the tight-knit amateur radio community.

Conclusion

To contact me via this column, just write to "CB Applications," c/o *CB Radio*, 76 North Broadway, Hicksville, NY 11801-2953 USA. Or if you have an idea that you would like to see covered in this column, and you are on-line, you can send an e-mail to ayoder@pa.net—notice the new Internet address! I can't promise a response to any questions, but I will try. If you send questions via the U.S. Postal Service, please enclose an SASE or two International Reply Coupons (IRCs) so that I can write back. I also check into the alt.radio.CB Usenet group on the Internet from time to time, so I might see your ideas posted there as well. ■



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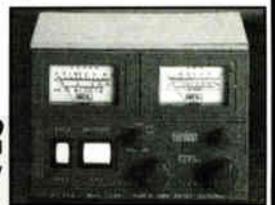
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GENERAL MOBILE AND FAMILY RADIO SERVICE NEWS By Judith Simpson, N9NSI, KAD-9669

The 49 MHz Band—Something for Everyone, and Inexpensive, Too!

“Mommy! Where are you?! Where'd ya go?! MOMMY? MOMMY . . . MOMMY!!!”

Have you ever been to a shopping mall and heard the fright in a little one's voice as he or she realizes that Mom's not where she's supposed to be? Perhaps you are the Mom and have a vivid imagination, and realize just how fast bad things can happen . . .

OR

You and your spouse are avid motorcycle riders . . . either two-up or side-by-side, and you want to talk without having to shout, or use a radio which transmits across three counties . . .

OR

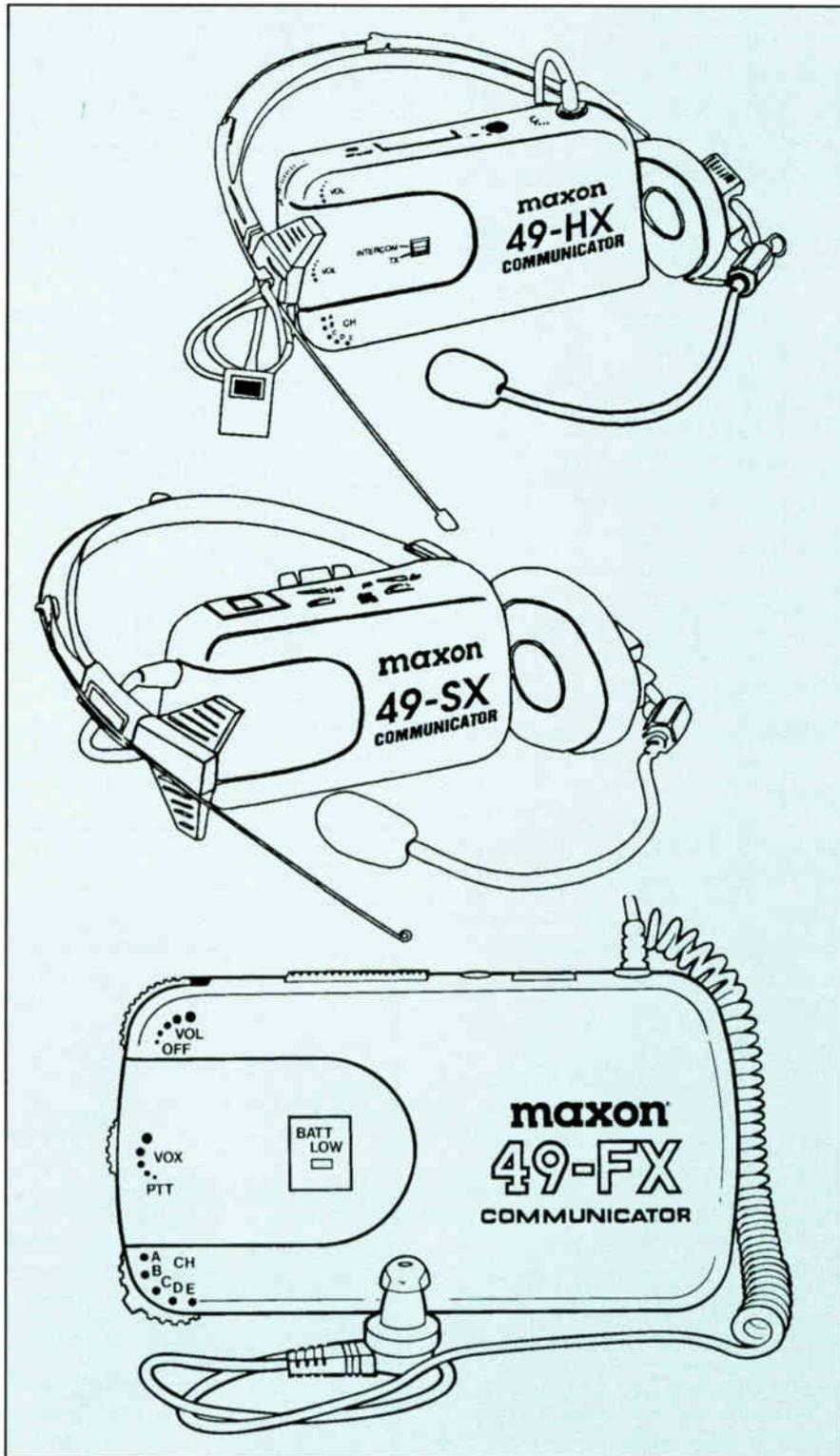
You are serious about fishing, or rock climbing or hiking, and you want to stay in touch with your partner without incurring the huge cost of a GMRS radio or the hassle of CB or the test of the amateur. Have we got a deal for you! Consider 49 MHz radios as a short-range communications alternative. There's no license required, no test, very little cash outlay, no interference, and even five channels to choose from!

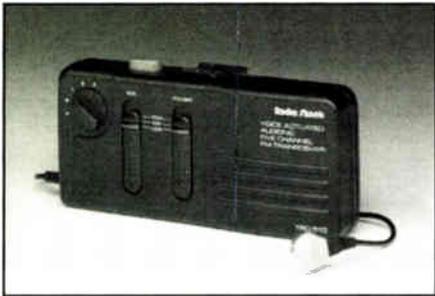
Best Kept Secret

The 49 MHz band has long been recognized as having the potential for low cost, very short range communications. For many years they've been used very sparingly by individuals who had found out about them and refused to tell the rest of the world. We learned of the radios nearly 10 years ago and dismissed them as not being very well manufactured, or capable of performing as the manufacturer promised.

What a change has occurred! We know of only three manufacturers of the light

Here's a look at the Maxon 49-FX, SX and HX 49 MHz transceivers. They all include the radio unit, belt clip, owner's manual. The SX and HX models come with an adjustable headset with whip antenna. The 49-HX also includes a remote push-to-talk (PTT) button and "hook and loop" fastener; and the FX model also includes a remote PTT button, ear speaker/mic, additional ear tips, and "hook and loop" fastener.





The RadioShack TRC-510 features 5-channel operation and a dual-conversion superhet receiver. It's voice activated and requires a 9V battery.

weight headsets; all three produce essentially the same product: one channel or five channel units, with either visible headsets or a simple earpiece, not requiring an antenna.

We tested the Maxon 49 HX and the RadioShack TRC-510 just to see if they would work with each other, since both have the same frequencies, they don't seem to mind that the names on the front are not identical. Incidentally, both companies offer the same basic transceiver(s) . . . a one channel headset, a one channel earphone/headset, and the five channel version of each.

The RadioShack TRC-510 "Audionic" offers both push-to-talk or voice-activated (VOX) capability, with the basic unit mounted on the belt, and only a thin cord running to the ear. The unit measures 5 1/2" x 2 3/4" x 1 1/2" and weighs only a few ounces, complete with battery. Controls are both front-mounted and top-

mounted, and a belt clip is provided, along with several sizes of earpieces.

The radio's front controls consist of a rotary channel selector and three-position slide switches for volume and VOX, each indicating HIGH, MID, and LOW. The top controls are a raised push-to-talk switch, a three-position slide switch for OFF, PTT (push-to-talk), and VOX, and a TX/busy indicator.

The unit is designed to be flat on front and back, which limits the portions of the body to which it would fit. The most comfortable position for the unit to rest on the belt is either on the back or along the stomach. Although we found that wearing the unit in the small of the back was the most comfortable, it simply was not a feasible concept. We had to look at the controls to insure that we were using the correct one. The PTT switch was more easily accessed, since it protrudes above the radio. The range for this unit was easily the advertised 1/8 mile or about one city block, which is acceptable for a transceiver which has no antenna, and depends on jawbone conductance for transmission. Our tests indicated that we could receive and transmit easily within that range, although the signal fell off rapidly beyond the 1/8 mile. The unit is powered by one 9 volt battery, and specs indicate the current drain is 30mA on standby, 40mA on receive and 60mA on transmit. You might want to carry some spare batteries.

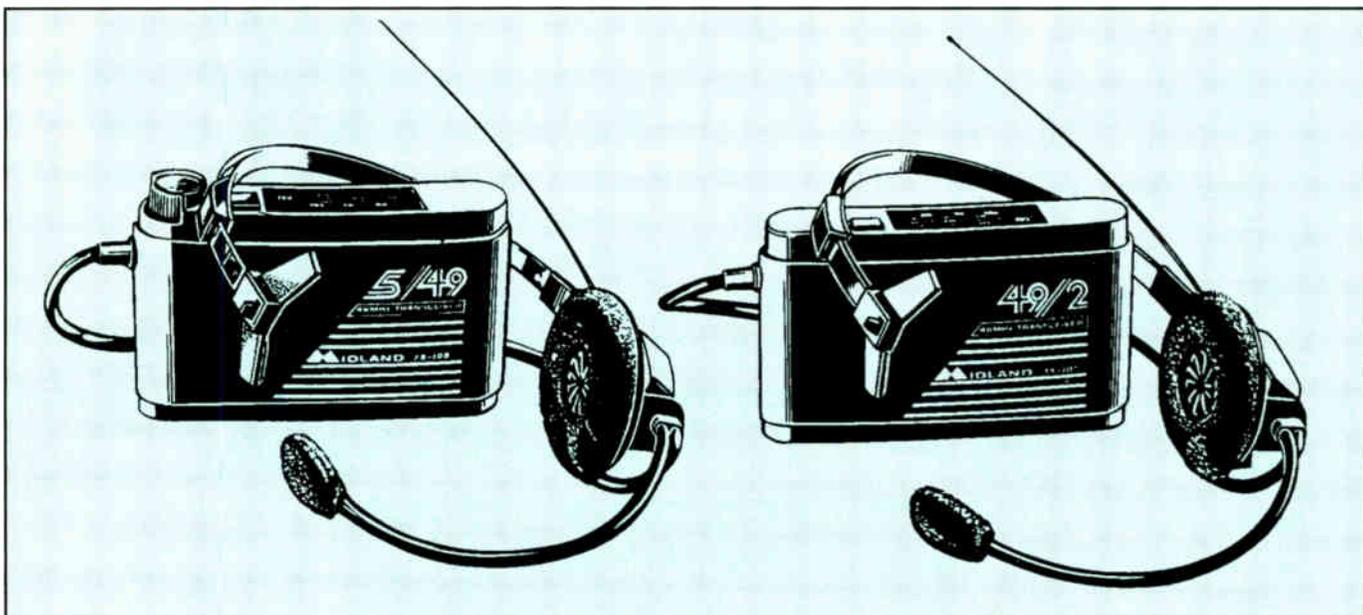
For a Mom in a mall with smaller children who insist on shopping, this type of transceiver would allow contact with the younger set without the embarrassment of using the rather conspicuous headset

with the antenna. Another application would be for a public service organization providing a parking lot detail, and not wishing to be as obvious as they go about their duties. RadioShack also has a unit with the antenna, boom mic and headset, in both the single channel and five channel models.

The Maxon 49-HX

We also tested the Maxon Model 49-HX, which is a true headset, complete with boom mic. The applications for this unit are, in a word, WOW!! For starters, the power is supplied by three "AA" batteries, which allow a current drain of approximately 50mA and range of approximately 1/4 mile. The extra distance is attributable to the presence of an external antenna. RadioShack provides a similar type unit, although most of the "extras" are not available! This unit is designed, as are other Maxon units, to be comfortable while attached to various parts of the body. The back has a slight curve, to allow the unit to be worn along the hip, allowing the user to check the control settings with ease. The antenna can be contained along the head-piece or released for greater range. The dimensions of the 49-HX are 3" x 5 1/2" x 1" and it weighs 6.5 oz.

The controls consist of one slide switch on the face of the unit to differentiate between radio and intercom, and three thumb-dials along the edges of the unit, providing access to any of the five channels, the VOX/PTT settings, and the volume control. PTT is provided by a flat, non-raised pad on the top of the unit,



The Midland 75-107 and 75-108 49 MHz FM transceivers offer hands-free radio communications up to 1/3 mile. (Courtesy Midland International Corp.)

adjacent to the low-battery indicator. There's even a charging jack on the unit for NiCds.

More Hot-Shot Features

The Maxon unit has a receptacle for an intercom (not included, but available), and has an included remote PTT switch. For motorcycle drivers, here's a chance for an inexpensive intercom unit for the person behind you, or the potential to chat with other drivers equipped with these same units. The remote PTT switch can be attached to the handlebar, and used to chat with your two-up or other riders in the group. The entire unit can be assembled to attach to helmets, with the boom mic actually inside the faceplate and the antenna attached outside the helmet! A simple flip of the ONLY control on the front of the unit and you can switch from intercom to transceiver or back.

Maxon offers this transceiver in a one channel configuration, along with their version of the audionics (no mic or antenna) unit in one and five channel versions.

Ideal Hands-Free Comms

Both of these transceivers offer the option of hands-free communications, by

using the VOX function. The user should consider the ramifications of non-controllable transmissions: While there may be compelling reasons for VOX, there may be rather significant reasons against VOX, such as a climber on a vertical face may feel it necessary to have total hands-free operation, but people on the ground may prefer to be able to contact the climber, rather than hear the sound of heavy breathing as the ascent is completed. Likewise, motorcycle drivers would probably prefer to listen to their own engine rather than that of some rider in the group! Any high noise environment precludes VOX operation.

The potential for these inexpensive 49 MHz transceivers is limited only by your own imagination—on-the-job, at a warehouse, or construction site, during playtime, biking, fishing, hiking, at a concert, or motorcycling.

They're ideal for public service projects such as parking lot details or a haunted house security, or at home to keep track of the kids or perhaps a husband who's off on a lawnmower or on the house repairing the chimney are a few more ideas. The only limitations are the short range and the low power of the units, although, remember—sometimes you WANT that shorter range, too.

Maxon transceivers may be purchased through outdoor specialty catalog shops

or retailers, such as Cabellas, or Gander Mountain. (NOTE: I haven't received my current catalog yet, so don't know for sure if these units are listed—these are merely examples of outdoor specialty shops).

The RadioShack units may be obtained at your local store. Prices for both brands range from approximately \$45 per pair to \$89 each, depending on additional bells and whistles desired. If you have trouble locating a Maxon dealer, contact Maxon Systems, 10828 NW Air World Drive, Kansas City, MO 64153, or contact me at *CB Radio* magazine, 76 North Broadway, Hicksville, NY 11801.

HOT NEWS FLASH!

Midland International Corporation has just announced it is bringing back their two models of 49 MHz transceivers. Models 75-107 and 75-108 offer convenient "hands-free" operation using the VOX headset with earphone/mic and antenna built-in. Advertised range is up to 1/3 mile. It operates from a standard 9 volt battery.

For noisy areas, the Midland 107 also features a manual override of the VOX system, a mic sensitivity control and belt-loop clip. It retails for \$49.95.

Midland's 75-108 is a five channel version of the 49 MHz transceiver and retails for \$79.95. ■

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Tomcat's Time Warp

OUR COLUMN EXPLORING CB'S EARLY YEARS

By Tom Kneitel, K2AES, SSB-13

How the 27 MHz Band Went From Static to a Sensation in Only 45 Years!

The evolution of CB radio from the first mention of the words "Citizens Radio" to the point where the first stations began operating covered a span of roughly 30 years—but that was only the original 465 MHz Class B service, which failed. The road to getting Class B started was rocky enough, but the route taken to put you and me into the present Class D 27 MHz service was nonetheless gnarled and fascinating. The drama took decades to unfold and just as long for the dust to finally settle.

In the Beginning

In the beginning there was nothing but static. More than 65 years ago, only a few wireless laboratories felt that "UHF" frequencies around 27 MHz were usable. FCC records of 1930–31 indicate only nine stations with licenses on specific frequencies within the present CB band. They were all experimental stations, as shown in our **Table 1**.

Yet our narrow slice of 27 MHz spectrum was destined for a very active and vivid life. It played its part in early broadcasting, in Arctic exploration, in World War II, in medicine, and all before it became the focal point of a political tug-of-war when the FCC decided to turn it into CB!

Back to Square One

Back in 1933, when 27 MHz was still considered UHF and open territory for experimentation, there were only two stations licensed in the band. One station, W6XBC, of Yuma, Arizona, was licensed to broadcast station KUMA. W6XBC operated on 27.100 MHz to test its potential for use as a remote pickup mobile unit. W6XBC operated one hour per week and even requested reception reports.

At about the same time, another 27 MHz user was the old wood-hulled Arctic exploration schooner, *Morrisey*. Under the call letters WHFZ, W10XDA and VOQH, the ship also used 27.100 MHz along with many other frequencies, including those in the amateur bands.

"The Band of Tomorrow"

There were grandiose plans for 27 MHz in the late 1930s, as technological

W2XAA	New Jersey	27.100 MHz	Bell Telephone Labs
W2XAR	Long Island City, N.Y.	27.100 MHz	Radio Pictures
W2XCY	Linden, N.J.	27.100 MHz	Southern Radio
W3XAJ	Camden, N.J.	27.100 MHz	RCA
W6XF	California	27.100 MHz	Heintz & Kaufman, Inc.
W6XJ	California	27.325 MHz	Heintz & Kaufman, Inc.
W6XN	Oakland, Calif.	27.100 MHz	General Electric
W6XV	Palo Alto, Calif.	27.100 MHz	Federal Telegraph Co.
W8XI	E. Pittsburgh, Pa.	27.100 MHz	Westinghouse

Table 1: These stations were the first to experiment with 27 MHz communications. They were operated by wireless labs back in 1930-31 exploring the potentials of the frequencies in the new band, then considered "UHF."

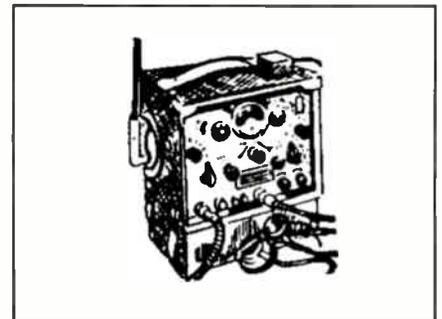
advances made the frequency band more readily usable. A new type of broadcasting service was envisioned for the band. In Kansas City, Missouri, local broadcaster KITE took out experimental license W9XA to operate a relay transmitter on 26.450 MHz. Reception reports poured in from Europe, South America and elsewhere. W9XA even put on a special weekly program of DX tips to attract DX listeners. Station owners described their experiments saying that it was the "band of tomorrow." In fact, quite a few other broadcasters also set up experimental shortwave relays here, and it seemed for a while that the 26–27 MHz band had a bright future in shortwave relay broadcasting.

The Boom Years

Things had been progressing well on 27 MHz. Researchers even discovered that medical diathermy equipment worked effectively on 27 MHz. "The band of tomorrow" meant many things to American broadcasters, but when World War II came along in late 1941, everything changed. Broadcasters and diathermies were all promptly removed from 27 MHz. Yet WW II was to show the true potential for 27 MHz as a valuable chunk of communications spectrum.

Our government produced a number of fine pieces of two-way military communications gear for the 27 MHz band, and so did the Germans and the Japanese. A great deal of vehicular military communications of all nations took place in this band.

Our G.I.s were operating communications equipment that had five channels



The U.S. Navy's World War II Model TBY transceiver operated on 27 MHz and was very rugged. But it had some very weird characteristics.

within the limits of the CB band; 27.000, 27.100, 27.200, 27.300 and 27.400 MHz. These were commonly known as Channels 70 (for 270, depending upon the equipment) through 74 (or 274).

Operating on those channels were a myriad of FM and AM transceivers; transmitters and receivers that entered into the pages of history bearing the famous military nomenclatures by which they became known to G.I.s. These were radios such as the BC-603, BC-604, BC-683, BC-684, BC-923, BC-924, BC-620, BC-659, BC-1335, BC-608A, SCR-609, SCR-610, SCR-509, SCR-510, SCR-508, SCR-528, MBF, TBY, and many others.

The U.S. Navy's TBY transceiver was as rugged as they came. As a piece of communications equipment it performed, but was a strange duck. Fully tunable from 27 to 40 MHz, it had a super-regenerative receiver with selectivity as broad as barn doors. As bad an idea as that sounded, it was necessary when



The famous BC-659 portable FM transceiver was typical of the mobile communications gear on 27 MHz used during WW II. It could operate up to 39 MHz.



San Pedro, California
11W2534
 GORDON WEST
 14 AVENIDA CORONA

73 PSE QSL TNX AM
 Hello _____ Time _____ CW
 Power _____ Date _____ SSB
 Ant _____ Report _____ RTTY
 Transm. & Receiver _____
 7M 1.4M 2M 6M 10M 11M 15M 20M 40M 75M 80M 160M

Gordon West's 1959 CB QSL from his station, 11W2534, displays a photo of an International Crystal Mfg. Co. "Citizen Bander" rig. Gordon reports the nickname "International Icebox" for this very early CB radio.

communicating with other TBVs. That was because TBVs all had transmitters that had a habit of drifting all over the band. Even so, the tough little TBV hit the beach at Iwo Jima, Okinawa and Tarawa. Years after the war, they were selling for a couple of dollars on the surplus market.

Other 27 MHz radios were in the Battle of the Bulge, in the Ardennes, in North Africa, at Normandy, and thousands of mountain-top lookout positions and command posts.

Little did anyone realize how many of the clever designs of those military radios would inspire the CB radios of 20 years later! For instance, the BC-1335 transceiver was a little 18-tube FM unit running about 4 watts. It operated on two channels and could be run from either 6 or 12 volts. A single crystal was used for both transmitting and receiving on each channel. It had push-to-talk with a carbon mic, and you could hear the transmitter at low volume through the receiver to check if it was operating properly. The units were still selling brand new on the surplus market for \$30 in 1970.

Peace, at Last

In 1947, soon after the war ended, the nations of the world got together in Atlantic City, New Jersey to untangle the confusion created on the radio bands during the war. During that conference, it was decided to allocate 27 MHz to industrial, scientific, and medical (ISM) uses for their diathermy, spot-welding, research, and other equipment. Because the 27 MHz ISM band (centered on 27.120 MHz, later to become the midpoint between CB channels 13 and 14) was going to be cluttered

with this apparatus and the radio noise it produced, it was deemed to be useless for any type of commercial communications. As an afterthought, amateur operators in limited areas (including the Americas) were allowed access to the band, which was near the larger 28 MHz amateur band. This amateur authorization was in the form of a footnote to the basic ISM allocation. It became known as the 11 meter ham band.

