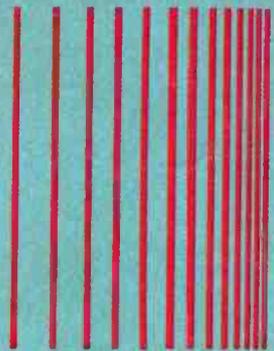


# CB RADIO

# S9



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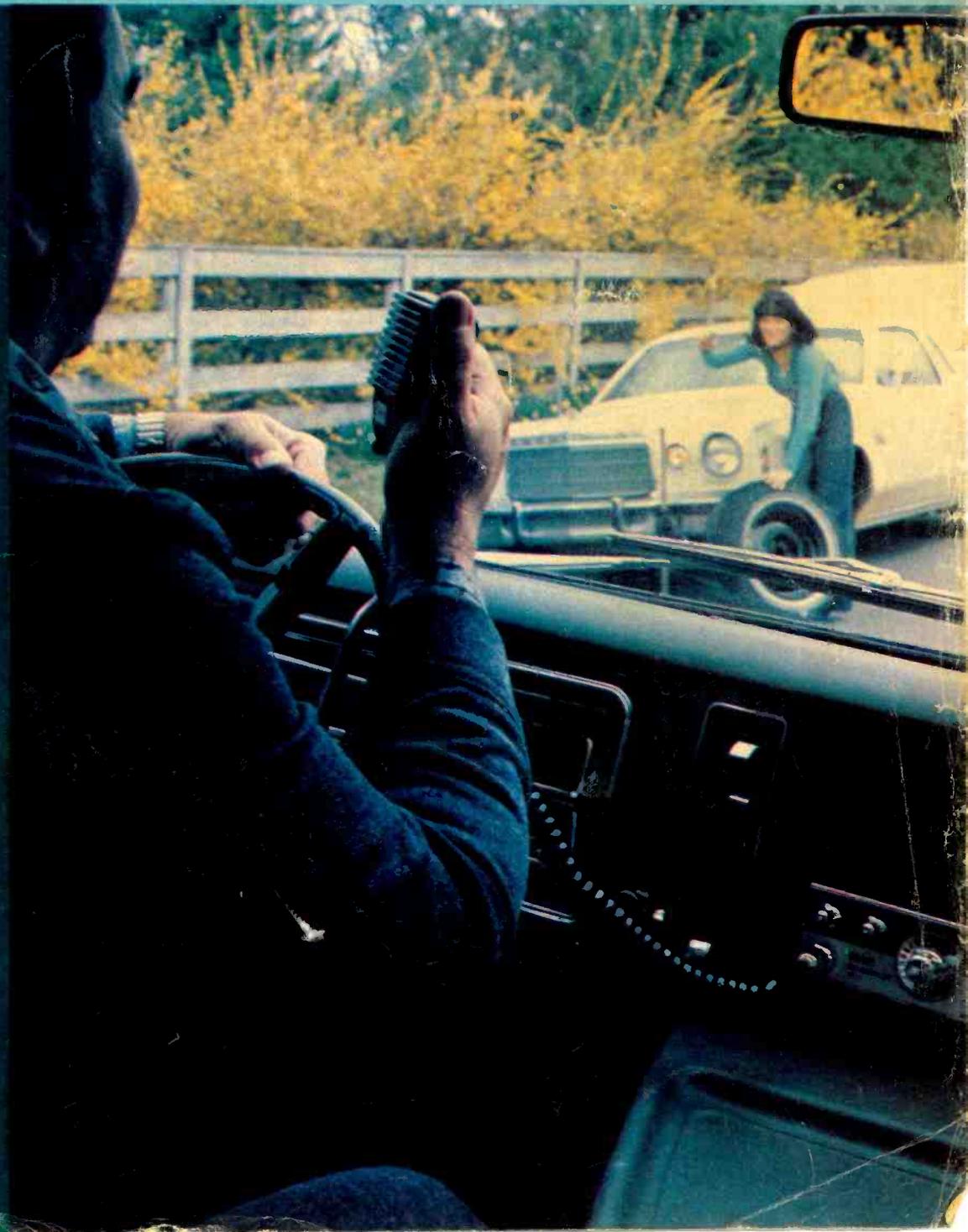
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at Sideband  
CB'ing...page 26*

*Ladies of the  
Mike...page 38*

## FEATURING

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**COVER PHOTO**

CB Good Sams on the watch for 10-33's! As millions of CB'ers take to the road this summer, motorists will benefit from the fact that we can always be counted on to direct our efforts for the benefit and service of others. Photo courtesy of RCA.



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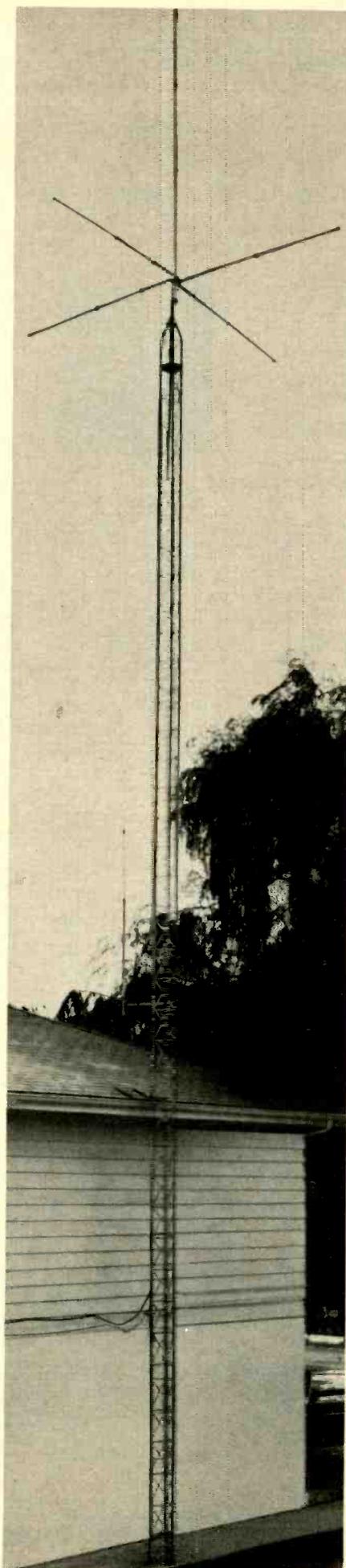
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# CB Newswire

YOUR CB NEWSPAPER

AUGUST, 1976

INCLUDED IN \$9

## FCC C'mon, Put the Pedal To the Metal and Get Me That Radio License, 10-4?

So you bought a new citizens band radio set and hear "Rubber Duck", "Magnum Man", "Moonshiner", and about the "Smokies" on the highway. And, you picked your own original handle and are waiting for your license to get in there and use it—and waiting, and waiting?

You're one of over a million waiting in line for that precious piece of paper with your own, individual call sign, created by a deluge of applications that started last year and was completely unexpected by the Federal Communications Commission.

The traffic jam is located right in the York-Lancaster area's backyard, at the FCC's amateur and citizens licensing process center in Gettysburg.

In January of 1975, according to John B. Johnston, chief of the FCC's amateur and citizen division, 73,522 applications for CB licenses were processed and was considered a "normal month".

In January of this year, just a year later, the postman delivered 515,557 applications upon the 79 people who work at the processing center. The applications are still coming in—at the rate of 20,000 to 30,000 a day.

The Center's storage room is filled. So is the ladies lounge, the lunch room, and any other precious piece of space in the center.

"This is unreal," said Johnston. "It was completely unexpected and unprecedented."

To add to the mountains of paper, the center must also store the applications for six months after the application has been processed.

The volume has created a delay of about 12 weeks before a citizen receives his license after filing his application. And, the way the mail continues to flow, there seems to be no let-up or better news for CB-er's-to-be.

In addition to the CB licenses, the center handles all the applications for ship, aviation, restricted permits, and "ham" (amateur radio) licenses.

CB License application information is prepared for computers via a magnetic tape, which used to be done at the center. This portion of the work is now done by subcontract to a firm near Baltimore, because of the numbers being handled.

To the dismay of many license applicants, 30,000 applications were returned in January (after the 12-week delay to get to them) because of discrepancies in the application.

"Twenty thousand were returned because the applicant either sent in the wrong amount for the fee, or no amount at all," said Johnston. "The majority of the remaining 10,000 rejections were because the applicant is under 18 years of age."

Johnston emphasized that children can operate a CB radio, but they are not allowed to hold the license.

"The father can obtain the license, which covers him, his wife, and other family members who live under the same roof. But, by law, a child under 18 cannot be granted the license."

Johnston, commenting about the report that legislation has been introduced to make it possible for a person to *obtain a license at the time they buy the set*, said it would be helpful to the buyer. It would necessitate restructuring their center's processing to a point-of-sale system, and may create more work for the FCC.

"This is the only type of radio communication where we have this problem. In all other classifications, the license applicant files for a license before any equipment is bought," said Johnston. "In CB, we're dealing a lot, I think with impulse buying."

The waiting period provides a serious temptation to the set user to operate without his license, until the license comes in the mail. This, by all means, is illegal. Johnston reported that his field offices are reporting about 20 percent of all the people they investigate are operating without a license.

By operating without a license, they are subject to a \$10,000 fine and one year in jail, a criminal offense. Violations with a license are not criminal offenses and are subject to fines of \$500.

Johnston learned of the petition being circulated in the New York area asking the FCC to promote legislation to make theft or tampering of CB sets a federal crime, and also to require manufacturers to stamp serial numbers directly into the metal of the set.

He felt that the FCC would not be

able to do much as far as the legislation suggestion, but the serial number portion was a possibility.

"I've been to several CB rallies recently," said Johnston, "and the police showed up with engraving tools. They engraved a number onto several portions of the set. The best suggestions are your own telephone number, your social security number, or your driver's license number. All of these identify the actual owner. Even the serial number of the set being engraved into the metal still requires some sort of filing to trace it to the owner."

"The actual user's own ID number is much better, and it should be engraved onto several parts of the set, so it is very hard to remove the different pieces and change them," Johnston said.

"It's the old story of supply and demand. Remember when color television sets used to be ripped off? Now there are many sets available, and the demand is down. The thefts aren't there anymore. The same went for tape player. As the demand for CB sets becomes better balanced with supply, the thefts should go down also," Johnston said.

Johnston also reported that amateur radio licenses, which were declining some for ten years, have now begun to rise slightly. He does not expect to see a deluge such as the FCC is experiencing with CB's, however.

For CB'ers, Johnston said applicants should expect a 12-week delay until they get their license for the present.

"Those girls at the Gettysburg center are working hard," said Johnston, "and they are doing their best to keep up with the applications."

## Thefts Targeted

A task force has been named by the Independent Insurance Agents of San Antonio to fight mounting thefts of Citizens Band radios.

Mrs. Kay Miller, president of the group, estimated that more than 15 CB radio thefts occur each day.

As part of the campaign, the task force plans to mark all CB radios with an owner's identification number that can be registered with the police department, officials said.

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## Citizens Aiding Police

John Law's arm is stretching with the recent addition of some sensitive pairs of ears.

The "ears" are Citizen Band radios and base stations. They're beginning to appear in police cars and radio rooms as law enforcement officials seek the help of citizens in fighting crime and answering emergencies.

— *In The Jackson, Mich.* Police Department a base station has linked citizens and policemen in a program called "Mobile Watch."

— *State Police* officials have chosen the Jackson post as the location for a base station that will be part of a test program along I-94.

*Public Service* Commission officials at the Grass Lake scales have a base station in operation, and have mobile units in official vehicles.

Police Chief James E. Rice said his department has been developing a Mobile Watch program over the past several months. It began over concern with the large number of Citizens Band radio thefts in Jackson and other communities.

Mobile Watch is similar to the Neighborhood Watch program but is not part of it. In both programs, the alert citizen is encouraged to report certain incidents. Chief Rice said, "We encourage them to report any emergencies, criminal incidents or suspicious behavior."

For instance, if a watch member sees a person appearing to be "staking out" a store, he explained, the watch member would report to police over the radio. But, he added, members are not encouraged to get involved personally, but to leave the handling of such incidents to the police.

The 89 Mobile Watch members have Citizens Band or amateur radios and contact the police station 24 hours a day. The station's call letters are KEO-7089.

The station monitors Channel 9, the national emergency channel, over which all calls are made by Watch members. The base station radio is on loan from the Office of Emergency Measures.

A board, composed of police and Watch members, determines guidelines. Anyone may join, whether a city resident or not. Contact the Crime Prevention Unit at 787-7200, Ext. 50, for more

information.

Is the program effective?

That's the question Chief Rice wants answered.

"We've got to give it some time to see what number of arrests we get," he said.

There have already been some emergencies reported. And at least 20 criminal complaints have been made over the radios. All were valid complaints, and there were some arrests made.

Sgt. Robert Fitzgerald, of the State Police Safety and Traffic Division, said two posts in the Fourth District, Tekonsha and Blissfield, have base stations. Jackson's Post is to receive one and already has two patrol cars equipped with mobile units.

The call letters are KZL-3698. Until the number is widely known Sgt. Fitzgerald said, citizens may reach State Police just by giving their own call letters and asking for State Police.

The Jackson post is to be part of a CB radio test program along I-94. "Selective Enforcement Units" have been equipped with the radios at the Jackson, Paw Paw and Detroit districts.

Two cars with the Jackson team have been so equipped, Sgt. Fitzgerald said.

"We had a specific role in mind," said Lt. Roderick J. Lamore, head of the Selective Enforcement Program in Lansing.

That role, he said, is to get a "working rapport with CB users, especially truckers."

He noted that one of the enforcement teams equipped with radios during December received 66 motorist aid calls and helped 55 motorists.

The team members monitor Channel 19. Jackson's future base station will likely monitor Channel 9, the national emergency channel.

Sgt. Fitzgerald said, "We're getting a lot of calls" from citizens and truckers. It's paying off real well."

Citizens are reporting many speeders and reckless drivers, he said.

"The only thing we're trying to do is to keep it professional," he said.

Undersheriff Donald Thelander said the Jackson County Sheriff's Department is not planning to use CB radios in patrol cars because the State Police

use is sufficient.

But if State Police monitor a CB call and are not near the emergency, the call will be referred to Jackson Emergency Dispatch, he explained.

Citizens band radios have been used for the past two years in Public Service Commission vehicles. The Grass Lake weight scales base station receives calls up to 20 miles away.

## CB radios permitted in Texas highway Patrol cars

Texas Highway patrol officers are allowed to install their own citizens' band radios in their patrol vehicles, Department of Public Safety director Wilson E. Speir announced Friday.

Speir said a test from Dec. 1 through Feb. 29 in 13 areas of the state indicated they should be permitted to carry on two-way communications with motorists who wish to report valid emergencies.

During the test, 76 patrol cars received reports of accidents, fires, drunk drivers, livestock on the roadway, plane crashes and other emergencies, he said.

Officers also made several narcotics arrests and captured four jail escapees as a result of information provided by CB operators, he said.

But Speir warned that "an alarming number of persons use CB radio to evade detection while violating the traffic and criminal laws. I think the many otherwise law-abiding citizens who use CB radio to constantly broadcast 'Smoke' reports should realize they, in addition to promoting excessive speeding, may be unwittingly providing material aid to the criminal element.

"While the 55 mile speed limit may be unpopular, it remains both federal and state law, and the DPS is obligated and committed to its enforcement."

Speir said the DPS is cooperating with Federal Communications Commission efforts to bring federal action against CB operators who use their transmitters in violation of the law.

Troopers will use their private radios until the DPS can obtain a CB license, he said. They will use their own call letters but will reply to emergency communications directed to DPS.

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DIVISION OF GLADDING CORP.

# CB Newswire

YOUR CB NEWSPAPER

AUGUST, 1976

INCLUDED IN \$9

## CB Radio Battle Takes Violent Turn

Citizen Band radio buffs were still shaking their heads yesterday over the confrontation between Stump Jumper, Wild Weed and Bulldozer.

What began as a testy exchange of less than complimentary broadcast remarks, police said, ultimately led to an armed meeting in a parking lot in Turlock, Ca.

Police said the participants were James H. Parsons, 24, who roams the highways as Stump Jumper, Chester F. Stewart, 19, who uses the handle Wild Weed, and Lemuel A. Hunter, 26, who

calls himself Bulldozer.

Citizens monitoring the bands called police when they realized the heated exchange on the air waves was likely to lead to a fight at the parking lot.

Officers said they found Stewart armed with a jack handle and Parsons manning a loaded shotgun. Also present were Hunter and Mr. and Mrs. Earl DeBoard, relatives of Stewart, who were tipped off by CB friends that trouble was brewing.

Parsons, who police said pointed his shotgun at Mrs. DeBoard, was arrested

for exhibiting a deadly weapon, having a loaded weapon and disturbing the peace.

Stewart was held for disturbing the peace and exhibiting a deadly weapon. Hunter was held briefly and released.

Hunter told police the trouble started because "someone was using my handle, Bulldozer. I thought it was Wild Weed (Stewart)."

Stewart, on the other hand, told officers the radio exchange leading to the confrontation was "getting very rank."

## Norfolk Virginia Police Enlist Extra Eyes, Radios

Any police officer will tell you one of the "best friends is a nosy neighbor." Those citizens who will report a suspicious looking situation to police, but don't take any action themselves.

"The Civilian Radio Motor Patrol, a cooperative effort aimed at improved crime-spotting and reporting, will use most of the approximately 200-taxi cabs operating in a four city area," explained William J. Fanney, president of Life Federal Saving and Loan Association which is helping to sponsor the program.

The Four cities of Norfolk, Portsmouth, Virginia Beach, and Chesapeake will be using the program which is fashioned after one originated in New York. The participating police departments are formally recruiting the assistance of taxi cab drivers and operators of Citizen Band radios.

"With good training and proliferation of the cities the potential for endangering private citizens should decrease the chances of direct citizen involvement. As long as those individuals heed the guidelines given them during the three week training course there should be no problem," explained Capt. R. W. Smith of Chesapeake.

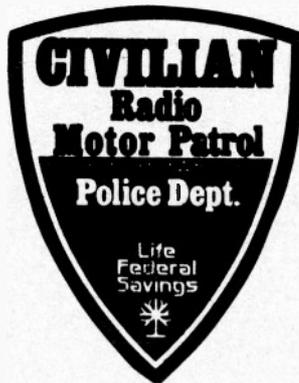
It Was emphasized that those individuals participating in the Civilian Radio Motor Patrol will have no police department authority. Furthermore, they are not to take independent action.

"This program is geared toward curbing crime through the alertness and intelligence of drivers equipped with two-

way radio vehicles. These people are on the streets and know the streets. The training program will inform the cab drivers what to report and how to quickly and efficiently report the trouble," explained Norfolk Police Chief A. J. Brown.

Portsmouth Chief of Police Philip L. Ash Jr. pointed out that Citizen Band operators were already operating in this capacity. There are already two places CB radio operators can radio to have their warnings relayed to police by phone.

"This System will cut down the time in reporting the potential crime situation, fire, or accident. Time is of the essence if the police are to apprehend or secure the area where a fire has started," said Capt. Smith.



This is the shield identifying those participating taxi cab drivers and Citizen Band radio operators in the four city Civilian Radio Motor Patrol. These people are in direct contact with the police departments of Norfolk, Portsmouth, Virginia Beach, and Chesapeake to report a crime, fire, accident, or suspicious incident.

## Hurricane Helpers!

By GARY BAUMGARTEN  
MEP Vice President

A Citizen Band radio operator was the first to report a tornado which struck Oakland County Michigan, 10 miles northwest of Detroit.

"Fifteen Mile Road and Orchard Lake is a disaster scene, a disaster scene," he reported to the Michigan Emergency Patrol, Inc. (MEP), a Channel 9 REACT monitor.

Within seconds emergency vehicles were on the way to the scene of the twister, which slammed into a shopping mall and subdivision, killing one and injuring about 100.

CB'ers also rushed to the area. But instead of being helpful, as they traditionally are, they got in the way of rescue workers.

"Our biggest problem was keeping CB'ers out of the area and off Channel 9," said Mari Bond, MEP Communications Director.

"Finally the National Guard called and asked us to request CB'ers to stay out of the area. We did so, on Channel 9 and over the MEP Traffic Advisory Network."

MEP provides traffic reports to five Detroit area radio stations as a public service.

Other radio stations phoned the MEP Communications Center and interviewed Mari, who broadcast a plea to gawkers to stay out of the area.

The area remained sealed by police for one week.

The twister, first in Oakland County's recorded history, struck March 20.

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1  
2  
3

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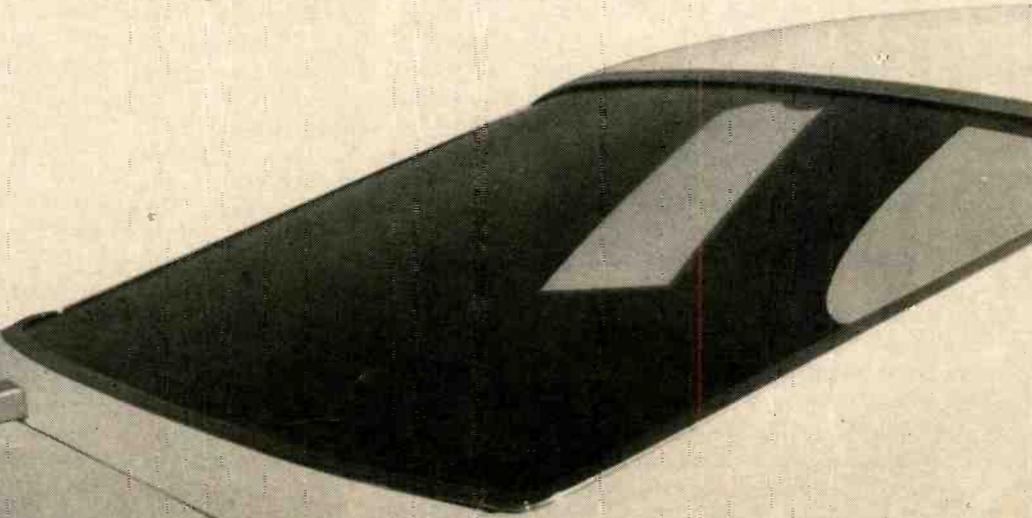
HUSTLER ANTENNA PRODUCTS—for sixteen years—original designs—created and manufactured by American ingenuity, labor and materials—used by communicators throughout the world.

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## 'Hot' CB Radios Give Smokey Big Headache

As far as marketing is concerned, the item is "red hot"—on both sides of the law.

For legitimate dealers, sales of Citizens Band radios have skyrocketed in recent months. And so has the theft rate.

CB radios, law-enforcement agencies across the nation are reporting, are among the most-wanted items being sought by thieves.

The boom in CB thefts, to some, is reminiscent of the surge in tape-deck thefts when they were new on the market.

In Buffalo, N.Y. there's no central "clearing house" keeping track of CB radio thefts, but officers have some clear indications that they are being stolen—and stolen often.

Besides the daily crime reports which routinely include individual CB thefts, some of the bigger hauls have come to the attention of the Burglary & Pawn Squad, which probes major cases.

Burglary Squad detectives have investigated some large CB thefts, including some break-ins at radio-equipment dealerships and an East Side company which lost seven in one night when thieves attacked its truck fleet.

CBs are popular, Detective Sgt. Jeremiah J. Hasset pointed out, because they are easily unloaded.

"They can sell them on the street, without going through a fence," the Burglary Squad commander explained.

Theft of the CB radio units is in a way ironic, since the Citizens Band has proved a valuable aid in cornering criminals.

Erie County, N.Y. has considered formation of a "citizens patrol" network to encourage users of the mobile units to report crimes.

But for the thief, the reward for stealing a CB radio—quick cash from a street sale—usually outweighs the small risk involved in a very quick raid on an unattended car.

For one major dealer, thefts meant four more sales just last week to owners replacing units.

"They're a red-hot item," said Glen Reynolds, manager of Move'N Sound,

2838 Bailey Ave.

"A lot of husbands are buying them for their wives as a safety factor so they can call for help on the highway if they break down far from a phone booth.

"And a lot of people, especially among the senior citizens, are buying them for entertainment."

Mr. Reynolds—whose store was burglarized last November—noted that sales have boomed during the past year, especially after the release of a CB-oriented record called "Convoy."

The radios, once the domain of interstate truckers, are now everywhere, and the government is considering expanding the 23 present channels to 58 to handle the demand for "air time."

The units are simple to use, and an easily obtained federal license is all the official blessing the user needs.

The FCC is now processing 400,000 such applications a month—compared to only 15,000 a month just four years ago. And there are an estimated 4 million sets already in use.

The units range in price from \$60 to \$300, through legal channels.

"On the street," Mr. Reynolds said, "thieves sell them for \$20 to \$30."

Faced with the rising theft rate, CB users can take at least some measures to defend their property.

For about a \$10 investment, Mr. Reynolds said, you can buy a slide-in, slide-out radio mount that lets you remove the radio when you park your car.

Some of the antenna designs, he added, also allow removal.

"That's about their only defense," he added.

Detective Sgt. Hasset adds one more recommendation, designed to at least make recovery possible after the theft.

"The problem with at least 90 per cent of the stolen TV's, stereos and CBs," he said, "is that people just don't record the serial numbers."

A record of the serial number—or better yet, an Operation Identification-type marking on the unit—can help police trace and return recovered stolen items, he pointed out.

## Drug Runners Use CB

New Mexico State Police say citizen band radios, a handy tool for motorists trying to avoid speeding tickets, are also popular equipment for drug runners.

"It's become just another tool for individuals transporting contraband," said Sgt. Neil Curran, a state police narcotics officer.

State police have mixed reactions about the rapidly expanding use of citizens band (CB) radio. Although they can be used to assist law enforcement, their prime use seems to be by speeding motorists trying to avoid policemen.

Since a large amount of drugs is smuggled through New Mexico on its highways, CB radio is helping drug runners avoid police for a different reason.

Curran estimates 75% of all state police seizures of more than 100 pounds of drugs, particularly marijuana, have involved the use of a CB radio in some form.

"About 90 per cent of the traffic on the CB radios is to find out where 'Smokey' (a police officer) is, and you don't know whether the person wants to know that because he's speeding or because he's carrying a load of grass across the state," Curran said. "The drug runners are getting the Smokey reports just like they would if they were someone who was speeding."

Curran said some drug running across the state involves "convoys," several vehicles which are in constant communication by CB radio.

"They may have someone running the 'front door' (the term used for the lead vehicle in the convoy) to try to locate where the police are so that two or three other vehicles carrying the drug won't be stopped," he said.

Curran also said CB radios are used in drug smuggling operations by air.

"Ground units and aircraft can be equipped with CB radios to help them locate any police in the area," he said.

But Curran and Capt. M. K. Alexander say there are advantages for police officers in the growing use of CB radios.

Alexander said 115 of the state police cruisers are now equipped with CB radios, roughly half of the black-and-white units on the force.

"I think it actually assists law enforcement more than it harms it," said Curran.



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## Clearly Superior.

## Patrol CB Call Sign Set

The Minnesota State Patrol, now monitoring and responding to emergency assistance calls transmitted via citizens band radios (CB's), announced the permanent call sign which will be used statewide to contact a Patrol unit.

Formerly operating under the temporary call sign of KUY9097, the Patrol's new permanent call sign for both mobile and base station Patrol units will be KCA6438. Only Channel 9, the established emergency channel is monitored by the Patrol.

State Patrol Chief James C. Crawford said that CB operators should attempt to contact the Patrol only if a road emergency such as an accident or traffic impediment exists and strongly emphasized that other CB operators who may have monitored the call should not proceed to the scene of the emergency.

"While the intention is good, the effort of citizens proceeding to the accident or emergency area, particularly on freeways, can be counter-productive, resulting in increased traffic congestion and confusion," Crawford said. "Assistance should be left to law enforcement personnel equipped to handle the situation."

If direct CB contact cannot be made with the Patrol, the driver in distress should request other CB listeners to relay a message to the Patrol, either by CB radio or by phoning the Patrol's toll free emergency number, Zenith 7000.

## FCC Clarifies CB Rules

The Commission has amended its rules to clarify both the types of emissions available to Citizens Band Radio stations and license requirements in that service.

The Commission said that Section 95.97(a) states that no operator license is required to operate a station in the Citizens Radio Service, "except that sta-

## Hundreds of CBers Join Search for Missing Man

Their lights flashed like fireflies through the fields and woods of Denbigh near Patrick Henry Hospital as they searched for the missing man—hundreds of Virginia volunteer citizen's band (CB) operators who had responded to the police call for help.

The volunteers, estimated at over 500 at one point, were assisting Newport News police in their search for Robert Santiago Jr., 50, who was reported to be ill and to have wandered away from his Mona Drive home late in the afternoon.

Newport News police reportedly contacted Peninsula React and they, in turn, put out the call for assistance in the search.

Response to the call, one officer said, was phenomenal as people from all areas of the Peninsula responded.

"You wouldn't believe it," he said. "They were coming in trucks, jeeps, sports cars, some on motorcycles. There were men in business suits, women in dresses—you just wouldn't believe it."

The command center, set up off Richneck Road, did oversee a unique amalgamation of volunteers.

Some carried high intensity hand lights; others wore miners' search lights; some carried flashlights; others were barehanded—stopping in the response to the call which they heard on their way home from work.

Search parties were established and members of different CB clubs mingled in the groups.

Late Wednesday night, the groups could still be seen scouring the woods and walking with their lights down

construction roads near Mona Drive and the rear of Windsor Great Park.

One large group, just off Ridgewood Parkway, had formed with three groups of the searchers by about 10 p.m. When asked where they were from, the responses ranged from Toano to Buckroe, from Deep Creek to Yorktown.

Other groups were also still in the area and a formal time for calling off the search apparently had not been established for some of the participants.

Santiago's family had reportedly notified police of his absence and also of the fact he was a diabetic who could possibly be in need of medication.

Police canine officers and their dogs were reported to have been involved in the early stages of the search, but left when additional volunteers arrived to search the area on a narrow basis.

With the volume of response, participants said, they were able to search certain quadrants of the woods on an almost arm-to-arm basis.

The volunteers, at least those who joined the search in its early stages and stayed with it, walked for a considerable distance Wednesday but their spirits at 10 p.m. were still high.

Asked why they were there, the almost uniform response was "because they needed us" or "because I heard the call."

Response to the call, reports indicate, was so overwhelming shortly after the broadcast that a traffic jam ensued. Newport News Police Capt. Eugene H. Hiser, Lt. Harry D. Martin and Sgt. D. P. Wescott worked in coordinating the volunteers and establishing the search.

tions manually transmitting Morse code shall be operated by holders of a third or higher class radiotelegraph operator license."

It said that, when read in isolation, this section may be interpreted as permitting both operation of a transmitter in the Citizens Radio Service without a license of any sort, although a station license is required by Section 95.11, and transmission of telegraphy in the

Citizens Radio Service, a practice not normally authorized by Section 95.47 which enumerates permissible emission modes in that service.

In order to clarify the existing rules that a valid station authorization is required for operation of a transmitter in the Citizens Radio Service and that telegraphy is not normally an authorized emission mode, the Commission said it would delete Section 95.97(a) entirely.

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## Valor Enterprises to Sponsor First Ever "INTERNATIONAL CBERS JAMBOREE"

**Event will be held in conjunction with "The Pepsi-Cola Syracuse Gold Cup," a major Championship motorcycle race**

Valor Enterprises will break new ground in the explosively growing citizens band radio industry when it sponsors the world's first "International CBers Jamboree," to be held September 10-12, 1976 at New York State Fairgrounds, Syracuse, it was announced today by Glenn Cota, President of Valor.

Not only will this be the first and biggest of its kind, it will be unique in that it will be held in conjunction with the \$24,000 Pepsi-Cola Syracuse Gold Cup, one of 28 championship motorcycle races held in 1976 to determine a "Grand National Champion".

The "International CBers Jamboree" is expected to draw enthusiasts from all over the Northeast states as well as from the Canadian provinces of Ontario and Quebec. It will take place beginning Friday afternoon, September 10 and continue all day and evening Saturday and conclude Sunday morning, September 12, just prior to the 2 pm start of the National Cham-

pionship race. The Jamboree will take place in the 100,000 square foot Farm Display building at New York State Fairgrounds, Syracuse, with the race to be held for the third consecutive year at the 130 mile an hour one mile dirt oval just a short walk away and also on the Fairgrounds.

"With the fantastic growth the CB (Citizens Band) industry has had there are many ways for us to expose our products to the large segment of the population that doesn't own a CB two-way communications system," said Cota at the contract signing ceremony, "And with most of the CB radios being installed in cars, trucks, RV's, vans, campers and boats, it seems a natural for us to unite with another fast growing sport—motorcycle racing—in which the participants and many of the spectators own or are involved with vans, campers, RV's and so forth. They tend to be outdoor and family activity oriented and we find that is the group purchasing most of our industry's products".

Valor Enterprises, based in Covington, Ohio, is one of the world's biggest manufacturers of antennas, accessories and related equipment for all brands of CB radios.

The world's first "International Jamboree" will feature exhibits by manufacturers of CB equipment and a \$10,000 raffle of equipment with proceeds slated for charity. It offers enthusiasts and CB club members an excellent opportunity to get together, talk about their hobby, see the newest and latest examples of technological advances in the equipment, and share their enthusiasm with fellow CBers.

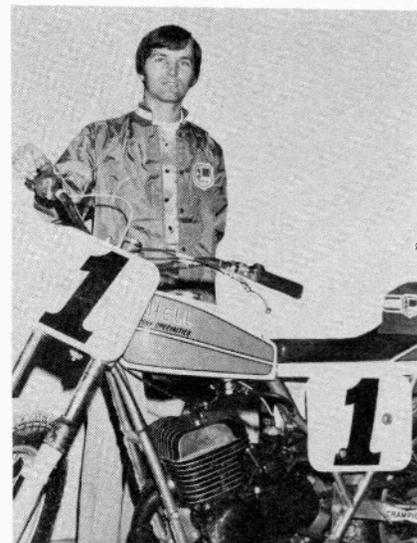
Along with the CB equipment there will be displays from major manufacturers of RV's, campers, motorcycles and snowmobiles, as well as accessories for them. Also expected are a

large number of customized motorcycles and vans.

Promoting the entire venture is Donald E. Brymer, Redondo Beach, California, a veteran promoter of motorcycle races.

"It looks like a really neat tie-in to me," said the producer of more than 30 National Championship races, "To bring together a fine soft drink company in race sponsor Pepsi-Cola and a top notch maker of CB equipment like Valor. I think there are a lot of CB enthusiasts who will come and be turned on by motorcycle racing—in fact, when they see the 130 mile-an-hour top speeds and experience the thrill of seeing four or five top-ranked racers dive into a corner at over 100 just inches from one another, I know they'll dig it! And I know there will be many motorcycle racing fans who are going to drive away with either a whole van or car full of CB equipment, or as soon as they get home are going to run down to their local CB

*(continued on page 20)*



# Famous Realistic® CB

# PRICE CUT



## YOU GET ALL THESE QUALITY FEATURES

- ✓ Full 23-channel coverage
- ✓ Built-in noise limiter
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Audio Power: 3 watts maximum  
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# CB Newswire

YOUR CB NEWSPAPER

AUGUST, 1976

INCLUDED IN S9

store and buy a rig!"

Also on hand for the signing of the "first" was Gary Scott, 1976 Grand National Champion, who hails from Springfield, Ohio. Scott has been a long time user and enthusiast of CB equipment.

"When I cover the whole National Championship trail of 28 races, I put about 80,000 miles on my van, driving from January to October, from the Astrodome in Houston to Florida's Daytona International Speedway, to New York State Fairgrounds, to Ascot Park in Los Angeles. And let me tell you, that radio has really come in handy for several emergencies I've run into during the past few racing seasons. All of us touring professional motorcycle racers have them in our vans and a lot of us have another in the family car. It's a great tool and I hope that CB radios will become a

standard option offered by Detroit. And now I'll be looking forward to the Pepsi-Cola Syracuse Gold Cup even more, now that there's going to be a big—the biggest!—CB Jamboree along with it. Should be great".

Though not present but joining in the congratulations was R. J. Reynolds Tobacco Company's Laird Gann, Team Manager for the Camel Pro Series, overall major sponsor of all 28 races on the 1976 National Championship circuit. "It's a real pleasure to welcome Valor to our sport—and it's good to be part of theirs—" enthused Gann, "We at Camel have enjoyed great success with a fine sport and know that Valor will experience a terrific group of people in the motorcycle sport, from the competitors to the fans, they're a great lot. It's nice to have them with us!"

With nearly a sellout crowd in the

15,000 seat grandstand at the Fairgrounds last year, promoter Brymer is expecting much larger numbers of people September 12. He urges fans to purchase their tickets early; even with six months to go before the race, demand has been extremely brisk.

Tickets to the race are \$10, \$8, and \$6, available by writing to: Pepsi-Cola Syracuse Gold Cup, New York State Fairgrounds, Syracuse, N.Y. 13209; they will also be available at all Eastern Ticketron outlets after July 15, and at the gate, September 12.

Tickets to the first "International CBers Jamboree" will be available at the door of the Farm Display building on the Fairgrounds Friday and Saturday, September 10 and 11. For admission to the Jamboree Sunday morning, spectators must first hold a race ticket, which will allow them on the Fairgrounds.

## BREAK!!

### \* COMING IN THE SEPTEMBER S9—

#### TOMCAT TALKS ABOUT OPERATING A CB RIG!

An outrageous analysis of the best and worst CB operating practices in use today! As *only* S9's fearless Editor can work the subject over!

### \* COMING IN THE OCTOBER S9—

*The MOST startling, revealing, and useful story you will ever read in connection with CB radio!!! An absolute knockout! It's something you've NEVER seen before—something you cannot afford to miss! Watch for it!*

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**Royce Digital Wireless Model 1-660** — 23 channel mobile CB has digital readout dial system with bright L.E.D. numerals for fast channel selection. Phase Lock Loop Tuning adds greater reliability. ANL automatically minimizes noise, static. Pushbutton PA/CB activates powerful P.A., AAGC, 3 ceramic filters. Exclusive IC audio stage for maximum clarity.

Model 1-650



Model 1-660



## Royce



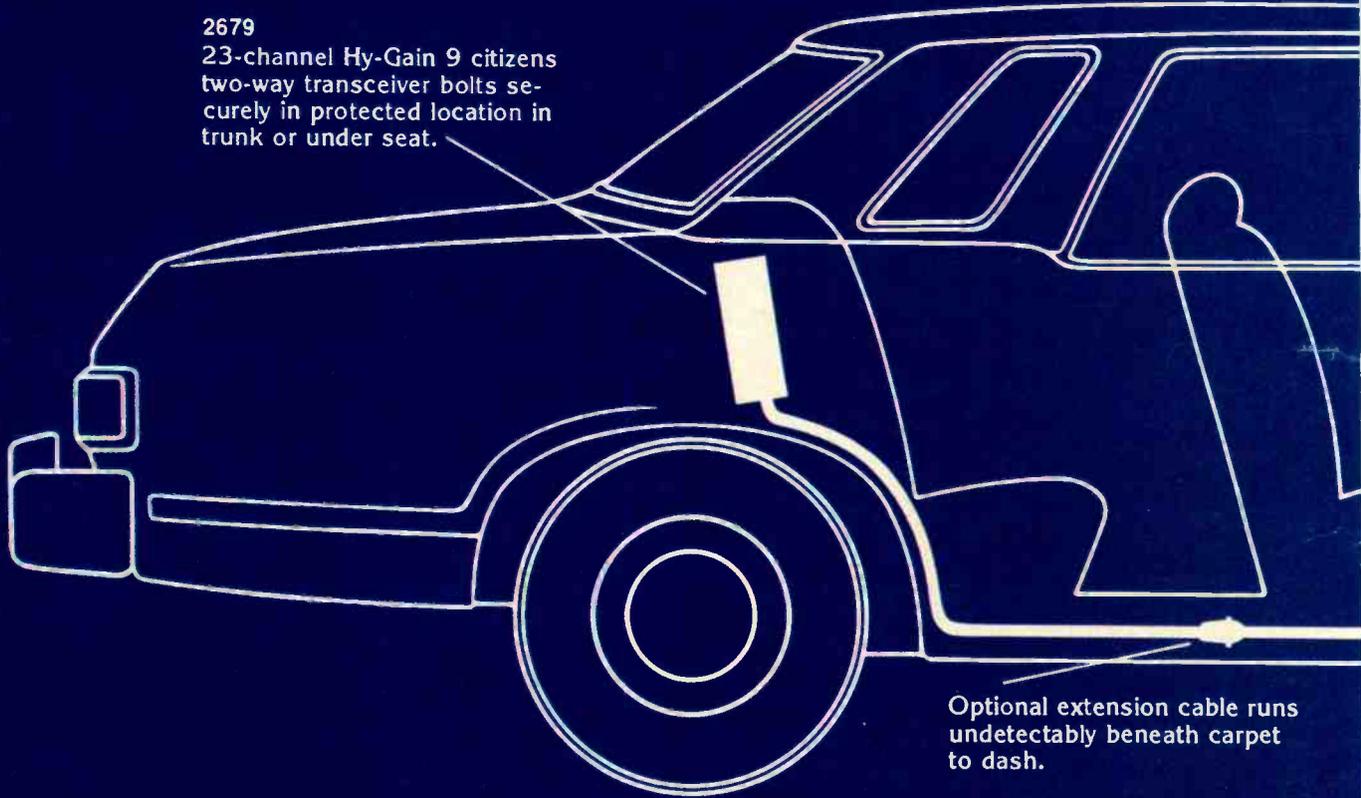
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to dash.



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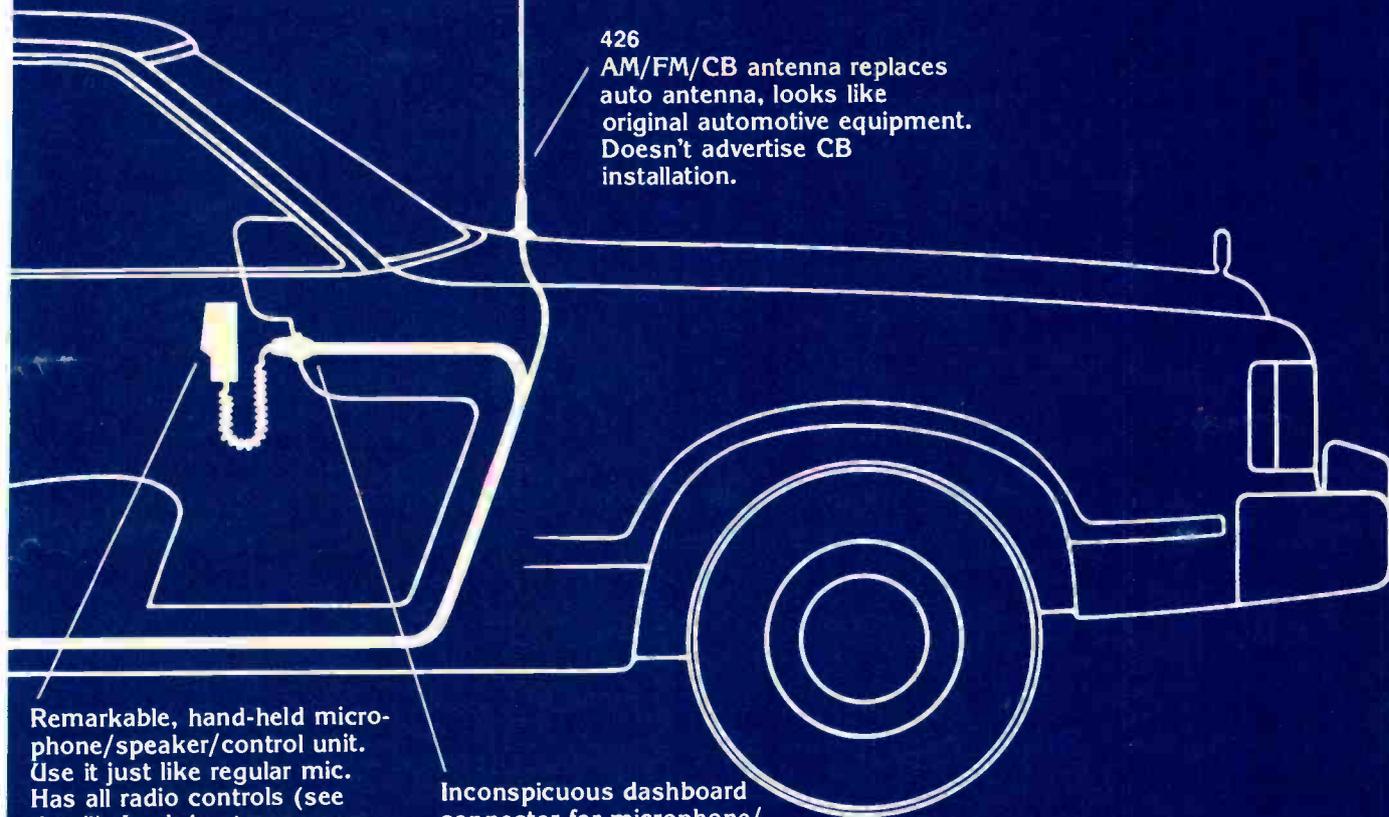
B Microphone and  
speaker  
C Push-to-talk bar

A 2679

D On-off/volume  
E Squelch

F Channel selector  
G Digital channel readout  
H Transmit and receive  
indicators

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AM/FM/CB antenna replaces auto antenna, looks like original automotive equipment. Doesn't advertise CB installation.

Remarkable, hand-held microphone/speaker/control unit. Use it just like regular mic. Has all radio controls (see detail). Lock in storage compartment or remove from vehicle when not in use.

Inconspicuous dashboard connector for microphone/speaker/control unit.

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With the superb radio bolted out of sight beneath the seat or in the trunk and the hand-held microphone/speaker/control unit removed, all that's visible is an inconspicuous connector under the dash. Install our AM/FM/CB antenna in place of your standard auto antenna and not even your ears will give you away.

The Hy-Gain 9 incorporates such features as advanced noise limiting circuitry, range boost, automatic gain

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comprehensive booklet that tells you why proper antenna installation is so important.

Go all the way, and get *total* performance by matching the quality of your CB with the quality of a Royce antenna!

We offer the complete line—bumper mount, body mount, rooftop or deck models, trunk lip, magnet mount, gutter mount, or California mirror mount. Stainless steel or fiberglass.

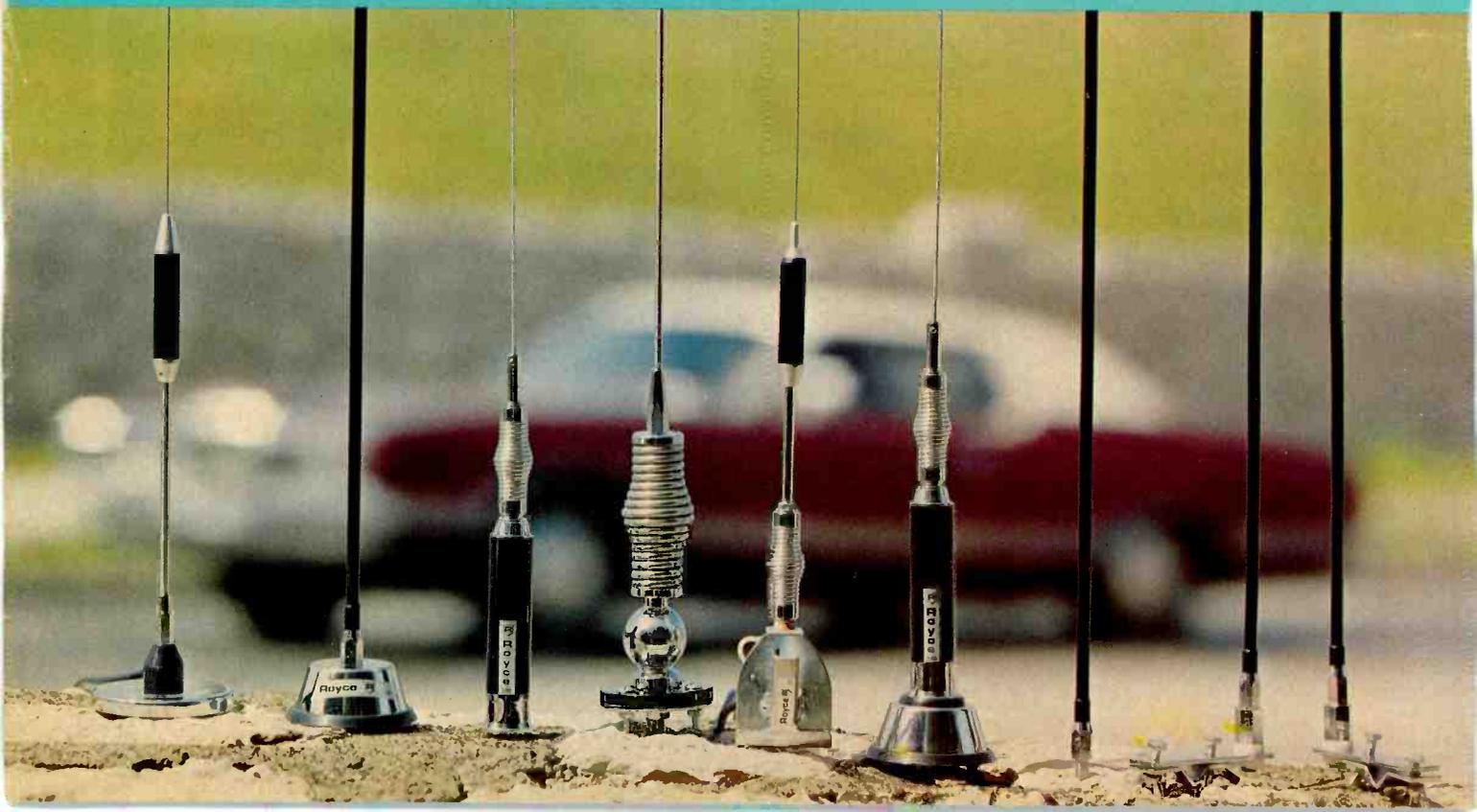
Write for complete details.

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# THE CB BBS '13 CODE

**E**VERYBODY seems to be familiar with the tried and true "10 CODE" but a new variation seems to be around in CB circles. Seems that there are several versions of a nutty and zany "13 CODE" making the rounds of CB land. We've received a few of them and have combined them here for your view. Perhaps you know of some additional ones you might wish to send in—maybe you can make up a few if you don't know of any actually circulating in your area.

## GOOD COPY

- 13-1 All units can copy you and think you're an idiot.
- 13-2 Yes, I copy you, but I'm ignoring you.
- 13-3 You're beautiful when you're angry.
- 13-4 Sorry 'bout that, Big Fella.
- 13-5 Same to you, Mack!
- 13-6 OK, so I goofed—none of us are human.
- 13-7 If you can't copy me it must be your fault because I'm running 3,000 watts.

## OPERATORS

- 13-20 Is your mike clinking or are your uppers loose again?
- 13-21 Good grief—are you being paid by the word?
- 13-22 Lady, is that your voice or did you install a steam whistle?
- 13-23 If you had spoken for another 30 seconds you would have been eligible for a Broadcast Station license.
- 13-24 Y'know, you made more sense last time when you were smashed.
- 13-25 Some of the local operators and I have chipped in to purchase your rig from you. Have you considered stamp collecting?
- 13-26 Next time you eat garlic would you talk further from the mike?

## TECHNICAL

- 13-40 Your signal sounds great, now shut off the set and give me a land line so I can find out what you want!
- 13-41 Either my receiver is out of alignment or you're on Channel 28.

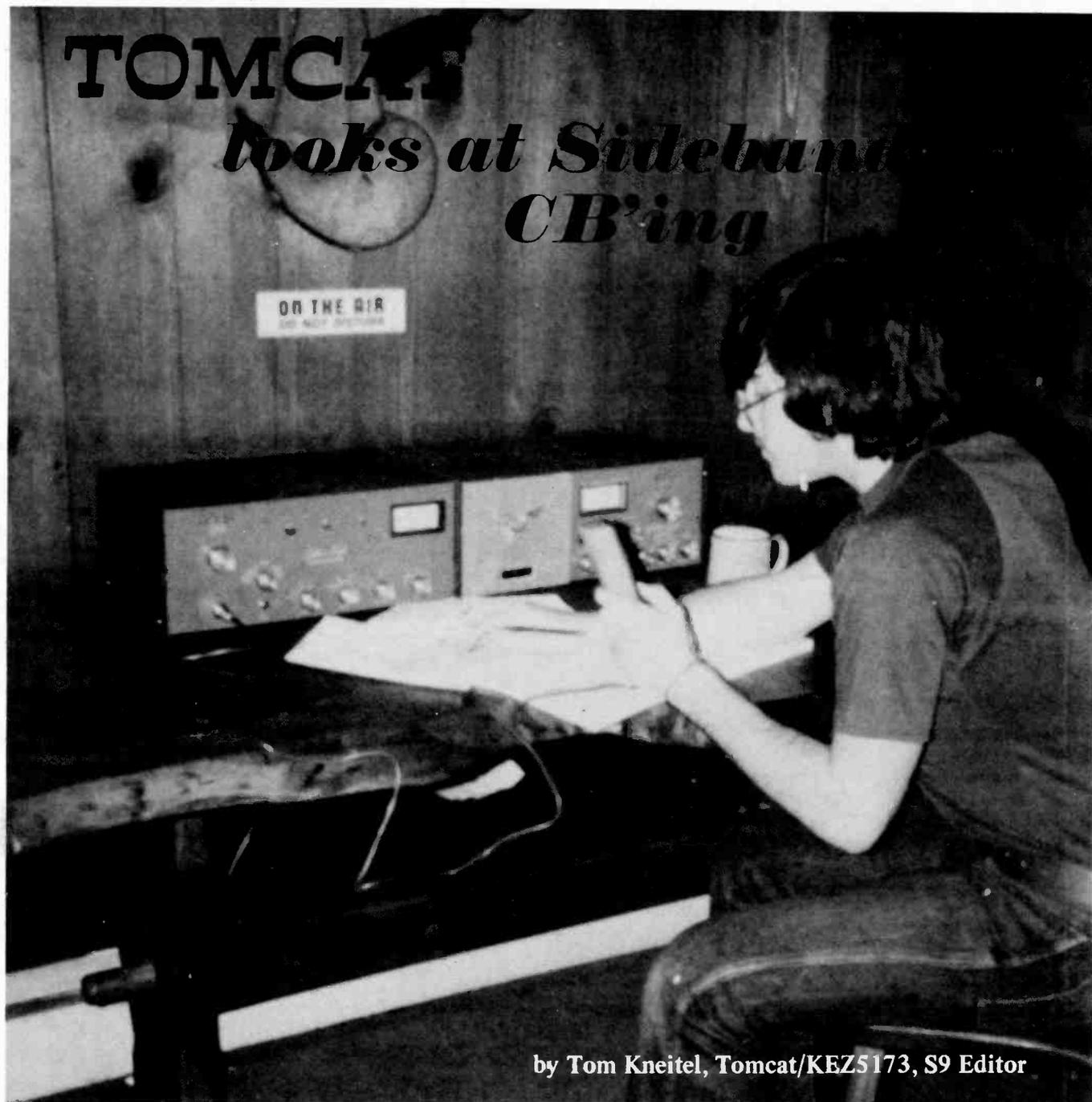
- 13-42 Either my speaker cone is ripped or you better try it again when you sober up a little.
- 13-43 That was a beautiful 10 minute transmission, now try it with your mike connected.
- 13-44 I love the way your new rig sounds, now I know why the manufacturer discontinued that model so fast.
- 13-45 Your transmitter must have a short circuit because there's smoke coming from my loud-speaker.
- 13-46 That's a new antenna? I could get a better signal out of a 6 inch piece of damp string!
- 13-47 What a fantastic signal—give me a few minutes to bring the mobile unit to your driveway so I can copy your message.

## SIDEBANDERS

- 13-50 Say, fella, can you slide that thing down 250 kHz?
- 13-51 You've tried the upper sideband, you've tried the lower side, you've even tried both sides—hope you're satisfied. Now will you go QRT so we can use the center slot?
- 10-52 Only good thing about hearing you on Single Sideband is that with only 1 sideband you're only half as offensive as you were when you were on AM!
- 13-53 Attention—AM station con center slot: Just because they won't talk to you on your own channels what makes you think we'll talk to you here?

# TOMCAT

## *looks at Sideband CB'ing*



by Tom Kneitel, Tomcat/KEZ5173, S9 Editor

**S**OME people call 'em *Silly Sidebanders*—some call 'em *Sensible Sidebanders*—many active CB operators hardly know that they even exist!

