

CB RADIO

AMERICA'S OLDEST AND LARGEST CB MAGAZINE

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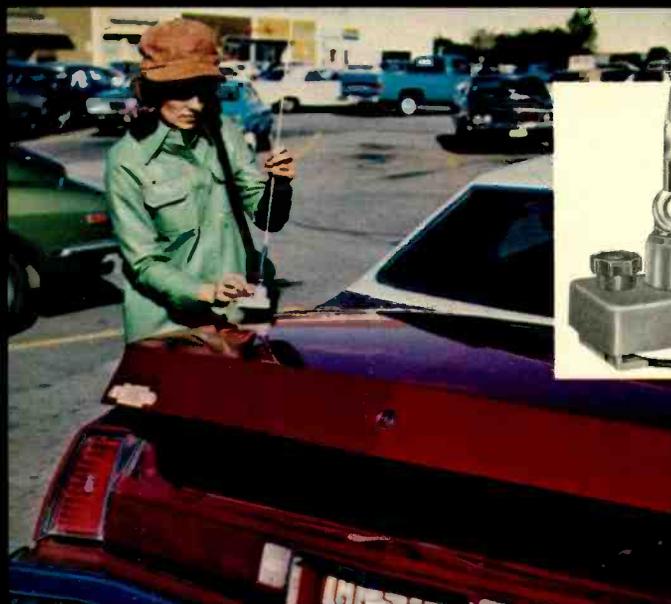


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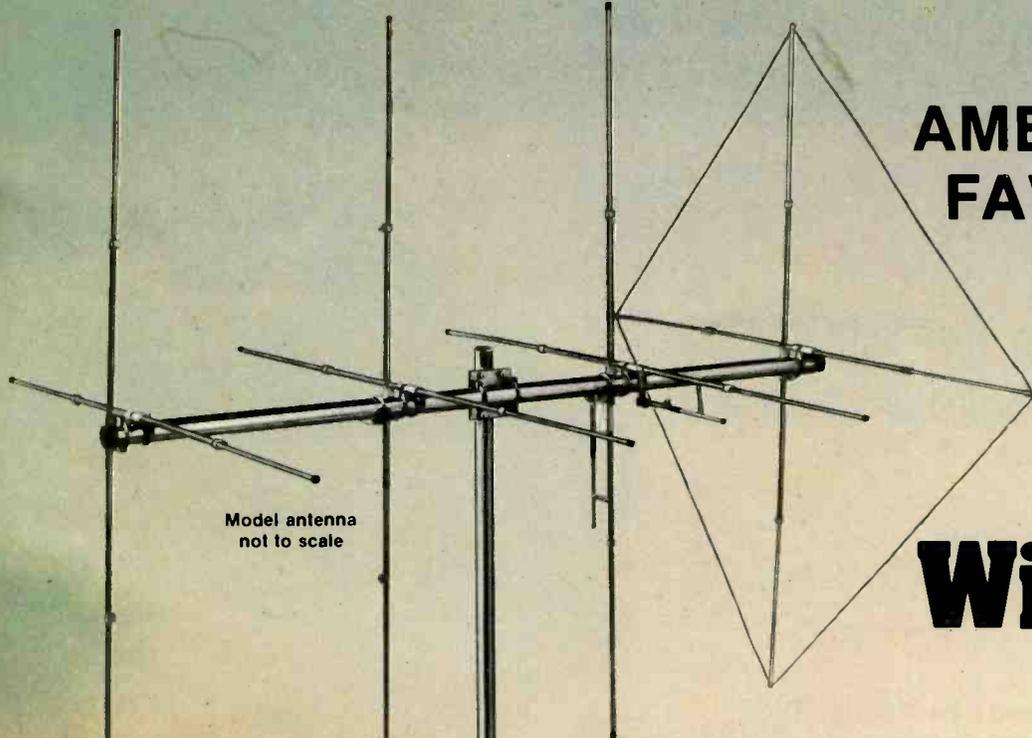



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CB RADIO S9

AMERICA'S OLDEST AND LARGEST CB MAGAZINE

VOLUME 17 NUMBER 8

AUGUST 1977

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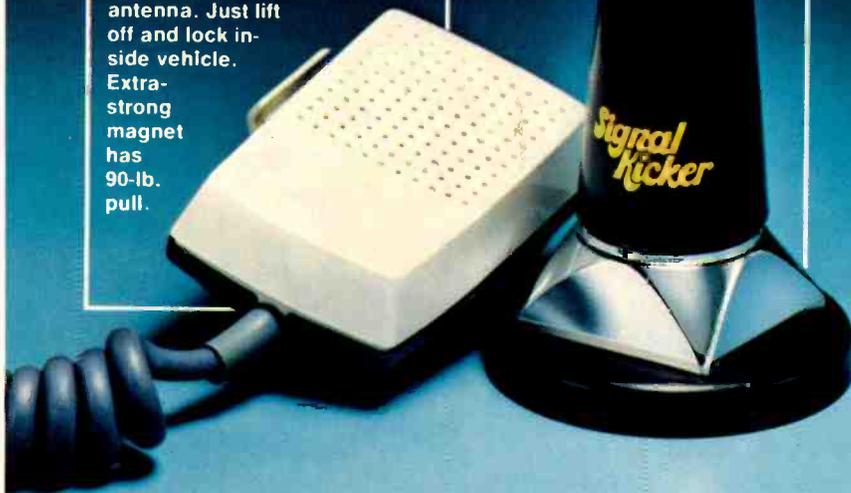
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CB. NEWSWIRE

YOUR CB NEWSPAPER

AUGUST 1977

Trimble County, Ky. CB Operators Get Radios For Blind, Elderly

Morning Star, Soobie Doo and Raggedy Ann don't have telephones, so they spend a lot of time talking with each other on their Citizen's Band (CB) radios. But their conversations aren't restricted to idle gossip.

The three Trimble County women have used their CBs to rally help when a neighbor is in trouble. For instance, they recently found shelter for a family that had lost its home in a fire.

So it was natural that the three would be trying to find a way to help Donna Barnett, an elderly blind woman without a phone or other means of staying in touch with the community. The three CB buddies decided to raise money to buy Mrs. Barnett a CB of her own.

The call went out over the airwaves, and soon the money rolled in from fellow radio buffs. Before they knew it, the CB buddies had enough money to buy two radios.

The second CB was earmarked for E. L. Kemp, a retired Trimble County school bus driver who, like Mrs. Barnett, is blind and does not have a phone.

And still the contributions continued.

This weekend, the women finally asked their friends on the airwaves to stop sending money because enough for a third radio had been raised. It has not been decided who will get that one.

Meanwhile, the CBers got together yesterday to install the radios for Mrs. Burnett and Kemp.

The two elderly people now have an effective way to ask for help when they need it. Morning Star, Scoobie Doo and Raggedy Ann also gained a bonus. They have two more people to talk with on their CBs.

Maine CB Network Saves 5 Lives At Sea

A citizens band emergency network was credited last April by the Coast Guard with saving the lives of five Massachusetts lobstermen, adrift in stormy seas without marine radio equipment.

The Coast Guard's search and rescue unit said Southern Maine React alerted it to the boat's plight, then relayed information between the crew and the searchers.

The boat, owned and operated by Robert Wheeler of Marshfield, Mass., was spotted by a helicopter more than five hours after the initial alert was sounded.

Robert Simpson of Cumberland Foreside, who runs the control station for Southern Maine React, said the boat was headed for Massachusetts when it developed engine trouble.

Simpson said Kathy Hartley, one of the React monitors, picked up the first alert about 10:30 a.m., but the men did not ask her to send the Coast Guard until two hours later.

"They sent out a boat and couldn't

find it," he said. "Then the weather changed. The four foot waves increased to six and pushed them farther and farther out to sea."

When Ms. Hartley went off duty, Simpson took over and cleared one CB channel of all activities in order to serve as a link between the stricken boat and the Coast Guard searchers.

"I talked with the boat every 10 minutes and relayed what they could tell us," he said. "Around 3:30 p.m. we decided they had to call in a helicopter."

The Coast Guard said the lobstermen originally reported their position as 5 miles southeast of Halfway Rock but were finally located 10 miles southeast of the Portland navigation buoy. The boat was 15 to 20 miles out to sea.

Simpson said he received a phone call from the regional Coast Guard commander in Boston who said React had saved five lives and a tremendous amount of expense which would have been involved in trying to find the boat without the help of the CB network.

'Sunshine Kid' Has 2nd Heart Operation

Rusty Jones, 21, of Quakertown, Pa. underwent heart surgery for the second time.

A pacemaker was inserted. He was reported in satisfactory condition.

Rusty is better known to local CBers as the "Sunshine Kid."

But the Sunshine Kid hasn't had much sunshine lately.

A spokesman for the Tri-County CB Club said, "He's been laid off from his job for the last three months because of his heart condition."

Hope Lihn, who has the CB handle of "Rambling Gal," has talked about Rusty's problem.

She said, "He . . . is two months behind in his rent. His family is beginning to get threatening letters from the landlord so the Tri-County CBers have decided to help one of their own."

The club scheduled a CB mobile hunt. Bake sales were held at the Lanco department store in Coopersburg and at the Q-Mart in Richland Township.

All proceeds from the events went to the Jones family—wife, known to CBers as "Midnight Angel," and a 5-year-old daughter, "Dungaree Doll."

In the CB mobile hunt one car plays "rabbit" and hides not more than 15 feet off a main road in a secluded area somewhere in a five mile radius of a given starting point.

The "rabbit car" transmits his call letters every five minutes. The participants on the hunt track him down using their CB radios.

The Cber who found the rabbit car won a power mike donated by High Light CB of Coopersburg.

Phony CB Reporter Implicates 'Top Smokey'

A certain Citizens' Band radio operator had better have his "ears on," because his "good buddies" are looking for him.

And if they don't get him, maybe the chief of the Wash. State Patrol will.

He became infamous after reporting a traffic accident in Pierce County Radio Watch, a CB group which relays trouble calls to law-enforcement authorities.

The call turned out to be phony.

After police and fire units arrived at the "accident scene" to find nothing amiss, another call from the same CBer was relayed, this one describing a "suspect vehicle" leaving the scene of the phony accident.

The license number he relayed was checked by law-enforcement authorities, who found that it belonged to an unlikely—and completely uninvolved—suspect: State Patrol Chief Will Bachofner.



THAT'S A 10-4 GOOD BUDDY

Miss Universe Rina Messinger displays one of Motorola's new CB radios. The twenty year-old native of Tiveon, Israel has been communicating with people throughout the world during her 10 month tour as the 25th MISS UNIVERSE. Not too many people know her "handle" but people in 40 countries have become familiar with her beautiful smile. Motorola was one of the sponsors of the Miss Universe show in Hong Kong.

Suspect In Calif. Donut Theft Arrested After CB Alert

Four suspects are in custody in connection with two robberies, according to sheriff's deputies.

A witness with a CB rig in his car was credited with the apprehension of Daniel James Debellio, 18, of El Monte, and a 15-year-old juvenile.

A clerk at Winchell's Donuts in Rosemead told deputies that a youth had grabbed some donuts and ran from the store without paying, then jumped into a waiting vehicle driven by a second youth.

A witness, Tony Equila, 17, observed the theft and pursued the fleeing vehicle, meanwhile using his CB radio to alert police.

CHP officers stopped the suspect's car near Rio Hondo College and arrested Debellio and the juvenile.

New Hampshire CB Feud Erupts In Gunfire

A teen-ager's pastime is quickly turning into a family's nightmare here following a series of events.

Someone pumped several shots through a picture window at Donald Golaszewski's house. He said the shooting occurred only 30 minutes after someone threatened his son, Robert Poltorak, on a CB radio.

Police confirmed the incident, saying Poltorak had been told by another CBer to get off the radio or he would be killed.

Poltorak's mother, Jean Golaszewski characterized the feud as something that is happening more and more. It's this sort of thing, she said, that drove her off the air a few years ago.

And it has her scared to death, for herself and her family.

"I usually stay up late and if I had been walking or standing in the right place, I would have been shot in the

face, chest and down lower," she said.

Mrs. Golaszewski said the arguments began a few months ago when a group of adults who "call themselves mature, intelligent" started to push her son and his friends off one of the CB channels.

It climaxed with the shooting and someone telling her son earlier that "you bought it this time, you bought the whole thing."

That was followed a few minutes later by someone telling her son, "Don't step out of your house in half an hour, or it will be the last step you ever take."

Mrs. Golaszewski said she has tried over the past few months to intervene in the feud, asking the CBers who've indicted her son to prove their charges. If they could, she said, "I would have ripped the radio out of the house myself. They were going to send me a tape to prove he was abusing the channel, but they never did."

Mich. State Tries CB's On Highways

In an effort to provide up-to-the-minute weather and road information to more motorists, citizen's band radio equipment has been installed at two of the state's nine travel information centers.

The John C. Mackie Center on US-27 at Clare and the E.V. Erickson Center on I-75 at Sault Ste. Marie will be equipped with CB receiving and transmitting equipment on a pilot basis.

"This will be another first for the Department that continues to pioneer services to the traveling public," said State Highway Commission Chairman Peter B. Fletcher of Ypsilanti, Mich.

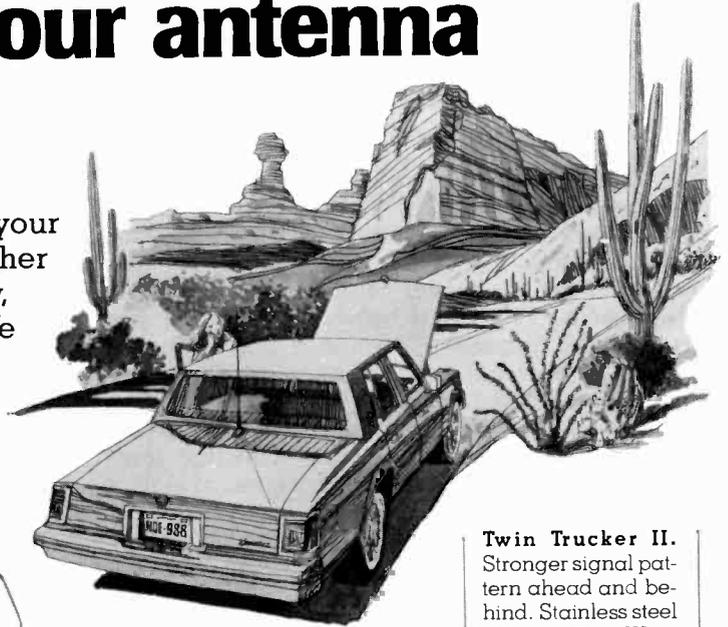
"If the CB's prove effective in disseminating tourist and travel information, CB's could be installed at the department's other seven travel information centers."