Some hams made good use of the tons of military surplus radios that operated on the band with very little conversion work. While a dedicated core of devotees loved the isolated little band, generally speaking, 11 meters was unsuccessful as a ham band in the 1950s. For one thing, it bore no direct harmonic relationship to any other ham band, such as 3.5, 7, 14, 21 and 28 MHz. Some ham equipment is designed to take advantage of that harmonic relationship, so 11 meters was out of step right from the start.

Another problem they encountered, was that none of the highly sought European hams were authorized to use the band, but they were plentiful on the nearby 28 MHz band. There was little point in trying to buck ISM noises to work relatively few stations. To make it worse, there might be a high SWR when using a 28 MHz antenna on 27 MHz.

A Better Idea, They Said

In the late 1950s, the FCC canceled the 465 MHz Class B CB service because neither the public nor manufacturers showed much interest. The agency came up with the idea that maybe the CB service would click if it were relocated to

another spot in the spectrum, for instance the little-used 27 MHz ham band. This was proposed in docket 11994, issued in the spring of 1957. So they pulled the plug on the 11 meter ham band, too.

Feeling that something was being taken away from them without sufficient reason, hams were annoyed with the FCC, even though most had never bothered to operate on 27 MHz. "Save 11" contests were hurriedly organized to prove to the FCC that many stations used the band, yet only about 400 stations (including DX) participated.

The ARRL argued against creation of the CB service, bringing up the point that the footnote in the 1947 Atlantic City Treaty specified the band "for Amateur use." The ARRL said while the FCC might not have been *required* to let hams operate there, the treaty did specifically name the one service that *could* operate there. They felt the FCC did not have the authority to arbitrarily dump amateurs and substitute another service that wasn't mentioned in the treaty. This was the ARRL's best shot at saving the band, and did make sense. The FCC declared that it could actually do pretty much what it wanted, despite all of the smoke and eloquence.

The FCC bluntly told the hams to be gone in time for CBers to begin tuning up in September of 1958. As a matter of principle, no radio service likes to lose frequency allocations. It was taken as a "loss of face" by the ham community, and perhaps was responsible for a rather distinct disdain shown to CBers and CB radio which lasted for many years. It was ironic, inasmuch as CBers had nothing to do with selecting 27 MHz for the location of their band, nor creating the CB service.

Later influxes of hams into the ranks of



John Astin (at right) became famous portraying the original "Gomez" on the classic "Addams Family" TV sitcom. He was also an active CBer. I snapped this photo of him in the 1970s overseeing a tech install a Browning CB rig in his mobile unit.

the CB service, and vice versa, served to dissipate those hard feelings. Today, in retrospect, that bitterness seems a minor glitch in a sea of fascinating events and developments that combined to evolve into what CB is today.

Mail Call

In the March issue, we mentioned the International Crystal Mfg. Company's very early Citizen Bander Model CTZ-1, and how CBers I knew nicknamed it the Tombstone because of its shape. That comment brought in some interesting reader response.

Fellow columnist and old friend Gordon West, WB6NOA of California, sent along his 11W2534 QSL card (which probably dates from about 1959) showing a photo of his rig. Gordon reports that where he hails from the rig was known as the International Icebox.

Gordon recalls the unit he owned had two transmit channels with the switch on the rear of the set. The receiver was a tun-

able conversion superhet. He said it was a hot performer, and "could really make a No. 47 bulb glow."

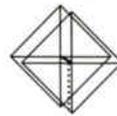
Harry Peterson, aka Snoopy, of Toronto, Ontario, Canada, asks if we could mention some of the show biz celebrities known to have used CB during the early years. A few that quickly come to mind are Jackie Gleason (who was also a scanner fan), Marlon Brando, Jerry Lewis, Farrah Fawcett and Robert Wagner, though there were many other celebrity CBers.

John Astin created the definitive Gomez Addams portrayal in the classic ABC-TV Addams Family series (1964-66), then went on to appear in many films and other TV programs. He was an avid CBer in the 1970s.

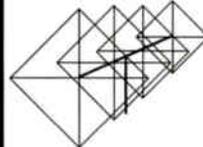
That's a wrap for this QSO. Let's do it again next month. I definitely want to hear from you with your questions, ideas, pre-1980 CB QSLs, photos, news, and memories. You can send stuff to me here at *CB Radio*, or e-mail text to me directly at k2aes@aol.com. Until next time, it's 73's from the ol' Tomcat. ■

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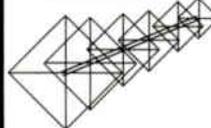
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A 13.8-VDC Power Supply Project

Let's start where we left off—talking about power transformers. If you remember, last month we discussed how electric motors and other "inductors" generate a voltage (counter EMF) that attempts to equal the AC input voltage placed on that device. This, in effect, cancels the input voltage and little current is drawn. As a "load" is placed on the motor (or transformer secondary windings) the primary current increases in an attempt to maintain the equilibrium between the counter EMF and the applied voltage by increasing the magnetic field.

Inherent Inefficiencies

What "little current" that is used, is due to imperfections in our inductor that exist in our real world. In power transformers, power is lost in the form of heat (wasted power) via several mechanisms. First, the iron laminations that make up the transformer core can look like shorted single-turn windings, resulting in considerable power loss. Power transformers are made up of many sections of iron laminations, each one has a special insulation coating to prevent this from occurring. But, these eddy currents also occur over small areas of the metal surfaces even in the best transformer designs. The wire windings also have DC resistances. When current flows through these windings, the lost power will be in the form of heat-wasted power.

The design and size of a transformer core are dictated by some very involved formulas that deal with the frequency of the AC voltages the transformer will be used with and other factors such as the amount of power the transformer must handle. This topic is well beyond the scope of a basic electronics column to delve into. Even the number of turns needed for the primary winding can be determined mathematically. But, again this is beyond the scope of this magazine. Yet, we can still make several general observations, or rules thumb, regarding this subject. First, as the frequency goes up, the size of the transformer core can be made much smaller and lighter. Almost all military radio equipment is designed to run on 440 Hz AC currents. Why? The answer is simple—the higher frequency permits smaller-sized power transformers that yield weight and size savings—an important consideration for military vehicles and aircraft.

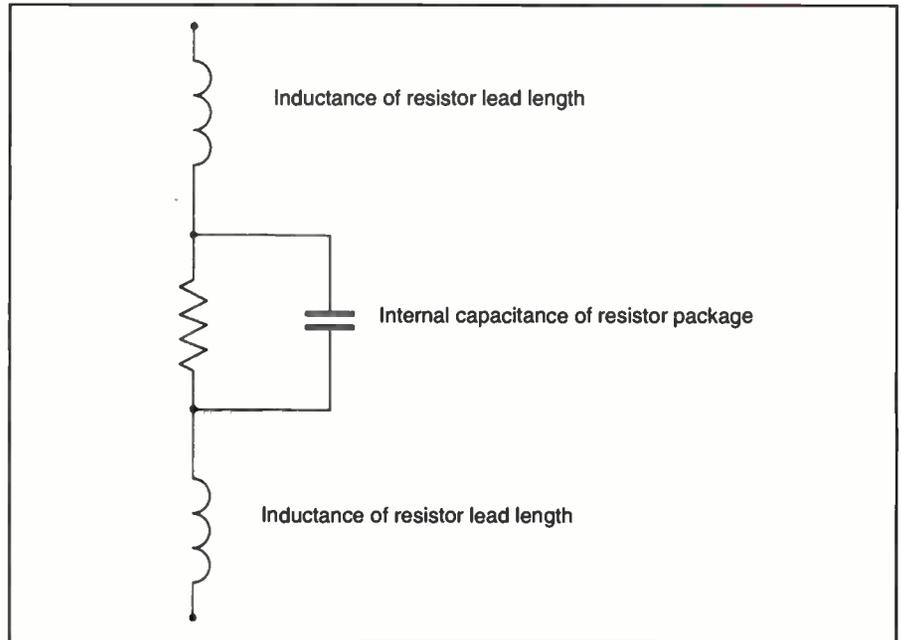


Figure 1—A resistor used at high frequencies may look like this in a circuit!

On-board alternators or power supplies producing the 440 Hz power are also smaller and lighter. Back when tubes were popular, the most costly components in high-fidelity audio amplifiers were the audio transformers. They had to be designed to operate over a frequency range of 20 Hz to 20 kHz while handling considerable power!

Switching Power Supplies

If you own a computer, chances are it uses a "Switching Power Supply." Even the old IBM PC XT originally used a 35-watt switching type power supply. The latest generation of computers, with current guzzling Pentium Pro CPUs and MultiMedia add-ons, require considerable power. Computer cases with power supplies rated at 650 or more watts are available for those who need, or think they need, that much power! Yet, if you were to compare the old 35-watt switching supply in the first XT computer 12 years ago, you might be surprised to see its size isn't that much different than the average 350-watt supply used today. To learn why, let's take a quick look at how a typical switching power supply operates.

Switching power supplies "rectify" and "filter" the AC input voltage to produce a

high-voltage DC potential. (About 140 or so volts.) This high level voltage is converted to a high frequency square-wave AC signal. This is generally in the range of 20 to 30 kHz (20,000 to 30,000 cycles per second.) At this point our high-frequency and high-voltage power source is still directly tied to the AC lines, creating a potentially dangerous condition!

This square-wave is applied to a power transformer designed to operate at this high frequency. The transformer windings (primary and secondary) are well insulated from each other, eliminating the direct connection to the AC line. What is more important is that the transformer is probably several magnitudes smaller and lighter than its 60 Hz (60 cycles per second, the common frequency used by most U.S. power companies) counterpart would be. Indeed, while the 350-watt switching transformer weighs only a few ounces, a 60 Hz power transformer capable of handling the same power would weigh *several pounds* and be as large as the entire switching power supply! And, the cost savings for the smaller transformer are substantial. Most of the supporting circuitry used in switching supplies costs the manufacturer's literally only pennies a piece.

The power supply we are going to build over the next few issues is what is called

a *linear power supply*. Its voltage regulation is based on circuits that develop controlled voltages by converting needed power into heat energy. Good design practices limit the amount of wasted power, but still some power is sacrificed in any linear design. This usually means these supplies have large heatsinks and get a bit warm when being used. Many switching power supplies use a more efficient scheme to regulate the output voltages—Pulse Width Modulation. Pulse Width Modulation simply means the power supply senses the output voltage and corrects for errors by varying the width of the high frequency AC square-wave signal feeding the power transformer primary. This results in minimal wasted energy being converted into heat.

Don't be confused if you don't fully understand everything. We are not trying to make you into electronic design engineers! But, when we finish this power supply project I promise you will have a good understanding of how it works.

A Trick Question

The DC resistance of the primary winding is also very important. If you measured the DC resistance of a large power transformer, you might find the windings have a resistance of only a few ohms. Let's say we measured a resistance of 2-ohms on our power transformer's primary winding. If we were to apply 120 Vac power to this winding what would happen? How much power would be used? How much current would be drawn from the AC line power? Be careful, this is a trick question.

To determine the current we can use ohm's law. Ohms law formulas are shown below. If you only memorize one of these formulas you can easily derive the others using basic high-school algebra.

Below are the three variations of Ohms Law:

- Ohms law for current (I) when voltage (E) and resistance (R) are known:

$$I = E/R$$

- Ohms law for finding voltage when I and R are known:

$$E = I R$$

- Ohms law for finding R when I and E are known:

$$R = E/I$$

To answer the question poised above concerning our transformer, we know R and E (R is equal to 2 ohms, and that E is 120 volts) we would find the current I by:

$I = E/R$ thus $I = 120/2$ thus I is 60 Amperes

For power, we can use one of the power formulas. The formulas for power (P) are shown below:

$$W = E(\text{squared}) / R \quad W = I(\text{squared}) R$$

$$W = E I$$

We already have values for R, E and I. Lets use a power formula where I and E are known to find the power being drawn by our 2-ohm primary winding.

Solving for P (watts) when we know I and E:

$$W = E I \text{ or } W = 60 \times 120 \text{ or } 7200 \text{ Watts}$$

The answer is: 7200 watts. Wow, something is wrong here!

Mixing Apples and Oranges

Unfortunately, these are the wrong answers. I am sorry to trick you, but what you have done is learn some simple, but very important math, and that you can't confuse apples and oranges. The apples in this case are AC voltages, and the oranges are DC voltages.

Let me go into more detail about this. It is something we must discuss and perhaps this subject has unknowingly crossed your mind from time to time. For instance, why does a RF dummy load for your CB measure 50 ohms on your ohmmeter, while your antenna (which is another 50 "ohm" device), shows either a dead short, or open, circuit when you take an ohmmeter reading on it!? Not to leave you hanging completely in midair, let me tell you few a things that may help make this clearer for you until we can revisit this subject in greater detail. Here I go again, off topic.

Resistance, Reactance, Impedance and Ohms!

First, the ohms law formulas we have shown are primarily intended for use with DC circuits. There are a special set of Impedance formulas for use with AC circuits. These are basically the same as Ohms law, except that R is replaced by Z. The Z denotes that the "resistance" is an *impedance*, the value of which may be valid only at certain frequencies.

$$Z = E/I$$

$$E = I Z$$

$$I = E/Z$$

For these formulas "Z" takes the place

"R." What is confusing for beginners and old timers alike is that both are expressed in ohms! What is not the same is that "Z" represents the Impedance in ohms of the component we are measuring. "Z" can be a simple ohm reading taken across a 50-ohm resistor being used for a transmitter dummy load. The kicker is this Z takes into account something called reactance. Components such as coils and capacitors have what is called inductive and capacitive reactances. In theory, reactances cannot use power, but when used in conjunction with a resistor can cause it to *appear* to have a different "resistance" to AC voltages that its actual DC value. Thus, a resistor combined with reactances in AC circuits will not behave the same as the same resistor in a DC circuit.

I am not going to repeat all of the power formulas, but these are also valid for power measurements where Z is a known constant. In those cases, Z would substitute for R in the power formulas.

Capacitors are specified in Farads, and inductances are specified in Henrys. These are fixed physical properties that can only be changed by altering the physical characteristics of these components. However, the reactances for a given inductor or capacitor value are not fixed. For any given frequency, an inductor or capacitor will have a specific reactance. As the frequency goes higher, the reactance values (again in "ohms") will increase, and their effect on the circuit will be more dramatic. Perhaps you have seen electronics catalogs offering "non-inductive" load resistors. What does this mean? Well, Figure 1 shows what a resistor may look like in the real world.

Every resistor has some form of wire leads to allow it to be attached to other components. These wire leads, no matter how short, will have some value of inductance. This inductance will have a specific reactance for any specific frequency. Also, resistors will have some amount internal capacitance. Again this capacitance will have a value of reactance for any given frequency. As the frequency increases, the reactance increases. At low frequencies the associated reactances inherent in the component design may be negligible and may be ignored. At some high HF or VHF frequency the reactances may be large enough to affect how the resistor performs.

Now, some resistors are made by winding a coil of resistance wire on a ceramic form that is sealed over with a protective and insulating coating. These are called wire-wound resistors, and usually are used for high-wattage resistors, usually starting at values of 5 watts or higher. For low frequencies or in DC circuits you could expect the circuit to see the resistance in ohms given for the resistor.

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But, if you attempted to use a 50-ohm wire-wound (w.w.) resistor for a dummy load for your 27 MHz CB radio, it would not work. The reactance of the resistance-wire windings could be very large, maybe several thousand ohms at 27 MHz. This is because the coil-like construction of the resistor has considerable reactance. Your radio would certainly not see the 50-ohm impedance you had expected. Even a dummy load that works well at 27 MHz may not perform as expected in the VHF amateur radio bands. This is also why your antenna shows a different SWR at different frequencies, or channels.

When used in higher frequency audio circuits a w.w. resistor may not work. One trick used was to wind one-half of the windings in one direction, then reverse the windings back over the first section of the resistor as shown in Figure 2:

The inductances of the two windings effectively cancel each other out. This technique works well at lower frequencies, but the stray capacitances between the windings will limit its usefulness at higher frequencies.

Antennas and Impedance

You will learn in the antenna column of this magazine that antenna impedance is only part of the story. Yes, the antenna impedance can be used with the power formula to calculate how much power is being delivered to the antenna. We know the impedance, hopefully 50-ohms, and can measure the RF voltage or RF currents to calculate power. The main resistive components of antennas are "radiation resistance" and "ohmic" losses.

In a short mobile antenna using a loading coil we usually end up with an extremely low radiation resistance (which

controls how much of the power is radiated,) and a fairly high ohmic resistance (the amount of power wasted as heat). Antenna designers can use combinations of inductive and capacitive reactances to make a low impedance antenna appear as 50-ohms (referred to as antenna "matching"), but this does not improve its efficiency. The ratio between ohmic resistance and radiation resistance must be kept high for an antenna to perform well.

What else affects how well an antenna works? The center of a car rooftop may provide an adequate groundplane for VHF whip vertical antennas at 150 MHz, (about 18 inches) in all directions. This gives a "low angle" of takeoff for the antenna signal needed for distance communications. Alas, a 27 MHz CB whip needs a 108" circular groundplane beneath it to give similar performance! A 108" CB whip mounted on the rear bumper may have a good pattern towards the front of the car, but perform miserably in other directions.

For base antennas, other things are important. Antenna heights dictate the take-off angle of radiation, and whether the antenna is more effective for short skip (high angle) or far DX (low angle) of radiation contacts. Ground conductivity (your soil) affects the antenna performance, the far field effects of ground soil conductivity are felt for miles!

Whew, I can certainly wander off subject. Next month we will get back on track with our power supply. We will discuss RMS voltages, rectifiers and filter capacitors. I may squeeze in a brief discussion of audio transformers, if space allows. Also, it will be time to finalize our power supply schematic, and begin ordering parts. And, I will explain why our calculations for power used by the 2-ohm transformer primary winding were incorrect. Hint: Remember that a coil with an applied AC voltage will try to generate a voltage (called counter EMF) that is equal to the applied voltage. This effect is the same whether the winding is used in an electric motor or transformer winding. Can you come up with an answer before then? What effect does the primary winding resistance have, if any?

Let me give you another hint here! An inductance tries to "resist" any change in current. This is because as we apply a voltage to an inductor, it will generate an increasing magnetic field that will generate a counter EMF voltage, or potential, until the magnetic field stabilizes.

Key Points of This Lesson

- Transformer size varies with frequency for a given power rating. Switching power supplies are much smaller, more efficient,

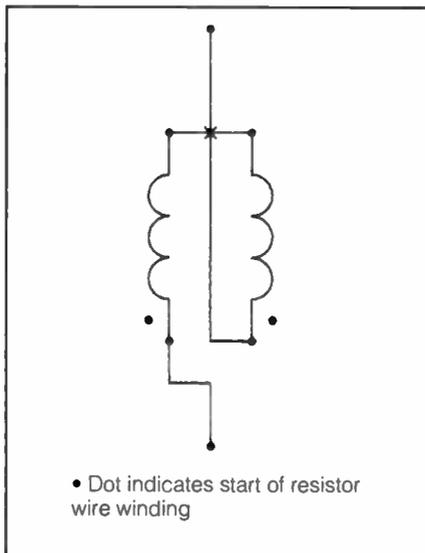


Figure 2

and lighter and cheaper to manufacture than "linear" power supply designs.

- Understanding the formulas for power and ohms law.
- Don't mix apples and oranges! The resistance for an antenna is an impedance and only exists at a specific frequency! Reactances and impedances are related to frequency and are expressed in ohms.
- An impedance is a combination of resistance and either or both inductive and capacitive reactance.
- All real-world components have some degree of unwanted reactances.
- Only the resistive portion (the impedance) of a circuit made up of reactances and resistances can dissipate (use) power. You must know the impedance, not resistance or reactance alone, to use the power or ohms law formulas in AC circuits.
- Ohms law is not used for AC circuits involving impedances! Instead of R for ohms, the correct formulas for AC circuits deal with Z, impedance.

Answers to Last Months Quiz

First, the turns ratio determines the voltage ratio. If you have the same number of turns on the primary as the secondary, the voltage at the secondary will be the same as the primary voltage. We stated the primary had 300 turns and that the primary voltage was 120 volts. We needed to know how many turns were needed on the secondary winding to produce 16 volts. Thus, the ratio of the primary to secondary windings could be expressed using a simple ratio:

120:16::300:X

120 volts is to 16 volts as 300 turns is to X (unknown) turns.

Solving the equation yields: 40. The answer is: 40 turns of wire are needed on the secondary winding. If the answer didn't come out even, we would then use the nearest even winding count just to be practical.

The second question deals with a missing fuse in the primary winding. A transformer neither creates nor destroys power! Power is equal to wattage. The power going into a transformer will equal the power being taken from its secondary(ies) winding(s). If we have 80 watts at 16 volts, we can determine the current of the secondary winding by using the formula:

$I = W/E$, or $I = 80/16$ or I is 5 amperes

We really don't need this information! Knowing the watts being used, and the primary voltage, we can simply solve for

the missing primary winding current by the following formula:

$I = W/E$, or $I = 80/120$, or the primary current is .667 amperes

You would need a fuse with a value of .667 amps. In practice, you may find the closest standard value for manufactured fuses to be 7/10ths of an amp. Since we know some power is wasted (in the form of transformer heating) by eddy currents and by DC resistance losses in the wind-

ings (actually, this is part of next months discussion!) we can probably safely use the next highest standard fuse value.

Suppose the transformer had multiple secondary windings, and I gave you the voltages and currents for each of them. You could determine the power in watts being delivered by each secondary winding. These wattages would be added together for the total wattage being supplied by the transformer. Now, you can calculate the current drawn by the primary winding. ■



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Spanning the Globe

Well, here we are. Cycle 22 is now part of history, if we believe those scientists who predict propagation conditions. Even if the amount of sunspots is not climbing yet, we have seen some major evolution during the past months, though. No, don't think we're on the run again, I'm just telling you about some rare openings on 27 MHz that have made some of us rather happy about the hobby.

It's now time to get your antennas working. Since I've modified my personal installation, I've found a big difference despite the actual poor conditions. The four-element Yagi beam is doing the job very well. If you can't hear anything with your vertical, try using a horizontal antenna to get your signals out there. It works, and it works well! A couple of friends of mine have made the same change to their installation. One told me on the air "I've just got the beam up there. Five minutes later I was talking with South Africa!"

The other operator said "I was adjusting the SWR with the 3-element Yagi sitting on two trestles. I can't remember which direction the beam was pointing, but that German station was sure moving my S-meter!"

These examples should make you consider buying a good Yagi beam, or some other type of directional antenna. And no, they're not as big and hefty as some amateur antennas may be since we're using the eleven meter band. A common Yagi for 27 MHz uses a half-wave radiator element which measures just 18 ft. It's not so big if compared to a 40 meter three-element Yagi used by some well-equipped ham operators. In any case, this is the best way to push the limits of propagation. Using high power linear amplifiers won't help in any way. They're also illegal and make your neighbors nervous.

Now why does my 7.5 dB vertical pick up less DX than my 4 dB Yagi beam? Well, the answer is simple. Your beam is a *directional* antenna which concentrates the radiated energy in one direction, whereas your vertical is an *omnidirectional* antenna. A beam also picks up less QRM and QRN, since the latter is usually vertically polarized. Thus, you tend to hear the weak stations a lot better with the beam than with the vertical. I use both antennas. In fact, I use the vertical, omnidirectional antenna to listen, and when



I've found an interesting station to work, I switch to the Yagi and point it in the right direction. However, when the signals leave your antenna system and take a somewhat "odd" route to get to the other end of the world, it may be interesting to switch from one antenna to another, just to see which one is the best for that par-

ticular situation. DXing on 11 meters then becomes interesting.