You might say, "What's the big deal, single sideband has been around for years—it's just another way of transmitting a signal from here to there." While this might possibly be true from a strictly technical point of view, sideband today is a whole different ball of wax. Some who are a part of the Sideband movement do

not always think of themselves as "CB'ers," often preferring to refer to themselves as "11 Meter Sideband Operators," or something of similar nature—for they are definitely not the same thing as the majority of CB operators, and they wish to clearly mark that difference. And rightly so—for 11 meter Sideband is far more than a technically different method of sending a message from here to there—it's more of an emotion—a state of mind—a hope—*maybe a dream!* And those who are part of the 11 meter Sideband fraternity are frequently rather militant in their defense of something which they feel is (or fear will be) ripped off and plundered by raging hordes of screaming, shouting, smokey reporting CB operators! Sidebanders sometimes tend to feel that they are the "CB Elite."

Are 11 meter Sidebanders snobs? Some say yes! I say not so! I see the 11 meter Sidebander as a person who has a pretty good thing going and wants to see it kept at some level of usefulness and rationality.

### FIRST OF ALL, WHAT IS IT?

OK—for those of you who never heard of single sideband, even from the technical point of view, let's give it a quickie and capsulized recap. Here's an explanation set forth in *Radio Shack's* catalog—it seems to say it pretty well and you don't have to be an engineer to understand it:

"Single sideband (SSB) is the latest and most efficient way to send and receive voice communications on the Citizens Band. The advantages of SSB over regular communications are greater range and more channels to choose from. Very basically, here's how it works.

In an AM transmission a "carrier" signal is broadcast with a "sideband" on each side of it. Both sidebands carry the same voice information. Imagine yourself as the carrier with two loaded grocery carts (sidebands), one on each side of you, as you try to push them down a supermarket aisle. First, you'll need a wide aisle and, second, you'll have to divide your strength between the two carts.

Now remove one cart, step to the side of the aisle and get behind the remaining cart. You now need only a third of the space you needed before, and you can concentrate all your strength on pushing a single cart. In a similar manner SSB eliminates the carrier and one of the sidebands—and puts all its power into the remaining sideband which effectively triples your power over an AM signal. This is why AM sets are rated at 4 watts output power and SSB sets are rated at 12 watts PEP (peak effective power) output. This tripled effective power, and narrower signal, makes SSB transceivers reach out farther.

Because you can select either the upper or lower sideband, SSB increases the number of available channels. Rather than just the AM channels to choose from, you also have 46 sideband channels. SSB transceivers let you operate on 23 upper side band channels, 23 lower sidebands and 23 AM channels."

I realize that huge books have been written on the technical points involved with sideband—so if you seek heavy data, check out previous issues of S9 or some books on the subject. My intention here is only to give some basic nitty gritty to those who are having the term "sideband" laid on them for the very first time.\*

### WHO USES IT?

Now, with the technical considerations taken care of—let's move along to see some of the things which *really* set the breed apart.

The typical Sidebander is a person who started out with an AM CB rig and then found that, for one reason or another, the AM mode of operations was less than satisfying—maybe too many stations jamming the channels, too many *breakers*, just too much of a wall of humanity banging away at the frequencies. True, some people just love this—but those who don't often gravitate to sideband where there is less activity, fewer stations.

Simply having a sideband operating capability on a CB rig does not necessarily make an operator a Sidebander—some sideband operators do not operate on AM at all. It seems to me that the vast majority of Sidebanders do use both AM and SSB, however the AM is perhaps used only for monitoring road conditions while mobiling. The operator who is primarily on AM who can or does click over to sideband once in a while, who knows and cares nothing of the ropes of Sidebanding, is *not* considered to be a Sidebander.

So the typical Sidebander is probably a person who uses SSB most or all of the time, who seeks something different than AM has to offer. Thus was the rugged individualist called the *11 Meter Sidebander* born.

Why are there fewer sideband operators? Several reasons, one being that the majority of CB operators are fully content with AM operating conditions and do not wish to drift off into what appears to many people to be an exotic never-never land. A lot of CB'ers have never even heard of SSB, and others who have heard of it have only the fuzziest notion as to what it is and the things which it has to offer. Also, SSB gear generally costs more than regular AM-only equipment. In any event, there are fewer Sidebanders than AM'ers.

### SO WHAT DO THEY DO WITH IT?

Mostly they communicate. Taking advantage of the fact that there are less crowded conditions on the channels where they congregate, they get involved in round-table discussions on a wide variety of subjects, often (but far from always) on the art of communications—technical topics are a great favorite. Many Sidebanders in a given area know each other personally, they belong to Sideband clubs, they have their own *coffee breaks*—the operators are, plain and simple, friends; therefore their on-the-air conversations cover the wide range of topics, such as might be covered by any group of friends.

\*See *Anatomy of a CB Radio* in this issue.



A rather complete installation, including AM/SSB rig (a Realistic Navajo in this case), a scanner, and a communications receiver.

There is usually a general aura of courtesy and consideration involved with sideband operations, seldom does one operator step on another.

The long distance transmitting range of the gear permits the Sidebender to include within his/her circle of friends, those other operators in distant areas, adjacent states and counties.

#### THERE ARE NO-NO'S

Some things are not tolerated by a great majority of Sidebanders. I would say that rudeness heads the list—and an operator who takes that path towards other sideband operators soon learns that it was a mistake, for a well deserved razzing and needling can be dished out by Sidebanders. Either the erring operator gets the message and straightens out, or simply writes Sidebanders off the books as a bunch of creeps and forgets about the idea of being a Sidebender. *That's the ideal!*

Many of the earmarks of AM operation are unknown to sideband operations—you *never* hear a smokey break, anybody who would ask for a 10-36 would be laughed right out of the county, no CB "jargon", *radio checks* are not given out by many operators, the use of CB *handles* brings only nausea, and one seldom encounters the tried and true "10 Code" (Sidebanders use the "Q" codes). There are other taboos, too.

Some people simply cannot hack the "rules" of sideband, which only serves to keep it the type of place that Sidebanders wanted in the first place!

#### WHAT CHANNELS DO THEY USE?

For many years now there has been a "gentleman's agreement" (as many operators call it) in some areas that Sidebanders confine their operations to only a few channels (usually Channels 16 and 18, using the lower sideband mode on 16 and the upper sideband on 18). Sidebanders seek only to be left to pursue their interest quietly and in peace on their channels—to detach themselves from the operations on the AM channels, which ever are the local channels in any given area.



For those who feel that getting a base and mobile SSB rig runs into too heavy an outlay, at least at the start—the option is there to obtain one rig, a mobile unit, which can be used for both base and mobile use. This Realistic TRC-48 is a set which lends itself to dual use—most mobile rigs will require a separate power pack for operation on house current.

This is not only a moral issue, it is also a technical problem; for sideband and AM transmissions do not comfortably function simultaneously on the same channel. A strong AM signal causes the Sidebender to hear a howl, while a sideband station causes an AM operator to have his communications chopped up by a raspy sounding gibberish. Sidebanders can handle AM interference with a lot less grief than AM operators can live with SSB interference, nevertheless Sidebanders have been generally careful about staying within the confines of the few channels which they have decided upon as being "home." AM operators seem far less willing to stay off of 16 and 18 than SSB operators are to keep clear of the other 21 CB channels. In many instances it is simply a case of the AM operator not realizing that 16 and 18 are used for Sideband operation, however in some instances it is strictly a matter of someone wishing to be obnoxious—you know, the same type of operator mentality which makes some people chuck dead carriers on the AM channels! This whole situation is a matter which is currently the motivation for a considerable amount of discussion amongst leaders within the Sidebanders' camp. Of course, there is nothing in the FCC's rules *at this time* which prevents AM stations from operating on Channels 16 and 18, just as there is nothing which prevents Sidebanders from selecting the rest of the channels for their own transmissions!

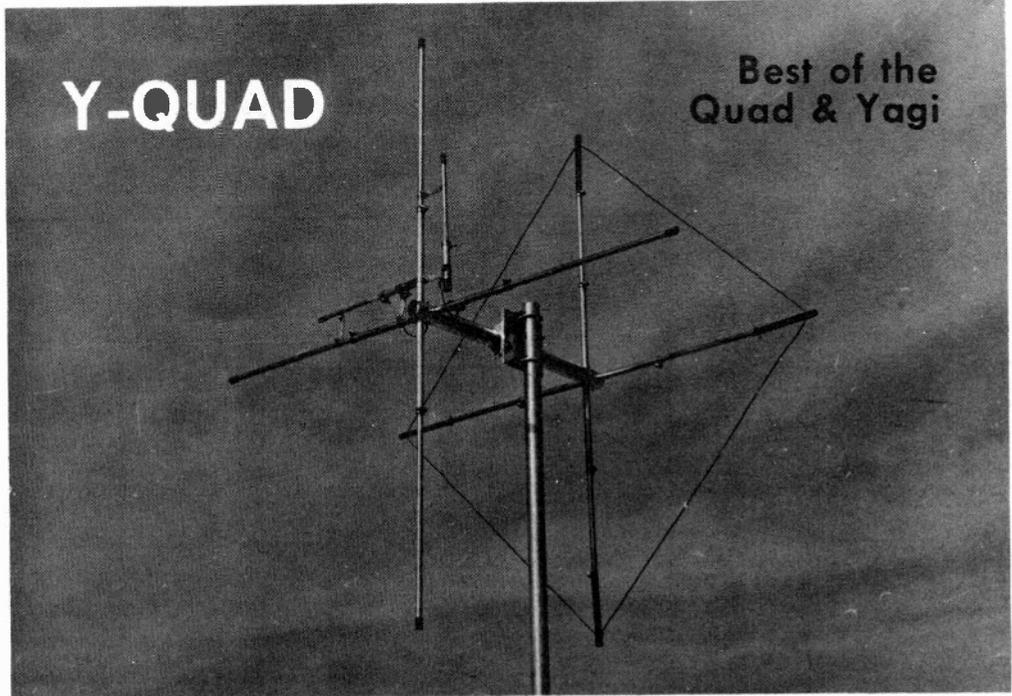
Upon hearing an AM transmission on a sideband channel, often a Sideband operator will switch over to AM transmission and explain to the operator the fact that Sidebanders have voluntarily confined their operations to only 2 or 3 local channels in order not to disrupt AM communications on the rest of the channels; this is followed by a request that the AM station kindly offer the exchange courtesy so as not to disrupt sideband communications. Frequently this approach is successful. Sometimes it makes no difference at all.

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### ★ FRONT TO BACK ★

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### ★ DUAL POLARITY ★

This feature gives considerable improvement in the following types of communications:

- A. Maximum transmission to either base or mobile stations.
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arized antennas. Switching to the vertical mode of the Y-Quad allows effective communications with these mobiles.

2. Base to base transmissions are most effective using horizontal polarization.

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Many sideband rigs come equipped with a "stock" mike of the hand-held type, although most operators prefer to use a desk type for base station operation. It's an easy matter to put a desk type mike on a rig, with power mikes being popular candidates.

"new" channels, some of them will be earmarked for exclusive SSB use.

### IDENTIFICATION

When you listen to a sideband channel one of the first and most obvious differences from AM that you will encounter is the fact that you won't hear any of the familiar CB *handles* in use. Instead, you'll hear the stations using sideband ID numbers, letter/number combinations used sometimes (although infrequently) in conjunction with the station's FCC callsign. Without a set of sideband ID numbers, an operator is a non-person on the sideband channels, some operators won't even reply to someone not announcing sideband ID numbers! So, it's one of those *must* haves!

Sideband numbers are obtainable from various clubs, groups, and associations.

Sideband numbers would only be used when operating on sideband, those Sidebanders who also have occasion to use AM would *not* utilize their sideband ID on AM. Most operators seem to accumulate several different sets of sideband ID numbers, and while they may primarily use only one or two, they have at their disposal any number of series—perhaps using them when communicating with others using similar numbers. I operate on sideband and also AM. On AM I am *Tomcat* and/or KEZ5173. On Sideband channels I am CLI-73 (Central Long Island Division of the Central Radio Communications Network, Inc, Unit 73) or SSB-13 (Sidebanders' Service Bureau, Unit 13), but I also have at my disposal KW-4405, ARO-1758, LIS-936, SCS-656, and a few others.

Rosters of the various operators using these ID letters are often available at Sidebanders' coffee breaks—they contain only the first personals of the operators and their city or town. Last names, street addresses, FCC callsigns are *not* included in the rosters.

If you can catch someone on the air who can or will assign you a set of numbers you can get them that way,

or you can get them by mail (especially handy if you figure to go on sideband *someday* but don't yet have your rig—or if you operate in an area where Sideband numbers are hard to come by—or even if you already have *this* many Sideband ID numbers but would like to have *one* more set!) As you might imagine, "lower" numbers from any of the various series of numbers are the most preferred.

A convenient source of Sidebanders' ID numbers is the Sidebanders' Service Bureau, P.O. Box 381-R, Smithtown, N.Y. 11787—especially handy since you can get 'em by mail! Actually, along with the ID numbers you get a whole Sidebanders' goodie kit—the number assignment ID card with their well known "SSB" numbers for *your* station, *plus* a handy Q-Code chart, *plus* a chart for converting the most popular AM CB terms into Sidebander's lingo, *plus* a comprehensive and useful description of proper operating techniques for the Sidebanders' channels—lets you know how to operate on sideband quickly and painlessly so that you can be "accepted" on the channels without grief and confusion—the ins and outs of Sidebanding, all of the tricky ropes! A lot of old timers can probably use this info, in fact. This goodie kit is available for only \$3, postpaid. If you order the above, you can also order, if you wish, a decorative Sidebanders' wall certificate bearing your SSB ID numbers—this is \$2 additional. A Sidebanders' decal is available for \$1.25, postpaid. With all orders, they include details of the operators' awards which they offer (actually, they will be happy to send details on the awards to anybody who sends them a self-addressed stamped envelope).

### EQUIPMENT

A look through the pages of S9 reveals that SSB rigs are available from a great many manufacturers. SSB rigs (with one or two exceptions) are capable of operation on regular AM as well as upper and lower sidebands of each of the channels. (continued)



Here it is, the Tram Diamond D-201, in the ever livin', ever lovin', flesh! A great crowd gatherer either on the air or just sittin' on the desk in the shack!

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## TOMCAT LOOKS AT SIDEBAND CB'ING (cont'd)

The prices of SSB rigs are somewhat higher than AM-only units, base stations of the super deluxe class can run over \$800, although more moderately priced rigs are also available. Mobile SSB rigs seem to average out between \$250 to \$275. Operation of SSB units is substantially the same as regular AM gear, except there is a switch on the front panel which enables the operator to switch to either of the unit's 3 modes of transmission, AM/USB/LSB. Another control known as the "Clarifier" is included also. This is a "fine tuning" device which is useful in getting the clearest copy out of an incoming SSB signal. In some units this control will also slightly vary the transmitter frequency (within FCC tolerances) to give the station you are working better copy on your signal—this is a desirable feature.

Contrary to popular belief, it is not really feasible to use both sidebands of the same channel simultaneously in the same area. If a station is conducting communications on *16-Lower*, local use of *16-Upper* will most likely create annoying interference to the lower sideband operations, and vice versa. And, as mentioned, the simultaneous use of SSB and AM on the same channel is a *total negatory!* So while SSB rigs can be considered to have a 69 channel capability (23 channels each—AM/USB/LSB), this should be understood in the terms of present operating preferences which demand that in any given area only one mode of operation per channel is totally suitable for best communications.

I was fortunate in living in a Sidebanders paradise for a while, for I had a chance to get some on-the-air time in with some of the most expensive SSB gear available to the 11 Meter Sideband enthusiast today—the *Tram Diamond D-201* and the *Browning Golden Eagle Mark III*.

The *Tram Diamond D-201* is a snazzy base station outfit—right down to its wood grained (real wood)

trim. A massive unit which takes up the lion's share of a desk-top, it comes equipped with an Astatic D-104 "lollypop" mike to add to the overall professional exterior appearance. The set features VOX, combo tube/semiconductor circuitry, fully metered on the front panel, right down to SWR.

Two ways of receiving are provided and selectable from the front panel, either crystal controlled via the transmitter channel selector switch, or fully tunable via a separate control. The fully tunable feature permits the operator to tune between, above, and below the regular CB channels for any juicy morsels of listener interest which might have slid off the center slot.

Another pair of interesting features permits the variance of tone on incoming signals, and also for the microphone. The mike gain is also fully adjustable from the front panel.

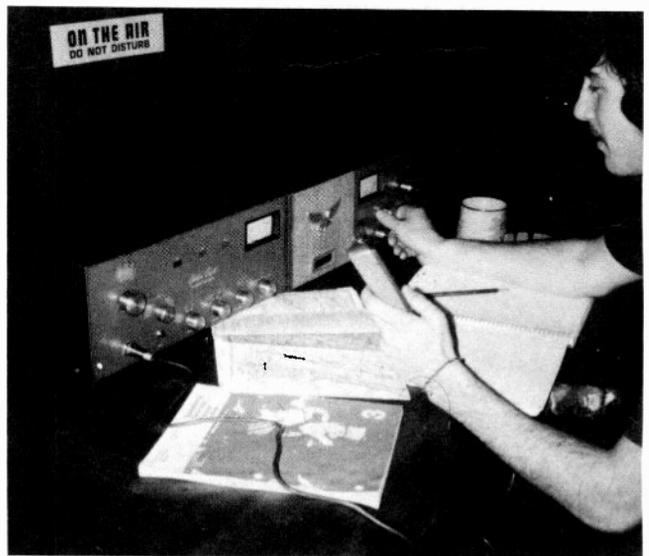
This is a damned fine piece of gear—there wasn't a station I spoke to who didn't ask me all about it and tell me how they would like to have one.

The *Browning Golden Eagle Mark III* is a 2-piece modular base station consisting of a separate transmitter and receiver which are interconnected. This impressive station weighs in at almost 50 lbs.—and that's half-a-hundred lbs. of goodies in anybody's book! It has enough knobs and dials to twist to impress any visitors at the radio shack, and when the cat at the other end of the contact hears what you're running he is guaranteed to *totally freak out!*

I liked the HF tuning capabilities of the receiver, and one feature I especially liked is the ability to defeat the set's AGC (Automatic Gain Control). This circuit is useful in preventing extra-strong AM stations from blasting through when you've got the volume turned up to hear a weak station, and all well designed CB receiver circuits contain an AGC. Problem is that the AGC circuit tends to lessen sensitivity when trying to



You'll be holding off the contacts at arm's length as they stack up to "work" you with a *Tram D-201*. Here's how it shapes up at arm's length—it's ALL radio!



The *Browning Golden Eagle Mark III*, an SSB legend in its own time! Despite its super sophisticated design and exterior, it is relatively easy to operate and it certainly commands attention on the channel when you lay that distinctive Golden Eagle signal out into the ether.

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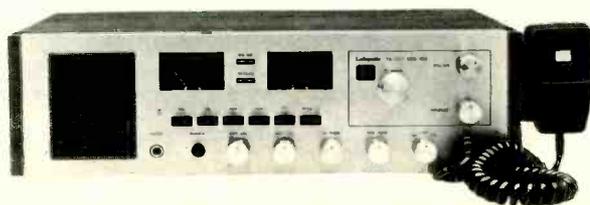
All major CB manufacturers  
have realized the potential of the

# Sideband Market.

Here is a random sampling of Sideband rigs  
produced by some well known CB manufacturers  
including:

- PEARCE-SIMPSON
- GEMTRONICS
- MIDLAND
- TEABERRY
- PACE
- HY-GAIN
- KRIS

- BROWNING
- E.F. JOHNSON
- LAFAYETTE
- ROYCE
- COURIER
- XTAL
- SBE





... a group of tasty delights  
to any Sidebander!



pull through really weak signals. On the *Golden Eagle* you can kill the AGC in order to give you every fighting chance to pull through a weak signal. And you'll want to pull the weak ones through because the transmitter lays out a really healthy signal—good enough to get through the hash to get to those guys with the weak signals! The audio on this rig is absolutely superb, no wonder the unit has earned its great reputation! Receiver tunes up to about 27.600!

Oh well, it was fun being the envy of all while riding down the channels in *Rolls Royce* style!

### WHAT'S AHEAD

Interest in SSB has been steadily growing, a fact which has been met with mixed emotions from within the ranks of the Sidebanders. On the one hand they are pleased to see recognition for a form of communications which they feel has so much to offer over AM (some call AM, "Ancient Mary"). On the other hand, many fear that a mass invasion of SSB will turn their oasis into one more form of AM operation, where it will shortly activate with *smokey reports* and the like, where it will no longer be possible to have coherent conversation without a dozen *breakers* asking for 10-36's and signal reports.

My own feeling is that SSB has so very much to offer that someone will have to hit it with a stick to keep it from growing. Possibly it holds the seeds for the future of 11 meter communications.

I look back at the introduction of SSB on the ham bands and recall how it was originally met with only minor interest, how the few original SSB operators were looked upon as kooks, how there was friction between AM and SSB operators for a while, and how the SSB bug eventually caught the fancy of pretty much all of the low frequency 'phone operators seeking DX contacts.

At the present time SSB on 11 meters is still in its early stages insofar as user interest goes. But the equipment is there, the technology is great, and some of the guys and gals are having a jim dandy time basking in the sun while most of the CB world is battling it out on the packed AM channels. I would certainly think it safe to say that interest in SSB will not only continue to grow, but it will be picking up momentum in the very near future.

Maybe now is the time to consider the possibilities of including a SSB capability in the next equipment you buy so that you can switch over when you come to feel the time is right. In the meantime, until you get that set you might talk over the possibilities of going SSB with some of your AM pals. You might even get your foot in the door of SSB right now by getting yourself a set of SSB ID numbers (especially while they still are giving out relatively low numbers—the lower ones seem to have a bit more status on the band, and with the way things are going, in a year or so the numbers could be out-of-sight!).

See you on *lower-16!*

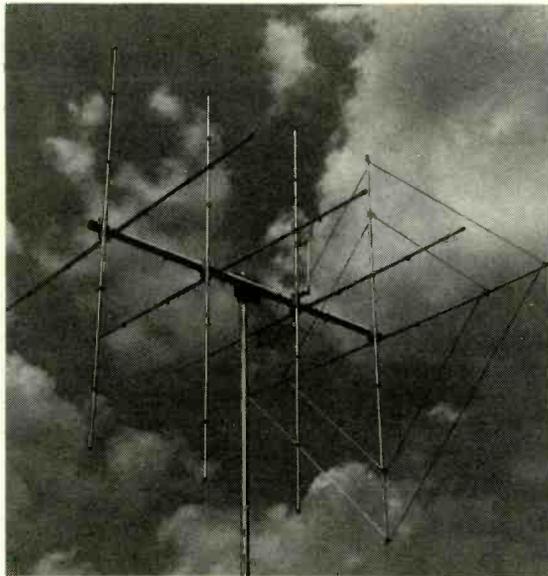
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If you wish your Jamboree or Coffee Break listed in this column, the information must be sent to S9 at least 4 months in advance.

### AUGUST

*Memphis CB Jamboree*, August 7th and 8th, Libertyland, Mid-South Fairgrounds. Proceeds to St. Jude Children's Research Hospital. For information call 501-735-0498 or write Memphis CB Jamboree Inc., P.O. Box 13013, Memphis, TN 38113.

*3rd Jamboree*, August 7 & 8, Bluegrass Convention Center, I-64 and Hurstbourne Lane, Louisville, KY. Sponsored by Shamrock 17 CB Club Inc. For more information contact Shamrock 17, P.O. Box 297, Fairdale, KY 40118.

*9th Annual Jamboree*, Aug. 7-8, Diermann's Lake & Picnic Area. Sponsored by Hilltoppers C.B. Club. For more information contact Wm. Lavine, 8727 Ezra St., St. Louis, MO, 314-427-6695.

*Jamboree*, August 7 & 8. Logan Memorial Field House, Middleburg Island. Sponsored by Logan County Citizen Band Radio Club, Inc. and REACT Rescue Team #2263. For more information contact Mrs. Lenoir Wells, 605 University Ave., Logan, WV 25601.

*Annual Coffee Break*, Aug. 8, Fish & Game Club, Route 3, Saranac Lake, NY. Sponsored by Mountain Valley REACT Team #2278. For more information contact Dan Paradis, P.O. Box 811, Saranac Lake, NY 12983.

*2nd Annual Coffee Break*, August 8th, Alexander Firemans Park, Alexander, NY (Rt. 98, 1/2 mile south US 20). Sponsored by the Friendly Grop CB Radio Club. For more information contact The Friendly Grop CB Club, PO Box 184, Lancaster, NY 14086.

*Tri-City Communications Club Jamboree*, August 13-15, Central Heights Ruitan at Kingsport, TN. For further information write P.O. Box 245, Kingsport, TN.

*Bicentennial Jamboree*, August 13th, 14th, 15th, Fond du Lac County Fairgrounds. Sponsored by the Fox Valley Wave Lengths Search, Inc. For information contact them at P.O. Box 415, Fon du Lac, WI 54935.

*7th Annual Coffee Break*, August 14th-15th, Todd's, Hwy. 54 South, Mexico, MO. Sponsored by Little Dixie CB Club. For information call or write to

Maxine Dudley, Martinsburg, MO 65264.

*2nd Annual Jamboree, August 14th-15th, Sts. Peter and Paul Picnic Grounds, off Rt. 40, at Slumberland Motel, one mile north on Mason Rd., Cumberland, MD 21502. Sponsored by Tri-State CB Radio Club, Inc. For information, contact Paul Thrasher, 630 White Ave., Cumberland, MD 21502. 301-724-0169.*

*12th Annual Jamboree, Aug. 14-15th, Millers Falls Rod and Gun Club, Turners Falls, MA. Sponsored by Mohawk Valley CB Club, for the benefit of retarded citizens. For information contact Katie Pike, 8 Captain Lathrop Dr., S. Deerfield, MA 01373.*

*Annual Picnic, August 15th, Norfolk Rod and Gun Club. Sponsored by Standing Wave Ratio Club. For more information, write to Doug Pete, 43 Main St., Potsdam, NY.*

*1st Annual Coffee Break, August 15th, Castle Shannon (PA) Fire Hall, Rt. 88, just outside Pittsburgh, PA. Sponsored by the Fun Bunch CB Radio Club. For more information contact Harold Gerstner, PO Box 11296, Pittsburgh, PA 15238.*

*Jamboree, August 20th-22nd. Roanoke Valley CB Club will sponsor a jamboree at Sandy Level Hunt Club, located at Rt. 24, about 15 miles east of Roanoke, VA near Chamblissburg, VA. For more information write to James V. Begley, PO Box 5062, Roanoke, VA.*

*5th Annual Jamboree-Camporee, August 20th, 21st, 22nd, Locust Farm, River Road, Eliot, ME. Sponsored by Shoals CB Radio Club, Inc., PO Box 807, Portsmouth, NH 03801.*

*North-Eastern Oregon Regional Break, August 21st, National Guard Armory, Pendleton, OR. Sponsored by Five CB Clubs. For information contact Pendleton CB Club, PO Box 133, Pendleton, OR 97801.*

*1st Annual Big Horn Mountains CB Break, August 21st, Ranchester, WY. Sponsored by Sheridan County CB Club, REACT and ALERT. For information, Contact Bob Sanders, Rt. 1, Box 142, Sheridan, WY 82801.*

*9th Annual Coffee Break, August 22nd, United Glass Workers Union Hall, Buck Rd. Exit off I-75, Lima City Rd., OH. For the benefit of Sunshine Children's Home and other charities. For information contact Glass City CB Radio Club, Inc., 2603 Starr Ave., Toledo, OH 43616.*

*13th Annual Jamboree, August 22nd, 2 miles north of Business 31, 4-H Fairgrounds, Peru, IN. Sponsored by Circus City CBers Inc. of Peru, IN. Contact Clarence Worley, 167 West 7th Street, Peru, IN 46970.*

*Bicentennial Coffee Break, Aug. 22, Conrad Ruth's Villa, Middle River, MD.*

# big buster mobile antennas

## TRUCK BUSTER

Fiberglass co-phased mobile whips with nickel plated, west coast style, jiffy mirror mounts. These are complete package systems including antennas, mounts and co-phase harness with connectors all preassembled.

CM-423 co-phased mirror mounts with 48" TOP BUSTER WHIPS  
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## UNI BUSTER

Our 48" Fiberglass Top Buster mobile whip with 10' cable and jiffy mirror mount.

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# LADIES OF THE MIKE

By GARY DECKELNICK



"**B**REAKER, breaker, one-nine," crackled the deliberately seductive voice on the CB. "I'm looking for an 18 wheeler on two-nine-five. Because it was late, about 1 a.m., and most voices on the CB were those of truckers, the responses were quick from those who wanted to chat with the alluring voice.

"Hey, there, YL," came the strongest response. "What's a nice beaver like you doing out so late at night? And back came the magical answer that turned off most truckers but turned others on. "We be making a little business trip and we be lonely,"

answered the woman, who gave her handle as the Eager Beaver. "We be looking for someone to have coffee with."

The truth is the woman was a prostitute—pavement princesses the truckers call them—and she was using her CB radio to give a new twist to the world's oldest profession. She and others like her have found that prostitution can be made safe and easy by CB.

"It's much better than the way I used to do it," said one woman who agreed to be interviewed anonymously. "I mean the two biggest reasons that hookers get caught are neighbors or people you approach who say no. This eliminates both those problems. And I can work for myself instead of working for some man."

As we talked, we sat in her car, parked in a diner lot. The diner was near I-295 in New Jersey, a popular truck route, and the diner was one frequented



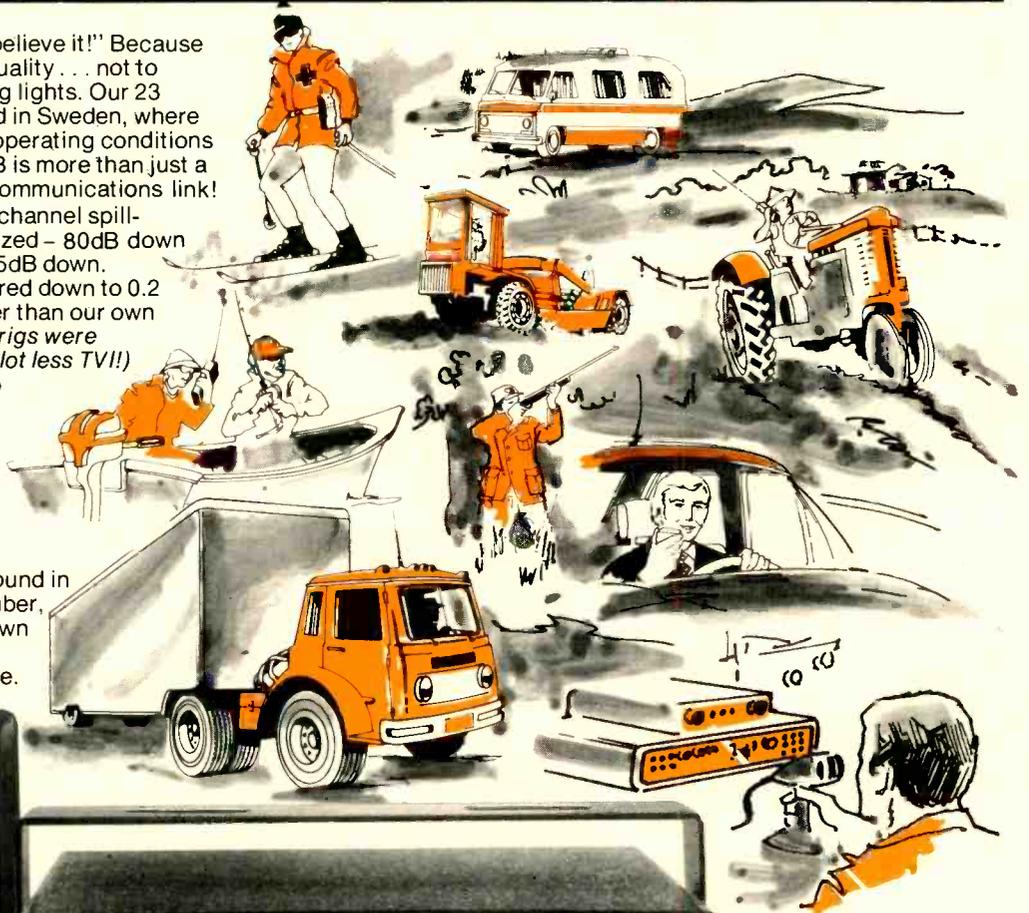
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S9 • August 1976 • 39



by truckers. At the mere mention of its name, any area trucker would know just where the Eager Beaver was.

"If I was really working tonight, I wouldn't be sitting in this lot," Eager Beaver hastened to explain. "Before CB, we used to park in the lots and ask each truck driver when they drove up. But a lot of the truckers would complain and we were always getting kicked out. Now, we cruise. We don't go in the lot until we're ready to meet someone."

The way the system worked, explained Eager Beaver, a 26-year-old blonde, was by the use of the code phrase, "I'm on a little business trip." Apparently, the truckers all realize what kind of business a woman is conducting by herself in the wee hours of the morning.

"I mean, it's obvious," she said. "I'm 5 feet 2 and I weigh 110 pounds. Do I look strong enough to be a milkman? I mean, how many outside jobs can a woman have at this hour? They know what I'm doing."

They know but they never get the chance to confirm it until they meet face-to-face. And that doesn't happen until Eager Beaver and the truckers have exchanged a few more pleasantries. By then, she's fairly sure whether she has a prospective customer, someone who's not apt to complain to police, even if he's not in a buying mood.

"Once I'm sure of that, then we agree to meet for coffee," she said. "I always pick a spot that I'm closer to than he is. I get there first. I mean, I want to see him drive up and get out of his 18-wheeler. If he doesn't, I don't meet him. One of my friends once got careless and let her guy get there first. When she met him, she found out he was a cop. Those darn smokies have ears."

It's only when they are sipping coffee together that Eager Beaver makes her real offer. If they agree to terms, their business is conducted in the driver's bed in the truck. "We never discuss the actual arrangements on the air," Eager Beaver said. "I mean, I don't want to break the law, or anything."

So far, Eager Beaver has been lucky. She hasn't been caught and she thinks she can avoid detection forever. Her confidence stems from her insistence that she select the meeting place, enabling her to see what her customer is driving. She reasons—correctly—that no police department is going to rent a truck and disguise someone as a driver. That would be too expensive to catch one prostitute.

But the police say they have other methods of dealing with the motorized pavement princesses.

"Actually," said one New Jersey State Trooper who uses his personal CB in his patrol car, "we have a better chance of catching the hookers when they use the radio than when they don't. "If they are streetwalking, we have to get a complaint or see them to know what they're doing. "It's true we don't get many complaints when they use the radio—I can't think of one—but we can hear them, too."

What the trooper does, he explained, is monitor the conversation until the trucker gives his location. He has to do that so Eager Beaver can pick her meeting spot. But that's enough so the trooper can follow the truck to the rendezvous.

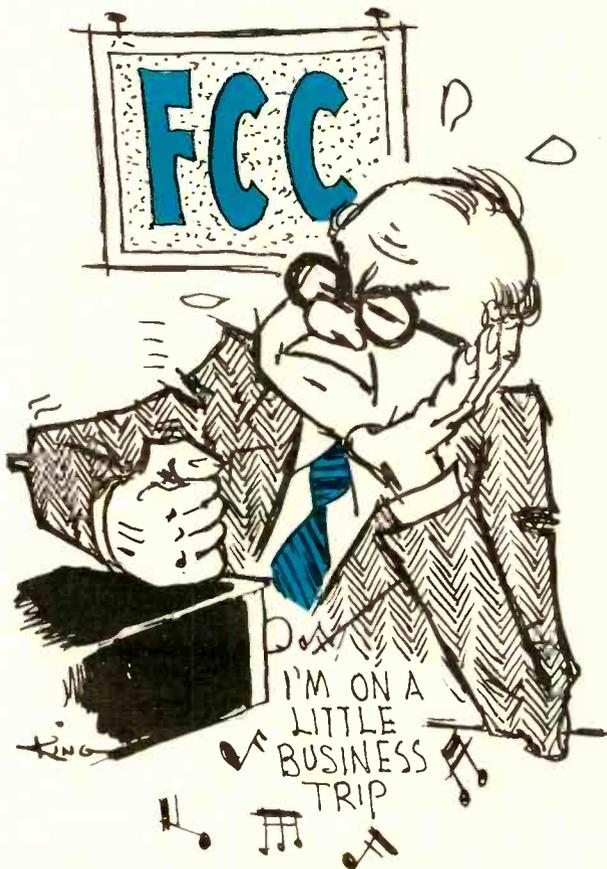
"I see who the trucker meets and I see what car the hooker gets out of," said the trooper. "That's when I have my fun. Usually, it's hard to get enough evidence to make an arrest but it's not too hard to discourage them."

He remembered one night when he checked the prostitute's license plate number and found the car was owned by her husband. "I called him and told him a car similar to his was used in a robbery and we found his in a parking lot. His wife was supposed to have been visiting friends on the other side of town. I'll bet she had one whale of a time explaining what she was doing at a truck stop and why we could not find her inside." The trooper was unable to find the prostitute inside because he had waited until she left with the trucker before he made his call.

In New Jersey and other states, troopers also are attacking the problem by being helpful to truckers. When they see trucks parked on the side of the road, they frequently check the cabs to make sure the driver hasn't become ill. Many drivers don't want to risk having unauthorized company when a cop knocks on the cab door.

"There's a lot of trucks we use," said the New Jersey trooper. "Sometimes, we just let them see us copy their license number. Or, we'll pull in so close behind the trucker that they can't miss us. Either way, it gives them a good scare. They know I know who they are."

The radio prostitutes also are coming in for some special attention from the Federal Communications Commission. A commission spokesman said using the radio for prostitution is illegal. "You can't sell anything on citizens band and I guess that must include yourself," the spokesman explained.



It's a fact, however, that neither the FCC nor state troopers can be everywhere and the chances of a prostitute being caught may be less than the law enforcement agencies assert. Nevertheless, Eager Beaver has encountered one problem which is making it harder and harder for her to attract customers.

"It's the competition," she complains. "I don't mean from other hookers. I can handle that. It's from the flirts and the teases. They're giving us a bad name."

With the ever-increasing number of CB sets, it follows there's an ever-increasing number of women talking on the air late at night, either in their cars or from base stations at home.

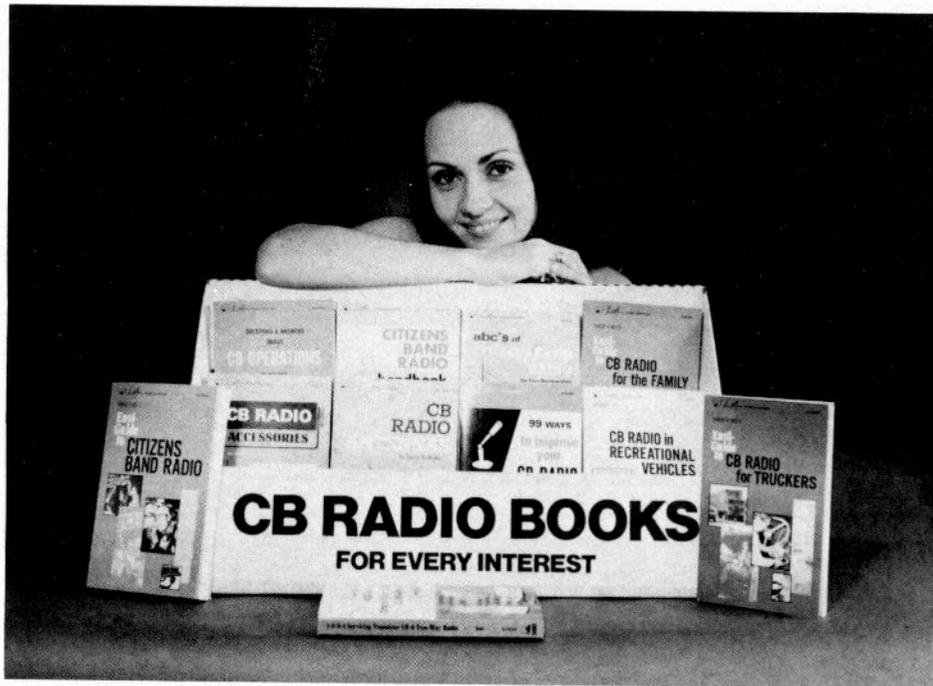
Most are just friendly souls who engage in playful banter with the truckers or anyone else on the road at night. They, too, sometimes offer to meet truckers for coffee, especially when it's a group of women travelling together who don't want to stop by themselves at a truck stop.

"I had one fairly regular customer who gave me up," Eager Beaver said. "It seems he stopped a couple of times to have coffee with YLs who called on the radio. But all they wanted was coffee. Now, he doesn't stop anymore because he doesn't want to be embarrassed by saying the wrong thing to a woman. You know, it's getting hard for a working girl to make a living these days."

He acknowledged that it may not be technically illegal for a woman to ask a trucker to meet her for coffee. For obvious reasons, however, the pavement princesses don't give their call letters when they are working. And a truck monitoring what appears to be a solicitation would give special attention to locating it for the call letters violation, the spokesman said.

# TERI Tries It!

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a lot  
about  
CB  
radio!**

**S**OMETIMES I'm surprised by the variety of CB items I'm asked to try. Certainly I had not expected books. Yet, sure enough, this month book publisher Howard W. Sams & Co., Inc., asked me to examine certain of their CB radio books and tell you about them. Well, heck, why not?

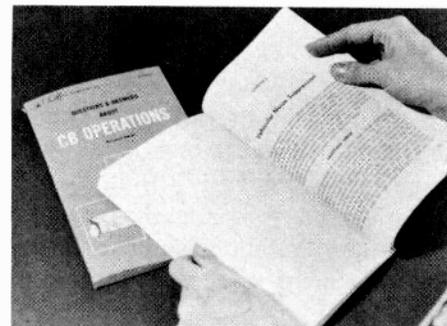
Surprise number two came a few days later when a cardboard rack full of books arrived. So many, I thought? But I got past that easily enough. Actually, there were only eleven different titles. I figured I could manage that.

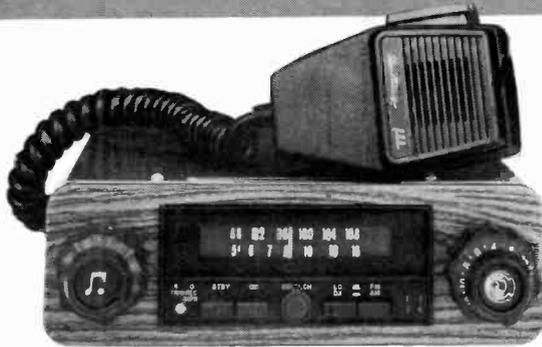
Surprise number three was pleasant. I've learned more about CB radio in the past weeks than in all the

time I've been using CB. Some of the books I found hard to put down. Every evening, I fluffed a pillow on one end of the family-room couch and began browsing through the bunch. Ordinarily I fall asleep reading. Yet, some of these books held me till nearly bedtime. My favorites were one called "CB Radio Antennas" and another titled "Easi-Guide to CB Radio for the Family." But let me tell you about all of them.

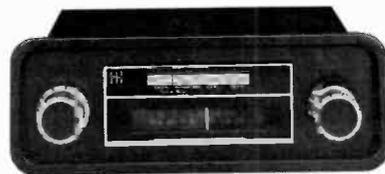
I lumped the eleven books into five groups, by author. Here are some impressions I got, which might help you decide which ones you would like best.

Take Leo G. Sands first. "CB Radio Accessories" is fairly technical and detailed, more than I could absorb. Yet, it should be great for anyone who wants to know what goes on inside mikes, antenna testers, noise filters,

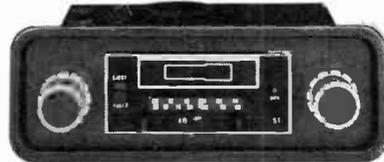




352CB — In-Dash CB/AM-FM-MPX/8-Track



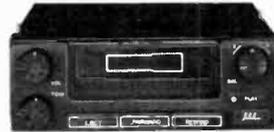
841 — In-Dash AM-FM-MPX/8-Track



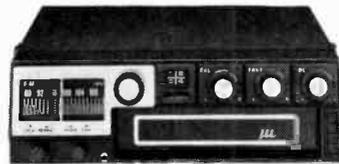
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606CB — In-Dash CB/AM-FM-MPX/Cassette



605 — Mini Stereo Cassette Player



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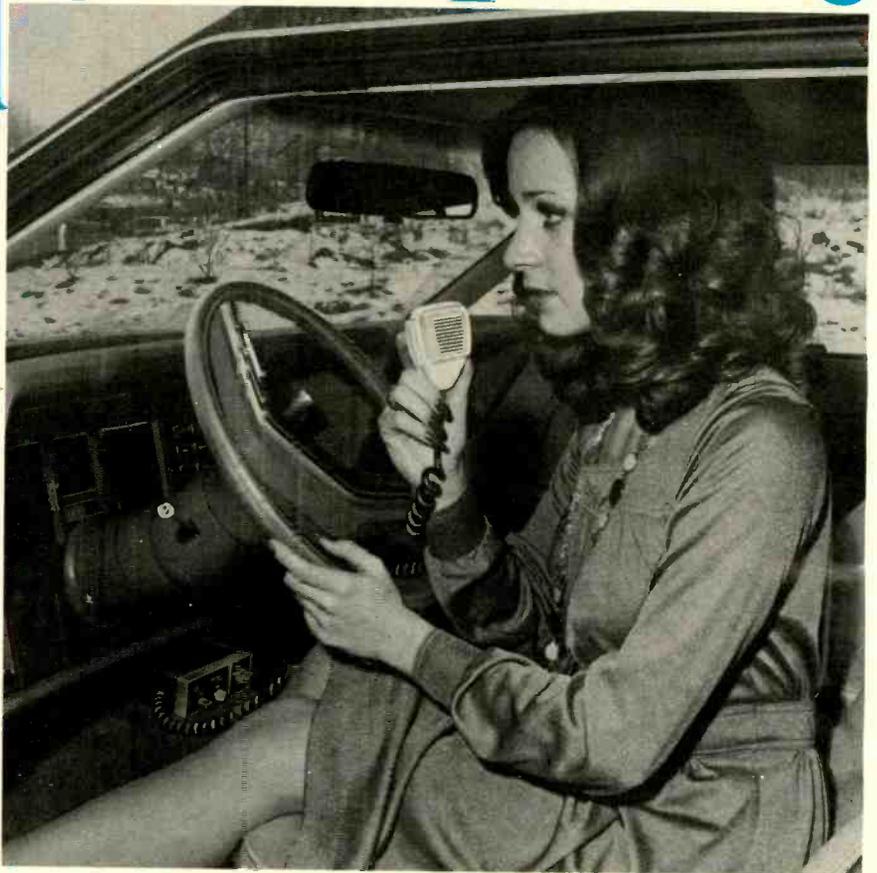
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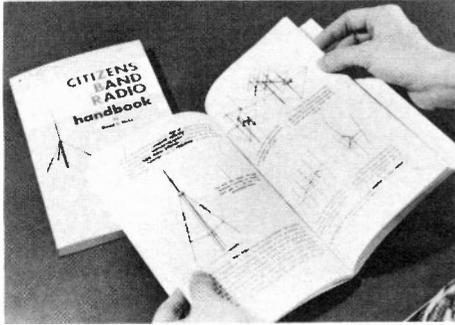
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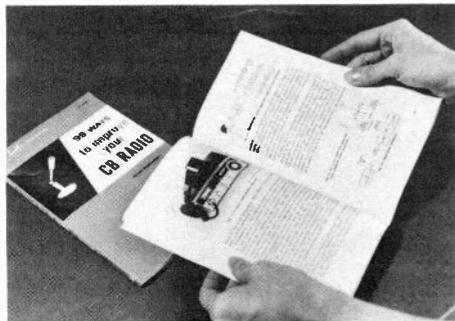
power supplies and dozens of CB accessories. It shows how to use them too. Sand's "Questions & Answers About CB Operations" was more my speed. I particularly liked finding out, in words I could identify with, what a solid-state transceiver is, and about other kinds of CB, like Class A.

Next, David E. Hicks. His "CB Radio Antennas" holds a feast of information about radio waves and how they work. I was fascinated by pictures of different antennas and how to use them. In particular, I enjoyed



reading about beams, because our home-twenty has both a beam and an omnidirectional (I didn't even know what that was, a month ago). Some parts of "Citizens Band Radio Handbook" by Hicks held my interest, particularly the part about Canadian CB radio, and the FCC Rules and Regulations, and chapters on equipment and operating procedures. But the "Handbook" seems more for the CBER who really wants into the technicalities and electronics of CB radio.

Len Buckwalter has packed his "99 Ways to Improve Your CB Radio" with hints and tricks that could make any CB system operate better. Besides the 99 tips, there's an extra chapter of more current ideas: clubs, dealing with the FCC, and other aids. Buckwalter's



"ABC's of Citizens Band Radio" seems geared more to informing non-technical people like me. Especially I enjoyed the chapter on single-sideband CB radio. Maybe I still don't entirely understand SSB, but for sure this is the best explanation I've read so far.

Two "Forest H. Belt Easi-Guides" have a co-author. Marti McPherson, a woman I happen to know, did much of the writing and photography in "Easi-Guide to CB Radio for the Family" and "Easi-Guide to CB Radio Recreational Vehicles." Two things impress me about



"Easi-Guides." (1) Photo illustrations clarify everything. (2) Text is so easy to read. Of all the Sams books, these avoid technical jargon more than any others. They are truly aimed at the average CBER. In "Family CB" I empathized with a chapter that tells how to overcome the "mike fright" that afflicts beginning CBERs (guess who also had it). I liked the explicit instructions in "CB in RV's" that show how to install CB units and antennas in recreational vehicles, trucks, and cars.



Of course I know writer/photographer Forest Belt. His "Easi-Guide to Citizens Band Radio" is practically a bestseller. And "Easi-Guide to CB Radio for Truckers" has grown popular along the highways. I like the first for its general overview of CB radio, and the second for its easy explanations of installing CB radio step-by-step. I'm sure I could install a truck CB myself now. A third book of his is highly technical: "1-2-3-4 Servicing Transistor CB and Two-Way Radio." It's for servicers, and includes a lot about police-type two-way radio. Forest's 1-2-3-4 Servicing method speeds trouble-hunting inside a CB transceiver, he tells me.

Okay. So much for the books. I asked what to me seemed a key question. Where can you buy Sams books on CB radio? Mostly, you have to go to electronic parts distributors or wholesalers. A few large CB dealers stock them. Try bookstores; if they don't have any, they can order.

Without a doubt, there's no quicker way to learn about CB than with these books. They can help you avoid embarrassing—and perhaps costly—mistakes. Fact is, if you're a good reader, a week's study can make you the CB expert on your side of town. It did me . . . well, sort of, anyway.

Gotta go. Seventy-threes and 'bye.

**TERI**



# ON THE COUNTERS



## FOUR UNDER-DASH MODELS

Motorola's new line of MOCAT citizens band radios includes four under-dash models designed, engineered and built by the U.S. manufacturer at its communications division facility in Schaumburg, Illinois. An extensive line of Motorola-manufactured CB antennas and accessories will also be available.

The basic unit, Model 2000, offers such standard features as a digital phase lock loop synthesizer for maximum reliability of on-frequency operation, a dual gate F.E.T. front end for maximum protection from off-channel interference; a rugged plug-in Motorola power microphone with a built-in amplifier; a top fire speaker for improved voice recognition and better fidelity; a large, easy to read, illuminated S/R/F meter; an external public address and speaker capability; an automatic noise limiter and a wide range automatic gain control.

Model 2005 includes, in addition to those features available with the basic model, an EXTENDER noise blanker which rejects ignition noise in the receiver and significantly increases the usable range of the unit.

Model 2010 includes all features of the basic MOCAT unit and an L.E.D. (light emitting diode) Digital Channel readout with dimmer for safe, easy-to-read operation day or night.

The top of the Motorola CB line, Model 2020 includes, in addition to the standard features, both the EXTENDER noise blanker and the L.E.D. digital channel readout.

Prices for the four Motorola CB radio models range from \$175 to \$225.

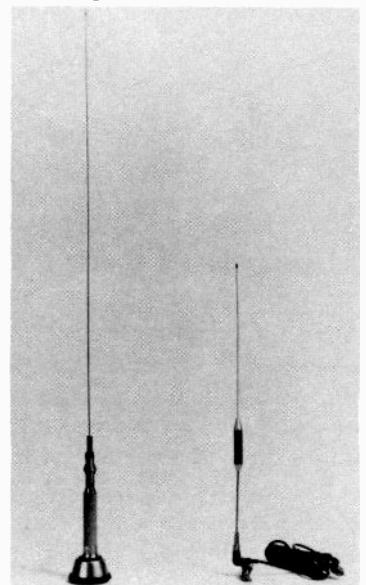


## TWO ADVANCED-DESIGN MOBILES AND TWO MOBILE ANTENNAS

Responding to the widespread public awareness of Citizens Band radio as a convenient form of two-way communications and the consequent increased demand for such equipment, RCA Distributor and Special Products Division introduces two new CB transceivers, the RCA 14T200 CO-PILOT and the RCA 14T100 CO-PILOT plus two mobile antennas, the RCA 14T150 trunk lip and the RCA 14T151 gutter mount.

The instruments were designed with many innovative features resulting from RCA's long experience in the communications field. The RCA 14T200 is a deluxe high sensitivity dual conversion receiver with Delta tuning which permits reception of transmissions that are slightly off frequency, while the RCA 14T100, which also has been designed for high performance, is an economy priced model.

Both transceivers are solid-state 23 channel



Trunk Lip  
Model 14T150

Gutter Mount  
Model 14T151



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470-512 mHz	Full Band 42 mHz Capability

Sensitivity (the ability to hear) is .6 micro-volt. Selectivity (the ability to reject unwanted signals) is -70 db. Crisp, clear audio is over 3 watts. See technical specifications for complete details.

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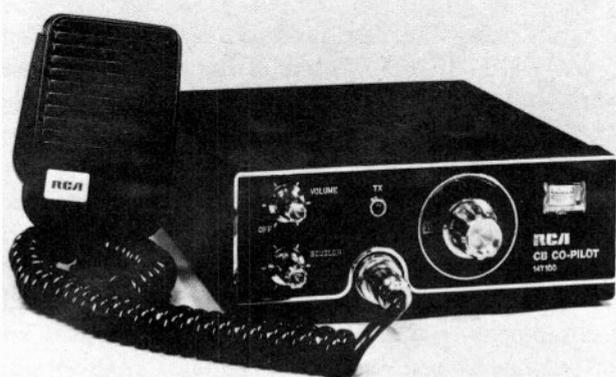


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mobile units and operate within the Citizens Band with up to 4 watts power output. Each is equipped with an automatic noise limiter; the 14T200's is switchable, to minimize the effect of noise interference and permits reception of more distant stations with weak signals. The transceivers also feature an illuminated channel indicator and an illuminated S/RF meter to measure strengths of input signals and relative RF output level, an LED modulation indicator, and a convenient public address function including a jack for a public address speaker. An external CB speaker jack is provided so that a separate speaker can be used in noisy areas, such as truck cabs, power boats, etc. A rugged, dynamic-type push-to-talk detachable microphone is supplied. When the microphone is removed, the transceiver is disabled to prevent unauthorized use.

The instruments are designed with a stable frequency synthesizer, and an automatic level control (ALC) to avoid overmodulating the transmitter. Both can be operated from a 12 volt DC source having either positive or negative ground, permitting installation in any car or truck, recreational vehicle, or boat which has a 12 volt system.

The RCA 14T200 has a suggested list price of \$169.95 and the RCA 14T100 carries a suggested list price of \$134.95.

The two citizens band antennas are completely pre-assembled with all cables and connectors. Each is adjustable for resonating to lowest SWR and has a high-quality stainless steel element that is removable to avoid theft.

The RCA 14T150 is a trunk lip mounted antenna and comes with 17 feet of coaxial cable. Its weatherproofed base loading coil gives efficient power radiation with an antenna height of only 45". Suggested list price is \$21.95.

The RCA 14T151 mounts quickly and easily to the rain gutter on cars, trucks or station wagons. It has a weatherproofed center loading coil and is only 28" in length. Suggested price is \$14.95.

Further information on the RCA CB CO-PILOT transceivers can be obtained from your local RCA CB distributor or by writing RCA Distributor and Special Products Division, Cherry Hill Offices, Building 206-2, Camden, N.J. 08101.



### NEW RIG

Model 4102 Citizens Band Transceiver, is introduced by Craig Corporation. This unit comfortably handles the maximum 4 watts output limit and meets type acceptance requirements of the FCC.

Quick-release reversible mounting is an added feature of Craig's 4102. With the addition of optional extra brackets the unit can be easily transferred to any vehicle.

A ceramic filter circuit rejects unwanted signals while voice compression circuitry provides maximum voice clarity and range. Protection against open or short circuits is automatic. Automatic Noise Limiting provides the best possible reduction of atmospheric noise and interference. All 23 channels are crystal controlled by the synthesizer circuitry to insure accurate, on-frequency operation. Adjustable squelch control eliminates channel "hash" between transmissions.