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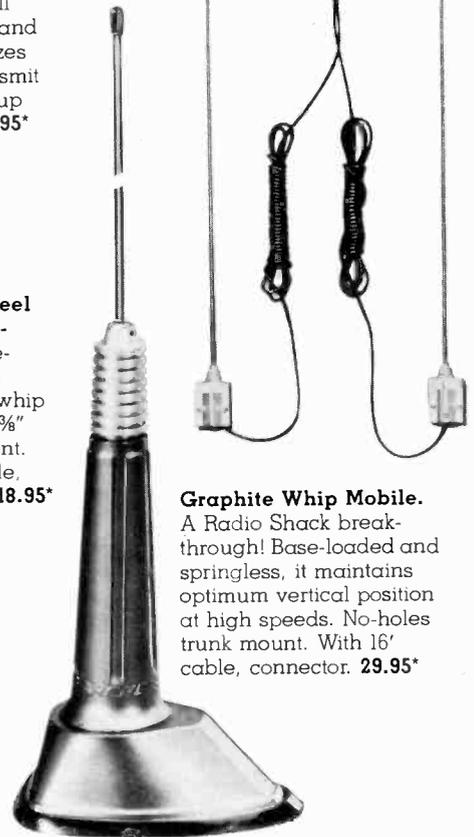
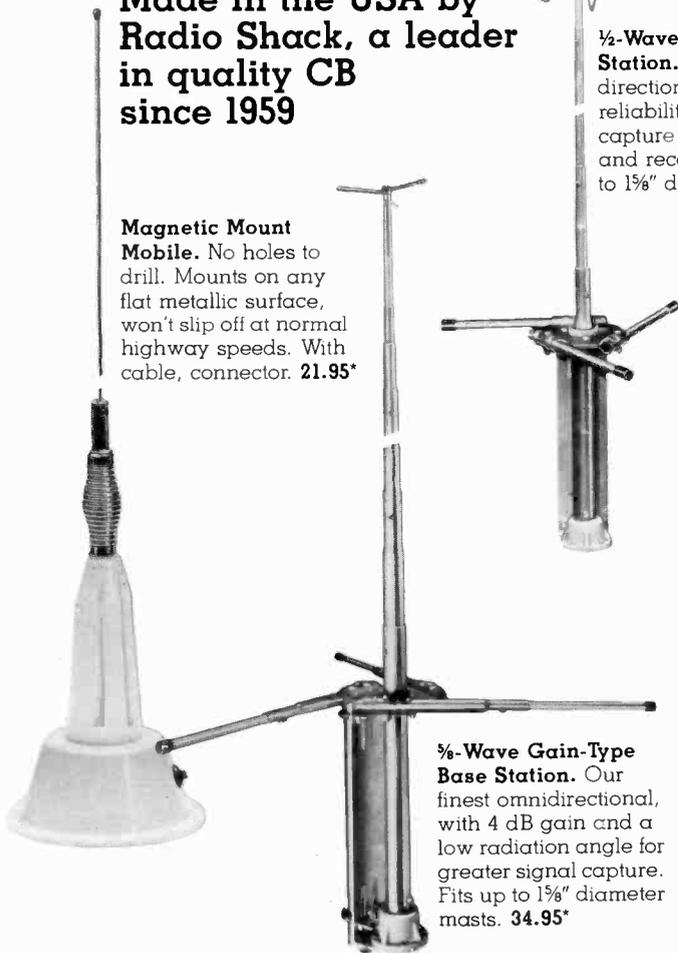
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Hawaiian CB'ers Come To The Rescue!

"Breaker, breaker, does anybody hear me. We need help," cracked Leroy Case's Citizens Band radio unit at his son's Kaneohe home.

Case immediately responded to the message, beginning what was to become a dangerous and exhaustive day-and-nightlong rescue mission in the treacherous Koolau peaks above Kaneohe.

In trouble were four young hikers. The four, all students at Aiea High School, were stranded. They were joined later by two Fire Department rescuemen.

The six spent a cold and wet night in the mountains, their airlift to safety delayed by darkness and heavy rain.

But a medevac helicopter brought all six to safety at about 8:40 a.m.

The youths, on the last leg of a 4-day hiking and camping excursion over the Easter break, were identified as Brian Young, 16; Robert Green, 15; Trevor Livingston, 15; & Fukiyuki Puckett, 15.

No injuries were reported.

The drama began about noon when the four hikers, about a third of the way down the steep cliffs above the Valley of the Temples cemetery, realized that going ahead would be suicidal and trying to go back would be next to impossible.

They had stopped at the bank of a dried-up waterfall, overlooking a 600-foot freefall drop and about 400 feet below the ridge summit. Greene unpacked his portable CB radio and began beaming calls for help.

Case heard the message, acknowledged and called the Coast Guard and Greene's mother, Gail Silva. The Coast Guard contacted the Honolulu Fire Department, which dispatched its Rescue One Squad.

Within an hour, the Fire Department's helicopter, with the help of Case, who maintained contact with the hikers via CB radio, sighted the stranded youths.

By the time worried parents, friends and some CB'ers started gathering at the Club View Estates side of the cemetery, Capt. Frederick Lau and rescuemen David Kamalani and Dick Frost were air-dropped on the Aiea side of the cliffs at a spot where the helicopter could safely land. While Frost stayed behind, Lau and Kamalani trekked up to the summit and began rappelling their way down to the youths.

Attempting to airlift the youths straight

off the cliffs was considered too dangerous, said the rescuemen, because of electric power lines close to the dried-up stream bed where the youths sat, as well as the powerful wind drafts.

The four youths, using the CB handle "Jackel," kept in almost constant touch with Case's home unit and the CB mobile unit belonging to Don De Soto, a member of the Hui Makani Motorist assistance team, throughout the afternoon.

"You got the best team in the nation coming after you, so just hold on," radioed Green's mother.

"I am just really glad you had the good judgment to stay put," she told the youths.

The four never appeared to panic, and the mood among relatives and friends watching the rescue was also surprisingly calm.

"The worst is over as far as I'm concerned," said Green's mother, peering through powerful binoculars and watching the rescuemen inch their way to the waterfall.

"They could have lost their footing . . . and look at that drop," she said quietly.

But she repeated her confidence in the rescue unit, saying she has worked with the unit before and "I am absolutely confident about them."

She said she also has confidence in her son, saying he is an experienced hiker. But she added she was "displeased" with the route the youths chose, saying the original plan called for them to reach the summit, turn around and hike back toward Aiea.

She, Army Lt. Col. Bob Greene and Mr. and Mrs. Keith Young speculated the youths had underestimated the time it would take to make the round trip and decided, without realizing the danger, to go down the Koolau cliffs. The parents, who were later joined by Puckett's mother, Miyuki Puckett, speculated their sons could not tell from their early morning vantage point on the summit how dangerous the descent was.

Mrs. Young added she had kept in constant radio contact with the youths. She said Greene had called her at 9 a.m. to tell them of their plans. She said she was unaware of possible dangers along their proposed route.

One point the parents unanimously agreed on was the value of Greene's CB radio.

Rescue squadmen Lau and Kamalani reached the four stranded hikers at 5 p.m., more than 3 hours after beginning their climb. Fire Battalion Chief Clarence Au, noting the little daylight left and the time estimated for the six to climb to the summit and reach a spot where the helicopter could land, ordered the rescuers to find a secure spot for the group and to bed down for the night.

The two led the youths about 200 feet uphill to a flat spot behind a power line structure, and rescuemen Tommy Akana and Mike Benedetti loaded the helicopter with provisions for the night. Pilot Charley Thomas airdropped the provisions to the group, and picked up rescuemen Frost at the landing site.

Once it was apparent the group was relatively safe, the mood was relaxed.

Chief Au inquired by radio about the quality of accommodations.

"It's not the Hilton Hawaiian, Chief, but it'll do for tonight," was the reply.

The youths, with the exception of Livingston (efforts to contact his parents had apparently been unsuccessful), chatted with their parents over the radio. The adults jokingly accused their sons of actually wanting to stay overnight as a way of staying out of school, which resumes today after a week-long break.

Asked by a reporter to comment on their experience, young Greene said they had a "great time" and "we owe the rescue squad and the CB'ers a lot . . . and we're going to make it. We'll see you tomorrow."



NUMBER ONE AIR BEAR—Pilot Tom Gamble of Leola, Pa., gets ready to takeoff in a homemade gyrocopter equipped with an RCA Citizens Band radio which keeps him in touch with folks on the ground. Flying is Gamble's hobby and his CB "handle" or code name is NUMBER ONE AIR BEAR because he is a policeman!

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Poulsbo, Wash. Police Turn To CB In Crime Fight

Thanks to a donation from Charles Barlow, owner of the twice burglarized Barlow's TV shop, Poulsbo police will be using citizen band radios and citizens to fight crime.

Poulsbo police haven't yet come up with a CB "handle" for themselves, but they don't need suggestions, said crime prevention officer Dave Cook with a chuckle.

What Poulsbo police do need, said Cook, is the eyes and ears of other CBers.

Cook figures there'll be times when Poulsbo police will ask CBers to keep their eyes peeled for suspect vehicles. CBers won't be asked to stop crimes in progress, Cook added, "because we don't want vigilantes, and we don't want anyone to get hurt."

Recently there was a robbery in Poulsbo. A Winslowite notified CenCom when he spotted the suspected getaway vehicle, as described on the police radio he was monitoring. The case was solved because of that citizen's observation.

"CBers might have been helpful here," said Cook.

In Kitsap County, motoring CBers report the emergencies, CB monitoring volunteers of the troubleshooting organization phone CenCom and then CenCom dispatches help. It has happened, Cook said, that vital information was lost in all this relaying. That isn't as likely to happen to Poulsbo police, who'll be monitoring frequencies used by North Kitsapers, Cook said.

Now that Barlow has donated three CB units, total value about \$700, officers will be able to monitor CB broadcasts from two patrol cars and from the police station.

Police officers in Poulsbo haven't been able to afford radios in their personal cars but most of them do own CB radios. There's usually only one officer on duty at a time in Poulsbo. If the one officer has serious trouble, he often has to call on off-duty officers. Until now, the on-duty and off-duty officers had no way to communicate from car to car. Now they've got CB.

They might work out a pattern of skipping from channel to channel so that they can talk in private if need be, Cook said.

CB radios are a boon to a police department that can't afford many police radios at \$1,100 a crack, but citizen involvement is a necessity.

Cook is trying to get local businessmen and residents to crimeproof their buildings. He wants people to phone the station and make an appointment for him to come and explain where security could be improved. He'll tell Poulsboites which are the best locks to use and where alarms might be installed. He'll counsel clerks on how to deal with robbers.

Though good security often deters burglars, there is a breed of thief that persists. Charles Barlow has experience with just such a persistent thief. After losing \$2,200 in merchandise last summer to a burglar who broke down the back door of his shop, Barlow installed a solid core door lined with an eighth-inch of steel. In November, a burglar got through this, leaving much of his blood behind on the battered door in return for \$1,978 worth of goods. Police, who haven't caught the burglar yet, have learned that a neighbor "heard some noise" that night but didn't check.

"We want people to look . . . to get their eyes and ears open and report things," Cook said. He realizes that people often don't like to get involved and promises "We'll try and investigate around them." Often police can, if they know what to look for, solve cases and develop enough evidence that testimony isn't necessary from the citizen who made the initial report, Cook said.

Cook's multi-faceted plan for stopping crime before it starts also includes the use of markers. He and law enforcement officers around the county participating in this Crime Watch plan are urging all citizens to write their driver's license numbers on valuables. The police department loans out an electronic marker for this.

The first Poulsboite who borrowed

this marker had guns burglarized from his home shortly after returning from the marker. He hadn't yet had time to put a sticker in his window advising potential thieves that the marking had been done. Poulsbo police caught the juvenile burglars the same day as the burglary and the case was substantiated by the license numbers on the guns, Cook said.

Virgin Islands REACT Becomes Operational

As of last March, the chances of your receiving speedy attention in the U.S. Virgin Islands has been significantly increased. That's because 51 St. Croix citizens band radio operators are going to be looking out for you and other community residents as they travel alone. If they find you in distress, they're going to use their mobile radios to alert police or fire department or whatever agency may be needed.

The CB operators will supply their know-how and equipment through the newly-formed Virgin Island REACT team #3617. In addition to providing a supplementary system of radio communication in emergencies, the team will promote the correct and efficient use of citizens band radio.

Coordinating the effort will be REACT President Milton Greene (Shutter Bug) and REACT 1st Vice-President Darell Groves (Sea Gull). Greene emphasized that the group is prepared to monitor the official emergency channel, Channel 9 on CB radio, and to relay emergency messages to the proper authorities by telephone.

"In many communities," Greene said, "CB radio has proved the difference between life and death. For example, a CB operator can save precious minutes in situations where emergency medical attention is needed. I strongly urge all residents of St. Croix," Greene said, "to consider the purchase of a CB radio for either their home or their car. This could prove to be a valuable life-line in times of emergency."



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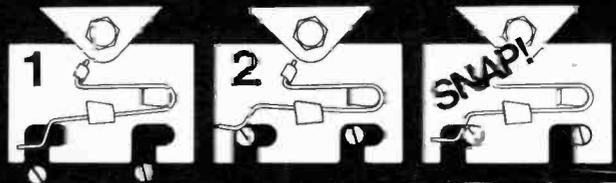
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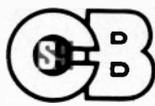
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CB in CZ

by Tom Brown, CB-608

Recently, the Isthmian Sidebanders Club Incorporated was founded in the Panama Canal Zone. This is a C.B. radio club and the membership is composed of members of the military and employees of the United States Government working in the Canal Zone.

Recently, we were informed that military personnel on orders to the Canal Zone are being misinformed about bringing radio gear with them. Although F.C.C. licenses are not recognized in the Canal Zone, operators are able to obtain a Canal Zone Citizen's Radio Service license by merely taking a twenty-five question, multiple choice test. The questions are based on Part 95 of the F.C.C. Rules, with certain local restrictions added. The test is extremely easy.

Licenses are issued to Canal Zone residents by the Panamanian Govern-

ment only if they hold a valid Canal Zone C.B. License. The Panamanian license cost \$7.00 a year and is only valid for the type of radio specified on the application, installed in the type of vehicle specified, if a mobile, and is issued to the applicant. In other words, the Republic of Panama license covers the applicant, 1 radio and 1 vehicle. A new license must be obtained for each radio, vehicle, and operator.

We also have been officially designated as REACT Team 3599 and are in the process of setting up a REACT Headquarters.

Any serviceman or woman who is on orders for the Panama Canal Zone should ask about bringing radio gear with them. Citizens' Band radios are very popular in Central America, and likewise are very legal. New arrivals can break Channel 11 and ask for either C.B. 608 "The Crazyman," C.B. 306 "The Cowboy," C.B. 443 "Colorado Grog," or C.B. 335 "The Gunslinger." Each will have full information on how to join The Isthmian Sidebanders Club, Inc.