Scanners for Sale!

Since the French government has banned scanning receivers, CB and ham

magazines are allowing more space for their classified ads, since owners of such equipment are wanting to sell it. Of course, scanning apparatus can no longer be sold in the country although specialty shops are still advertising the stuff.

On the other hand, the CB scene is developing rapidly. France now counts over 4 million CB enthusiasts and regulations are no longer appropriate. Hence, Andre' Antonio, President of the French CB Federation has been asked to study a new set of regulations by the Department of the Interior. The Federation is then supposed to administer CB in France.

News from Asia

Laurent, **14AT212**, who went on his second Asian island tour at the end of last winter, is now back home in France. Some readers claimed contacts with Laurent in China, 203 division. As far as Laurent is concerned, he's never been there and tells me that any contacts signed **14AT212/203** are fakes. Don't send any QSLs for these.

From Saudi Arabia, **48CT0** is on the air until the end of November. QSL is OK via Franz, P.O. Box 36, 3250 Wieselburg, Austria. Contribution is one dollar.

86AT/DX continues working from Nepal until October. The QSL Manager is Tom, **161AT415**, P.O. Box 61, 44 102 Gliwice 2, Poland. Contribution is voluntary.

QSL Information

2PC0 (U.S.A.) via 2Pc101, Noel, P.O. Box 455, Niagara Falls, NY 14302.

15/141F132 (Switzerland) via 141F132, Patrick, P.O. Box 145, 93623 Aulnaysous-Bois, France.

16BRC/Balloon (Belgium) via BRC QSL Buro, P.O.B. 33, 3271 Zichem, Belgium.

26AT/EURO96 (Football Cup, UK) via 26AT372, Martin, P.O. Box 274, York YO1 1TG, United Kingdom.

35/14BG42 (Austria) to 14BG062, Michel, P.O.B. 68, 44190 Clisson, France.

53SD0 (El Salvador) via 1SD001, Dino, P.O. Box 1, 22050 Verderio, Italy.

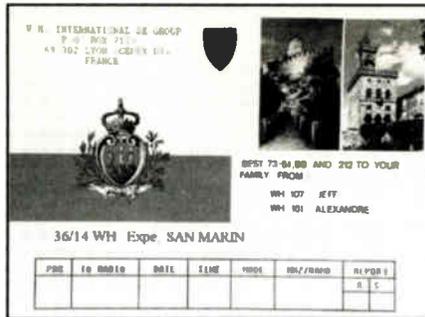
75BRC0 (Azores Islands) to BRC QSL Buro, P.O.B. 33, 3271 Zichem, Belgium.

89SD0 (Nigeria) via 30SD14, John, P.O. Box 136, 12080 Castellon, Spain.

96YL900 (Tonga) via 14YL100, Carmen, P.O. Box 130, 82000 Montauban, France. The station will be on the air until the end of October.

108BG/SI (Isle of Skye, Scotland) via 14BG153, Jean-Luc, P.O. Box 225, 35302 Fougeres Cedex, France.

115SG/DX (Qatar) via 18SG001, Kostas, P.O. Box 10, 15303 Athens, Greece.



169/14AT709 (Guernsey Island) via 14AT899 (No address), Cards for **169WH00** may be sent to 14WH107, Jeff, Box 7123, 69302 Lyon Cedex 7, France.

201AT114 (French Polynesia) to 14AT644, Christiane, MBE N°126, 12 Square Belsunce, 13231 Marseille Cedex 01, France.

212BRC0 (Aland islands, Finland) are OK via BRC QSL Buro, P.O. Box 33, 3271 Zichem, Belgium.

216SD0 (Mali) via 30SD14, John, P.O. Box 136, 12080 Castellon, Spain.

233BC0 (not BRC as stated by some readers) via BC HQ, P.O. Box 123, 22321 Hamburg, Germany. Station transmitted from Bucharest, Romania.

251SG/DX (or 251SG00) from Albania is via 18SG001, Kostas, P.O. Box 10, 15303 Athens, Greece.

304SD0 (Estonia) transmitting until December 1997 is via 30SD014, John, P.O. Box 136, 12080 Castellon, Spain.

317AC/DC (White Russia) to AC HQ, P.O. Box 2107, 5700DA Helmond, Holland.

Coming Next Month . . .

In the next issue of *CB Radio* magazine, you'll hopefully see a report on Laurent's, **14AT212**, island tour in Asia. Laurent has visited a handful of islands in some rare DX countries. We'll also see how we can optimize our CB stations to get through the QRM and the pile-ups, with a feature on operating techniques as well. That's it for now folks!

Take care until next month.
73/51,

Alex

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CIRCLE 58 ON READER SERVICE CARD



SSB and the Internet—Hope for the Future

Quick. Does anyone remember which technocraze immediately preceded the personal computer? That's right, CB radio. In our rush down the "Highway" of personal communications, it must be remembered that one of the earliest harbingers of the phenomenon was CB. Advances in design and manufacturing techniques during the late 50's and early 60's drastically reduced the prices of electronic equipment. One of the first results was to lower the cost of CB radios. That brought CB, including SSB CB, within the reach of millions of people around the world. As these advances progressed, the same happened with computers. Now, at long last, it appears that the two, CB and computers, are beginning to work together in ways that will benefit SSB CBers—even SSB CBers who *don't* have computers.

How Can They Do That?

First, it opens the door to better organization. Organization is something that has been sorely lacking in the SSB/CB community. Organization can be used to our advantage. Consider the amateur community. They have used organization to solve common problems. They have used it to advance their hobby. They have even used it to secure band space and additional privileges. Organization requires communication. Ironically, since its inception, one of the major problems faced by CB operators has been lack of organization, due mainly to, of all things, poor communications. It has been difficult—no, impossible—to organize fellow enthusiasts, at least in any meaningful or effective way. Yes, there have been clubs—many of them. Some have been quite successful, at least on the local level, particularly in areas where individual operators could communicate directly—on the radio. It has been difficult (not to mention illegal) to work more distant stations on the radio. So we have been at the mercy of clubs to perform that function. However, without exception, clubs on the regional and national level seem to get sidetracked with the politics of being clubs. They become embroiled in bureaucracy. They lose sight of their goals. Eventually all have failed, having little or no positive effect on the state of the hobby. Today, through the Internet, grassroots groups and individual opera-

tors, hitherto isolated by distance, can easily and freely communicate—without bureaucratic buffers. The opportunity is there. All we have to do is seize it.

Second, and perhaps of more immediate importance, the internet is helping SSB operators find each other. It is helping us satisfy our need of finding someone to talk to. No longer are our chances of connecting with another operator who might share your interests left strictly to fate—if you have a computer and internet access. Today, we can search for contacts before ever turning on the radio, by posting messages in the news groups such as rec.radio.cb. Then, by exchanging a few pieces of e-mail, schedule on-air connections. Good things are on the horizon. Yes, today, the internet is bringing SSBers together. For those of use who don't have a direct connection to the net, I will try to use this column to tie them into the action. The result should be more and better SSB communications than have been possible in the past.

Case in point: in the months preceding the publication of this magazine, I was able to find and communicate with Sideband operators throughout the USA and around the world. Then, as soon as this magazine was on the newsstands, I started getting response from its readers, almost immediately via e-mail. Now I'm sure that I will eventually hear from some of you by conventional (snail) mail—at least I hope I will. However, I am truly impressed by the immediacy of electronic e-mail. By the time I receive my first "written" letter, I will have been engaged in ongoing conversations with the e-mailers for a month or more. That means that their contributions to the column will appear months ahead of the snail mailers. Therefore, their input is likely to be more timely, pertinent and effective.

The First Letter

Our first letter was from Dave, DREN1000@aol.com, in Chester County, PA. "Enjoyed reading your article in *CB Radio*," he writes. "I'm glad there is now a CB magazine. I've been off SSB until the past year and there are a lot fewer people on SSB here. I just started looking for a Cobra 2000. There are so few around. How do you like yours and what do you think of the 2010? The review looks good, but I don't care for the design."



Who's this fellow at the controls? And isn't that a 2000 on the top shelf?

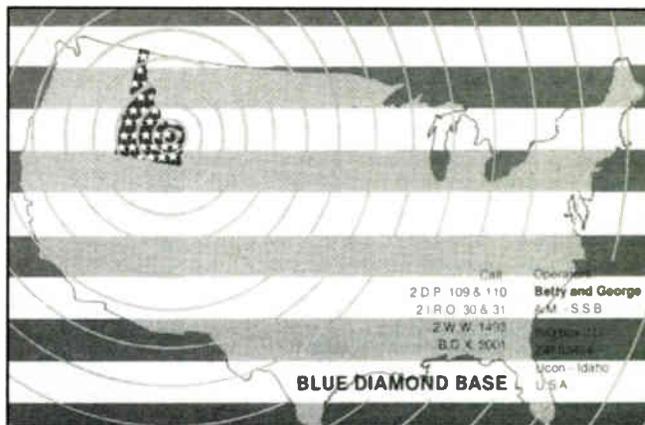
Well, Dave, thanks for writing and thanks for reading the article. Yes, it really is good to see a magazine for CBers again on the newsstand. In case you haven't guessed, I am not a professional writer. I am just a CB enthusiast who couldn't say no. It really is a great opportunity for CB and especially SSB. We have lost a lot of SSB activity around here also. SSB is nowhere near as active here in the Albany, New York area as it was 10 or 15 years ago. Many of the locals have either gone ham or outband or both.

Yes, 2000s are hard to find. They don't make them anymore, and that's a shame. I do enjoy mine. I also enjoy my 148 GTL. A friend of mine, Jock Elliott, has both; a 2000 and 2010. No, he is not that rich. He writes the CB column for Pop'Comm, where he often reviews new CB equipment. When Cobra wants a mention, they send him a new radio to try. Most of the time they let him keep it (nice work, huh?). That is how he wound up with both a 2000 and 2010. Jock and I are also channel mates, both on CB and 2 meter amateur bands. Fact is, that is how I got the SSB column. They had originally asked Jock to do it, he turned it down—just didn't have the time. He likes a little newsletter I do for the local Channel 9 monitors and



Buying a used SSB rig (or any piece of electronic equipment, for that matter) is easy at a hamfest or other radio gathering, but make sure you shop around before you plunk down your hard-earned cash!

“CB and computers are beginning to work together in ways that will benefit SSB CBers”



Here's a QSL card from the Blue Diamond Base in Idaho; operators Betty and George. As the card shows, they were active on both AM and SSB. Does anyone know if they're still into CB, particularly SSB?

figured I was dumb enough to try doing the SSB column. I am. So I did. Anyway, I help Jock test the radios he receives. We discuss them quite a bit. So far, we all (you, Jock and I) agree we miss the 2000. The 2010 is OK but a 2000 it is not. Except for the desk mic, the 2010 performs well. Inside it is similar—if not identical—to the 2000. Outwardly however, the appearance just doesn't measure up. It just isn't as humanly friendly (or pretty) as 2000 users have become accustomed to. Let's hope the 2020 (if there is one) is a little more reminiscent of the 2000.

In subsequent communications Dave points out that the active SSB channels in his area seem to be on 36 LSB, the universal local SSB call channel, and also on 38 USB. Dave also says he is not having much luck in his search for a new Cobra 2000. He has found a couple, but the asking price is \$700; yes, that's right—\$700 or more! Are people really paying those kinds of prices? If anyone knows where Dave (or anyone else, for that matter) might find a 2000 at a “REASONABLE” price, please let me know. In the meantime, if you too miss the 2000, drop Cobra a note. Maybe if they hear from enough of us, they will bring it back. Didn't they do that recently with one of their mobile AM rigs, the 29 Classic?

Mike Writes

I have also heard from Mike, Mcz52@aol.com, in Conshohocken, PA. “I wanted to get into SSB,” says Mike, “but didn't know a thing about it until I read your article. Now, I am more pumped up than ever to get a unit. I found a Radio-

Shack TRC-465 for \$100. This model has been discontinued by RS and the prices are dropping. I am also going to install a RS Crossbow on the house. Hope I can get out that advertised 12 watts. New Cobra 2010 GTL on order.”

Mike, it is truly exciting to hear that you are interested in becoming an SSBer. We need new operators on the band. You are our future. If your experiences with SSB are only half as enjoyable as mine, then you are in for quite an adventure. If there is anything I can do to help you along, please ask. As for getting all “12 watts”, I am sure you will, even with the TRC-465. Just whistle loudly right into the mic. Please, however, don't do that too often. It's hard on the ears of your on-air neighbors. It is not the 12 watts that make the difference, it's the way that SSB radios handle whatever power you're putting out, or receiving. The truth is, in typical conversation, you will very rarely put out all 12. Even with the 2010, but that is OK! Even if you average 3 to 5 watts, you will still talk and hear farther with SSB than AM, even if the AM is pushing 12 watts or more. Instead of “working on the watts”, concentrate on the antenna system—including the coax. Then, work on controlling your audio output; don't use too much. Overdriving the mic will only distort your signal! Have your radio checked out by a “competent” technician. Have them make sure it is properly tuned and aligned. DO NOT, however, allow them to clip the modulation limiter. Yes, that will make the radio sound louder, but louder mostly on adjacent channels. It's NOT a good idea, especially for Sidebanders.

The idea is to put out a “good” signal, not necessarily a “loud” one. That means a signal that is “clean”, easy to listen to, free of distortion, including the background noise, echoes and beeps. Keep the mic gain as low as possible and leave the “noise toys” to the kiddies on AM.

For those of you who are familiar with southeastern Pennsylvania, you have already recognized that Dave and Mike appear to be no more than 20 miles or so apart. That means that they are well within SSB range of each other. I have taken the liberty of passing each of them the others e-mail address. Perhaps they can arrange a schedule to meet on the radio. Wish I could join them. I'll let you know if it works out. Mike has promised to keep us posted on his journey into SSB. As he grows, I'll let you know what he finds.

What Do You Like About SSB?

In the meantime, between the column and the internet, perhaps we can generate some much needed SSB traffic. Are you an active SSB operator? Let me know what channels you operate on, when and where. Are you looking for SSB activity? Let me know where and when you would like to find it. As always, whatever your interest in SSB, I look forward to hearing from you. Send me news of your SSB club or channel activity as well as your questions, comments and suggestions, QSL cards and shack photos. Write me in care of the magazine, or on the internet where my address is edbarnat@globalone.net. Better yet—if you can, catch me on the radio. Until next month, 73,

Ed



WHAT YOU NEED TO KNOW TO PUT OUT A GREAT SIGNAL

By Kent Britain

Your "Connector" Connection

Commercial coax cable was first introduced in the 1930's. Mr. Quackenbush, an engineer with Amphenol was responsible for designing the first line coax of connectors, thus giving us the PL-259 and the SO-239 connectors for this new RF transmission line.

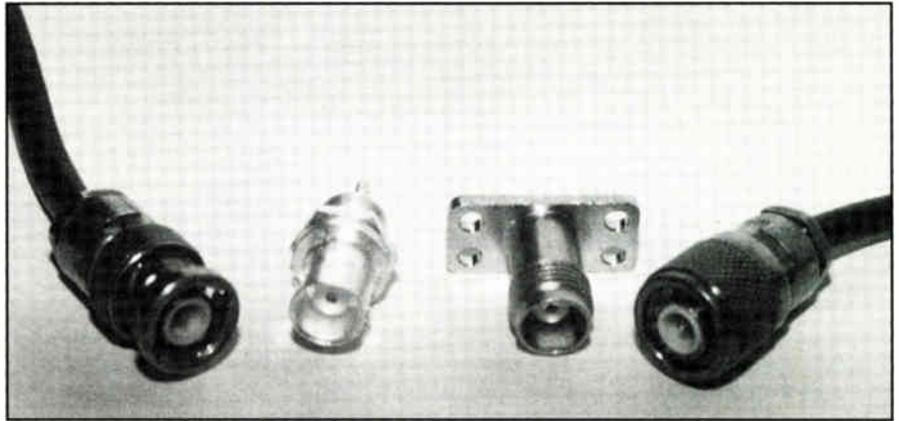
Remember from last month, that the impedance of a coaxial cable is a ratio of the inside and outside diameters of the wires? Well, if you do the calculations for pin and shell diameters of a PL-259 connector you get an impedance of 30 ohms. Like radio waves, light waves don't like hitting a change of impedance. When light goes through even the clearest glass at a slight angle, some of the light reflects. When light hits water, some reflects. Reflected waves are measured as an SWR. By the time you get to about 200 MHz, that 50 ohm-30 ohm-50 ohm change in a PL-259 connector causes some real SWR problems.

In 1941 two RADAR engineers were independently working on this problem.

Paul Neill tackled the problem by designing a coax connector that looked as much as possible like a piece of coax. Mr. Neill's connector became known as the Type N connector. Literally down the street, Mr. Carl Concelman tackled the problem a little differently. Carl realized that where the center pins connected there would be some mismatch. He also knew that a little capacitance would tune out this mismatch. Using some carefully shaped Teflon™, Carl was able to make a bayonet locking coax connector that worked well with the RADAR systems of the day. This connector was known as the Type C connector.

About a year later Paul and Carl were working for the same company. They combined Paul's superior pin and grounding methods with Carl's Teflon™ tricks and locking pins. Thus was born the Bayonet locking Neill Concelman connector. Now you know where BNC came from. Well, they quickly found that the BNC connectors kind of worked themselves loose rattling around in B-17's. So they went back to Paul's original threaded ring, designing the connector that's now popular on cellular telephones; the Threaded Neill Concelman TNC connector.

Coax connectors also have some big mechanical challenges. The cable TV companies use a solid shield aluminum coax. All metals, especially aluminum



BNC and TNC connectors.

expand when heated. Baked under direct sunlight, then cooled to pre-dawn sub-freezing temperatures, long runs of CATV coax can expand and contract as much as a foot. Think about it as they're exposed day after day after day.

The cable TV companies put big expansion loops in the coax and use connectors that strongly grip the coax, but loose connectors are a common maintenance problem with cable TV companies.

Crimped/Soldered

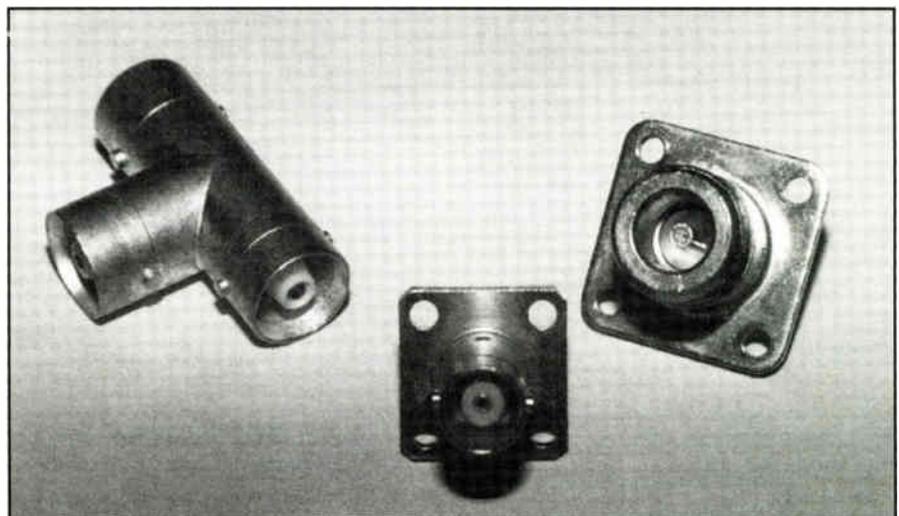
For years all PL-259 connectors were designed to be soldered to the coax. With

mass production came crimp-on connectors. Crimp-on connectors work as well as soldered connectors at first, but the wire will work loose, especially if the coax is wiggled around a lot.

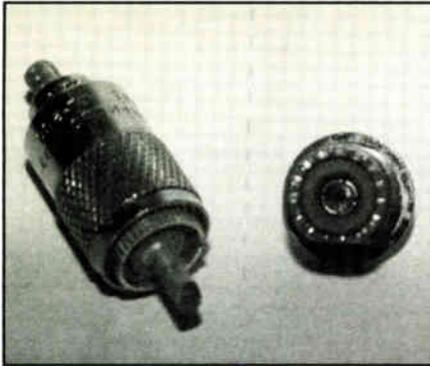
If you do pick up any crimped-on connectors, go ahead and invest in the proper crimping tools.

When Mr. Quackenbush originally designed the PL-259 connector, he specified that bakelite be used as the insulator. Later, Teflon was commonly used, although Teflon insulated PL-259's are still the *best* PL-259's.

Both bakelite and Teflon will take a lot of heat. I don't own a soldering iron that will get hot enough to melt Teflon or bake-



From left to right; Type C, BNC and Type N connectors.



A look at a PL-259 on left, and SO-238.

"Be careful not to get the connector too hot while you're soldering"

na with a 'T' connector. Never did find out what he was trying to do, but it cost him almost \$60 to get the rigs out of my shop.

Hey Kent:

I like to mount my whips back at a 45 degree angle to get better take off. Why don't the antenna companies make them this way in the first place?

Red Redmond, Oregon

lite, but some of the inexpensive PL-259's seem to be made out of old melted plastic milk bottles or something. So be careful not to get the connector too hot while you're soldering.

Letters, We Get Letters . . .

Kent:

My neighbor/buddy already has a CB ground plane antenna. He put it on my side of his house. I really would like to put my ground plane on that same side of my house. How close can we put 5/8ths ground planes to each other without blowing out each others receivers?

Steve, Santa Clara, CA

You have more than one problem Steve. The first problem is antenna interaction. This is the tendency of nearby metal to try and become part of the antenna. In others words, the two 5/8s verticals would try and become a big beam antenna with who knows what kind of beam pattern.

If you can mount the verticals more that 1/2 wavelength apart,(that's 1/2 of 11 Meters or 18 to 20 feet) you can minimize interaction between the antennas.

If you're both running legal power, this is plenty of separation to keep you from actually blowing out a receiver front end. Now, I didn't say the rig won't jump off the shelf every time your buddy transmits, but if you can catch it before it hits the floor, the rig will be OK. If you're closer than 20 feet or if one of you has a kicker, then consider taking turns. Go pick up an antenna switch and a dummy load. Put the ground plane antenna on say, position 1 and the dummy load on position 2. Anytime you're not using your rig, switch it to the dummy load position. This will help protect the rig from nearby transmitters and help protect it from nearby lightning strikes.

Once upon a time an electronic "brain" hooked up his two rigs to the same anten-

OK Red, stand out in front of the car and look at the antenna. Now have someone bend it back. You only see half as much antenna, right?? The guys out in front or back of you also see only half as much antenna. This means they'll only get half of your signal as well.

Now imagine standing out to the side of the car as someone bends it back. Half the antenna is vertical, half the antenna is horizontal. So half of the power is vertically polarized, the other half is flat side. Again you lose half of your power. Bend it back because they look sexy. Bend it back because it fits under the carport better. But car-to-car, perfectly vertical to perfectly vertical straight up works best.