The 4102's illuminated front panel S/RF meter shows relative power output in watts while transmitting, and "S" units while receiving. A modulating LED indicates transmission is being achieved. Speaker jacks on the rear of the 4102 provide external speaker and P.A. options.

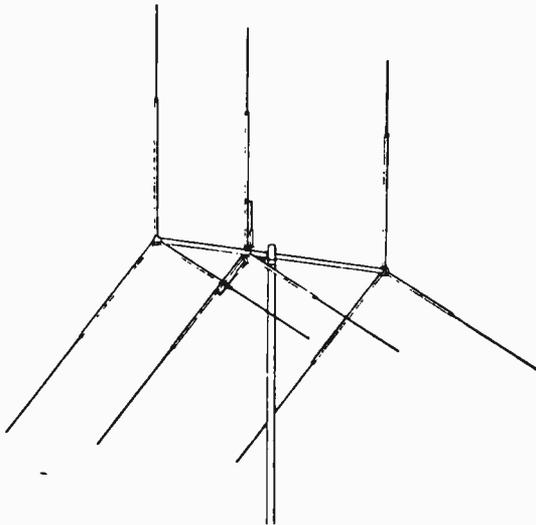
The microphone is attached by a 5-pin connector enabling use of optional special-purpose microphones. "Mic" hanger and hardware are also included.

Black and satin-chrome finish highlight the Craig 4102's styling.

Suggested retail is \$149.95.

### GIZMOTCHY ANTENNA

A very talked about base station antenna is the Charles GIZMOTCHY, one of those word-of-mouth devices which many people are trying to find out about. Here are some details Gizmotchy: It is a beam which is switchable from the operating position to function in the vertical or flat side polarity. It is gamma matched for 50 Ohms, it has a forward gain of about 12 DB, front to back ratio of 28 DB. The VSWR is less than



1.5 to 1 across the band, and it is made of seamless aluminum. It also can be used with an optional power booster, which is an additional set of elements adding about 4 DB more to the gain. It's light weight, only 12 lbs. for the whole thing, plus another 4 lbs. for the booster. The Gizmotchy itself costs \$99.95, the booster another \$25.50. The boom length is about 9 feet, with an additional 3 feet 8 inches for the booster. This antenna is produced by the Charles Radio Co., Mt. Carroll, Ill.—and the folks at Charles say that they have been overwhelmed with orders for the Gizmotchy and have been working 'round the clock to try to keep up with the demand! To all of the many S9 readers who have called us asking for info on the Gizmotchy and its manufacturer we have this message—Call Charles Radio for more details, although they may be too busy to answer the phone!

**MODEL 7723 RIG**

Spearheading EICO's re-entry into the Citizens Band Radio field, is the Model 7723 Transceiver, jam-packed



with features not usually available in units in this price range.

In announcing the new product, EICO Pres. Harry R. Ashley said; "EICO was one of the original pioneering firms when CB radio was first authorized by the FCC. The Model 7723 gives the consumer more transceiver for his money than he could have dreamed possible." Mr. Ashley went on to say that; "We feel justifiably proud of the Model 7723, and know that it will do very well. We're so confident of this, that we have prepared a complete line of accessory and ancillary equipment to compliment this transceiver, including a full line of test equipment, antennas, power supplies and some truly unique add-on equipment to make CB operation easier and better."

Among the many fine features on this compact unit are full 23 channel synthesized circuit, dual-conversion superhetrodyne receiver, a built-in automatic noise limiting circuit, and an active automatic gain control. Other features include a full variable squelch control, a tuned RF stage, a built-in P.A. switch, a large, easy to read 1¼ inch combination S/RF meter and the facility for either positive or negative ground.

The New Model 7723 measures only (HWD) 1¾" x 5" x 8½" and weighs a scant 3 lbs. Included is a full-size, plug in mike with push-to-talk control, an all-metal cabinet, a mounting bracket, power cord and full step-by-step installation instructions.

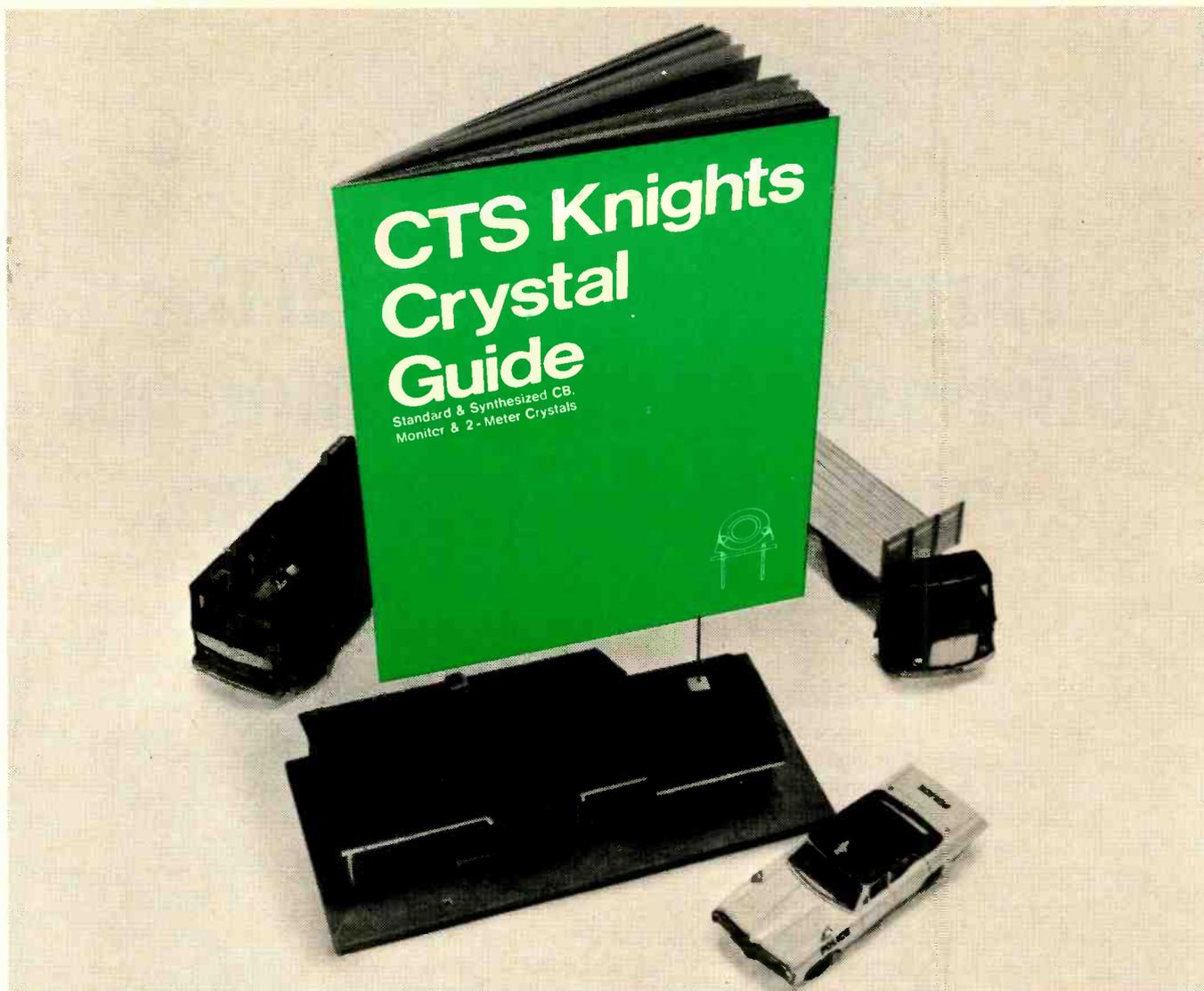
Solidly provided with more "big set" features, the EICO 7723 incorporates the craftsmanship, product integrity and leadership through constant progress that the EICO name is famous for. The Model 7723 is priced at \$139.95.

For further information contact: Mark Ehren, EICO Electronic Instrument Co., Inc., 283 Malta Street, Brooklyn, N.Y. 11207.

**CB BOOM-MIKE HEADSET INTRODUCED**

A new, low-priced high quality boom microphone/headset combination has been introduced by Mura Corporation, Jericho, New York. The Mura Model CBX-III is the first combination headset and microphone to be offered by Mura for CB use in both mobile and base stations. It is expected to attract special interest from the heavy CB user in the cab of a truck where the new outfit frees both hands for safe driving. The Mura Model CBX-III features the design proven in thousands of co-pilot  
(continued)





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# Three letters that spell the difference between getting out ...and getting stepped on.

Those three letters mean this is no ordinary CB mike.

Inside this microphone is a patented\* circuit adapted for CB use by Mura engineers: the PRM™ circuit. It's capable of more than doubling the effective RF output power of your transceiver. At the same time that it's drastically cutting down audio distortion.

**How it works:** Unlike the clean audio signals produced by test instruments, the human voice is characterized by sharp peaks. This type of signal prevents uniform amplification since the peaks will exceed the clipping point when the signal as a whole is amplified to fully modulate the carrier frequency. You know what that sounds like: splatter, garble, screech, fringe noise . . . all the sound effects that get in the way of your message.

Ordinary microphones cannot cope with this problem. PRM mikes can. The PRM circuit redistributes those sharp peaks to less-modulated areas of the signal. This Peak-Redistribution Modulation (PRM) effect produces a signal that is symmetrical and free of sharp peaks. When this signal is amplified, the result is a tremendous increase in fully modulated RF output. And, since there's far less clipping of the signal, there's also far less audio distortion.

There are three PRM microphones to choose from: the variable-gain PRX-100 (pictured); the fixed-gain PRX-200; and the PRX-300, our PRM base-station mike. All three define a new standard of excellence in their class.

PRM microphones by Mura will soon be available from all leading CB dealers. If your local dealer doesn't have them in stock yet, ask the guy whose audio is wall to wall from ten miles away where he got his.

PRM microphones: made exclusively by

\*U.S. Patent No. 3,060,389 and Foreign Patents



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CORPORATION

Helping you get the message out.

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## ON THE COUNTERS (continued)

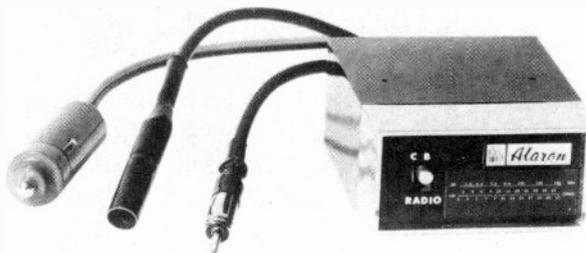
air hours and by sportscasters on TV.

Headset volume and the push-to-talk switch are built into a small clip-on control box which may be attached to the shirt or held in the hand at the wheel. The fully adjustable boom keeps the mike at a preset distance from the lips, ready for clear, crisp, transmissions. The single earcup is provided with an adjustable headband and a foam cushion for hours of fatigue-free listening. In truck cabs where a co-driver is resting or sleeping, the headset provides listening privacy without the endless noisy flow of CB traffic filling the cab.

The Mura microphone specially designed for this boom incorporates a dynamic, noise-cancelling cartridge with a 5-wire coil cord for either electronic or relay switching.

The headset is an 8-ohm single headphone, remote volume controlled from the switch box. An 1/8-inch (standard) headphone plug is included.

The suggested list price for the Mura Model CBX-III Boom/Mike Headset, The Trucker, is \$44.95. It is available at CB centers everywhere. For further information, write to Mura Corporation, 50 South Service Road, Jericho, N.Y. 11753.

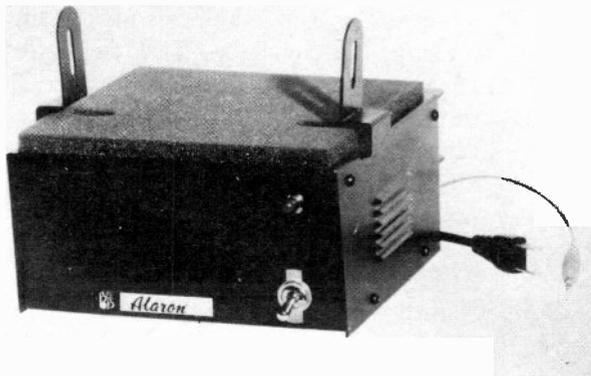


### CB CONVERTERS

"ALARON" B-1 Mobile CB Converter: Converts any AM car radio into a 23 channel CB monitor. Crystal controlled. CB channel selector on car radio dial, full 23 CB channel scale on converter's face for easy dialing guide. Mini-size, mounts under dash. Plugs into cigarette lighter socket, connects to car antenna and radio's speaker is used. Mounting bracket and screws included. Each set individually carded.

Suggested Retail: At a new low price of \$19.95.

"ALARON" B-8 CB Home Converter Power Supply:



For using Mobile CB Transceiver as Base unit. Converts 117 v AC current to 13.8 DC. Solid State. Built-in powerful 8 ohm speaker, one 3 amp DC and one 2 amp AC fuse, On/Off switch, pilot light, speaker connector cable with plug, UL approved AC cord, DC output power terminals with screw on caps. 2 adjustable spring brackets hold Mobile CB to top of Power Supply and let it slip out by simply lifting CB off. All metal cabinet. Individually boxed.

Suggested Retail: \$29.95.



### CB-700 CITIZENS BAND TRANSCEIVER

A synthesized 23-channel 5w crystal controlled transmitter and dual conversion superheterodyne receiver with squelch and Automatic Noise Limiter circuit, CB-700, was introduced by Sharp Electronics Corporation.

Carrying a suggested retail price of \$119.95, the CB-700 transceiver has a 3 1/8-inch permanent dynamic speaker, Delta tuning, illuminated channel indicator with Channel 9 in red, variable squelch control, detachable microphone, power indicator and positive/negative ground. All controls are rotary and the Automatic Noise Limiter is built-in. The unit weighs 3.3 pounds, and is 5 3/4 inches wide, 7 1/2 inches deep and 2 inches high.

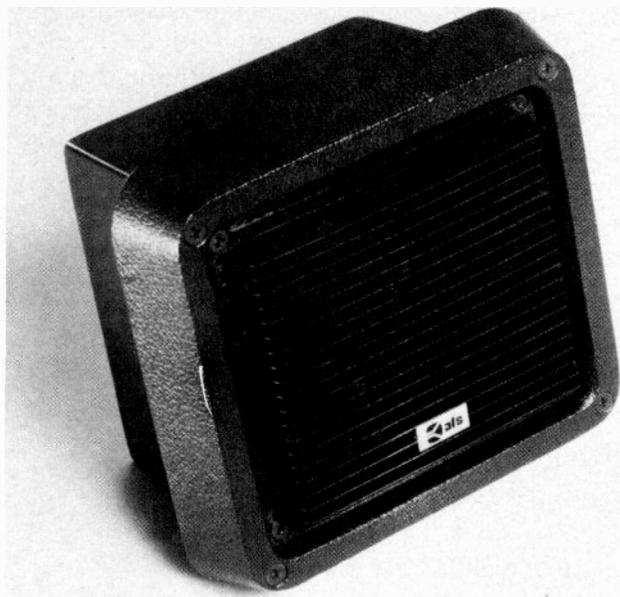
### TURNER OFFERS CATALOGS

Turner Division of Conrac Corporation is offering new catalogs for its citizens' band products. A new 12-page microphone catalog features seven new products including the EXPANDER 500, an amplified base station mike with tone control and a voice strength meter. The new catalog also features the EXPANDER 400, an amplified mobile microphone that takes a readily accessible 9-volt battery.

The new Turner Signal Kicker antenna catalogs will be expanded to 16 pages, adding 22 new models featuring in-line connectors including a complete new section on recreational vehicle antennas.

Catalogs can be requested from Turner Division of Conrac Corporation, 716 Oakland Road N.E., Cedar Rapids, Iowa 52402. When ordering microphone catalogs, ask for 76-C and when requesting antenna catalogs, ask for 76-A.

Turner Division of Conrac Corporation is one of the world's leading manufacturers of microphones for use in two-way radio communication as well as public address, paging, recording, broadcast and entertainment; the division also produces a complete line of citizens' band base and mobile antennas. (continued)



### CB FLUSH-MOUNT SPEAKER

Because space is at a premium inside any vehicle, Acoustic Fiber Sound Systems, Inc. (AFS) has designed a totally new flush-mount KRIKET® CB speaker, Model KC-3065 to fit almost anywhere—in a diesel tractor visor, an automobile door or a motor home dashboard.

The KC-3065 flush-mount provides maximum clarity and intelligibility across the entire voice range, Davis said.

The new product is encased in Copolymer™, an AFS-developed plastic case which is impervious to damage from water, a common problem with most flush-mount speakers placed in vehicle doors. The speaker case is also unaffected by extreme hot and cold temperatures, Davis noted, and it is impact-resistant.

Most CB speakers produce poor sound, because it comes from the front and back, producing interference or a “tinny” effect. The AFS “WORKING WALL”® enclosure, with its cross-laminated, tubular fiberboard construction, stops the sound waves from the back of the speaker. Distortion is eliminated and static deadened, allowing the KC-3065 speaker to produce a degree of clarity not available until now in the voice communications field.

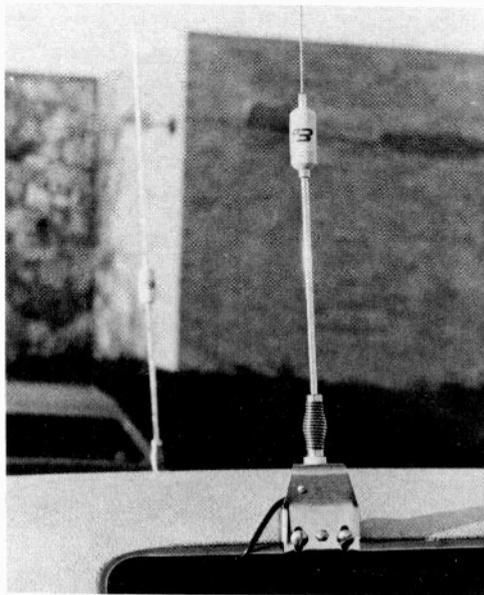
The new lines join the number-one selling KRIKET® KC-35 CB mobile speaker, and the company’s top-of-the-line luxury model, KC-55, for base station applications.

Specifications — Construction: Speaker is air sealed within acoustic fiberboard enclosure and covered with impact-resistant Copolymer™; Speaker: 3½-inch weatherproof cone, 3 oz. ceramic magnet, ¾-inch voice coil; Power Handling: 5 Watts RMS, 9 Watts Program, 13 Watts Peak; Frequency Response: 150 Hz–10,000 Hz; Impedance: 8 ohms; Size: 7” h x 8” w x 12” d; Shipping

Weight: 2 lbs.; Connector: Cord with mini-plug; Color: Black Duralex™.

### DUAL GUTTER MOUNT

Extra distance communication and simplified installation are featured in the “THOMAS JEFFERSON TWINS” (Model 10-265) dual gutter mount 27 MHz CB antennas with easy-to-install co-phase harness introduced by the Breaker Corporation, Arlington, Texas.



These dual, low profile antennas are only 28” high, but provide reinforced front-to-back signal gain for superior transmission and reception. Each stainless steel whip has a static arrestor tip and fine tunable heavy-duty ABS encapsulated load coil for quiet, powerful communications on all 23 channels. Breaker’s exclusive “Auto-flex” chromeplated shock absorbing springs are also included.

Installation on car, truck or RV rain gutters is easy with Breaker’s simplified mounting assembly which includes a sturdy weather resistant chromeplated bracket and all hardware required. The bracket is specially designed for sturdy antenna support and ample door clearance.

These efficient antennas are skin packed on new handsome red, white and blue cards complete with a factory impedance matched 18 ft. co-phased coax cable terminated with a PL-259 plug for fast connection to any standard transceiver antenna receptacle. An Allen wrench for fine tuning the antenna is also included.

These antennas are available nationwide for only \$39.95 and many retail outlets selling Breaker CB communications products.

For additional information, contact the Breaker Corporation, Marketing Department, 1101 Great Southwest Parkway, Arlington, Texas 76011.

### AVIATION STYLE HEADSET

A super lightweight CB headset, the CB-88 was introduced by Telex, maker of professional aviation and communications headsets. The new CB-88 weighs less

# KRIS

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Of course, all Kris radios are FCC type accepted and have solid-state reliability, 23 AM channels, maximum legal output, automatic noise limiter, threshold squelch control, PA facility, self-contained speaker system, 100% transmitter modulation, dynamic mic and more.

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Suggested list prices

## ON THE COUNTERS (continued)

than 3 ounces and is said to improve CB communications dramatically.

A single side magnetic earphone element reproduces incoming signals clearly and channels the sound directly to the ear through a soft eartip so even weak signals come in clearly. This also allows the CBer to monitor the radio in private without disturbing co-drivers or passengers. Eartips in three sizes are included to fit each user.

The CB-88 features a noise cancelling power mike with variable gain IC amplifier. The noise cancelling mike favors the voice, making crisp, clear transmissions possible even in a moving vehicle where wind, traffic and engine noise often interfere with transmission



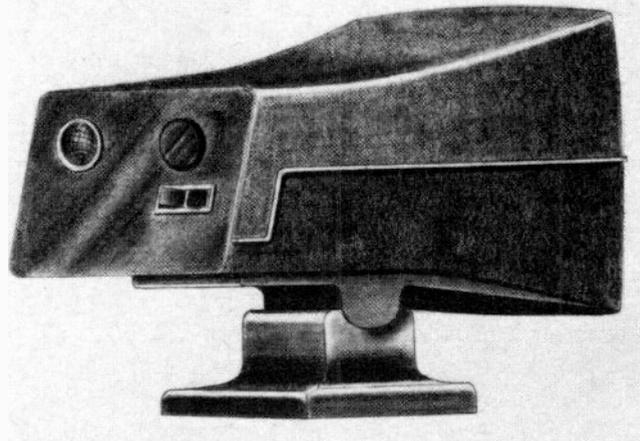
quality. The variable gain can be set for maximum "talk-power" at normal speaking voice. The microphone is mounted on a pivoting boom so it can be placed close to the lips and the unit can be worn over left or right ear. The mike is keyed for transmission by a push-to-talk switch which has a clothing clip for convenient attachment to shirt pocket or jacket lapel.

Designed quite similarly to a pilot headset, the CB-88 can be worn with the conventional headband or it can be attached to an eye or sunglass with an adapter which is included. The new CB-88 is the Telex top of the line headset combining the best features of a noise cancelling power mike and high quality speaker for \$69.95. The company also offers other CB headsets and microphones for mobile or base station operators.

### CHERRY PICKER

Valor Enterprises of West Milton, Ohio, manufacturers of a complete line of personal communication needs, have just released for publication their new "Cherry Picker", a radar warning system.

A Cherry Picker is just the thing truckers and other professional drivers are wanting and needing to ward off speeding tickets. The Cherry Picker will give you



positive indication of stationary radar of up to one half mile or more. The user has ample time to slow down before speed is recorded. Valor's new concept in this design makes it much more attractively designed than other radar detection units on the market today. The Cherry Picker lets you either select light or oral alarm by the flick of a switch. The Cherry Picker plugs into a cigarette lighter or by using alligator clips. Either kind can be connected to the positive or negative.

Another advantage of the Cherry Picker is that it will not affect the battery output if left installed for long periods of time. The Cherry Picker also has a great advantage over competitive models in so much as it will generally exceed by 400 feet over other radar detectors on the market today. Valor's Model VBK-2 Cherry Picker is the finest and most sensitive receiver on the market today. Every effort has been made to reduce response from signals other than speed radar. The list price of the VBK-2 Cherry Picker radar detector is \$89.95.

For additional information, contact Valor Enterprises, Inc., Dept. 636, 185 W. Hamilton St., West Milton, Ohio, 45383 U.S.A.



### BOHSEI INTRODUCES CB PRODUCTS

Bohsei Enterprise Co. U.S.A. is introducing two new communication products.

According to Jim Newell, vice president, an all-new mobile CB radio, model C-7511, features advanced technology usually found in much higher priced units, such as automatic noise limiter, PA-CB switch, SIP-RF meter,

## ON THE COUNTERS (continued)

Delta Tuning, front panel mic plug-in, mounting bracket with burglar-proof bolts and wrench. Priced at \$169.95, this unit provides all the safety and communications features desired in Citizen Band. The Model C-7511 is available for immediate delivery.

Accessories available for the C-7511 are also featured at the show. These include complete antenna units, including shock spring, coaxial cable, connector, and all mounting hardware. The base loaded antenna is stainless steel, especially treated for use with the CB. It also features trunk lid, no-hole instant grip installation and dual mounting or roof mount. Overall length is 43½". The antenna unit has a suggested retail price of \$24.95.



Bohsei is also offering a unique accessory for the CB unit, the Universal Digital Frequency Counter, Model M-7505. Featuring a large 5 digit LED display, the user of the CB unit easily reads the frequency used. It also features three push-button switches for selecting KHz or the MHz range, and power on-off, while the LED readout visually indicates the range in operation.

The specs on the M-7505 Digital Frequency Counter are: accuracy rated at 5 ppm, range at 1 kHz to 9999.9 kHz, or 1 MHz to 30 MHz; gate time is 1 ms in the lower range, and 1 sec in the higher range; sensitivity measures 100 mV rms nominal.

The Model M-7505 Digital Frequency Counter is priced at a suggested retail of \$169.95.

### A COMPACT UNIT

A handsome, compact transceiver, providing maximum legal power output on all 23 CB channels and a full complement of professional features, is currently being offered by SBE to those who want big performance from their mobile AM CB but require a compact configuration to fit their autos, vans or RVs. The unit weighs only 3 pounds and measures just 2.2" high, 6.3" wide and 7.9" deep.

The Catalina III, identified as Model SBE-29CB, includes built-in automatic noise limiter; adjustable squelch and volume controls; a blacklighted dual-function meter to monitor transmitter power output/modu-



lation and signal strength of received stations. It operates on 13.8VDC, with either a positive or negative ground, but it can also be operated on 117 VAC with an optional accessory power pack (SBE-1AC) available from SBE.

The unit includes not only a built-in speaker, but also has provision for an external optional accessory speaker. A dynamic microphone, with coil cord and four-conductor plug, is supplied with the unit.

For complete information, write SBE, Dept. P, 220 Airport Blvd., Watsonville, California 95076.



### MOBILE HAS AUDIO FILTER, P.L.L. SYNTHESIZER

Midland International Corporation's Communications Division has introduced a distinctively styled compact CB mobile. Special features of Midland's new transceiver include a switchable high frequency filter that aids in clarifying CB reception under noisy conditions, and precision 23-channel tuning through a Phase Lock Loop system using just three crystals.

F.C.C. type accepted at the legal maximum 4.0 watts transmitter output power, this Midland mobile incorporates a high level modulation system for excellent range and clarity, plus a dual conversion superhetrodyne receiver with built-in automatic noise limiter, active automatic gain control and full-range variable squelch.

A P.A. switch permits use of the Midland transceiver as a public address amplifier, while a special External

(continued on page 138)

# Looking for spare time income? Your own business? A new career? Learn TV/Audio Servicing at home, the NRI way!

If the money pinch has you looking for some extra bucks, NRI training may be just what you're looking for. You can learn to service television sets and quadraphonic stereo equipment at home, in your spare time, and turn your skills into part time income or a whole new career.

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NRI is the oldest and most successful school of its kind. A documented national research study shows that over half of the professional TV/Audio tech-

nicians have home training, and among them, it's NRI 2 to 1. And it's economical.

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- Horizon 29** The only CB radio with "Hear Power" receiver performance.
- Horizon 29** Speaks out with maximum legal power, power that nobody walks-on.
- Horizon 29** Special 10 watts of audio power adds fantastic "kick" to outside speaker.
- Horizon 29** Microphone gain control in-the-mike for convenient modulation adjustment.
- Horizon 29** Remarkable "on frequency" stability even at high temperatures.
- Horizon 29** Incredible receiver selectivity/sensitivity with range extending image rejection.
- Horizon 29** All solid state for reliable performance off-the-road as well as in cars, trucks or boats.
- Horizon 29** Positive or negative ground.
- Horizon 29** Backed by Standard's free lifetime, flat-rate "Radio Life Insurance" plan.

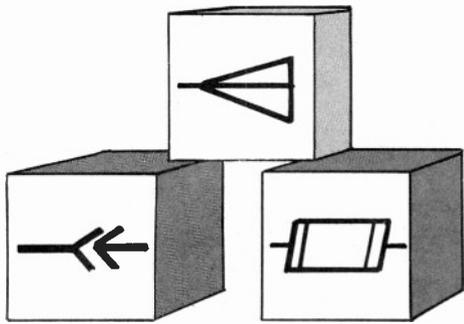
Get the facts about the Horizon 29, the innovative new CB from Standard.



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# Basic Radio

by Irving Tepper

## PART 6

## Resistance and Ohm's Law

**T**HE word resistance in our everyday language means opposition to some act. In electronics, resistance means the opposition to the flow of electrons. A good conductor, we learned earlier, presents little or no opposition to the flow of electrons (a low resistance) while an insulator presents opposition or a high resistance to an electron flow and prevents that flow entirely in many cases.

There are many situations in modern electronics where, in order to control the current in a circuit or set it at a specific value, a resistance must be used in that circuit. The value of the resistance must be greater than that of a wire but less than that of an insulator. These special devices are called *resistors* and are symbolized as shown in Fig. 2.5, indicated by the letter R.

**The Ohm**—Since some materials and devices possess more or less resistance than others, it is necessary to have a unit of measurement that will permit comparisons of resistance. This unit is the *ohm*, in honor of George Simon Ohm.

The amount of resistance used in electronic circuits can be as low as a fraction of an ohm to as high as many millions of ohms. In order to express this wide range of resistance values the simple form shown below is used. The Greek letter  $\Omega$ , capital Omega, is used to indicate ohms.

Unit	Short Form	Written Form
Omega (Ohm)	50 $\Omega$	50 ohms
Kilo (thousand)	10K	10,000 ohms
Meg (million)	20M	20,000,000 ohms

R



Fig. 2.5—Symbol used to indicate resistance in a schematic diagram. The letter R indicates resistance. When there is more than one resistor in a schematic, each is labelled R<sub>1</sub>, R<sub>2</sub> and so on.

Technical Illustrations by K&S Graphics, Island Park, N.Y.

**Wirewound Resistors**—Resistors are divided into two basic types, wirewound and carbon. *Wirewound* resistors (called metal types) use wire made of special alloys to oppose the electron flow. The wire alloy is cut to a specific length to provide the desired resistance and then it is wrapped around a cylindrical form made of ceramic. Wirewound units can be made with resistance values of a fraction of an ohm up to about 100K. A typical wirewound resistor is shown in Fig. 2.6.

**Carbon Resistors**—The non-metallic resistors are made of carbon and are called *carbon resistors*. Carbon granules are mixed with a second material, called a binder, which holds the carbon together. The mix is compressed into rods of various diameters and lengths. Wires are then attached to the ends of the carbon rod, the entire unit is encased by insulation as shown in Fig. 2.7.

The ohmic value of the carbon resistor is determined by the ratio of carbon to the binder, the length of the carbon rod and the diameter of the carbon rod. The more carbon added to the mix the lower the resistance; the longer the bar the greater its resistance; the larger the diameter of the bar the lower its resistance.

High value carbon resistors can be formed by placing a carbon film on ceramic or glass tubes and forming wire connectors on the ends. These resistors are referred to as *deposited film resistors*. Like carbon resistors, these types must also be insulated; this is

usually done with a ceramic coating.

Carbon and carbon film resistors are available in values ranging from several ohms to 22 megohms.

### Resistor Ratings

Since there are so many possible resistance values that can be formed between 1 ohm and 22 megohms, a set of standard values have been agreed upon by both the resistor manufacturers and the equipment manufacturers. The list of standard values can be found in any complete electronics parts catalog.

**Resistor Tolerance:** In addition to a resistance rating, resistors also have a *tolerance* or *accuracy* rating. When a resistor is indicated to be 10,000 ohms (10K), how accurate is this rating? Will it be precisely 10K or will it more likely be 9,800 ohms or 11,500 ohms? The more accurate the resistance value is the more costly it will be. To indicate how accurate the resistance value is, resistors are labeled in percentage tolerances. The standards are plus or minus ( $\pm$ ) 20%,  $\pm$  10%,  $\pm$  5%, and  $\pm$  1%. For special applications resistors can be made to order at  $\pm$  0.5% and  $\pm$  0.25% but they are extremely costly.

The possible range of resistance for a 10K unit rated at  $\pm$  20% can be determined as follows:

$$\text{Resistance} \times \% \text{ of accuracy} = \text{Tolerance}$$

$$10,000 \times 0.2 = 2000 \text{ ohms}$$

This means that the 10K resistor can be plus or minus 2K, resulting in:

$$10,000 + 2,000 = 12,000$$

$$10,000 - 2,000 = 8,000$$

Thus a 10K  $\pm$  20% resistor can have a resistance value anywhere between

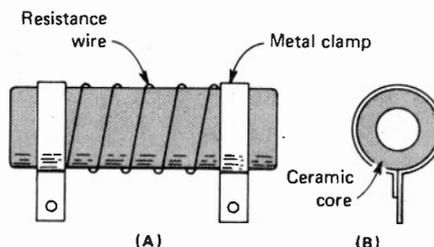


Fig. 2.6—Construction of a typical wirewound resistor.

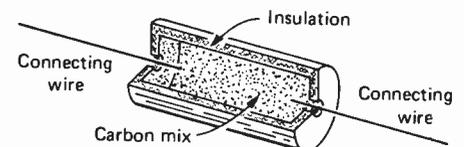


Fig. 2.7—Cross-section of a typical insulated carbon resistor.

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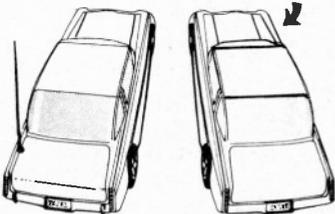
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### BASIC RADIO (continued)

8,000 to 12,000 ohms.

A 10K resistor rated at  $\pm 10\%$  would vary in value over a smaller range.

$$10,000 \times .1 = 1,000$$

$$10,000 + 1,000 = 11K$$

$$10,000 - 1,000 = 9K$$

A 10K  $\pm 10\%$  resistor could range in value from 9K to 11K.

A 10K resistor rated at  $\pm 1\%$  would vary in value over a still smaller range.

$$10,000 \times .01 = 100$$

$$10,000 + 100 = 10,101$$

$$10,000 - 100 = 9,900$$

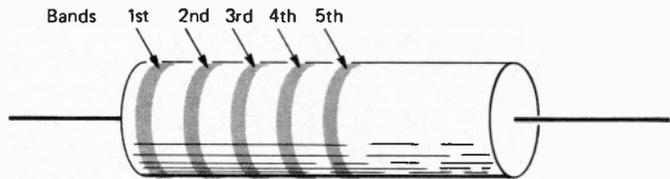
A 10K  $\pm 1\%$  resistor could fall somewhere between 9.9K and 10.1K.

**Wattage Rating:** As electrons flow through a resistance heat is generated because of the opposition to that electron flow. The greater the electron flow through the resistor the more heat generated. The higher the resistance value, for the same current, the more heat generated. The ability of a resistor to handle or "dissipate" this heat is indicated by its *wattage rating*. The larger the physical size of the resistor the more heat it can dissipate and thus the higher its wattage rating is. Typical wattage ratings for carbon resistors are

$\frac{1}{4}$  watt,  $\frac{1}{2}$  watt, 1 watt and 2 watts. The higher wattage ratings, 5 watts, 10 watts, 20 watts and higher are usually wirewound types and referred to as *power resistors*.

**Color Code:** In order to identify the resistance of a resistor the value is sometimes printed on the body. This is not a common practice as it is often hard to read because of the small print or because the printed value may be facing down when the resistor is wired into the circuit. As a result, a more practical method of indicating resistance value is used, bands of colored paint where each color represents a specific number. As shown in Fig. 2.8 there may be as many as five bands on a resistor. The first three bands which indicate the resistance, may be one of ten colors, each of which represents a number from 0 to 9 as shown in the chart of Fig. 2.8.

By using the color code shown any standard resistance value from 0.01 ohms to 99 billion ohms can be placed on the body. The bands start closest to the left end and are read from left to right, starting with the first band. To illustrate how the color code is used look at the resistor in Fig. 2.9. The first color on the resistor is Brown, 1



COLOR	BANDS				
	1 First Digit	2 Second Digit	3 Multiplier	4 Tolerance	5 Relia- bility
BLACK	0	0	$\times 1$		
BROWN	1	1	$\times 10$		1%
RED	2	2	$\times 100$		0.1%
ORANGE	3	3	$\times 1000$		0.01%
YELLOW	4	4	$\times 10,000$		0.001%
GREEN	5	5	$\times 100,000$		
BLUE	6	6	$\times 1,000,000$		
VIOLET	7	7	$\times 10,000,000$		
GREY	8	8	$\times 100,000,000$		
WHITE	9	9	$\times 1,000,000,000$		
GOLD			0.1	5%	
SILVER			0.01	10%	
NONE				20%	

Fig. 2.8—Standard color code for resistors. The first three bands indicate the resistance value. The fourth band indicates the tolerance or accuracy and the fifth band the reliability factor.

## BASIC RADIO (continued)

according to the chart in Fig. 2.8. The second color is Red, 2. The third color is orange which represents  $\times 1000$ . The value of the resistor is  $12 \times 1000$  or 12K. Since there is no fourth color the tolerance is  $\pm 20\%$  and the lack of a fifth color means that no reliability figure is given as is the case with most resistors used in commercial equipment.

Let's look at a few more examples of color code before going on:

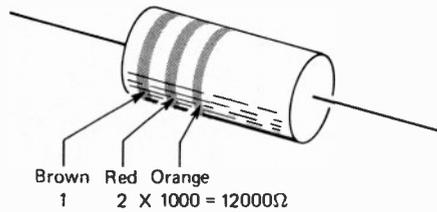


Fig. 2.9—Typical carbon resistor color coded to indicate 12K.

BANDS				RESISTANCE
1	2	3	4	
Brown	Black	Green	Silver	1 Megohm $\pm 10\%$
1	0	$\times 100,000$	$\pm 10\%$	
Yellow	Violet	Yellow	None	470K $\pm 20\%$
4	7	$\times 10,000$	$\pm 20\%$	
Red	Red	Orange	Gold	22K $\pm 5\%$
2	2	$\times 1000$	$\pm 5\%$	
Brown	Orange	Brown	None	130 $\Omega$ $\pm 20\%$
1	3	$\times 10$	$\pm 20\%$	
Blue	Violet	Gold	Gold	6.7 $\Omega$ $\pm 5\%$
6	7	$\times 0.1$	$\pm 5\%$	
Red	Yellow	Silver	Gold	0.24 $\Omega$ $\pm 5\%$
2	4	$\times 0.01$	$\pm 5\%$	

The fifth band, shown in Fig. 2.8, the reliability indicator, tells us how able the resistor is to hold its resistance value. When the fifth band is brown, 1% of the resistors may change value in use. If the band is red only 0.1% of the resistors will change value. For orange its 0.01% and yellow 0.001% that might change value. Reliability figures are of most concern to the military users of resistors for as the reliability factor increases so does the cost.

## Ohm's Law

When we apply a voltage to a circuit, an electron flow occurs. Any resistance in this circuit opposes the electron flow. The German scientist, George Simon Ohm, worked out the mathematical relationship between current, resistance and voltage more than one hundred years ago and it is called Ohm's Law. He showed that if one volt is applied to a circuit that has a resistance of one ohm, one ampere of current would flow. He showed it mathematically as:

$$\text{The current in amperes} = \frac{\text{The applied voltage}}{\text{The resistance of the circuit}}$$

To simplify the formula we use letter symbols to represent each quantity,

where:

Letter	Unit	Symbol
I	Amperes	A
R	Ohms	$\Omega$
E	Volts	V

Now the equation or formula for the current flow in a circuit can be rewritten as

$$I = \frac{E}{R}$$

where I is current in amperes

E is in volts

R is resistance in ohms

The above formula can also be written as  $I = E/R$ , where the slant bar also means division.

We can now apply this formula to the simple circuit shown in Fig. 2.10(A) where we see a 9V battery connected across a 1K resistor. The current that will flow around this simple circuit is determined from

$$I = E/R \quad I = 9/1000 = 0.009A$$

If, as in the circuit of Fig. 2.10(B), we were to increase the voltage applied from 9V to 18V but keep the resistance constant (1K), the current would in-

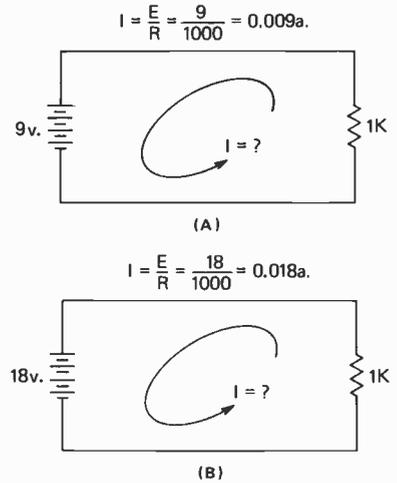


Fig. 2.10(A)—When 9V is applied to a 1 K resistance the current flow according to Ohm's law will be 0.009A. (B) When the voltage applied to the resistance is increased, the current flow will increase.

crease as shown below:

$$I = E/R \quad I = 18/1000 = 0.018A$$

Since this new current is exactly double the current when only 9V was applied we may conclude the following:

*When the resistance in a circuit is held constant, the current flow will be directly proportional to the voltage applied.*

If we keep the voltage constant but vary the resistance, the current will also change. This is illustrated in Fig. 2.11 (A) and (B) where we see that with 9V applied to a 500 $\Omega$  resistor the current flow is 0.018A. When 9V is applied to a 2K resistor as shown, the current flow will be 0.0045A. From this we can conclude that *as R increases, I decreases or that the current varies inversely with the resistance.* (continued)

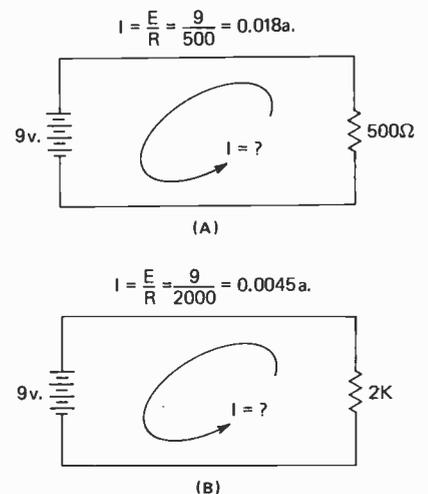
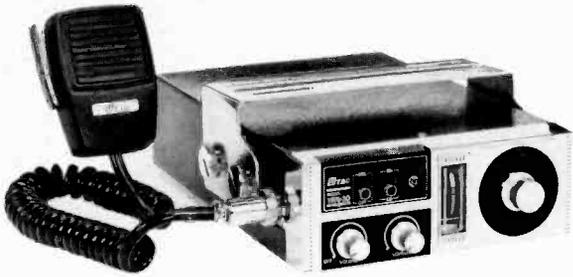


Fig. 2.11(A)—With 9V applied to a 500 ohm resistance Ohm's law indicates a current flow of 0.018A. (B) With the voltage held at 9V but R increased to 2K the current drops to 0.0045A. This shows an inverse relationship between I and R.



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## BASIC RADIO (continued)

**Determining an Unknown Voltage:** There is another form of Ohm's Law used to determine the voltage applied to a circuit when the current flow and resistance are both known. It is ex-

pressed as  $\text{Voltage} = \text{Current} \times \text{Resistance}$  and is presented in equation form as:

$$E = IR$$

Observe that no multiplication sign is shown between I and R. When no sign is shown between symbols it auto-

atically indicates multiplication.

As shown in Fig. 2.12(A) the current flow is given as 0.4A and the circuit resistance is shown as 50 ohms. We may then ask how much voltage is required to cause this current to flow?  
(continued)

## Information Sheet #5: How to Measure Resistance and Current with a VOM

### Part I—How to Measure Resistance with an Ohmmeter

Measurement of resistance is an operation often performed by the electronic technician. This type of measurement makes it possible to determine whether or not a circuit or component used in electronic equipment is in working order. Since the unit of resistance is the ohm it is logical for the device that measures resistance to be called an *ohmmeter*.

An ohmmeter is basically a voltmeter with a self-contained source of voltage, a battery. The elementary circuit arrangement is shown in Fig. 1. The fixed value resistor,  $R_1$  (when there is more than one resistor in a circuit, they are given numbers for clarity of reference) is used to limit the current that will flow in the circuit when the test leads are shorted together as shown. Resistor  $R_2$ , an adjustable type, sets the total resistance so that the meter reads exactly full scale. Since there is no resistance between the test leads this represents zero ohms and is so marked on the meter scale. Resistance  $R_2$  is called the "Ohms Adjust" or the "Zero Adjust" Control. If, with this control, the meter pointer cannot be brought to Zero, the self-contained battery is weak and should be replaced.

The Radio Shack 22-202A Multitester is able to read resistances from 0 to 2 megohms. To do this effectively, the full range of resistance measurement is divided into four parts or *ranges*. The ranges are from 0 to 2K, 0 to 20K, 0 to 200K and 0 to 2M. It is important to note that all the ranges are multiples of 2. The resistance scale of the meter face is calibrated from zero to two thousand ohms (Fig. 1). On the lowest range,  $R \times 1$ , all resistance values

will be read directly from the scale; a reading of 20 on the scale will indicate 20 ohms.

A resistance of 3K, however, cannot be read on the  $R \times 1$  range since it reads no higher than 2K. By moving the range selector to  $R \times 10$ , we increase the range from 0 to 2K to 0 to 20K. Now 300 ohms will indicate 3K ( $300 \times 10$ ). For still higher resistances, we use the  $R \times 100$  or  $R \times 1000$  scales.

Other makes of multitesters could have different resistance ranges. For example, the Lafayette 99-50734 measures resistance from 0 to 10M in four ranges 0 to 10K, 0 to 100K, 0 to 1M, 0 to 10M. Note that this meter is calibrated in multiples of 10.

To use any ohmmeter effectively the directions listed below should be followed.

1—Select a resistance range that will give you a reading in the right half of the scale where the calibration is most accurate.

2—Always short the test leads and set the Ohms Adjust control for a Zero reading on the meter. Be sure to repeat this adjustment each time you change the resistance range.

3—Be sure to remove all power from the circuit or device being tested. If this is not done, the multitester can be damaged or destroyed. At the very least wrong readings will be obtained.

4—Be sure your hands are not touching the metal tips of the test prods as your body resistance can throw the readings off, particularly on the high resistance ranges.

To read the precise resistance when the meter pointer falls between two numbers as shown in Fig. 2, it becomes necessary to determine the value of each division between 10 and 20. Since there are five divisions worth 10 ohms ( $20-10$ ), each division is valued at 2 ohms. Thus the pointer reads 12 ohms or  $R \times 1$ , 120 ohms on  $R \times 10$ , etc.

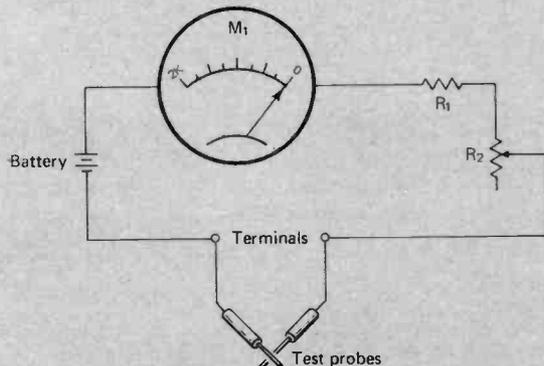


Fig. 1—Circuit of a basic ohmmeter. Resistor  $R_2$  is the "Zero Adjust" control. The resistance to be measured must be connected between the tips of the test probes.

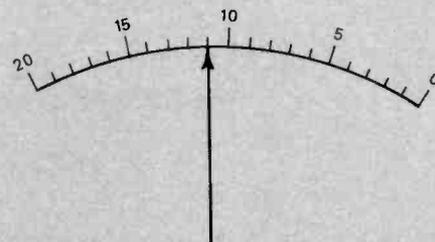


Fig. 2—The reading of the meter shown represents 12 ohms on the  $R \times 1$  scale, 120 ohms on the  $R \times 10$  scale, and so on up to the  $R \times 1000$  scale.

## BASIC RADIO (continued)

The answer may be found by using the formula:

$$\begin{aligned} E &= IR \\ E &= 0.4 \times 50 \\ E &= 20V \end{aligned}$$

This means that if 20 volts are applied to a 50 ohm circuit, 0.4A will flow.

For the circuit in Fig. 2.12(B) with a higher resistance, 1K, the voltage needed to produce a current flow of 0.4A is

$$\begin{aligned} E &= IR \\ E &= 0.4 \times 1000 \\ E &= 400V \end{aligned}$$

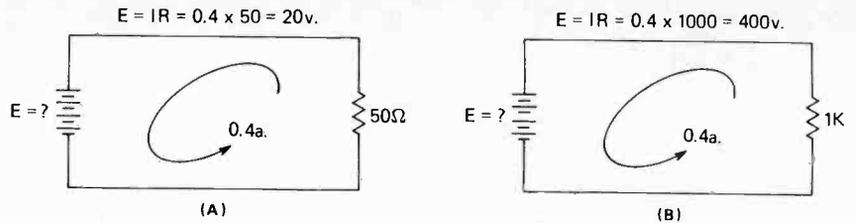


Fig. 2.12(A)—Ohm's law may be used to determine how much voltage is required to produce a specific amount of current through a given resistance, in this case, 20V. (B) To maintain the same current through a higher value resistance a higher voltage is required.

From the two illustrations just given, we can conclude that in order to maintain a constant current in a circuit, as the resistance rises the applied voltage must be increased.

*Determining an Unknown Resistance:* Still another form of Ohm's Law is used

to determine the resistance in a circuit when the applied voltage and the current flow are known. The equation is: Resistance equals the voltage divided by the current and it is shown mathematically as:

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

## Information Sheet #5:

### Part II—How to Measure Current with a Milliammeter

We have learned how to calculate the current flowing in a simple circuit using Ohm's law. It is also possible to *measure* the current flowing in the circuit using the milliammeter portion of the VOM. It is important to be able to measure the current flow in a circuit for several reasons. First, some circuits are not simple and the current can't be determined by calculations, but only by measurement. Second, some circuits have to be adjusted for a correct current flow and the milliammeter is used to indicate this current. Third, current is sometimes measured when trying to locate a fault in a circuit. An incorrect value of current flow is often a clue to the defective part.

A current meter can measure amperes, in which case it is called an ammeter, milliamperes (milliammeter) and microamperes (a microammeter). A milliammeter measures currents that are less than an ampere; a microammeter measures currents less than a milliampere. The current ranges of the Radio Shack 22-202A VOM are 0.60  $\mu$ A, 0-3 mA, 0-30 mA and 0-300 mA. The Lafayette 99-50734 VOM is

capable of reading as high as 600 mA in four ranges.

To use a milliammeter (or microammeter) properly, it is necessary to break the circuit and connect the meter across the break as shown in Fig. 3. As shown in Fig. 3, it makes no difference where the meter is inserted in the circuit. It will read the same anywhere since the current is the same anywhere in this simple circuit.

When measuring current there are several rules that should be followed to help minimize the chances of damage to the meter. They are:

1—Remove the power before breaking the circuit and connecting the meter.

2—Be sure the range selector is set to the highest current range possible. After the circuit is powered you may lower the range until a reading is obtained somewhere near the center of the scale.

3—Be certain that the current expected to flow in the circuit is *never more* than the highest current range of the meter.

4—Be sure the meter is connected with the proper polarity. If the polarity is reversed the pointer will slam backwards and this may damage the meter.

Figure 3 shows how to determine the proper polarity. The negative terminal of the milliammeter (common) must be connected to the part of the circuit closest to the negative terminal of the battery. This means that the direction of current flow is such that the electrons flow into the negative terminal of the meter and out of the positive terminal.

5—*Never but never* connect a milliammeter across the power source (the battery in this case) as this will absolutely burn out the meter. A milliammeter has a very low resistance and is like a short circuit across the battery.

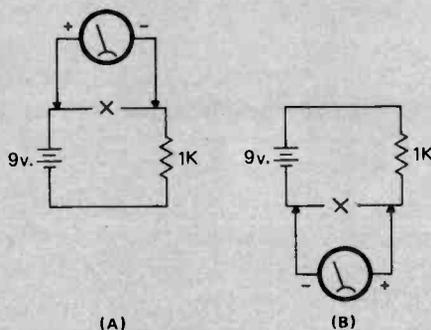
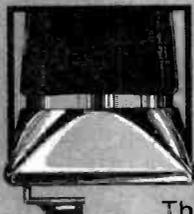


Fig. 3—To place a milliammeter in series with a circuit it is first necessary to break the circuit. Since the current flow is the same at any point in a series circuit, the meter may be inserted at any point, as shown in (A) and (B), and it will produce the same reading.

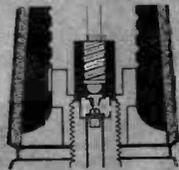
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**BASIC RADIO** (continued)

As shown in Fig. 2.13(A), when E is 9V and I is 0.01A, the resistance of the circuit can be found from:

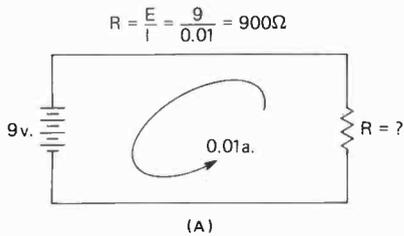
$$R = E/I$$

$$= 9/0.01$$

$$= 900\Omega$$

Stated another way this means that if the current is to be limited to 0.01A with 9V applied, the circuit resistance must equal 900 ohms.

In the second example of Fig. 2.13(B) where E is 9V and I must be limited to 0.3A, the required resistance



may be found from:

$$R = E/I$$

$$= 9/0.3$$

$$= 30\Omega$$

We may conclude that for a given voltage, the higher the required current flow in the circuit, the lower the circuit resistance must be.

**Summary of Ohm's Law**

The three forms of Ohm's Law are:

$$I = E/R \quad E = IR \quad R = E/I$$

The electronic technician uses Ohm's

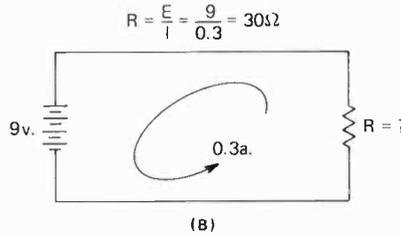


Fig. 2.13(A)—When the voltage and current are known Ohm's law may be used to determine the circuit resistance. (B) The resistance in a circuit must decrease in order for I to increase (assuming a constant voltage).

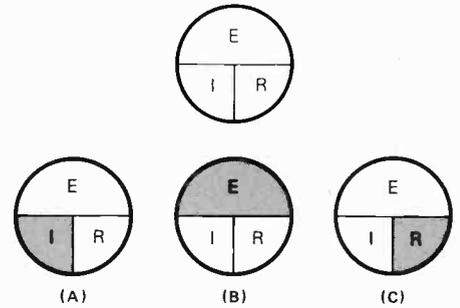


Fig. 2.14—The Ohm's Law circle can be used until the formulas are memorized. Covering the unknown symbol leaves the proper formula exposed.

Law so frequently, that he soon memorizes it. Until this happens the beginner can make use of the simple device shown in Fig. 2.14, the Ohm's Law Circle. By covering the quantity you wish to find, the remaining two symbols indicate the formula. For example, in (A), with I covered the circle indicates that I is equal to E/R. In (B), with E covered, the circle indicates E is equal to IR and in (C) with R covered, it is shown to be equal to E/I. In brief, if

**Experiment #4—Measuring Resistance and Current**  
**Part I—Measuring Resistance**

**Material:**

- Resistor, 1.2K ± 10%
- Resistor, 3.3K ± 10%
- Resistor, 22K ± 10%

**VOM**

We will now use the ohmmeter portion of the VOM, as described in Information Sheet #5, to measure the value of several resistors and determine if they are within tolerance.

**Procedure:**

- 1—Set the VOM to the R × 1 range and insert the test leads in the Common and VΩ receptacles.
- 2—Short out the test leads and set the "Ohms Adjust" control for a zero reading on the extreme right end of the ohms scale.
- 3—Place a 1.2K resistor between the test lead tips as shown in Fig 1.