She's One Big Mama From Maine To Hawaii

When Sara Webb began receiving bundles of mail every day last November, she says her mailman "didn't know what to think. He wanted to know what was going on."

Mrs. Webb suddenly had become known across the nation through a story which appeared in the tabloid, "National Enquirer." And friends from Maine to Hawaii were sending her cards and letters of support.

The Greenville (S.C.) resident didn't know she was going to be featured in the tabloid until she received a release form requiring her signature. It seems that six of her freinds had written to the weekly telling of her situation and of the ways in which she had helped others.

Bedridden for almost 13 years, Mrs. Webb has rheumatoid arthritis. The ail-

ment is complicated by the effects of an automobile accident.

Lots of new friends

The cards and letters have provided Mrs. Webb with a world of new friends. To some, she even has become a sort of "Dear Abby."

"Some people have told confidential things," she says. "They said they just needed somebody to talk to." So she has responded to those asking her advice.

Other letters coming to her home at 120 E. Wilburn St. offer support, she says. The letters show that "there are a lot of people that are concerned about others. There's a lot of people praying out there. You wouldn't realize there would be that many."

Some of her favorites are the QSL cards she has received from Citizen Band radio operators.

Since her husband's death last June, she has continued rearing a 3-year-old boy, "my sunshine," with the help of family and friends.

Mrs. Webb, who celebrated her 44th birthday Thursday, says that letters still are coming each day. She adds that she enjoys meeting new people through cor-

Judge Rules Against Mass. CBer

Some Berkshire County citizen band radio enthusiasts feel a judge's ruling that CBers must cease transmitting if it interrupts others' stereo and hi-fi enjoyment could set a precedent and encourage other complaints.

District Court Judge John Dwyer ruled that the CB interference is a disturbance of the peace and ordered a CBer to stop the annoyance.

The Federal Communications Commission has held in most cases that persons getting the interference must install filters on their stereos and television sets to screen out unwanted CB sounds.

But Dwyer, at a hearing on a disturbing the peace complaint, told Claire Romeo she had 30 days to stop her transmitting equipment from broadcasting over Richard Palermo's stereo system.

Palermo lives across the street here from Ms. Romeo, who is known to fellow CBers as "Broom Hilda."

Dwyer said Ms. Romeo, who prefers that designation, faced possible further court action if she did not comply.

responsence and that she answers many of the letters she receives.

She also invites visitors, phone calls, or even a CB "holler."

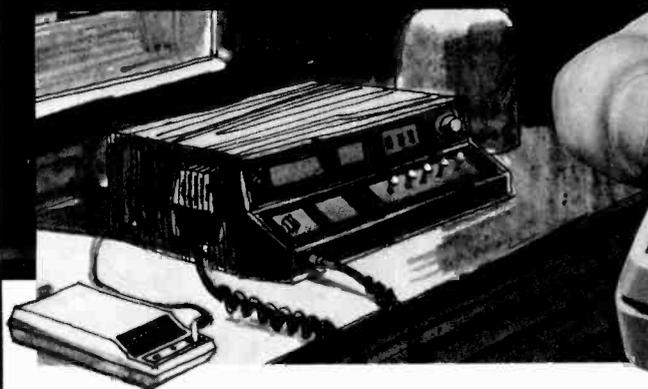
Several CB'ers who sent the QSL cards have followed up with a personal "holler" when passing through Greenville, she explains. Mrs. Webb, who began using a CB in August, operates on Channel 15.

Handle 'Big Mama'

Her CB handle is "One Big Mama." And while the name may be new to the CB airways, she adds that it's "a handle I've carried for 24 years."

She and her husband, the late James Webb, "raised 17 children from four broken homes." She says that when she and her husband took the first family of foster children years ago, "they called me Big Mama and they called their own mama Little Mama."

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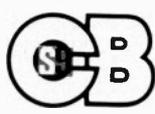
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County CB Teams Patrol Interstates, Help Motorists, Offer Emergency Aid

The radio crackled for a second in the darkened cab of the van. Leo Toran lit another cigarette and gazed out at the headlights that dotted Interstate 270.

He and Don Smerek were traveling south, chatting, when they saw a quick flash of light on the right shoulder.

The two CB operators saw it again as they passed it. Smerek pulled off the road, stopped and watched for a third flash in his rear view mirror. "There he is," he said to Doran.

In less than three minutes, a middle-aged truckless truck driver with a light-reflecting briefcase was inside the van, asking where he could catch a bus south toward Houston, and a rendezvous with another rig.

Doran got on the CB, called the base station and learned that the bus to Cape Girardeau still stopped at the service station next to McDonalds at Lemay Ferry Road and Lindbergh Boulevard.

That's where Doran and Smerek dropped him off five minutes later.

For the truckless driver, hitchhiking from Chicago where his trailer had broken down, the helping hand was a stroke of luck.

And for Doran and Smerek, it routinely restated the reasons why they and about 50 others like them patrol the area's interstate highways for up to seven hours some nights—on their own, without being asked or paid and without any guarantee that anyone will say thank you, notice or care whether one of them gets hurt or hassled in the process.

"Sometimes we get letters from people, or contributions," Doran said. "But that's not what we do it for. The way I see it, if I ever get stuck on the road, I hope someone stops for me."

Doran is president of the South County Alert Team, or SCAT. Its members—ranging in age from 15-year-old "Little Brown Bunny" to 65-year-old "White Moose"—cruise Interstates 44, 55 and 270 Tuesday through

Saturday nights, primarily to assist stranded motorists, but not stopping there.

"We've done everything from hunting for kids to fighting forest fires," Doran said. "But mostly, we do anything that can be done with the help of a CB radio."

SCAT members have also served free coffee at rest stops on holiday weekends, and taken stranded long-distance motorists to motels.

Many have taken first-aid and other emergency training. But mostly, by monitoring CB Emergency Channel Nine and keeping an eye peeled, they say, they can free the police to pursue more pressing problems.

"A Highway Patrolman would have to spend 45 minutes with a guy who ran out of gas," Doran said. "Meanwhile, the guy has to pay a garage \$15 to bring him some. We bring him the gas for nothing and save the officer the trouble."

Though most people welcome the aid, Doran said, "some are skeptical or afraid and won't even open the window. I don't blame them."

But Doran admits, too, that if someone refuses help, that may mean "a suspicious situation and if they tell us to get lost, we get out of there and notify the police."

SCAT members travel in pairs for their own protection even though many of them learn emergency and other skills as members of the Law Enforcement Information Assistance Council. The council is a group of private citizens taught by volunteer patrolmen from Troop C in St. Louis County.

But although the council's president, Patrol Sgt. Lee Tubbesing, said that trained citizens had helped police catch the "entire spectrum of criminal, we in no way, shape or form encourage private citizens to patrol the roads and lend aid."

Maj. Harold Schmidt, chief of enforcement for the Missouri Highway Patrol, agreed that "being a good Samaritan can backfire."

"If we can get people to help us, that helps us do our job," he said. "But I would discourage it because of the danger. I shudder to think of what can happen occasionally."

Doran, Smerek and the rest of their crew understand that. And so they don't wear uniforms, carry weapons or get involved in "sticky situations."

But they don't intend to stop patrolling, because they believe that they are doing something worthwhile. As Doran said, "When you see someone who needs help, your basic instincts take over."

Calif. CB'ers Annoy Cops

Two runaway girls, a \$1,000 reward for the capture of one of them and some volunteer detective work by members of citizens band radio clubs have combined to cause alarm among Modesto, Calif., law enforcement officers.

That alarm, officers say, is based upon fear that innocent people might be hurt by over-zealous seekers of a \$1,000 reward.

Recently, a Stanislaus County Sheriff's deputy intervened as several CB club vehicles chased a "suspect" who turned out to be a 16-year-old boy instead of Rita Wheeler, 13, who left her home.

A citizens band radio base station monitor in Oakdale reported the "chase" to the sheriff's dispatch desk in Modesto.

At 6:30 p.m., other CB'ers "staked out" a girl parked in a gasoline station in Ripon until the highway patrolmen they summoned appeared and told them they had the "wrong girl," officers said.

Those CB'ers thought they had found Mary Kathy Colwell, 16, whose parents had offered \$1,000 for the return of the girl.

"People will do strange things for \$1,000," said Police Lt. Melvin Tigert, adding, "We can't stop people from offering reward money but we can warn them about the liabilities they may incur if someone gets hurt."

Interfering or physically detaining someone could easily lead to assault charges, Tigert said.

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CITIZENS BANDIT REPORT

One in three citizen's band radios is stolen. Police say the average CB unit—if left in a car—will last only 25 days. Several hundred dollars is quite an investment for a few days of use.

CB theft has greatly increased in all areas of the country. An Oregon newspaper reports, "Thousands of CB owners in the northwest have had their units stolen in a rash of thefts by auto accessory thieves that almost parallels the booming CB market itself." In Washington, D.C., police recently arrested a man suspected of stealing 92 CB sets valued at a total over \$10,000.

Can the CB user do anything to prolong the use of his or her "Good Buddy" machine?

The answer to that question is—yes. There are a few prevention measures that are as simple as one-two-three.

1. The best way to prevent a theft of your CB, although you may not find it convenient, is to take the unit with you when you leave the car or truck. Many people have purchased special slide mounts and carrying bags for just that purpose. Those who carry purses may find it easy to deposit the radio there. If the unit is not in the car, it cannot be stolen.

2. The one feature of your CB-equipped car that draws a thief to it is the CB antenna. It is virtually a signpost, saying, "Here I am . . ." Antennas can be installed with magnetic mounts, hinged mounts that fold in the trunk of the car, and screw mounts where the actual antenna can be removed from its base, all of which remove the tell-tale signal. "If the unique signal is removed, chances are that your car will go unnoticed by a potential thief," says an insurance company claims expert.

3. If the first two techniques are not your style, a more expensive solution is an alarm system for your car. Several are available, some protect the entire car, others protect specific components. In some cases the alarm system may cost as much or more than the CB system you want to protect.

These suggestions may help you and your CB break the 25 day average life span.

Here are some other facts you should know if you're working on keeping your CB.

Many people have the idea that their unit, if not in the dash, will be safe in the trunk. That's wrong. The trunk, although lockable, can be opened in short time by an experienced thief. If it is obvious your car has a CB system, a thief will look for it.

"Time" is very important to the thief. His job has to be done in as little time as possible. That is why the best place for your CB unit is in the dashboard of your car or truck. It may take longer to install, but it also takes longer to get out. Because of this, several large insurance companies exclude CB radios from their standard auto policies if they are not permanently mounted in the dash or a space designed for such

use by the manufacturer. If you have a slide mount or your unit is mounted under the dash, insurance coverage can be purchased for an added small premium.

An insurance company survey indicates that most CB thefts are from private passenger autos. Most thefts occur between the hours of midnight and 8 a.m.

It is obvious that the CB radio is going to be around for awhile. Its use has not even peaked. But it is also very apparent that the theft problem needs attention and action, or the CBer will be buying radios as if they were disposable. And that is a 10-4 "Good Buddy."

Big Moose On The Side Popular Calif. CB'er Dies

Outside the funeral chapel, almost every car had a CB radio antenna. Inside, the Rev. George A. Wood told mourners that the funeral was "in memory of one of the greatest CBers in our area."

"Eternal God," he prayed, "we would like to modulate with You on that most wonderful of all frequencies, the channel of love. . . . We pray that our cars may be on this morning. . . . Speak to our hearts, for we 10-8 and 10-10 in Jesus' name, amen."

The memorial program listed the deceased as Mounce Brady Jackson, 60, of Orange, a former newspaper delivery driver and recently retired. But the heart of flowers at the foot of his casket listed his true name, "Big Moose," his CB handle.

In recent years he had become an avid CB talker, setting up a radio room in a bedroom and spending most of his days and nights there. He had founded one CB club, the Flying Frogs, and belonged to several others.

When he died in a traffic accident, his family decided that since CB was so much a part of his life, it would be the biggest part of his funeral, too.

Lucky 13 (Wood), minister of the Lemon Heights Baptist Church in Orange, read a prayer that Big Moose especially liked.

"He enjoyed it so," Wood said. "It's called 'The CBers Prayer.'"

"The FCC is my shepherd; I shall watch out," he read. "It filleth my mail with pink tickets . . . My antenna runneth over. Surely skip and inspec-

tion shall follow me all the days of my life, and I will dwell in the federal pen forever."

"Now a man that would enjoy that, would that tell you something about him? I just felt like I met him when I read that," Wood said.

The minister told the mourners that people fear death too much: "I was driving on the freeway the other day with my CB on. I gradually faded from the person I was talking to. He went out of my range. That's what's happened to Big Moose. He's just out of range."

He said Big Moose was baptized a few years ago. "He made a decision that he was going to be on the side of the Great Broadcaster." Big Moose was an example of how the Great Broadcaster uses us like CB radios, Wood said. With both radios and people, it's what's inside that counts. The Great Broadcaster plugs you into his power and modulates (talks) through you.

Concluded Wood as he held up a Bible, "I know in my heart that this instruction book to the CB which God has created is right . . . that someday there will be no interference, no static and nobody to walk on me, and I'll be able to modulate with Big Moose again.

"When your day comes," he said, "be it sudden or whatever, may they be able to say you let them have their chance to talk on the channel."

Big Moose leaves his wife, Loverbug (Louise); a stepson, Little Rascal (Donald), 13; his grown children, Brady Jr., Jean, Betty and Bernadette, and six grandchildren.

Craig CB and Car Stereo Featured In "Super Van"

Craig Corporation's CB radios and car stereo players have been selected by world-famous car designer George Barris to be included in his newest creation, the "Super Van," which is featured in the movie of the same name. Barris has mounted a Craig 40 channel CB and an FM 8-track car stereo on the dash of his \$50,000, customized 1971 Dodge Sportsman Van.



"I chose Craig CB and stereo equipment," said Barris "because of its fine reputation for high quality in design, engineering and performance. Their car stereo sound really is the best."

Known as the "King of the Kar Customizers," Barris has designed the "Batmobile" (for TV's *Batman*) and the "Love Bug," as well as several unique models for such celebrities as Frank Sinatra, Elvis Presley, Sonny & Cher, and John Lennon.

Besides the stereo tape player and the 40 channel CB radio from Craig, "Super Van" boasts a 6-foot revolving boudoir sofa, a crystal chandelier, and a battery and electronic system run by solar power. Its futuristic styling includes aerodynamically sculptured body panels, a gullwing door on the right side, Polaroid charcoal tinted glass, and a highly lacquered exterior finish of bright orange and sky blue.

Craig's car stereo promotion is geared to a youthful 18 to 34-year-old market and since 1974 has been tied in with musical celebrities. The corporation's current ad campaign features the Beach Boys and last fall, the company sponsored the Bob Dylan TV Special.