Note to Mike, Nashville:

Yes, several companies make disguise and camouflage CB antennas. The most common camouflage antennas look like a regular car AM/FM antenna. Using a modified car radio antenna with a CB radio has many shortcomings. They are usually short, the coax is the wrong impedance, and there is a lot of loss in the filter/tuning network.

That little box that comes with the antenna is very important. Without that box, half of the transmitter power of the CB would just go back into the car radio, and . . . bye bye car radio. As an example of that network box, lets think of a gravel sizer. With wire screens, the machine separates rocks by size. Well, that box separates long radio waves from short radio waves. The long ones go to the AM radio, the short ones to the CB and the very short ones to the FM radio.

At the same time, the network also contains an antenna matcher. This matcher is like a variable loading coil that makes the car antenna resonate at 27 MHz.

Again Mike, these disguise antennas do work, but expect your range to be about half that of a good loaded whip. If you only have one of those in the windshield antennas, the range will be about 1 quarter that of a good loaded whip. ■

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Accepting Things We Can't Change—and Competency Tests for CBers?

OK drivers, it's quiz time: What's silver and shaped like a torpedo? What's kinda boxy and stays in the left lane at 50 mph? What sits on a pick-up and usually has four sets of eyes? What do they all have in common?

Answers: Any Airstream motor coach; any other motor coach/camper; any Class "C" motor home with the little kids sitting up front over the driver. They all tend to gather in a pack and seemingly create delays for the trucking industry as a whole, and of course, YOU in particular!

Let's Take a Vote

Everyone who has seen a convoy of campers and coaches in 1996, hold up your hand! Does anybody remember seeing one before April 15? April 1? Naw, that's All Fool's Day, and we really can't accept anything for that date. Yes, we'll accept April 2, unless you were in Minneapolis or Haver, Montana. Most of the snowbirds have returned home by then, so you were probably seeing real vacationers! WOW, what a thrill to be toodling along, happily watching the miles roll by, chatting with other drivers, or listening to the AM/FM, or even simply enjoying the roar of the engine and the singing tires . . . suddenly, traffic slams to a halt, and you creep along for a couple of miles, until you can fight your way around three motor homes, a hard-sided trailer being pulled by a Chevy S-10 pick-up, and two fold-downs running at the ridiculous speed of (gulp) 45 mph.

Guess what?! It's vacation time AND construction time! They're back!

Notice that I'm NOT trying to knock the full-time RVers, who kinda follow the warm weather, or perhaps a racing circuit, or even the crops. Most of those guys and gals have a pretty good idea of the way to handle their rig, and tend to keep up with the traffic flow, and out of trouble. Incidentally, I hear rumors that many of the full-timers tend to stick on CB channel 13, although on the road they would probably continue to monitor channel 19, at least periodically.

The constant travelers, who travel to a different campground nearly every weekend, rarely become a problem on the open road. They'll keep up with traffic, or stay to the right and help you pass. 'Course, in both the above examples, you have the RVers who insist on being first in the line of traffic, and try to pass every vehicle on the road at about 80 mph! The converse of this theory is the RVer who insists on being first by running 15 mph slower than everyone else, and has traffic backing up behind them!

The major problem for the Knights of the Road is the band of part-time RVers, who have either rented a camper, or can only get out once in a while, and remain white-knuckled at 45 mph in the left lane, simply because they're afraid to try to change lanes. They're the ones who will flip the fold-down in the construction zone, or will bunch up and create a traffic jam for 15 miles on the high speed expressway. They simply have not had the experience behind the wheel that is required to feel comfortable. Unfortunately, the rest of us suffer. Have a little compassion for them and help them get over to the right, and perhaps out of the way.



A look at I-94 during the off hours.



A Cheetah Transportation truck making another on-time run!

It's amazing how quickly those "pull-behinds" will roll over and what they'll take with them. A couple of years ago we were leaving Virginia, heading for Nashville, and spotted a 30-foot hardside trailer that had flipped. The surprising part was that it had taken the tow vehicle, a full-size Suburban, with it. I would have expected the two vehicles to separate!

What's Your Choice for "The Construction State?"

We all realize that the Eagle, our national bird, takes a six-month vacation during the summer, to be replaced by the construction Crane. The various official state animals are replaced by the national animal, the sawHorse. What's your choice for the state with the most construction this year?



Getting the thumbs up from this Buhr Bros. Transport driver.



Look out Mr. Schneider, here comes one! It's vacation time and time to look out for campers and RVs. Many times they're older drivers—give them a break and understand their limitations.



A view of the Chicago skyline from the highway.

The good news for the Chicago area is that there are only *resurfacing* projects scheduled for I-90, 94, 80, 57 and 55. The major thrust will be to rebuild a portion of Lake Shore Drive—trucks are prohibited there anyway. The bad news is that I-55 will remain in really sad shape until '97, barring emergency patch work. I haven't heard anything official, but I presume that Pennsylvania will again maintain their usual status of having most of the roads under construction.

Many states have enacted legislation to increase the fines for moving violations in a work zone, as an effort to protect the workers. Yeah, it's another barrier (pun intended) to our ability to deliver the freight on time. There is no truth to the rumor that the large orange barrels are Schneider eggs, even though Wisconsin seems to have more than any other state! It is not necessary to run over the barrels to keep Schneider from growing.

I had a chance to chat with a couple of drivers over the past month. One (and I apologize for not getting the handle) has a wonderful philosophy to achieve success on the road, including contending with campers and construction: *Improvise, adapt, overcome!*

IMPROVISE: What will it take to get the job done? Should I take an alternate route? Is this delay going to create problems, and should I notify dispatch? What are the other drivers saying on the two-way? Is this a major delay or simply a couple of minutes?

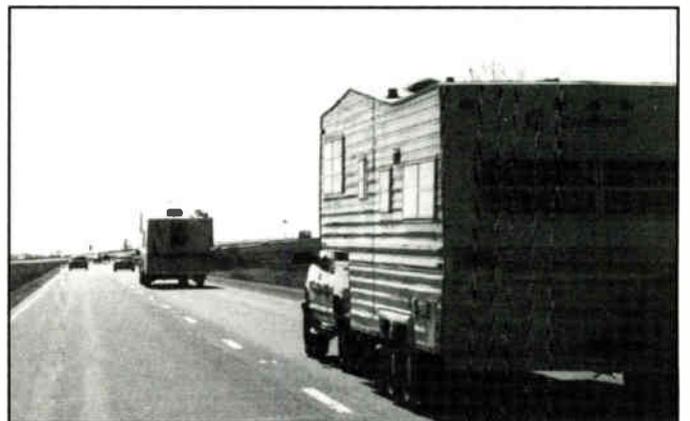
ADAPT: Well, I can't get around them. That thunderstorm flooded everything! The Windy at 8 a.m. . . . I'm close on my hours so I'll sack out for a few hours and let this traffic disap-

pear! This motorcycle convoy must be at least 10 miles long. Wonder if any bikers have their CB on . . . might as well chat as they pass.

OVERCOME: Whatever the problem seems to be, relax and find a way to surpass it. Getting all upset about the traffic in Chicago, Detroit or LA doesn't accomplish anything. YOU chose the time to endure the four-wheelers. They drive the interstates every day, to and from work, and probably (a) don't know any other roads to travel, and (b) have waited until the last minute to head for work, and (c) are using the time to read the newspaper or chat on the phone. Why get upset about it? Next time, buzz through at a different time of day!

A New Breed of Driver

Thanks, and a wave of the mic for the chat of about 40 minutes with "Little Polack" of Wausau, Wisconsin between the Wisconsin border and the Chicago loop. He's been on the road for a number of years and is vocal about the changes he's seen and the differences between the more experienced drivers and the new breed of driver. "When I started, we'd go out for several weeks at a time. We knew that we'd be away from the home terminal, and accepted the situation. We always took enough clothes to last for a week. We would find a truckstop with a laundromat when we ran out of clothes, or on weekends. Most of



Many camper drivers are unaccustomed to the rigors of everyday interstate life. That's not to say they all are inexperienced, but drivers should be aware that especially this time of year there are many additional motorists using our nation's interstates than any other time.



There are lots of reasons not to run the shoulder in a construction zone. Here's one! This photo was taken somewhere on I-74 near



Here's one thing a trucker hates to see: two campers side by side, typically running 50 mph with a mile of traffic backed up behind them.

the new drivers we see now either want to be home every night or weekend, and simply won't try to understand that the dispatchers may not have loads available that will send the young guys to the barn. The company can't afford to pay the fuel to allow a deadhead."

On CB Radio . . .

"It's one of the most important tools we have today. We use it for directions, help if we need it, chit-chat when we're tired, to find loads or to check at a truck stop to see if a mechanic is available. I've made some really good friends with the CB. Those people who use the CB base stations to help are invaluable, and it's nice to chat with them as we go through. After going by several times, you tend to actually visit on the airwaves, and keep up with each other."

On Training Other Drivers . . .

Some of our guys make extra money by training new drivers. I simply can't sit in the right seat while some new driver has total control of that rig! I'd always be offering to drive the next stretch and wouldn't get in the sleeper at all!"

On Government Regulations . . .

Most of the regulations hurt the drivers financially. I couldn't run the miles I would need to survive if I were just starting out and had a family with a couple of kids. I don't know how they survive! There are a few (regulations) that are beneficial, such as the ones concerning hazmats, but on the whole, we could do better without all the red tape. The new CDL is good, 'cause that gets the cowboys who had several different licenses from different states, off the road. They would use a different license for each different speeding ticket. We can't do that now, because computers allow the cops to check the record on-the-spot. The CDL also kinda ensures that the drivers at least have the competency and skills to maneuver the rig. They may not have the experience yet, but at least some knowledge. Twenty years ago, anyone could hop in a rig and call themselves a driver."

Competency Tests for CBers?

"Blue Demon" a Gra-Bel driver, thinks that even CB operators should have a competency test! As we traveled out the Kennedy, we listened to perhaps 40 different conversations; normally at the same time. There was some idiot who was bound

and determined to create as much hate and discontent as possible. We've all heard them. Either they're cussing out the truckers or playing their music on the CB, or dead-keying. Unfortunately, there's not a lot we can do about these head-cases, except ignore them, and hope we can get out of range before we need directions. As for "Blue Demon's" idea, well, the states give tests to allow a driver's license, but that doesn't mean that the recipient has his or her head on straight. Ham radio operators have passed a couple of tests, and most use the radios with common sense, and cooperation. There are always a few who suffer from "behind the mic bravery!" and harass other users. There are so many CB operators that it is difficult to find the culprit.

While we're on the subject, there are rumors in this area that one of the local base station operators received some fan mail from the FCC, concerning the constant use of various rather crude phrases. It was suggested that perhaps he should clean up his act on the radio, and 'oh, by the way, would you give us a call to indicate your compliance?' Even though many of the field offices are slated to close, and the personnel are totally inadequate to really police the frequencies, the probability still exists that they will respond to specific complaints. The focus of their attention is still on the commercial and public service bands, but they have stated in a couple of articles that they do have an interest in "out of band operation, and the use of excess power" on the CB. There are many publications that monitor the actions of the FCC and publish actions taken for the various violations. Most of the recent actions have been for excessive power and/or out of band operation. I hear a lot of drivers chit-chatting, and then going to "The Company Channel," but not using any of the 40 that are provided. The odds are pretty good that they are using some strange frequency. That's their business, but SOMEONE is listening!

I Need a GOOD Answer!

Last month we briefly mentioned antennas, and reasons to point them forward. We asked one driver why and he was told "They will stand up straight when we are running at road speeds!" Another driver immediately responded, "He wants to look like an ant eater!" Now, you guys have me confused, why DO the antennas get pointed forward? Somebody send me a GOOD answer, please.

Keep 'em rollin'!
73's

Highlander

Trucker of the Month

OUR SPECIAL RECOGNITION OF PROFESSIONAL DRIVERS

By Bill Simpson, "Highlander"

"The Shadow"—Jeff

Pictured is "The Shadow" Jeff our Trucker of the Month, who jokingly claims to have received the handle while in the service as a result of the way he moved during his tour in Special Ops. We're not sure if he was joking or not. In this life, Jeff drives for All Modes Transport of Park City, Illinois, and claims to have found a home after 13 years on the road. "I worked for this company once before, and decided to drive local . . . the money was the same, and I got home every night. I missed the road, and didn't think that I could go back to All Modes. I happened to meet one of the owners one night and was invited to return, and don't plan to leave!"

Jeff not only clearly enjoys trucking, he even talks nice about his dispatchers. "I think we all know that a dispatcher can work with you, or can starve you out. It doesn't pay to make them mad. You should remember your dispatcher's birthday, his wife's birthday and ask about the kids," he laughs. "There's always the chance that you'll need to be home for something special, and don't forget, they can always slip someone else under you to get a load, and have you deadhead three hours so YOU get a load."

The Shadow does not keep his love of the road a secret. "Once you get the Road in your blood, it's like a disease—you can't go local—the Road is THE life!" He feels that the new DAT (Driver Assisted Transportation), which allows the drivers to have some input into the loads and directions they carry, will benefit the customers, the drivers, and the companies jointly. "The major difference between the Road now and 10 years ago is the DOT rules! All the changes have been designed to maximize safety and help the drivers, but some help TOO much! It's tough to run mileage when the limit is 10 hours, and the speeds are 10 miles per hour under the four-wheelers, who drive at least 10 over their limit! Twenty miles per hour differential is actually very dangerous, and the civilian drivers don't recognize the problem! It's common knowledge that many of the drivers use multiple logbooks to bypass the DOT rules. Even one of the TV shows had a special on truckin' several months ago which demonstrated the way many companies require the drivers to run . . . unofficially, of course!" he said.

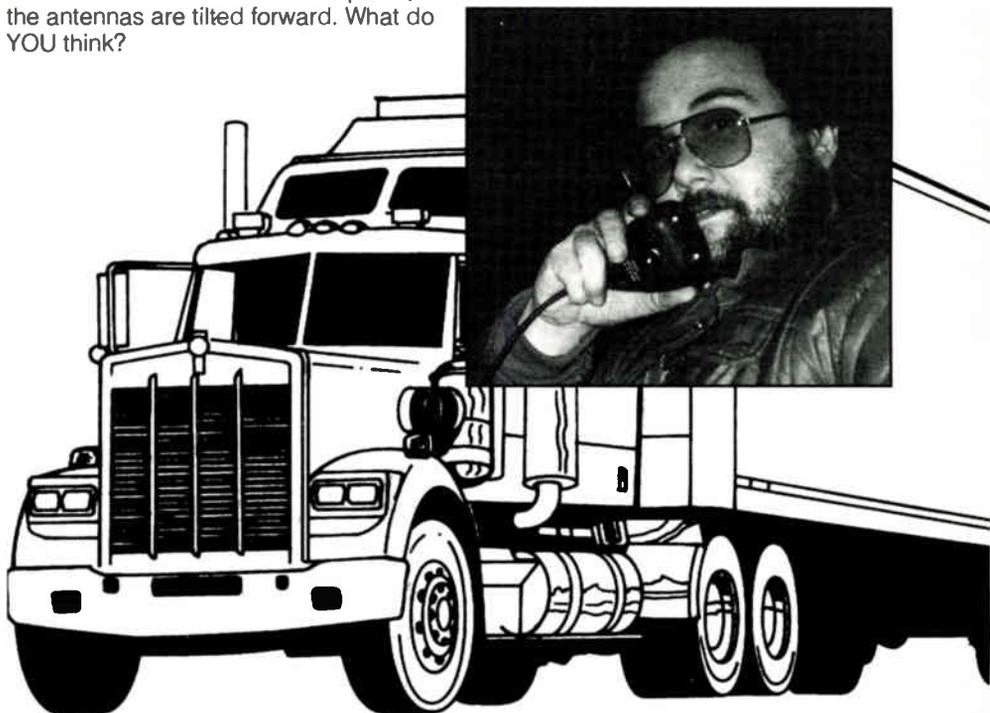
Jeff was able to answer one of the questions that has been asked in the



"Shadow" of Illinois drives for All Modes Transport.

"Truckin" column: Why do some of the drivers tilt the antennas forward? Part of the answer is to clear viaducts, the other part is to lower the SWRs when driving a tractor with a windscreen or spoiler. Jeff has checked the SWR with the antennas straight up, and with the antennas forward, and claims that the standing wave ratio is lower for trucks with a spoiler, if the antennas are tilted forward. What do YOU think?

Jeff's a new Dad, which might make a difference in the runs he takes in the future. Mom "Attitude" and baby boy are doing well. We'll take suggestions for a handle for the little one . . . "Shattitude" and "Attidow" don't seem to fit too well. If you catch Shadow on the road, let him know that you saw it here!





Are Your Older CB's Relays Hanging Up?

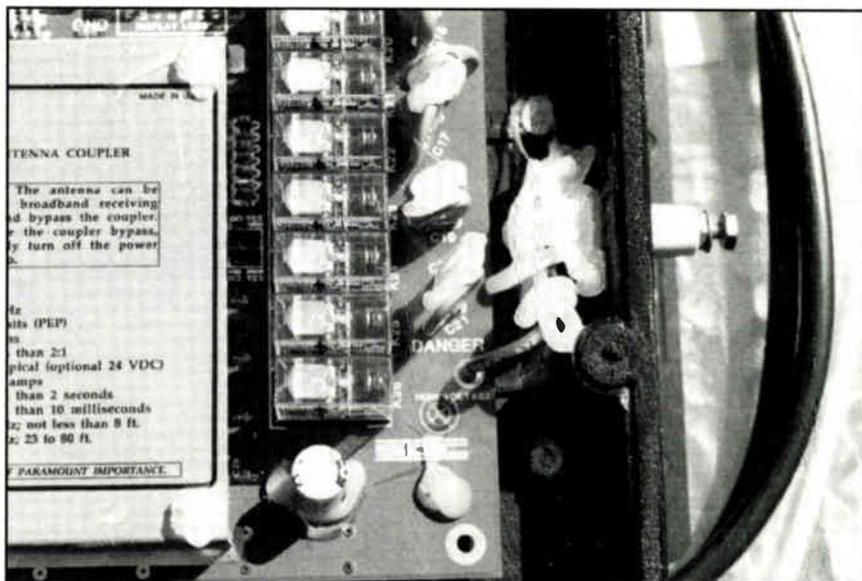
Older CB 27 MHz mobile and base stations all have transmit/receive relays. Newer base and mobile CBs do not. And 49 MHz communicators as well as GMRS handheld transceivers don't have relays; when you push the mic button, these sets silently go into transmit, and you are instantly on the air. Release the button and you are instantly back on receive.

So what is the big deal about no relays or older equipment WITH relays? One thing is reliability. With older equipment using relays, an intermittent contact might cause your unit to not fully cycle back to receive after you release the mic button. Pound on the top of the set, and like magic, your reception becomes loud and clear. Relays in the transmit and receive circuit may also decrease capability of getting a quick word into a conversation—some relays may take as much as 300 milliseconds to engage, causing a syllable or two of your transmission to get clipped.

In most communications equipment, the relay is found as a toggle between transmit and receive. It usually has two contacts that normally rest in the closed position to a pair of contacts facing down. When you transmit, voltage within the relay coil creates a magnetic pull to lift the relay arms up to make contact with a pair of contacts on the top.

In very old CB radio equipment, these contact points may sometimes become pitted, and this requires delicate relay surgery to remove the plastic protective cover, inserting polishing paper between the gold or silver-plated contacts, and rocking the paper back and forth in order to burnish the contacts for a better connection. Sometimes the spring that normally keeps the contacts closed requires replacing; and sometimes a relay contact point gets accidentally bent. When this happens, you may have to put up with an intermittent relay contact point for the rest of the life of the equipment. In some cases, you may even need to swap out the old misaligned relay.

The relay toggles your CB into transmit where the power amplifier stage feeds through the relay, and to your antenna jack. On receive, the relay drops out, allowing incoming signals to bypass the transmitter and go directly into the sensitive receiver section. This relay is commonly called "T/R" on a schematic.



Relays to switch high antenna currents in big radios are required over PIN diodes.

Relays for CB radios, scanner band-pass filters and GMRS FM equipment have been replaced by solid state diodes which conduct in only one direction. They are called PIN diodes—"P" for positive, "I" for intrinsic, and "N" for negative, describing how the diode is electrically made up on its tiny insides.

Chemically treated "N" and "P" sections of the diode are separated by the "intrinsic" section that acts like a high resistance wall between these two chemically "doped" sections. The high resistance acts as a wall, and may be as much as 10,000 ohms when bias current is applied to the PIN diode.

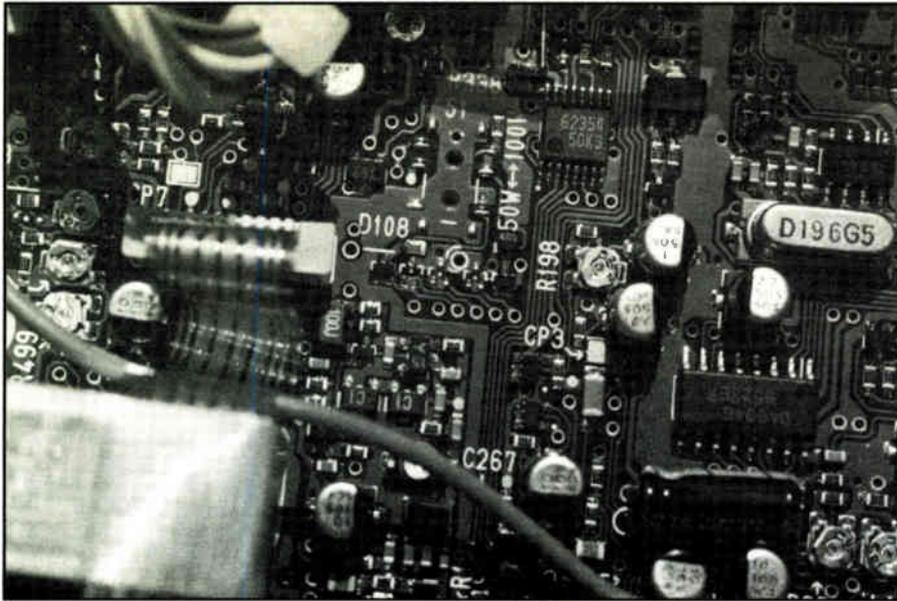
A CB base or mobile radio normally runs a PIN diode as an antenna transmit and receive SWITCH. When the switch is "closed", there is low resistance and a contact is established. When the switch is "open", there is maximum resistance. This creates an open circuit where no signal can pass from one stage to another. Applying 12 volts to a PIN diode circuit to create forward bias through a resistor, inductor, and diode, a one-quarter wavelength line section is created to control a PIN diode to pass 4-watt transmit power to the antenna output jack while bypassing the sensitive receiver section. The one-quarter wavelength section will be at a low impedance point between the

antenna jack and the receiver, yet will be at a high impedance point to the transmitter. This gives us the necessary isolation to prevent the transmitter circuit from loading down and desensitizing the receive line.

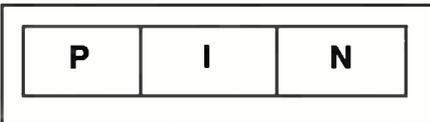
When 12 volts is removed from the circuit, current is interrupted, and the PIN diode reverts back to a resting position that creates an open circuit to the receiver, but a closed circuit to the transmitter and antenna output. The change is almost instantaneous, so no syllables are clipped when a CB operator pushes the mic button and goes on the air.