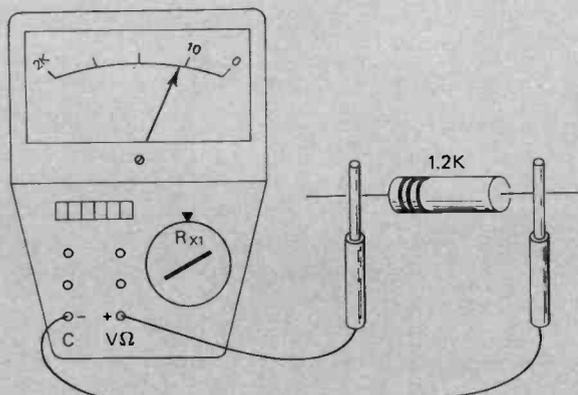


Fig. 1—VOM set up to measure resistance on the R X 1 scale.

4—Read the resistance value from the ohmmeter scale. Note that the reading is at the extreme left end of the scale and cannot be read accurately.

5—Switch to the R × 10 range and zero the meter again. Measure the resistor again and see that it now reads further up scale, but still not in the most accurate area.

6—Reset the range selector to R × 100 and zero. The new resistance reading should be close to 10 ohms on the scale (10 × 100).

7—Enter the resistance reading in Table I.

Resistor Value	% Tol-erance	Calculated Resis.		Meas. Resis.	Within Toler.	
		R Max.	R Min.		Yes	No

Table I

8—Repeat the above procedure for each of the other two resistances and enter their values in Table I.

9—Calculate the minimum and maximum allowable resistance values based on the tolerance and add them to Table I.

10—Determine if each resistor falls within their tolerance ratings.

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- Squelch sensitivity: 0.2, v
- Delta tune
- Automatic noise limiter
- RF gain control
- Squelch control
- External CB switch
- PA switch

### Mobile CB Specifications

#### General

- 18 transistors, 16 silicon diodes
- 2 zener diodes, 1 FET
- Electronic switching
- Self-contained, 3 1/2" round speaker, 16 ohm voice coil
- Dynamic, press-to-talk microphone
- Illuminated channel indicator and S/R/F power meter
- Crystal synthesis: 14 crystals in frequency synthesizer, to produce 23 crystal controlled frequencies
- External speaker jack and PA jack
- Under-dash mounting bracket for mobile installation

#### Receiver

- Frequency range: 26.965-27.255MHz
- Adjacent channel rejection: 60dB
- Spurious response: -50dB
- Intermodulation rejection: better than 50dB
- Squelch stop sensitivity: 45 to 30.000uv (adjustable)
- Delta tune  $\pm 1$ KHz
- Selectivity: BW  $\pm 2$  5KHz min at 6dB down
- Audio distortion at 1KHz: less than 10% at 3 watts
- Cross modulation rejection: better than 40dB
- Squelch sensitivity: 0.2v
- Noise limiter: series gate

#### Transmitter

- Frequency range: 26.965-27.255MHz
- Power output at 13.8V DC: 4 watts (max.)
- Emission (class D operation): 8A3
- Frequency tolerance:  $\pm 0.005\%$
- Switching: electronic
- Power input at 13.8V DC: 6.6 watts
- Modulation (4mv at microphone): 100%
- Hum and noise: 40dB down
- Antenna impedance: 50 ohms
- Modulation distortion: less than 10% at 95% modulation at 1KHz



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## BASIC RADIO (continued)

one of the exposed figures is above the horizontal line and the other below, division is indicated. When both figures exposed are below the horizontal line, multiplication is indicated.

Ohm's Law tells us that for any electronic or electrical circuit:

1. The current is directly proportional to the applied voltage.
2. The current is inversely proportional to the circuit resistance.
3. When any two circuit quantities are known the third can be found.

## Wattage

It was noted earlier in the section headed "Resistor Ratings" that resistors are rated for wattage dissipation or the amount of heat they could dissipate. The rate at which electrical energy is consumed or converted to heat is defined as electrical power and is designated by the letter P or W and is expressed as the watt. Using the same standards as for Ohm's Law, we can state that when one volt forces a current of 1 ampere through a circuit of 1 ohm, 1 watt of power is used up.

Electrical power used up in a circuit is equal to the voltage in the circuit multiplied by the current in the circuit.

This is expressed mathematically by the equation:

$$W = EI$$

where E is in volts

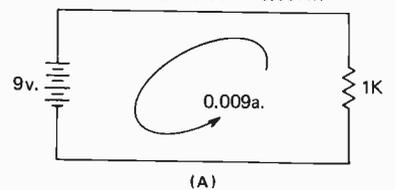
I is in amperes

W is in watts

Let's solve some wattage problems such as shown in Fig. 2.15. In (A) the applied voltage is 9V and because the

(continued on page 72)

$$W = EI = 9 \times 0.009 = 0.081w.$$



$$W = EI = 20 \times 0.4 = 8w.$$

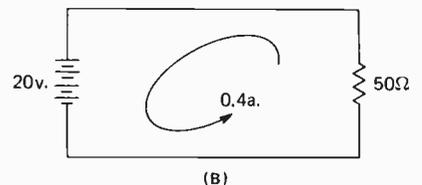


Fig. 2.15—Typical wattage dissipation calculations. In (A) the resistor actually dissipates 0.081 watts. A safety factor of 100% requires a rating of 0.162 watts. The closest practical rating would be 1/4 watt. For problem (B) where the calculations show 8 watts, the 100% safety factor brings the required rating to 16W. Only a 15 or 20 watt rating would be available and 15W would be adequate.



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## Experiment #4: Part II—Measuring Current

We will now use the milliammeter function of the VOM to measure the current flow in a simple circuit and then check these measurements against our calculations.

Materials:

Perfboard 6 $\frac{7}{8}$ " x 9 $\frac{3}{4}$ ", 1/16" holes, Radio Shack 276-1392

4 Fahnestock Clips—Radio Shack 270-393

Battery Connector for 9 V battery—Radio Shack 270-325

9V Transistor type Battery—Radio Shack 23-464

4-40 Hardware

Hookup Wire

Procedure:

1—Set up the four fahnestock clips as shown in Fig. 2A, using 4-40 hardware.

2—Wire the circuit as shown in Figs. 2A and 2B.

3—Connect the 9V battery to the clip.

4—Measure the voltage across the resistor as shown in Fig. 3 and enter the reading in Table II.

Resistor	Measured Voltage, E	Measured Current, I	Measured Resistance, R
1.2K			
3.3K			
22K			

Table II

5—Remove the wire as shown in Fig. 4 and connect the meter into the circuit as shown. Be sure to set the function switch to the 0-300 mA range. Enter the current reading in Table II.

6—REMOVE THE BATTERY and then measure the resistance of R. Enter the reading in Table II.

7—Using Ohm's law and the readings in Table II, verify each value as follows:

A) Using E and I from Table II calculate R.

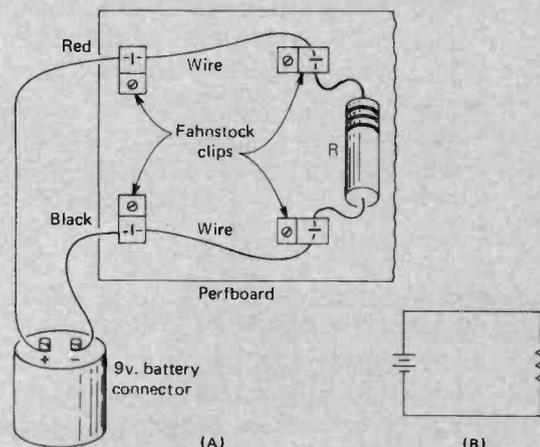


Fig. 2(A)—Pictorial of the circuit diagram shown in (B).

Remember, to convert mA to A move the decimal point three places to the left. Compare the calculated value of R with the measured value.

B) Using E and R from Table II calculate and compare it to the measured value.

C) Using I and R from Table II calculate E and compare it to the measured value.

Both the measured and calculated values should agree. If there are small differences they may be attributed to any or all of the following: error in the resistance ( $\pm 10\%$ ), error in the meter ( $\pm 3\%$ ), or operator error in reading the meter.

8—Repeat the entire procedure with the 3.3K resistor.

9—Repeat the entire procedure with the 22K resistor.

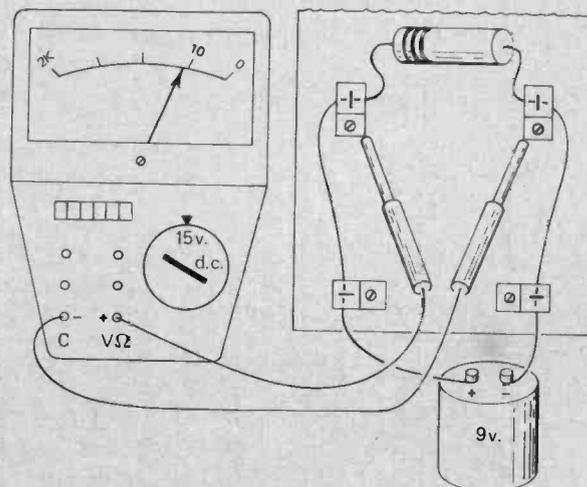


Fig. 3—Measuring the voltage drop across the 1K resistor.

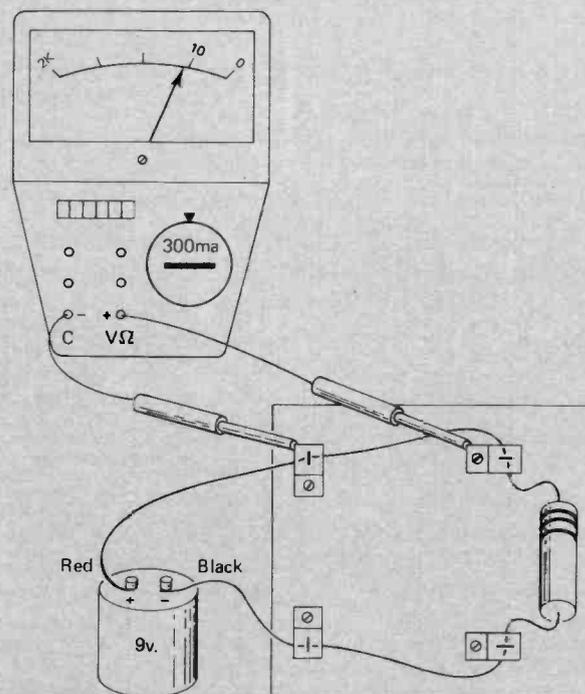


Fig. 4—Measuring the current flow through the 1K resistor.

## BASIC RADIO (continued)

circuit resistance is 1K the current flow is 0.009A. (See Fig. 2.10A). The wattage dissipated by the 1K resistor is equal to  $E \times I$  or  $9 \times 0.009 = 0.081$  watts. A resistor must be selected that can dissipate this heat.

In problem (B) with an applied voltage of 20 and a resistance of 50 ohms (as in Fig. 2.12A), there is a current flow of 0.4A. The wattage dissipated by the 50 ohm resistor is equal to  $E \times I$  or  $20 \times 0.4 = 8$  watts.

When selecting a resistor for this circuit or the one in circuit A, a 100% safety allowance is usually made. Thus for problem (A) the resistor should be able to handle  $2 \times 0.081$  watts = 0.162W and for (B)  $2 \times 8W = 16W$ .

As with the basic Ohm's Law formula, if any two of the three units in the wattage formula are known, the third can be found. The three forms are:

$$W = EI \quad I = W/E \quad E = W/I$$

A circle for wattage, similar to that for Ohm's Law, is shown in Fig. 2.16.

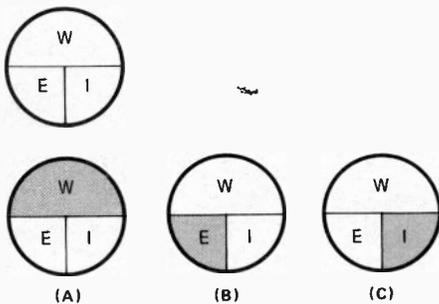


Fig. 2.16—The wattage circle that can be used until the formulas are memorized. Covering the unknown symbol leaves the proper formula exposed.

The formula  $W = EI$  can be modified to produce another useful formula. By substituting  $IR$  for  $E$  (recall that  $IR=E$ ) in this formula, we can develop the following:

$$W = EI$$

Substituting  $IR$  for  $E$ , we have

$$W = IRI = I^2R$$

Since  $I \times I$  is the same as  $I^2$  we then have:

$$W = I^2R$$

From this formula we can derive the following:

$$R = \frac{W}{I^2} \quad I^2 = \frac{W}{R} \quad I = \sqrt{\frac{W}{R}}$$

This last formula is useful for determining the maximum allowable current that may flow through a resistor if the wattage and resistance values are known. The maximum allowable current through a  $\frac{1}{2}$  watt 1K resistor, for example, is:

$$\begin{aligned} I &= \sqrt{\frac{W}{R}} \\ &= \sqrt{\frac{.5}{1000}} \\ &= \sqrt{0.0005} \\ &= 0.0224A \end{aligned}$$

## Units

When we introduced resistances earlier we presented a scale of units that made it easy to handle the larger values. We showed how K was used for thousands and M for millions. Now let's consider current; the basic unit for current is the Ampere. For all the problems we worked out in Figs. 2.10 to 2.13, not a single current was as large as 1 ampere, all were less than one. In most electronics work the current flow is not in amperes but thousandths of an ampere and very often in millionths of an ampere. To enable these figures to be handled easier, two units are used. The first is the milli-unit, one-thousandth. This means that 1 ampere is divided into 1000 parts and each part is a *milliampere*. Thus 500 milliamperes is equal to 0.5 amperes. To convert from amperes to milliamperes we simply move the decimal place 3 places to the right. For example, to change 0.75 A to milliamperes, add a zero and move the decimal:  $0.750 = 750$  milliamperes.

The abbreviation for milliamperes is mA. Let's try one more. Convert 0.938A to mA:  $0.938 = 938$  mA.

To convert mA to A move the decimal point three places to the left. To convert 62 mA to A we do as follows:

Added zero, move decimal three places to the left:

$$.062 = 0.062A$$

Let's try one more; convert 435 mA to A:

$$.435 = 0.435A$$

*Microamperes*—If a current of 0.000005A was flowing in a circuit it would be awkward to work with this figure and we would be best off converting it to milliamperes. Moving the decimal 3 places to the right we would have 0.005 mA, still an awkward form.

If, instead of dividing 1A into one thousand parts, we now divide it into a *million parts*, we could have converted 0.000005A into *microamperes* by moving the decimal point 6 places to the right so that we have:

$$0.000005 = 5 \text{ microamperes}$$

The symbol for micro is the Greek letter (lower case) Mu shown as  $\mu$ .

Thus, microamperes can be shown as  $\mu A$ . To summarize, 0.000005A can be shown in one of three ways:

$$\begin{aligned} \text{Amperes} &= 0.000005A \\ \text{milliamperes} &= 0.005 \text{ mA} \\ \text{microamperes} &= 5 \mu A \end{aligned}$$

To convert from microamperes to Amperes it is only necessary to move the decimal point six places to the left.

Not only are Amperes converted to milli and micro units, but so are voltages and wattages. Later when we learn about other forms of measure, such as the Henry, Farad and the mho we will again have to apply the milli and micro units.

## Self Check Questions: Part 6

1—A 470K resistor has the same value as a 0.47 Megohm resistor. T or F

2—Calculate the lowest and highest values of resistance that may be found in a  $27K \pm 20\%$  resistor.

3—A 20% tolerance resistor is more accurate than a 10% unit and is more costly. T or F

4—The higher the wattage rating of a resistor the more heat it can withstand. T or F

5—All power resistors are of the carbon or carbon film types. T or F

6—A resistor has the following colored bands, from left to right, Yellow—White—Orange—Gold. What is its value and tolerance?

7—What data can you provide for a resistor marked as follows, from left to right: Brown — Red — Silver — Gold — Brown?

8—If 35 volts is applied to a 27K resistor the current flow will be \_\_\_\_\_.

9—A resistive circuit of 475 ohms carries a current of 0.2A. The voltage applied to this circuit is \_\_\_\_\_.

10—A current of 0.475 mA flows when 72 volts is applied to the circuit. The resistance of the circuit is \_\_\_\_\_.

11—For a given voltage the higher the current required, the higher the circuit resistance must be. T or F

(continued on page 83)

### Suggested Reading:

Tepper, Marvin, *Basic Radio*, Vol. I, Second ed., New Jersey: Hayden, pp. 1-58, 1-62 to 1-64, 1-66 to 1-72.

Shrader, Robert L., *Electronic Communication*, Third Ed., New York: McGraw Hill, pp. 21 to 22; 26 to 29.

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# TOMCATTING with "Tomcat!"



Across The Channels With  
S9's Editor, Tom Kneitel (Tomcat/ KEZ5173)

**B**IGGEST "in" thing today is the power mike, and many good ones are on the market, problem is that so many CB'ers think that they are like cars. If you put your foot half way down on the hammer you'll do one speed, but if you drop the hammer you'll do twice as well, go twice as fast. With power mikes it's different, while running one at  $\frac{1}{3}$  or  $\frac{1}{2}$  way open you may be doing a bodacious job—but  $\frac{3}{4}$  of the way open may be doing you more harm than good—causing overmodulation and distortion. Many people take them out of the box, hook them up, set them all the way open and then proceed to splatter all of their area operators and sound like they are talking with their heads in waste paper baskets. Best bet is to check the best setting out with several local and distant stations, and then *let it be!* . . . Antenna Specialists Super Scanner is a popular base station sky-hook, wonder why they don't produce a 5 element model along similar lines . . . Lots of CB'ers are automatically "down" on kids on the CB channels—I've got a big message, there are a helluva lot more rude and inconsiderate adults on the channels on the band than there are kids. In my area, the kids in the junior high school have formed their own CB club under the direction of one of the teachers—they probably are among the best operators on the band (and thank you *Big Deal* for your work with the kids!) . . . Why do so many of the people operating on CB affect that C. W. McCall *Rubber Duck* type country twang to their conversation? People who normally speak like wherever-they-come-from seem that there is an unwritten law that as soon as the mike button is pressed they have to make people think like they come from the deep South? . . . And also, I often wonder if people whose CB shouts contain the well known catch phrases in 85% proportion ("definitely," "big-4," "roger-D," "for sure," "lotsa good numbers at ya," and the like) talk like that in their off-the-air conversations while on the job and when shopping . . . *Little Squeak* broke through on 8 one day to ask if I knew why they don't allow CB in a jail. Reason is that they don't want any *breakers*

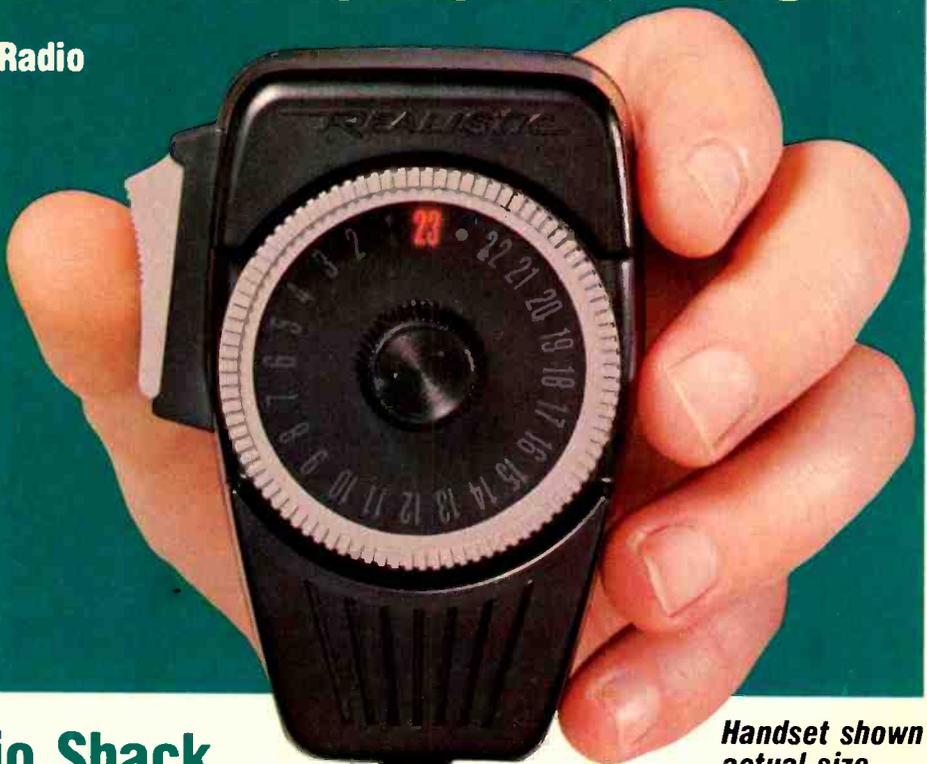
there! *Little Squeak*, go back to trout fishing and stop trying to be the life of the channel! . . . Did you ever wonder why, when sitting in your mobile in bumper-to-bumper traffic, that the channel is nevertheless "alive" with smokey reports. Who cares? What are they going to do, give you green stamps for obstructing traffic? . . . It's just as dumb as driving down a practically empty multi-lane highway and having a guy shout you for a traffic report . . . Anybody that shouts me for a 10-36 always gets the incorrect time, usually 10 to 15 minutes off base. They invariably come back and correct me, at which time I invariably ask them why they wanted a 10-36 in the first place if they already knew what time it was! . . . I fooled around with horizontal polarization (flat side) many years ago and can back up the many claims to its effectiveness and benefits during its current rediscovery and popularity—I would not say that it is the total answer to every CB communications problem as some of the talk on the channels would lead you to believe. Since TV signals are polarized on the flat side, it may increase your chances for giving out Indians to your area neighbors who wouldn't have been bothered by your vertically polarized CB signal. Also, flat side is not very good for working mobiles—and the land line is better than CB for working out to other base installations when you come to think of it . . . Overheard on radio control "Channel 3A", "Sorry good-buddy, that guy chucking radio control signals at us is giving you grief here, wish t'hell they'd play their games on another channel and leave CB alone!" . . . Overhead at the counter of a CB shop, a customer who just purchased a CB rig was told to make up a temporary callsign consisting of the letter "K" followed by his initials and Zip code. He wanted to know if he could use the "K" followed by 3 letters instead of 2 since he *always* used his middle initial. Another customer asked if he used the temporary callsign in his mobile unit, should he keep giving different Zip codes as he drove into different Zip code areas. But we have gotten some interesting inquiries here at S9 from readers who have asked if

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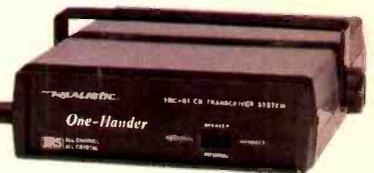
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a temporary "initial/Zip" license made out to C. W. McCall would start off "KCMcC"—on the other hand I wonder if Erich vonStroheim would end up as "KEvS." Hmmmmm . . . Guy I know tried to protect his mobile rig from getting ripped off so he welded it to the floor of his truck—except that they removed the rig from its welded down case and took it anyway. They left poor ol' *Grizzly Feet* with an empty welded-down CB cabinet. *Grizz* says that it is good for keeping a 6-pack of Coors . . . Sideband operators request that I pass along their plea that AM operators *kindly* avoid transmitting on Channel 16 (in some areas also 18) since the AM rips up Sideband communications, and on the other side of the fence, AM communications are difficult and take twice as long to send and receive while

**"Say, do you think that smokeys on their days off give smokey reports when riding in their own mobile units?"**

co-existing on a channel being used for Sideband . . . This morning on the way to the ol' saltmines this guy comes on with a really frantic sounding smokey report, and when he gives his 20 I realize that I'm riding right on his tailpipe. So I look around for his big bad wolf and sure enough I see smokey, sitting in the grass and reading a newspaper with a cup of coffee on the dashboard—c'mon goodbuddies!

This isn't the first time I've heard this type of unwarranted smokey report—it is, however, better than some smokey reports I've heard where no matter how hard you try you can't get an eyeball on the reported smokey. Maybe some people just have good imaginations. Say, do you think that smokeys on their days off give smokey reports when riding in their own mobile units? . . . FCC has been scratching its head on how to assign channel numbers to the big festival of new CB channels it has been considering. My thought is that the most uncomplicated way would be to simply turn the final 3 numbers in the frequency into the channel number. The frequency 26.965 (presently CB Channel 1) would become known as Channel 965. The frequency 27.005 (now Channel 4) would be the new Channel 5. The present 27.085 (Channel 11) would become the new Channel 85, and 27.225 (Channel 22) would turn into Channel 225—and so on. Many fellows already seem to have adopted this system of referring to the channels and, to me, it seems like a channel numbering system that has a lot going for it, including early consumer acceptance . . . *Ross The Boss*, from old Miami Beach town, tells me that a local CB'er decided that he had it up to here with trying

to get his shouts through to his XYL while mobile, so he jumped over to 27.285 ("Channel 23C"?) where he felt he could operate on a private (although bootleg) channel. First time he called someone came back to him and told him he was "breaker number 2." . . . On the other hand, Jimmie, better known as CLI-1 on *16-Lower* in the Long Island area sez that he heard a station being bluntly kicked off 22B by another station who claimed it was his "home channel" and he didn't want anybody else using it! . . .

. . . Have CB'ers forgotten how to count? Why does the request "Gimmesumnumberz" bring back only a "1-2-1-2-1-2" instead of a simple 1 through 5? . . . Hey, that wierd *Deacon* has a method to his maddness. His theory is that eventually there will be so many millions of CB stations crammed into the channels that everyone will get annoyed and sell off their used CB gear—this may take several years, but he's in no hurry. At that point he will buy up all of the used CB gear and corner the world market. After that he plans on shipping off all of the CB equipment to Paraguay and becoming multi-millionaire by starting a CB craze! . . . Every now and again we turn up a genuine CB old timer. Count amongst the static-numb old timers who are still in CB one Dick Stranksy, formerly known on CB (circa 1960) as 2W2129. Dick now operates Stranbro CB & TV in Mastic, N.Y.—hey, how many of you other old CB goats are still in there punching? Drop me a card or letter with your old callsign and your present callsign/handle and I'll put you in the S9 Glory Roll. Only you fellas and gals from 1962 and before need apply—where are you Uncle George, Uncle

**" . . . he was causing TVI since the owner of the Rolls Royce had a boob tube installed for mobile viewing!"**

Irv, Modesto Mike and the rest? Tommy Hoshall from Communications Co-Op—remember when we did our thing with the old "10W" callsigns from Oak City? What was your callsign then? . . .

Another guy who's been around since Rasputin was in rompers is ol' Lenny Knigin. In those days he was 2W1817—today Lenny is the big honcho at C.B. Repair Center, Inc., in Brooklyn, N.Y. Hey, Len—remember the old speech compressor? . . . *Big Deal* reports what must surely be a CB first! He was having a CB conversation while waiting at a traffic light when he heard someone knocking on his car window. Looking up he saw a uniformed chauffer who had obviously emerged from the silver Rolls Royce which was in the next lane also waiting for the light. Rolling down the window *Big Deal* was

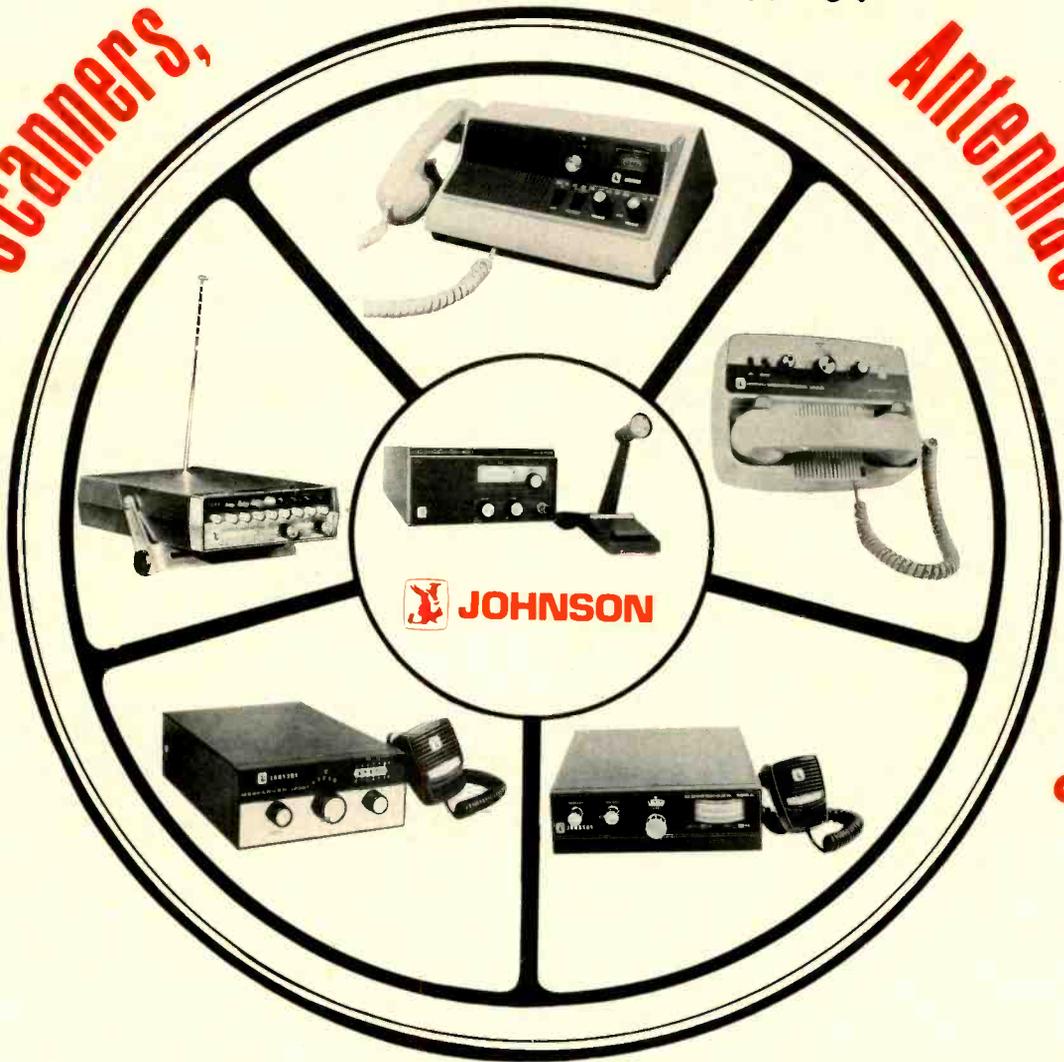
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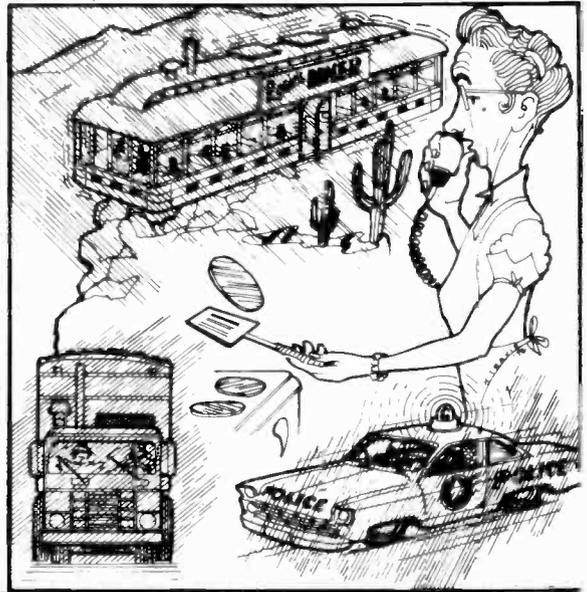
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# ON THE RIDGE

# ROSIE



promptly informed in a clipped British accent that he was causing TVI since the owner of the Rolls had a boob tube installed for mobile viewing! How 'bout that??? . . . Speaking of mobile installations, Deacon put in a new rig for his Caddy. For some odd reason the rig causes the air conditioning to rev-up every time he hits the mike button. The Caddy people scratched their heads—maybe it was in the climate control system. The mobile people scratched their heads—maybe it was a defect in the rig. Deacon's XYL, Amy, came up with the best guess—Deacon's CBing is full of hot air! . . .

Overheard on Channel 6: "Where's your 20?" Reply: "I keep it in my billfold!" . . . A few weeks ago while on my way into the back country for some fishing I was moving along on one of the New England highways with my rig set on 19. The Sheriff suddenly broke the channel with an announcement that there had been a bank robbery and the get-away car was sporting a CB whip. The sheriff asked CB'ers not to give any smokey reports for the rest of the day—in exchange he said that he would take down his two picture taking operations along the highway! . . . Conversation on Channel 3: "Can you give me a radio check?" Reply: "No, but do you

**"Where's your 20?"**

**Reply: "I keep it my billfold!"**

accept *Master Charge*?" . . . One of the favorite CB pit stops along New York's Long Island Expressway is on the westbound service road at Exit 62. Run by *Courier*, my goodbuddy, who monitors Channel 19 and dispenses hot franks and copies of S9 to the CB gang, including the many passing 18-wheelers who seldom miss a chance to stop and chat with *Courier*. Next time you pass that way, tell him *Tomcat* sent ya! Many CB'ers will agree that *Courier's* CB-Frankfurter wagon is the only tourist attraction throughout the entire 100 mile length of the Expressway . . . Wonder if the FCC people ever watch TV—most of the TV shows which have incorporated CB radio into their stories do not present its use in very close conformity with Part 95—and that includes the popular *Movin' On* series. S9, from time to time, has received "explanatory" letters from the FCC when we have said things which they feel have not been strictly to the line of Part 95. Seeing as how these TV series are all being broadcast over FCC licensed TV stations, seems peculiar that the operating errors presented do not ever become "corrected." Then, everybody wonders where the public picks up the incorrect CB operating practices! Hey FCC—got your ears on? . . .

*Tomcat!*

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Anyway, CB comes to the rescue (you knew it would, now didn't ya?) and the 18 wheelers work together with smokey to rescue poor Rosie. But you've got to hear the tune for yourself.

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ing, even when the unit is mounted in the dash.

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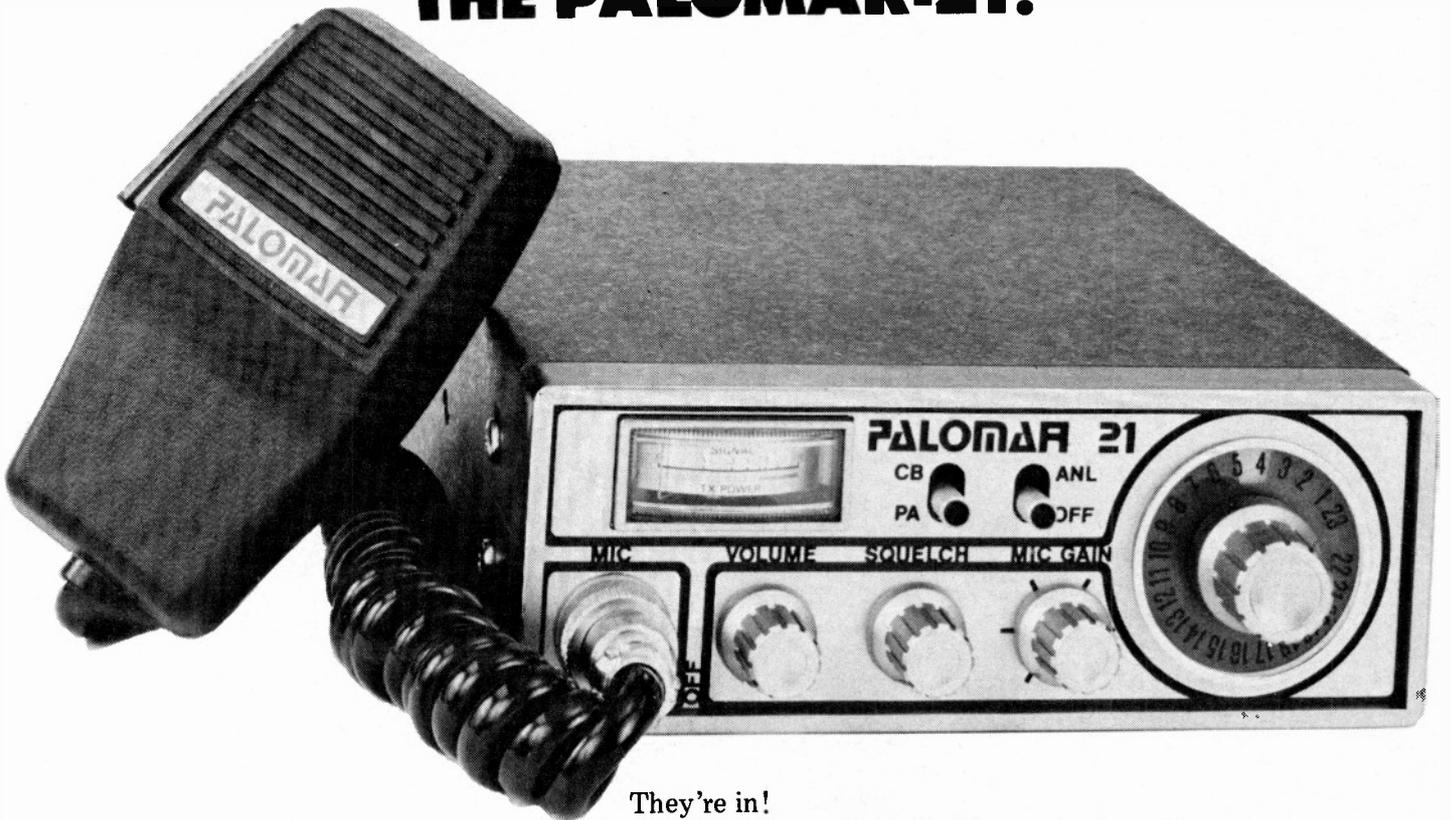


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**THE ADVENTURES OF CBMAN**

OH HELP!

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YOU CALL THAT A CHOICE?

YEEHAWWWW!

SPURN ME TO THE END EH? WELL TOODLE LOO MY DEAR, HOPE YOUR TRAINS ON TIME !!!

SHRIE EEEEE

OO... YOU CAN NEVER FIND A HERO WHEN YOU NEED ONE!

AT LAST! A CHANCE FOR CB-MAN TO SPRING INTO ACTION! FIRST, A QUICK CHANGE

SHRIE EEEEE

LADIES

SLAM!

WH SUCCESS!

WHIZZ!

MAYBE I DON'T REALLY GOTTA GO...

WHOOOOOOOSSSH

AND SOON, ON THE SCENE...

BEATRICE, IF YOU'D BUY A CB RADIO YOU COULD HAVE CALLED FOR HELP! CBERS ARE HELPFULL...

REALLY? HMMMM...

IT WOULD BE A GOOD IDEA...

CAN I HELP YOU?

CAN I HELP YOU?

CAN I HELP YOU?

CAN I HELP YOU?

**SAL JOHN'S RADIO STORE**

A CB WOULDVE MADE THINGS EASY!

TOOT!

CHUGA CHUG!

BREAKER/BREAKER! CH 19! THIS LIL' GIRL'S GOT HERSELF TIED UP ON THE OL' RAILROAD TRACKS! IT'S A BIG 33!

10-4 LIL' GIRL ON THE WAY!

THERE SHE IS!!!

SCREEECH

HURRY! THIS WALKIE TALKIE GETTIN UNCOMFORTABLE!

BREAKER! IS THAT A BEAR UP THERE?

NEGATORY RUBBER! DUCK! LOOKS LIKE...

BOMB!

FLYIN' GERTY TO BASE! ANY NEW ORDERS?

GET EM

BUT DESPITE IT ALL...

MY HERO! WHAT'S YOUR HANDLE?

PIG PEN

OH PIG PEN, YOU AND CB SAVED MY LIL' OL' LIFE! HOW CAN I EVER REPAY YOU?

WE'LL THINK OF SOMETHING...

MERCY SAKES! NOTHIN WILL KNOCK OUT A BORIN DAY LIKE A CB! SO 3'S AND 8'S ON YALL AND I HOPE I CATCH YA ON THE BACKSTROKE NEXT ISSUE!

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## BASIC RADIO

(from page 72)

12—How much power is dissipated by a resistor that has 500 volts across it and 0.001 A flowing through it?

13—A resistor has to dissipate 2.5 watts of heat. What power rating should be selected for this resistor?

14—A 50 ohm resistor is rated at  $\frac{1}{2}$  watt. What is the maximum current this resistor can have flowing through it before it will overheat?

15—The equivalent of 1.2A milliamperes is \_\_\_\_\_.

16—The equivalent of 257 mA in Amperes is \_\_\_\_\_.

17—The equivalent of 0.052 mA in  $\mu$ A is \_\_\_\_\_.

18—When using an ohmmeter to measure resistance the device being measured must be powered. T or F

19—Each time the resistance range of a VOM is changed the Zero Adjust control must be checked or reset. T or F

20—When an ohmmeter cannot be fully zeroed on the  $R \times 1000$  range, the test leads may be defective. T or F

21—When measuring resistance on the  $R \times 100$  range the pointer of the meter falls on the 50 of the Ohms scale. What resistance does this represent?

22—A current meter must never be connected across a voltage source as this will burn out the meter. T or F

23—When first inserted into a circuit the milliammeter should be set at its highest range and then lowered until a mid-scale reading is obtained. T or F

24—If the meter polarity is reversed when measuring current there is no visible effect. T or F

**Answers to  
Self Check Questions  
can be found on  
page 103 of this  
issue**



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*Frank E. Alexander*  
Frank E. Alexander, President

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 CB RADIO MAKE \_\_\_\_\_ MODEL # \_\_\_\_\_ SERIAL # \_\_\_\_\_  
 WHERE PURCHASED \_\_\_\_\_ DATE \_\_\_\_\_  
 F.C.C. CALL NO \_\_\_\_\_ ISSUE DATE \_\_\_\_\_

Please check below:  
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**A**RLINGTON, Texas, is one of the mid-cities that lie between big Dallas and sprawling Ft. Worth. And there's a legal battle going on there right now between CB'ers and non-CB'ers that could have national implications for CB and ham radio operators alike.

The legal battle centers on the city's right to enforce its noise ordinance on CB operators whose transceivers interfere with neighborhood television and radio reception. So far, the CB'ers have lost the first round to the city's municipal court, but hope to recoup with a reversal on that decision in U.S. District court. It's going to be interesting to see who wins.

The immediate impact of that U.S. District court ruling is going to be felt immediately in the Dallas-Ft. Worth metroplex. Seems there's quite a few TV viewers and audiophiles in this area who are becoming angrier by the day with the interference caused by CB transceivers to their TV/radio reception and audio equipment. If the U.S. District court rules in favor of the city's

noise ordinance. He was fined \$100, for what the city considers to be a misdemeanor.

Of course, Underwood went to city court to protest. But it did him no good. He even had an FCC engineer from the Dallas field office check and confirm in writing that his base station's channels were all on frequency. He presented the engineer's letter to the city court, but it failed to impress the judge. He had to pay the fine anyway.

By this time, Stringer, who'd learned about Underwood's situation through club members, had become active in the case. And when they saw they were getting nowhere in the city court, they decided to call their CB "buddies" together to discuss what steps to take from there. On Friday evening, March 12, they met in Grand Prairie, a mid-city just east of Arlington, and decided to seek a federal court injunction against the city of Arlington to keep it from enforcing its noise ordinance on resident CB operators.

city to cease prosecuting CB operators for "so-called" noise violations they'd not actually caused:

And, as I said earlier, it's going to set a precedent, if not across the nation, at least in the Dallas-Ft. Worth and North Texas area.

Will the City of Arlington retain its right to enforce its noise ordinance on CB operators? Will the city allow for the possibility that the problem of interference could be within the television or radio instead of the CB transceiver? Or, will the U.S. District Court be forced to issue an order restraining the city from enforcing its ordinance on CB operators?

With the trial coming up, there'll be a lot of CB'ers and non CB'ers alike in this area who'll be looking on to see how the court will rule. And, so far, things don't look too good for the CB'ers.

I picked up a copy of Arlington's Nuisances Chapter to see what resident CB'ers are really up against. Somehow it was hard for me to picture a CB

# GO FIGHT CITY HALL!

by RICHARD E. HUDSON

## CB'ers Challenge City of Arlington's Noise Ordinance in U.S. District Court

right to enforce its noise ordinance on CB operators, you can bet there's going to be more complaints, more fines, more lawsuits. And the reason lies in the simple fact that all the mid-cities, including Dallas and Ft. Worth, have ordinances similar to that which Arlington is presently enforcing.

Plaintiffs in the suit are Don Underwood and Freddie Stringer, both of Arlington, Karen Wade of Richardson, and Kaye Taylor of Garland. Stringer is president of a local CB organization with members from practically every corner of the Dallas-Ft. Worth metroplex.

The suit actually evolved from a complaint which Don Underwood's neighbor filed against him with the city. Seems everytime Underwood got on the air his transmissions came in "wall to wall" on his neighbor's television set. This was especially perturbing to his neighbor since it usually happened during the prime TV-watching hours in the evenings.

So, the City of Arlington issued Underwood a ticket for violating the city's

On Wednesday, April 22, after more than a month's preparation, the four plaintiffs filed a class action lawsuit against the city in U.S. District Judge Eldon Mahon's court. Immediately they asked Mahon to issue an order restraining the city from prosecuting CB operators. But city lawyers agreed readily not to issue anymore tickets until after a court decision had been reached, so the restraining order was deemed unnecessary. A date has not yet been set for what will be a full jury trial.

The suit alleges that by enforcing its noise ordinance, the city of Arlington is usurping powers that belong exclusively to the Federal Communications Commission. The suit went on to describe operators as a class "so numerous as to make it impractical to bring them all before the court." It also contends that CB transmitting equipment is rarely the true cause of television and radio interference, but that the problem often lies within the receiver circuitry of the television or radio itself. And, on the basis of these contentions, the suit asserts that it's only reasonable for the

radio creating a lot of disturbing noise, unless, of course, somebody was misusing a unit with a built-in PA jack. I found out some very interesting things I'll share with you.

Article 6 of their Nuisances Chapter covers "noise." And it classifies "any unreasonably loud, disturbing, or unnecessary noise which causes material distress, discomfort, or injury to persons of ordinary sensibilities in the immediate vicinity thereof" as being a nuisance and, therefore, prohibited.

Section 6.02 of the Article declares "any noise of such character, intensity, and continued duration as to be reasonably calculated to substantially interfere with the comfortable enjoyment of private homes by persons of ordinary sensibilities" as a nuisance and it, too, is prohibited.

Just think of all the audiophiles and TV viewers to which that section would benefit. Even a housewife who spends a good portion of her day listening to a common AM radio could file a complaint with the city as provided by that section. A CB operator just doesn't

stand a chance, even if his equipment is not to blame (as we saw in the above case), for any interference his transmitter may cause. All his neighbor's got to do is complain and the city will do the rest.

But, let's go on—Section 6.03 says, "It shall be unlawful for any owner, occupant, or person otherwise in control or supervision of any private residence or other dwelling unit, business establishment, place of amusement or recreation, motor vehicle, or private property of any character whatsoever knowingly to permit any unreasonably loud, disturbing, or unnecessary noise in or upon the property owned, occupied, controlled, or supervised by him."

That section can not only apply to base stations, but to CB businesses who demonstrate their radios, to those who have mobile units in their trucks or cars (whether they're transient or living in an area), or a bunch of CB'ers using their radios to get together for a "coffee break." One spurious emission interfering with residential TV or radio reception is enough to make them liable.

And lest you think there are ways to get around what's been stated so far from the Arlington's Nuisances Chapter

regarding "noise," it's imperative that we read on.

For instance, Section 6.04 enumerates the acts declared by the city to be "nuisances in violation of this article." This particular section is broken down into nine parts, each covering specific violations. And, as if this were not enough, the section includes a statement which says that these specific enumerations "shall not be deemed to be exclusive. . . ." In other words, the article is left open to cover virtually anything, any act from which a disturbing "noise" emanates. CB'ers look out!

Part (a) says, "Music and amplified sound: The playing of any musical instrument, radio, television, phonograph, or any other mechanical or electronic device capable of emitting noise, music and/or words with such volume as to annoy or disturb the quiet, comfort, and feelings of persons of ordinary sensibilities in the immediate vicinity, particularly between the hours 8:00 p.m. and 8:00 a.m., but not limited thereto; provided, it shall be prima facie evidence that the sounds emitting from such instrument or device is disturbing to persons in the immediate vicinity if said sounds are distinctly discernible at a distance of more than one hundred (100') feet from such instrument or device."

And Part (c) says, "Horns or other signal devices on vehicles: The continued or frequent sounding of any horn or signal device on any automobile, motorcycle, bus, or other vehicle except as a danger or warning signal" constitutes a violation.

So, you see, at least in Arlington, Texas, a CB'er is in for a heap of trouble should a local resident complain that his radio is interfering with their TV/radio reception or audio equipment.

CB'ers here are complaining that Arlington is attempting to police the airwaves—a right which is not theirs. But, speaking for the City of Arlington, Assistant City Attorney Mike Bucek replied with, "No attempt is being made to regulate CB radios. We have a noise chapter in our city ordinances stating that any unreasonable or unnecessary noise may be subject to a fine. And this was really a noise going on that was unnecessary."

When you consider all the other cities across the U.S. that have "noise" ordinances similar to that of Arlington's, it's enough to make even the old timers who've weathered many a storm like this raise an eyebrow.

The outcome, of course, depends upon a federal court ruling. And CB'ers in this area have banded together in an all-out attempt to get a ruling in their favor.

## CB Usage Tips From S9

(CUT OUT & PLACE AT OPERATING POSITION)

### Preferred & Designated Channels

- Channel 9 Emergencies only
- Channel 13 Maritime
- Channel 16 Single Sideband only
- Channel 18 Single Sideband only
- Channel 19 Trucks/Vehicles in transit\*

\*Note that in many areas there are also 1 or more additional channels designated and/or normally used for in-transit vehicles, most often Channels 10 and/or 12. This is especially true in metro areas and their suburbs where Interstate Highways are on 19 and secondary roads such as parkways are on alternate channels. It is not the practice for mobile units on such channels to request breaks. Base stations are requested to avoid using all area in-transit vehicle channels in order to permit their full, free, unobstructed and exclusive use by in-transit vehicles. "Channel Monitors" are neither required nor desired on in-transit channels and are requested to honor any in-transit channels which may have been so designated in local areas by the operators by means of their customary and general usage habits.

Those operators who feel the need to function in CB by establishing themselves as "Channel Monitors" should not expect to monitor or control distant stations which are being received at S-3 strength or lower. They should also be aware of the fact that even those local stations in their area may not wish to avail themselves of their services; all stations having free access to the channels may elect to bypass the monitor

should they wish to do so. Those who attempt to pass themselves off as "Channel Monitors" as a ploy to hog the channel for their own purposes should expect to be ignored by most stations. Those monitors who are successful are those with a good signal and good ears, who earn the respect of other operators by keeping their own transmissions as brief as possible, by giving up their own rights to hold conversations while acting as monitor. ALL transmissions from the monitoring station should consist solely of acknowledging breakers who wish to use the channel, and NOTHING more. During busy periods monitors should deny requests for 10-36's and radio checks on their channel.

Those seeking 10-36's should be encouraged and instructed in the art of telling time by means of wristwatch, clock, or broadcast radio station. Those whose primary interest in CB is chucking carriers and/or playing music are requested to consider the pleasures and benefits to be derived from finger painting and shock therapy, respectively.

Stations using power mikes should be cautious that their audio levels are set to a level which will not cause voice distortion, over modulation, or splashover on adjacent channels.

Single Sideband stations generally operate on Channels 16 and 18, although this may vary in specific areas. Stations using standard AM transmission are requested to avoid use of local Sideband channels, likewise Sidebanders are requested to confine their transmissions to those channels established locally for their use.

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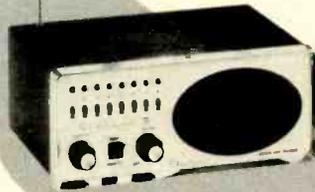
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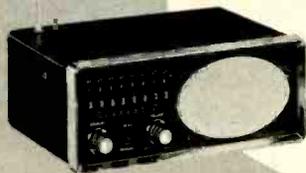
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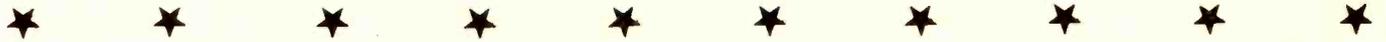
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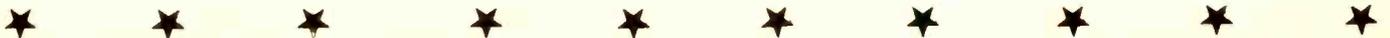


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# Bill Orr on Antennas

## PART 6: ANTENNA DOLLARS AND SENSE

**S**PRING is in the air. And with the warm, balmy weather, the thoughts of the enthusiastic CBer turn towards antennas. Anticipating these thoughts, in advertising agencies across the country, the best of the world's supply of account executives, copywriters, artists and layout men have spent a hard winter, drawing sketches, thinking up heady superlatives and planning comprehensive advertising campaigns. And before these artisans went to work, countless engineers had spent the previous summer and fall, designing and building test antennas and revamping old ones. This is all done, Sport Fans, because the way *you* spend *your* dollars on new CB antennas and gimmicks leads to the eventual rise and fall of well-known brands as well as obscure garage-shop operations who are competing for your money in the exploding CB marketplace.

The results of this meeting of forces is impressive and dollar for dollar, the CB antenna is the "best buy" in the communications industry because of the large market and the competition to meet it. Antenna types and designs have proliferated in the past few years, and a bewildering number of exotically-named antennas are temptingly at hand, ready to expand your communication range and flatten your pocket book.

You, the CB buyer, are faced with a barrage of advertising information, as well as non-facts and bamboozle. How to separate the facts from the fiction? A hard question to answer, and one that can leave the average CBers head spinning!

The barrage of advertising claims concerning CB antennas may be sorted out in a number of ways. A four-year college course in advanced communication engineering is a help. A number of good, fat books on antennas are available (1), and one can always resort to Taro cards. However, there's a middle course between these choices, known as *common sense*. Since all humans (including CBers) are more or less endowed with this blessing, it is possible to apply the laws of Mother Nature (liberally mixed with common sense) to all antennas and thereby separate their qualities so that they may be more easily understood. After that

is done, the problem of choosing an antenna and wading through the baloney in some antenna advertisements becomes a simpler task.

And that's the purpose of this column. Hopefully, it will provide simple guide-lines for you, the prospective antenna purchaser, which will help you get your dollar's worth in this complex, confusing and highly competitive market.

### THE HEART OF THE MATTER

Antennas are a controversial subject, to begin with, even among communication engineers. A heated argument can easily be started among experts over the relative merits of one antenna type over another, because the performance of any radio communication system is largely dependent upon the design and efficiency of the antenna. Making the most of the low-power limitation of the Citizens Radio Service requires that every watt of transmitter power be used efficiently and every passing signal be snatched from the air and fed to the ears of the eager listener. By careful selection and proper installation of the CB antenna, it is possible to overcome the limitations of CB radio to a great extent and utilize to the fullest the permitted power, hereby obtaining the optimum performance from your CB station.

### THE SEARCHLIGHT ANALOGY

If your CB rig is working OK, then only your antenna system remains as a means of extending the range of your station. Range boost can be obtained by reducing the power lost in the antenna system and by increasing the gain (signal boosting ability) of the antenna. Using a *gain antenna*, in effect, will make a few watts from the transmitter *sound like* many watts leaving the antenna, and will make a weak signal sound correspondingly louder and clearer on your receiver.

On the surface, it's not readily apparent how an antenna can boost gain, since it is only made up of metal pipes, or rods. The comparison often used to explain this puzzle is that of the common searchlight, whose feeble bulb is enhanced in brilliance by the *reflector* placed behind it (Figure 1). And so it is with a CB antenna, in a way. The antenna may consist simply of a single element or it may be much more complex, hav-

(1)-Bill is modest. His own handbook, "The Truth About CB Antennas" covers CB antennas from A to Z. Available from Radio Publications, Inc., Box 149, Wilton, Conn., 06897. \$4.95 plus 35¢ postage.



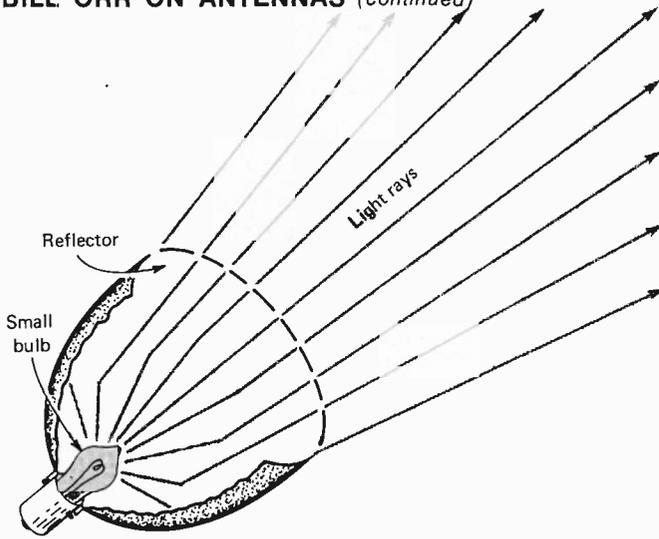


Figure 1—Radiation from a beam antenna may be compared to the action of a searchlight bulb whose feeble light is focused into a beam and enhanced by the presence of a reflector placed behind it. Light that would otherwise be radiated omnidirectionally is caught by the reflector and aimed in a single direction. Once the beam is formed, it may be further defined by placing lenses in the light path. The analogy can be extended to radio antennas, with the radiator playing the role of the bulb. Each beam element has a special function and contributes to the overall performance of the beam antenna. Microwave antennas, in fact, use parabolic reflectors that resemble that shown above.

ing a number of elements, some of which serve the purpose of the reflector in the searchlight.