Mass. CB'ers Donate Survival Suit

The area citizens band radio club known as WARM is once again demonstrating the sense to community spirit.

WARM's most recent contribution was a survival suit for use in water rescues that was presented to the Wareham Fire Department.

The survival suit, which is neon orange and feels like a foam sponge, will keep its wearer afloat for 24 hours when properly adjusted. The outfit has an inflatable black belt under the arms, which resembles an inner tube when inflated and enables the rescuer to keep four people besides himself afloat.

With the survival suit comes a whistle and a strobe light to call attention to its wearer, allowing others assisting to locate the rescuer.

Lieutenant Haskell said that fire fighters had an opportunity to test one of the department's three survival suits last winter. Haskell described to CB club members how a dog was successfully rescued from the Agawam River after it had ventured out on the ice. The ice became thinner with the warming wea-

ther and the dog fell through and could not get back to shore.

WARM was formed in November 1974 and now has some 150 members from various area communities. Although its original members came from Wareham, Acushnet, Rochester and Marion—hence the acronym WARM many other town's are now represented in the club's activities. All money raised by the group through "coffee breaks" goes to charity.

In the past year, besides the survival suit, WARM installed and supplied equipment for a CB base station at Tobey Hospital, donated 22 pints of blood at Tobey, presented Thanksgiving and Christmas food baskets; contributed to the Boston Globe and Standard-Times Christmas fund drives, awarded honorary memberships and "Golden Nugget" club jackets and insignia, and, in an ongoing project, established a special scholarship fund for awarding to a graduate of Wareham Old Rochester Regional or Upper Cape Regional high school.

CB REPLACING CALL BOXES

Citizen's band radios in cars are replacing those emergency call boxes installed along some of the nation's freeways to help drivers in distress.

Gerald H. Reese, managing director of REACT International, Inc., made the observation at the recent Society of Automotive Engineers annual convention.

He was among several participants in a technical session called to discuss the growing use of CB radios in cars. Reese noted that in 1970 there were 2.5 million CB radios in American cars and now there are 20 million.

With so many in use, the CBs are by far the most effective means of emergency communication for motorists. He noted that the Missouri Highway Patrol spent \$150,000 on CB equipment and got 150,000 calls the first year, a cost of \$1 per call, and added that costs should drop below that level this year.

On the other hand, he said, it cost \$1 million to install call boxes on a stretch of I-80 in Illinois, but the state had to discontinue their use last year because it couldn't afford the \$140,000 annual maintenance cost.

"Generally, per-call costs of call-box systems have run over \$10 per call," he said. "This is one reason that call boxes are no longer considered to be cost-effective."

"More and more states are turning to CB radio as a more direct, cost-effective source of highway communications and traffic information."

Reese said the current CB radios in cars also are far better than still-experimental programs to develop a special, sophisticated highway communication system with automatic sending and receiving units in the car and at the roadside.



CB Radio Plea For Blood Saves Californian's Life

As he sat on his living room couch, Don Tucker of Glendora, Calif., tried to put into words the emotion he was feeling at the moment.

"It's hard," he said. "It's really hard. How do you find the right words to thank the people who provided blood to save your life?"

"What can I say?" Tucker asked. "How can I tell them how I feel?"

"I can't believe there are that many people out there who really care," he said. "It's really an amazing thing."

Tucker has returned home from San Dimas Community Hospital after a five-week ordeal which nearly cost him his life.

Had it not been for an overwhelming response to a citizen's band radio plea for rare 0-negative blood, Tucker probably wouldn't have survived the ordeal.

However, when CBers heard the plea for the 0-negative blood they responded and provided enough (57 pints) to pull Tucker through.

"One trucker was going through the Valley when he heard the call on Channel 21," Tucker related. "I was told he said 'the hell with the job' and went to Queen of the Valley Hospital in West Covina to provide blood."

Tucker's ordeal started when he suffered a massive cardiac arrest while at San Dimas Community.

"I had gotten out of bed to go to the bathroom," he said. "The next thing I remember was that I was on the floor and someone was administrating mouth-to-mouth resuscitation to me."

After his heart attack and due to drugs being used and stress, Tucker suffered massive bleeding which produced the need to call for his rare blood type.

Tucker's wife, Helen, aired the plea for 0-negative blood over their CB radio and before long citizens were providing all the needed blood.

"Help came from everywhere," Mrs. Tucker said. "California Highway Patrolmen heard the call on Channel 21 and began donating. After that, people seemed to come from everywhere."

"It was amazing to watch the response our plea produced," she said.

"This experience really has changed my life," said Tucker, who owns Whittier Communications. "There were a lot of things I wanted to do before but didn't have the incentive to do."

"However, that's changed now," Tucker explained. "Working six days a week, saving money and other things like that aren't so important any more."

"Now I want to be able to help others," he added. "I'll never forget the way others helped me."

Tucker said one of the most frustrating things about his 3½ week stay in intensive care was his inability to communicate.

"I couldn't talk," he said. "Thus, I couldn't tell the doctors and nurses when something was bothering me or I was in pain."

"I had to use a board with letters to communicate," he continued. "The ordeal was so draining that, many times, I couldn't get my ideas across."

"Someone would look at the board and wonder what I was trying to say," Tucker explained. "Several people might have to look at the board before someone finally realized what I was trying to say."

However, Tucker came through his ordeal in good shape and is looking forward to being active again and returning to work.

"Oh, I think it will probably be 2 or 3 weeks before I can get back to work," he said, "but I'm in no hurry."

"My main objective is just to take it easy for a while and gain my strength back," he explained. "I went into the hospital weighing 192 pounds and I'm at 164 right now. I have a way to go."

However, Tucker knows the worst is behind him.

"I'm fortunate to be in the position I'm in," he noted. "A lot of people might not have come through this. However, I got help from a lot of people, especially the ones who donated all that blood."

"Could thanks ever be enough?" he said.

CBers Break For Lunch

If you find yourself a mite hungry along the road around Riverside, Calif., it's nice to know there's a good buddy waitin' up ahead.

That's the way Citizens' Band radio buffs feel about Breaker, Breaker, a cafe along highway I-six-oh in the quiet ranching community of Rubidoux, just west of Riverside.

Breaker, Breaker caters to CBers and even allows customers to call in orders by radio and have the meals waiting when they arrive.

"At least 90 per cent of our business is CBers, but we want to cater to everyone—CBers, truckers and the general public," says Joyce Kurtz, better known as Patches.

The restaurant's co-owner, Maureen "Moe" Hemphill, feels Breaker, Breaker is catching on largely because of its fare.

"It's hearty and it's homemade," she says. "The food in most other restaurants all tastes the same. Here everything is different—and there's a lot of it."

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THE DAY CB WE



EVER since the CB *boom* has been upon us, we've all sat back in amazement at some rather breathtaking things taking place—pavement princesses, CB sox, CB weddings, CB insurance plans—and things along those lines. Guess we tend to get a bit smug in thinking that before the miracle of CB communications was discovered by the general public along about mid-1974 things were pretty dull out there in CB-land. *Not so!*

Hey, back in 1965, for instance, something took place in CB-land which, to this very day, must surely go down in *all* of the record books as the wildest, weirdest, and wackiest CB-event to come rumbling down the CB-trail. Nothing quite like it has ever been attempted since—but, unless you were into CB in 1965 you probably never even heard of it. If you were part of it, you would never have forgotten it!

NOT WILD!

If You Think That CB Gets Flakier With Each Passing Day—It's Really A Lot Calmer Than It Used To Be!

by Tom Kneitel/TOMCAT, Editor CB Radio/S9
Cartoons by John Kane/SNOW WHITE



THE GOLDEN ERA OF 1965

CB'ers of the 1960's were fewer in number than today—they tended to stick together a lot more than now; what offended one offended all. The 1960's were also years of protest and unrest—group protest; they were also years of freaky things like hippies, yippies—and CB get-togethers with strange sounding names like (I kid you not) *The 90th Meridian Citizens Band Radio Club Rally, Fly-In, Drive-In Breakfast!* Thus was the stage set for the entry into CB radio of a fellow who was certainly to add to the general confusion of the times.

THE GENERAL INGREDIENT

The fellow in question was Ray C. Moore, a man who had been categorized as all of the following: millionaire, engineer, inventor, ordained minister, professional writer, lecturer, psychologist (to name but a few of his reputed attributes). Moore was a man who, in 1965, was 60 years of age and who had retired some 20 years before (it was said) with a personal fortune of 3-million greenstamps!

A newspaper once said of Ray C. Moore that "the many pathways of his life" were "an American saga." It was this saga which led Ray C. Moore in the 1960's to what was certainly his most spectacular contribution to the American experience—Ray C. Moore became a CB operator. His callsign was KHI-4084.

If it has flashed through your consciousness that when a guy like Ray C. Moore decided to become a *goodbuddy*, he was going to do it in the *grand* manner, you're right! In his Ohio home there were two separate and distinct CB stations, each licensed under its own individual callsign. One station sported stacked 6-element beams perched atop a 60-foot tower!

THE DREAM

But Ray Moore was *more* than just a millionaire with two complete CB stations, Ray Moore was a man with a dream—a vision to put on a CB Jamboree the like of which had never before been seen, and which would never be equalled afterwards.

In 1964 he started making plans for this extravaganza, which he said would be "the Little World's Fair," and scheduled it for July 17th and 18th at El Rey Grotto Park near Elyria, Ohio. He titled his dream *The Lorain County CB Jamboree and Camp-out*, claiming that "no other club or organization in



the world hold a jamboree the same weekend we hold ours." (History recorded that there were at least 7 others, including jamborees in neighboring West Virginia and Indiana.)

Some of the plans for this super spectacular event included:

- Up to 90,000 CB'ers to show up, using 30,000 vehicles, requiring 30,000 hotel/motel rooms, and spreading upwards of \$12-million through the local economy.

- Moore himself was to ride around the grounds "in a decorated pony cart, drawn and attended by Nubian Slaves, fanned with specially made feather fans wielded by 2 harem girls and followed by an entourage of 6 wives." Moore's costume to consist of "ballooning green trousers drawn in at the ankles gold slippers, gold brocaded cummerbund, a red bolero jacket." The headgear was to be a fez, golden-jeweled with the words "Head Camel Driver." Attending Nubian Slaves would lay a carpet beneath his feet when walking to tents or booths.

- Some \$5,000 in cash and equipment prizes to be awarded in beauty and talent contests, for unusual QSL cards, for most distant club attending, etc.

- In addition to the huge park-grounds, 120 additional acres were set aside for accommodating campers who would attend.

- The jamboree itself would have a circus like appearance; 5 huge tents to be set up, a flatbed trailer would serve as a stage, with other auxiliary enclosed vehicles serving as dressing rooms for local disc jockeys and country and western singers. More than 45 special guards would be on duty, aided by members of the *Lorain County Emergency Communications Net*. Food and first aid facilities would be set up, along with a base station operating on 2 channels to aid visitors in parking and locating. Five ice cream trucks to be brought in from Pittsburgh. Just to be "safe," 123,000 tickets were printed.

Although all of this took an up-front investment of about \$45,000, it was nothing when weighed against the potential income (the tickets were 75¢ each by mail, or \$1 at the gate).

- Advance publicity was right out of a *Tinseltown* press agent's nightmare—thousands upon thousands of handbills and flyers were distributed, the local newspapers provided extensive coverage, even the *Lorain Chamber of Commerce* prepared leaflets welcoming visitors to the City of Lorain. By a month before show time, Moore said he had sold 10,000 advance tickets.

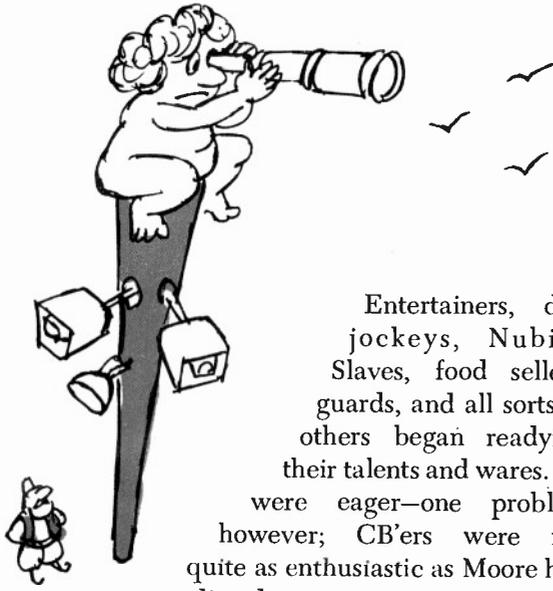
Things were building to a definite crescendo, but here and there a few bits of discouragement were creeping in, cracks in the facade.

A few days before the big event, some area merchants started to become uneasy about it all—started to scoff at Moore's predictions. Ray Moore was unfuffled, saying that his national prestige among CB operators would pull CB'ers from all 50 states and Canada. Moore smiled at the skeptics and said, "Wait and see," and was heard to observe that the only thing small about this jamboree would be in comparison to the one he was already planning for the following year—obviously flattered by one local newspaper comparing his flamboyancy to that of P. T. Barnum!

Meanwhile, preparation work was in full swing; so hectic was the pace that the owner of the tent rental company collapsed and died while supervising the work crews.

THE BIG DAY ARRIVES

And so the big day arrived, and (as advertised) Ray C. Moore was on hand to greet the multitudes.



Entertainers, disc jockeys, Nubian Slaves, food sellers, guards, and all sorts of others began readying their talents and wares. All were eager—one problem however; CB'ers were not quite as enthusiastic as Moore had predicted.

Saturday, the opening day of the jamboree seemed to attract relatively few CB'ers, an especially poor showing when matched up with the 90,000 expected to attend.

The Saturday talent contest was held, winners were selected but none of them received the promised \$100, \$50, or \$25 cash prizes. Winners received type-written I.O.U.'s telling them that they would get their prizes in the mail.

The Saturday morning little girls' beauty contest was hurriedly rescheduled for the evening because of "lighting problems." It was eventually scheduled for Sunday. The over-16 beauty contest was also rescheduled for later Saturday, then moved to Sunday, then cancelled.

Other announced contests were cancelled, those who qualified for some received nothing. The *Cork CB Club* of Batavia, N.Y., claimed that they were the largest out-of-state club there and demanded to get their \$300 prize—all they received was permission to stay over at the park Sunday night so that they wouldn't have to travel home in the dark.

One man had arrived with a \$300 CB rig which was to be given as a registration prize—failing to receive payment for the set, he went home.