While each CB transceiver may have its own scheme of forward and reverse biasing to turn the PIN diode into an insulator or conductor, the result is almost identical—a silent transition from receive to transmit and back to receive by pushing the mic button.

Sometimes CB radio operators will go inside their equipment to tap off voltage to drive another external circuit, such as an "on the air" lamp or other device which triggers ON when the transmitter button is pressed on the mic. Relays can usually handle the higher amount of current that is necessary to drive external circuits. However, with PIN diode T/R switching, the diode is easily destroyed when it is loaded down driving an addi-



PIN diodes cannot switch high antenna currents in bigger radio circuits.



The "I" is the intrinsic layer separating "P" and "N" junctions.

tional stage. Never tap into a PIN diode T/R circuit to drive something else not intended for the operation of your CB radio equipment. If you must control something else, do it externally off of any unused mic contact points that are independent of the operation of your CB radio.

Static Discharges

Another problem that might occur with a PIN diode is failure from a nearby static discharge. A close lightning strike will often wipe out the PIN diode, causing your CB set not to respond to transmit when you push down on the mic button. It's a relatively easy fix, but it's going to take the skill of a surgeon-type technician to pull out the old PIN diode pack and put in a new one with specific values to match your particular CB transceiver circuitry. There is not one PIN diode that fits all!

Other Ways PINs Can Get Zapped

Another failure of a PIN diode, as well as the ultimate failure of a receiver, can occur when 12 volts accidentally comes across the antenna center conductor of your CB system. Even with the CB radio turned off, a brush with 12 volts from an

antenna hastily put into the car's trunk and accidentally coming across the 12-volt trunk light wire can instantly zap the diode and continue on to wipe out the CB receiver. Make sure you *never* allow a small antenna system to get anywhere near your vehicle's 12 volt wiring!

Yet another common cause of PIN diode failure is on older handheld CB radios with a big metal telescopic whip developing a short circuit when hard-wired into your automobile 12 volt system. Older CB sets did not use isolation circuits to keep the antenna isolated from ground contact. The "hard wire", i.e. not factory-approved, 12 volt lash-up creates

"Never tap into a PIN diode T/R circuit to drive something else not intended for the operation of your CB radio equipment"

a voltage difference between your portable handheld and car chassis ground and the telescopic whip. The whip touches any metal around your door frame or window—and snap!!—your PIN diode goes out. On newer handheld transceivers, specifically wired for external 12 volt operation, this is no longer a problem. But many of us CBers have "hard wired" our older handhelds for 12 volt operation, and when using any metal whip, we must be especially careful!

Should You Keep That Old Radio?

Should you sell a big base station or mobile radio that has older relays? You can tell your radio has a relay by simply keying the mic on and off and listening for the tell-tale click-click-click sound. Heck no, don't sell that radio if the relay is performing properly. There is absolutely nothing wrong with a relay-controlled T/R circuitry. I still have several original CB radios with relays that are working just fine.

Now that you better understand how sensitive the PIN diode is to accidental abuse, you know how your set silently goes from receive to transmit in a voltage bias circuit that takes a little tiny black chip and makes it look like a selective conductor and high resistance insulator. It's the PIN diode! ■



An older CB radio uses relays to switch from transmit to receiver.

State of the Month

OUR SALUTE TO THE STATE WHERE SERVICE IS TOPS

By Ron McCracken

We Applaud the Garden State!

From its formation in 1985, the Garden State Council of REACT Teams (GSCORT) has left little to chance.

Team presidents from across New Jersey met to create GSCORT and laid the foundation for a very successful future. By choosing to rotate Council meeting locations in various areas of the state, they immediately improved Team participation in Council activities. Each Team also received Council meeting minutes to keep it current on Council endeavors, even if it was unable to attend a particular Council meeting. Taking these measures to increase consideration of local Team needs, REACT New Jersey sowed the seeds for a happy and enthusiastic Council.

The Council then began to foster a mutual aid system among its member Teams. Those efforts paid off almost immediately when Teams worked smoothly together at a plane crash site near Cliffside Park.

Lots of Encouragement

REACT New Jersey also encourages its Teams to acquire GMRS radio equipment to enhance their communications capabilities. All the while, GSCORT was toiling to establish good working relations with several state and national agencies. Two search and rescue exercises were sponsored by GSCORT in its first year to help Teams improve the skills they would need in a real disaster situation.

GSCORT also promoted cooperation with neighboring REACT Councils. Neighbors were welcome to attend REACT New Jersey meetings. And GSCORT members have visited Virginia, Pennsylvania and Southern New York REACT Council meetings over the years.

Soon REACT New Jersey had joined the NJ Volunteer Organizations Active in Disaster (NJ VOAD) group. Membership enabled GSCORT to coordinate its activities with other NJ VOAD members and alert them to its communications support role and capabilities.

In 1986 GSCORT incorporated and sent its first Council delegates to the REACT International convention in Calgary, Alberta. It also issued the first edition of its newsletter, "Radio Waves from the Garden State." In its first year, "Radio Waves" earned Second Prize in the Newsletter Contest at the 1987 San Antonio, Texas REACT International convention.

When the REACT Amateur Radio Club was established, GSCORT urged its members to join. Within a year, REACT New Jersey had formed its own similar amateur radio club at the state level.

Awards and Honors

REACT New Jersey continued its winning ways when Dick Cooper received the 1987 K-40 REACTer of the Year Award, GSCORT was honored with the Governor's Award for Highway Safety, and its "Radio Waves" received another Second Place at the 1988 Roanoke, Virginia convention.

When REACT International, Inc. created the REACT Affiliate program, GSCORT helped affiliates and teams to make contact. The Council also established its "REACT Store" to stock basic REACT supplies for Teams. Items could be purchased conveniently at any GSCORT meeting. Training exercises and seminars continued as the Council enabled Teams to upgrade and expand their skills.

K-40 REACT Team of the Year went to Hamilton-Mercer REACT in 1988 as GSCORT walked off with the K-40 REACT Council of the Year award. Those good working relations with state agencies paid off when a "Jemstar" MEDEVAC helicopter appeared for a demonstration at one GSCORT meeting.



REACT New Jersey Amateur Radio Club gained recognition from the American Radio Relay League (ARRL) as a service club. The late Dorothy Depoe was honored as the K-40 REACTer of the Year for 1989, as GSCORT again won the title Council of the Year.

Generous Donation

Quite regularly we hear of various REACTers' dedication to safety communications. New Jersey is no exception. A generous New Jersey REACTer donated a mobile home to GSCORT. It now serves as a mobile command post in emergencies or at events, and as a REACT information post on other occasions.

By 1991 REACT New Jersey decided





it was ready to host a REACT International Convention. Meanwhile, it also picked up another second-place for "Radio Waves." One more milestone was reached in 1992 when the six Council officers represented six different Teams for the first time. That year REACT Bayshore led the way and became K-40 REACT Team of the Year.

A Job Well Done

When 1994 arrived and REACT delegates from across the US and Canada descended on Somerset, New Jersey for

the International Convention, GSCORT was ready. Several years of planning and preparation paid off in a successful conference. Having delegates at every convention since 1986, meant that they had learned much about convention management from other hosts.

What does REACT New Jersey plan for an encore? They won't say, but when it's ready we will hear about it, for sure. Meanwhile, their accomplishments over the past decade make a fine target for other REACT Councils to aim for.

Ten REACT K-40 awards in as many years in all three categories is a good one to zero in on! Do we have any takers? ■

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It's Contest Time!

Everybody loves a contest, right? Especially one where you get something free! Like every contest, there's a catch. Just send in \$10,000 (JUST kiddin' folks).

Bill Simpson, our Truckin' With CB columnist has taken more pictures of trucks and truckers in the past few months than he has of his pet Chimpanzee. He's got a good memory too! Like all good photographers, he's got a neat log of every photo he's ever taken. Such is the case with the photos on these two pages.

Drop us a note identifying YOUR truck pictured here. We also need to know WHERE (here's the fun part!) you were when the photo was taken. You don't have to get too specific; we'll let Bill be the judge. Send your letters to: *CB Radio*, Contest Time, 76 North Broadway, Hicksville, NY 11801.

A one-year free subscription to *CB Radio* magazine will be given to each correct answer.



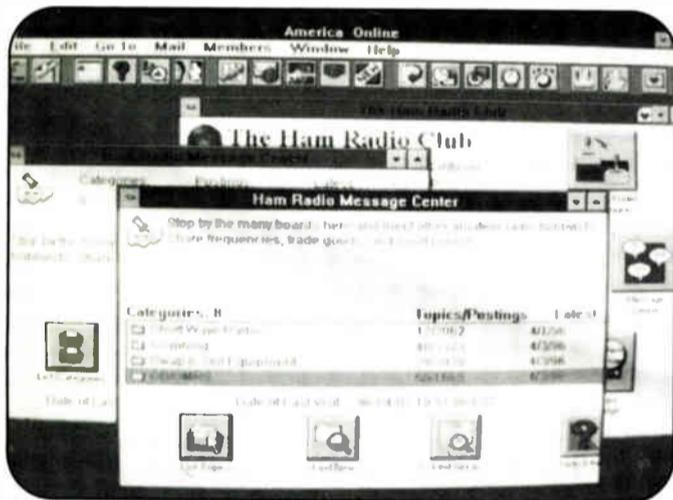
CB Meets The Internet



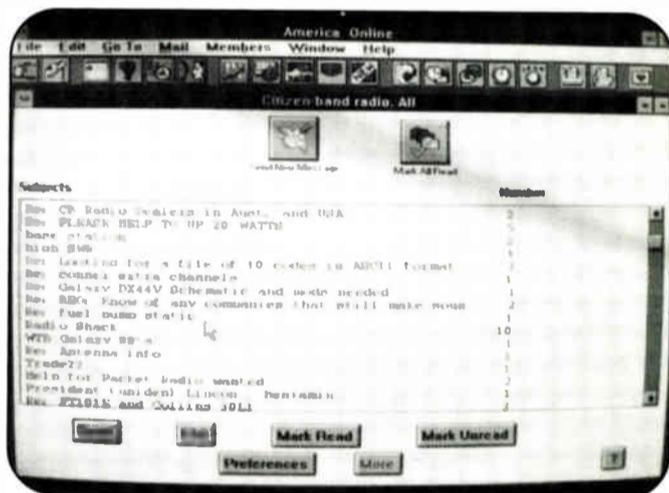
THE CBERS CONNECTION TO WHAT'S ONLINE

By Bonnie Zygmunt

CBers Find a New Forum



America Online has a category for CB and GMRS topics in the Ham Radio Message Center.



The rec.radio.cb Newsgroup lists numerous messages dealing with CB radio, from how to fix fuel pump static to looking for radio dealers.

Know what you're thinking. What does the Internet have to do with CB radio? Aren't CBs and computers worked by two different types of people?

Well, it's not true. The lines are blurring when it comes to what "type" of person a CBER is. There seems to be a lot of activity on the Internet, the World Wide Web and the On-line Services (America Online, CompuServe, Prodigy) and the topic is Personal Radio Services. (CB and GMRS).

Some of the messages are coming from first-time users or potential users of these two-way radio services. They are looking for guidance on which radios to purchase, what they can expect in reliable communications distance, and explanations of terms. The media craze in the 1970's exposing CB to the public is 20 years old. There is a whole new crop of radio buyers out there and many of these kids grew up with PC computers in their classrooms beginning in kindergarten. Then there are the people who started out with CB radios and found computers later. They are learning to enjoy communicating by keyboard and modem as much as they do by mic and antenna.

So what is it they are all talking about when they do get on the Internet? And what the heck are some of those terms that are being tossed around? Surfing the Net?? WWW dot what??

What is the Internet

In a physical sense, the Internet consists of high-speed digital links and the networking software running on the computers that are connected by those links. The individual connects to this network through their computer, modem and phone line. What started as a military research project for linking the Pentagon, military bases, defense contractors and universities in the 1960's Cold War era has now been opened to the general public and many other institutions and businesses are now

hooked up to the Internet. What this all boils down to is access to information—and lots of it.

How to Connect

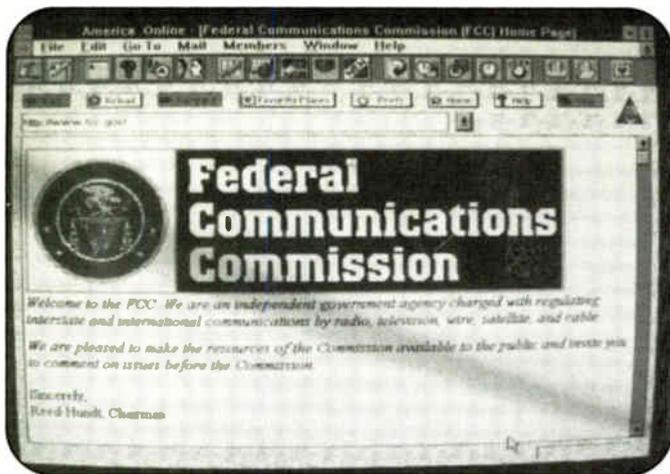
There are a number of ways to connect to the Net. The most structured, which may be the easiest for new users, is the commercial providers such as America On-line, CompuServe, Prodigy, Delphi and others. These systems will provide you with an e-mail address (electronic mail), connections to the Internet for Newsgroups (bulletin boards to post public messages), FTP—File Transfer Protocol (downloading files to your computer), the WWW—World Wide Web (text, graphics, video and audio), and some allow IRC—Internet Relay Chat (live keyboard conversations with people all over the world).

There is also direct connection through a Network Service Provider. These businesses give you a dial-up phone number that connects you directly to the Internet. They are advertised in local Yellow Pages, newspapers, radio ads, and magazines. Check around to find out what is available in your area, what is charged and what you'll get for your money. If you plan on spending a lot of time on the Net, be sure to get unlimited access for your monthly charge.

What Will a Radio Enthusiast Find There?

The same topics that are discussed when you and your friends are talking on a CB channel can be found in the various newsgroup message boards, the chat channels and the on-line message centers and forums.

A string of messages were posted on America On-line for months discussing the topic of "Is Channel 9 dead?" A number of REACT members and other Channel 9 monitors responded



A Web Home Page can be designed to provide text and graphics to inform people about a person, a company or a government agency as they link to that web site.

to explain the radio responses they had participated in. A short time later the original person who posted the question decided to join a REACT Team and is a member today because he saw the need to respond to emergency and traveler's calls after reading the replies to his question.

Questions are asked about different radios being sold by manufacturers. The pros and cons are discussed continually. Someone looking to purchase a new radio can read what other owners are saying about it before buying. Used equipment is also listed.

There are the inevitable messages from hams bashing

Terms and Tips

HTTP—Hypertext Transfer Protocol, a set of rules computer networks use in explaining Web information. HTTP is a part of a Web site's URL.

URL—Uniform (or Universal) Resource Locator. This is the unique address of each Web site, consisting of a string of letters, symbols and punctuation.

WWW—World Wide Web or "the Web." A tool for retrieving information from the Internet by selecting a highlighted word.

Surfing the Net—Making blind searches through the Internet rather than using search tools to focus on specific information.

Usenet Newsgroups—Also called conferences, forums, bulletin boards, or discussion groups. Collection of messages with a related theme you can scan and retrieve on the Internet.

REMINDER: You Don't Gotta Holla!!

When typing a message to e-mail or posting a message in a newsgroup, type it as if you were using a typewriter. Leaving a message that was typed in all caps is perceived to mean that you ARE SHOUTING!! Don't shout—it's rude.

Also note: e-mail addresses do not have punctuation at the end of the address.

CBers and CBers bashing hams, along with handfuls of people looking to get better performance from their radios, whether legally or illegally.

Where to Find Some Radio Related Areas

On America On-line there is a CB/GMRS topic in the Ham Radio area. Go to keywords and type in Ham Radio. Click on Message Center, then List Categories. Click on CB/GMRS to choose that category and then click on List Topics. Many radio topics will be shown and you can read and respond to all that interest you.

In the Internet Newsgroups, look for:
rec.radio.cb and alt.radio.cbc

On the World Wide Web there are a number of Web sites that may interest radio fans.

To see what's happening at the FCC: <http://www.fcc.gov> and to learn what REACT International has been doing: <http://www.reactintl.org>. CB Radio Resources on the Net: <http://www.ultranet.com/~bellvill/cb.html>. For Cobra Electronics Corporation: <http://www.digimall.com/cobra/i.html>.

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Product Spotlight

THE STUFF THAT'S OUT THERE—AND HOW IT WORKS

By Harold Ort, N2RLL, SSB-596

The Cherokee AH-27 CB Handheld Radio

ITEM: The Cherokee AH-27 CB Handheld Radio.

SPECIFICATIONS: 40-channel CB walkie-talkie features BNC antenna connection (includes flexible antenna), built-in speaker/mic with jack for optional speaker mic accessory, channel up/down button tuning, five memory positions, separate top-mounted rotary squelch and volume controls, instant Channel 9 or 19 access, selectable high/low power, key lock, last channel recall, beep feature, display lamp, channel scan function, LCD display window (shows channel, mode, signal strength and other selected items), dual watch function, battery life enhancement circuitry, belt clip and wrist strap. Unit operates on either 6 "AA" alkaline or NiCd batteries, not included. Optional NiCd pack/charger available. Unit also operates from 12 Vdc vehicle with optional cigarette lighter cord. Also available is 27" flexible antenna with BNC connector.

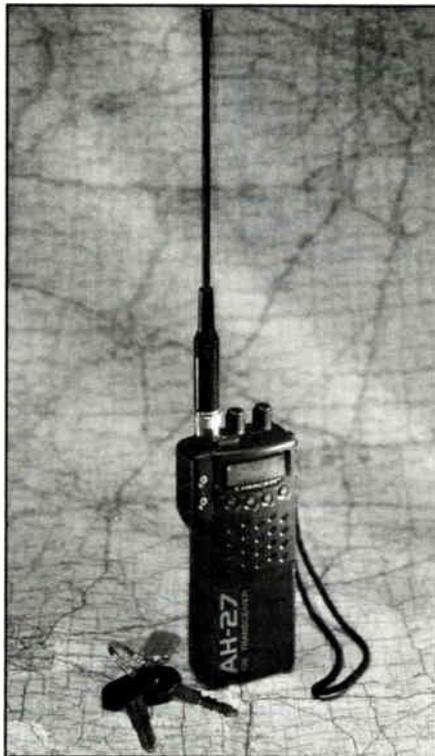
DIMENSIONS: (HWD) 5" x 2 1/4" x 1 1/2"

The last CB walkie-talkie I had the pleasure of reviewing was the RadioShack TRC-232 (see June, p. 46). It was small and worked quite well. I was particularly impressed by its small size. Let's face it, if a radio can be made smaller, someone will do it.

Enter, the Cherokee AH-27, billed by the company as "the world's smallest, most sophisticated portable CB radio." Until I see a smaller handheld CB, this just might be it! It's about 1/2" shorter than the 232; both battery packs are about the same size, and from a distance the radios look somewhat alike, but, wait—there's much more!

The AH-27 Cherokee, supplied by the Wireless Marketing Corporation of Illinois is a smart-looking, full-featured CB handheld with incredible audio and a really punchy signal. They've actually made it smaller, and it still sounds LOUD and sends out a whopping signal!

After a while, walking downtown to check portable CBs gets old, and besides I'm trying to keep away from that bagel shop, so I decided to try out the Cherokee on a walk in a nearby county park. There are miles of country trails in several parks, all within a 10 minute ride from home. Huber Woods is our favorite. You can choose the trail that's right for you; hiking boots and backpacks, or sneakers and a CB walkie-talkie. I took the middle trail, and the Cherokee—and



The Cherokee AH-27 handheld CB transceiver.

started out late Saturday morning. Realizing that there are times when the rest of your family might want to picnic or the young ones might not share your enthusiasm for the walk, using a CB walkie-talkie makes life a lot easier. Staying in touch is the name of the game. They get a CB, you get a CB, and you're on you're on your way!

BIG Coverage on LOW Power!

It's always better to start out using low power—you can always switch to "high" later if you need to. The Cherokee AH-27 came in at just under one watt; and on high power using the same "AA" alkalines measured 1.68 watts. I was prepared to switch to high power a few minutes into my walk, but was really surprised when more than half way through the trail through fairly dense woods, and hilly terrain, I was still in contact with my wife and daughter back near the car. (They're really patient when it comes to "playing radio" with me—it's probably more amusing to them than they'll admit!)

Before I switched to high power, I switched antennas. Doug at Wireless Marketing, the company that imports this transceiver, was thoughtful enough to send along their SA-4 "Super Flex Antenna" which retails for \$39.95. The radio comes standard with the typical flexible rubber duck antenna, but this full-length antenna is their answer to those always-getting-in-the-way and breaking telescoping whip antennas. Even if you don't get the Cherokee, GET this antenna! I stopped in my tracks when my daughter's signal got a bit weak and intermittent, and put on the full-length rubber whip. Why hasn't someone (watch now, someone will call me on this!) made one of these antennas for CB handhelds before now? Without exaggeration, her signal was again loud and clear, and I was able to go *at least* another quarter mile before having to switch to high power. So besides saving precious battery power, using the transceiver's low power setting, we were still able to communicate over a much greater distance!

Switching to high power and using the longer flexible whip antenna allowed us to communicate over the entire trail back out to the parking lot. Sure, there were times, because of hills and valleys, that our signals were temporarily lost, but overall the range for these two units was superb, and a couple of times I found myself turning the volume down when near other walkers.

Back home I gave the radio my usual test hooked up to the base antenna; good audio and "no problem copying you at all" was reported by one of my local CBers. When tuned to channels 18 or 20, I got very little bleed over from nearby channel 19. I found that the overall reception quality was equally good. When using the optional cigarette lighter cord adapter, which of course will give the AH-27 a full 12-13 Vdc, the power output measured 3.8 watts, the same as any other full-power mobile CB.

A special feature of the AH-27 is the battery life enhancement circuitry. This type of feature is becoming more and more common in handheld transceivers. At initial power-up, the letters "PS" appear in the left side of the LCD display. If there's no channel activity (transmitting or receiving) for five seconds, the "PS" starts blinking. This means the system has started to operate. It's actually turning the radio's internal circuitry on and off

to conserve battery power. It involves a three-step phase whereby the radio is momentarily turned on and off if no transmissions are made, then if no activity takes place for five minutes, it turns itself "off" for nearly three seconds, then back on for 0.2 seconds. The manual states "... during a single eight minute interval where no transmissions are being activated, will increase the life of your batteries by over 80 percent vs. a radio without this feature." Nicely done, folks!

The LCD Display Window

This LCD window is very easy to read—without my reading glasses. There's no squinting with this radio. Your channel selection is centered in the window, and a horizontal signal strength/RF meter runs along the bottom portion. The "beep" is activated when you see the small musical note in the display, and for nighttime viewing the display lights up for 8–10 seconds with the simple press of a front-mounted push-button. I particularly like the brightly lighted display; two small lights nicely illuminate both sides of the display window, not like some units where only one side is lighted, making it more difficult to see the entire display. Memory channel, last channel recall and the power-saver feature are all shown as needed in the display.