Carrying the comparison a step further, other antenna elements may be compared to the lens (*director*) of a flashlight, which also concentrates light into a beam. The searchlight and the flashlight both enhance light in one direction at the expense of light emitted in unwanted directions. And to carry the comparison to a conclusion, a gain antenna can actually provide signal gain in a given direction and reject signals in unwanted directions. Or if desired, the antenna may be designed to provide gain in all horizontal directions at the expense of radiation at higher angles of elevation—the so-called *omnidirectional gain antenna*.

### THE FUNDAMENTAL ANTENNA

There has to be a starting point, or point of reference for antenna work, from which all measurements can be taken and assumptions made. This point of reference is a concept known as an *isotropic radiator*, which is an imaginary antenna that does not exist! This idea could be brushed aside as unimportant except for the fact that many manufacturers drag it into their antenna advertisements, and use it as a reference for their particular gain antenna.

It is a good idea, therefore, to give the isotropic radiator a quick glance. This interesting make-believe antenna is a device which radiates radio waves equally well in all directions. A pin-point of light illuminating the inside of a globe uniformly, from the center, is a good comparison to an isotropic radiator (Figure 2). No practical antenna can do this, as all antennas radiate more energy in one direction than in another, so the

isotropic antenna is merely a useful reference tool for the designer. It serves an important purpose, however, as its signal gain is *unity*, or one. Hence all practical antennas can be compared against the isotropic radiator in terms of gain performance.

You might ask, "How do you compare a real-life antenna against one that does not exist?" Well, the comparison between the dipole antenna and the isotropic radiator is well known and can be proven mathematically, so it is possible to compare a gain antenna against a dipole, and by indirection, against the isotropic radiator.

### THE GAIN ANTENNA

Antenna gain is caused by the interaction of the currents flowing in the various elements of the gain antenna. *Antenna gain is defined as the ratio of the signal strength in the given direction compared to the signal strength in the same direction produced by a reference antenna.* Because gain implies a concentration of energy, it also implies a restriction of the beamwidth. Thus antennas having high gain usually have narrow beamwidth, as shown in Figure 3.

Gain is expressed in units termed *decibels* and the advertisers are quick to "snow" you with claims extolling the decibel gain of a particular antenna. Originally, the decibel was a ratio, expressing the signal loss in a one mile loop of telephone wire as compared to the same circuit with the wire removed. Charts have been published explaining the decibel in terms of power gain, or loss, and the reader is welcome to them. Power gain in antennas, horsepower in autos, and EPA estimates of miles-per-gallon all seem to have rather elastic figures

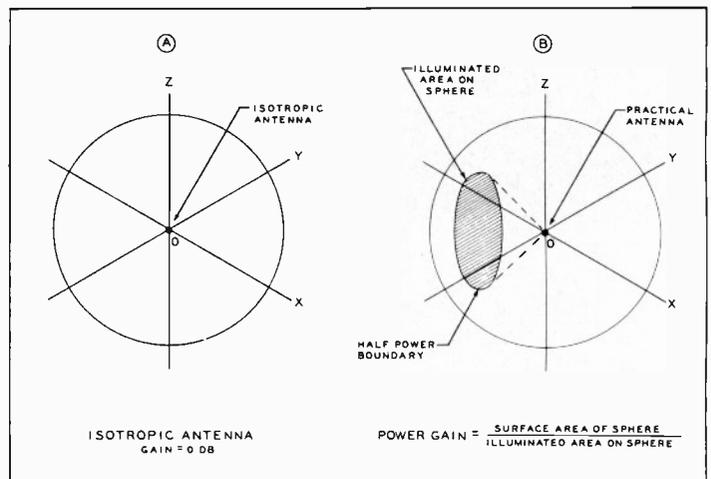


Figure 2—The isotropic antenna, which is the point of reference for antenna measurements, is an antenna which radiates equally well in all directions. A representation of an isotropic antenna could be a pin-point of light (O) placed at the exact center of a hollow globe (illustration A). The light will illuminate the inside of the globe uniformly.

Practical antennas tend to concentrate radiation in certain directions. This directivity can be controlled, or adjusted, to allow the construction of a beam antenna (illustration B). In this case, radiation in certain directions is suppressed and concentrated in other directions to illuminate a portion of the hollow sphere. The power gain of the antenna can be defined as the ratio of the interior surface area of the sphere to the illuminated area of the sphere. The illuminated area is contained within that boundary at which the radiated power is reduced by fifty per-cent. The boundary is described as the "half-power" boundary. (Drawing courtesy of Radio Publications, Inc.)

and the reader of this column is urged to adopt a relaxed view of the decibel, as manhandled by some antenna manufacturers.

In the case of CB antennas, it is much more con-

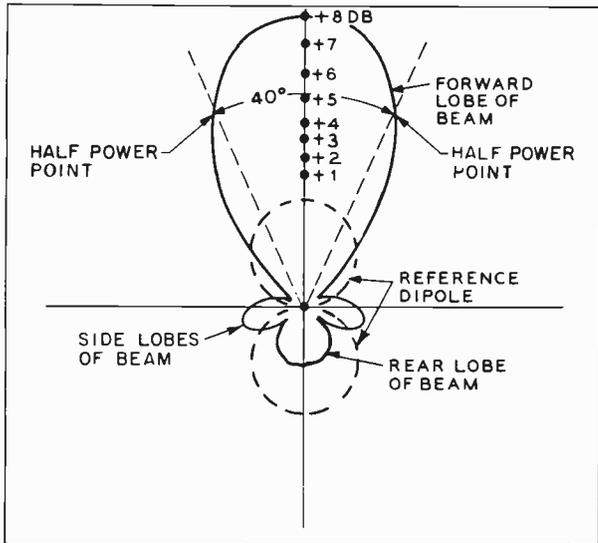


Figure 3— Antenna gain is the ratio of the maximum radiation in a given direction to the maximum radiation in the same direction produced by a reference antenna. In this case, the reference antenna is a dipole. The beam antenna provides a power gain of 8 decibels over the dipole in the favored direction. Beamwidth is measured at the "half-power" points, or at the points on the pattern the power gain is down 50%, or  $8-3 = 5$  decibels. At this point, the beam width is 40 degrees. Most beam antennas produce unwanted sidelobes and backlobes, as shown in the illustration. (Drawing courtesy of Radio Publications, Inc.)

venient and less confusing to recognize the decibel by five simple, down-to-earth Rules which summarize the situation better than complex definitions and formulas.

The Five Handy-Dandy Rules of Antenna Gain:

Rule #1—One decibel of antenna gain is just barely noticeable at the other end of a communication circuit as compared to antenna having unity gain.

Rule #2—Three decibels of antenna gain is noticeable and worthwhile.

Rule #3—Six decibels of antenna gain is very worthwhile and will make a good improvement in a communication circuit.

Rule #4—Nine decibels of antenna gain is outstanding and will make a poor communication circuit into a good one.

Rule #5—Twelve decibels of antenna gain? Jackpot! You are "channel king".

This unscientific summary of the mysterious decibel contains more than a grain of truth and many experienced CBers will quickly agree with the wisdom of this short-cut explanation. Of course, the picture becomes more complicated when there is interference on the channel (when isn't there?) but the concept of antenna gain and the comparisons expressed in the *Handy-Dandy Rules* still holds true. The Rules point out, moreover, that little advantage is gained by replacing one antenna with a second antenna having only one or two decibels power gain over the first, and that a goodly

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## BILL ORR ON ANTENNAS (continued)

power gain is required to make a worthwhile difference in either transmission or reception.

### ANOTHER LOOK AT THE DECIBEL

The famous decibel, beloved by antenna designers, is one-tenth part of a unit called the *Bel*, named in honor of the inventor of the telephone, Alexander Graham Bell.

When used with antennas, the decibel is abbreviated *dB* in general terms, or possibly *dBi* or *dBd* under certain circumstances. The *dBi* abbreviation refers to antenna gain expressed in reference to an isotropic antenna and *dBd* expresses antenna gain in reference to a dipole antenna. Thus the same amount of antenna gain can be expressed in terms of *dBi units* or *dBd units*. The difference between the two is the difference in gain between the dipole and the isotropic antenna, which amounts to 2.1 decibels. Thus, there are two reference points, and it doesn't take much imagination to observe that a bigger "gain number" can be obtained by comparing a certain antenna against an isotropic antenna than against a dipole. There's nothing wrong with this, and many antenna manufacturers claim that comparison against a dipole is more meaningful, but comparison against an isotropic radiator gives a larger, and more impressive gain figure. Some manufacturers play it straight and specify their gain figures in terms of both *dBi* and *dBd*. And I find that curiously refreshing.

## POWER GAIN—THE NAME OF THE GAME

There's a dazzling array of base station antennas that are gain antennas, and some of them are good ones. Power gain, for a mobile station, is a horse of a different color. As far as this writer is aware, no mobile gain antenna exists for CB radio, and if there is one, I'll be pleased to speak about it in these columns. The problem is one of physical size. Speaking generally, the power gain of any antenna is roughly proportional to antenna size. That is, big antennas have big gain, little antennas have little (or no) gain. Some radio hams, who build large gain antennas for extended range say that if the antenna doesn't come down in a storm, it isn't big enough!

Of course, the problem with gain antennas for vehicles is that they tend to be too big to comfortably mount on the vehicle. And so the mobile station is stuck with versions of the simple whip antenna.

### NEXT MONTH'S COLUMN

One of the most interesting, helpful and least-understood gadgets in the exciting world of CB is the so-called *SWR meter*. What is it? What does it do? Does it ever lie to you?

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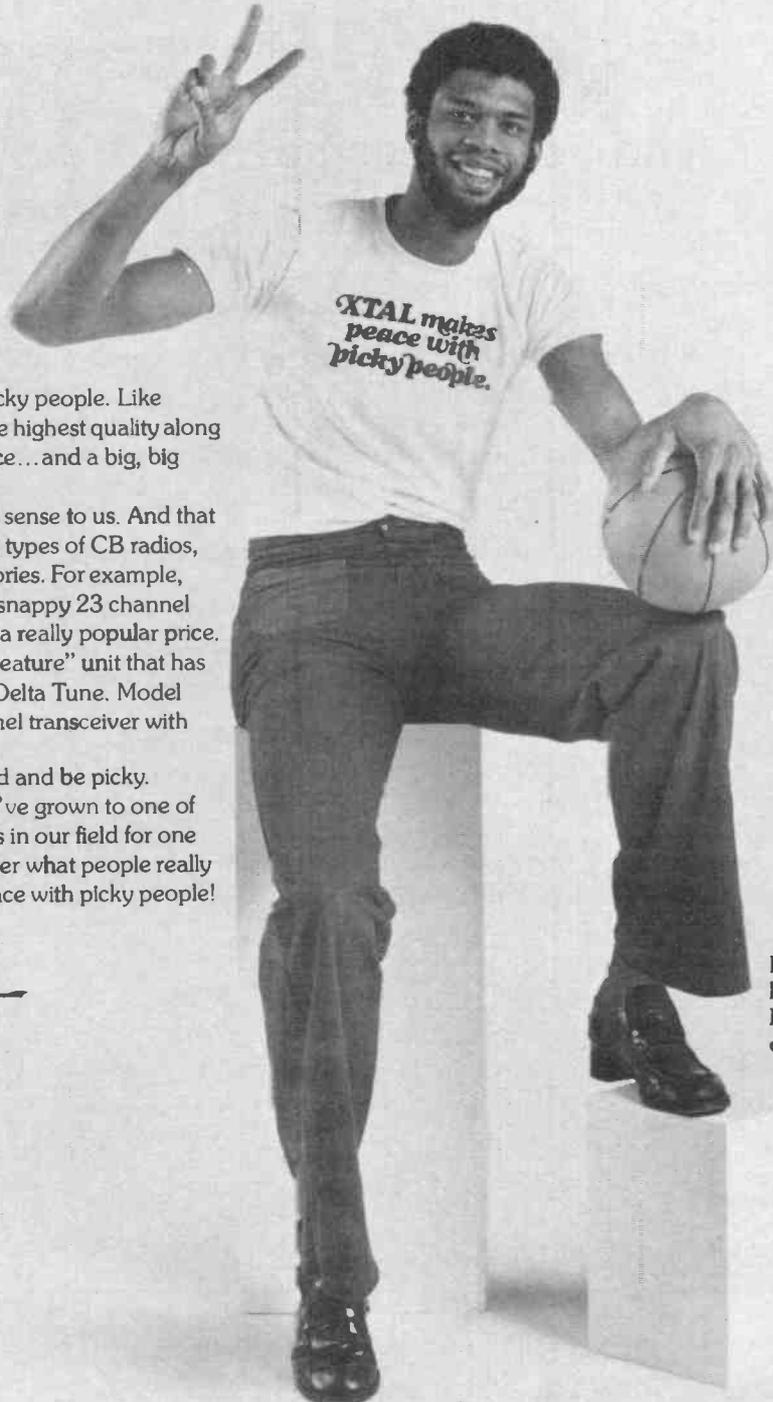
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So indulge yourself. S9 is the CB magazine that doesn't quit when it comes to giving Cbers all the scoop on what's happening out in the CB world. Do it now! Today!! Before you forget!!!! After all, spreading joy is what CB's all about, now, isn't it?

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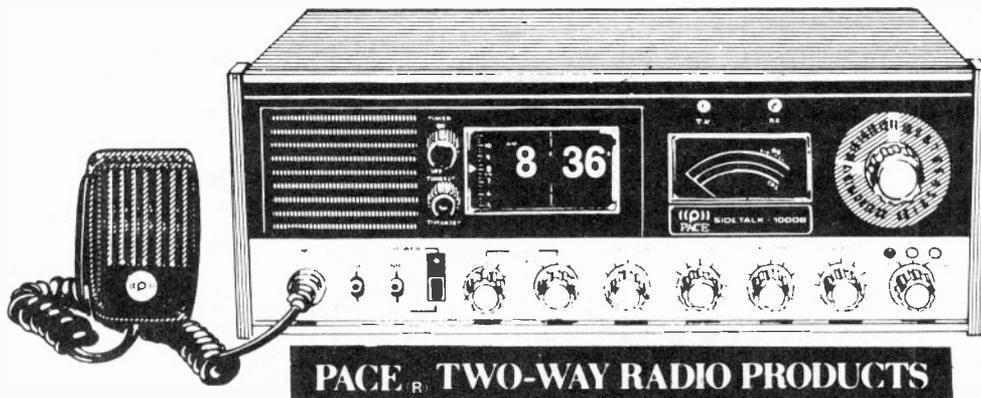
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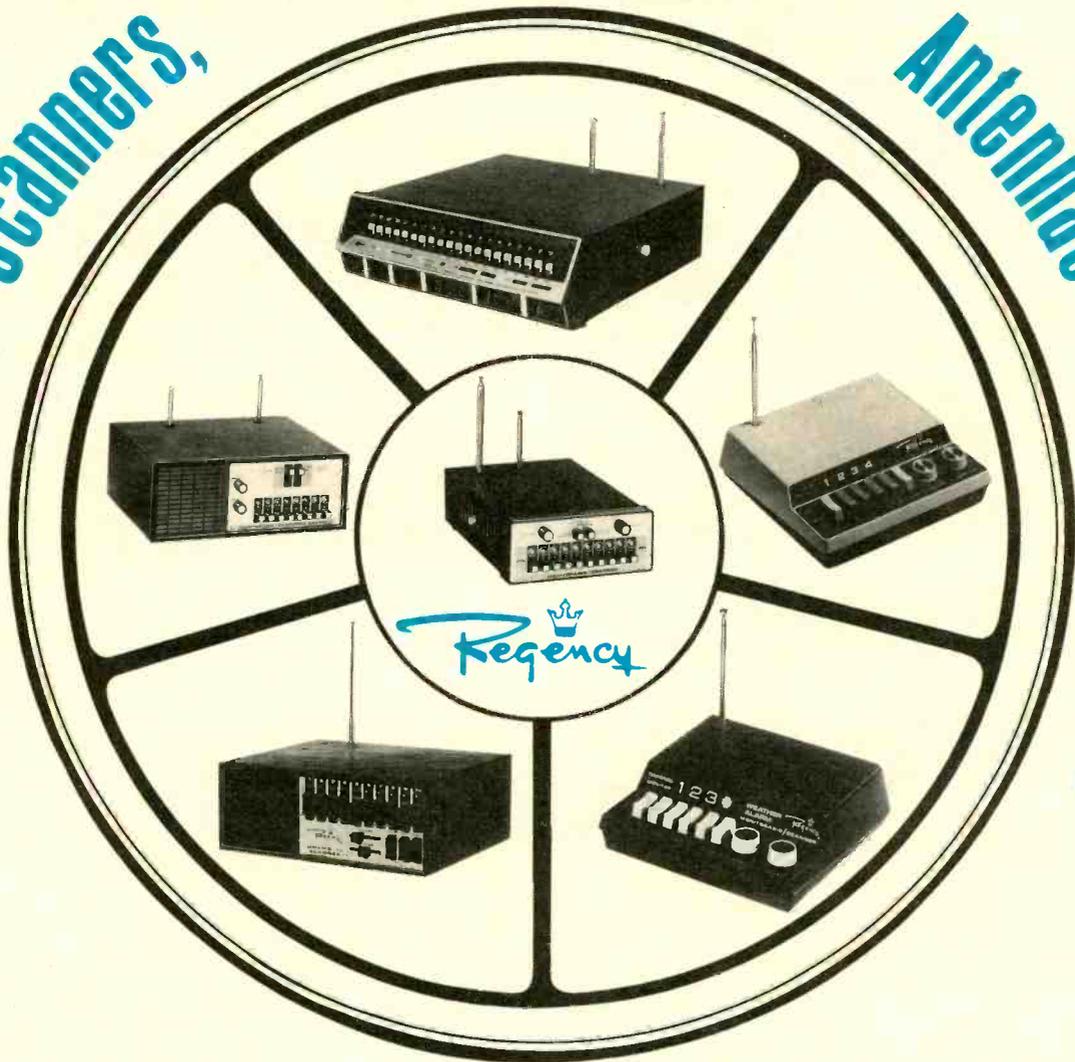
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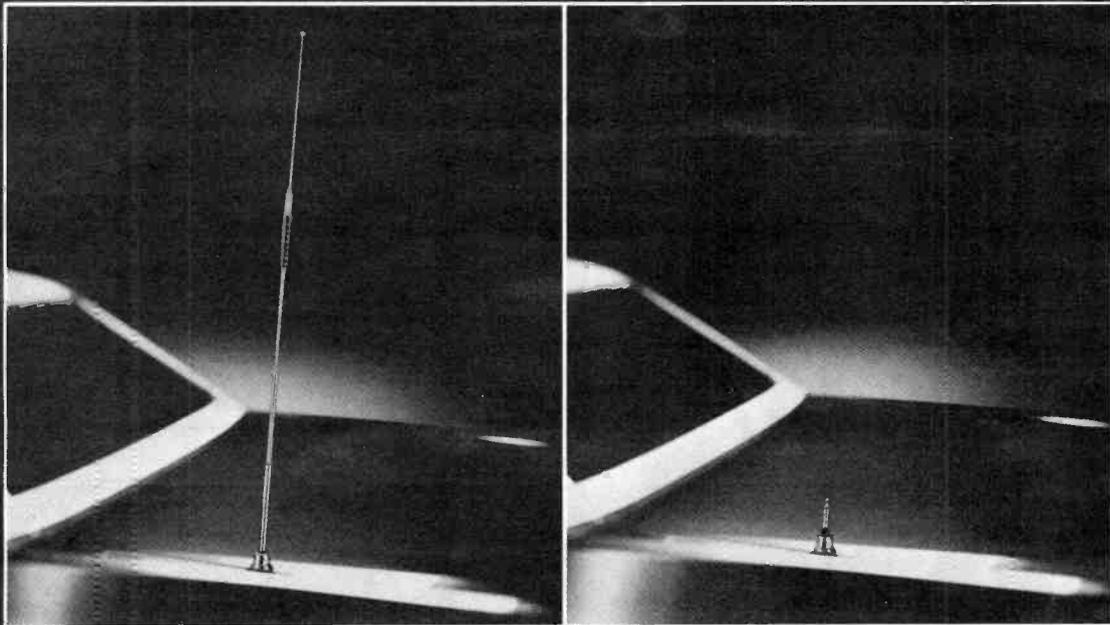


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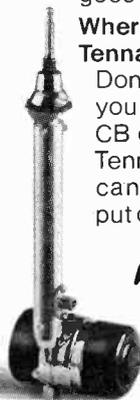
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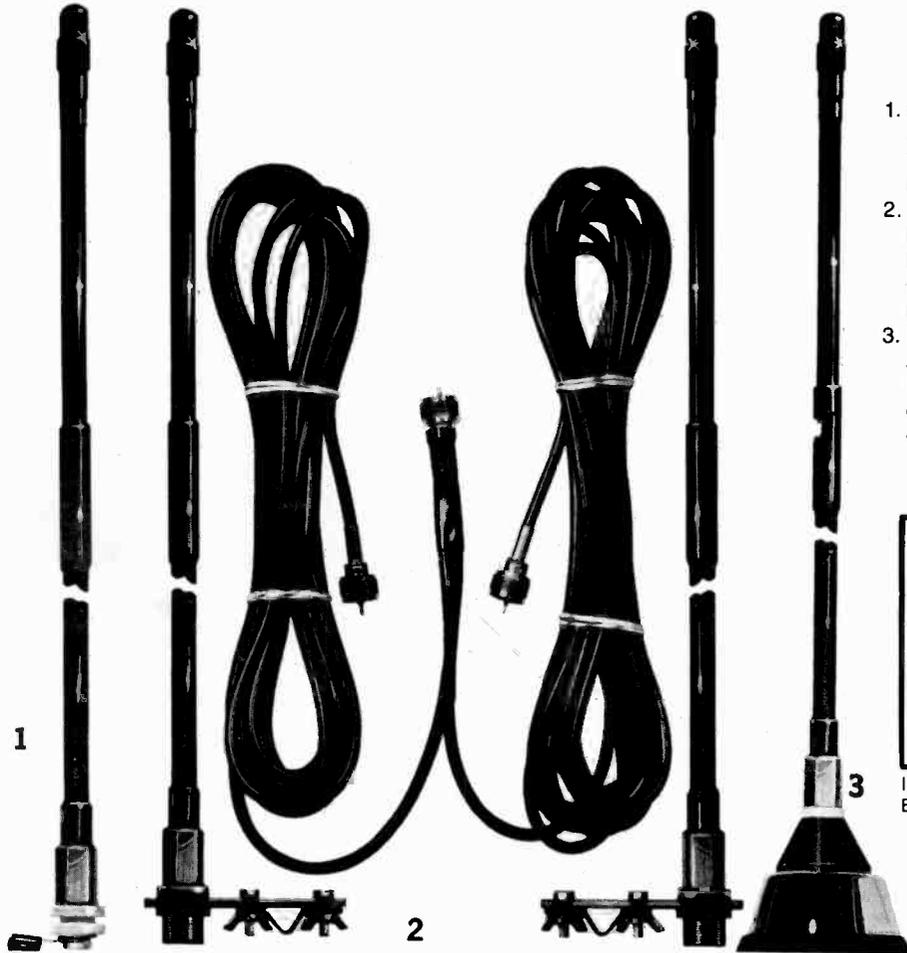


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## BLACK LANCER™ DOUBLE LOAD CB ANTENNAS



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2. Model ADT-10-8 Double Trucker features two heavy-duty antennas for installation on diesel, pickup, camper or van. 2000 watt power capacity. Packaged complete with heavy-duty chrome mirror mounts with wing nuts and SO-239 receptacles.
3. Model AFTL-10-4 Preassembled Truck-Lip Mount Antenna requires no installation holes. Features top loaded coil system for high efficiency. Packaged complete with mounting hardware and 17' of low loss cable.

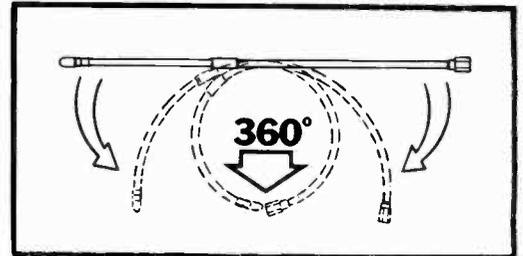


Illustration demonstrating the amazing durability of the Black Lancer™ Double Load Antenna.

### BLACK LANCER™ DOUBLE LOAD ANTENNA MODELS

New from ABLE, the **Black Lancer™ Double Load CB Antennas**. These Mobile CB Antennas deliver maximum performance from all 23 channel radios plus have the capability to handle all the new F.C.C. proposed channels.

Delivering more gain than conventional base load antennas, the **Black Lancer™ Double Load Antennas** are easily tuned with the pop-off and uncoil tips.

Constructed of rugged, mechanically stacked, protruder fiberglass, the **Black Lancer™ Double Load Antennas** are sheathed in special radiation impregnated, moisture-proof polyolifin for lasting durability.

See the all new line of preassembled, visual display packaged, **Black Lancer™ Double Load Antennas** along with the rest of of ABLE'S quality CB accessory items at your local CB dealer today.



**Able mfg.**  
**co. inc.™**

12820 So. 7th Street  
Grandview, Missouri 64030  
816-966-8484

## CB BUMPER STICKERS

Now CBers can tell the world that they are CBers and proud of the fact. The new S9 bumper stickers come in a variety of slogans with a choice of 3 different colors on each.

The bumper stickers are available in the following slogans:



All stickers available in red, orange or green. Price is \$1.00 each or 3 stickers for \$2.00. Add \$.25 on all orders for postage and handling. Dealers—we can accept large orders for resale. Write for dealer prices.

Send all orders to:

**S9** Bumper Sticker

14 Vanderventer Avenue  
Port Washington, NY 11050

## BASIC RADIO

(from page 83)

### Self Check Answers

- 1—T
- 2—21,600 $\Omega$ ; 32,400 $\Omega$
- 3—F
- 4—T
- 5—F, they are wirewound types.
- 6—49,000  $\pm$  5%
- 7—1.2 $\Omega$   $\pm$  5%, 1% reliability factor.
- 8—I = E/R = 35/27000 = 0.00129A or 1.29 mA.
- 9—E = IR = 0.2  $\times$  475 = 95V
- 10—R = E/I = 72/0.475 = 151.58 $\Omega$
- 11—F, For a given voltage I and R are inversely related.
- 12—W = EI = 500  $\times$  0.001 = 0.5W
- 13—5 watts for a 100% safety factor.
- 14—I =  $\sqrt{W/R}$  =  $\sqrt{0.5/50}$  =  $\sqrt{0.01}$  = 0.1A
- 15—1,200 mA
- 16—0.257A
- 17—52 $\mu$ A
- 18—F
- 19—T
- 20—F
- 21—50  $\times$  10 = 500
- 22—T
- 23—T
- 24—F—meter reads backwards and may be damaged.

... Use S9 READER SERVICE.

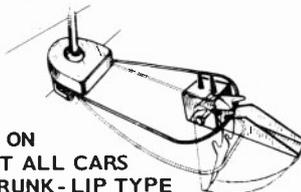
# INVEST \$4<sup>95</sup>

## SAVE \$150<sup>00</sup>

SOUND GOOD? IT'S TRUE,  
A \$495 INVESTMENT IN A



CAN SAVE YOUR MOBILE RADIO BY REMOVING ALL EXTERNAL SIGNS THAT YOUR CAR IS RADIO EQUIPPED, SO THE RADIO THIEF WON'T KNOW IT'S THERE.



WORKS ON ALMOST ALL CARS AND TRUNK-LIP TYPE ANTENNAS. THIS TERRIFIC INVESTMENT OPPORTUNITY AVAILABLE FROM ...

Scotty's Radio & TV, Inc.  
3615 South Main Street  
Blacksburg, Va. 24060

# Interference MANUAL

A while back S9 put out a dandy (and handy) manual about detecting and eliminating TV Interference, Power Line Interference, Mobile Noise. It was a smash success and we sold out the print run in short order—we thought! A recent inventory of our stock room disclosed that we still had one half of a precious carton of these books remaining. So, hop to it all you who have been bugging us about this book—here's your chance to snap up the few remaining copies of this publication, which has now become a rare classic! Pre-inflation prices, too. Only \$1, plus 25 cents postage—first come, first served, while they last!

**NOISE ELIMINATION MANUAL**  
c/o S9 Magazine  
14 Vanderventer Avenue  
Port Washington, NY 11050

# NO COD

## A New Ham License Is On The Way!

Yes, the FCC has proposed a new class of Ham License that will require *no* knowledge of the Morse Code! The frequencies and operating privileges are still up in the air, but there's no doubt that a new, easy-to-get Ham License is going to be here soon.

If you're interested in adding Ham Radio to your communicating skills, you should start *now* to learn what this Amateur (Ham) Radio stuff is all about.

And the easiest way to learn what it's all about is to read *CQ*, The Radio Amateur's Journal. *CQ* is published by the same people who bring you S9, and they've been publishing *CQ* for over 30 years. That makes *CQ* the oldest independently published Ham magazine in the USA...and the most widely read, too.

*CQ* will keep you up to date on all that's new in Ham Radio - the new equipment, the newest antennas, Slow Scan Television, DXing, Contests (*CQ* runs the biggest and best Contests in the Ham world), and much, much more. You won't want to miss a single issue.

### Subscribe today!

*CQ* The Radio Amateur's Journal  
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Port Washington, NY 110E

Yes, I want to start learning all I can about Ham Radio! Please enter my subscription to *CQ* today.

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CITY.....

STATE.....ZIP.....

# Pacer CB antennas. We just made our complete line more complete.

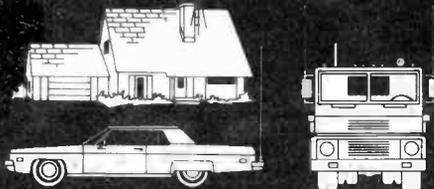
## Introducing the AntennaMent\*

A new portable, powerful compact, 4dB gain omni-directional CB base station antenna especially designed for the apartment or condominium CB'er.

Here's a new kind of antenna that not only gives you vertical and horizontal polarization but introduces a whole new concept of freedom and mobility. And like all Pacer antennas it's feature loaded; fiberglass construction, "finger-tip" tuning, top coil loaded and full 4dB gain. The AntennaMent is only 64" high and lightweight enough to take anywhere, indoors or outdoors.

## The Pacer Line

Pacer has a CB antenna for everyone.



Automobile, truck, tractor, boat, RV camper, home and apartment. Each is designed to perform to a specific need. We don't just make cosmetic changes.

## Why Pacer

All Pacer CB antennas are manufactured in the U.S. under strict quality and testing controls. Every antenna is tested before it leaves the factory. And all antennas are made of military grade fiberglass and coaxial cable. Non-corrosive, stylized hardware, easy to follow instructions and all necessary special tools are included.



## You Must Be Interested

For the name of your nearest Pacer dealer or distributor call or write:  
Progress, Inc., 3321 N.W. 79th Avenue,  
Miami, Florida 33122, (305) 592-8242.

 **Pacer**

FCC FORM 555-B  
April 1976

# Temporary Permit

## Class D Citizens Radio Station

# 1

### Instructions

- Use this form only if you want a temporary permit while your regular application, FCC Form 505, is being processed by the FCC.
- Do not use this form if you already have a Class D license.
- Do not use this form when renewing your Class D license.

# 2

### Certification

Read, Fill In  
Blanks, and Sign

#### I Hereby Certify:

- I am at least 18 years of age.
- I am not a representative of a foreign government.
- I have applied for a Class D Citizens Radio Station License by mailing a completed Form 505 and \$4.00 filing fee to the Federal Communications Commission, Box 1010, Gettysburg, PA. 17325.
- I have not been denied a license or had my license revoked by the FCC.
- I am not the subject of any other legal action concerning the operation of a radio station.

Name

Signature

Address

Date Form 505 mailed to FCC

If you cannot certify to the above, you are not eligible for a temporary permit.  
Willful false statements void this permit and are punishable by fine and/or imprisonment.

# 3

### Temporary Call Sign

- Complete the blocks as indicated.

Use this temporary call sign until given a call sign by the Federal Communications Commission.

<b>K</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	↑	↑	↑				
	Initial of Applicant's First Name	Initial of Applicant's Last Name	Applicant's Zip Code				

# 4

### Limitations

Your authority under this permit is subject to all applicable laws, treaties and regulations and is subject to the right of use or control by the Government of the United States.

This permit is valid for 60 days from the date the Form 505 is mailed to the FCC.

You must have a temporary permit or a license from the FCC to operate your Citizens Band radio transmitter.

**Do Not Mail** this form, it is your Temporary Permit.

See the reverse side of this form for a summary of operating instructions.



# Using Your Citizens Radio Station

(See Part 95 of FCC Rules & Regulations for complete instructions on authorized station use.)

## Welcome to the Citizens Radio Service

Citizens Band Radio is a shared communications service with many people using the same frequencies and channels.

The guidelines provided in this form are not intended as a substitute for FCC Rules, but as a general reference to those operating practices and procedures which will benefit you and other users of Citizens Radio.

Your compliance with these guidelines and your consideration for the rights of others in your radio service is necessary if the full potential and enjoyment of Citizens Radio is to be realized.

**1**

## Who May Operate Your Citizens Radio Station?

You, members of your immediate family living with you, and your employees while on the job.

**2**

## How Many Transmitters Does this Permit Authorize?

A maximum of five (5).

**3**

## Can the FCC Inspect My Station?

Your station and station records must be available for inspection by an authorized agent of the FCC.

**4**

## Where Should I Keep This Permit?

Keep it in a safe place. Post photocopies at all fixed station locations. Indicate on photocopies the location of this permit. Attach a card with your name, address and temporary call sign to each transmitter.

**5**

## How Shall I Identify My Station?

Identify transmissions in English with your temporary call sign.

**6**

## How Can I Use My Station?

Use it for private short-distance radio-communications for your personal or business activities. Channel 9 is reserved solely for emergency communications and to assist motorists.

### Prohibited Communications Include:

- Activities contrary to law
- Transmitting obscene, indecent or profane messages
- Communicating with non-Class D stations
- Intentional interference to other radio stations
- Transmitting for amusement, entertainment, or over a public address system
- Transmitting false distress messages
- Advertising, selling, or for hire

**7**

## How High Can My Fixed Station Antenna Be?

See Section 95.37 if your antenna will be over 20 feet above ground. Additional information is available in SS Bulletin 1001-h.

**8**

## May Amplifiers Be Used With My Transmitter?

'Linear' amplifiers are absolutely prohibited. 'Power' microphones may require adjustments to your transmitter.

**9**

## Who Can Make Adjustments to My Transmitters?

Adjustments affecting proper operation may be made only by, or under the supervision of a licensed first or second-class radio operator.

# THIS YEAR OVER 4 MILLION PEOPLE WILL BUY CB. FULCOMM GIVES YOU WHAT THEY WANT.

## FULCOMM 23-CHANNEL TRANSCEIVERS



Model 2302

Model 2301

Two ways to sell the \$150 range customer. The 2302 with illuminated power meter, squelch and PA. Or the 2301 with additional delta tune and automatic noise limiter. Both warranted and FCC type accepted.

## FULCOMM ACCESSORIES

Take your pick of two compact external speakers, a weatherproof PA speaker horn, universal anti-theft bracket, base station regulated power supply and a 23-channel CB converter.



Fulcomm is a brand of Arthur Fulmer, maker of fine automotive products since 1919. Serving you with 16 branches nationwide.

## FULCOMM SINGLE SIDEBAND TRANSCEIVER



Model 2303

Sells for under \$350 and features noise blanker, noise limiter, RF attenuator, fine tune and quick-release thumbscrew mounting. Warranted and FCC type accepted.

## FULCOMM MOBILE ANTENNAS

A full line of antennas with permanent, clamp-on or magnetic mounts for any position on any vehicle. Non-warp loading coils and "memory" stainless steel whips deliver optimum performance and long life.

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Rush me more info about  Fulcomm CB line  
 Car stereo program

Name \_\_\_\_\_

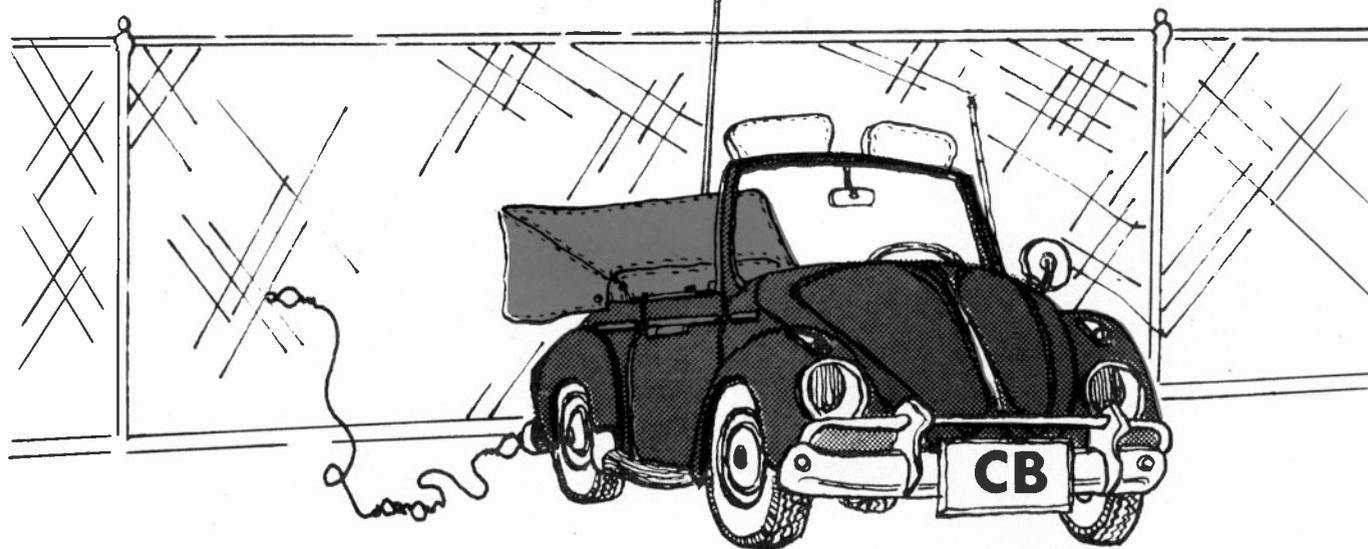
Store \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

# The Great Brooklyn-Bronx DX Festival



## SOUPING UP YOUR MOBILE OUTPUT—LEGALLY

"**C**OLD winter roads and highways are no place for a CB'er and his faithful VW—especially when the temperature drops to below freezing," said Frank as he nosed his buggy into the supermarket parking lot. Today is the big day, for Frank plans to bombard his brother in the Bronx (16 miles away over hoppy Brooklyn-Queen's skyline from southwest Brooklyn. And *bombard* is the word for Frank wants a "20 over S-9" report while putting out a legal "5-watts" signal: New York CB'ers will tell you this is no easy trick.

The parking lot is a good spot because it is wide open on Sundays and it's located right behind Charlie's garage. And Charlie offered his 100-foot extension cord to supply the 115-volt a.c. power. Through a hole in the fence, the line connected the a.c. outlet near Charlie's car lift to Frank's CB set in the VW. Charlie was not being kind—he was being practical. The last time Frank operated "mobile" from a parking lot, Charlie had to push the VW to get it started. You can't do much with 6 volts from your car battery when its rated at 12 volts.

Frank hummed "Frere Jacques" as he began to set up the test site. First he turned on the rig and made a local contact to his base in order to check his signal. Next, Frank connected his SWR meter and homebrew S-9 r.f. power meter into the coax antenna line. A bit of tuning was required to bring the soup up to snuff.

Now Frank pulled out a tape measure and marked off with chalk a distance approximately one half-wave length from the parking lot's hurricane fence—a 12 foot high wire and steel post fence that ran the length of the parking lot. "Man-o-man, what a reflecting plane," Frank said aloud as he backed the VW over the chalk mark. Frank's whip was now mounted on the VW's rear bumper roof, so he had to get out of the *bug* and push it to the exact spot which was now under the car.

Frank tuned in channel 14 to listen in on a cab company up in the Bronx. They were coming in loud and clear. Frank jockeyed the VW back and forth with an eye on the S-meter. He was adjusting the distance between the whip and the fence reflector for best signal results, and humming "Frere Jacques" so loud that he did not hear his landlord and arch-enemy, Robert Ubermyer, walk up from behind.

"Trying to contact our Canadian friends, Francis or are you going to bounce one off the moon?"

Frank stood up quickly in the VW only to bang his head on the windshield. "Uh, hello Mr. Ubermyer."

"Drop that Mr. Ubermyer stuff, Francis. I got my CB ticket this past week. Just call me *Sir* now." It was amazing how Ubermyer could talk and sneer so hard at the same time.

Frank suddenly felt chilled, but went ahead with

his pre-arranged contact on channel 20. Reception was top notch but he only received a "10 over S-9" report. From the two-way conversation, Ubermyer gathered what Frank was up to and his eyes sparkled with the jibes he was preparing in his mind. Frank was thinking fast and muttered, "20 over S-9, or bust!"

Then like a bolt from the blue with that old spirit of "never say die," Frank's mind jumped into high gear. "Why not give it a try?" he shouted as he hopped out of the car. Up went the hood of the VW and out came a pair of battery jumper cables. Frank connected the cables end-to-end, and then connected one end to the bumper and the other end to the wire fence. Now the VW was grounded to the earth and reflecting plane.

Wham! The Bronx station reported back with a pinned S-meter which was worth 50 over S-9 with more to spare. Even ol' Ubermyer grinned at this world shattering CB achievement, but the grin on his face became bigger as he said to Frank, "Good job Francis, but I just know you're going to louse it all up before the day is over."

Frank signed out and thought about what the grinning Ubermyer said. He prepared to leave, first being sure to disconnect Charlie's line cord and pushing it through the fence. Next he disconnected the cable between the fence and the bumper, and was all set leave knowing that he would not be towing Charlie's Lubritorium or a hunk of wire fence behind him. In fact, after doing such a masterful job, he decided to offer Ubermyer a lift home. Ubermyer accepted only after making remarks about the VW's ancestry and Frank's cephalic index.

Ubermyer kept chuckling. You're going to goof, Francis, you're going to goof." Frank became angry and bit his lips. In this minor state of shock he decided that the least he could do was scare the wits out of Ubermyer.

Frank took a hard turn into the basement garage under the apartment house they lived in. Ubermyer lurched to the right hard, then was raised out of his seat as the VW dropped down the ramp into the dark garage. Frank didn't get a chance to smile because . . . *BOOM . . . BanG . . . CRash . . . BOom . . . boom . . . spLINTER . . . CRash!*

The tires screeched the VW to a halt as the blood drained from Frank's face. Not so with Ubermyer whose flushed features would be the envy of every American Indian.

"Great work, Francis!" Ubermyer roared. That whip on the rear of this lady bug you call a car just knifed through a dozen of my new 4-foot fluorescent lamp. I'll send you a bill first thing Monday morning. Of course I'll deduct the 35 cents bus fare you saved me." And off he stamped.

After Ubermyer left, Frank sat in the dim garage a few minutes and then sighed, "50 over S-9, It was worth it."

## EMBLEMS

## EMBLEMS



Beautiful, washable swiss embroidered emblems custom made to your design. Send your design today for a firm quote. Any number from ten to thousands. Ideal identifiers for clubs, organizations or events. Write now for free booklet with design hints and ordering information. Your satisfaction guaranteed. A. T. Patch Co., 334 Bethlem Rd., Littleton, NH 03561.

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the



STAFFERS

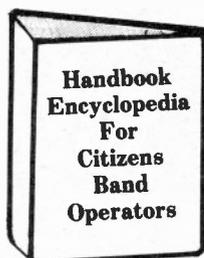
"ON THE CHANNELS?"

NAME	HANDLE	PRIMARY CHANNELS
Tom Kneitel	Tomcat SSB13, CLI-73, KW4405	12, 15, 19 16L, 18H
Karen Fusco	One Duster LIS813	13 16L, 18H
Lori Ressa	Loreli	12, 19
Marc Gilman	Deacon KW339	12 16
Cary Cowan	C. C. Rider	11, 12, 19
Hal Keith	Flasher	12
Richard Cowan	Trainman	13, 16, 19

HOW 'BOUT IT?  
GIVE US A SHOUT!

# The Official HANDBOOK ENCYCLOPEDIA FOR CITIZENS BAND OPERATORS<sup>©</sup>

The most attractive and complete Book of its' kind!



**PLUS!**  
Two handy pockets for your QSL Cards, and we'll start you off by sending you our own personal QSL card with your order.

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We will engrave your handle and call letters on a silver plate which can be placed on or inside your book or even on your radio!

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- Phoenetic Alphabet Code
- 2400 Hour Time
- AM Channel Frequencies
- Maritime Frequencies
- Sattelite Frequencies
- List of Nation Wide Trucketts Channels
- Record Log to help you keep track of all your new and old CB friends.
- Newest revisions of part 95

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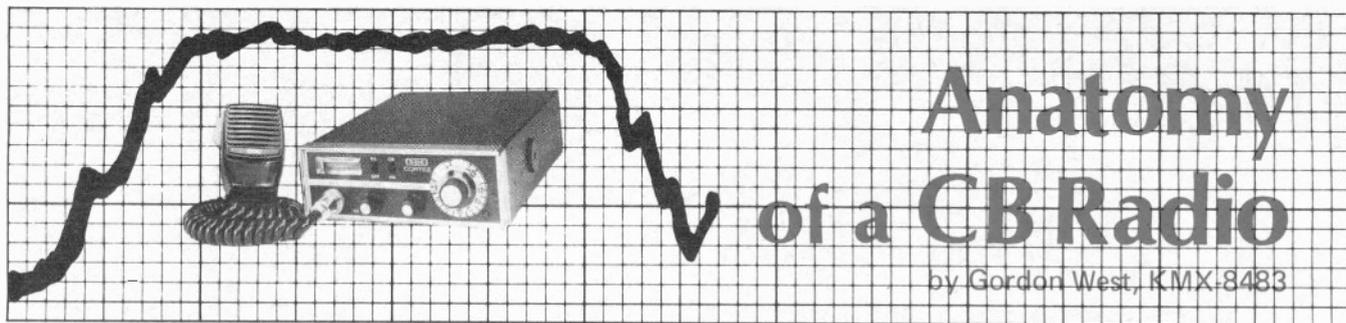
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And wouldn't you expect the best value in a CB trade publication to come from Cowan Publishing? After all, our **CB RADIO/S9** is the largest and best CB consumer book in the field!

**End of message . . . . .**



## PART 6 : SINGLE SIDEBAND

**W**HEN was the last time you dialed Channel 16? I bet the majority of you had some pretty unintelligible conversations, didn't you? For those of you who have not experienced these unique transmissions, tune in right now on Channel 16 with your AM CB set and hear sounds that you never heard before!

In a recent survey, it was reported that only 19% of all Citizens Band enthusiasts are utilizing single sideband, and the remaining 81% are using conventional AM, commonly called double sideband. Looking at this imbalance, let's briefly talk about some of the technicalities of operating single sideband equipment, some of the advantages of operating single sideband and explore the reasons for such a minimal number of single sideband users on the CB airways today.

In order to fully understand single sideband transmissions, we first must explore and understand the more common double sideband transmissions which 81% of the CB operators are using today. You know those transmissions that you receive clearly on conventional AM CB sets on all CB channels except for channel 16. As an example of double sideband, let's say we are broadcasting precisely at 27.000 MHz. Our basic voice frequency is about 1000 cycles. When we modulate the CB transceiver, two sidebands are formed, an upper sideband and a lower sideband. The upper sideband is 1000 Hz above the carrier frequency at 27.000 MHz, and the lower sideband is exactly 1000 Hz below our carrier frequency on 27.000 MHz. If we were to look down on this type of transmission, we would see our CB carrier at 27.000 MHz, and the lower sideband extending down to 26.999 MHz and the upper sideband extending up to 27.001 MHz. Actually, each sideband is a mirror image of itself—what takes place above the carrier frequency is going on in the exact same manner below the carrier frequency—hence the term double sideband.

Double sideband, or AM as 81% of

most CB transmitters are, is extremely inefficient. As an example, let's say we are operating a medium size CB transceiver that is putting out 3 watts of power which you measure on your external wattmeter into a dummy load. Although your wattmeter indicates that you have 3 watts, it doesn't tell you exactly where the 3 watts are. Two watts are in the carrier centered at 27.000 MHz, one-half watt is in the lower sideband, and the other half is in the upper sideband. At first you may think that this is alright, but remember, it's the sideband that carries the voice intelligibility of your transmissions, not the carrier. In other words, you only have 1 watt of voice with 2 watts being wasted in the carrier. Now, if you are into jamming, when no voice is ever used, this might be fine for you, but those of us who will be operating legally need as much "talk power" as possible; and using a double sideband piece of equipment is not the most efficient way to get that "talk power". With 3 watts output, just 2/3 of it is lost in the carrier, with only 1 watt of output actually in the voice components of your signal. To make matters worse, since both sidebands are mirror images of each other, you really only need one sideband to carry the message across.

That's right, you guessed it, this is why single sideband was developed; with all of the transceiver power output going into the voice component of the signal. If we were to remove the power consuming carrier, and selec-

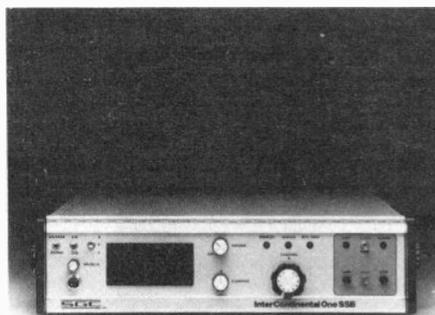
tively remove one sideband, all of the energy could then be used in the remaining single sideband signal; giving a greater talk power. That is what happens inside, technically, on a single sideband piece of equipment.

The oscillator stage produces a low level double sideband signal with a carrier on the frequency of 27.000 MHz. This signal is then fed into a balanced modulator that suppresses the actual carrier frequency. The balanced modulator is driven by the voice amplifier stage which is connected to your microphone. As you talk, the balanced modulator will cancel out the actual signal carrier, and will produce only two sidebands; one extending down to 26.999 MHz and one extending up to 27.001 MHz if modulated by a 1000 Hz tone. Both sidebands are then fed into a sideband filter and the unwanted sideband, either the upper or the lower, is cancelled out. There are several methods of cancelling out the unwanted sideband, but we won't go into great detail about how this is accomplished, since we are basically concerned with a single sideband signal. That is what you have after it passes through the sideband filter network. This signal is then amplified to a high level by your power amplifier stage and then is radiated by the antenna system.

CB transceivers have the capability of selecting either the upper or the lower sideband, as well as the majority of transceivers have the capability of injecting a carrier, and adding the other sideband—and when they are switched into that mode with two sidebands and a carrier, they are compatible with the other 81% of AM transceivers. Obviously, a CB transceiver which can broadcast on both single and conventional double sideband is much more versatile than a unit that only operates on single sideband.

I'll bet you're asking now, "But why are we going to single sideband?". Here are some of the more obvious advantages of operating on single sideband.

1. The efficiency of your transceiver



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# CB TIMES

MAGAZINE



(Photo courtesy Lafayette Radio Electronics, Inc.)

CB TIMES is unique in that it will be written almost entirely by YOU, our readers. An example of this will be an illustrated adventure describing an exciting or heroic incident. This adventure series will be based on actual fact and will be chosen from stories that are submitted by our readers. There is also a complete CBer's dictionary and the complete FCC Part 95 Rules and Regulations. A special regular feature will be "CB Tunes", where we will print the complete words to the Number 1 best-selling CB song in the country, plus an article on the artist. Other regular monthly features will include: "Ear-toons", FCC Updates and News, Contests, Interviews with celebrity CBers, and much, much more.

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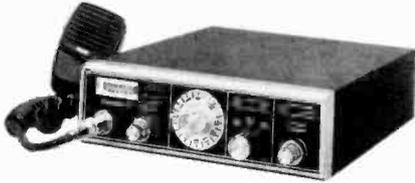
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## ANATOMY OF A CB RADIO (cont'd)

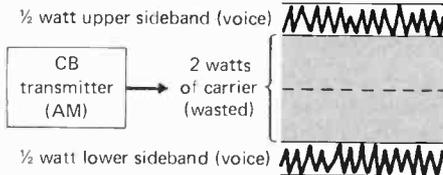
in the single sideband mode is far superior to the conventional double sideband transceiver because all of the power output is concentrated in one sideband which carries the intelligibility, rather than having 2/3 of the power wasted in the carrier that contains no voice "talk power". The power output in a single sideband signal is where you want it—in the voice component.

2. With this in mind, it means that your power consumption is minimal when you are not actually modulating



your transceiver. Most double sideband sets pull about 1.5 to 2 amps when transmitting, and they draw a bit more when you actually modulate the set. On single sideband transceivers, there is minimal power consumption; much less than ¼ amp, when you are not speaking and it is only when you modulate that additional current is consumed. You may be assured that the current consumed is placed in the voice signal where you want it, not wasted in one useless sideband and the carrier.

3. Half of the spectrum space that a normal double sideband signal occupies



would be used when operating single sideband, so one could actually operate on channel 16, upper sideband, and an alternate pair of stations are operating on channel 16 lower sideband yielding twice as many channels. Some claims of "69 channel operation" are based on the fact that 23 channels could be operated on lower sideband 23 channels on upper sideband and 23 channels double sideband—hence 69 channel operation available with equipment that utilizes single sideband transmissions.

4. Fading of the signal is less apparent when receiving single sideband transmissions than double sideband. Conventional AM signals many times will become distorted as their two sidebands and carrier fade in and out; but

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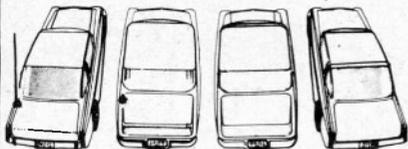


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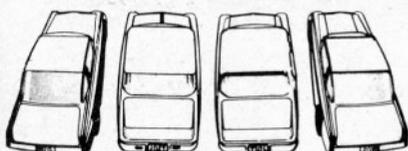
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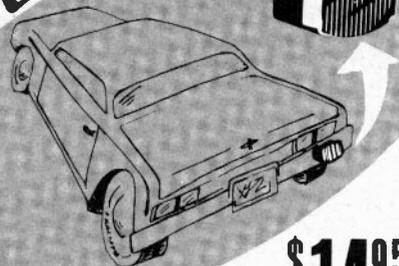
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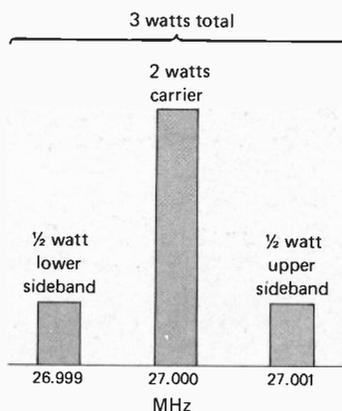


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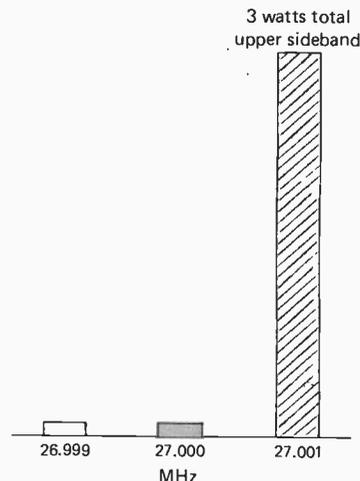
## ANATOMY OF A CB RADIO (cont'd)

single sideband signals consistently will not fade due to the characteristic of their mode yielding clear reception.

DOUBLE SIDEBAND (AM)



SINGLE SIDEBAND (UPPER)



5. Single sideband receivers are only listening to half the channel, so the ambient noise level of the receiver is cut in half if not reduced even further.