By Sunday the numbing disaster of the event was confirmed, the Sunday crowd was as thin and disappointing as had been the Saturday crowd—*maybe worse!*

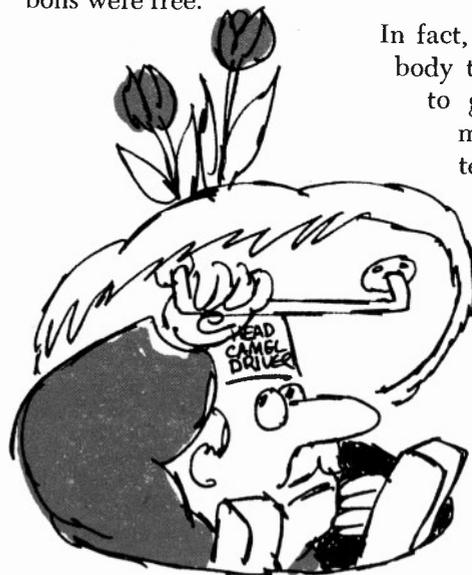
The guy who had rented \$700 worth of tables and chairs to the jamboree was complaining about having no success in getting paid—he was making threats of legal action.

The company which had rented \$2,000 worth of tents (the same outfit whose owner had died) said that they were contacting their attorney about payment.

On a smaller but no less important level, Richard Honoshofsky, who was promised \$3 an hour for parking cars was brushed off by one of Moore's assistants with the message that he would be "contacted later."



And the mother of a girl who entered one of the beauty contests was going around telling people that she was charged \$3.50 by jamboree officials for a chest ribbon which demanded for all contest entrants, but that the pre-jamboree circulars said that the ribbons were free.



In fact, just about everybody there was starting to get into an ugly mood—angry clusters of CB'ers were starting to form and make rather ominous-sounding threats about cancelled events and cancelled prizes. The mood was such that it wouldn't have taken much to

turn into a full-scale -1960's style "civil disorder," as one newspaper put it.

CB'ers and tradespeople were looking for Moore or his assistants—but by mid-afternoon on Sunday it

seems that Moore suffered what was described as a "heart seizure," was whisked away in a private car and was said to have been placed in an oxygen tent in his home. Moore's assistant, the one who had announced the cancellations of contests and prizes, closed himself in a building and refused to speak to anyone.

TO THE RESCUE

Then, in response to the mood of the almost-violent crowd, Sheriff Vernon Smith and 25 deputies arrived on the scene, backed up by 10 members of the State Highway Patrol.

Although the Smokeys had arrived to prevent violence, rumors had started that they were there to close up the jamboree, word was also spreading that Moore had died. Hundreds of agitated people were milling around, others were packing up and leaving.

Girls dressed in now-dusty long white gowns were standing amidst discarded soda cans and crumpled paper plates asking if scheduled beauty contests were still going to be held—nobody seemed to know.

By 6 PM the jamboree—at least what was left of it—was called off by a public announcement. Smokeys spent the next few hours yelling, shouting and trying to clear the area of angry CB'ers.

EXPLANATIONS: TOO LATE

Ray Moore's wife said that when Moore had been stricken during the jamboree she had given him a glycerin pill (he had a long history of heart trouble) and made him rest, but that he had insisted on facing the crowd, however even after the pill and the rest he "collapsed the second time." Mrs. Moore could not explain why the jamboree was such a flop.

Ray Moore seems to have eventually been admitted

to Lockbourne military hospital and there was talk that he might have to be transferred to Walter Reed Army Hospital in Washington for "further examination."

When finally heard from he had some strong thoughts as to what had taken place and why only 4,000 people (less than 5% of the predicted attendance) appeared at the jamboree. *Sabotage!* Yes, *it was Sabotage!* Moore claimed that even out of the 4,000 people there, only 1,600 had purchased gate tickets—and that 29 disgruntled CB'ers (all former members of the *Lake Erie CB'ers, Inc.* club) had stolen tickets and had sold them privately. He also claimed that these same rascals had used their CB rigs to intercept communications from incoming caravans and diverted them away from the park with false road directions.

Moore, who had contracted for the jamboree services under the name of *The Lorain County Caravan Club, Inc.* (he was President of the club) said that his attorney would handle settlement of the many bills which were being submitted by various suppliers. The lawyers would also handle contest prizes which were owed to CB'ers. He also noted that he had sunk \$45,000 of his own funds into the project—and that because of the alleged *sabotage*, he didn't feel obligated to dip further into his personal fortune to pay off any of the indebtedness.

THE BOTTOM LINE

Eventually the Lorain County Prosecutor said that he was going to investigate the whole matter of the ill-fated jamboree. The *Lake Erie CB'ers, Inc.* said they were filing for a \$5,000 judgment against Moore and his wife so that they could get back monies advanced to Moore in a note. A court order was issued requesting that a local bank appear in court to discuss Moore's assets.

The final outcome? Well, as with most storms—the whole thing blew itself out in a barrage of energy and words. Moore and his wife quietly left town—some say that he entered a VA hospital in Columbus—others simply say that they really never knew what ever became of him.

The judgment was never brought to court and for quite a few years after the disaster it was almost impossible to get anybody to discuss the event—and, today, there aren't too many eye-witnesses who can be located. The story is probably best recalled in the pages of newspapers like the *Chronicle-Telegram* of Elyria, which reported the unfolding drama as it took place.

A later day P. T. Barnum? Perhaps! Maybe in its total failure the 1965 *Lorain County CB Jamboree and Campout* really was *the most spectacular CB event of all time!* And as for Moore's prediction that he would put on a CB Jamboree the likes of which had never before been seen, and which would never be equalled afterwards—he was definitely successful!





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CB

“Down Under”

by Al (Kangaroo) Shawsmith, VK4SS

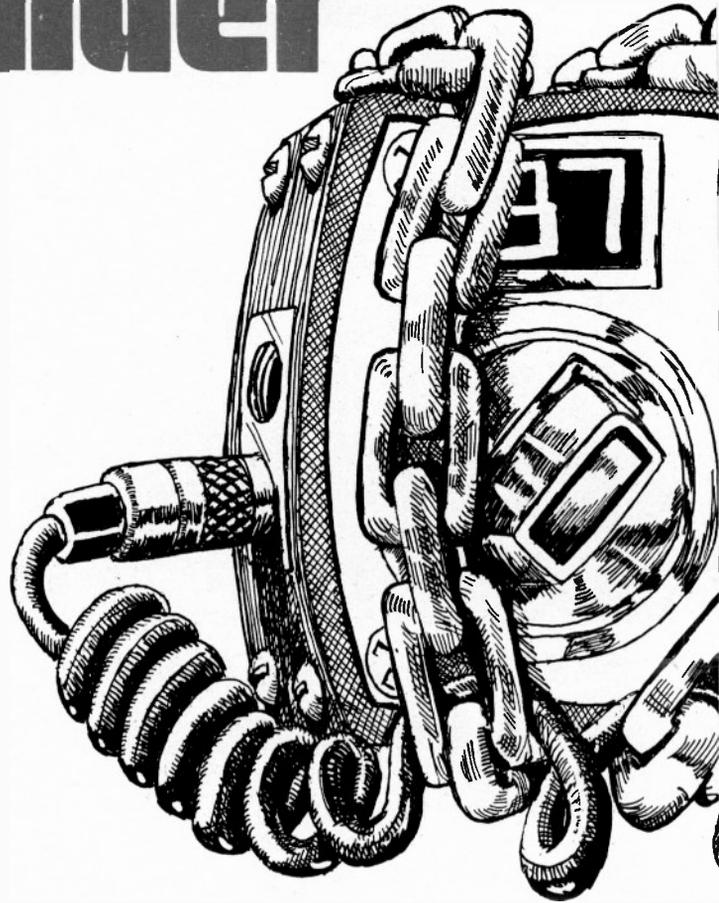
SOME CB watchers in Aussie land are claiming there are already one quarter of a million operators in the country—all *illegal*. If this figure is stretching it a little, it won't be for long, because retail radio stores are reporting a boom in the sale of CB gear.

CB operation has been a quiet and low-key fact of life for several years; but, in the last eighteen months, it has mushroomed into intense activity. An upsurge was expected but even the most avid CB watcher was caught with his, or her pants down. Why did this sudden explosion occur? There are several reasons: 1. 'Down Under'; for better or worse, usually follows USA trends. 2. Retail houses began stockpiling sets and consequently plugging their sales. 3. The Federal Government in Canberra, A.C.T., after a long silence, finally opened one of its departmental doors and exposed its intentions, just enough to 'leak' the info that it may legalize CB in some form, in the near future.

It was this last occurrence that instantly gave CB operation a sudden aura of respectability—and sent hundreds of would-be CBers scurrying to shops, to get themselves a 27MHz rig. A rather unwise move, as no one yet knows if CB in Aussieland will be legalized on certain channels in the 27 MHz band, or on UHF.

The Canberra powers that be, put CB *piracy* at only twenty thousand. This low estimate is not accepted by most as being 'fair dinkum'—but is simply regarded as a face-saving figure put out by the government, who don't want to appear to be out of control of the situation. A *National Citizens Radio Association* has been formed and it is a very vocal, aggressive body. Parliamentarians hardly got their seats warmed for the 1977 sitting, before they were petitioned by this group and others, to get on with legalizing CB. There have been marches through the streets of Sydney and demonstrations on the lawns outside Parliament House, where the Minister responsible was loudly harangued for his tardiness in doing something positive. It is alleged, on one occasion, that he sent out a message—'tone down the noise, or no deputation will be received'.

So, the CB issue in Australia is, at present, a very emotive one; kept alive by the media who see continuing value in it—that is, until it is legalized, at least.



STRICTLY BOOTLEG

The 'on air' illegal CB activity has a cloak and dagger atmosphere about it. Handles, faked names and IDs are used but no 10/20, QTH or QRA is given. Smokey and the Radio Inspectors' Department seem to work, eat and sleep with their ears on—consequently, many CBers spend as much time dodging the law, as they do on air. However, most have the good sense to play it cool, QRM no one, keep their activities low-key and their noses clean. It would appear, that by and large, Smokey does not hound or hear these operators: but, in every group, there's always a sprinkling of 'nuts' asking for the trouble they get.

The sudden possession of a CB rig, in the hands of some, is more intoxicating than a couple of 'schooners' of the strongest Aussie brew (and that's saying something). Like the Harvey Wallbangers who, immediately they step into a car assume that the right of way on every road or highway belongs to them, some CBers have the compulsion to be boss-cocky on any channel they choose to appear—the result is confrontation and strife, obscene language and worse.

There's a character called Batman, in Sydney town, who reveals his compulsive hang-ups by using his CB

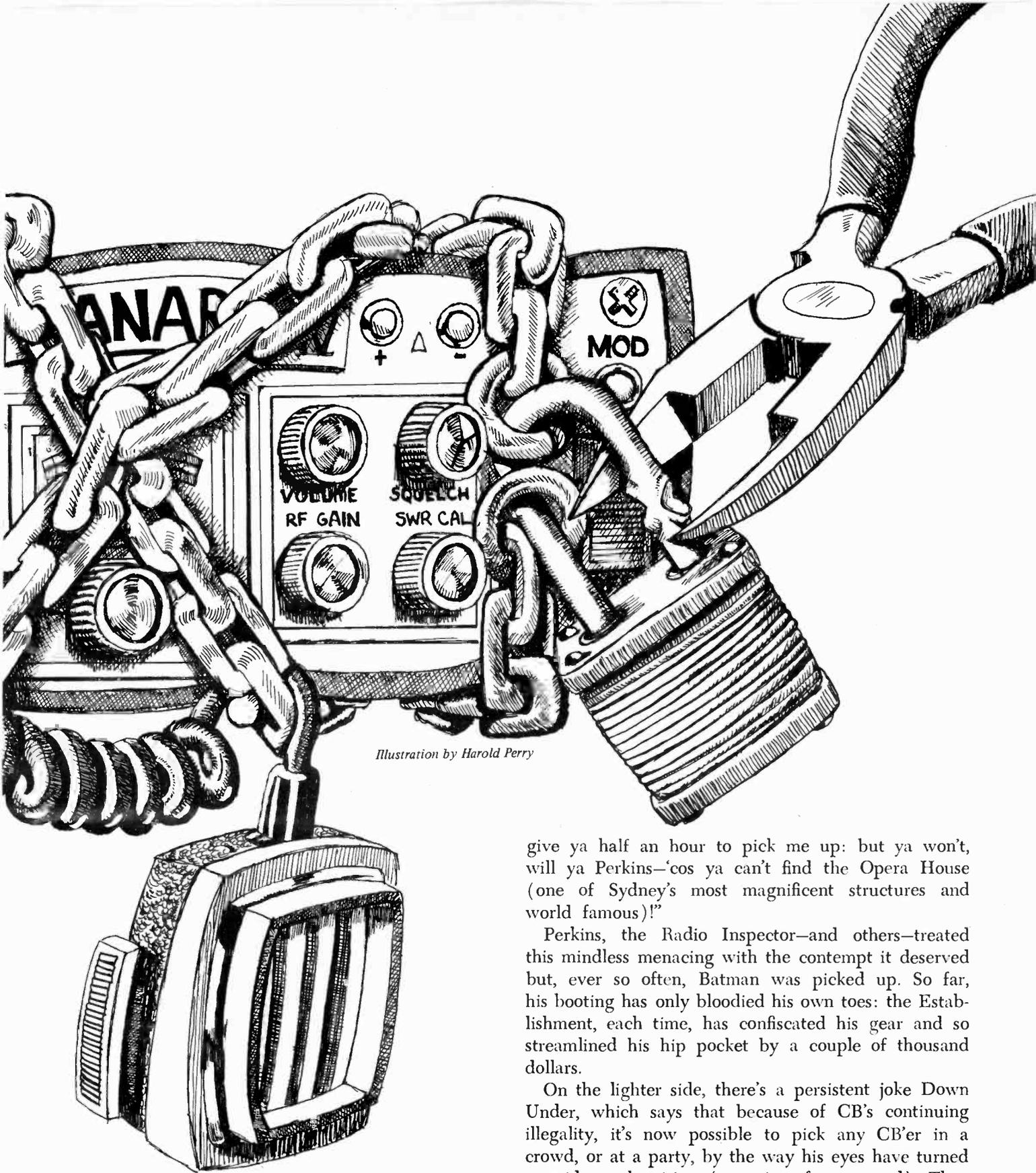


Illustration by Harold Perry

rig to put the boot into the Field Radio Inspectors' Dept., or Smokey Bear, or whoever. His idea of achievement is to come on air, in his supercharger downtown and start issuing insulting challenges to the object of his dislike at that moment: e.g. "Hallo Perkins (name changed). Perkins, this is Batman callin' yer. I know ya want me and I know ya gotcha ears on—well, I'm at the Sydney Opera House. I'll

give ya half an hour to pick me up: but ya won't, will ya Perkins—'cos ya can't find the Opera House (one of Sydney's most magnificent structures and world famous)!"