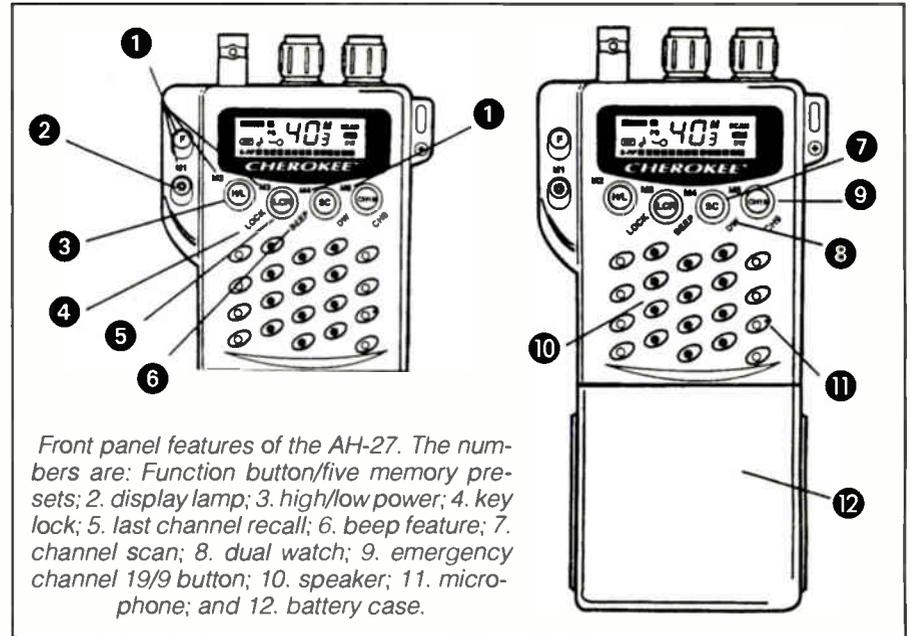
Special Features

Sometimes getting to either channel 9 or 19 is important, either to radio for help or contact another operator you're in-transit with. With the Cherokee AH-27, you can instantly access EITHER Channel 9 or 19. Push the "CH19/CH9" button and get to channel 19. Holding the button down for a couple of seconds gets you instant channel 9. The LCD display also shows "EMG" for "emergency" during instant channel 9 or 19 operation.

Of course you can always access any CB channel by using the side-mounted up/down push-buttons. Movement to each channel is confirmed by a momentary "beep" sound, which can be disabled with a simple key press.

Channel Scan and Dual Watch Functions

The Cherokee AH-27 has a unique feature that allows the radio to scan through all 40 channels, stopping when a conversation is found. As the instructions correctly point out, "it will remain on that channel during the conversation, and will not reactivate scanning until five seconds after the conversation has ceased." A simple key press of the "SC" button acti-



Front panel features of the AH-27. The numbers are: Function button/five memory presets; 2. display lamp; 3. high/low power; 4. key lock; 5. last channel recall; 6. beep feature; 7. channel scan; 8. dual watch; 9. emergency channel 19/9 button; 10. speaker; 11. microphone; and 12. battery case.

vates the scan feature. To stop scanning, press the "SC" button again. Want to talk to someone on a channel where the scanning has stopped? Simply press the "PTT" (push-to-talk) button on the side of the radio. This turns off the scanning function.

You also have five memory presets at your fingertips! Programming them couldn't be easier. Tune to the desired channel, then press and hold the "F" button while pushing the corresponding memory (1–5) button. It takes all of a couple of seconds. Accessing the memory channels is just as convenient. Press the "F" button, then the desired memory channel. You'll see your chosen channel and the memory location in the display window. Returning to another non-memory channel is accomplished by using the up/down channel buttons.

The last channel recall button is a handy feature that saves you time if you want to instantly return to the last channel you used. Push the "LCR" button and you're there.

Dual Watch—Becoming A Common Feature

We're seeing more and more handheld CBs coming out with the Dual Watch function. This feature gives you, as the manual states, "the ability to monitor and communicate over two channels virtually simultaneously. An application of this may be when you want to be able to communicate on a 'quiet' channel, while at the same time monitor conversations taking place on a very 'active' channel."

It's a simple two-step process. First select the channel you want to monitor. This is your "watch channel." Press and

hold the "SCAN/DW" button for three seconds. "DW" appears in the display. Next, select the other channel you want to monitor (use the up/down tuning buttons or a memory preset). Once this channel is selected, the radio begins its dual watch monitoring in a couple of seconds. To turn off this function, simply press the "SCAN/DW" button.

The manual is VERY well written in describing this process, and correctly states, "when setting the second monitoring channel of the 'Dual Watch' feature, do not try and use the 'SCAN' feature. Pressing the 'SCAN/DW' button at this point will simply turn off the 'Dual Watch' feature." Very important information to keep you from going nuts doing something you don't have to do!

I found the Cherokee AH-27's "Dual Watch" function to perform very well, indeed. It was easy to operate and understand. A word about the manual is in order here. Throughout the AH-27's manual the operation and function of each control was explained very well. I found no glitches or translation problems, or contradictory statements. It's very well organized and, especially for first-time CB users, easy to understand.

Lasting Impressions

Like the RadioShack TRC-232, the removable battery pack slides off from right to left; awkward, but not the end of the world. Pulling the two pieces apart requires some distinct pressure, but the fit is secure and makes very good contact on the bottom of the transceiver. I got many hours of excellent service from using six "AA" alkaline batteries. They lasted during my walk through Huber

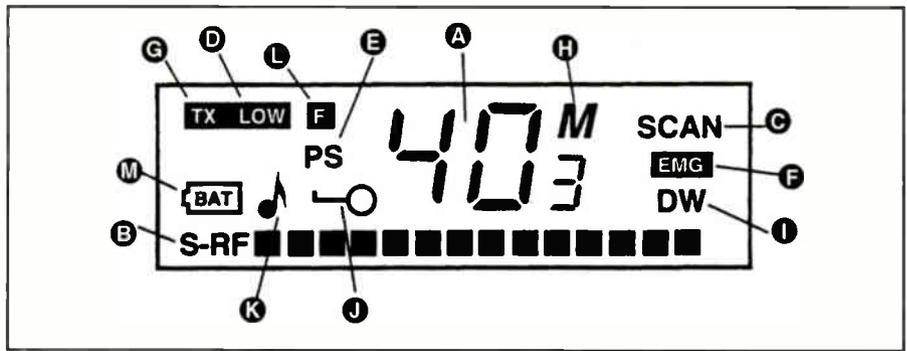
Woods, and well into the following week when I monitored channels 9 and 19 from time to time.

If you're going to use the AH-27 a lot, consider buying the optional DAW-39 wall charger/NiCd slide-on adapter unit. These two parts come packaged together; the charger plugs into your wall outlet, and the other end plugs into the slide-on adapter. This controls the charging of your NiCd batteries. Remember, if you're using the optional NP-126 sealed battery pack, you'd simply plug the wall-charger into the side of the battery eliminating the need for the slide-on adapter unit. If your local retailer doesn't carry this optional item, just give the folks at Wireless Marketing a call. The adapter/charger costs \$29.95, and the NiCd pack (NP-126) is \$89.95.

I charged the battery pack overnight and the next day was able to use the AH-27 radio for 3.5 hours on low power, a while on high power, and still get in some listening before recharging it again the next night. Of course you can also buy your own rechargeable NiCd's, and insert them in the provided battery case.

Overall Operation

I don't know how much smaller these darned radios can get, but smaller certainly is better! The Cherokee AH-27 fits



Display panel features are: A. channel indicator; B. signal/RF meter; C. scan; D. low power; E. PS (power saver); F. emergency channel; G. TX (transmit); H. "M" indicates preset memory; I. DW (dual watch); J. key lock; K. beep; L. function mode; M. "BAT" (low battery indicator).

securely in your hand, although, like other similar CB handhelds, getting the batteries in and out of the plastic case requires some effort. This isn't a major drawback—we might also look at the tight-fitting pack this way: The batteries won't fall out of the pack, and it clips on the bottom of the radio making excellent electrical contact.

With its excellent audio and punchy signal, I'd give this radio an "A+", and another high mark for Wireless Marketing Corporation for having available a very complete line of accessories, from the NiCd battery pack to in-car kits, external

mics, speakers, and a leatherette case for protecting the radio.

And as we all know, any company that stands behind its merchandise with a toll-free "800" number means business. That's important the day you buy the radio, and anytime you have a technical question. The Cherokee AH-27 sells for \$169.95 from Wireless Marketing Corporation, 3701 North Algonquin Road, Suite 750, Rolling Meadows, IL 60008, phone 800-259-0959. Tell them you read about it in *CB Radio*.

CIRCLE 100 ON READER SERVICE CARD

CRB Research's CB Modification Secrets

By Kevin Ross

A REVIEW BY NANCY BARRY, SSB-931

Here's a great book for all you folks who can't have a radio without wanting to see what makes it tick. Kevin Ross' new *CB Modification Secrets* shows you how to expand, enhance and add to the usefulness of some of the newer AM and SSB equipment. Ross' book is over 190 pages filled with modifications, projects, pictures and diagrams, plus there's room in the back for your own notes.

The first thing that I must tell you before we go any further with this review is that the staff at *CB Radio* magazine does not promote any illegal practices and *does* promote being aware of and following all the rules set by FCC Part 95. I must take this time to inform you that, as the book states: "any modifications or adjustments made to equipment are the sole decision and complete responsibility of the owner of the equipment. Modifications and adjustments void any manufacturers' warranties on the equipment, and are neither suggested nor recommended by manufacturers. It is solely the responsibility of the equipment owner to ensure that any

procedures are performed safely and are made and used in full conformity with all relevant sections of FCC Part 95."

Now that we've gotten that out of the way, I'll tell you what kinds of neat stuff you'll find in this new book from CRB Research Books, Inc.

First Things First

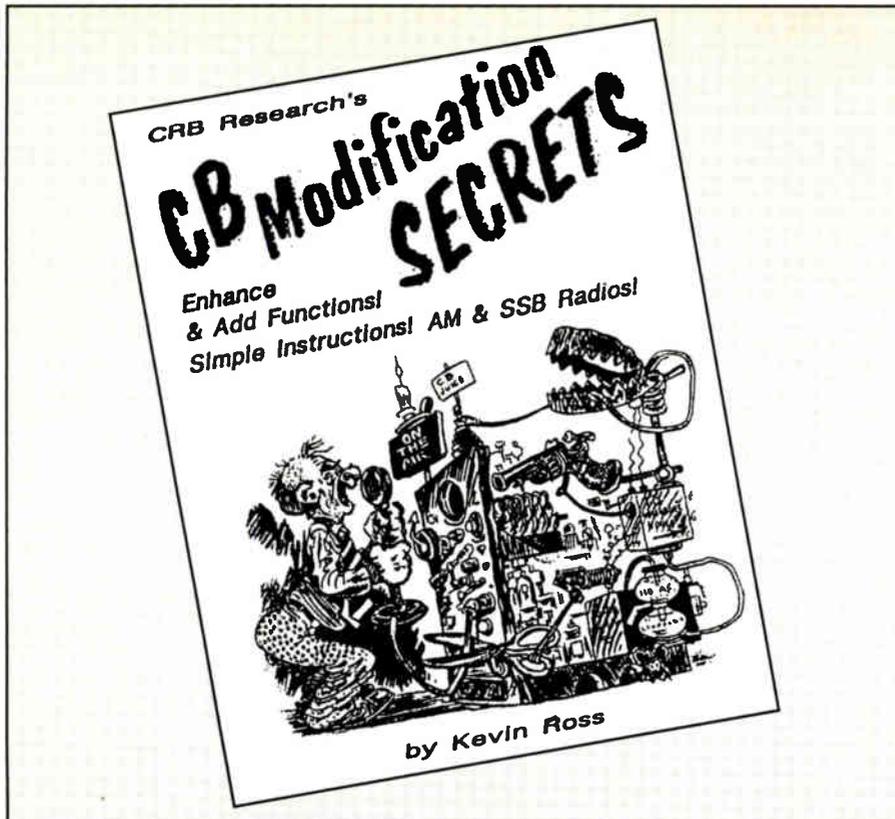
Some of the modifications listed in *CB Modification Secrets* are designed for specific radios. Some of the others are relatively generic and can be made to just about any radio. If you have a Cobra, Midland, President, RadioShack Realistic, Uniden, or a Wards radio, chances are you'll be able to make most, if not all, of the modifications listed in the book. My suggestion to you is, check out the back of the book where specific models are listed *before* you actually buy it. Of course, if you're more daring than I, or at least more electronically savvy, you'll probably be able to adapt the suggested mods to your radio even if it's not listed.

Next, it is important that you read the first chapter before diving in to any project. Chapter 1 discusses basic radio modification procedures and general information you'll need to know before performing any modification, adjustment or procedure.

It may also be a good idea to read through the *CB Radio Hacker's Guide*, also by Kevin Ross, to gain a better understanding of modification projects.

I know, if you're like me, you don't want to be bothered with all the "extra" stuff and you just want to get your hands in the radio. I usually save the reading for when I encounter a problem. When I get a new radio, I usually plug it in and check it out first, then read the instruction manual to see if I might have missed some nifty knob or function. This is NOT a good idea when "playing" with electricity.

Trust me, you really should spend some extra time reading that "extra" stuff. It really isn't extra . . . *it's essential*. I don't want you writing me from your hospital bed to tell me how much fun you had setting the ends of your hair on fire while you



attempted what you thought would be an easy mod. Please write, but also, please be careful.

Kevin Ross makes two very good points in chapter 1: "If you run into a problem that you absolutely can't solve, you have two options . . . 1—Take your radio, along with this book, to a local service technician and have him find the problem—or merely ask for his advice. 2—Remove the modification project, and restore the radio to its original condition." Remember, it's better to be safe than sorry. I know, I sound like a mom. Well, I am . . . and someone has to say it—please BE CAREFUL!

Diving In

Well now you're ready to get your feet wet. You've read all the warnings; you know that opening your radio voids all warranties; and you just want to feel the wires. What changes or additions would you like to make? Kevin Ross discusses a number of possibilities. He covers: Basic Modification Procedures & General Information; Modifications to Existing Circuitry; Construction of Test Equipment; and Construction & Installation of Accessory Equipment.

Project Section 1: Modifications to Existing Circuitry includes such projects as: variable frequency oscillator (VFO); disable beep; add remote S/R meter; instant channel 19; adjustable tone control; car voltage monitor; IF gain control;

anti-theft CB disabler; and TX/RX LED mods to name a few. Project Section 2: Construction of Test Equipment includes: Build a noise pulse generator; build a field strength meter; and build an audio frequency wattmeter. In Project Section 3: Construction & Installation of Accessory Equipment, you'll find: add beep; roger beep variations; emergency beacon signal; channel display automatic dimmer; channel display automatic shut-off; and receive indicator light; plus much more.

Some of My Favorites

OK, I admit it; I haven't actually ripped open my CB and made any modifications or changed anything, but there are a few that have really piqued my curiosity. If I ever have a radio I don't mind overhauling, I would like to give some of Kevin Ross' ideas a shot.

My favorite modification, in theory of course, is the Anti-Theft CB Disabler explained in Project Section 1. I would really like to reprint a copy of the story that Mr. Ross uses at the beginning of this section. Suffice it to say that this modification seems to be the answer to punishing CB thieves. He tells a story of a guy who brought "his" radio in to him for repairs and when he opened the case to find the problem, there was a note that said the radio was stolen and where to return it. Apparently this modification can be made to just about any mobile CB and it will

completely disable the radio's transmitter circuit if the radio is stolen. Yes, this is *exactly* what I want for my radio—I'd pay good money to see the look on the person's face when he or she realizes the radio they went to all that effort to take from my car, doesn't work! It may seem warped, but that's my kind of justice!

The great thing about this book is that before you even start a project, you know exactly what you'll need, where you can get the supplies, and how many steps are involved. For instance, the parts required for making the transmitter inhibitor are all available from RadioShack (catalog numbers included) and there are eleven steps to the procedure AND there is a drawing that shows what things should look like inside the radio as I make the modification. Also included for each project is an explanation of the purpose of the modification or construction and the "theory of operation." Each project is done in the same manner.

I would also like to try a construction project to create an automatic shut-off for the channel display. This project can be found in section three. I never thought about it until I read this book, but the section starts with the explanation: "One of the most common points of failure in CB radios is the L.E.D. channel display. Dimming the display's intensity will extend its life to a certain extent, but the main cause of the problem still remains—the display is operating continuously while the radio is on. Common sense suggests that the display should be shut off when it's not needed (which is approximately 95% of the time)." I agree. How hard is it to remember what channel you tuned in five minutes ago? Why does the darned thing have to stay on ALL the time? I guess if you like to jump around the channels, this modification doesn't make sense, but I usually stay on one channel for a while, and it's usually the same one every time. As I said before, if I ever get the courage to check out the insides of my radio . . .

Please Don't Do It

I thought I'd take this time to ask a favor. One of the modifications listed in *CB Modification Secrets* is adding either a roger beep or a key beep. I REALLY don't like these. I guess maybe I just don't understand why they're necessary. When you're done talking, you're done. In my opinion, there's no grey area here. Why do people need to add a beep. I guess if you're prone to talking in a monotone, and people can't tell when you're done talking, having a roger beep might be useful. The same goes for the key beep. If you start talking, I know you're there. I really don't need for you to insert an obnoxious

beep before you speak, so that I know you're about to start talking—just talk. Again, maybe I just don't get it. Maybe someone could write in to me and give me some good reasons for these beep noises. I would like to hear from readers on this.

Dreamin' . . .

I like this book. I hope that I can overcome my fear of losing my warranty and get into a radio and give some of these a shot. I think it would be a lot of fun to add some neat functions to my radios. This is the book to use. It's comprehensive, easy to read and some of the stories are real-

ly funny. As you may have noticed in other reviews I've done, I enjoy a good sense of humor. If you can make me laugh and get a point across, you've got it made in my book. CRB seems to have the books that can do it.

Speaking of funny, there's one small section of the book I have to recommend reading. It starts on page 85 and is called "CBers Say the Darndest Things." These are funny short stories of some of the things Kevin Ross has heard while standing behind a sales counter. You probably wouldn't believe some of the stories, but you'll probably laugh, they're quite funny.

As I said, I like this book. I like it a lot, and I plan on keeping it for future use. I think you'll like it too. If you're into tinker-

ing with electronics, and you're curious about how the radio works and what it'll do if you just snip here, solder there, etc., you will undoubtedly enjoy this book.

If you agree with me, you *should* get a copy. *CB Modification Secrets* by Kevin Ross is available for \$21.95 plus \$5 shipping and handling (\$6 to Canada); New York State residents add \$2.22 tax. For more information, or to order your copy of *CB Modification Secrets*, contact CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725; order toll free 1-800-656-0056; Canada/AK/HI orders call 516-543-9169.

CIRCLE 101 ON READER SERVICE CARD

The Delta Tango International DX Group

BY NANCY BARRY, SSB-931

They call themselves "The World's Finest DX Group," and they are a non-profit organization whose aim is to "provide a good quality DX package for our members and spread friendship through radio." The Delta Tango International DX Group is looking for members who agree with their objectives and would like to promote friendship through radio. The Group was established in 1993. They are a contemporary group, based in England, with an expanding membership in over 60 countries around the world.

What Do They Offer?

When I first received their sample package—that is, the package they would send to new members—I was very surprised. For a relatively small fee (\$20 U.S.), they will send you: a unit number, 10 QSL cards, 10 printed envelopes, 10 contact certificates, 10 log sheets, a membership certificate, the Delta Tango Group magazine, division prefix list, frequency chart, Q codes list, the DT Directory, a DT ID card, and DT invitations. You also have the opportunity to be listed in the DT Directory if you provide a P.O. Box. If you need a P.O. Box, you can enclose two dollars more, and one will be assigned to you.

It's a really nice package. Their QSL cards are printed on the back with spaces for all the information about your contact and the front of the card is printed with your country flag and the Delta Tango logo. The membership card is made of sturdy plastic, similar to a credit card, and is the perfect size for the display window in your wallet. You will also receive a personalized

membership certificate that can be framed and added to one of the walls in your CB shack.

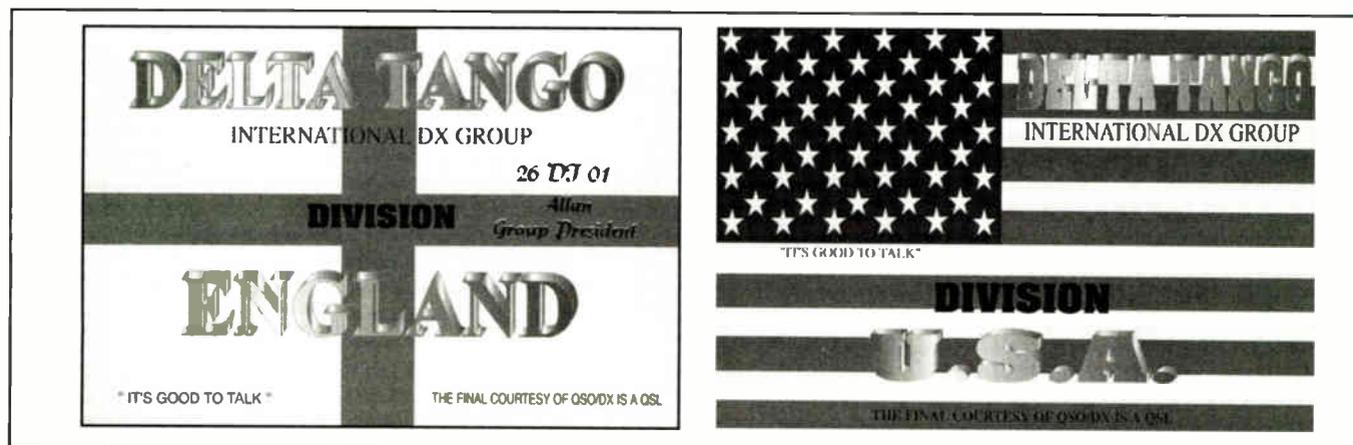
Why Join?

Why not? Everyone belongs to some group or another—it's fun to be a part of a larger group with similar interests. We all have some affiliation—some of us belong to fraternities or sororities, some of us belong to a church or social group, and still others join hobby groups. Look, even I belong to the SSB Network here on Long Island, New York. There are all kinds of organizations for all kinds of interests; The Delta Tango Group is for CBers interested in International CB and people who would like to encourage CB on a worldwide basis.

This Group is worth looking into. They seem to be professional, organized and best of all, friendly. They offer a nice package for their members as well as the potential for adding some extras. You can order extras of some of the things that come in the membership package such as QSL cards and envelopes. You can also order T-shirts, sweatshirts and pens.

The only thing I would recommend to the Group, is that they send a price list for the member's country. Most of the prices are listed in Pounds making it somewhat difficult to know what to send in. All-in-all, though, it looks like a group I would like to join . . . How 'bout you?