6. The actual duty cycle of the transmitter of a single sideband piece of equipment is significantly less because it only has to "work" hard when you speak and the transmitter is in the resting stage in between each spoken word. Remember, the only time power is transmitted when using single sideband is when you speak into the microphone. Even though you may have the microphone depressed without any voice coming over the mike, there is no power output because there is no carrier. This lets the transmitter "relax" and cool off significantly during voice peaks. Amateur radio operators using power amplifiers find that they run extremely cool when utilizing single sideband as compared to those power amplifiers (linears) that run hot on double sideband each time the mike is keyed.

7. Since single sideband equipment is more complex and costly than double sideband equipment, operators will gen-

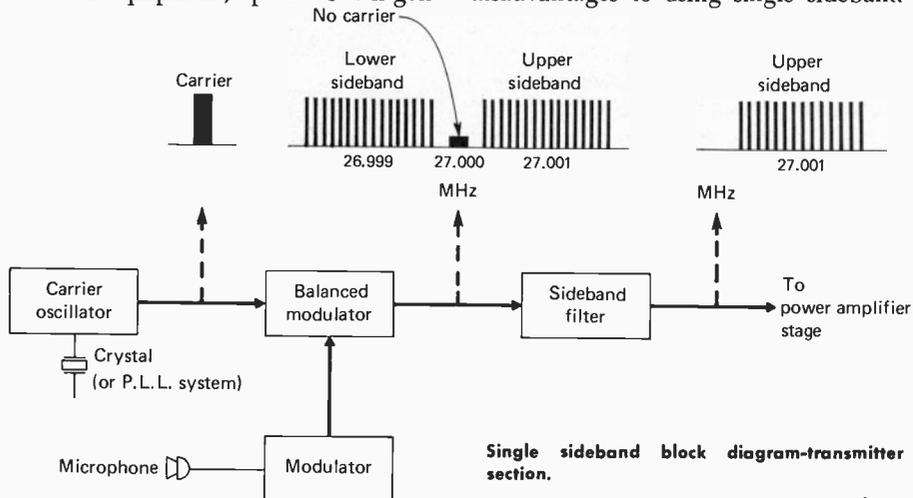
erally find a greater sophistication of the actual transceiver. In other words, if manufacturers are going to build a single sideband transceiver, they're go-

ing to do it right and will not produce "cheap" transceivers that have poor receiver sections. Because of the nature of single sideband technology, the receivers must first be first-rate in order to serve the user well on single sideband.

8. Although I mentioned it before, I would again like to state the drastic reduction in background noise when switched to the upper or lower sideband mode. If there are no signals on channel 16, it's possible to turn the volume all the way full and hear almost no background noise until a signal appears. This is due to the sharp selectivity of the receiver getting only half the normal bandwidth and the fact that single sideband receivers are more inherently quiet than conventional double sideband sets.

9. Very seldom will adjacent channel interference or intermodulation present itself in single sideband receivers since these receivers are designed around exacting criteria and are exceptionally "sharp" in their selectivity.

OK, you say, there have to be some disadvantages to using single sideband



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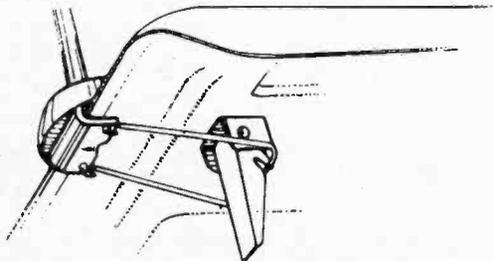
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Connectors vary widely. Solder-on types are the most common, yet they require a lot of heat which can partially melt the inner insulation, and distort the shape of the cable. In addition, you can't tell how much of the braid has actually been soldered through the four tiny holes in the fitting. SouthCom uses AMP, Inc. air-cripped connectors, which require no heat, and assure a solid bond to all of the braid. Because of the inner construction of the connector, it is almost impossible for a SouthCom cable to short.

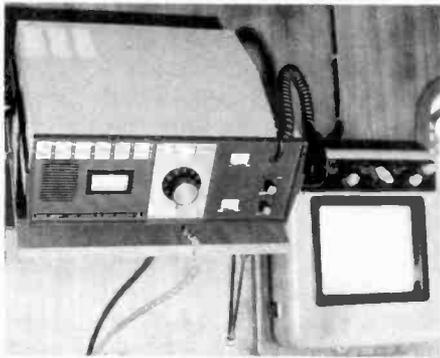
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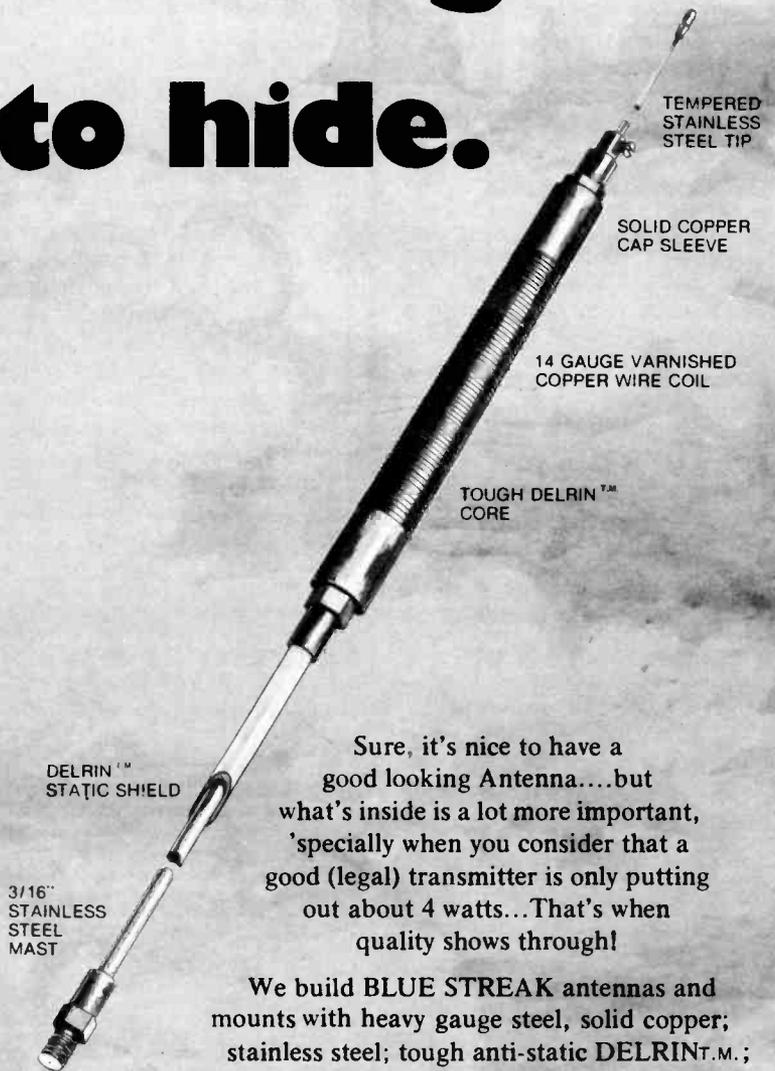
pieces of equipment—and what are they?

1. Equipment is almost twice as expensive as conventional AM CB transceivers. However, you will be comforted to know that although the actual transceiver is more expensive, any other accessory that you might want to add will work just as well for an AM transceiver as it will for a single sideband transceiver, such as pre-amp mikes, antennas, power supplies and other accessory items.

2. The actual operation requirements of single sideband equipment are greater than conventional sideband equipment. When you switch to a single sideband mode, either upper or lower sideband, which is one more step than normal, you will find that it will be necessary to "tune in" the single sideband station with a clarifier control. This is actually a fine-tuning adjustment that clears the incoming voice and makes it intelligible. Since only a few cycles may mean the difference in intelligibility or like Donald Duck, it will be necessary to tune the control for each new single sideband station received; unless for some reason, they happen to be smack dab on the precise frequency down to one cycle. Also, it may be necessary to turn up or turn down the RF gain control since strong single sideband signals will many times "swamp" the receiver and weak single sideband signals will need to be turned up with the RF gain control. Other than these two controls, the CB transceiver will operate almost precisely like a double sideband transceiver.

A very interesting phenomenon occurs on single sideband, and that is of multiple conversations being received clearly. Imagine yourself sitting around the dinner table with 5 couples all engaged in separate conversations. If you concentrate, you can actually tune in to each conversation mentally blocking out the other four that are simultaneously taking place. With single sideband transceivers, it's possible to utilize al-

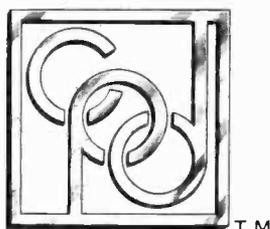
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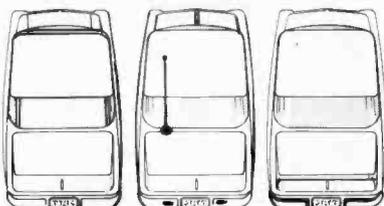
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## ANATOMY OF A CB RADIO (cont'd)

most the same precise frequency for several conversations, and the more experienced single sideband operator can actually "tune in" to the signal that is directed to him. Unlike double sideband AM equipment, when more than one signal comes on the air, it produces an annoying heterodyne tone. On single sideband, there will be no tone—only more voices responding.

Amateur radio operators in the military have been utilizing single sideband for years, finding it far more efficient and more readable than double sideband signals. By international agreement, mariners are now switching from double sideband to single sideband beginning January 1, 1977. There will be also no marine double sideband equipment left after this cut-off date. Not only are the mariners switching to single sideband, but almost all serious communicators throughout the world have switched from double to single sideband—it's definitely the preferred mode for communications.

Try to find a fellow CB'er with single sideband, and have him give you a demonstration on channel 16. True, you may operate single sideband transceivers on any of the 23 channels, but until those channels are free of double sideband signals, utilizing single side-



Offshore boatmen and working fishermen and commercial mariners can communicate far offshore with single sideband radiotelephones.

band is quite hard due to the "heterodyne" effect of a double sideband piece of equipment mixing with a single sideband piece of equipment. Hence, until the outnumbered single sidebanders are able to take over more than one channel, they will be restricted in their operations by fate to Channel 16.

The FCC in the channel expansion, is seriously considering single sideband channels only to utilize the frequencies more sparingly. It's too bad that we can't commandeer as single sidebanders, more than one channel for operation of our equipment today, such as Channel 16 through Channel 23. Well, we'll leave those highway channels alone, but at least we who operate single sideband, should all be thinking of more channels for the exclusive use of single sideband transceivers.

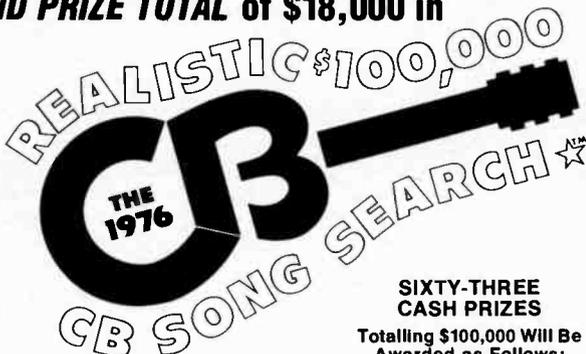
For those operators operating on the illegal high frequencies, you know what I say about the benefits of single sideband. Although I don't condone the use of illegal frequencies, I must admit that in eavesdropping with my amateur radio equipment, you certainly do operate professionally, and your messages are ultra-clear throughout the country—sometimes all over the world on single sideband.

81% of the CB'ers today operate AM—maybe standing for ancient modulation, or double sideband. Only 19% have seen the joy of operating single sideband, and with this article, I hope we can increase that figure to both conserve band space, as well as spread the joy of ultra-clear communication through the use of single sideband transceivers.

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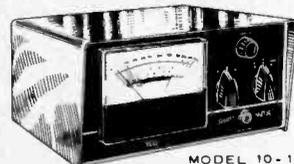
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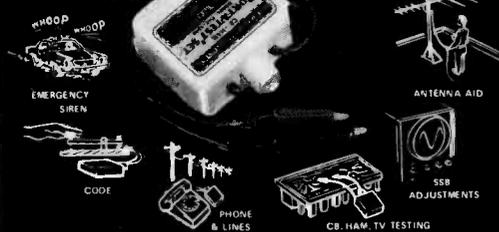
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# WHAT'S YOUR THING?

Hey, good buddies and gals, help keep S9 tuned-in on your interests—the more we know about you and what you're up to the better we can gear out stories, articles, columns, features for the very highest reader interest and usefulness. All we ask is that you answer the following questions — honestly and to the best of your ability. You can tell it like it is, even if you might feel that a totally frank answer to a particular question might be sort of hairy, because we DON'T want to know your name, address, handle, or anything like that. So, Take pen in hand and be part of the planning of future issues of S9 Magazine — we really look forward to hearing from you. Fill in the blanks at the right hand side of the page, then slice off at the dotted line, stick the answer strip in an envelope and send it on back to me — I'll tabulate them while waiting for breaks.

Tomcat  
c/o S9 Magazine  
14 Vanderventer Avenue  
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Help us find  
out how  
to give you  
the best **S9**  
possible!

## ABOUT YOU:

1. How old are you?
2. Do you currently have a CB license?  
(Answer "Yes" if waiting for FCC to issue yours.)
3. If you don't have a CB license, did you ever have one?
4. Do you have an Amateur Radio (Ham) license?
5. If so, what grade of Ham license?
6. Are you married or single?
7. What would you estimate as your approximate annual family income:  
A. Less than \$5,000      B. \$5,000 to \$10,000  
C. \$10,000 to \$15,000      D. \$15,000 to \$20,000  
E. Above \$20,000

## ABOUT YOUR STATION:

8. How many CB transceivers do you own?
9. Do you plan on purchasing any CB gear within the next 3 months?  
(Transceivers or base station antennas only.)
10. Do you plan on purchasing any mobile antennas or operating accessories  
within the next 3 months?
11. Do you use a linear amplifier?
12. Do you use a VFO or slider?
13. At your base station, do you use a beam or an omni-directional antenna?
14. Does your CB equipment have Single-Sideband capabilities?
15. Do you own a "scanner" receiver?

## ABOUT YOUR READING INTERESTS:

16. How many people normally read your copy of S9 each month?
17. Which are your 3 favorite S9 columns each month?
18. Are there any columns which you seldom read? Which?
19. Are there any areas you would like to see covered which S9 does not  
normally cover?
20. Would you like to see a regular feature in S9 which would be oriented  
towards helping you qualify for an Amateur Radio license?
21. Do you subscribe to S9 or do you purchase it through a retail outlet  
on a month to month basis?
22. How long have you been a CB operator?
23. Which other publications relating to CB or electronics do you normally read?

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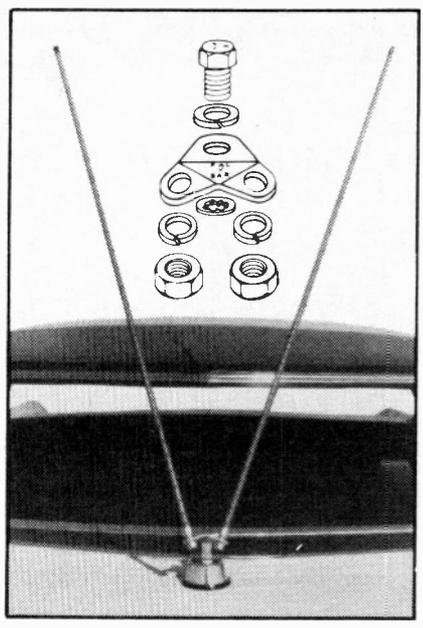
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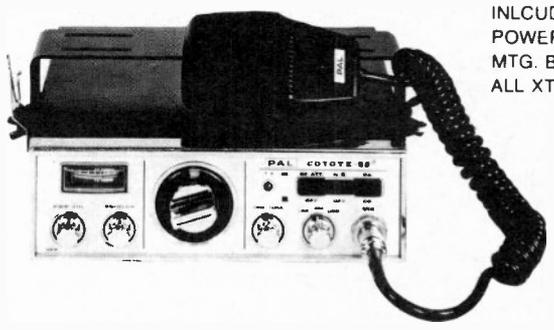


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# WASHINGTON OUTLOOK

## CB PROCEEDING DISMISSED, CASE TERMINATED

FCC Administrative Law Judge Ernest Nash, in an initial decision has dismissed a January 21, 1975, order to show cause why the license of Donald Hammond, of Orangeburg, S.C., for Citizens Radio (CB) station KGP-8522, should not be revoked. He also terminated the proceeding.

Judge Nash ruled that, on the basis of the record, there was not enough evidence to sustain the burden of proof that Hammond had transmitted on the night of October 16, 1974, in apparent violation of the Commission's rules.

"Even if the burden of proof had been sustained, we doubt that the violations are sufficient to establish wilfulness so as to justify revocation of Hammond's license," the judge said. "If we did ascribe these violations to Hammond, we would be constrained to conclude that they were not enough to warrant imposition of the ultimate sanction of revocation without warning and opportunity to effect compliance."

According to the FCC's show cause order, KGP-8522 was operated without being identified by its assigned call sign (a violation of Section 95.95(c) of the rules), was used to transmit communications relating to the signal strength, testing, adjustments or capabilities of radio equipment (a violation of Section 95.83(a) (13)), operated without observing the prescribed five minute silent period between contacts (violation of Section 95.91(b)) and used to transmit communications to other radio stations on a frequency reserved for communications between units of the same CB station (a violation of Section 95.41(d) (2)).

It was also charged that Hammond had refused to allow inspection of the mobile unit of his radio station in wilful violation of Section 95.103.

The judge found that on October 16, 1974, FCC investigators monitored a conversation on channel 4 coming from Hammond's house in Dearborn, Mich.

While parts of the conversation were inaudible, a recorded nine minute transmission established that the Commission's CB rules were being violated.

The judge said none of the parties to the conversation monitored were identified and that therefore he could not conclude that there had been a violation of Section 95.41(d) (2) which reserves channel 4 for communications between units of the same CB station.

At the November 10, 1975, hearing, the Safety and Special Radio Services Bureau witness, Jeffrey B. Young, a veteran FCC engineer, was unable to identify the man who spoke with him on October 19, 1974, when Young and his colleague were refused a request to inspect the house in Dearborn. While Hammond admitted that he was the individual who spoke to Young on October 19, he was unable to recall whether he was broadcasting on the night of October 16.

Judge Nash said on the basis of the record, there was not enough evidence to sustain the burden of proof that Hammond was the individual who was transmitting on October 16.

The judge also found that on October 19, Hammond refused to admit two FCC investigators to his home in Dearborn at a time when he was distracted by personal business of considerable importance to him—a dispute with a realtor.

"On the evidence in this proceeding, we cannot conclude that this attitude was either unreasonable or a wilful violation of an FCC rule or policy," Judge Nash held.

## ANCHORAGE, ALASKA OPERATOR GUILTY

On March 30, 1976, James R. Lavin of Anchorage, Alaska was fined \$1,000 and placed on two years probation by Judge James Fitzgerald of the U.S. District Court for the District of Alaska, after he was judged guilty of operating a Citizens radio station without a proper license in violation of Sec-



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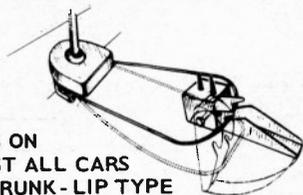
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## WASHINGTON OUTLOOK (cont'd)

tion 301 of the Communications Act of 1934, as amended.

Conditions of the probation are that he may not own or operate radio transmitting equipment for the two year probationary period, after which he may apply for an FCC license.

The case was presented by Assistant U.S. Attorney Leonard Linton, following an investigation by engineers of the Commission's Anchorage District Office and Monitoring Station.

The FCC also revoked the Citizens Radio License of Laden for station KHQ-4585 and ordered that operation of the station be terminated by May 10.

The revocation had been recommended by Administrative Law Judge Arthur A. Gladstone in an initial decision released November 20, 1975.

Judge Gladstone found that Laden had transmitted communications to a unit of another station on a frequency reserved for intra-station communications, in violation of Section 95.41(d) (2) of the rules and had failed to identify his station by its assigned call sign, a violation of Section 95.95(c).

Judge Gladstone also found that Laden had misrepresented material facts to the Commission when he stated that his station was not on the air on December 5, 1974, at 9:50 P.M., when FCC field engineers were refused admission to his home while attempting to make inspection of the station.

The judge said Laden had violated Section 303(n) of the Communications Act and Section 95.103 of the Commission's rules by refusing to permit the inspection and said the Commission would be warranted in refusing to grant him a license if his original application were then before it.

Exceptions to the initial decision were filed by Laden, and the Safety and Special Radio Services Bureau replied.

The Board said it was satisfied that the findings fairly reflect the record and said it fully supported the judge's ultimate conclusions. It said the judge's rulings dealt adequately with the matters of substance raised in the exceptions and "no useful purpose would be served by further discussion here, with the exception of one matter . . . as to which we believe a fuller treatment is warranted although we find no error."

The Board said the one matter warranting fuller treatment was Laden's contention that Judge Gladstone refused to allow him to make an offer of proof to show that the Commission instituted this proceeding on an unconstitutionally discriminatory basis.

Laden pointed out that he was one of two founders of Alaska Citizens for

Better Radio, an organization that advocates various changes in the Commission's rules and has asked Congress for redress of grievances against the Commission. He said while he had heard numerous violations of the Citizens Band rules over the air similar to those with which he was charged, there were no other revocation proceedings taken against other violators, as far as he knew. He argued that the actions taken against him were discriminatory.

The Review Board said that to make a defense of discriminatory selective enforcement a showing is required that the licensee has been singled out for a revocation hearing in bad faith because of such impermissible considerations as race, religion, or the desire to prevent his exercise of a constitutional right.

The Board said Laden's proposed testimony fell short of the required showing by not demonstrating that the Commission's action against him was predicated on "an impermissible prosecutorial purpose." It said he had not supported his contention that the Commission's reasons for initiating the action were based on his membership in the Alaska Citizens for Better Radio and "we must conclude that Laden's offer of proof was insufficient to require a full evidentiary hearing."

It added that the proceeding against Laden was based in part on his alleged misrepresentation that his station had not been operating at the time specified in the notice of violation and on his refusal to allow authorized FCC personnel to inspect his citizens band equipment.

However, the Board said, the violations mentioned in the offer of proof appeared to consist generally of operating violations, since the proposed testimony was apparently largely based on what was heard on the airwaves. It said Laden's offer did not allege that the Commission failed to issue show cause orders against other licensees who refused to allow Commission personnel to inspect their radio equipment.

## STRENGTH OF EMISSIONS FROM CB TRANSCIEVERS

The Office of Chief Engineer announces the issuance of a report by Milton C. Mobley et al "Strength of Emissions from Citizens Radio Service Transceivers." The report is numbered FCC/OCE LAB 76-01, and is available in limited quantity from Room 7202D, 2025 M Street, N. W., Washington, D.C. 20554.

This report covers the results of measurements on 15 transceivers, and includes recommendations as to values of suppression of conducted emissions (via antenna terminal) that should be



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## WASHINGTON OUTLOOK (cont'd)

imposed to provide protection necessary for other services.

The FCC has received complaints of undue interference to utility and public service communications in the 30-40 MHz band and to forestry communications in the 150-170 MHz band, claimed to be due to radiation of out-of-band emissions from Citizens Radio Service transceivers, especially from the oscillator sections of the receivers thereof (not now required to be certified under Part 15 of the FCC Rules and Regulations). This study was made to determine the strength of the emis-

sions from several current models of such equipment, including the particular models that were the subject of the complaints.

This report is being placed on file for public reference in Dockets 20120 and 20746.

### CRACKDOWN INSTITUTED IN IN BIRMINGHAM, ALA.

A crackdown of illegal Citizens band operators in the Metropolitan Birmingham area has been instituted by Wayman G. Sherrer, U.S. Attorney, Northern District of Alabama.

Under the direction of Assistant U.S.

Attorney, Bill L. Barnett, Commission agents from the Atlanta District Office and Special Enforcement Facility, Powder Springs, Ga., have conducted extensive investigations into the operation of illegal radio stations that were transmitting on unauthorized frequencies, interfering with bands used by the U.S. Government, business and Special Industrial Services.

Search warrants for the illegal transmitters were issued by U.S. Magistrate Edwin L. Nelson and were served by U.S. Marshals, accompanied by FCC agents on April 27, 1976. As yet no arrests have been made but a number of transmitters/receivers have been seized.

The Communications Act of 1934, as amended, provides a maximum penalty of \$10,000 fine and/or one year imprisonment for operators of unlicensed stations.

### SENT NOTICES OF APPARENT MONETARY LIABILITY

The Commission, by its Field Supervisors, on behalf of the Safety and Special Radio Services Bureau, issued Notices of Apparent Liability to Monetary Forfeiture to the following radio station licensees in the Citizens Radio Service for willful violation of various sections contained in Part 95 or a repeated violation of Section 1.89 of the Commission's Rules.

Riverside, Calif., TV Radio Service, \$50, KXB-1546.

San Bernardino, Calif.

Gregory A. Allen, \$50, KXJ-7733.

Charles C. Boyce, \$100, KOX-8451.

Gerold R. Broasfield, \$50, KDS-4801.

James C. Cleveland, \$50, KGT-8635.

Lawrence C. Cook, \$50, KFT-0542.

Dale W. Cummings, \$50, KET-8901.

Thomas A. Daniels, \$50, KSM-8924.

David G. Henry, \$100, KHM-8820.

Viola E. Walden, \$100, KDL-5409.

Donald P. Wincel, \$100, KBV-6904.

Upland, Calif.

Joseph F. Bradley, \$50, KJT-1841.

Rudolph P. Coletti, \$50, KJL-3572.

Donald W. Dennis, \$100, KIY-7566.

Roy Schwarzer, \$100, KYA-3682.

Lexington, Kentucky, Harold T. Rodey, \$50, KBO-8822.

Fayetteville, North Carolina

Black Hawk Gun Shop, \$50, KWG-5565.

John L. Creed, \$50, KJW-3028.

Fred B. Deem III, \$50, KIX-1471.

Clyde E. Taylor, \$50, KCI-5800.

Frazier Taylor, \$50, KWK-2474.

Fort Bragg, North Carolina

Fletcher L. Jones, \$50, KWS-7568.

Belleville, New Jersey, Edwin R. Bartlett, \$50, KXN-1690.

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MODEL 2801



MODEL 2720



MODEL 2601



MODEL 2501



MODEL 2401

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## WASHINGTON OUTLOOK (cont'd)

Clifton, New Jersey, Elsie Mauro, \$100, KBA-6674.

Fairlawn, New Jersey, Joel J. Peters, \$50, KFL-6470.

Fort Lee, New Jersey, Michael A. Steinhauer, \$50, KYR-0022.

Hackensack, New Jersey, Alfonso Romeo, \$50, KYQ-1787.

Hamburg, New Jersey, Edward J. Guraszky, \$50, KWG-6208.

Lyndhurst, New Jersey

Roland F. Alling, \$50, KIU-1989.

John Cupak, \$50, KBA-2135.

Michael J. Festa, \$50, KGY-6127.

Thomas A. Gingerelli, \$50, KJP-5726.

Midland Park, New Jersey, Dirk Devries, Jr., \$100, KGO-9292.

Mohokus, New Jersey, August A. Lavacchio, \$50, KXJ-7012.

Montvale, New Jersey, Thomas F. Purcell, \$50, KDU-7547.

Modesto, California, Jimmie D. Edwards, \$50, KIP-7248.

Lafayette, Louisiana, Clesme J. Roger, \$50, KZA-6491.

Kansas City, Kansas, Joseph W. Miller, \$50, KEN-5077.

St. Louis Missouri, Paul W. Kelley, \$50, KSW-7739.

Ventor, New Jersey, James F. Yahn, \$50, KHL-5740.

Brownsville, Texas, Joe F. Barrios, \$50, KZU-0199.

Luling, Texas, Troy Oakes, Jr., \$50, KYC-2792.

Marble Falls, Texas, James O. Champion, \$100, KIK-2352.

Newport News, Virginia, Kowalski General Construction Co., \$50, KTI-8734.

Centralia, Washington, Arthur J. Berg, \$50, KWL-9464.

San Antonio, Texas

Maurice L. Dyer, \$50, KWX-7478.

Jimmy W. Fagg, \$100, KTF-3743.

George H. Freeman, \$100, KYU-2907.

Von S. Haag, \$100, KTD-9019.

Jacklyn A. Hartley, \$150, KEQ-2483.

Chester J. Hogan, \$100, KTP-1007.

Richard H. Hood, Jr., \$50, KYW-7159.

John B. Kirkland, \$150, KIZ-5607.

Joe O. Klonek, \$100, KFR-3179.

Donald P. Parker, \$100, KTM-8384.

San Antonio Detective & Security Agency, \$50, KJR-5849.

Steven L. Schneider, \$50, KSP-2999.

James F. Stone, \$100, KSN-5499.

John L. Storch, \$100, KBS-5973.

Targo Enterprises Inc., \$100, KXA-8155.

Roy V. Thomas, \$150, KYY-6628.

Sam R. Timmins, \$100, KXP-1698.

Boca Raton, Fla., Harry F. Storin, Jr., \$100, KET-9051.

Harvest, Alabama, Charles K. Anderson, \$100, KBS-0894.

Huntsville, Alabama

James L. Harris, \$100, KXU-4906.

James C. Maddox, \$150, KHZ-5768.

William W. Mason, \$150, KHK-3012.

L. D. Rogers, \$100, KYQ-0647.

Ron Berryhill Tire Emergency Service, \$100, KHL-1837.

Thomas V. Turbyfill, \$100, KTL-6981.

Kenneth O. Vann, \$100, KWS-9990.

Jonesboro, Indiana, Frank Wilson, Sr., \$100, KFS-2513.

Baltimore, Md., Frank Zang, \$50, KSO-1424.

Synchburg, Va., Clyde D. Trent, \$50, KCL-5926.

North Olmstead, Ohio, Donnie K. Barker, \$50, KIP-8815.

Creektowaga, New York, David N. Strzalkowski, \$50, KHN-2237.

Garland, Texas, David H. Burk, \$100, KJQ-8478.

Beeville, Texas, Stormy M. Harned, \$100, KIP-6384.

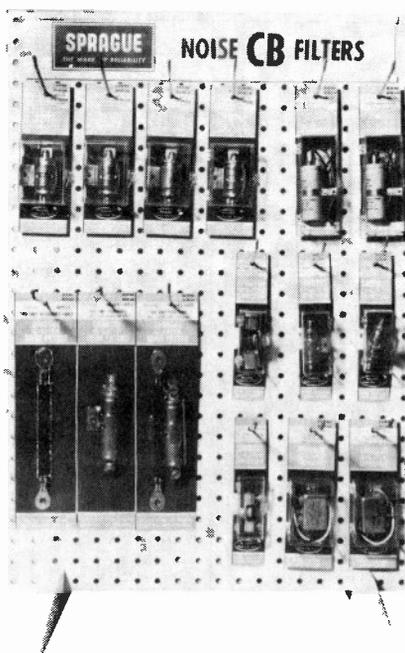
Brownsville, Texas, Santiago A. Rodriguez, \$50, KCY-1088.

Victoria, Texas, Robert Earl Martin, \$50, KYN-1910.

Rialto, Calif., Richard C. Hipps, \$50, KEL-8182.

Riverside, Calif., Mildred A. Paulos,

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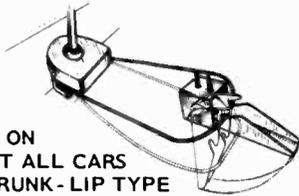
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- \$50, KHM-4889.
- Westwood, N.J., Ronald R. Wolfe, \$50, KXT-5118.
- Washington Twp., N.J., Anthony F. La-  
tronics, Sr., \$50, KBZ-2808.
- Montvale, N.J., Willis Swales, \$50,  
KYR-2055.
- Nackensack, N.J., Howard W. Gard-  
ner, Jr., \$100, KGN-6877.
- North Arlington, N.J., Hanfred Bol-  
linger, \$50, KBK-0043.
- Nutley, New Jersey  
 Albert M. Bornemann, \$100, KJL-  
6909.  
 Anthony O. DeFrance, \$50, KQO-  
7221.
- Paramus, New Jersey  
 Anthony J. DiMayo, \$50, KKJ-9936.  
 Frances M. Kangas, \$50, KJK-1902.
- Park Ridge, N.J., Carl E. Steger, \$100,  
KGT-8345.
- Paterson, New Jersey  
 Leo J. Bodanski, Sr., \$50, KXH-  
2951.  
 Kenneth C. Bonagura, \$50, KHN-  
3165.
- Ridgewood, N.J., Robert C. Kilian, \$50,  
KTV-9780.
- Rochelle Park, N.J., Eugene M. Alvarez,  
\$100, KFS-2566.
- Rutherford, N.J., William R. Calane,  
\$50, KMD-0572.
- Saddle Brook, N.J., David V. Zettler,  
\$50, KTS-9653.
- Teaneck, N.J., Bill R. Sherwood, \$50,  
KBC-4341.
- Upper Saddle River, New Jersey  
 Bert E. Gottlieb, \$50, KCP-2018.  
 James W. Phelps, Jr., \$50, KIR-  
6257.
- Wallington, N.J., Walter Horetsky, \$50,  
KJL-7858.
- Westwood, New Jersey, Steve Zervelis,  
\$50, KCC-6382.
- Woodcliff Lake, N.J., Richard B. Miller,  
\$100, K10-1416.
- Hicksville, N.Y., Alan Hattman, \$50,  
KYS-9754.
- Passaic, N.Y., Douglas J. Wellins, \$50,  
KBA-0404.
- Piermont, N.Y., Brent A. Clark, \$50,  
KSI-4656.
- Glenncoe, Minn., Michael T. Eischens,  
\$50, KGT-2297.
- Cape Girardeau, Mo., Walter J. Nis-  
wonger, \$50, KWI-8028.
- Grand Island, Nebraska, Lewis W.  
Morris, \$50, KTP-7761.
- Alice, Texas, Frank W. Truax, \$100,  
KWW-1998.
- San Antonio, Texas  
 David M. Andrews, \$50, KSB-4446.  
 Gordon F. Baker, \$50, KSV-1472.  
 William D. Brandhorst, \$100, KGK-  
2434.  
 Gerald S. Connell, \$100, KEV-9858.  
 Lee N. Corbin, \$100, KHO-5019.  
 Jeff Davis, \$100, KDT-8586.  
 Edward K. Dixon, \$50, KZM-3904.



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Rosalea Dlugosh, \$50, KBH-4998. Chino, Calif.  
 Clarence D. Clement, \$50, KBJ-5705.  
 Cucamonga, Calif., Daniel C. Onofrio, \$50, KIK-9672.  
 Fontana, Calif.  
 Gerard Belyea, Jr., \$50, KBC-7237.  
 Fontana Datsun, Inc., \$100, KHC-3657.  
 John W. Ganton, \$50, KTX-1208.  
 Rose A. Litch, \$100, KEL-7231.  
 Mary F. McCoy, \$100, KJS-8212.  
 Norman E. Stewart, \$200, KWC-8547.  
 Don R. Wells, \$100, KHP-2698.  
 Grand Terrace, Calif., John W. Ketibah, \$50, KYG-1485.  
 Montclair, Calif.  
 Arlene M. Hartman, \$50, KSM-5870.  
 Robert H. Webb, \$100, KIF-1401.  
 Ontario, Calif.  
 Johnny W. Adams, \$100, KGW-4881.  
 Benson Bradley, \$50, KYW-7640.  
 James W. Clark, \$100, KXR-2679.  
 Betty A. Cobb, \$50, KTK-8371.  
 Billy R. Johnson, \$50, KJS-6678.  
 Jack T. Shepherd, \$50, KSX-1536.  
 Paramount, Calif., Melvin R. Brown, \$100, KFM-5801.  
 Pomona, Calif.  
 David J. Fowler, \$50, KHR-0794.  
 Robert R. Holman, \$200, KSQ-0749.  
 David Hutchison, \$100, KXN-2717.  
 Blue Ridge Kennels, \$50, KEW-7279.  
 Albert J. Moras, \$100, KSN-5415.  
 Marvin L. Wilson, \$50, KDZ-4381.  
 Redlands, Calif., Harry W. Hyman, Jr., \$100, KWG-5998.  
 Rialto, Calif.  
 Robert W. Beckett, \$50, KGZ-9567.  
 William B. Beckman, \$100, KER-0605.  
 Benjamin J. Flynn, \$100, KJL-7512.  
 Richard C. Hipps, \$50, KEL-8182.  
 Riverside, Calif.  
 Donald K. Chapman, \$100, KWN-7652.  
 Wallace J. Foster, \$50, KTC-3321.  
 Roy A. Henderson, \$50, KWZ-9504.  
 James C. Martz, \$100, KWO-6990.  
 John C. Myers, \$50, KXI-3338.  
 Wesley J. Smith, \$50, KWK-4895.  
 Norman G. Turner, \$50, KWK-9504.  
 Rubidoux, Calif., Imogene C. Scjlabits, \$50, KHS-0954.  
 Fayetteville, N.C., Henry E. Vain, \$50, KXR-2519.  
 Oxford, N.C., Lester Harris, \$50, KBO-2547.  
 Wooster, Ohio, William S. Singleton, \$50, KYX-1118.  
 Springfield, Virginia, Dirk Roogland, \$50, KFU-1803.  
 San Antonio, Texas, David L. Brandon, \$50, KYG-3489.  
 Eight Mile, Alabama, Brownlee Asphalt Paving, Inc., \$50, KXC-4592. For

violation of Section 95.95(c) of the rules by failing to identify radio station by the assigned call sign.

**Mobile, Alabama, James E. Herring, Jr., \$200, KZG-3013.** For violation of various sections contained in Part 95 of the Commission's rules including Section 95.41(d) of the rules by operating radio station on a frequency not authorized by the Commission for use by such station.

**Fort Worth, Texas, John W. Howie, \$50, KHM-9824.** For violation of Section 95.95(c) of the rules by failing to identify radio station by assigned call sign.

#### DISMISSED

The Commission, by its Safety and Special Services Bureau dismissed proceedings on orders to show cause for the following:

**Baltimore, Md., Robert L. Keefer,** licensee of Citizens radio station KHY-3496.

#### CEASE AND DESIST

**Gibbon, Nebraska, Terry L. Hagge.** Ordered to cease and desist from further violations of Sections 301 and 303(n) of the Communications Act of 1934, for violation of various sections contained in Part 95 of the rules including Section 95.95(c) by failing to identify radio station by the assigned call sign.

#### REVOKED

The Commission, by its Safety and Special Radio Services Bureau ordered that the following licenses be revoked for violation of Section 1.89 of the rules by failing to respond to official communications:

**Laurel, Maryland, Winslow K. Smith,** licensee of Citizens radio station KQI-3578.

**Greenfield, Mass., Rodney K. Spaulding,** licensee of Citizens radio station KFN-5205.

**Georgetown, Mass., Mary A. Greco,** licensee of Citizens radio station KIV-3538.

**Liberty, New York, George Simmons,** licensee of Citizens radio station KFW-7083.

#### SHOW CAUSE NOTICES

The Commission, by its Safety and Special Radio Services Bureau ordered the following licensees to show cause why their licenses should not be revoked for violation of Section 1.89 of the rules by failing to respond to official communications:

**Hyattsville, Maryland, David M. Anderson,** KSU-2740.

**Renton, Washington, Charles Reed,** KFW-2286.

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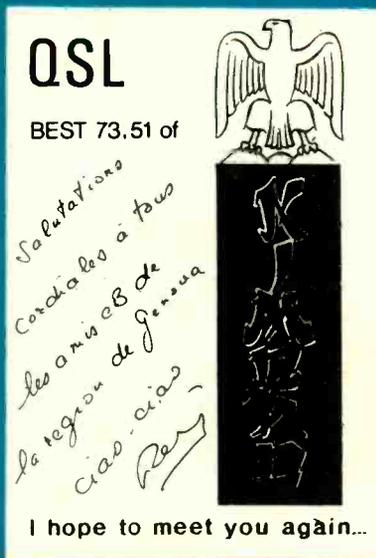
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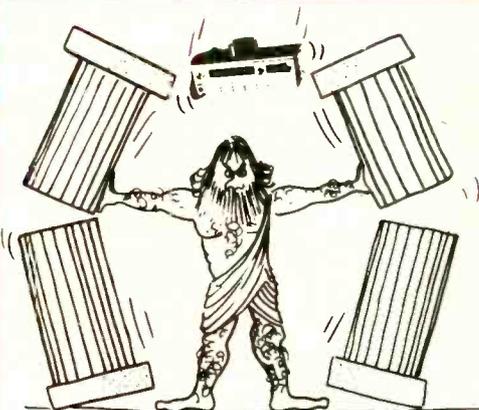
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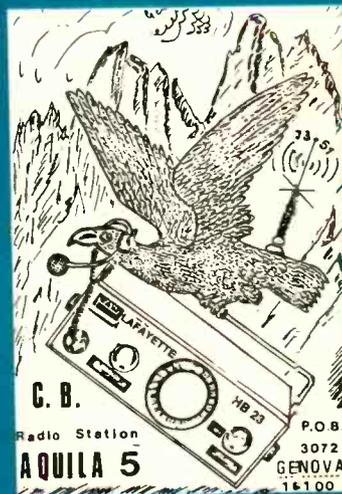
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# ON THE COUNTERS

(continued)

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Operation is on 12 volt DC, positive or negative ground, through Midland's "Omni-Power" system.

Midland Model 13-830 is supplied complete with push-to-talk microphone with coiled cord, microphone clip, mobile mounting bracket and owners manual. Manufacturer's suggested resale price is \$147.95. Contact Duane Riha, General Sales Manager, P.O. Box 1903, Kansas City, MO 64141.

## BEAUTY AND VERSATILITY

Sabre by Browning gives CBers their first look at this company's new generation product. Styled in the Browning tradition, yet strikingly modern, this unit offers full channel capability through the use of phase-locked loop circuitry.

The Sabre stresses owner convenience complete to its sloped front panel and dimmer switch which reduces the lighting intensity of the SWR/RF/S meter and LED channel readout for nighttime use. Other controls consist of a Volume/Tone, SWR/Delta Tune and squelch selector plus PA/CB switches.



Employing both a fully variable Noise Limiter and a Switchable Noise Blanker, the Sabre will let the operator adjust its quieting to any man-made or atmospheric conditions for maximum signal reception.

In addition to its multi features, its small size (9.34" D x 6.92" W x 2.34" H) permits easy installation. For more information and detailed specifications, write Browning Laboratories, Inc., Laconia, New Hampshire 03246.

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The famous "Big Momma" mobile CB antenna by Antenna Specialists is now available with a new low profile design. The new model, M-510, incorporates the same "Big Momma" super coil made famous in the original model, M-410. This heavy duty loading coil is specially designed for super coolness, durability and maximum performance.

(continued)

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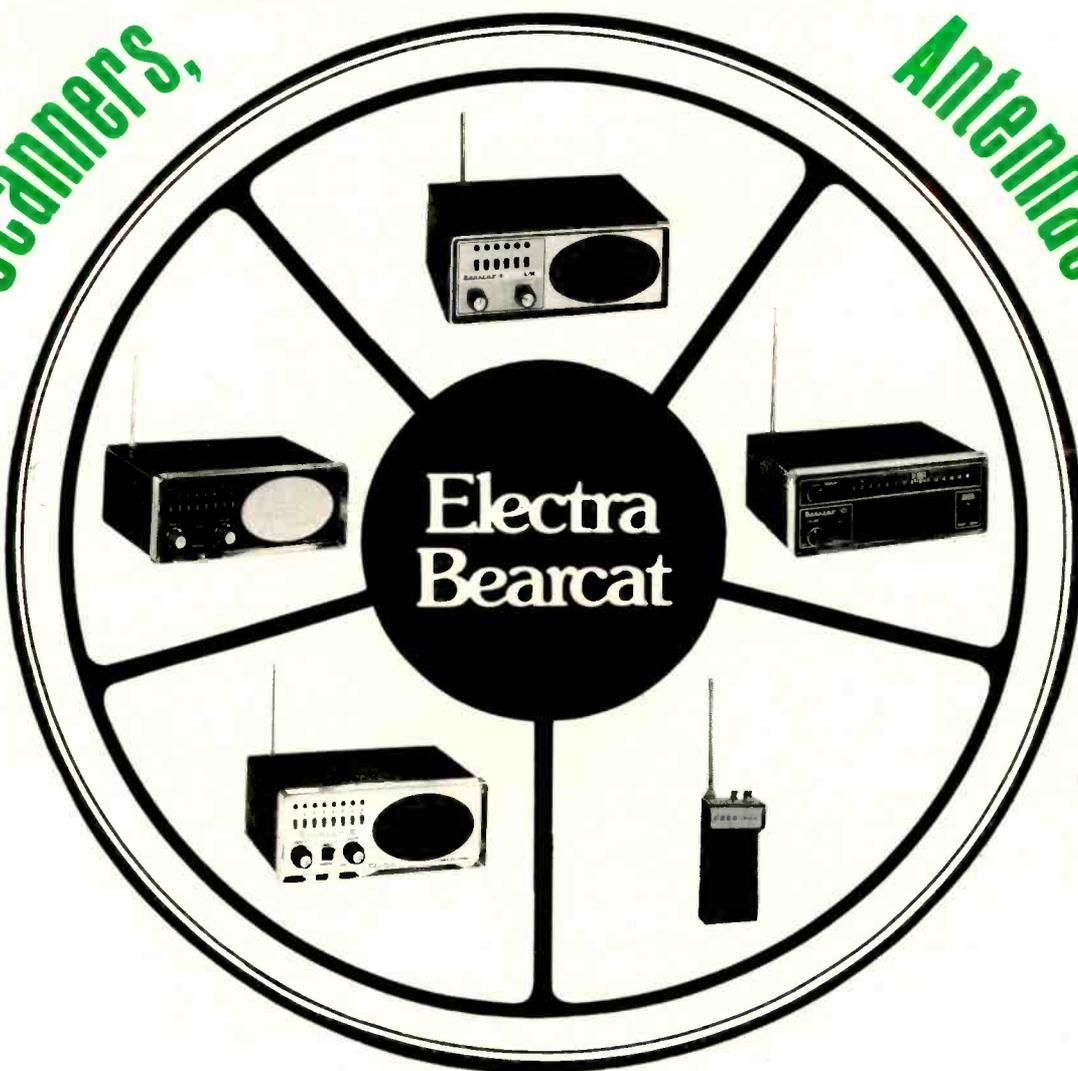
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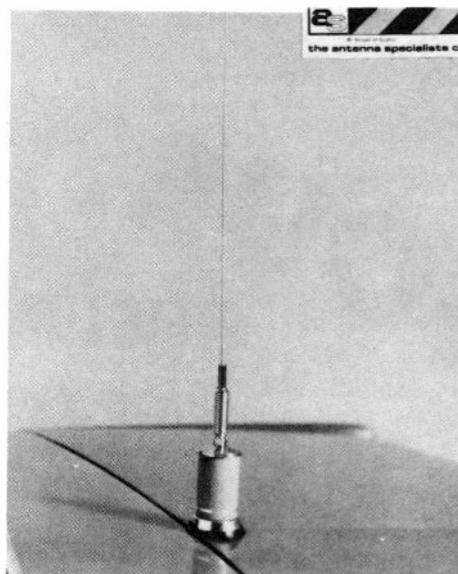
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## ON THE COUNTERS (continued)



The new low profile feature gives the M-510 an added measure of versatility. The antenna, which is equipped with an in-line connector, can be permanently mounted on the trunk with no holes, using the handy "Quick Grip"® trunk lid mount. It also converts easily for roof-top mounting.

The manufacturer's suggested list price is \$36.75. For further specifications contact: The Antenna Specialists Co., 12435 Euclid Avenue, Cleveland, Ohio 44106.



**CB CADDY**

Falcon Enterprises has released a totally new *C.B. Caddy* that rests on the transmission hump, floor or seat of nearly any vehicle.

The new Caddy has a high impact molded ABS plastic case and adjusts to hold all C.B. radios up to 3" x 8½" x 8½". The unit also adjusts to fit various shapes of mounting surfaces.

The Caddy is completely portable and includes a quick connect wiring kit for "Plug-In" power connection. A 4" Dynamic 8 OHM speaker complete with plug is built-in.

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### SOLAR HOT ROD

RAYMALEE CORPORATION announces the Solar Hot Rod™, a totally new concept in power gain CB antenna systems, that dramatically improves the receiver performance of your CB Radio, on the standard AM as well as single side band channels.

The Solar Hot Rod™ is a completely self-contained solar-powered device with built-in solar storage that clamps directly to your present mobile or base station antenna with no additional wiring required.

The Solar Hot Rod™ provides 14 DB of signal gain to the receiver of your radio with less than 2 DB of noise gain, equivalent to a 25 to 1 signal increase to your radio receiver.

The Solar Power Supply is capable of charging its internal source many times faster than the unit consumes power, thereby maintaining a fully charged supply sufficient to provide several months operation in total darkness.

What improvement can the CB'er look for when using the Solar Hot Rod? *(continued)*

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**Two CRYSTALS FOR Monitor  
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Frequency Standards  
100 KHz (HC 13/U) ..... \$4.50  
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## ON THE COUNTERS (continued)



1. On relatively flat terrain you can receive approximately twice the distance normally possible.\*
2. Because of the dramatic low noise performance of the Solar Hot Rod™ you can reduce the amount of effective noise you hear on your CB speaker and increase the level of signals.
3. Two Solar Hot Rod™-equipped stations talking to each other will experience increased range, much the same as would be experienced if both units were equipped with transmitters much more powerful than the FCC permits.

4. Only one Solar Hot Rod™ may be required for dual antenna systems, but by using 2 Solar Hot Rods™ 17 DB gain can be realized.

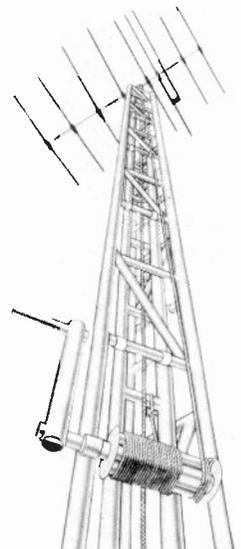
5. Installation is extremely simple and may be accomplished in less than five minutes.

\*Test Reports available upon request.

The Solar Hot Rod™ will adapt to all types of mobile and base station antenna systems. The nationally advertised price is \$89.95. It may be purchased or additional information obtained from Lynn-Paul Marketing, Inc., 4003 Fort Blvd., El Paso, Texas, 79930.

### NEW CRANK UP

Aluma Tower division of Vero Beach, Florida, announces the improved T-140 crank-up, tilt over aluminum CB tower. This tower is light weight (only 56 lbs.) but extremely strong—and because of its all aluminum construction, very durable. For a complete catalog and further information, please contact your local dealer or the factory direct at Box 2806, Vero Beach, Florida 32960.





### SELF-CONTAINED CB OUTFIT

The Slip-Seater, a unique, completely self-contained Citizens' Band radio outfit that moves readily from one vehicle to another, is now available from Main Street Enterprises, Downers Grove. Self-contained in an attache case, the package is especially well-suited for boaters, recreational vehicle enthusiasts or any multiple-vehicle CB user, because it goes with the operator, not the vehicle.

Originally designed for the slip-seat truck driver (a driver assigned to no single truck), the Main Street Slip-Seater requires no special power connections; the unit just plugs into the vehicle cigarette lighter. In addition, the 18-inch antenna included with the package features a snap mount which clips to vehicle's rain gutter or sideview mirror. No drilling or permanent installation is required.

Beyond its versatility, the Slip-Seater helps avoid the risk of CB theft. Because the antenna can be quickly and easily installed and removed, and the self-contained attache case is lightweight and easy to carry, no passerby will know that the vehicle is CB-equipped.

The Main Street Slip-Seater includes a Utac Super Tiny 23 channel CB radio (other radios available on special order), microphone, E. F. Johnson antenna meter, built-in external speaker for clear reception and 100-watt rated, 18-inch fiberglass antenna complete with cable, connector and snap mount.

Suggested retail price of the complete Main Street Slip-Seater outfit is \$289.95. The system is available from CB dealers nationwide. Further information is available from Main Street Enterprises, 1436 Brook Drive, Downers Grove, Illinois 60515. *(continued)*

★ **DEALERS WANTED** ★  
 —All Major C.B. Lines—  
**SELL CB FULL OR PART TIME**  
**GORDON ELECTRONICS**  
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 FREE (518) 762-1811 CATALOG

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At last—A really good shirt offer! Fashion styled 100% polyester T-shirts, cool and comfortable with banded neck and 3/4 short sleeve. Permanent press — wash and wear — NO SHRINK — NO FADE. Full color heat transfer print. New process gives full color design. Not a rubber decal that curls or silk-screen that requires special washing but permanent long lasting color. Kids will love them too. Order several now.

**Mercy — put the hammer down and order TODAY — 3's and 8's.**

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## Designer Prints

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Quantity \_\_\_\_\_  
 \_\_\_\_\_ Hammer (Adult) S( ) M( ) L( ) XL( ) @ \$6.00 \_\_\_\_\_  
 \_\_\_\_\_ Hammer (Child) 6-8( ) 10-12( ) 14-16( ) @ \$6.00 \_\_\_\_\_  
 \_\_\_\_\_ Smokey (Adult) S( ) M( ) L( ) XL( ) @ \$6.00 \_\_\_\_\_  
 \_\_\_\_\_ Smokey (Child) 6-8( ) 10-12( ) 14-16( ) @ \$6.00 \_\_\_\_\_

Sub total \_\_\_\_\_

Alabama residents add 4% sales tax. \_\_\_\_\_

Price includes postage and handling. Total \_\_\_\_\_

Check or Money Order Enclosed (No COD's).  
 Charge my  BankAmericard  
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personalized citizen's band watch. Features car on dial, "Smokie" hiding behind a tree and a 55 MPH speed limit sign. Chrome-plated metal with Swiss 1 jewel movement. Black leather band, chrome accents. Two year service guarantee.



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(Your Inter-Bank number is located directly above the first name on your card.)

Personalize with following "handle" or call letters:

(up to 18 letters) \_\_\_\_\_

Send to:

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

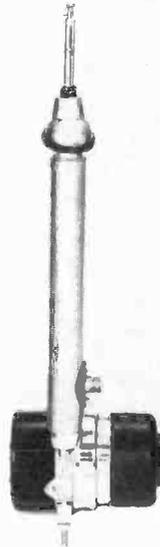
ORDERED BY \_\_\_\_\_

Your signature (if using BankAmericard or Master Charge).

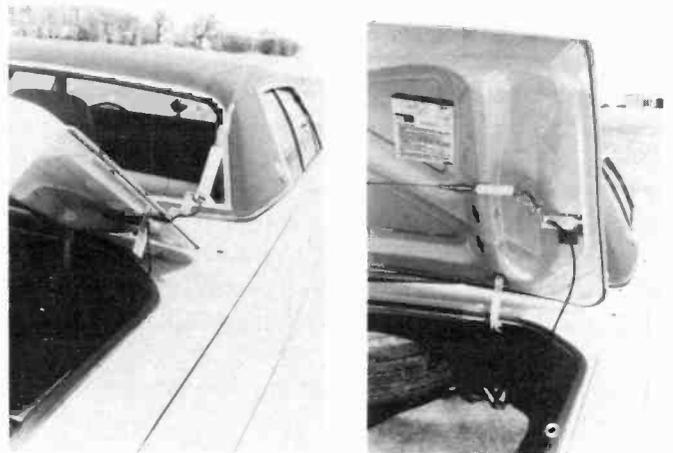
ON THE COUNTERS (continued)

NEW FROM TENNA

Electric CB Antenna. Suggested Retail Price: \$59.95. Collapsible (Motor Driven) Rear Deck or Fender, Chrome Plated Tubular Brass, 7 Pounds. With the flick of a switch, the TennaPower disappearing CB electric antenna extends to its full length for top performance and turns on the CB transceiver . . . automatically. Another flick of the same switch and the antenna—with a special powerful "skinny" center-loading coil—disappears turning the radio off. Company contact: Martin Roth, Vice President-Marketing, Aftermarket



TENNA CORPORATION, 19201 Cranwood Parkway, Cleveland, Ohio 44128.



STOWIT

A product, called the STOWIT, provides a fast, easy way to hide a CB antenna out of sight of thieves when a car is to be left unattended. Later, the bracket permits antenna to be just as quickly returned to operating position.