Perkins, the Radio Inspector—and others—treated this mindless menacing with the contempt it deserved but, ever so often, Batman was picked up. So far, his booting has only bloodied his own toes: the Establishment, each time, has confiscated his gear and so streamlined his hip pocket by a couple of thousand dollars.

On the lighter side, there's a persistent joke Down Under, which says that because of CB's continuing illegality, it's now possible to pick any CB'er in a crowd, or at a party, by the way his eyes have turned to wide angle vision (opposite of cross-eyed). They have to—how else can you work the rig and watch out over your shoulder, at the same time, for Smokey Bear.

MOON MADNESS?

Hams have broken every DX record in the book but one Aussie CB'er has just pipped them all—accidentally. He got a *Moonraker* and thought it had to

be pointed to the moon for DX: but he miscued and accidentally set it on Venus. His first CQ brought a female reply—and what the Venus maiden told the Earthman made him tingle with sweet anticipation. So now it's known—

*A CB'er has contacted Venus,
And the girls there say they have seen us
—and to quickly, come on;
Earthman, come on,
and annihilate the space that's between us!*

Recently, the Readers Digest ran an article "CB, Everyman's Open Line." It might have made the title less sexist, viz: "CB, Every Person's Open Line." Already, CB Down Under has heard the female opportunist voice, or two, plying the oldest profession with "Hi there boys, this is Rosie: you got my 10/20 OK, spread it around. I'm free to-night; why dontcha come up and see me sometime?" All that is changed in the venue and the 'modus operandi'. Soliciting from the comfort of an armchair, in front of a CB rig, sure beats patrolling the sidewalk and being accosted by cops.

NOT ALL ON THE LIGHT SIDE

On the more meaningful side, CB Down Under is already beginning to show its tremendous potential as a multifacet community service. One has only to spend an hours or two monitoring the channels to hear regular instances of help afforded to all manner of people, in all sorts of circumstances. There is no Channel 9 emergency service as such, as yet—but there are those responsible CBers who have formed themselves into groups and who put their ears on at regular specified times, for the sole purpose of being a service in any way they can. Automobile breakdown, of course, forms the most common call for help. The government has already been petitioned to allow an organized emergency service on Channel 9—so far, there has been no response.

Just recently, in Brisbane (population 1 million), CBers were able to demonstrate their worth in a dramatic way. A small airplane, while flying in very low cloud on the outskirts of the city, disappeared. Four days of intense searching by land and air failed to find any trace. The local newspaper let it be known that any help by CB'ers would be appreciated—and help, they did! Together with the Police, they combed the brush, until the wreckage was located. It was a CB rig that first broke the news that the plane had been found.

CB is beginning to change the life and work style of those who live in the outback country areas of Aussieland. Many farms in this part of the world are immense—not a few acres, or a few hundred but many kilometers: and in the case of some cattle 'spreads' hundreds of square kilometers. The wheat farmer is one who has found CB to be an indispensable part of his harvesting operations. In fact, he already wonders how he ever managed without it.

At harvest time, a large wheat farm, or a group of farms may require the co-ordinated working of several hundred trucks, plus the harvesters, headers, semi-trailers and other vehicles and machinery. Getting the millions of tons of wheat to the silos in top quality condition is a finely-timed operation. Before CB, there was a great problem (and consequent loss of efficiency) in communication with workers and trucks miles apart and on the move, on farms, roads and at silos. CB has solved all that and put millions of extra dollars in the wheat farmer's 'kick'. Truckies, all over, are fitting CB to their rigs, as fast as the job can be done. Cattlemen use CB in a similar way, except most of the communication is done from airplane to musterers, using 27 MHz walkie-talkies, on horseback (similar to the USA style). This country experiences tremendous floods and bush fires, almost yearly. Here again CB is proving indispensable in this and a thousand other ways.

In Brisbane town, there are several stores selling CB gear, since selling the gear is legal. Tandy's Radio Shack is probably the best known. In other stores, the Midland 6 channel AM is a good seller; as is the 23 channel AM/SSB model. Walkie Talkies by National, Tandy and Sanyo are three popular makes. Rumour now has it that 40 channel base and mobile SSB sets have arrived from USA. When these hit the market, more on/air trouble is anticipated, as the extra channels will bring CB'ers and Hams in close frequency proximity and conflict. So far, only the most modern, progressive CB'ers have installed VFOs—but their use is on the increase.



CB gear galore is legally available for Aussie's to purchase, it's the use of it that still isn't permitted. Here, Laurie Whelan, who sells CB rigs at Dick Smith's retail store in Brisbane displays a hand-held unit and also a Midland transceiver—both are popular locally. Photo courtesy Courier-Mail Newspaper, Brisbane.

CB LANGUAGE DOWN UNDER

Here, in Down Under, the esoteric on/air talk is laced with a mixture of three types of code signals: The Police, such as 10-4, 10-20, etc., CB language almost identical to that in USA—and a lot of the International "Q" code—plus a few colloquialisms peculiar to Aussieland, such as 'galah', 'fair-dinkum', 'welcher' etc*.

Those buying gear and on/air mostly belong to the under 30 age group but not all. There's always a

*Galah—talkative bird; Fair dinkum—true or real; Welch—cheat.

'wrinkly' or two to be heard, mixing it and calling 'come on, come back'.

There are several CB Clubs in Australia. One claims a membership of several thousand: but they are all forced to operate 'underground'. Their on/air skeds, meets and parties are all organized through P.O. Box No.'s (frequently changed). Any USA CBER who would like to correspond with their Aussie 'good buddies', could write to a Queensland based group: *Citizens Band Radio Social Club*, P.O. Box 147, Morningside, Qld. 4170, Australia.

GREENSTAMPS

Five thousand dollars, or 5 years in jail is the maximum penalty for illegal use of a transmitting set. Such a penalty would only be considered in the worst possible cases, e.g. breach of security in collaboration with another country, illicit drug trafficking etc. In most cases, those caught operating CB sets simply have their gear confiscated. For repeated offenders, or those who commit definite breaches such as continued obscene language, or deliberate QRMing of some other service, a monetary fine may be added, say about \$100 (as in the case of Batman). Smokey Bears, both Commonwealth and State, are empowered to confiscate illegal mobile gear found in cars. So pirates, either fixed or mobile, must operate with the permanent fear that the 'snooper' van (DF equipped), or Smokey might be right on their tails.

NEW ZEALAND IS LEGIT!

Unlike Australia, CB in New Zealand is legal. The frequency allocation is a segment of 75 KHz on either side of 26.5MHz. Needless to say, whenever skip is right, Aussie/Kiwi DX is commonplace: it is not even necessary to have a *Moonraker*. The 1500-2000 miles DX has been accomplished with both parties using only a G.P. mobile antenna—however, a good beam raises the signal by 2-3 'S' points. The CB service, in the *Land of the Long White Cloud* (N.Z.), seems to have come amicably into being as a fact of life, without all the conflict and strife that is part of the Aussie scene.

Down Under CBERs are claiming QSOs with the West Coast of USA—and Japan. There seems no reason to doubt this, as using the Southern Hemisphere summer period, there are usually several such freak skip openings.

WHY AUSSIES ARE ILLEGAL

Readers of *S9 Magazine* may well ask why it is that CB is illegal here and legit in USA—after all, our democratic life styles are almost identical. One speculation is worth a mention: in the States, telephone systems are privately owned and in competition. Australia has one government-owned network, which is an authority unto itself and charges almost what it likes (another form of indirect taxation). It appears scared that CB operation will reduce its

'twisted pair' revenue—which is simply twisted bureaucratic thinking, in this writer's view.

The successful future of CB Down Under depends on the form of CB licensing the Government will introduce and legalize. No one knows yet if it will be on the 27MHz band or UHF. CB watchers are betting 'New York to a peanut' or 'Sydney town to Bullamakanka', on 11 meters, because the retail stores are already piled with gear for that band. So it follows that commercial interests will lobby Canberra for this segment of the HF spectrum. Also, possession is nine points of the law: CB is already jumping with activity on 11 meters—and as far as the operators are concerned 'squatters' rights exist—and also, 27 MHz licensing would fit in with the system in USA and elsewhere.

However, this writer is not sure about the channel allocations. It goes without saying that the government wants to avoid those problems that have developed in the USA. The manner of policing the channels is another activity that will affect CB's destiny. Some order, procedure and discipline must be established at the very outset. The cost of properly policing an explosion of one quarter of a million CBERs on 27MHz would seem to be beyond the Federal Government's purse, at this point of time. It appears imperative that some sort of self-regulatory body be set up NOW—not later.

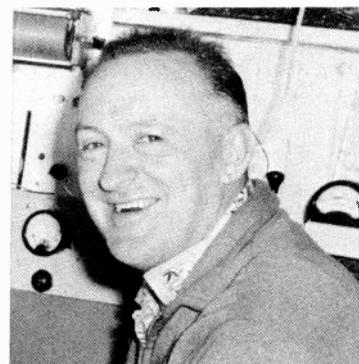
Legalization should do a lot to improve the general tone of the on/air activity. Guide lines can then be set down, channels allocated and hopefully, an official booklet issued on the do's and don'ts, or can and can'ts of CB. Some of the present on/air disorganized confusion is the result of novice CBERs not having the faintest idea of how to go about anything. Most would not know that a Wireless & Telegraphy Act existed.

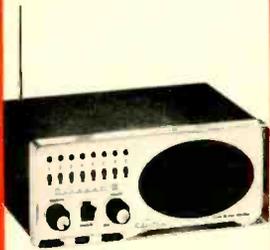
The use of the airwaves for every person is as much our common inheritance as is the use of the roads and routes on land, sea and air. Science fiction writers have long predicted that Citizens Radio will eventually become universal. Like so many other facilities, its effect, for good or bad, will depend in the final analysis on us, the users—rather than on governments.

Editors Note: HOORAY! CB was legalized in Australia last May, a few weeks after this story was written!

Here's our author,

Al Shawsmith,
known on the ham
bands as K4SS—
and on CB as
KANGA (Kangaroo).





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S9 • August 1977 • 35

TOMCATTIN' with "Tomcat!"

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



SCREAMIN' DEAMON, Lonesome Sol, Unit 1582-C, and a number of other readers have asked why we gave publicity to the new film *CITIZENS BAND* while ignoring other "CB movies." Simple—*CITIZENS BAND* was written and produced from a very positive approach to CB radio, it's a well intentioned film—and isn't a put-down to CB radio or CB operators. Several of the other films we've heard of present CB and CB'ers in what I feel is a mocking and degrading manner; these films are calculated to make some quick greenstamps and get off a few cheap giggles at the expense of CB operators. While it's true that several other CB publications ran to pay homage to the gods of *Tinseltown* at the first possibility of being able to get some copy and mileage out of these films, my feelings are that CB radio and CB'ers deserve a better shake than what these films offer—and I therefore did not cover them! I do have another film scheduled for coverage in any event!... *THE WRONG ARM OF THE LAW*. Hundreds of complaints had been received by law enforcement authorities in the area of Ballston Spa, N.Y., because for months someone was chucking out dead carriers on Channel 9. After lengthy electronic surveillance the sheriff dredged up a 31-year-old CB'er whom they said was responsible; charging him with 5 counts of aggravated harassment. He was arraigned and ordered held on \$2,000 bail. CB'ers (including the *State Smokeys*, all of whom were jammed in their efforts to use Channel 9) all were relieved. Unfortunately, DeWitt Town Justice Jack Schultz dismissed the charges. Here comes the judge, there goes Channel 9! . . . *FRIENDS WE CAN COUNT ON!* Nationally syndicated newspaper columnist Jack Anderson came up with some interesting statistics on our friends down at Uncle Charlies and their

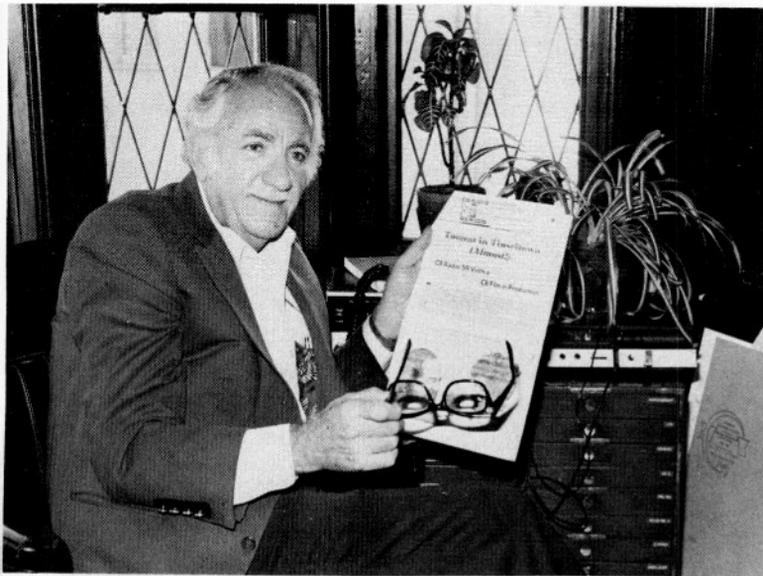
actions and attitudes towards CB. Anderson claims that the FCC is giving CB radio the fuzzy end of the lollipop in connection with future expansion needs for the service, saying that the Ham radio service consists of 300,000 operators while there are more than 20-million CB sets around—yet the Hams have "100 times more airspace" including control of "more frequencies than all of the nation's police and fire departments combined, plus all commercial and educational FM broadcasters, plus all the TV stations on the VHF channels in Los Angeles and New York City." Curiously, Anderson points out, the White House has told the FCC on *no less than three occasions* that there would be no objections to expanding the CB service into new frequencies—yet the FCC has not taken such action. Anderson tells of a confidential Washington report which says that one reason *may* well be that the FCC people who make the decisions on CB channel space "have traditionally been hams," and likens the situation to "the wolf guarding the flock." Anderson reports that the enemy of additional CB space is the *American Radio Relay League* (ARRL), which the confidential report calls "a lobbying organization" which represents Ham operators—and he claims that the ARRL has sent out a special "flash bulletin" to its members urging them to "utilize every league resource" to ward off any invasion of CB into Ham frequency territory. Anderson notes that the FCC's Chief Engineer (who Anderson blames for responsible "decisions detrimental to the CB industry") is a lifetime member of the *League*. The FCC man denied that the membership is a conflict of interest! It's Anderson's claim that the confidential report was prepared for Rep. Elliott Levitas of Georgia. If Anderson's charges are true, they present a