For more information, send an SASE to The Delta Tango International DX Group, P.O. Box 174, Preston, Lancashire, PR1 0BS, England. ■



Real Cowboys Don't Cry

Heading home, dog-tired after a weekend of rodeos, teenager Penny Roberts wheeled the pick-up truck equipped with a camper through the long night. "It was in the middle of May, my brothers were sleeping in the back, and all of a sudden I was in the middle of a snowstorm!" Penny says with a wry grin. "It was scary!" Another time, Penny wasn't as lucky as the truck ended up in a ditch, waking her brothers and bruising her ego. Even though the kids were able to get help by catching someone on their CB, and didn't spend too much time in the ditch, you know how brothers can be after being rudely awakened in the middle of the night—they still haven't let Penny forget her little miscue.

Such are the tales my niece, Penny Richardson, and her four brothers tell of their high school rodeo days. Days when they would cram into the pick-up, warm up the CB and hit the road every Friday after school. Appearing in two rodeos each weekend, their summer travels read like a Greyhound bus schedule. From barrel racing to bull riding, they engaged in bruising rodeo events with the same dedicated enthusiasm as the professionals, their only reward was in a job well done, and a lot of aching muscles.

Without a break, they would pile into the truck and travel a couple of hundred miles to the next event. What little sleep they managed to grab, came while crammed into the camper or curled up in the cab of the truck.

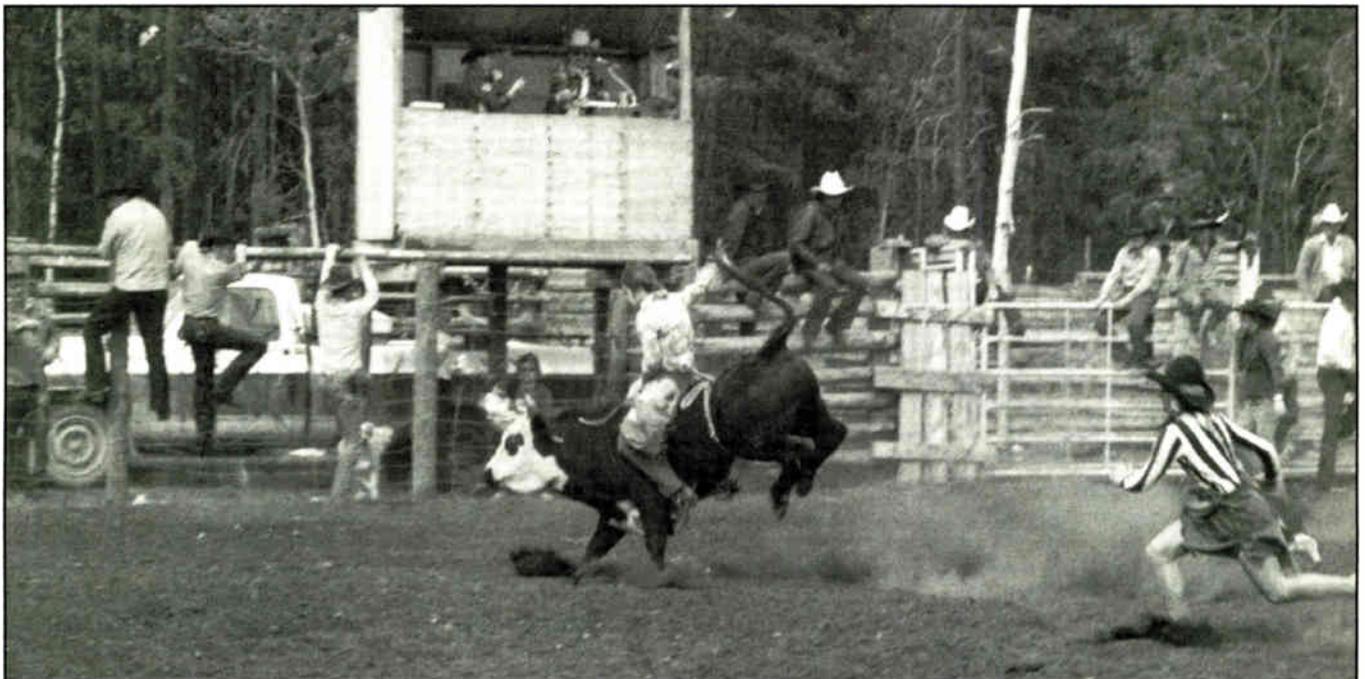
It's a long way from the so-called rodeo days my brother, Ira and I experienced. In our younger days we would throw a leg over an unwilling calf for a few wild jumps around the farm yard. Later we graduated to riding Shetland ponies, making them buck by using a cinch-rope around their flanks. As I recall, those eight seconds were some of the longest in my life. I would have never made it as a Herman Linder, Casey Tibbs or Pete Knight. By the way, during the 1930's, Linder was Canadian All-Around Champion seven times, and North American All-Around Champion five times.

Originally it was an adult's game of testing skills between working cowboys, but the age of contestants is getting younger every year. Even the innocent fun of a couple of bored farm kids has become organized, much as empty-lot baseball games have turned into World-Class events. Just south of Calgary, Alberta, you'll find the bustling town of High River, where they hold something called the

Mutton Bustin' Rodeo, in which little kids compete against each other by trying to ride uncooperative sheep. You can tell it's organized—all the kids are wearing protective head gear.

The Early Years of Rodeo

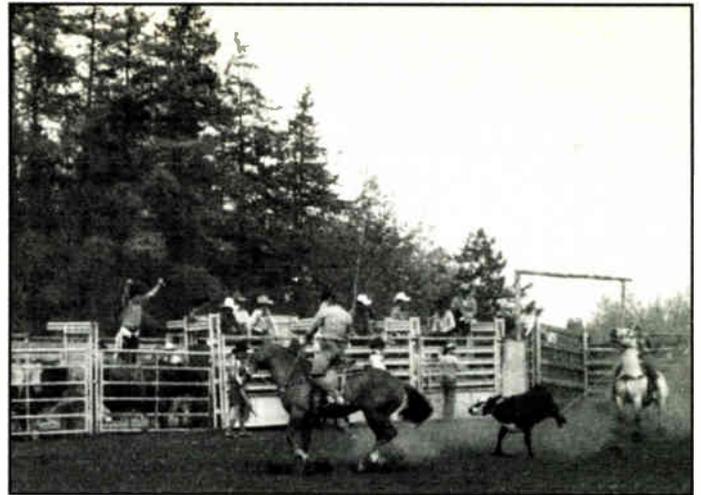
Rodeo in this country dates back to the year 1902, and the little town of Raymond in southern Alberta, where a bunch of cowboys gathered together for a little fun doing the same things they were paid to do all week on the neighboring ranches. This was followed by another get-together further north in 1912, which marked the birth of the now famous Calgary Exhibition and Stampede, presently an annual 10-day extravaganza in July claiming bragging rights to The Greatest Show on Earth. These shenanigans were not invented by the folks north of the 49th parallel, but imported by American cowboys working on local ranches. In fact, in the 1880's a Texas cowboy by the name of Bill Pickett originated the art of bulldogging: dropping from a horse onto a running steer and sinking his teeth into its upper lip which caused the animal to go down. The event is now called steer-



Perry Roberts takes his turn at bull riding at High School Rodeo in central Alberta.



Lyle Roberts in saddle bronc event at High School Rodeo, a popular attraction for teenage cowboys.



Team-roping at a local rodeo takes a lot of cooperation between cowboys and the critter being roped.



Brian Roberts having a good ride at High School Rodeo in central Alberta.



Lyle Roberts throws his loop over a calf, and is getting down for the tie in calf-roping, another popular event at High School Rodeo.

wrestling, and cowboys don't bite the poor critter's nose anymore, instead they grab the horns and twist the head to one side, and if they're lucky, they'll pull the 700-pound animal down in a quicker time than their competitors.

Rodeo animals have a tremendous weight advantage over the cowboys, and maybe that's why my nephew, Lynn, the oldest and maybe the smartest of the Roberts kids, didn't take well to the sport. He decided early in the game that getting bucked-off and stomped on wasn't how he wanted to spend his weekends. Not that he gave up on rodeo life—when he

bought his own truck and hung a CB in it, he was the one doing most of the driving to get his brothers and sister to the rodeo, but instead of competing, Lynn became their official photographer, figuring it was a lot more fun, and a lot safer behind the camera lens.

His brother, Lyle, always long and stringy, looked and acted the cowboy-way, with a "kerchief knotted tight around his neck to catch the dust and sweat, and a tell-tale faded circle on the hip pocket of his jeans—the Copenhagen pocket. Lyle was good at riding bareback broncs and bulls, so he wasn't doing any idle bragging with his get-up. In rodeo for 14 years, he later tried his hand at steer wrestling, as if that's any easier on the body. Now he's a livestock auctioneer living in Medicine Hat, Alberta, with his wife Lori and their three kids. What does Lori know about Lyle's rodeo life? "He doesn't

tell me the good stuff," she says with a laugh. "But he did tell me about having to hitchhike to a rodeo when his vehicle broke down."

Brian, the youngest of the kids; short, stocky, and always with a big grin on his face, was no slouch when it came to rodeo either, and probably had the toughest time, what with having to live with all the advice his more experienced brothers were happy to pass his way. Riding bareback broncs was Brian's long suit. His dad loves to tell the story of how Brian injured his rope hand. He shot it full of painkiller before going on to the next ride. I guess it's true that real cowboys don't cry, even if they're still young enough to go to high school.

Penny's twin brother, Perry, took up rodeo when he was 14, and rode bulls for 10 years. They don't come any tougher than Perry. He broke his already broken

"Their summer travels read like a Greyhound bus schedule"



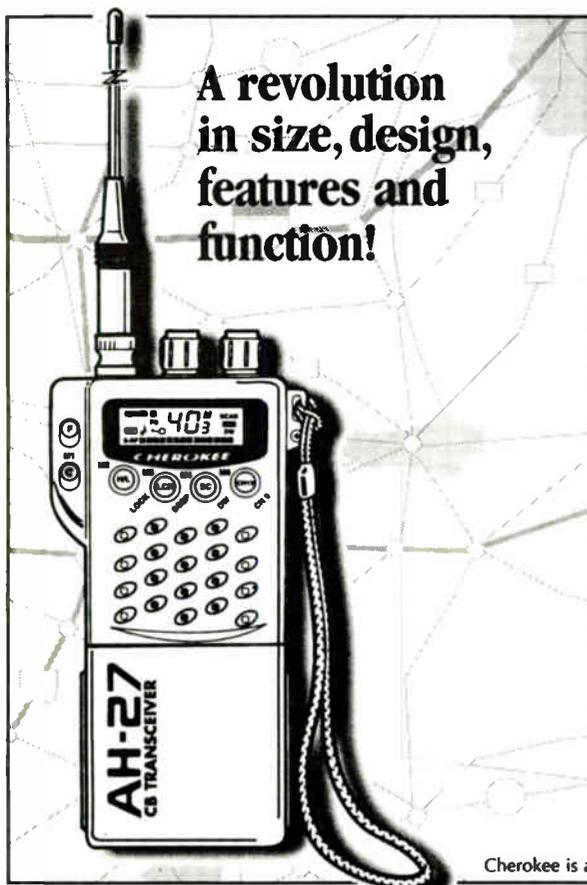
Perry Roberts on bull getting a little help from a rodeo clown, an important factor in bull-riding events.

leg during a bull ride at Hay Lakes, in northern Alberta—cast and all. Then he broke the same leg a week later at another rodeo. Perry gave up the life when he married Mary Anne, whose dad, Jim Freeman, was the 1976 bull riding champion. Perry is now a foreman with the

Department of Highways and has a horse shoeing sideline. "I guess I miss it, sometimes," he says wistfully of his rodeo days, but his ties with the rodeo world are not completely broken. His 12-year-old daughter, Ebony, competes in barrel racing every weekend.

You won't find any of Penny's kids near a rodeo. "I keep them busy with 4-H Club work," she says emphatically. "And that's where they'll stay." It's not that Penny regrets her rodeo days; she loved to compete, and even tried steer-riding a few times, but her main event was barrel racing, where she usually managed to push a respectable 16-second time from her mare, Skeeter. Since marrying Geoff, another bull rider, she's been content with her memories, and an occasional ride on Dolly, one of Skeeter's offspring. More than likely, the biggest attraction to giving up rodeo was being able to sleep-in on weekends.

In any sport, the most dedicated athletes are those who take part just for fun, and it's no different in the rodeo world. Every weekend there are still plenty of teenagers loading their gear into pick-up trucks and warming up the CB before heading off to the next little bust-up. Rodeo people are a sort of a fraternity, and the events offer a lot of fun for the contestants as well as a way to make new friends around the corrals, or even on the road with a little CB chatter. Not everyone approves of the kind of entertainment rodeo offers, some even say it's just too brutal on the animals. Maybe it is, but I haven't heard too much said about how tough it is on the teenagers. ■



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CIRCLE 60 ON READER SERVICE CARD

Scanners: User Friendly



HOW TO GET THE MOST OUT OF SCANNING VHF/UHF

By Steve Adams

Society's Checks and Balances

I've always maintained that we scanner enthusiasts may know more about police and what they do than anyone else outside of police personnel. We know their procedures, their techniques, and their strategies. We hear the routine and the exciting. We hear the endless license plate checks, the domestic violence calls, the myriad of alarms to check out and we hear the high speed pursuits. Granted, scanners are used by criminals too, but so are cars and ski masks. There are prices we pay to live in a free society. I am willing to pay those prices.

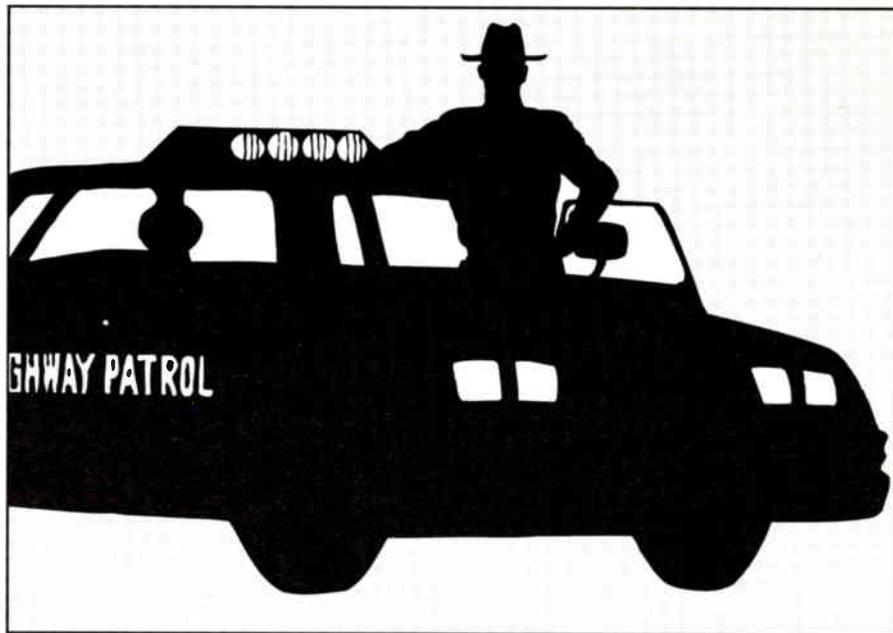
What allows our society to function is that the majority of our citizens willingly obey the laws and follow the rules. We need police to enforce the laws and rules for the few transgressors who would transform society into anarchy. Owning a scanner and monitoring police and fire frequencies and broadcasts is generally completely legal and is a pastime enjoyed by legions of informed citizens. In my opinion, it is a duty to monitor them. Some cautions: It is always illegal to go to the scene of an event and obstruct public safety personnel in the performance of their duties. Generally, you cannot pass what you hear to third parties. You cannot monitor telephone calls of any sort, and using a scanner to aid in committing a crime is a crime in itself. Gaining insider information from monitoring scanner communications and using it for personal gain is unethical or illegal.

Owning and monitoring a scanner is also part of our society's checks and balances. In our open society, police don't have unlimited powers of anonymity. They must, for the most part, obey the same laws and follow the same rules of conduct as everyone else. We generally hold them to much higher standards where unique police powers are involved.

We who legally use scanners know what is going on around us and rejoice in being part of the checks and balance system. Those who don't use scanners, have to rely on subjective, filtered and possibly biased reporting, or in the worst case, they don't know at all.

More Reasons to Have a Scanner

Here are several more reasons to own a scanner and monitor our airwaves. Those reasons are knowledge of what is going on around us and being part of the



checks and balances process. Knowledge, which stimulates thoughtful discussion, will also prevent knee-jerk reactions or solutions that will ultimately harm us all.

A series of apparent or alleged police abuses have recently saturated the airwaves. Videotapes are being aired of a state trooper who attempted to arrest a woman who allegedly failed to yield to an unmarked car. The video camera in the patrol car shows the officer apparently using excessive force and violating departmental policies which has prompted calls for reform, going as far as advocating the elimination of unmarked police cars altogether.

Riverside County, California Sheriff's deputies are allegedly shown beating illegal immigrants after a 70 mile pursuit of an overloaded pickup truck. The deputies are caught on tape from an overhead media helicopter. Audio tapes of the incident clearly indicate that other officers from other departments not involved in the alleged beatings were using terms and descriptions that are unprofessional and controversial, to say the least.

Still another recent incident involves the U.S. Border Patrol in which the alleged stolen truck they were following went off the road, killing seven and injuring many more suspected illegal immigrants. These and other recent incidents

around the country indicate there are many problems to be addressed, both real and perceived.

These incidents and others, as unfortunate as they are, can lead to some good coming from them in that they can and should be used as a forum to discuss training, evaluate pursuit policies, develop alternate means of pursuing suspects, reinforce accountability and responsibility and the supervision and leadership of police personnel.

Another Problem Surfaced

In the immediate aftermath of these incidents, the media rightfully tried to air whatever they could of these events. Spokespersons hastily assembled from law enforcement agencies or unions seemed to fan the flames rather than present an objective and reasonable approach. A wait and see attitude pending the outcome of investigations would be the prudent and non-confrontational means of addressing the issues. The spokespersons I saw being interviewed on television were confrontational, defensive and evasive and in some cases, seemingly supportive of the alleged abuses. I would think all those in law enforcement would want to resolve whatever problems there are so they might

once again enjoy the public's support and respect.

Police spokespersons have neither to take a hard position nor dodge the issues to project an enlightened, positive, objective and perhaps healing position or opinion that society will be better served if these incidents never happen. We must look at training, supervision and alternate pursuit polices as possible solutions.

Few things shake the American people's sense of right and wrong as abuse of power does. The My-Lai massacre of Vietnam, the Kent State shootings, police abuses during civil rights and anti-war demonstrations and of course the Rodney King beating all brought the outrages they deserved.

There are many theories being bandied about. One is "the high-speed pursuit syndrome" in which officers' adrenaline is at such a high level that aggressive behavior on their part is unavoidable. Is it reasonable for an officer to assume that a person or persons committing a felony by failing to yield might also be fleeing from other recently committed felonies, and would be capable of trying to inflict harm on the officer? Which side of this question should the officer err on when dealing with fleeing felons?

Granted, a police officer who is responding to a report of criminal behavior could lead you to believe that he or she might be in physical danger. However, the use of force must be appropriate to the situation. Non-English speakers may not respond to police commands, thereby inciting aggressive police behavior because the officers might view it as resisting arrest, or worse. Remember, it was after a high speed pursuit that the Rodney King beating occurred. What has been done since then? Why haven't we incorporated the lessons learned from that into police training and government policies?

It is not an easy call to make. As pro-police as I try to be, I do not blindly nor unconditionally support them. I cannot condone excessive use of force, the apparent beating of unarmed women, the apparent beating of suspects who appear to offer no resistance. But I also believe that the officers have every right to go home at the end of a shift, unharmed, unmaimed and unscathed.

Solving These Issues

How do we address and solve these issues? Our systems work, not perfectly, not rapidly, but they do work. Our free media will keep the issues alive. Our court system will hear any criminal or civil cases resulting from the incidents. Citizens will go to the ballot boxes and vote for can-

didates, bond measures, and initiatives that most closely meet their needs or reflect their positions. Continuing discussions are the answer.

Discussion Topics

Everyone has compassion for those whose only crime is wanting a better life. That is not what we are dealing with in these high speed pursuits. These attempts at evasion and escape endanger the public, the police and the passengers in these pursuits who may be unwilling participants.

Would it be useful for our policies to be made public concerning felons who lead police on high speed pursuits? I don't know what they are, so it seems reasonable that immigrants attempting to enter the U.S. illegally would not know either. Perhaps publishing them in major metropolitan and foreign language newspapers and in public service announcements on major TV networks as well as foreign language stations would help promulgate the policies and consequences of these actions. Could the lack of knowledge of our policies encourage illegal immigration or failing to yield to police?

Are the penalties severe enough to discourage failing to yield to police? In the case of illegal immigrants, are they simply taken back to the border and released? What deterrent is that? At what cost and danger to society does that policy exist? Should the driver or all occupants be charged?

We have made drunk driving socially unacceptable. We need to do the same with vehicular evasion or failure to yield. There does not generally appear to be much sympathy for drunk drivers who endanger the public. Why would there be any more sympathy for those willfully failing to yield to police, thereby endangering police and the public?

Are we being "penny wise and pound foolish" in equipping our police? How many lives and how many civil suit dollars would be saved by pursuing fleeing suspects from the air? Waiting for them to run out of gas or being able to set up roadblocks and tire puncture devices seems preferable to me in all but the most extreme cases.

In my area, pursuits are handed off to the California Highway Patrol whenever possible. The CHP doesn't have the jurisdictional, communications or resource problems that many local agencies experience in long pursuits. Just as canine units are deployed, would it be of value to train and equip special units for pursuits in addition to their normal patrol duties? With more training and experience in these matters, officers would seem less likely to succumb to "high

speed pursuit syndrome" and less susceptible to the public's second guessing.

Monitored by Supervisors!

Pursuits are generally monitored closely by supervisors and watch commanders. They consider many factors in making their decisions, including the traffic and weather, the seriousness of the original crime that started the pursuit, the risk of letting the fleeing felons go versus the risk to the public either to catch them or have them loose in public. These decisions are best left to patrol and watch supervisors who are trained, equipped and best informed to make them.

Any attempts to right a wrong must be carefully considered so that several wrongs are not created in the process. We must be very careful not to place overly restrictive policies on law enforcement concerning the pursuit of fleeing felons since that might become a license to just flee with relative impunity.

Reader Mail

If you think "Oh, my letter would never get in there, why bother", think again. This truly is YOUR opportunity to speak and share your opinions in a national magazine. As always, we encourage and solicit your inputs and thoughts on the topics presented here. Have you heard events or incidents on your scanner that should have made the news, but didn't? Have you heard things first-hand that were reported differently than you heard them? Why do you think that is?

Product Reviews

I currently have a BearTracker BCT-10 scanner on loan to me from the Uniden company for a long term test. Look for this product review, as well as others in upcoming issues.

Surfing the Internet

I have recently become a surfer. My expeditions so far have been limited to WWW (World Wide Web) pages. There is a wealth of information on virtually any topic. I am still fine tuning my use of the search functions and programs, but even a novice surfer can find much on scanning. Here are some hints:

Learn the search programs well. Most have comprehensive instructions and examples. Using multiple keywords such as "scanner frequencies" or "police frequencies" will eliminate references to document scanners or other unrelated topics. Use the AND function so that all

keywords must be present, otherwise you may wind up with thousands of pages to sort through. I have found pages of frequencies for many areas of the country, broken down by state, county or city. To further zero in your searches, use geographical areas or agencies. The law enforcement or police topics call up many interesting pages too. I am just starting to sift through those. Accomplished surfers are encouraged to pass along information and interesting sites.