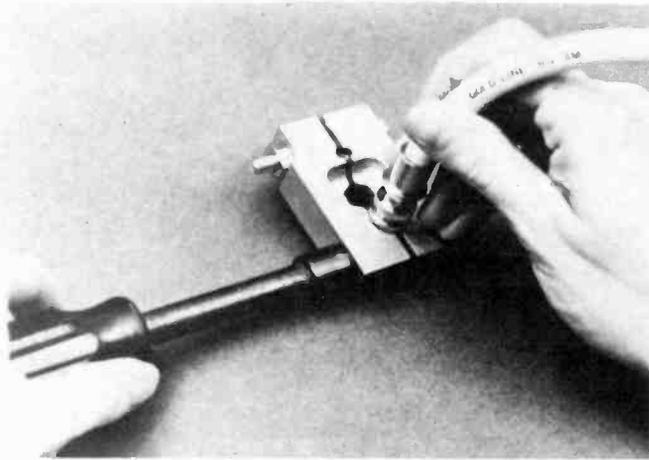
The STOWIT holds a trunk or roof-mount antenna out of sight within the trunk of the car when it is not being used. This eliminates the visual signal to thieves that the car is equipped with a CB. It helps to prevent theft of the CB and the antenna itself.

The STOWIT can be used on most domestic and many foreign-made cars. It will not affect the SWR reading of the CB nor interfere with reception in any way. It's simple to install and requires just four holes through inside hollow core trunk panel with no holes needed in any outer panels. Made of heavy-gauge steel and designed to last for years. Has an added advantage by protecting antenna when using car wash.

Details and prices are available from Holly Enterprises, Inc., P.O. Box 486, Addison, Texas 75001.

## ANTENNA CATALOG

A new 24-page Avanti antenna catalog, much of it in full color, illustrates and describes seven base station antennas including the firm's famous Moonraker and the new Moonraker 6; a wide selection of mobile and marine antennas, antenna packages, mounts and other accessories. Also featured are a detailed description of Avanti's co-inductive principle which is said to provide greater distance and better noise-free performance for its base station antennas; a full page of informative antenna facts; and an illustrated description of the advantages of co-phasing for added mobile performance. A copy of the catalog is available from AVANTI RESEARCH & DEVELOPMENT, INC., 340 Stewart Avenue, Addison, IL 60101.



### PL-259 CRIMPER

A new crimping tool designed for rapid, on-site attachment of a PL-259 connector with any standard antenna cable, completely solder-free, has been introduced by Gold Line, East Norwalk, Conn. manufacturers of Citizens Band radio accessories.

"The PL-259 Crimper" is believed to be a first for CB'ers and is said to achieve sturdy, taut attachments that will withstand 40 lbs. or more of hanging weight. It may be used for on-site crimping of connector to cable in a car, truck, van, boat, or, with equal facility, on a base station roof top. Retail price is less than \$5.

To obtain a secure connection through use of "The PL-259 Crimper", the cable is prepared much the same as it is for soldering. The assembled connector is slipped over the cable and both are inserted into the crimping device. The high torque generated by "The PL-259 Crimper" jaw compresses the connector on to the cable in a tight, sure bond. A standard nut driver or small hand wrench may be used to open and close "The PL-259 Crimper's" control bolts.

The new Gold Line tool is designed for use with RG-58U or RG-8U cables but quarter-inch cables need UG-175 adapters for standard PL-259 use. The company's "PL-259 Crimper" is provided in kit form with filler pins to facilitate tight crimping around the cable's

*(continued)*

# Don't broadcast the fact that you've got a CB radio.

Now you don't have to let everyone know that you've got a mobile CB radio. Our model MR264 disguise antenna looks and acts just like a normal car radio antenna, operating on AM and FM as well as CB. We know the disguise is effective because we've been making them for law enforcement agencies for years. If you don't need a disguise antenna, but you do want superior CB performance in a car mounted 3-way antenna, check out our model M-267. Both models feature a stainless steel whip that detaches easily so your antenna won't get ripped off in the car wash either. When you're looking for antennas, 3-way, disguise or otherwise, take advantage of our 20 yrs. experience. Look for the Stripes of Quality.



**the antenna  
specialists co.**



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**Distinctly  
Superior  
Performance.**

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**ON THE COUNTERS** (continued)

center wire.

Gold Line is a major producer of CB accessories including noise filters, antenna matchers, SWR bridges, wattmeters, power meters, coaxial switches and cable assemblies, dummy loads, lightning arrestors, couplers, 2/way radio phone patches and a variety of fittings.

**TWO NEW CB ANTENNAS AND A CB ANTENNA ADAPTER**

Anixter-Mark introduces two new CB antennas and a CB antenna adapter.

"The Champ" is the first CB antenna designed not to look like a CB antenna. It's top loaded with the loading coil wound on a high quality fiberglass whip attached to a heavy chrome plated metal mast and sturdy spring. It is also the first CB antenna that gives the professional look unlike any CB antenna on the road today . . . and it's a complement to the sportiest automobile. It is designed for easy installation. The mount and cable pig-tail install to trunk lip simply by tightening two set screws.

"The Champ" is ready for new channels as they are released. Maximum height :54". Tuning range, 26.9-27.5 MHz. (50 plus channels)

In addition to "The Champ," Anixter-Mark is also introducing a new Tunable Stainless Steel Antenna which is base loaded and can easily be adjusted to

"The Champ"  
Fully adjustable, top loaded  
mobile antenna.

Tunable  
Stainless Steel Antenna



cover all present channels. A simple turn of the frequency adjustment screw brings in the channel you want clearly. It is also capable of tuning in all new channels when they become available.

It is smart looking, and has a long lasting stainless steel whip and deluxe mount with high quality coaxial cable designed for easy installation. Mounts easily to any trunk lip with no drilling needed. Maximum height: 60".

The "Little Devil" CB antenna adapter is designed to

*The* **COMMUNICATOR**  
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**DEALERS**

If you haven't yet subscribed to THE COMMUNICATOR, you're missing out on vital news important to *your* business. THE COMMUNICATOR is the only newsletter in the industry directly devoted to CB marketing.

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- A market survey questionnaire directly aimed at getting more information to aid your sales.

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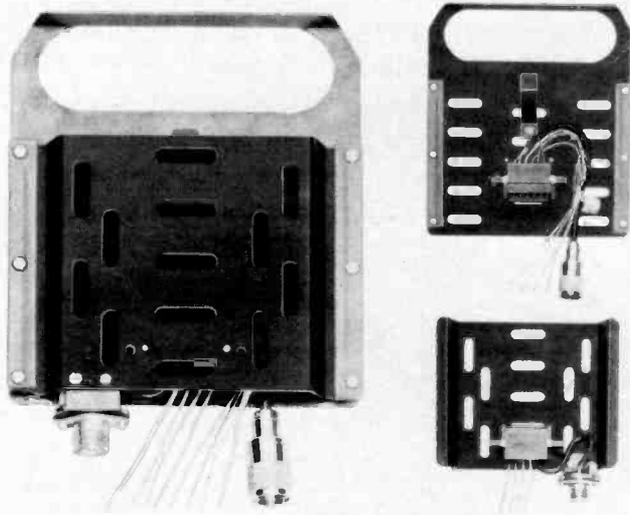
Company Name \_\_\_\_\_

Street Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Dealer  Distributor  Amateur Radio  CB

allow "CBers" to upgrade to a higher performance antenna such as Anixter-Mark's "Heliwhip." Simply remove the base loading coil and stainless steel whip antenna from the mount and screw the "Little Devil" onto the  $\frac{5}{8}$ "-24 threaded section of the mount. It is now converted to accept any  $\frac{3}{8}$ "-24 antenna including the "Heliwhip."

No new mount or cable assembly is needed with the "Little Devil" adapter.



#### SLIDE BRACKET

Universal Machine Company today introduces a no RF loss easy slide bracket for Citizens Band Radio equipment. This bracket, also available in a stereo slide mount, uses Nickel plated tin contacts in a tough computer style connector for quick connection and disconnection of power leads, antenna and any two accessories of your option. Finished in a scratch proof satin black finish, the top section slides effortlessly down glass filled ABS rails secured by a locking piece of spring steel. Packaged weight is less than one pound. Contact Nelson Roberts, Sales Manager of Communications Products, Universal Machine Company, 2300 Reagan Street, Dallas, Texas 75219.

#### CB SLANG

Learning CB radio language has become the newest and biggest hobby with literally millions of Americans who want to get in on the fun that the rest of us have been having for a long time.

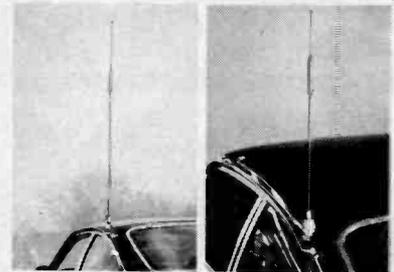
CB talk is everywhere. Not just crackling out of the big 18-wheelers roaring down the highways, but floating out of the dashboards of plain passenger cars, vans, "micro-buses", RV's, etc. Even a lot of folks just sitting at home are in to CB.

CB has inspired a Fort Worth company to compile and publish what it claims to be the most comprehensive dictionary of CB terms and definitions now available. From all parts of the U.S., this company, Jason Press, has gleaned literally hundreds of terms in current use, checked them out for meaning and authenticity,

*(continued)*

## One of the best CB Antenna ideas we've hatched in 20 years.

Hatchback and fastback car owners of the world, rejoice. Now you too can enjoy excellent CB reception. Our model M-431 CB antenna doubles as a hatchback mount and a trunk groove mount. Its unique mounting hardware lets you adjust the antenna to a perfect vertical position to compensate for roof line slant. The stainless steel whip and shock spring combine with a weather-proof, base loaded coil for maximum durability and performance. When you're looking for antennas, take advantage of our 20 years experience. Look for the Stripes of Quality.



also available in a center loaded model M-432.

Got a scanning monitor? Model MON-60 is a hatchback monitor antenna.



© "Stripes of Quality"

### the antenna specialists co.

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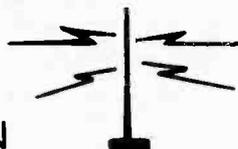
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New CB performance you'll LOVE . . .

## THE **BIG-UNS**

Fiberglass  
Whip Antennas  
by **ELECTRICON**



- **100% Pre-Tuned** — easily installed without further matching.
- **Top-Loading Coil** — for better performance . . . maximum antenna current for stronger radiated signal.
- **Dielectric Sheath** — reduces precipitation static in adverse weather.
- **Resilient** — can be bent without damage to whip or conductor.
- **The Whips** — standard  $\frac{1}{8}$  - 24 thread size . . . 2, 3, 4 and 6 ft. lengths. Available separately or with mounts.
- **Chrome-Plated Brass** ferrules and adapters for no rust . . . simple, tight assembly of entire unit with one heavy duty bolt for easy installation, peak performance.
- **RG-58U Cable** — extra flexible . . . terminals and solder-type PL-259 connector already applied.
- **Trunk-lip Mount** — (above, right) no holes needed . . . extra heavy steel bracket . . . with non-marring heavy plastic cover.
- **Mirror Mount** — (above, left) extra heavy duty . . . vertical or horizontal mounting . . . single, or dual with co-phasing harness.
- **The Prices?** Very competitive!

Available at leading dealers & distributors — or contact manufacturer. Dealer & distributor inquiries invited.

**ELECTRICON CORPORATION**

Box 379—311 S. Park Dr.—St. Marys, OH 45885—(419) 394-3363

## ON THE COUNTERS (continued)

and published them in handy, durable form.

In addition to the dictionary, the book, called "Jason's Authentic Dictionary of CB Slang", contains many special sections which serve to make it, in effect, the CBers "Bible". The sections include the "10 Signals", "City Handles", "Mike Fright", "Ten Golden Rules for CB", "Bear Country", Class D Frequency Chart, "Call Guide Directory" and much more.

The book is now available by mail for \$3.00 per copy, postpaid, from Jason Press, P.O. Box 7750, Fort Worth, Texas 76111. Dealerships are available.



### BEARFINDER

A electronic speed radar detector featuring a dual audio/visual warning system and a solid state electronic circuit has just been introduced today by BEARFINDER, Inc.

Designed to remind motorists to maintain legal speeds, to call attention to sudden speed limit changes and enable the motorist to avoid radar "speed traps", BEARFINDER alerts the driver long before entering the effective range of a speed radar transmitter. The precision circuitry offers much greater sensitivity than other radar detection devices currently on the market.

The unit is completely self-contained, weighs less than three pounds and features a built-in cast antenna to provide maximum range and minimize response to microwave transmissions other than speed radar.

BEARFINDER'S dual warning system, either audio or visual, permits the driver to select the alert signal best suited to needs or driving conditions. Much more effective than a CB radio in detecting the hidden "electronic ambush" without the distraction of CB chatter, BEARFINDER sensitivity is easily adjusted for city or highway driving.

The unit is housed in a compact, non-glare metal cabinet and requires no installation. Adhesive "Bear-claws" fasteners enable the user to simply place the unit on top of the dash and easily remove it for safe storage when not in use. The new solid state radar detector operates on any 12 volt power supply and may

be plugged into the cigarette lighter receptacle.

The manufacturer added that expert factory service is provided both during and after the 90-day warranty period and that a comprehensive package of sales promotion and display materials will support the marketing effort to penetrate this rapidly growing market.



#### INTERFERENCE FILTERS

ELECTRONIC SPECIALISTS announces a line of compact, easy-to-install interference filters especially designed for CB. Now neighborhood and family complaints of TV or FM interference caused by CB operation can be eliminated in seconds. Three models available. A tunable model permits adjustment for maximum effectiveness in immediate area. A pre-tuned model is factory adjusted for maximum TV and FM interference rejection. A factory tuned model for installation directly on the affected TV or FM receiver. Electronic Specialists, Inc., Box 122, Natick, Mass. 01760.

#### WIRELESS MICROPHONES

TOA wireless microphones and tuners are now available as an optional accessory for all Perma Power Sound Systems, announced Norman A. Ackerman, Vice President, Marketing, Electronic Products, for Chamberlain Manufacturing Corporation, Perma Power Division. The TOA components, distributed nationally by the Perma Power Division, provide complete freedom of movement to the talker, and high quality FM audio performance when used with any of the Perma Power packaged, cordless sound reinforcement systems. The TOA components also are suitable for accessorizing other sound systems.

Two microphone types are available, a hand-held model (Perma Power Model S-930) with a self contained transmitter, and an unobtrusive clip-on model (Perma Power Model S-940) with belt-clip transmitter. Both feature automatic gain control and full fidelity sound, and include wire antenna, wind screen, battery

(continued)

... Use S9 READER SERVICE.

## YOU CAN'T BEAT THE BEST!

**Fiberglass Antennas Work Best – And Francis Makes The Best Fiberglass Antennas.**

*That's because Francis Industries holds the original patents on Fiberglass CB Antennas as well as fiberglass marine antennas. We make a complete line of whips, mounts, co-phase harness and complete antenna systems to fit every CBer's needs.*

*Ask your local dealer about our reputation for quality and performance. We think you'll be impressed enough to join thousands of CBer's who are already enjoying the best.*

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# SWITCH



Professional Quality

with the BEST!

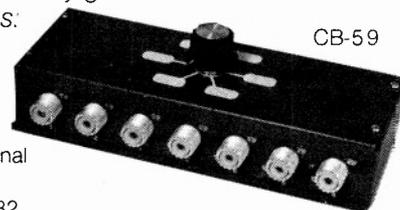
## Ceramic Antenna Selector Switches

- Low SWR to 150 MHz
- Power Safety Factor 1000 Watts  
(52  $\Omega$  to 75  $\Omega$  non-reactive loads)
- Isolation @ 30 MHz  
60 db alternate outlets  
30 db adjacent outlets
- 2 Models—Connect your transceiver to . . .



2 antennas (side connectors):  
CB-55A2 \$12.45

6 antennas, automatically grounds  
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## Universal LOKIT

with two built-in Locks

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**Beach**

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Dealer Inquiries Invited

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## WITH THE WREN D-104 HANDLE

Now, you can key your Astatic D-104 mike with a touch of your finger. Or lean back in your easy chair and key it with your foot if you like.

**It's that easy  
...with a Wren  
D-104 Handle.**



Especially designed for the Astatic D-104 style microphone, this attractive handle adapts easily without disassembling the mike stand. Available in heavy chrome or 24 carat gold plated.

See your dealer—put a Wren D-104 Handle to work for you today!

Chrome Plate ..... \$14.95 suggested retail  
24K Gold Plate ..... \$37.50 suggested retail

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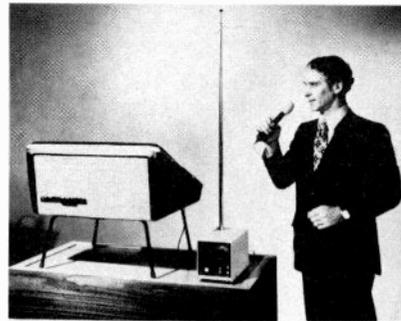
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## ON THE COUNTERS (continued)



TOA Wireless Microphones and Tuners convert Perma Power Sound Systems for convenient, reliable wireless operation

## Perma Power



and carrying case. A single tuner (Perma Power Model S-920) accommodates either microphone, and features a built-in extending rod antenna, volume and tone controls and squelch for noise-free operation.

The high fidelity microphones broadcast the talker's sound signal up to 200 feet to the FM tuner, which channels the signal through the existing amplifier and loudspeakers. Both the microphone and tuner are crystal controlled to provide a highly stabilized broadcasting frequency without requiring troublesome tuning operations. The system is FCC approved, and the microphone will provide up to 15 hours of non-stop operation on one 9-volt transistor radio battery.

The TOA wireless microphones and tuners are being offered in a choice of three channels, to permit simultaneous operation of separate systems in adjoining rooms without interference problems.

"The TOA components were chosen because their design is suited perfectly for retro-fit with all previous and current Perma Power sound systems," Mr. Ackerman said. "The user just plugs the tuner into the amplifier, turns on the microphone and talks."

The wireless capability provides the talkers with complete freedom of movement, Mr. Ackerman said, without having to contend with the limitations of wires.

"And because the TOA wireless system is offered as an option," he added, "the user can buy it with his Perma Power sound systems, or add it at a later date as his need for wireless operation develops."

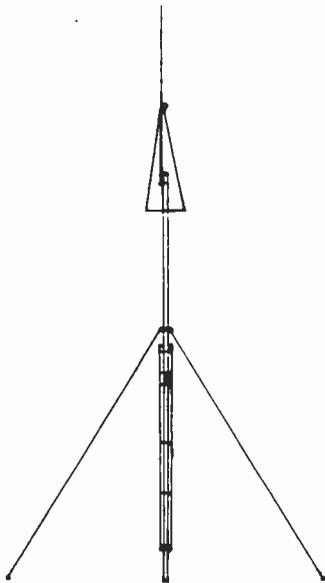
Suggested resale price for the FM tuner (Perma Power Model S-920) is \$229.50; \$159.50 for the hand-held microphone and transmitter (Perma Power Model S-930); and \$215.50 for the clip-on microphone and transmitter (Perma Power Model S-940).

Complete information on the TOA wireless microphones and tuners and the complete line of Perma Power sound products is available from Mr. Ackerman at Chamberlain Manufacturing Corporation, Perma Power Division, 5740 North Tripp Avenue, Chicago, Illinois 60646.

## ASTROBEAM

Astrobeam is now offering a COPYRIGHTED PLAN to build a new all-directional Citizen-band base antenna, called the Astrobeam "Super-Rocket" CB antenna. This plan is one of the first of its type for the "build-it-yourself" hobbyist. The complete antenna and mast may be constructed from materials found locally at electronic, hardware and lumber suppliers. It is made of wood doweling and bamboo. (Fiberglass may be substituted for bamboo if desired.) A 17' wire antenna element is located at the top of the antenna mast. The overall length of the antenna mast is 46' long and weighs only 25 pounds. When the antenna is mounted on the average home roof, the top of the antenna is boosted to 60' above ground, the maximum height allowed for an all-directional CB antenna. When this antenna at 60' replaces an existing all-directional antenna only 40' in height, the effective radiated power can be raised by up to three times and more, as the antenna is raised above surrounding trees and power lines over level terrain.

The antenna may be raised to a vertical position using a new unique method of pre-guying the antenna mast with nylon ropes. The antenna can be safely erected by one man, as all ropes are tightened at a central point at the base of the mast, after erection. The COPYRIGHTED PLAN sells for only \$2.00 from Astrobeam, 704 Edwards Lane, Visalia, Calif. 93277.



### TUK-A-WAY ANTENNA MOUNT

An innovative steel antenna mount which stops radio antenna theft has been introduced on the market. The product's trademarked name is TUK-A-WAY.

Sold as an accessory for citizens-band radio, mobile radio and car telephone users, TUK-A-WAY installs easily on the trunk lip of most car models, and provides complete antenna concealment inside the trunk when not in use. It accepts antennas designed for either roof or trunk mounting.

TUK-A-WAY offers three essential benefits for car radio and telephone users: the added protection against theft; the convenience which allows use of automatic car washes and covered parking facilities; and the elimination of paint chipping and scratching or permanent holes in the roof or trunk by use of a clamp for installation.

TUK-A-WAY has been engineered to provide unsur-  
(continued)

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She, the magnificent feminine part of the dynamic duo, her hair frizzed out in a spectacular creation, fingernail poised to poke a hole through the speaker cone of any who would dare to offend Her Majesty - and, upon her index finger - the magical and mystical "CB Ring," bearing the powerful and mysterious precious gemstone which grants her the domain over all channels and modes of transmission.

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## ON THE COUNTERS (continued)



passed durability. It is constructed of 12-gauge, cold-rolled steel, and is coated with zinc chromate. The hinge is of stainless steel, and is spot-welded to the clamp to provide positive ground contact. In addition, the hinge is fitted with a stop which holds the antenna suspended and off the trunk floor while stored, allowing for short-range reception from inside the trunk.

Weather stripping prevents the possibility of leakage.

Suggested retail price for TUK-A-WAY is \$15.95, with a one-year limited warranty on material and workmanship. Manufacturers expect the product to be available in most areas of the country within a month.

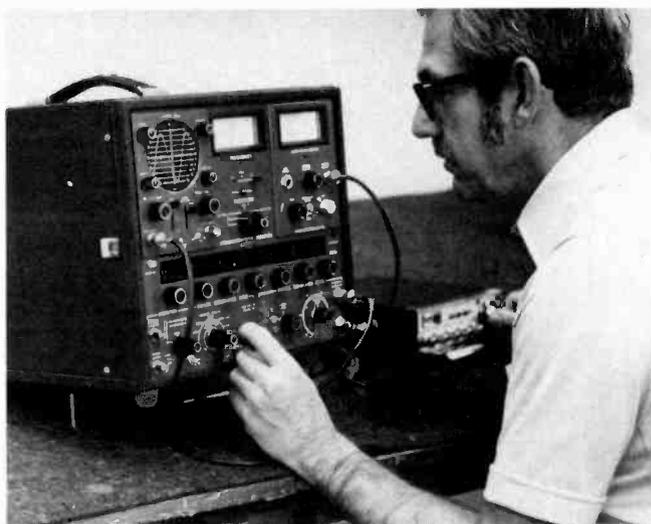
For more information, contact the Deep South Marketing Corporation, 2828 Telephone Road, Houston, Texas 77023.

## COMMUNICATIONS MONITORS

Cushman Electronics has two test instruments for maintenance of citizens band radios. Both the CE-5 and the CE-6A incorporate in a single package most of the capabilities needed for CB repair.

The basic instruments are designed to monitor and generate precise signals to check transmitter and receiver functions. Plug-in modules allow the units to be customized to particular requirements. These modules include oscilloscopes, a deviation meter, an AM, FM, and SSB monitor, a variety of broadband mixers and preselectors, and a wattmeter/duplexer tester.

In addition to CB maintenance, the instruments are



used to test most any two-way radio system including business and industrial applications, marine, and aviation.

Frequency range of the CE-5 is up to 520 MHz, while the CE-6A goes to 1000 MHz. Both feature synthesized digital frequency selection.

Cushman Electronics was the first manufacturer to combine in one package the many test functions necessary for efficient maintenance of two-way systems. This concept can be important in establishing or modernizing a repair facility. With either a CE-5 or CE-6A it is not necessary to buy separate signal generators, frequency meters, oscilloscopes and other bulky equipment.

In addition, because of the plug-in concept also introduced by Cushman, the instrument never becomes obsolete. As new industry requirements develop, or as the repair shop grows into other fields, expanded capabilities can be easily added to the instrument.



### ACCESSORY DISPLAY

Philmore Manufacturing Co., Inc., Inwood, N.Y., announces two extra-savings CB Accessories Programs that include a FREE revolving Floor Rack. The sturdy, colorful rack is 70" high and takes only 22" diameter of floor space. A unique feature of the rack is the two built-in plexiglass show cases. Full color literature on these two Programs is available on request. Write to: Philmore Manufacturing Co., Inc., 40 Inip Drive, Inwood, N.Y. 11696.

### AUTO SPEAKERS

Today's compact cars are really big on gas savings, but short on space. Especially when it comes to room for big-sounding stereo speakers. But The Magitran Company of Moonachie, New Jersey has come to the rescue with space-saving, flush-mounting speakers for custom installation in compact autos, sports cars, vans—anywhere space is a problem—even boats. The solution to the problem is the model A 2000 speaker, and it requires only 7/8" mounting depth—shallow enough for the thinnest door made.

(continued)

# TAB POPULAR CB BOOKS

- **CB Radio Operators Guide - 2nd Edition**  
Tells what CB is, how it is used, how to buy and install equipment — PLUS Part 95, the FCC rules regulating CB. 256 pps  
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- **Practical CB Radio Troubleshooting & Repair**  
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- **Pictorial Guide to CB Radio Installation & Repair**  
Step-by-step guide to car and base systems installation and basic maintenance. 256 pps.  
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- **Citizens Band Radio Service Manual**  
All-in-one troubleshooting and maintenance guide for all types of CB sets, including a 36-page schematic foldout section. Step-by-step repair procedures and trouble-analysis charts. 192pps.  
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Please include schematic, board layout, and instruction manual if you have them. They will be returned with repaired set.

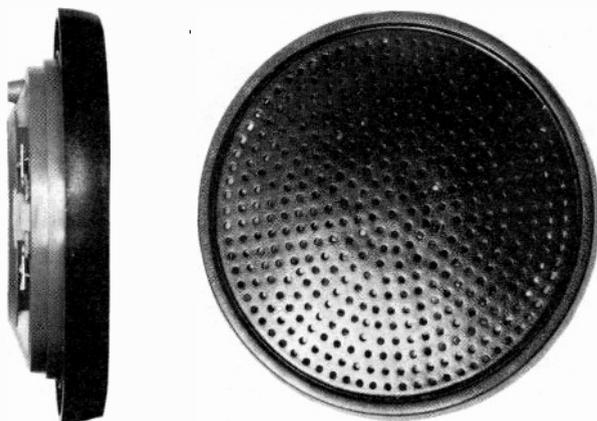
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## ON THE COUNTERS (continued)



The ultra-shallow A2000 speakers can be used anywhere space is a problem and quality sound reproduction, along with power handling capability, is a requirement. These low-distortion high-fidelity speakers handle a full 10 watts RMS of power over a frequency range of 70 to 20,000 Hz. Input impedance is 4-8 ohms.

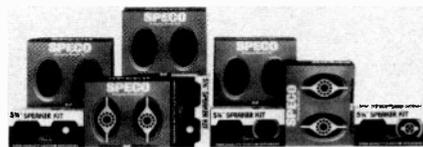
The new A 2000 speakers are available in two specially designed versions—The A2000V, with a soft, black vinyl snap-on grille; and the A2000F, with a snap-on hi-fi black acoustic-foam grille.

Both models are packaged in matched pairs with a suggested retail price of \$22.95, including all mounting hardware and 12 feet of audio cable.

### KIT KOLORS

Colorful, eye-catching packaging designed specifically for the company's new line of SPECO single and double automotive speaker kits has been introduced by Components Specialties, Inc.

Two distinct main colors have been chosen to distinguish between kits. The packaging for the company's Swinging Double speakers, which contain two speakers, grills, hardware and instructions, utilize a field of blue



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with yellow and black trim to create high visibility and easy identification. The Swinging Single wits, containing speaker, grille, hardware and instructions, are designed using purple and the main color with yellow and black as trim. While the dominant colors are different, both packages have a family-look in over-all design. Each kit is clearly labeled, front and back, with content and specifications. The product is highly visible.

SPECO speakers come in 5¼" and 6" X 9" configurations and are offered in a range of 3 ounce to 27 ounce ceramic magnets, with frequency response as high as 20,000 Hz. These air suspension, high compliance or dual-cone full range speakers are available in a range of 10 to 25 watt M.P. or as high as 50 watts peak power in combination.

For more details contact Mr. Stanley Hulkower, Components Specialties, Inc., 393 South Franklin Street, Hempstead, N.Y. 11550.

### ANTI-THEFT DEVICE

A positive mounting device for C.B. radios, AM-FM radios, monitors, speakers and cassette players, has been introduced by Modesett Eng. & Mfg., Inc., Yorba Linda, Ca.

Designed to combat a growing theft problem, the device, called "Dash It-Stash It", permits the unit to be easily removed within three to four seconds and "stashed" in a safe place.

The mount, for which a patent is pending, consists

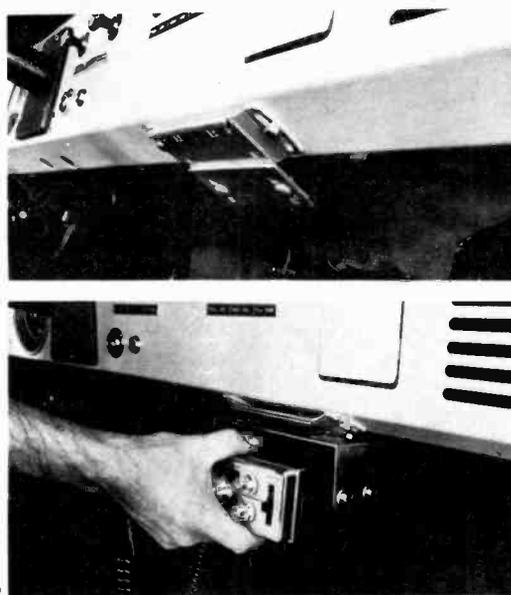


Illustration (a) shows the mounting device, (b) shows a C.B. radio being removed from the mount.

of two sturdy steel mounting brackets, which are installed on a flat surface under the dash of a vehicle, in the ceiling, on the center hump, or any convenient spot. After the wires are disconnected, the unit may be removed and carried away by the owner to safety.

By purchasing and installing "Dash It-Stash It" mounts and antennas in an automobile, camper, trailer or boat, a C.B. owner can maintain his communications as he moves from one vehicle to another. (continued)

## Attention Scanner Owners! Frequency Directories!

Since 1967 CRB Research Inc. has published concise directories of the frequencies used for police/fire/emergency and other vital communications services. These publications have become the primary data source for law enforcement agencies, communications engineers, and hobbyists. CRB directories have been praised by all major technical journals, recommended by organizations such as the Reserve Law Officers Association of America. We believe that CRB publications are a necessary part of any scanner installation; they are reasonably priced and contain far more varied and *valuable* frequency data than any other source. S9 takes pride in offering these fantastic publications to its readers, available as listed below.

### Public Safety Directories- Statewide, \$3 each, postpaid:

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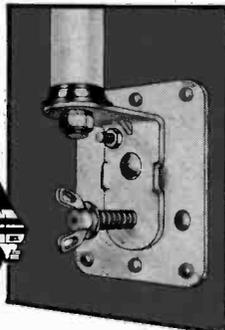
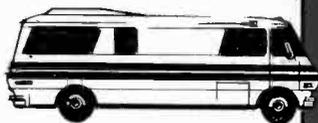
New Target Fold-Down Side Mount for Recreational Vehicles by S&A Electronics.

Target CB-35 makes antenna travel easy with this specially engineered mount. It snaps into the travel position and holds firm for the road—or snaps down to get in and out of tight spaces, with a single simple adjustment.

Installs easily and comes complete with a weather-proof through the wall connector.

Go with the Target CB-Antenna for your R. V. Quality products by the designers of the famous Target 360 RV/TV Antenna.

S&A has a way of always giving you the best!



202 W. Florence Street, Toledo, Ohio 43605  
DIVISION OF THE SCOTT & FETZER CO.

## ON THE COUNTERS (continued)

Additional distributorships are available for the product, which is now being promoted nationwide. Write to Modesset Engineering, 4832 Eureka Ave., Yorba Linda, Ca. 92686.



### POWER SUPPLY

NOR-BEC Corp., Electronics Division introduces its PS 13.8-2 regulated power supply. This unit was designed specifically to meet the manufacturers specifications of todays CB Mobile Radios. A minimum of +13.8 Vdc is available in a transmit condition, thus providing the user an increase in RF power output of approximately 25% over a unit being used on a +12 Vdc power supply. This unit is filtered and regulated to provide hum free transmission. The PS 13.8-2 specifications are: Input: 115 Vac, 50-60 Hz; Output: +13.8 Vdc  $\pm$ .1 Vdc @ 2½ Amps Cont., 3 Amp Surge; Ripple: Less than 20 mV.

This unit is designed to retail for \$28.95. Please contact the factory for distributor pricing: NOR-BEC Corp., 1445 W. Alameda Dr., Unit 42, Temple, Arizona 85282.

### FREE CATALOG

Heath Company, the world's largest manufacturer of electronic products in easy-to-build kit form, has just published its Spring Catalog. The catalog is free and includes complete descriptions of over 400 electronic kits—from build-it-yourself color TV and hi-fi equipment to amateur radio gear.

One new product introduced in the catalog is an electronic Digital Miles-per-Gallon Monitor/Speedometer. Its large, ½" tall digits constantly show the car's gas consumption in miles per gallon and—by simply touching a button—its speed. It is a handy way to help improve driving habits to save gas and money too.

The new Spring Catalog also introduces a low-cost fire and smoke detector kit. Using a special solid-state sensor, it detects gases generated in the early stages of a fire—before smoke and flames appear. It also contains a thermal sensor which automatically sounds the

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work and experimentation.

The new Heathkit Catalog includes large pict and complete descriptions of over 400 electronic —many in full color. For a free copy, write: Heath Company, Dept. 350-02, Benton Harbor, Michigan 49022.

### REFLEX SPEAKERS

Universal Security Instruments, Inc., Baltimore, Maryland announces the addition of its SP 666 Reflex Horn Speaker. This model according to Arnold Brochin, General Sales Manager is the answer for all CB units as it is constructed of highly durable virtually indestructable plastic material with an easy mount tilt base finished in an attractive ivory color. Mouth size is 5 inches and the unit specifications at 8 Ohms with power output 8 Watts with a 12 Watt maximum. Frequency response range is from 200 to 14,500 Hzs. Model SP 666 is ideal for all CB units as it comes with a 12 foot cord and universal plug **FACTORY WIRED AND READY TO GO.**

## MORE TO COME NEXT MONTH

alarm whenever the temperature exceeds 133° F.

Heath has also added three new low-cost electronic test instruments to their well-known line. Their new CRT Tester/Rejuvenator is said to clean, test and rejuvenate virtually all TV picture tubes—at a cost reported to be far less than comparable units. A new Battery Eliminator converts standard household current into 12 volt DC for servicing automotive radios, tape players and CB's. The new Triple Power Supply, with three separate outputs, is ideal for circuit design

### CB SPECIALS—R.F. DRIVERS—R.F. POWER OUTPUTS—FETS

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2SC617	4.25	2SC798	3.10	2SC1239	3.50	2SC1957	1.50		
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2SC711	.70	2SC796	3.15	2SC1306-1	4.50	2SD235	1.00	2SK33	1.20
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2SA483	1.95	2SB324	1.00	2SC491	2.50	2SC830	1.60	2SD030	.95
2SA489	.80	2SB337	2.10	2SC497	1.60	2SC839	.85	2SD45	2.00
2SA490	.70	2SB367	1.60	2SC515	.80	2SC945	.65	2SD65	.75
2SA505	.70	2SB370	.65	2SC535	.75	2SC1010	.80	2SD68	.90
2SA564	.50	2SB405	.85	2SC536	.65	2SC1012	.80	2SD72	1.00
2SA628	.65	2SB407	1.65	2SC537	.70	2SC1051	2.50	2SD88	1.50
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2SA682	.85	2SB474	1.50	2SC642	3.50	2SC1115	2.75	2SD218	4.75
2SA699	1.30	2SB476	1.25	2SC643	3.75	2SC1166	.70	2SD300	2.50
2SA699A	1.75	2SB481	2.10	2SC644	.70	2SC1170	4.00	2SD313	1.10
2SA705	.55	2SB492	1.25	2SC681	2.50	2SC1172B	4.25	2SD315	.75
2SA815	.85	2SB495	.95	2SC684	2.10	2SC1209	.55	2SD318	.95
2SA816	.85	2SB507	.90	2SC687	2.50	2SC1213	.75	2SD341	.95
		2SB511	.70	2SC696	2.35	2SC1226	1.25	2SD350	3.25
				2SC712	.70	2SC1243	1.50	2SD352	.80
2SB22	.65			2SC713	.70	2SC1293	.85	2SD380	5.70
2SB54	.70	2SC206	1.00	2SC732	.70	2SC1308	4.75	2SD389	.90
2SB56	.70	2SC240	1.10	2SC737	.70	2SC1337	.80	2SD390	.75
2SB77	.70	2SC261	.65	2SC739	.70	2SC1383	.75	2SD437	5.50
2SB128	2.25	2SC291	.65	2SC739	.70	2SC1383	.75		
2SB135	.95	2SC320	2.00	2SC715	1.75	2SC1409	1.25	MPS-U31	at 4.00 ea.
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2SB175	.55	2SC371	.70	2SC784	.70	2SC1448	1.25		
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BU204	1300V	3.90	BU207	1300V	5.40	2SC1172B	1100V	4.25
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1N270	.10	2N960	.55	2N2219A	.30	2N2913	.75	2N3740	1.00	2N4401	.20
1N914	.10	2N962	.40	2N2221	.25	2N2914	1.20	2N3771	1.75	2N4402	.20
		2N967	.50	2N2221A	.30	2N2916A	3.65	2N3772	1.90	2N4403	.20
2N173	1.75	2N1136	1.35	2N2222	.25	2N3019	.50	2N3773	3.00	2N4409	.20
2N178	.90	2N1142	2.25	2N2222A	.30	2N3053	.30	2N3819	.32	2N4410	.25
2N327A	1.15	2N1302	.25	2N2270	.40	2N3054	.70	2N3823	.70	2N4416	.75
2N334	1.20	2N1305	.30	2N2322	1.00	2N3055	.75	2N3856	.20	2N4441	.85
2N336	.90	2N1377	.75	2N2323	1.00	2N3227	1.00	2N3866	.85	2N4442	.90
2N338A	1.05	2N1420	.20	2N2324	1.35	2N3247	3.40	2N3903	.20	2N4443	1.20
2N398B	.90	2N1483	.95	2N2325	2.00	2N3250	.50	2N3904	.20	2N4452	.55
2N404	.30	2N1540	.90	2N2326	2.85	2N3375	6.50	2N3905	.20	2N5061	.30
2N443	1.75	2N1543	2.70	2N2327	3.80	2N3393	.20	2N3906	.25	2N5064	.50
2N456	1.10	2N1544	.80	2N2328	4.20	2N3394	.17	2N3925	3.75	2N5130	.20
2N501A	3.00	2N1549	1.25	2N2329	4.75	2N3414	.17	2N3954	3.50	2N5133	.15
2N508A	.45	2N1551	2.50	2N2368	.25	2N3415	.18	2N3954A	3.75	2N5138	.15
2N555	.45	2N1552	3.25	2N2369	.25	2N3416	.19	2N3955	2.45	2N5198	3.75
2N652A	.85	2N1554	1.25	2N2484	.32	2N3417	1.85	2N3957	1.25	2N5294	.50
2N677C	6.00	2N1557	1.15	2N2712	.18	2N3442	1.20	2N3958	1.20	2N5296	.50
2N706	.25	2N1560	2.80	2N2894	.40	2N3553	1.50	2N4037	.60	2N5306	.20
2N706B	.40	2N1605	.35	2N2903	3.30	2N3563	.20	2N4093	.85	2N5354	.20
2N711	.50	2N1613	.30	2N2904	.25	2N3565	.20	2N4124	.20	2N5369	.20
2N711B	.60	2N1711	.30	2N2904A	.30	2N3638	.20	2N4126	.20	2N5400	.40
2N718	.25	2N1907	4.10	2N2905	.25	2N3642	.20	2N4141	.20	2N5401	.50
2N718A	.30	2N2060	1.85	2N2905A	.30	2N3643	.15	2N4142	.20	2N5457	.35
2N720A	.50	2N2102	.40	2N2906	.25	2N3645	.15	2N4143	.20	2N5458	.30
2N918	.35	2N2218	.25	2N2906A	.30	2N3646	.14	2N4220A	.45	C103Y	.25
2N930	.25	2N2218A	.30	2N2907	.25	2N3730	1.50	2N4234	.95	C103d	.40
2N956	.30	2N2219	.25	2N2907A	.30	2N3731	2.75	2N4400	.20	C106di	.75

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2N6027	.55	2N4892	.50	741C OP. AMP.	.25
2N6028	.70	2N4893	.50	7400	.15
D5E37	.25	2N4894	.50	TA7061P	at 3.50 ea.
2N2160	.65	MU10	.40	TA7205P	at 10.00 ea.
2N4870	.50			UPC1001h2	at 6.00 ea.
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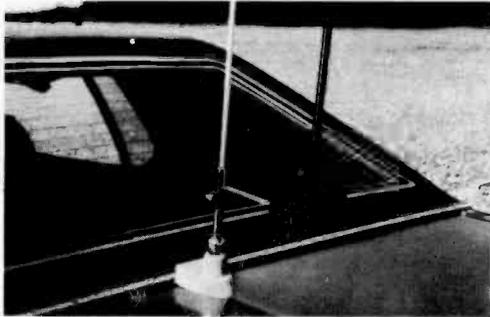
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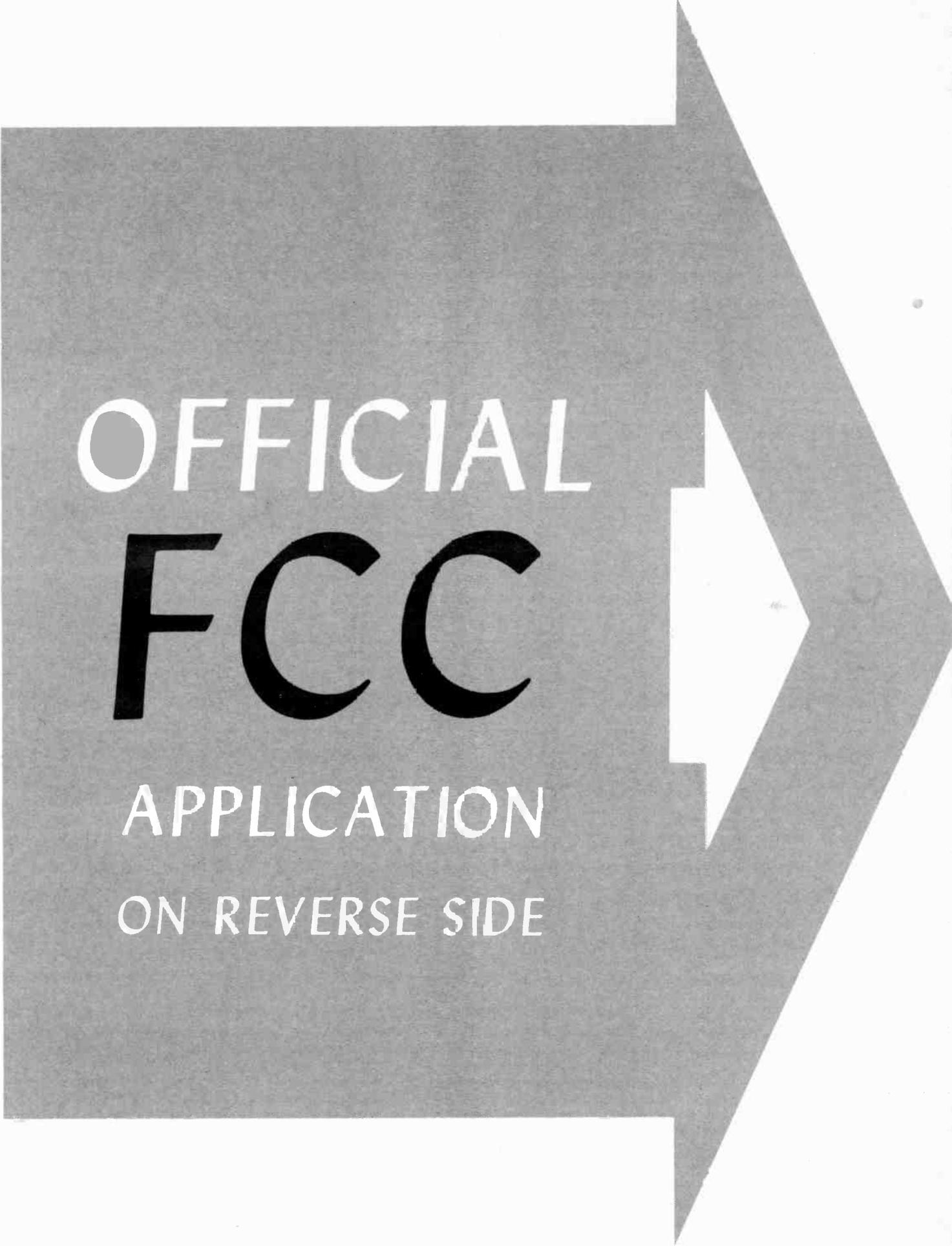
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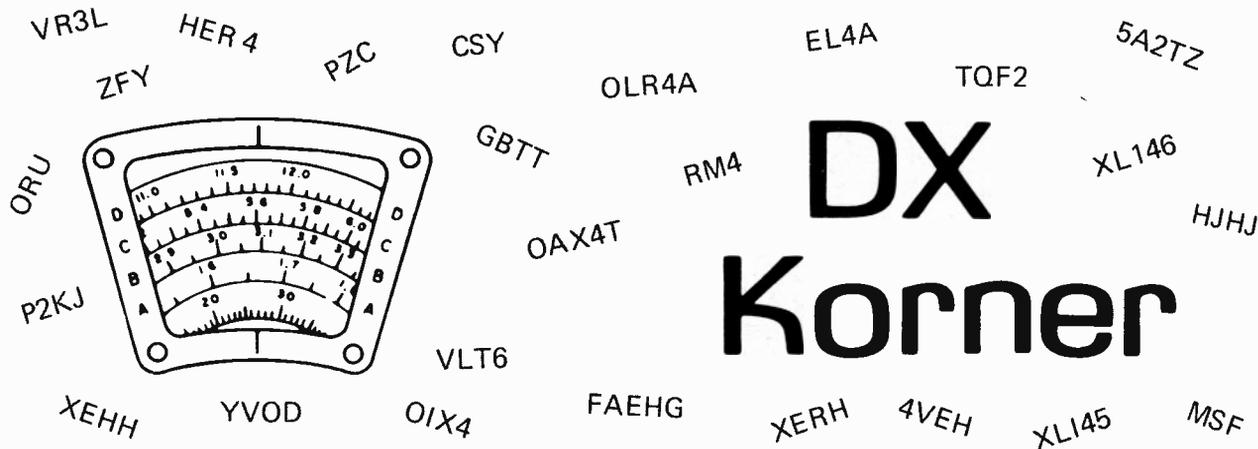
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APPLICATION

ON REVERSE SIDE





# DX Korner

**A** common problem—maybe it is not an exaggeration to say the MOST vexing problem—for many shortwave listeners is accurate frequency determination. Unless your DXing is to be entirely a hit or miss proposition, you must have a good idea of the frequencies you are tuning on your receiver, to an accuracy of five to ten kilohertz at least.

A major failing of a number of shortwave receivers, even some of the medium priced models, is that the dial markings often are next to useless. On the face of things you just can't get accurate frequency readouts.

Is that important? Yessiree! Think of it this way. Your watch breaks, there's not a clock in sight and you want to know the time. A squint at the position of the sun tells you it is mid-morning. Maybe that's good enough for some purposes, but if you have an important appointment at 11:15, you need a lot more accuracy than the sun will give you.

On many shortwave receivers the vague dial markings make it difficult to tell if you are tuned, say, to 9,600, 9,650, or even 9,700 kHz. These sorts of shortwave receiver dials, with only a few key reference points, make finding an accurate frequency as tough as telling time by the sun. If you want to find a station on 9,645 kHz you're wasting time and effort if you can't tell if your dial pointer is really on 9,600 or 9,700 kHz.

How do you solve the frequency readout accuracy problem? You can buy a new receiver, one that will give you good frequency readout . . . but that may well cost you \$300 or more. There are "outboard" frequency calibrators that will spot tone markers, like signposts every 100, 50, 25 or so kHz across the dial to help you better guess where you're tuned. There are auxiliary frequency meters of various types that will more accurately allow you to measure the frequencies you tune. But all of these solutions cost money.

There is one method, however, that is simple, relatively accurate in measuring frequencies and best of all, costs under a buck. Your only expense is for a pack of graph paper, the sort used in high school math or science courses.

The poor man's frequency meter is nothing more than a series of easy-to-make graphs, one for each of the major SWBC bands.

This graph technique will work with any shortwave receiver that has a separate bandspread or fine tuning dial. Unfortunately, if you have a very simple multi-band portable with only *one* sliderule-type dial this won't help you.

On many SW receivers this bandspread dial is calibrated only for the ham bands, which doesn't help you, the SWL, very much. But, in addition, there's usually a logging reference scale, marked simply, 0 to 100. (If it doesn't make your own reference scale by taping a strip of graph paper to your receiver's dial plate—it doesn't really matter if this scale has 100 divisions or not, just so you have a series of reference points along your dial.)

To show you how the graph system works, start with the 31 meter band. On a sheet of graph paper label the vertical scale "kHz;" the horizontal on, "Logging." (See illustration). On the "kHz" scale, mark off the frequencies (every 10 kHz) from 9,500 to 10,000 kHz. The scale will read 9,500, 9,510, 9,520, 9,530, etc. Your "Logging" scale on the graph should be marked off from 1 to 100 to duplicate the logging scale on your receiver's dial.

Next set your receiver so the bandspread pointer is at 100 on the logging scale. Then, using the main knob, find WWV, the standard time and frequency station on 10,000 kHz. Now plot the first point on your graph at the place corresponding to 10,000 kHz and a logging scale reading of 100.

Tune eight or ten other stations in the band; stations whose frequencies are known to you or which are announced on the air. Similarly plot points on the graph for each of those stations. Connect these dots with a line, which may be curved or straight, depending on the linearity of your receiver's tuning. You'll note that now every point on this curve represents a position on the logging scale and a corresponding frequency in kHz.

(continued)

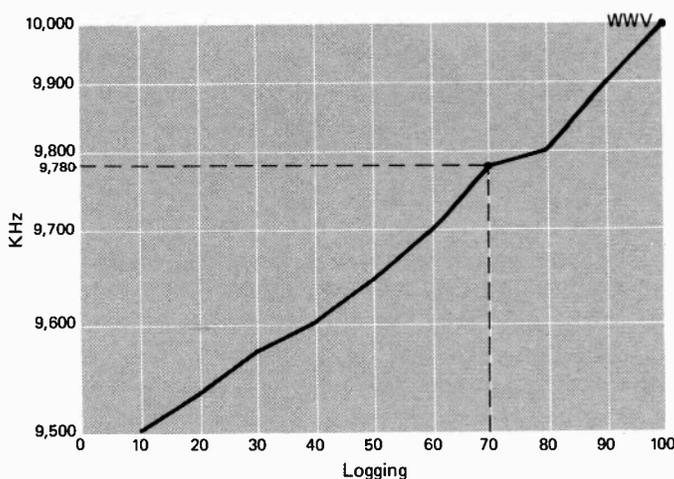
## DX KORNER (continued)

Every time you use this graph, tune your receiver so the key station, in this case WWV, lines up precisely where it should on your graph—10,000 kHz = 100 on the logging scale. Then the rest of the frequencies in the band will be correct.

When you run across a station whose frequency you want to know, note the logging scale reading on your receiver's dial. On your 31-meter band graph, move upward from the same point on the horizontal scale until you intersect the curve, then read laterally to the left to find the frequency.

Make similar graphs for the other SWBC bands. If you make them carefully and use them with equal care, you should be able to read frequencies to within five or ten kHz.

Try it . . . you'll like it!



### ALL THE SHIPS AT SEA

What does a ship's skipper do when he's hundreds of miles or more from dockside and he needs a doc? What does the captain do when a crew member falls sick, or falls into an open hold and suffers a serious accident?

What he does is contact the International Radio Medical Center in Rome. Since 1935, this unique service has provided medical advice by shortwave radio to ships around the world. Each year, the Italian-based operation handles an average of 8,000 radio calls from ships at sea seeking medical help.

It all began over four decades ago when the IRMC was founded by the late Dr. Guido Guida. Before his death at 72, in 1969, Dr. Guida recalled the beginnings of the unique medical radio service.

"In those days I used to have a radio operator sleeping in my apartment," the doctor explained. "The whole operation was conducted from there." Dr. Guida sent notices explaining his free service to the shipping lines. He also furnished medical manuals, written for the layman, to ships officers. At first the service was used mostly by Italian merchant ships, but was soon accepted by the ships of most nations. The costs now are underwritten by private and governmental sources around

the world. The medical expertise is provided by teams of volunteer physicians always on call.

A ship needing help radios the center. The doctors on duty study case history sheets of the sailors being treated for illness or injury and their advice on medication or treatment is then radioed back to the vessel.

Since 1963, when the center outgrew offices in Rome, it has been housed in a suburban villa. There radio operators maintain a 24-hour-a-day radio watch. The station uses International Morse Code CW transmissions, sometimes directly to the ships and other times relayed by major coastal radio stations around the world.

The station, which uses the call sign IRM, can be heard by DXers, especially during times when a repeated identification "marker" is transmitted in Morse Code. Listen for a running series of "V's" (..-) and the station's call letters, IRM (..-./-/-).

You're most apt to hear the station during the evening hours on 6,365, 12,760 or 17,105 kHz, but other frequencies to watch include 4,350, 6,420, 8,685, 12,748 and 22,525 kHz.

### WHAT'S NEW

**STICKER PROMO**—Bumper stickers are still "in" it seems. And so if you're looking for an unusual one that, chances are, nobody else in your town has stuck on his bumper, get this! Osterreicher Rundfunk, Austrian Radio is giving away—like for free—promotional stickers printed in red and black. The English version reads, "I'm in tune with Austria on Shortwave." Similar stickers worded in German and French are also available. All you have to do is write and ask for one. The address is Austrian Radio, Shortwave Service, P.O. Box 700, A-1041 Vienna, Austria.

**SILENT COUNTRY**—Another DX shortwave target seems to have vanished from the air. The station is VS18, Turk Island Radio, which until recently could be heard in many areas east of the Mississippi during the late afternoon hours on 4,788 kHz. The problem, not surprisingly, is money. The local government on the island, near the Bahamas, apparently decided against continuing the station's operations. The big question was: Would tourism in the Turk and Caicos Islands increase as a result of increased awareness of the islands brought about by the radio broadcasts? The conclusion, it seems, was "No."

### DOWN THE DIAL

**Greenland**—Eastern DXers can find Greenland's Radio during the period between 1430 and 1730 GMT on a frequency of 9,575 kHz. According to reports the best time to try for this far-north DX is Saturday and Sunday, after 1455 GMT.

**Colombia**—Classical music is not the normal fare on South American SW stations but you'll hear longhair selections on the Colombian government's shortwave voice, Radio Nacional at Bogota. This station is widely heard, with good signals, during the evening hours. The

frequency is 4,955 kHz. Announcements naturally, are all in Spanish.

**Soviet Union**—Nearly every SWL is familiar with the English language service of Radio Moscow, which can be heard nearly every evening. Not as well known, perhaps, is another English language program from the Soviet Union. It is Radio Tashkent, located at Tashkent in the Uzbek S.S.R., a union republic within the U.S.S.R. This station can be heard on 6,025 kHz between 1200 and 1230 GMT, in English.

**Norway**—Radio Norway is not the most commonly heard European station on shortwave. One reason is that it does not schedule much English in its programs. The best time to catch this one, located at Oslo, is on Sunday. Listen on 9,590 kHz at 1400 GMT for "Norway this Week."

**Belgium**—Reports that Radio TV Belge was about to cancel its programs to North America seem to have been erroneous . . . or else there was a change in those plans. At any rate, the good news is that RTB can still be heard in English at 0015 GMT on 9,755 kHz.

**Grenada**—Another station that seemed destined to leave shortwave has popped up again. This is Radio Grenada in the Windward Islands of the Caribbean. Look for this one between around 2000 and 2200 GMT on 15,105 kHz.

(Credits: Victor Jaar, Quebec, Canada; John Dalla, MI; Richard Lucas, NY; Robert Zilmer, WI; Alan Thompson, Great Britain; North America SW Association, Box 13, Liberty, IN 47353)

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## COMING EVENTS

(from page 37)

Sponsored by Middle River CB Club Inc. For more information contact Middle River CB Club, Inc., Middle River, MD.