portrait of a conflict of interests and a federal agency which is possibly giving CB'ers a fast shuffle. If the FCC is *not* in the hip pocket of the ARRL, then I think that they owe the public some sort of explanation of what the relationship in question actually consists. Perhaps somebody should conduct an investigation as to the FCC's handling of and attitude towards the CB service, in light of Anderson's charges. Maybe a few conclusions might be drawn relating to the *super-enforcement* campaign conducted against HF operators which came so strangely upon the heels of an ARRL edict condemning HF. There are a lot of questions—so far not many answers. You don't have to be a genius to come to the conclusion that, based upon the sheer number of CB'ers and the amount of greenstamps we generate in the economy in pursuit of CB, that we are for sure *not* the favored child! *Why?* . . . SKY HOOKS GET HOOKED: A number of readers who live in big city high-rise apartment buildings have reported that they have had roof-mounted base station antennas of all types ripped off. They ask for advice on how this can be stopped. Best bet is to tell the elevator operators and doormen to be suspicious of anybody trying to get out of the place carrying a Moonraker, a quad, or the like, hung over their shoulder! . . . A similar but whacky variation of this problem was reported to me by Harry, UNIT 958-J—says he lives in a big apartment house in Chicago—has a 4 element beam on the roof. One day he noticed that his CB gear wasn't

working up to snuff—next day same thing. After a few days he went up on the roof to see if he still had his beam—yup, it was still there! Well a week went past and he was still unhappy about the performance of his station—so he went back up on the roof to start checking out the entire system. After a few minutes of eyeballing the beam he noticed something most unusual. The coaxial feedline and rotor control cable wasn't going to his apartment—they both headed off in another direction. His coaxial cable was now hooked to a homebrew antenna made from a piece of coaxial cable and hastily hung over the edge of the roof where it was fluttering in the breeze. One of his neighbors had *taken* over his beam! Said he might not have minded so much if the guy had at least rigged up a T-connection which gave the both of them a shot at the antenna—but this guy cut Harry out of the picture completely! Harry says as soon as he finds out if the other operator is smaller than he is, he's gonna complain—but if the bloke is bigger, then Harry sez he's gonna tune up that wind-blown homebrew antenna and learn to live with it! . . . The U.S. Army recently conducted a *Larceny Symposium* at the Ft. Eustis Transportation Center in Virginia, under the direction of the Provost Marshal. All military personnel who attended were supplied (by the Army) with reprints of the story "CB's Rig Ripoff" which appeared last October in CB RADIO/S9—the Provost Marshall told me that he thought it was the most complete and useful story ever written on protecting against theft of mobile CB equipment—a rising problem on military bases! . . . If you hear a CB'er with the handle CAST IRON, it might well be Billy Carter—brother of the President! . . . GOOD GRIEF DEPT. A "new national club" calling itself the *CB Radio Operators Assn. of America* has started publicizing the fact that they have a regional public relations station in the Jacksonville (Fla.) area broadcasting bulletins—except that he's setting up shop on Channel 16, the Sidebanders' channel—and he's using AM transmission and a handle! Some public relations that's gonna be! Guess they don't know that sideband and AM on the same channel mix like oil and water—and that Sidebanders don't use handles! My advice to those enraged Sidebanders who have asked me to help pry this yo-yo off Channel 16—don't worry gang, the boob is probably violating the anti-broadcasting sections of Part 95 anyway, and maybe Uncle Charlie will waste him! . . . GAVEL GERTIE is a Domestic Court Judge in a midwestern state—she tells me that one of the new ways they have to trying to track down run-away fathers who don't



Snapped on location of filming *CITIZENS BAND* near Marysville, Calif. Here Candy Clark, one of the stars of the film, rides the fender of the quaint '56 Chevy used in the story. The sticker in the rear window reads: OLD CB'ers NEVER DIE, THEY JUST BREAKAWAY.



The Executive Producer of Paramount's new film *CITIZENS BAND*, is Shep Fields (yes, that *RIPPLING RHYTHM* man)—whose staff was in regular communication with the *CB RADIO/S9* offices during the course of the entire production. Here Shep eyeballs some *CB RADIO/S9* copy about his new film—at his elbow is (partially hidden) his *CB rig* which is used to read the mail on Tinseltown channels.

pay child support is to try to ferret out their 10-20's through the FCC's *CB* license computer! . . . Fellow I know is into pumping iron (weight lifting)—decided that whenever other *CB*'ers call him *Goodbuddy*, he would correct them—his handle is *GOOD-BODY!* . . . The world's very first case of *H.P.I.* (Heating Pad Interference) has been reported by Scott (*TONTO*) of Northport, N.Y.—*TONTO* says that he had the heating pad on his achin' back while he was ratchet jawing on the rig—he swears that the pilot light on the heating pad started flickering in time with his modulation. I've heard of running *heat*, but that's a new one on me! . . . *OPEN MOUTH, INSERT FOOT:* In the May Issue I foolishly said that if you have an "old-style" (3-letter/4-digit) *CB* callsign, Uncle Charlie's computer will issue you a "new-style" (4-letter/4-digit) callsign when you renew your license *Not* so in all instances said a number of readers—they told me that when they renewed *their* old style callsigns, they kept them! Well—(heh, heh)—I was just checking and testing to see if you *really* read your copies of *CB RADIO/S9!* . . . *HEAVY SOUL* (of Minneapolis) comments that he has seen several media efforts to peddle the hoakum about "sunspots causing *CB* to be almost worthless in a few years." *HEAVY SOUL* wonders why such panic efforts never seem to mention that *if* that were true, ham radio, FM and TV broadcasts, public safety communications on the "low band" would also be almost worthless! Those things are never mentioned! Why? Because all of those services

have gone through several sunspot cycles and seemed to survive the ordeal quite well. *HEAVY SOUL* suggests that the next time someone tries to boggle you with this stupid rumor—you mention this, or at least ask 'em to explain it! . . . D. K. (UNIT 668-R), who has a rather interesting high-placed position which I can't discuss in detail, tells me that the rumors of the Russian "jamming" of wide segments of the shortwave frequency spectrum, including *CB* frequencies, (as reported a few months ago in *CB RADIO/S9*) were most likely attempts at weather control by means of tinkering with the electromagnetic force field of the planet! If that's true, and if this crazy idea has any merit—now we know just what screwed up all the weather during last Winter—all those *dad-blamed* *CB* footwarmers! . . . What with so many *CB* manufacturers signing-up theatrical personalities to be spokespersons for their equipment line, I'm surprised that nobody has grabbed a hook into Chuck Napier—one of the stars of Paramount's film *CITIZENS BAND!* Chuck is a very active old-time *CB*'er, a really clever and personable guy, and for all of the years I've known him, he's been one of the alltime greatest top-10 outrageous *CB* characters going—he'd be *dyn-o-mite* pitching a line of *CB* gear for some with-it manufacturer! Chuck's working knowledge of both AM (handle: *OVERDRIVE*) and sideband (number: *SSB-55*) makes him a natural! . . . Memorable bumper sticker observed and reported by Memphis' *DIXIE CUP*—a non-*CB* equipped travelling preacher's van with the bumper sticker: "*I DON'T NEED A CB TO TALK TO GOD!*" . . . *CB TRIVIA QUIZ:* It's the 13th largest police department in the entire United States, yet it has only one single patrol car—a beat-up old piece of junk which has no siren, no red lights, it doesn't even have all of its doors operational! What's worse, the patrol car is a hand-me-down which was originally equipped for 2-way communications in connection with municipal bus operations—even today, the communications equipment in the vehicle doesn't operate on the police department's frequency—it is still set up on the bus communications frequency—and it is only through getting a 10-5 through the bus dispatcher that the police officer in the vehicle has any communication with his headquarters! Know which department this is? It's the New York City Transit Police!

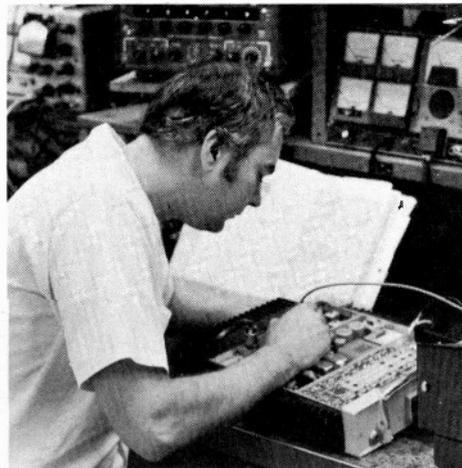
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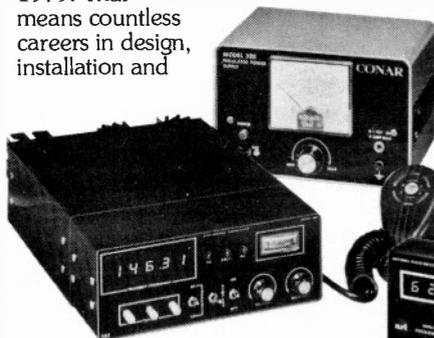
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External CB Speakers Improve Voice Communications

by Stephen R. Davis, President
Acoustic Fiber Sound Systems, Inc.

TO prove what our ears have been telling us all along about CB enjoyment, researchers at Acoustic Fiber Sound Systems, Inc. (AFS), makers of KRIKET® voice communications speakers, examined the physics of human speech and hearing; then tied them in with the effects on sound in a typical CB mobile environment, both naturally and electronically reproduced. The results showed that a typical CB transceiver, equipped with an external voice communications speaker, simply sounds much better.

CHARACTERISTICS OF HUMAN SPEECH

Chart 1 shows the average speech spectrum of a group of men. The range is 300 to 6,000 cycles. Vowel sounds fall in the frequency of 300 to 1,000 cycles, and are less vulnerable to attenuation than consonant sounds, which fall into the frequency range of 1,000 to 5,000 cycles.

Because speech is dynamic, certain sounds are loud, others soft. Consonants are softer and are more easily lost when background noise interferes. In a vehicle environment, consonant sounds are seriously impaired; and they are the key to understanding voice reception on a CB radio.

Communications problems could be reduced if the human ear responded only to the frequencies inherent in human speech production. Unfortunately, they do not. . . .

CHARACTERISTICS OF HUMAN HEARING

The human ear will accept a much wider range of sound frequencies than the voice produces. From the threshold of hearing, 0 decibels (dB), the human ear can tolerate an input up to three trillion times greater.

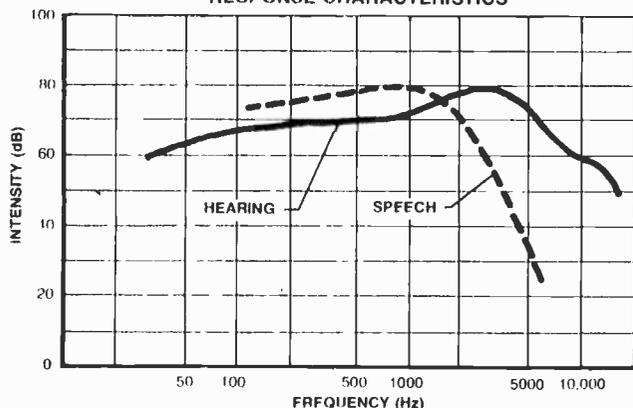
Chart 1 shows the frequency range for the ear at 20 to 15,000 cycles. The ear is, however, most keenly sensitive to frequencies in the range of 1,000 to 5,000 cycles, where the consonant sounds are.

The human ear, in conjunction with the brain, has the ability to analyze complex sounds received by the eardrum, then extract intelligent sound from noise. The ear-brain combination, however, is far from perfect.

Under some circumstances, one sound may mask another. The ear fails to differentiate certain sound components from others. This is called the masking effect, and it is measured by the amount of dB's the threshold of audibility of a sound is raised by the presence of another, masking sound.

1

HUMAN FREQUENCY RESPONSE CHARACTERISTICS



2

NOISE MASKING EFFECT

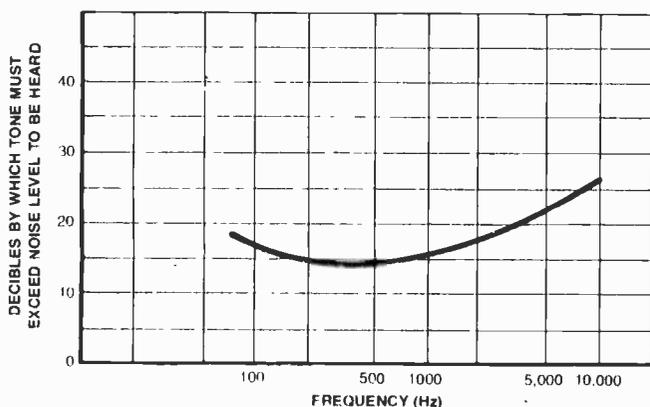


Chart 2 illustrates the masking principle. It shows that it is harder to hear high frequency tones in a noisy environment, and that the consonant sounds are therefore more easily masked than vowel sounds.

THE IMPORTANCE OF ENVIRONMENT

Effective communication depends on the ability of the person speaking to articulate intelligent information, the environment to transmit sound and the listener to perceive this information.

A vehicle's environment can detract from voice intelligibility in several ways. Sound waves radiated directly between talker and listener represent the optimum communication condition. Sound waves reflected off environmental boundaries are adversely affected.

Soft surfaces, such as carpeting, tend to reduce high frequency levels and hard surfaces, such as a kick panel, create annoying reverberations.

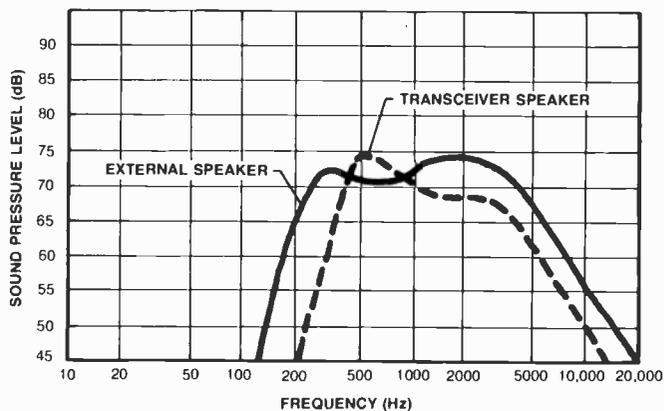
Sound intensity reduces in direct proportion to the distance of the sound source from the sound receiver. Eliminating sound frequencies outside the human voice transmission frequencies—i.e., below 300 or above 6,000—tends to enhance voice intelligibility.

EFFECT OF ARTIFICIAL TRANSDUCERS

Electronic communications further alters the environmental characteristics standing between CB transmis-

3

ON AXIS FREQUENCY RESPONSE IN ANECHOIC CHAMBER



sion and reception. A typical CB transceiver generates a great deal of noise due to the large number of non-synchronized radios operating on the same frequency. Atmospheric noise mixes in to add to this masking effect.

Most CB transceivers have small-size speakers dictated by the lack of available space which do not reproduce the full voice range evenly. Transceiver speakers accentuate the frequencies in the vowel range while diminishing the frequencies in the consonant or maximum articulation range.