As always, we want to hear your comments, questions, suggestions and anecdotes on anything even remotely connected to scanning or the issues discussed here. Send in photos (no Polaroids, please) as well. Mail your inputs to: Scanners: User Friendly, *CB Radio*, 76 North Broadway, Hicksville, NY 11801-2953

You can also reach me directly by e-mail at BayAreaRedWriter@msn.com.

There is a three month delay between receipt of your letters and photos and their publication, so please be patient.

While you're waiting for your letters and photos to show up here, don't forget to send in your subscription for *CB Radio* so you won't miss a single, action-packed issue. See you next month. ■

Steve's Top National Frequencies for the Month

27.065	CB Channel 9 Emergency
27.185	CB Channel 19, Traveler's Assistance
27.215	CB Channel 21 Trucker's Channel
47.42	American Red Cross
121.500	Civilian Air Distress (Emergency locator beacons)
123.100	Search and Rescue
142.375	Federal Emergency Management Agency (FEMA)
142.975	FEMA
143.000	FEMA
148.150	Civil Air Patrol
155.475	National Law Enforcement (Mutual Aid)
156.800	Marine Band, Channel 16 Calling/Emergency
164.550	U.S. Customs
165.2375	U.S. Customs
165.2875	Bureau of Alcohol, Tobacco, Firearms (BATF)
165.750	National Transportation Safety Board (NTSB)
165.9125	BATF
166.175	NTSB
166.2875	BATF
166.4625	U.S. Treasury common
166.5375	BATF
166.5875	BATF
167.050	Federal Communications Commission (FCC)
168.000	BATF
170.4125	BATF
173.8875	BATF
243.000	Military Air Distress
462.975	Emergency Medical/Lifeflight Helicopter

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REACTing With Radio

NEWS AND INFORMATION ABOUT PUBLIC SERVICE VOLUNTEERS

By Ron McCracken

Disabled Operators and REACT

Are you disabled, or do you know someone who is? REACT counts many disabled CBers among its monitors. It also has the welcome mat out for *new* monitors with disabilities.

For the disabled and for REACT Teams, it's a win-win situation. Disabled individuals can usually monitor CB Emergency Channel 9 every bit as well as anyone else on their Teams. Often, their disabilities enable them to rank at or near the top of their Teams when it comes to monitoring hours. That is a *huge* benefit to travelers out there on the roads or waterways. It increases their safety greatly and helps to build the Teams' reputation for dependability.

Contribute and Enjoy

REACT participation can open new doors for the disabled. They can be contributing members of their communities in one more way. Most monitoring occurs at home where disabled monitors find comfort and convenience. That adds to their enjoyment.

Spunk, and amazing new technology, mean that disabled REACTers are usually front and center to sign up for duties at community events too. Roomy vans, wheelchair lifts, electric scooters, all make the disabled quite mobile. They often hold up better at these events than those who have to hoof it.

Real Life-Savers

REACT's disabled monitors save lives as routinely as others on their Teams. Seldom does the public know, or care, that a disabled Channel 9 monitor made all the difference when lives were at stake. Would you care?

Medical officials credited a disabled REACT Lake Simcoe, Ontario monitor's report with saving the life of a young cyclist. He collided with a car and was bleeding to death. Only the speedy arrival of paramedics alerted by her saved the boy's life. She later had the thrill of meeting him and his mom. A mother herself, you can imagine the REACTer's joy. She has played a key role in other life-threatening incidents.

Near Salem, Oregon a young REACTer in an iron lung aided the U.S. Coast Guard in saving the lives of two fishing buddies. They were adrift in the Atlantic Ocean off



REACT McLennan County, Texas "men and women of orange" gather with the host of the Charlie Pack Fishing Tournament outside the Team's new communications trailer.

Massachusetts, 3,000 miles away! They had been adrift for 10 hours when the USCG found them, thanks to his alert. The disabled REACTer had once lived in the same town from which they had set sail, so he knew that their distress calls were legitimate. Convincing the Coast Guard in Portland, Oregon was another matter!

REACT North Brevard, Florida has several disabled monitors on its Team roster. At this writing, the Team is preparing to handle safety for a large air show. Second in command for this event is one of the Team's disabled monitors. He did an outstanding job last year and no doubt will once again.

Endless Variety

Opportunities for disabled REACT members are as varied as the members are. BAER REACT, California has an award-winning Team newsletter. The newsletter editor is a disabled REACTer.

REACTers journeyed to Omaha, Nebraska for their international convention last year. Co-chair for the convention, hosted by REACT Douglas County, was a disabled lady. And it wasn't a first. Disabled members have shouldered major convention responsibilities at other REACT International conventions, not to mention the numerous state conventions held each year.

At the Omaha convention, a blind REACT Sedgwick County, Kansas member was honored with the "K-40 REACTer of the Year Award" for his outstanding safety communications work. Is it any wonder that REACT is so proud of its disabled members?

Contagious Qualities

Often their disabilities have helped them to develop patience, determination and other enviable qualities that can benefit any REACT Team. They can be a valuable influence on their colleagues, inspiring them to greater service.

REACT Lake Simcoe, Ontario had a senior lady ask to join the Team. She knew nothing about CB radio, but she had read of the Team's safety efforts in the local paper. Team members helped her establish her base station and she became a real asset.

Suddenly, she passed away. The Team learned that she was a distinguished doctor at a Toronto hospital, who had to retire due to cancer. She wanted to keep active, and her cancer disrupted her sleep. She monitored during the overnight hours to help her Team and to pass those sleepless hours usefully. It was only after she had passed away, did her fellow REACTers learn the details from family and friends. Her unselfish-

Amateur radio operators ham it up during field day to practice skills

By Jerry Soifer
The Press-Enterprise

Last year, Riverside resident Paul Hartson used his skills as an amateur radio operator to assist firefighters in battling a blaze that blackened more than 20,000 acres in the Pinyon Flats area near Hemet last July.

Hartson worked at the Riverside County Fire Department headquarters in Perris. He received communications from amateur radio operators like himself who were in contact with firefighters on the line. Hartson relayed the information to fire headquarters.

Just a few days before, the 40-year-old Hartson had sharpened his skills on amateur radio field day, a national exercise for enthusiasts like himself. Hartson said the field day helped prepare him when he went into action to help the firefighters.

Hartson and about 50 colleagues are

doing it again — spending Saturday and today in a field off Mockingbird Canyon Road in Riverside, communicating with amateur radio operators from around the nation.

Hartson, who used to design grocery store displays of Pillsbury products, said the highlight of a year ago was the camaraderie he experienced with his fellow radio operators.

"It's a good hobby," said Hartson. "I love to talk to people. It's a good source in the event of an emergency. It's been a long-standing goal to be a ham (amateur radio operator) since I was 16."

Scores of amateur radio operators are spending the weekend in similar circumstances around Riverside County. About five members of the Crest REACT group, a group of Corona radio amateurs, set up their radios at the Corona Seniors Center.

"The speedy arrival of paramedics saved the boy's life."

Tournament recently. The Team handled security, communications and transportation for the popular event. In bad weather or around-the-clock assignments, the new trailer offers dry, comfortable quarters for the REACTers.

Believe It!

When REACT North Brevard, Florida members received their instruction manuals for security duties at the Valiant Air Command's "Warbird Airshow" in Titusville, this is what they read: "CB radio (Mandatory); GMRS radio (Optional)". Using their CB radios throughout the airshow, REACTers were able to keep the large crowds of spectators safe and sound during the three-day event. Assisting the Team, was a member of REACT Indian River, so the Florida spirit of cooperation is alive and well. Word has it that some scenes from the airshow will appear in a new TV series, "Daytona Beach." There's been no word yet on starring roles for any of the REACTers.

More Honors

REACT Oklahoma City has been included in the design of a commemorative patch honoring various organizations and agencies that responded to last year's disaster there. REACT shares the attractive emblem's border with Red Cross, ARES, FEMA, EMSA, FBI and several other emergency responders. It's a fine tribute to all.

Crest REACT, California got their share of experience in disaster conditions and radio operation at its first amateur Field Day participation. It also got good press coverage that can result in new Team members!

ness inspired greater dedication among her Teammates.

Do a disabled friend a favor. Encourage him or her to look into joining a REACT Team. Urge them to consider establishing a Team if none exists. They have much to offer REACT, and REACT has much to offer, too. They could make a terrific duo.

9. Its membership is back up to 40 and the Team has now set its sights on being "Number One in the Nation." Monitors have been urged to guard the emergency channel both while mobile and at their bases. The big winner in this will be Florida's traveling public. We wish them every success in reaching their goals.

Serving Notice

Space Coast REACT's new president has challenged the Team to restore its 24-hour coverage of CB Emergency Channel

Have Trailer, Will Travel

REACT McLennan County, Texas can now enjoy all the comforts of home while on duty. The Team now has a trailer which made its debut at the Charlie Pack Fishing

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Here's a "Disabled" REACT North Brevard, Florida member in his life-equipped van discussing final details with a Valiant Air Command official prior to the airshow. He served as REACT Net Control for much of the three-day event.

CIRCLE 11 ON READER SERVICE CARD

DEC 29 1995



CITY OF TAMPA

Police Department

Bennie R. Holder
Chief of Police

NEWS RELEASE

DECEMBER 21, 1995.

REPLACEMENT TOYS AVAILABLE

MR. FRANK COHEN WITH REACT OF HILLSBOROUGH COUNTY HAS ADVISED THIS OFFICE OF AVAILABLE REPLACEMENT TOYS FOR ANY HOME THAT HAS BEEN BURGLARIZED AND HAD CHRISTMAS TOYS STOLEN. HIS ORGANIZATION HAS VOLUNTEERED THEIR TIME, MONEY AND EFFORTS TO INSURE THAT NO CHILD WANTS FOR A TOY DUE TO A "GRINCH".

HE HAS LEFT AN ANSWER LINE OF 286-2388 FOR LAW ENFORCEMENT TO CONTACT HIS ORGANIZATION IN THE EVENT OF A TOY THEFT. THIS LINE IS AVAILABLE THROUGH 1200 HRS ON CHRISTMAS DAY. HE WILL BE AT AN ALTERNATE NUMBER ON 12/23/95 AFTER 1800HRS. THIS NUMBER IS 949-6233 AND WILL BE USED THAT EVENING ONLY. PLEASE FEEL FREE TO USE THIS SERVICE SO THAT CHRISTMAS WILL BE MERRY FOR EVERYONE.

REACT IS A CLUB FOR CITIZEN BAND OPERATORS. #4909

FOR MORE INFORMATION CONTACT:
Steve Cole, Public Information Coordinator
Main Number: 274-5848
Media Info Line: 274-5514

1710 Tampa Street • Tampa, Florida 33602



FROM: Lee W. Seung To: Lynn Sanders Date: 2/6/96 Time: 08:37:38
FEB-96-08 07:52 FROM: AMERICAN RED CROSS ID: 2162289973

Page 1 of 1
PAGE 0



San Antonio Area Chapter
16171 Thibodeau Street
San Antonio, Texas 78216-1810
(210) 224-1151
(710) 226-9971 Fax

February 6, 1996

Mr. Roy R. Botello
AFES
American Red Cross
San Antonio Area Chapter

Dear Roy:

As mentioned at our All Staff Meeting at Ft. Sam Houston in mid January, your understanding, support and continued devotion to the mission of the American Red Cross is sincerely appreciated. Even though it has been a difficult few weeks for everyone, your diligence in providing uninterrupted service to our community has not gone unnoticed.

At their meeting on Wednesday, January 31, 1996, the Board of Directors unanimously, and with a resounding round of applause, recognized the hard work and resourcefulness of the volunteer and paid staff. They have asked me, on their behalf, to extend a most heartfelt "thank you" for your continued commitment to the principles of the American Red Cross, and for your residence during this most challenging time.

On a personal note, I would like to add how proud I am to be associated with such a caring and dedicated group of people.

Thank you!

Sincerely,

Randy Weddle
Executive Director

THANKS FOR ALL
YOU BRING TO
OUR WORK,
R



The Tampa, Florida Police Department issued this news release when REACT Hillsborough County, Florida offered to replace toys for any children who lost theirs in a Christmas misfortune. The Team made the same offer through the Hillsborough County Sheriff's Department to families in its jurisdiction.

When REACT San Antonio, Texas helped Red Cross after fire destroyed its offices, the Team received this letter. Gestures like this lift the morale of REACT volunteers and make them keep on helping out!

If you travel along I-35 southbound, watch for the Team's Labor Day Safety Break in the rest area at Guthrie. Stop in and treat yourself to a brief rest from driving and a pleasant visit with some of REACT's finest.

Police Academy Grads

These grads don't wear badges or carry weapons. They're members of REACT Prince William, Virginia. What they do pack now is more knowledge about modern day policing. They've just completed a 12-week Citizen's Police Academy. Six of the Team's monitors have spent 36 hours learning more about the complexities of police work. They've rode with on-duty officers in their cruisers to see police work firsthand. When they relay that next call to police from a motorist, they will better appreciate the reasons for any delay in police response. They also better understand what a valuable contribution to safety their REACT monitoring makes. Consequently, they



This "disabled" REACT North Brevard member critiques their airshow role with fellow REACTers at the Team's meeting. What they learn will help in providing safety comms for REACT's next assignment, two March of Dimes fund-raising walk-a-thons.

are re-doubling their efforts to "be there" on CB Emergency Channel 9 for the public and for police.

Webs and Nets and . . .

If you have questions about REACT membership, etc., you can ask some experienced REACT volunteers. America Online's forum, called Ham Radio Conference is the place, and 8 p.m., CT is the time. They can usually help you directly, but if not they will get the information for you, or put you in contact with someone who can help.

Special Olympians

REACT Houston, Texas works closely in support of Special Olympics in its state. The Team provides communications for events which are often quite large. A recent softball tournament involved 17 teams and 323 athletes. REACT helped later with a volleyball tourney with 20 teams and 215 athletes. At a Sport Celebrity Carnival the Team had 10,000 guests to cope with. The event raised \$190,000 to fund future Special Olympics activities for these special kids. Like Teams everywhere, REACT Houston is proud to help these young people.

Smart Plan

When the next earthquake hits, REACT San Fernando Valley, California plans to be ready. The Team has prepared an action plan to ensure the best possible response to any disaster it faces. It divides the Team into two units. One will respond to the Red Cross Operations Center. The other will respond to another pre-determined location. The two units will then coordinate their activities and further actions by radio. It makes good sense. We hope they don't need to activate it for a long time.

Having a Field Day

When ARRL announced its annual Field Day, Crest REACT, California decided it was time to get in on the action. The Team's members have been obtaining amateur licenses to enhance their safety communications role. "Murphy" tested their resolve by re-scheduling a rained-out Girl Scout event for Field Day. REACT managed both tasks quite capably. The Team also maintained its CB Emergency Channel 9 monitoring throughout Field Day and even handled several emergency calls in that time. It was invaluable experience in disaster-type conditions for the REACTers. They are already looking

forward to Field Day '97 and their second opportunity to participate.

Fan Mail

When fire destroyed the Red Cross offices, REACT San Antonio, Texas lost a considerable amount of costly radio equipment. REACT provides major communications support for the chapter from its base in the Red Cross office. However, using Team monitors' home base stations, REACT was able to maintain all of its communications responsibilities to Red Cross and to the public. The situation has returned to normal now, but it was a real test of the Team's ability to cope under disaster conditions. Red Cross acknowledged the Team's efforts with a letter of commendation.

What Goes Around . . .

When REACT Antelope Valley, California joined 32 other groups for a community information display at a mall, they planned to give out safety information. They did, but they also got some nice surprises. Several people stopped to say thanks for help the REACTers had given them in emergencies. Now that's good for Team morale! The local TV station also paid their booth a visit and broadcast the interview three times.

Wined and Dined

A REACT Team knows it's doing something right when the emergency services it supports invite it out to lunch. Greater Philadelphia SAR REACT had that pleasure recently. Barren Hill Fire Company hosted an Appreciation Lunch for the Team at its station in Germantown, Pennsylvania. The Team also had the opportunity to participate in a "table-top" disaster exercise with the fire fighters after they chowed down. Imagine the new rapport these people will feel the next time they are called upon to work together!

No Loose Ends

REACT San Fernando Valley, California recently updated its Memorandum of Understanding with the local Red Cross unit. The Team wisely has formal, written agreements that outline its commitments to several organizations with which it cooperates, including VASAR and N-Watch. REACT International, Inc. has similar written agreements with Red Cross, etc. at the national level. HQ encourages Teams to supplement these locally as REACT San Fernando Valley has done.

Fish, Not Drugs

REACT Grand Island, Nebraska values the youngsters in its community. The Team encourages them to get "Hooked on Fishing" rather than drugs. The REACT Team helps by contributing to a fishing derby for the kids. This year between 300 and 400 fifth and sixth graders participated in the derby. The Team donated \$1,500 it had raised by hosting two fundraising craft shows. REACT volunteers also provided manpower for safety communications, baiting hooks and other related duties at the derby.

Friends Indeed

REACT Washington State Teams got lots of good news at their recent Council meeting. Two repeater owners had invited them to use their facilities for GMRS relays at no cost. They also heard that two business frequencies had been offered to them. Marion County Sheriff's Office provided a panel to discuss search and rescue operations. The Council then honored its Junior REACTers by presenting them with pins for their contributions to their Teams.

CB Shines

REACT Antelope Valley, California wants you to know that CB radio excelled during the Northridge earthquake. "Many messages were picked up by CB and relayed to area amateurs for later long-distance transmission. The cooperation between the two radio services is to be commended." Congratulations!

Goodbye Grinch!

REACT Hillsborough County, Florida teamed up with Tampa Police last Christmas to ensure children a happy day. The Team offered to deliver replacement toys to any home struck by a Christmas tragedy. The Hillsborough County Sheriff's Department shared in the REACTer's generosity. Tampa Police issued a news release to other agencies alerting them to the REACT offer of help.

Fired Up

REACT Wisconsin encourages REACTers to attend meetings of their Council and its Board. At the last Council meeting, so many attended that Wisconsin experienced Florida's problem; not enough seats! They had to recess while officers searched for more chairs. Then they welcomed a new Team. Obviously the policy works. ■

REACTer of the Month ■ ■ ■ ■ ■ ■ ■ ■

OUR SALUTE TO THOSE WHO VOLUNTEER

By Ron McCracken

Nice Work, Marvin Shoemaker

Need something done? If you do, ask a busy man. That sure is true of Marvin Shoemaker.

Shoemaker is one of the busiest people we know. In 1980 he decided he'd like to help monitor CB Emergency Channel 9 with Triple Cities REACT in the Binghamton, New York area. He is still at it, and proud to note that his CB monitors Channel 9 24-hours-a day.

After a career as a power utility worker, Marvin retired two years ago. His schedule remains quite hectic with REACT and other volunteer pursuits. He wanted "to help others with my radio skills and equipment" when he joined REACT. Nothing has changed, and he has indeed achieved his goal.

Of all the REACT activities Shoemaker enjoys, he confesses that REACT Safety Breaks top his personal list. He has had the pleasure of talking with "so many interesting people from all over the world." Then, he says, there are those who "walk up to the Triple Cities REACT trailer to thank us for being there for them. That makes all the hard work and long hours worth it!"



Marvin Shoemaker (right) receives a REACT Month proclamation from Broome County Executive Timothy Grippen.

What Spare Time?

Did we say that this fellow is busy? He is a SKYWARN observer, and a ham (N2ZMN) involved in RACES, ARES and packet radio through membership in two amateur radio clubs. He also likes to travel with his wife, Nelda. For Marvin, Nashville is a frequent stop for a good dose of country music.

Photography and computers squeeze in to his busy schedule, too. In his spare time, Marvin helps with bingos, breakfasts, banquets and other projects as a member of the Loyal Order of the Moose.

As well as CB on AM and SSB, and amateur 2-meter radio, Shoemaker is studying to qualify for low band ham privileges. He is also the Communications Officer for Triple Cities REACT.

Over the years he's served five terms on the Team's board of directors and has been selected to chair nine times.

Looking Ahead

When New York REACT Teams wished to create two Councils for their state, Triple Cities REACT hosted the formation meeting. Marvin coordinated local

arrangements for the occasion and with his teammates, did an excellent job. He was later elected the first president of the new Upstate New York REACT Council. He served that office for several terms.

In 1995, Shoemaker was honored with two citations. One was a certificate of appreciation from the American Heart Association. Marvin had served as Safety Coordinator for the "Heart Walk and Run."

The second citation came from NOAA. It presented Shoemaker with a Special Service Award for his volunteer efforts in support of the "Skywarn" severe weather spotter program.

The Channel 9 Experience

When you monitor CB Emergency Channel 9 around the clock, some of your most interesting calls come at the strangest times. Marvin recalls that one of his more unusual ones came at 2 a.m. in the dead of winter.

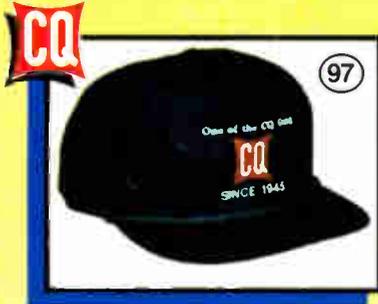
A trucker was asking for road conditions. Shoemaker peeked out the window and made his way to the CB. He asked the driver to repeat his message. The response was loud and clear: "Can you

give me the road conditions between Missoula and Helena?" Marvin just about flipped! "Well, road conditions here are pretty good," he chuckled, "but I'm in Binghamton, New York, so that won't be much help to you." "Gee, I didn't think that my 'diesel car' could talk that far!" the surprised trucker laughed.

Keep on monitoring, Marvin Shoemaker. You're doing a fine job. Thanks!



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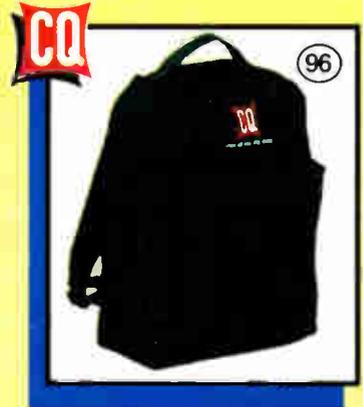


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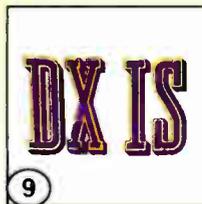
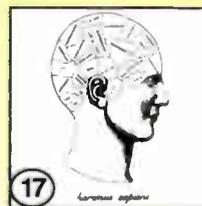
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200 ch, 12 band, incl air & 800, same as BC20XL with CRX charger and spare battery. List \$459.95

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The Wilson 1000 higher gain performance is a result of new design developments that bring you the most powerful CB base loaded antenna available.

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Many CB antennas lose more than 50% of the power put into them. The power is wasted as heat loss in the plastic inside the coil form and not radiated as radio waves.

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FREQUENCY (MHZ)	RELATIVE GAIN (dB)	RELATIVE POWER GAIN (%)
26.965	1.30	35
27.015	1.30	35
27.065	1.45	40
27.115	1.60	45
27.165	1.50	41
27.215	1.60	45
27.265	1.75	50
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