*CB Jamboree*, August 28 & 29, Hopewell Armory, Hopewell, VA. For additional information contact, Horace Cooper, 3010 River Rd., Hopewell, VA 23860, (804) 458-6793, or Mike Grant, 302 N. 9th Ave., Hopewell, VA 23860, (804) 458-0093.

*Jamboree*, August 28-29, Lake County Fairgrounds, Grayslake, IL. Benefit for Emergency Rescue Squads. Sponsored by Fox River Valley CB Club. For more information contact: Fox River Valley CB Club, 440 Linden Lane, Antioch, IL 60002.

*4th Annual Jamboree*, August 28th-29th, Chestnut Ridge Camp (Cooper Rocks exit off US Rt. 48 to Rt. 73 East and follow the jamboree signs). Sponsored by Mon-Valley REACT No. 2209. For more information contact them at PO Box 1005, Morgantown, WV 26505. Attention: Pres. Eugene Fullmer.

*6th Annual Baton Rouge, LA Jamboree & Dance*, August 28th-29th, LSU Assembly Center. Sponsored by the LA Capital City Area CB Association, Inc., PO Box 15464, Baton Rouge, LA 70815. For information call (504) 261-3179.

### SEPTEMBER

*3rd Annual CB Jamboree*, September 4th-5th. Sponsored by Cherokee Plains CB Club at Agri Bldg. at Washington and 6th Street. For information contact CB Jamboree, PO Box 79, Arkansas City, KS 67005. 316-442-9674.

*Jamboree*, Sept. 4 & 5, 45th Street and River Rd., Columbus, GA. Sponsored by Chattahoochee Chatters CB Radio Club. For more information contact P.O. Box 6221, Columbus, GA 31907.

*Hootnanny Jamboree*, September 4th 5th, 6th, "The Trails Inn"-Trailer Park, Interstate 75, South at Connector 3, Dalton, GA. Sponsored by Independent CBers of North Georgia. All proceeds donated to charity. Helen Goodrum, 106 Park Street, Dalton, GA 30720.

*1976 2nd Jamboree*, Sept. 4th, 5th, 6th, Jensen's Park, 7570 Crow Canyon Road, Castro Valley, CA. For the benefit of Muscular Dystrophy. For information, call Hughes CB Radios, 357-4226.

*12th Annual Jamboree-Camporee*, September 11th-12th, Lower Valley CB Radio Club, Inc. Held at Ponderosa Park, Rt. 161, East Lyme, CT. Contact Walt Corey, PO Box 177, Waterford, CT 06385.

*11th Jamboree*, Sept. 12, Point Breeze, Webster, MA. Just off Route 193. Sponsored by The Southern New England Citizens Radio Assoc. For more information contact, Bess Stevens, A. F. Putnam Road, Charlton, MA 01507.

*CB Break*, Sept. 12th, Desert Inn, 30-80 Whitestone Pkwy. (one block from Adventurers Inn). For further information contact the American CB Radio Club, Inc., PO Box 321, Bronx, NY 10476.

*2nd Annual Coffee Break*, September 19th, Recreation Hall, West Leechburg, PA. For information, contact Kiski Valley CBers, Inc. PO Box 74, Park Station, Vandergrift, PA 15690 c/o Publicity Comm., Alice Mae Frayer, 412-568-3395.

*Butler CB Ranger's 10th Annual Coffee Break*, Sept. 26, Farm Show Grounds, Rt. 68 S., 5 miles South of Butler. For more information contact Ken Craig Sr., RD #1, Pinehurst Rd., Butler, PA 16001. Phone: 283-2969.

### OCTOBER

*Annual Coffee Break*, Oct. 2 & 3, VFW Hall, Vandalia, MO. Sponsored by Prairie Rangers CB Club. For more information contact Marvin Dillon, 209 W. Arlington Vandalia, MO 63382.

*American CB Radio Club Jamboree*, October 3rd, Desert Inn, 30-80 Whitestone Pkwy (one block from Adventurer's Inn). For information contact American CB Radio Club, Inc. PO Box 321, Bronx, NY 10469.

*Apple Creek CB Radio Club Jamboree*, October 3rd, Sangamon County Fairgrounds, Southeast Gate, New Berlin, IL. For information contact Blaine Williams: 435-9246 or Jane Suttles: 435-5491.

*4th Annual Coffee Break*, October 3rd, Community Bldg., Transfer, PA. Sponsored by Tri-County REACT. For information contact Darrell Lewis, 1545 Cranbrook Drive, Sharon, PA 16146. 412-347-7500.

*5th Annual Coffee Break*, Oct. 10th, American Legion Post Home, Rt. 50, Cambridge, MD. Sponsored by Chop-tank REACT Team #2189. For more information contact Mr. Levin Niblett, Sr., 415 Kent St., Cambridge, MD 21613.

*Bi-Centennial CB Jamboree*, October 10th, Owensboro Sportscenter. Sponsored by Kentucky-Indiana Citizens Band Radio Club. For more information, write to them at PO Box 145, Owensboro, KY 42301.

*Super Bicentennial CB Jamboree*, October 17, Tappan Zee Inn, Exit 11, New York Thruway, Nyack, NY. For information please contact American CB Radio Club, Inc., PO Box 321, Bronx, NY 10469.



The FCC Regulations state that a copy of Part 95 (Rules and Regulations) must be in your possession whenever you are operating a CB transmitter.

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*Jamboree*, Oct. 22-24, Charlotte Motor Speedway "World 600." Sponsored by Concord Citizens Radio Club Inc. For more information contact Dottie Neal, 127 Crescent St., Kannapolis, NC 28081.

*Bicentennial Coffee Break*, Oct. 24, Guernsey Sales Pavilion, RT. 30 East & RT. 896, 6 miles east of Lancaster, PA. Sponsored by Lancaster County React Team Inc. For more information contact REACT, P.O. Box 1033, Lancaster, PA 17604.

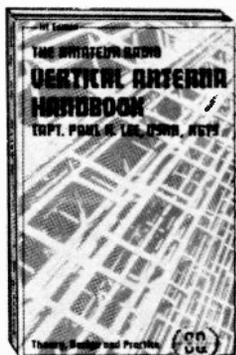
**NOVEMBER**

*Jamboree*, November 7th, Desert Inn, 30-80 Whitestone Pkwy (one block from Adventurer's Inn). For information write American CB Radio Club, Inc. PO Box 321, Bronx, NY 10469.

**DECEMBER**

*Jamboree*, December 5th, Desert Inn, 30-80 Whitestone Pkwy (one block from Adventurer's Inn). For information contact American CB Radio Club, Inc., PO Box 321, Bronx, NY 10469. *9th Anniversary Christmas Party*, December 12th, Community Building, North Main St., Marion, NC. Sponsored by Radio Patrol Emergency Service and Community Watch, Inc. For more information contact them at Rt. 3, Box 68, Marion, NC 28752.

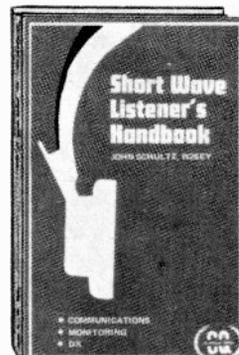
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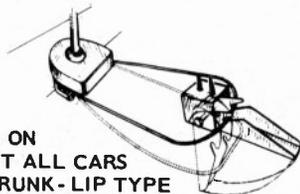
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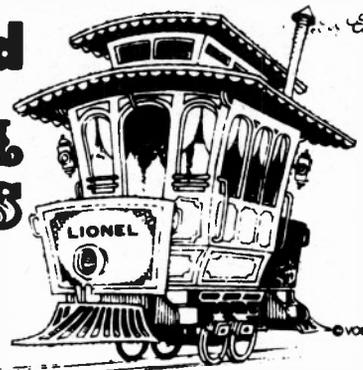
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In fact I'll buy just about anything Lionel made except the smaller "O 27" Gauge engines. I'm also interested in the old American Flyer or Ives Standard Gauge from before WW.II.

So, if you've still got that old train or trolley collecting dust somewhere, pull it out and drop me a line. I'll try to answer every letter promptly.

Dick Cowan,  
Publisher S9 Magazine  
14 Vanderventer Avenue  
Port Washington, NY 11050

# THE VERDICT IS IN!

**S9** Leads its Closest Competitor by 2½ to 1

**That's right;** during the past year S9 ran 2½ times as much editorial content as CB Magazine. And... S9 total pages ran 45% ahead.

The comparison chart tells the story:

	S9 TOTAL PAGES	CB TOTAL PAGES		S9 EDITORIAL PAGES	CB EDITORIAL PAGES
May	100	68	May	38%	14
June	104	68	June	30%	16
July	100	84	July	36%	23%
August	116	76	August	41%	12%
September	116	88	September	44%	22%
October	134	104	October	50	29%
November	140	100	November	44%	24%
December	196	100	December	60	21%
January	180	116	January	49	35
February	144	68	February	54	23
March	176	84	March	61%	24%
April	240†	116	April	110+	44+



† Including CB Radio Marketing

**Now,** we hope you judge **S9** on its own merits. But, if you like to have something else to compare us with, the number two magazine is a fine place to start. And any way you compare, S9 stands out as Number One in every respect. Show these facts to your CB friends. They'll thank you for it, and we'll be most grateful.

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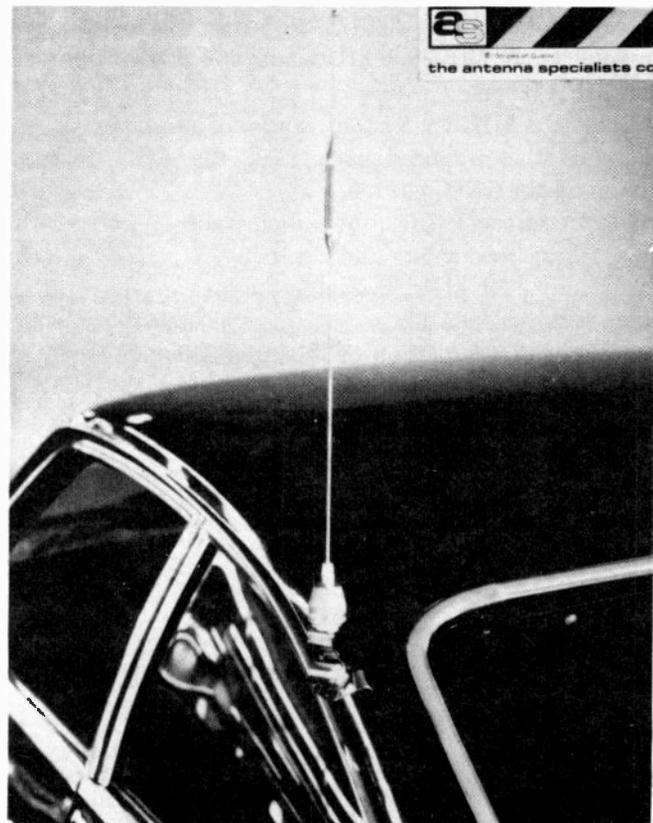
# The Monitor Post

by Rick Maslau, KNY2GL

A new mobile monitor antenna designed for use on hatchback model cars has been introduced by the Antenna Specialists Co.

The new center loaded Model, MON-60, comes with an adjustable mount that allows the user to set the antenna in the vertical position, compensating for the sloped roof line of the new hatchback and fastback cars. It can also be used for trunk mounting.

The MON-60 provides complete coverage of all three police and public safety bands. Suggested list price is \$22.95. For further specifications contact: The Antenna Specialists Co., 12435 Euclid Avenue, Cleveland, Ohio 44106.



## EXPERIMENTAL INTEREST

**KS2XFC**, R. L. DRAKE COMPANY, Miamisburg, Ohio. Fixed experimental developmental station to operate on various discrete frequencies between 1506.0 and 25840.0 kHz for development of radio communications equipment for use in the marine service.

**KS2XFE**, LAKE SYSTEMS CORPORATION, Newton, Massachusetts. Developmental station to demonstrate equipment for sales purposes using frequencies specified in Part 91 of the Commission's Rules.

**KS2XFL**, GENERAL ELECTRIC RADIO SERVICES CORPORATION, Washington, D.C. Research station to operate on various frequencies between 30.3 and 9237 MHz to conduct experimentation required by a contract with the U.S. Government.

**KS2XFN**, EARMARK AUDIO RESOURCES, INC. Hamden, Connecticut. Developmental station to operate on 30.84, 33.14, 33.40 and 35.02 MHz to develop, test and demonstrate a two-way communication system for classroom educational instruction.

**KS2XFT**, MOTOROLA, INC. Schaumburg, Illinois. Fixed experimental developmental station to operate on 454.725 and 454.850 MHz for development of radar equipment for use in various licensed services.

**KS2XFV**, MOTOROLA, INC., GOVERNMENT ELECTRONICS DIVISION. Scottsdale, Arizona. Mobile experimental developmental station to operate on 151.955 and 153.05 MHz for development and testing of mobile-airborne radio equipment.

**KS2XFX**, MOTOROLA, INC., Schaumburg, Illinois. Fixed experimental developmental station to operate on discrete frequencies every 25 kHz beginning at 866.0125 and ending at 866.4875 MHz for development and testing of new radio equipment for use in the licensed radio services.

**KS2XFZ**, CONTROL DATA CORPORATION, Minneapolis, Minn. Mobile experimental research station to operate on 403.000 and 402.997 MHz to conduct experimentation required by a contract with the U.S. Government.

**KS2XGJ**, LITTON SYSTEMS, INC., Van Nuys, California. Fixed experimental research station to operate on 300.0, 312.5, 312.6 and 324.9 MHz to conduct experimentation required by a contract with the U.S. Government.

**KS2XGK**, MOTOROLA, INC. Schaumburg, Illinois. Mobile experimental developmental station to operate on 459.725 and 459.850 MHz for development of radar equipment for use in the licensed services.

**KS2XGO**, UNIVERSITY OF WYOMING, Laramie, Wyoming. Mobile experimental research station to op-

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### THE MONITOR POST (continued)

erate on various discrete frequencies between 152.900 and 158.400 MHz for operation of seismic equipment for geologic seismic research project.

#### PROPOSAL DISMISSED

The Commission has dismissed a rulemaking petition by SED Systems, Ltd., Saskatoon, Saskatchewan, Canada, requesting amendment of the radio frequency devices rules to permit the use of the frequency band 40.66-40.70 MHz for telemetering of data from high power voltage transmission lines.

In its petition, SED stated that it had developed a High Line Data Acquisition System (HILDA System) for measuring and recording mechanical vibration of high voltage power transmission lines. It said this system uses low power radio telemetry to transmit the measured data to a recorder on the ground.

SED stated that the HILDA System was being marketed in Canada where it has been authorized to use the band 40.66-40.77 MHz and indicated that the system soon would be sold in a number of other countries. It said it was seeking an FCC rule change to permit marketing of this system in the United States.

Shortly after SED's petition was filed, the Commission instituted a rulemaking proceeding in Docket 20119 proposing amendment of Part 15 of the rules by deleting the frequency band 26.97-27.27 MHz, adding the frequency band 49.8-49.9 MHz and specifying technical standards.

Since the HILDA System would be permitted to operate on the proposed new band, the FCC deferred action on the SED petition.

On February 4, 1976, the Commission completed the rulemaking proceeding and made five channels between 49.82 and 49.9 MHz available for use by low power devices under Part 15.

Following completion of the rulemaking proceeding, the Commission said SED advised it that the HILDA System could operate on these frequencies and within the technical specifications adopted.

Therefore, the Commission said, since SED had indicated that its needs have been met, its petition would be dismissed as no longer necessary.

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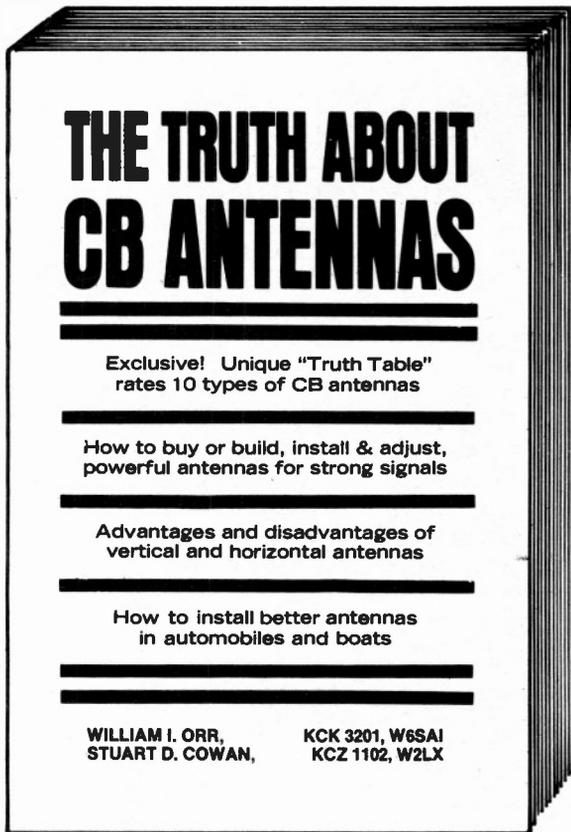
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Remember, this service is absolutely free to subscribers who use the coupon below (or a reasonable facsimile thereof). **THE ELECTRONIC FLEAMARKET** will be read by thousands of electronic hobbyists, so don't miss out.

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# Dealer Business Card Advertisement

*This advertising section is reserved exclusively for CB dealers who wish to keep their name in front of their local customers, but who would otherwise not advertise in a national publication. The ads included are limited to one column-inch; advertising copy is limited to non-mail-order type. The costs for business card ads are \$45.00 prepaid. In*

*addition to the ad in the business card section, each dealer participating receives twenty five copies of the issue containing his ad, to sell or pass out in his store. For further information, dealers should contact the publisher, S9 Magazine, 14 Vanderverter Ave., Port Washington, NY 11050. Phone: 516/883-6200.*

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Swappers Awards are given to those readers who have sufficiently proven that they have reached certain specified levels of achievement in QSL card swapping. There are 19 different and distinctive Swappers Awards, and if you would like a complete set of rules, address your request together with a stamped, self-addressed envelope to: Swappers' Awards, CB RADIO/S9 Magazine, 14 Vanderventer Avenue, Port Washington, NY 11050. Awards cost \$1.00 each. Here are the winners of the black, pink and white certificates for the past month:

- PX-25 1057 C.B. Brown, Buchanan, GA.  
 PX-25, 1058; PX-50, 929 The Hole in the Wall Gang Russellville, AR.  
 PX-25 1059 Edward "TJ" Graboski, KWC-4671, Penn Hills, PA.  
 PX-200, 308; PX-225, 244 Paul Miller, KDY-8988, Canton, NY.  
 PX-225, 245; PX-250, 290 C. E. Shott, KHZ-7524, Virginia Beach, VA.  
 PX-400, 138; PX-425, 121; PX-450, 122; PX-475, 116; PX-500, 129; PX-525, 117; SSC-9, 125; SSC-10, 120 Martha A. Weaver, KBB-1228, N. Canton, OH.  
 PX-525, 118; SSC-12, 115 Wayne & Margo Heck, KBN-2024, Oneonta, NY

## QSL MONTHLY LISTING

If you would like to be listed as a QSL card swapper in our monthly listing, you must do the following: Send us one card and enclose 20 cents in cash (no stamps, checks, or money orders) for each month you are to be listed, or send in \$2.00 for a full year's listing. (Minimum order at one time is 5 months) Try not to write on your cards and don't scotch tape your money to the card. Address the material to: Card Swappers' Unlimited, 14 Vanderventer Avenue, Port Washington, NY 11050. Deadline for listing in any issue is the 5th day of the second preceding month of publication.

### DOMESTIC

- KBC-6286 Al Kaiser, 194 Glen Hills Rd., Meriden, CT 06450  
 KBI-0227 Margie & Eddie Albertson, 2 Blvd., Sea Cliff, NY 11579  
 KBN-7332 Jeff Groves, River Base, Allen Groves, Box 11, Pillager, MN 56473  
 KBQ-0282 Bob Bell, 1822 Cooper St., Saginaw, MI 48602  
 KBQ-1403 Mark Milosky, 41 Spring Hill Ave., Norwalk, CT 06850  
 KCD-5826 Joe J. Dziak, 1441 N. Olden Ave., Trenton, NJ 08638  
 KCG-0706 Edith M. Becker, 5606 Franconia Rd., Alexandria, VA  
 KCN-1113 The Lesuer's, 21 Montague Rd. Binghampton, NY 13901  
 KCN-5600 James & Cora Rainey, Jr., 600 Morgan St., Lansing, KS 66043  
 KCO-2682 Ronnie, Kathy & Holly Jean Lent, P.O. Box 8726, Boston, MA 02114

- KCP-8919 Ed & Maxine Hayes, 719 Locust Clinton, IA 52732  
 KCQ-8140 Terry W. Rockow, 1525 County Line Rd., Kendall, NY 14476  
 KCX-0423 Ray Williams, Stewart Rt. Rd. Nassau Lake, NY 12123  
 KCX-0829 Phillip Steven Kurland, 3000 Valentine Ave., Apt. 1A, Bronx NY 10458  
 KDI-5095 The Carnes Clan, 821 E. 28th St., Hialeah, FL 33013  
 KDQ-1059 Ralph E. Cathcart, 71 Akin St., Fairhaven, MA 02719  
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 KDV-7237 Gordon L. Carley, P.O. Box 1, Dalton, NE 69131  
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 KDY-7323 Nathaniel L. Jones, Jr., 5475 Lynbrook Ct., Fayetteville, NC 28304  
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 KEW-0375 Karl Wayne, 4 Forest St., Darien CT 06802  
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 KFK-3311 James E. Logan, 126 St. James Place, Apt. 2, Atlantic City, NJ, 03411  
 KFL-0136 Roger & Marilyn Schumann, 422 Derrer Rd., Columbus, OH 43204  
 KFN-5146 Frank & Doris Dressel, 2813 E. Rude St., Weedsport, NY 13166  
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 KFQ-5029 Walter Korbas, 20 N. Beagle St., Dunkirk, NY 14048  
 KFS-1383 Tony & Janet Masi, RD No. 1 Box 39B, Bainbridge, NY 13733  
 KFS 1726 The Brown's, P.O. Box 587, Buchanan, GA 30113  
 KFT-3377 Randy C. Wolfson, 1008 Summit Lane, Oreland, PA 19075  
 KFU-0985 Richard Wick, Rt. 2, Box 892, Libby, MT 59923  
 KFU-0985 Bruce & Jo Anne Kieffer, Box 102, Glen Elder, KS 67446  
 KFW-8487 Lila F. McAdoo, 710 S. 15th P.O. Box 1223, Mt. Vernon, IL 62864  
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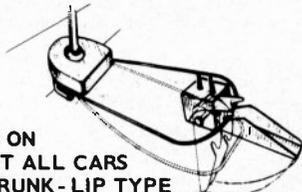
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- KGQ-1133 "Foxtrots", 1223-56th, Des Moines, IA 50311
- KGQ-3762 Paul & Marilyn Beck, Rt. 10, Box 330-F, Winston Salem, NC 27107
- KGT-2324 Milton E. Timms, R.R. 3, Box 403, Warsaw, IN 46580
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- KGU-3844 Tom & Jerry Ernst, 3802 E. Nebraska Stav., Tucson, AZ 85706
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- KIG-4908 The Martins, P.O. Box 394, Bainbridge, GA 31717
- KIM-8284 John Lord, Fenimore Rd., So. Glens Falls, NY 12801
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- KIO-4461 Norman H. Lueschen, Box 1022 Fremont, NE 68025
- KIO-4466 Richard Christy, Star Route, Canton, NY 13617
- KIO-8717 The Romick's, R.R. 4, Findlay, OH 45840
- KIP-1637 Cathy Burnham, P.O. Box 9814, Brook Park, OH 44142
- KIP-2487 Jerry & JoAnn Morrison, 503 Warren St., Terrell, TX 75160
- KIP-6577 Larry Weaver, 3681 Rogers Dr., Douglasville, GA 30134
- KIP-9834 Bill & Judy Altwives, 524 Lyon St., Ripon, WI 54971
- KIY-2599 Alan L. Wommer, R.D. Box 210-A, Perkiomenville, Penn., 18704
- KJN-1648 Don & Sandy Cook, R..F.D., 1, Fulton, NY 13069
- KJO-2682 Porcupine & Sweetheart, P.O. Box 51, Merrill, WI 54452.
- KJO-3994 Frank & Zelma Boreson, 3839 Pacific 84, Forest Grove, OR 97116
- KJP-0146 Seville 2 Way Radio Sales, 141 North Center, Seville, OH 44273
- KJP-9360 Freda L. Parslow, Box 38, R.D. 1, Howes Cave, NY 12092
- KJQ-7224 Blue Moon, Rt. 3, Box 740, Bartow, FL 33830.
- KJR-8141 Charles & Sandra Mills, Box 323, Baytown, TX 77520
- KJW-4434 The Browns, 48 E. Front St., Marietta, PA 17547
- KKK-3635 Horace & Annie Lee Engie, P.O. Box 709, Graham, NC 27253
- KKS-9040 Carolyn Betts, 62 Vincent St., Chillicothe, OH 45601
- KLJ-0412 Margaret & Herman Hipshur, Sr., 107 Iowa Ave., Joliet, IL 60433
- KLN-9155 Geri, Shawn & Evans Johnson, 6319 Balfour Dr., Lansing, MI 48910.
- KMD-6979 William Koulter, Valeria Home, Peekskill, NY 10566
- KMV-2120 Jim Thompson, 815 East Orchard, Ada, OK 74820
- KMX-1007 Rolly Butler, P.O. Box 112, Long Beach, CA 90801
- KMX-3299 The Badger, P.O. Box 8214, La Crescenta, CA 91214
- KNM-4121 Marion & Howard, P.O. Box 357, Winchester, KY
- KNP-3121 Randy & Jane Hitchcock, 751 River Rd., Box 314, Chenango Bridge, NY 13745
- KOA-0054 Steve Rowe, 12 Hauser St., Milford, CT 06464
- KOG-1195 The General, RFD 1, Box L-15, Raymond, NH 03077.
- KOZ-9964 The Drydens, R.F.D. 1, Jenkins Lane, M & E & R White Birch Ranch, Durham, NH 03824
- KPK-0022 W.E. Johnson, 3102 Dell Brooke Ave., Louisville, KY 40220
- KPK-0086 The Alyea's, 14 N. Dayton, Rockford, MI 49341
- KPQ-1775 Doug Pete, Potsdam, NY 13676
- KPQ-5470 The Sisson's, Box 116, Asbury Ave., Binghamton, NY 13901
- KQD-5496 Harold R. Rumer, 403 W. 23rd St., Wilms, DE 19802
- KQH-3989 Virginia, RFD 1, Box L-15, Raymond, NH 03077.
- KRM-5711 Mildred S. Bugbee, 6477 Burkhardt Rd., Howell, MI 44883
- KRP-3191 Dick Bleil, 131 Forest Hill Walk, Binghamton, NY 13903
- KSF-7973 Rich & Betty Mastro, P.O. Box 160, Roseville, MI 48066
- KSI-3962 Jonathan C. Merritt, 6897 S. Goddard Rd., Lithonia, GA 30058
- KSK-3828 Michael Cooper, 248 Navaho Dr., Paducah, KY 42001
- KSO-0122 Mike T. Nix, P.O. Box 124, Porterdaie, GA 30270
- KSP-7687 Robert Carfora, 49E 9th St., Apt. 2, Oswego, NY 13126
- KSU-5155 Harry & Jennie Collier, P.O. Box 71, Baldwinville, MA 01436
- KTC-4409 Marshall Norman, 800 S. Raymond, Indep., MO 64050
- KTI-3305 Gene Orefice, 64 W. McClellan Ave., Livingston, NJ 07039
- KTP-8831 Bob Churchill, 411 Beckett St., Lebanon, MO 65536
- KTP-9694 Everett & Betty, P.O. Box 424, La Grande, OR 97850.
- KWB-3920 Lou Harbaugh, 121 Hallock St., Jamestown, NY 14701
- KWF-2034 Ray Creswell, P.O. Box 14, Indep., MO 64050
- KWF-7563 The Professor & Teachers Pet, Rt. 2, Box 343, Montello, WI 53949.
- KWM-1756 Kirk Ballard, 1110 Northwest 4th, Ankeny, IA 50021
- KWM-9095 Sam Davis, P.O. Box 254, Union City, TN 38261
- KWN-0700 Jim, Rt. 3, Box 710, Front Royal, VA 22630
- KWN-3531 Jack Moehenthaler, 302 N.W., Kline, Ankeny, IA 50021
- KWP-9007 Kenneth Van Tassel, Palen Rd., Hopewell Jct., NY 12533
- KWQ-7393 Lorraine Merchant, 32 Russell Ave. So., Minneapolis, MN 55405
- KWR-8038 Shirtail & Cricket, P.O. Box 1289, Weaverville, NC 28787.
- KWS-9432 The Lane's, 646 Ave. E., Bogalusa, LA 70427
- KWT-6328 Bill Garland, P.O. Box 830, Paintsville, KY 41240.
- KWT-6730 John Tatalio, 432 Bordentown Ave., South Amboy, NJ 08879
- KWU-1406 The Carney, Cave City, KY 42127
- KWV-1076 Allan S. Adelman, 6347 Oakland St., Philadelphia, PA 19149
- KXF-2606 "The Knight", 26 Knight Street, Glen Falls, NY 12601.
- KXH-1996 Mr. & Mrs. Greg Fish, Box 522, Strong, ME 04983
- KXI-5124 Pete Jackson, P.O. Box 400, Maywood, NJ 07607
- KXO-4413 Bruce N. Rolland, 457 South 4th St., Hamburg, PA 19526
- KYG-1517 LaVerne Smith, 5705 Arklow Ct., Norwood, OH
- KYP-1946 Jimmy Spry, P.O. Box 75, Avenel, NJ 07001
- KYT-6012 Richard & Betty Smith, Box 97, Cedar City, MO
- KZE-9466 Peter Ciolli, 1314 Ovington Ave., Brooklyn, NY 11219

# CB SHOP

Rates for CB SHOP are 10 cents per word for advertising which in our opinion, is obviously of a non-commercial nature. A charge of 50 cents per word is made to all commercial advertisers or business organizations (minimum ad, \$20.00). Regular S9 display advertisers are exempt from the classified ad minimum rate. A 5% discount is in effect for an advance insertion order for six consecutive months.

We do not bill for advertising in CB SHOP. Full remittance must accompany full orders sent in; otherwise, will not be run or acknowledged.

Closing date is the 5th of the second month preceding publication.

Because the advertisers and equipment contained in the CB SHOP have not been investigated, the publisher of S9 cannot vouch for the merchandise or services listed therein.

All paid classified ads must be sent to the attention of Eileen Lucey, Classified Ad. Manager.

QSL CARDS- 2 color 12 pt. glossy white, 500 for \$8.00, 1,000 for \$14.00. Over 300 designs. Catalog & Samples, \$1.00. Lile Guill, Rustburg, VA 24588

DISPLAY YOUR CALL NUMBERS & handle on your car. Custom engraved plastic window plate 2" x 8", 1 line (number or handle) \$3.50, 2 lines, \$4.50. Red, blue, walnut, or black with contrasting letters. B-L Engravers, 511 Second St., FairLawn, NJ 07410

WANTED: LAFAYETTE TELSAT 150 or Telsat 50. State Condition & best price. KZV-7911, Box 73, Folly Beach, SC 29439

DEALERS: Totally new antenna and mount: The TILT-A-TENNA Mount attaches to top of any lip, trunk or door. It adjusts to any angle and sets the top-loaded stainless steel ALL AMERICAN Antenna vertical, for best gain and best omnidirectional coverage. Tilt-release rotates the antenna down for garage parking! Also attaches to mirror mounts and luggage racks - suits almost every customer for top sales volume. Write American Antenna Products, P.O. Box 180, New Lenox, IL 60451

REVOLVING MAGNETIC TEARDROP, (Triplite) blue or amber \$29.95. Emergency vehicle equipment catalog, \$2.00. (3.00 refundable with first order). Vehicle Systems, P.O. Box 101, Mastic Beach, NY 11951.

CB RADIOS AT WHOLESALE PRICES! Listing \$.50. Going Ham? YAESU FT-101E in stock. SIDEBAND SPECIALTY Box 573 DC, Oak Harbor, WA 98277

YOU SAVE BIG MONEY! Surplus, clearouts, bankruptcy inventory, deals. Catalog \$1 (redeemable). ETCO, Box 741, Dept. S9, Montreal, Canada, H3C 2V2.

CB HANDLES WITH HUMOR, over 300 handles, short stories and poems. Send \$3.00. Billy R. Smith, 3022 South State Springfield, IL 62704

ATTENTION C.B. DEALERS: Having hard time getting C.B. sets? We carry a full line, including Pearce-Simpson, Robyn, Browning, Johnson, Royce, Police Monitors, Crystals, New-Tronics, Antenna Specialist (E & S C.B. Sales & Service) R4, Winchester, IN 47394

CB DEALERS - Send today for our price list, same day service. Reputable company in CB business for over 8 years. Over half-million dollar inventory. CB DISTRIBUTORS, Box 15883, Baton Rouge, LA 70815

CB LANGUAGE GUIDE: Durable plastic laminated sheet, 5 1/2 x 7 inch; Convenient quick reference of CB slang and 10 Code. Send check for \$2.50 (PA residents include \$.15 tax) to T. Stickler, P.O. Box 144, Mohnton, PA 19540.

FCC TEST ANSWERS, \$10., specify class, Dixie Tec, Box 8352, Savannah, GA 31402

SPECIAL OFFER - 100 QSL IRC'S - Send only \$1.00. Tower-SI, Drawer 10083, Charleston, SC 29411.

CUSTOM-MADE 'T' SHIRTS - Show call letters - modulating channel - handle. \$6.50 & .50 handling. Bumper stickers - handle & call letters, 2 for \$3. Modulating log booklets, lists over 100 10-4's, 3 for \$1.00 & .25 handling. Special club 'T' shirts - decal front, club name back, \$6.00 & .50 handling. C.B. Modulators, P.O. Box 108, Eagleville, PA 19408.

ONCE IN A LIFETIME! Join Bi-Centennial CBers. Receive beautiful 8 x 10 Bi-Cent. certificate. Only 200 per state will be issued. Your name, call sign, or handle. Contains your state and official Bi-Centennial number. Mail \$5.00 to Moonstripper, P.O. Box 623, Spencer, IA 51301.

ALL-DIRECTIONAL BASE STATION Antenna, 6.5 db gain, low SWR across CB band, low construction cost, light weight, average construction time 1 hour. Complete plan \$2.50. Two or three element beam: up to 15 db gain, low SWR across CB band, no gamma match loss, light weight, low construction cost, average construction time 3-4 hours. Complete plans \$4.50. Both sets of plans, \$6.25. Antenna Plans, P.O. Box 372, Fort Atkinson, WI 53538.

CB & ACCESSORIES, gadgets, calculators, watches, Hi-Fi. Catalog now available from large mail order firm featuring Royce, Craig, Cobra, Panasonic, HyGain, Antenna Specialists. Send large \$.26 self-addressed stamped envelope. Parkers World of Electronics, 123 T Dutchess Tpk., Poughkeepsie, NY 12603.

FANTASTIC ACCESSORIES - CB transmitter and modulation monitors, battery condition monitors, tunable interference eliminators, TVI filters. Free Flyer. Electronic Specialists, Dept. 9A, Box 122, Natick, MA 01760.

\$1.00 CUSTOM PRINTS: call letters, & channel, or handle & channel on 3" x 7" red bumper sticker. Blue & White, Box 841, Hicksville, NY 11802.

\$1.00 SUPPLIES, self-adhesive 10-code sticker, 4" x 7" for visor, dash, wall, etc... Blue & White, Box 841, Hicksville, NY 11802.

BUMPER STICKERS CUSTOM PRINTED: Any message, longer messages o.k. Choose red, green, white background, \$3.00. Blue & White, Box 841, Hicksville, NY 11802.

MAIL-IN CB REPAIR: Write or call for procedures and flat-rate price schedule. Most radios in return mail within 48 hours. Communications Unlimited, P.O. Box 55, 1-70 & US 42, London, OH 43140. (614) 852-9446.

SAVE \$5.35! New, CBer's handy reference guide contains FCC Rules & Regulations, CB license application (US Government Price \$5.35), plus CB slang terms, 10-code, CB theft protection, CB sources, more. Regularly \$3.98, limited time only, \$2.95. Guaranteed! JDK Enterprises, 4402-6A5 Altizer, Huntington, WV 25705.

C/B HAM DEALERS: Send your letterhead for free catalog. SILTRONIX, SWAN, MIDLAND, PEARCE-SIMPSON D & A, BLACK CAT, HUSTLER, AVANTI, etc. Appliance & Equipment Co., Inc., 2331 Vance Jackson, San Antonio, TX 78213. 1-512-733-0334.

QSL CARDS - Something completely different! Nothing even close to it on the market! Not made of paper or card stock! The "Cadillac" of QSL's! Samples: \$1.00 - Fully refundable with order. Mac's Shack, Box 1171B, Garland, TX 75040.

QSL CARDS - Build your collection - 25 different QSL cards \$2.50 or 25 of your QSL cards sent to other CBers, \$2.50. Send orders to: Arrid House, P.O. Box 1831, Glendale, AZ 85301.

SIDEBAND? If you're not on SSB yet, chances are you will be soon! Your own SSB ID numbers assigned to you on an ID card, plus Q-Code chart, plus popular AM/SSB terms conversion chart, plus SSB operating tips/techniques gives info on how to get on SSB without grief. All this for only \$3., ppd. An additional \$2. brings the foregoing plus a fancy Sidebander's wall certificate with your SSB ID numbers. Sidebander's decal only \$1.25, ppd. (may be ordered alone), 2 for \$2., ppd. Operating awards and certificates also available, send a postage stamp for free details (this is automatically included with all orders). Sidebander's Service Bureau, P.O. Box 381-F, Smithtown, NY 11787.

WANTED: ANTIQUE GLASS - Looking for old milk glass, purple slag, Carmel & greentown too. Tell me what you have - I pay the highest prices. Write: Jack Schneider, c/o Cowan Publishing, 14 Vanderverter Ave., Port Washington, LI, NY 11050.

PROTECT GEAR with bold burglar alarm warning stickers. Strong self-stick vinyl striking green/yellow design. Only \$2 for 5. Enclose self-addressed stamped envelope. CRB Research, Inc., P.O. Box 56-XC, Commack, NY 11725.

HANDLE BARS - two 31/2" x 15" I.D. stickers with your handle and call letters (must be included) plus 2 favorite channels. Allow 3 wks. for delivery. Idea House, Rye, NY 10580.

FANTASTIC ACCESSORIES - Transmitter and modulation monitors, battery condition monitors, tunable interference eliminators, TVI filters, theft alarms. Free flyer. Electronic Specialists, Dept. 9B, Box 122, Natick, MA 01760.

WANT TO BUY: Will pay top dollars -- hard cash -- for old Lionel Trolleys in any condition. Also want Old Lionel or Ives Standard Gauge trains. Your old clunker may be a collector's dream. Don't be bashful. Write Dick Cowan, c/o S9 manazine, 14 Vanderverter Ave., Port Washington, NY 11050.

NASSAU COUNTY CB'ERS: Don't sit back ... Join REACT !! Central Nassau County REACT, one of the first and largest teams in the nation would like you as a member. We are an independent, non-profit volunteer public service team dedicated to aiding you, our fellow CB'er in time of need. Send today for more information and a membership application to: Central Nassau County REACT, P.O. Box 406-S, Westbury, NY 11590.

CLUBS, REPS & DEALERS - Exclusive CB Ring & Belt buckle. Brochure. Regal Lapidaries, Inc. Dept. CB73, 420 Madison Ave., New York, NY 10017.

NEED HELP? Send your letterhead for our free wholesale CB catalog. Weekly specials available. Write to Alamo Wholesalers, Drawer 4316, Dept. S., Victoria, TX 77901.

ALABAMA DEALERS: we carry most major brand CB radios and accessories. Same day shipping from on the shelf stock. Dealers only. Ask for "SANDEE" or send letter head to Tucker Brothers, Box 177, Cropwell, AL 35054.

DEALERS WANTED for Robyn, Browning, Tram and other CB radios and accessories. Gardner Electronics, 204 Wesley St., Orleans, IN 812/865-2944.

LOOKING FOR old Lionel trains. Interested only in "O" Gauge, excellent to like-new condition. Primary interest is locomotives prior to 1952, but will consider complete sets of more recent models. Am willing to buy outright for cash or swap radio gear to meet your needs. Write: Dick Cowan, WA2LRO, c/o S9 Magazine, or call 516/883-6200.

NOW FROM THE LARGEST WAREHOUSE IN THE EAST. Same day delivery for on the shelf stock. All major brands. 24-hour service. Send for dealer catalog and free gift offer. Send letterhead to: PALOMAR EAST LTD., Palomar Plaza, P.O. Box 148, Congers, NY 10920.

# GOLD LINE CB ACCESSORIES

## ANTENNA MATCHER



GLC 1046 \$10.49  
250 Watts 13-78 MHz

Gives a perfect VSWR match for full power every time. Stops power loss, quick and easy to install.

## SWR MINI-BRIDGE



GLC 1049A \$15.95

- Perfect for inline mobile applications.
- Very stable meter readings.
- Negligible insertion loss.

## FILTERS



### ALTERNATOR & GENERATOR FILTERS

- Range: 2.2 to 400 MHz
- An effective ferromagnetic filter that wipes out annoying noise. Easy to install. No need to tune since circuit attenuates noise at all radio frequencies.

GLC 1076 60 Amp \$8.25  
GLC 1080 100 Amp \$12.95



### CAR STEREO NOISE FILTER

\$3.95 GLC 1096

The new Gold Line Car Stereo noise filter effectively suppresses noise reaching the speaker of your car's radio or tape deck through the power input line.

### FEED-THRU NOISE SUPPRESSOR FILTERS



GLC 1090N (Negative ground) \$4.99  
GLC 1090P (Positive ground) \$6.66

Prevents noise in your radio caused by electrical systems such as battery charging, air conditioning, voltage regulators and power accessories.

## WATTMETERS

### 1000 WATT INLINE WATT METERS

Gold Line 1000 Watt wattmeters provide all you need to get the most out of your transmitter. Absorbing negligible power, these inline units will continuously monitor radiated power.

- 1000 Watts continuous
- Handsome vinyl case
- 3 Scales: 0-10, 0-100, 0-1000 Watts
- VSWR Function
- 50 Ohm Impedance



GLC 1091 \$48.69



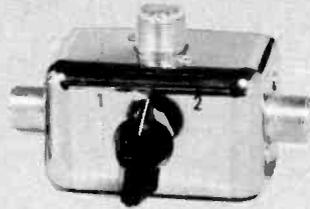
GLC 1081 \$17.1E

Dual range 0-5 Watts  
0-50 Watts, 8-30 MHz

## COAXIAL SWITCHES

GLC 1048 \$7.05

2 Position  
Rated at 1 KW AM  
or 2 KW PEP for SSB



GLC 1070 \$8.28

3 Position  
Rated at 1 KW AM  
or 2 KW PEP for SSB



## EXTRA LONG — HEAVY DUTY RETRACTILE CABLES

Rugged cables for microphone or telephone, 18" retracted, full 90" extended — Stranded center conductors, tough PVC jackets — 6" tail on each end.

PART NO	= OF COND	WIRE GAUGE	O.D.		PRICE
328	3	23	250	1 shielded	\$4.81
329	4	23	240	0 shielded	5.75
330	5	28	180	1 shielded	8.50

**FREE!** New how to use CB accessories brochure. It includes tips on soldering. Schematics and other valuable information. Available only at your Gold Line dealer or distributor.

Dealers and Distributors - Write for details.

## GOLD LINE Your Accessory Power House

25 Van Zant St., E. Norwalk, Conn. 06855 Phone: 203/853-1211

INTERNATIONAL DIVISION, 2200 SHAMES DRIVE, WESTBURY, N.Y. 11590  
CABLE—CHURCHIN WESTBURY, N.Y. TELEX—0961474



Extremely effective RF filters above 2 MHz which suppress the majority of noise due to regulators and generators at 27 MHz (Citizens Band Frequency).

GLC 1059 rated at 40 amps .5 MFD 50 working volts \$2.99  
GLC 1060 rated at 60 amps .5 MFD 50 working volts \$3.69  
GLC 1082 rated at 20 amps .1 MFD 600 working volts \$2.49

**EMERGENCY CITIZENS BAND RADIO** Patrol. Join and receive: membership card, CB slang dictionary, emergency procedure, official 10-codes. Services: Nationwide Handle Registry, Awards, Wholesale prices on CB's. More! Send \$5.00 to National Headquarters E.C.B.R.P., Dept. S9-6, 119 DeHaven Dr., Yonkers, NY 10703.

**WEST TEXAS**, New Mexico, Oklahoma Dealers - Citizens Band, Monitor, Business Radios - Crystals - Federal Sirens & Light Bars - Write for free price list or call Debbie at 915-682-6305. Permian Electronics, 2214 W. New Jersey, Midland, TX 79701.

**PINGUM MACHINAH-ALLEY CAT** introduces the Pingum Machinah. Now you can have a ping tone broadcast with your carrier each time you key the mike. The ping is adjustable. Does not affect transmit or receive of radio. It's size permits installation inside almost all base or mobiles. For complete details, block diagram, parts list, schematic, wiring, instruction and operation, send \$9.95 to: Alley Cat Electronics 3758 Station Way, Memphis, TN 38118.

**SOUTHEAST DEALERS & DISTRIBUTORS:** Best prices. Same day service, most major brands available. Hustler, Turner, Royce, Robyn, Regency, Johnson, Xtal, Midland, SBE, Kris, and many more. Call or write for price list. L.E.S. Wholesale Dist., 16773 S.W. 304 St., Homestead, FL 33030. 305-248-6304.

**BEAR'S IN THE AIR**, bears in the trees, but we ain't scared because we belong to C.B. International. For free information write P.O. Box 16757, Jacksonville, FL 32216.

**QSL CARDS - TWO COLOR EFFECT**, 100 for \$3.95. Send your card or camera ready design for 4 x 6 QSL card, along with payment to Custom Signs, Box 1545, Uvalde, TX 78801.

**ATTENTION TENNESSEE & MID-SOUTH Dealers!** Contact C.E. Distributing for lowest prices on Pace, HyGain, A/S, Shakespeare, Courier, Kris, Avanti, Gemtronics, CDE, Turner, Astatic, Newtronics, Pearce-Simpson, Van Ord, Regency, Breaker, Midland, Tenelec, Wilson, along with a complete line of CB accessories. Warranty Station for Pace, HyGain, Courier. Write or call for catalog: P.O. Box 879, Murfreesboro, TN 37130. (615) 893-4515.

**NEW SUPERDESIGNED COMPANDER** connects to your mike and gives you Big Talk Power - up to 4x more modulated power or 8dB gain! Newly developed Ultralarm stops thieves - goes with your transceiver. Send \$25 for flyer. Minitron, Box 184, Anoka, MN 55303.

**WOW! HANDLE/CALL PINS \$1.00.** 1" x 3" blue, black, red, green. One or two lines white engraved. Max 16 per line inc. space. Safety catch. Clubs, singles. Fast. Send order now or request brochure. Guaranteed. Holly Engraving, Box 3926-V, Hollywood, FL 33023.

**QSL CARDS - 2 color 12 pt. glossy white**, 500 for \$8.00, 1,000 for \$14.00. Over 300 designs. Catalog & samples, \$1.00. Lile Guill, Rustburg, VA 24588.

**BEST PRICES - On Johnson, SBE, Tram, Browning, Courier, Antenna Specialist, Antenna, Inc., Shakespeare, Turner, Astatic, Mura, CDE, Para-Dynamics, Vanco, and Gold-Line.** Write for free price list. CRS Communications, 1552 Central Park Ave., Yonkers, NY 10710.

**JOIN THE BROTHERHOOD OF CB'ERS - NATIONWIDE ORGANIZATION**, with members coast to coast; bumper stickers, club newspaper; equipment and handle registry; overnight accommodations; picnics; ten code; QSL Exchange; CCB List; Hot sheet; Extensive Literature \$.25; Membership \$5.00; Box 461, New Haven, CT 06502.

**WANTED: Jamboree & coffee break listings**, PA, NJ, NY, MD, DE, areas. Harvey Painter, 7611 Woodcrest Ave., Philadelphia, PA 19151

**JOIN INTERNATIONAL EMERGENCY RADIO PATROL.** Details free. Write Bob 434, Saint John, New Brunswick, Canada, E2L 4L9.

**CB DEALERS.** Wren House Electronics is your one-stop distributor for all your CB needs. All major brands of CB radios, antennas, accessories and related equipment. Fast service, competitive prices and one of the best dealer programs in the business. Wholesale only. Send letterhead and \$2 for latest catalog and dealer price list to Wren House Electronics, Inc., Dept. S9C, 1438 Brook Dr., Downers Grove, IL 60515.

**CB DEALERS - Send letterhead** for complete wholesale catalogue on all communications equipment. Four Wheeler Communications, 10 New Scotland Ave., Albany, NY 12208.

**QSL CARDS - Highest Quality, lowest prices.** Send for free large sample assortment. Patronics, Inc., P.O. Box 314, Dept. QS, Shiremanstown, PA 17011.

**FUND RAISING ITEMS FOR CB CLUBS -** Certificates, membership cards, QSL cards, awards, etc. Put money in your club treasury fast. Send for free samples and details. Patronics, Inc., Dept. CS, P.O. Box 314, Shiremanstown, PA 17011.

**DEALERS AND AGENTS WANTED:** Sell America's most sought after CB goodies, Earn \$25., to \$150., weekly. Details \$25, Redskin, Box 564-S, No. Bergen, NJ 07047.

**MOBILE IGNITION SHIELDING** provides more range with no noise. Available most engines in assembled or kit forms, plus any other suppression accessories. Free Literature. Estes Engineering, 930 Marine Dr., Port Angeles, WA 98362.

**CB DEALERS WANTED.** We sell to dealers only: No retail sales. Call or write for information on our dealer program. DRAGON COMMUNICATIONS, 411 Kansas City Ave., Excelsior Springs, MO 64024. 816/637-6011, OR - 2244 NW 39th St., Oklahoma City, OK 73112. 405/525-8844.

**WHAT'S YOUR HANDLE?** Wear it proudly on your own personalized 'T' shirt. We will put your name, handle, call letters or anything else up to 20 letters on front or back. Shirts available, Adult-Sm. L. XL., Children-2 to 16. Red, yellow, or sky-blue. Give 2 choices. Letters - red, white, or black. Indicate front/back. Also a machine engraved 2 color plastic pinon badge, with name-handle-call or favorite channel. Send \$5.95 per shirt, or \$3.00 per badge, to Action Hobbies, Inc., P.O. Box 7G, Rockaway Park, NY 11694.

**NEW CHROME MYLAR colorful bumper decals**, from designers and manufacturers. Interwagen Corp., 8819 SW 129th Terrace, Miami FL 33156 (305) 233 3470. Distributors wanted, send \$13.00 for sample kit (\$35.00 retail value).

**CB TOTE BAG - protect your CB Radio** from the elements with a handy, easy to carry, attractive leather tote bag. Send to: Rale Industries, 105 W. Madison, Suite 1708, Dept. TB4, Chicago, IL 60602.

**WANTED: CB dealers.** Write on your letterhead for 1976 catalog. Major lines available. SUPER BEE DISTRIBUTORS, INC., P.O. Box 112, Evansville, IN 47701.

**BEAUTIFUL QSL CARDS...Want your custom designed QSL card to truly stand TALL** among the rest of the "Ordinary Wallpaper"? Breathtaking samples and information only \$1.00, refundable with first order. BACK-ACRE CB Printers, Box 18606-S, Milwaukee, WI 53218.

**CB DEALERS:** We are closing part of our warehouse and must move out overstocks in the following brands: Johnson, Pace, Regency, Electra, A/S and others. PRICES REDUCED BELOW DEALER COST, and NEGOTIABLE, depending on your order. Call Collect to: Mike Perison, MATTHEW'S (415) 992-5400, Ext. 77.

**CB RADIOS (Mail-Order)** Call or write for information and/or advice before making any purchase. Our sales personnel are experienced in CB and Amateur radio communications. Micra Sound Waves Corp., P.O. Box 97, E. Setauket, NY 11733. (516) 751-5966.

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- KZX-2624 Tennessee River, Box 457, Stenewall, GA 30282
- NO Call Mike & John Brojakowski, 99 Main Rd., Plymouth, PA 18651
- NO Call Mike Heppie, Box 7, Houston, MS 38851
- NO Call Jeff Goldberg, 19-38 Chandler, Dr., Fair Lawn, NJ 07410

## FOREIGN

- XM44-1161 Mary Morrison, Box 1594, Exeter, Ontario, Canada, NOM-150

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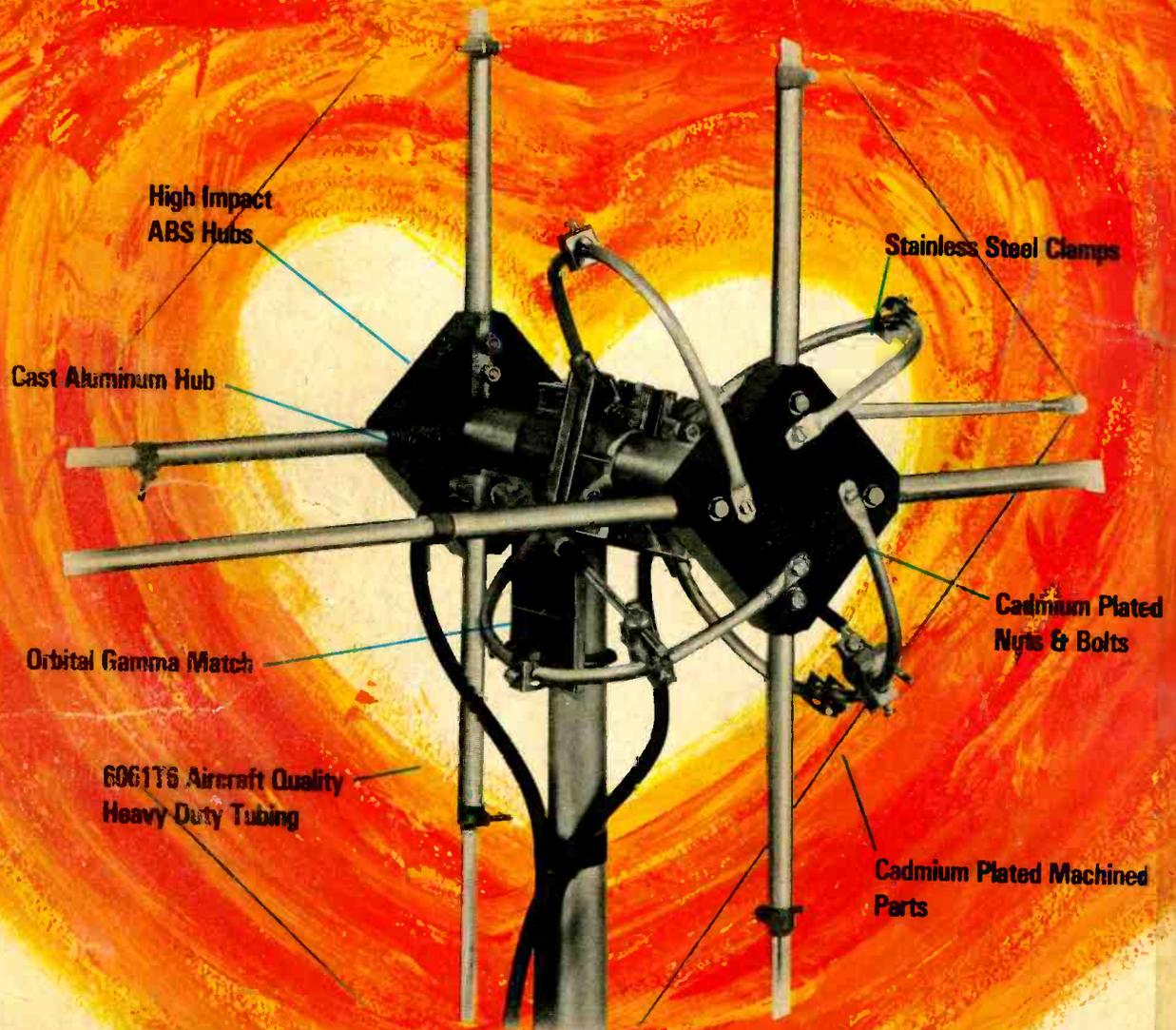


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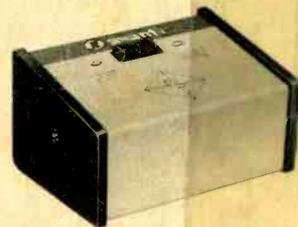
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