By comparison, a properly designed external speaker will reproduce the full range of frequencies generated by the human voice, accentuating those frequencies in which the consonant sounds lie.

Transceivers are most often mounted under the dashboard. The speaker is commonly located on the underside, pointing directly down to the vehicle's floor. This means the drive will be at least 120 degrees off the front axis of the speaker.

TESTS IN AN ARTIFICIAL CHAMBER

To demonstrate these various effects, a CB transceiver and external speaker were tested in an anechoic chamber and in an automobile environment.

Chart 3 shows that the transceiver speaker and external speaker performed comparably in the artificial environment with both speakers placed directly in front of and one meter from the chamber microphone. Because of size and speaker acoustic design, the external speaker performed better, particularly in the 1,000 to 5,000 cycle range where the consonant sounds are.

However, neither transceiver or external speaker ever is mounted in an artificial acoustic chamber. When mounted in a car, Chart 4 shows the dramatic decrease in the CB transceiver speaker's performance.

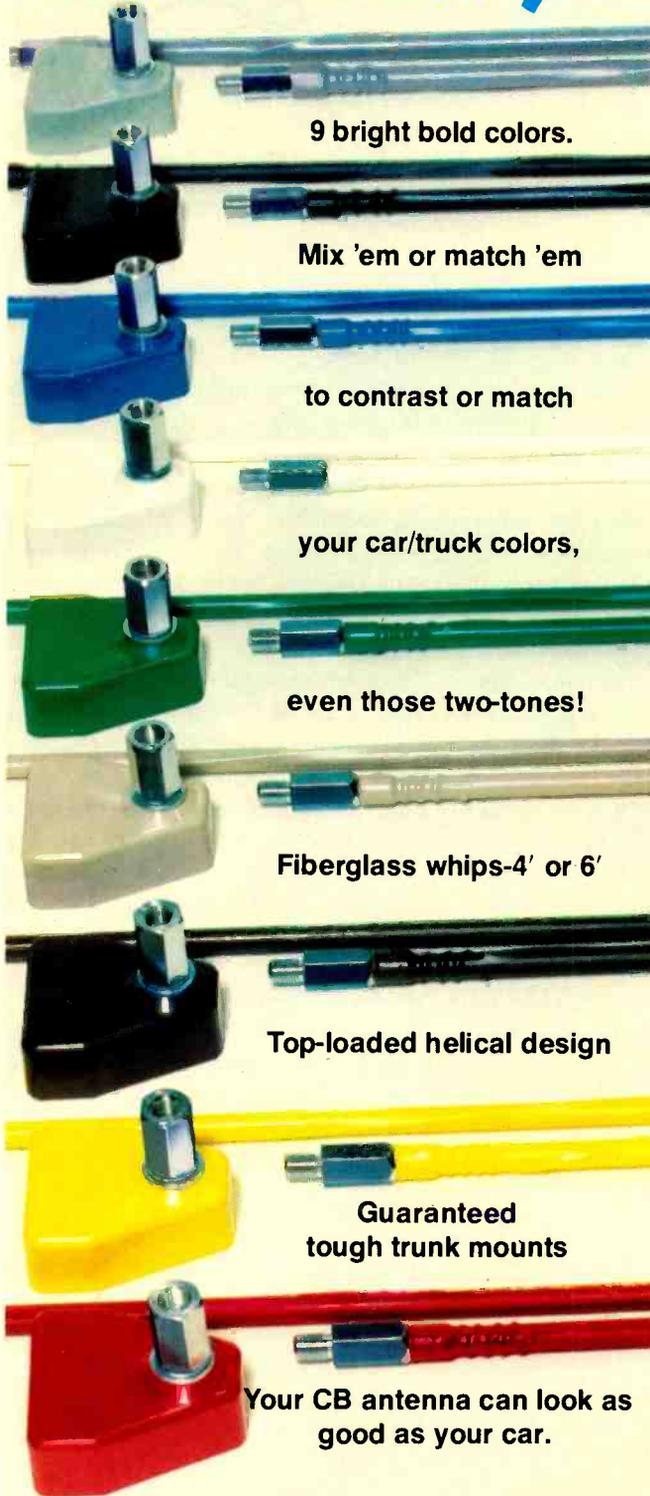
TESTS IN AN AUTOMOBILE ENVIRONMENT

In the car, the transceiver was mounted under the dash, the external speaker to its right, but pointed as is normal, towards the driver. The test microphone was placed where the driver's head would be.

(continued)

the end of the drab CB antenna

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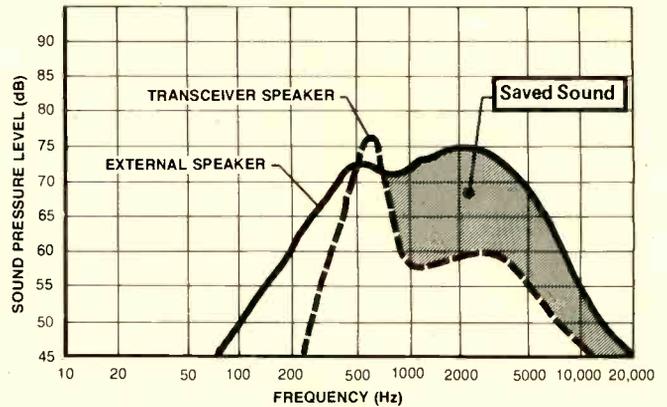
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4

FREQUENCY RESPONSE MEASURED AT LISTENERS
EAR—UNITS MOUNTED IN TYPICAL CAR LOCATIONS



Note how closely the external speaker's frequency response in the car parallels its performance in the acoustic chamber. The destructive effects on the sound from the transceiver's speaker is clearly evident, based on the principles outlined earlier in this story—indirect sound radiation off a soft, carpeted surface, speaker off-axis from driver, smaller size and poorer acoustic design, etc.

SUMMARY

Several important things can now be readily seen. Wide range, linear frequency reproduction, a desired attribute in high fidelity, is a detriment in a voice reproduction system influenced by high ambient, or masking noise. The wider the frequency response beyond human voice parameters, the louder the unwanted noise which is clearly perceptible to the ear. This is why switching CB reception through a music speaker is about the worst thing you can do in your car.

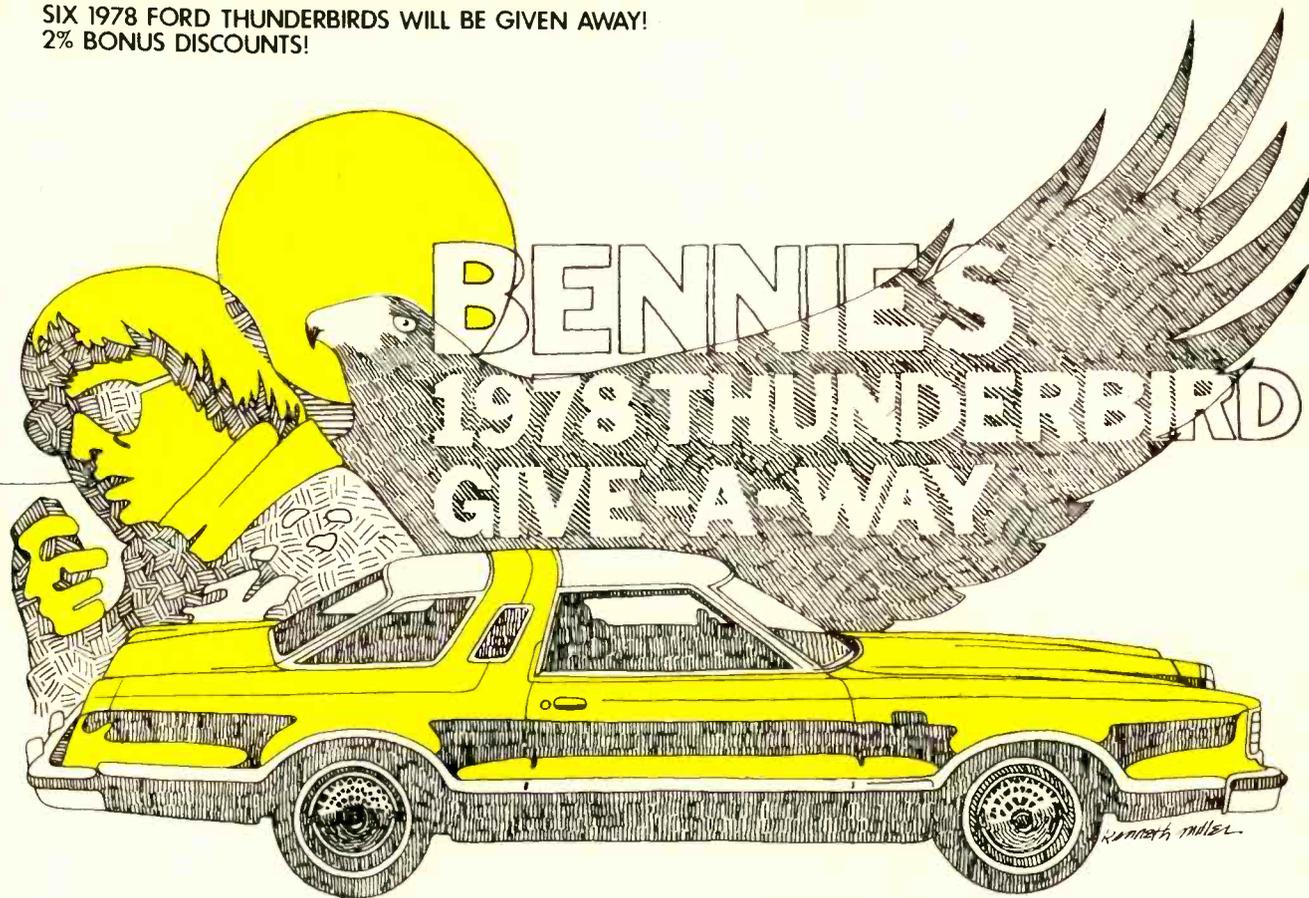
Secondly, a well designed external speaker should and does limit its frequency response to those of the human voice while retaining a high level frequency response in the voice range. The speaker in a CB transceiver does not.

Thirdly, the closer the speaker to the ear, the better. External speakers, because of size and design flexibility, can be mounted right next to the driver, particularly in a high ambient noise environment like the inside of a diesel tractor.

Of importance, it has been learned that all links in the communication chain—the person talking, the environment both physical and electronic between the talker and listener, and finally, the listener himself—must be considered in a study such as this. Proper optimizations must and have been made.

It can be seen then that, while some alteration occurs in direct person-to-person communication, extremely severe alterations are introduced by a CB transceiver speaker in a typical automobile application. The destruction of sound waves can be greatly relieved, and enjoyment in CB listening can be greatly enhanced, by the addition of a properly designed and positioned external speaker.

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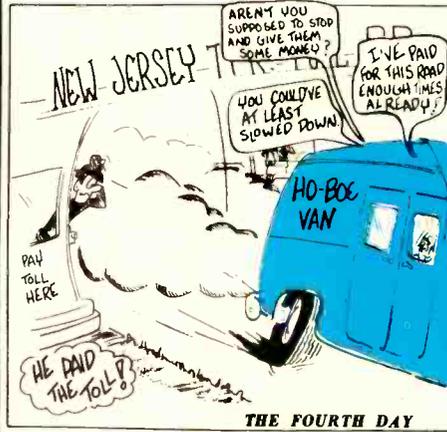
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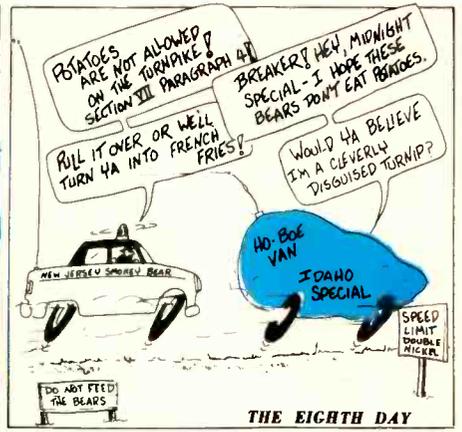
story by Carl Lehman



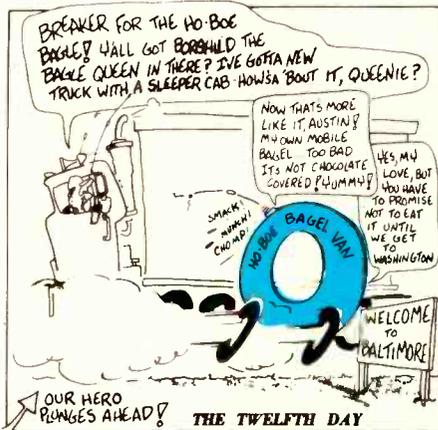
THE FIRST DAY



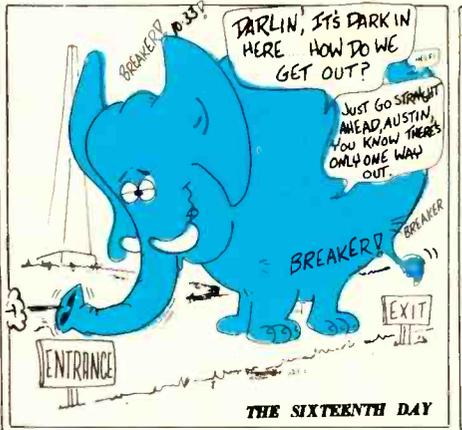
THE FOURTH DAY



THE EIGHTH DAY



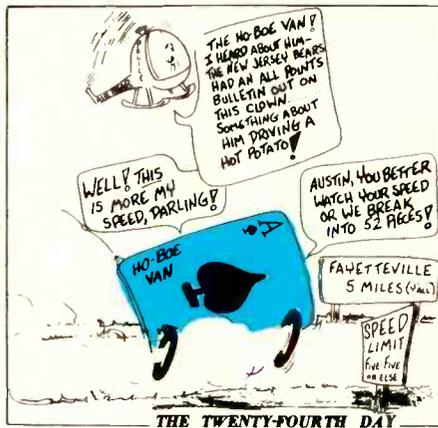
THE TWELFTH DAY



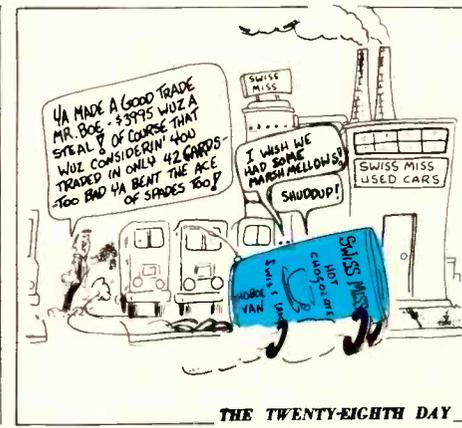
THE SIXTEENTH DAY



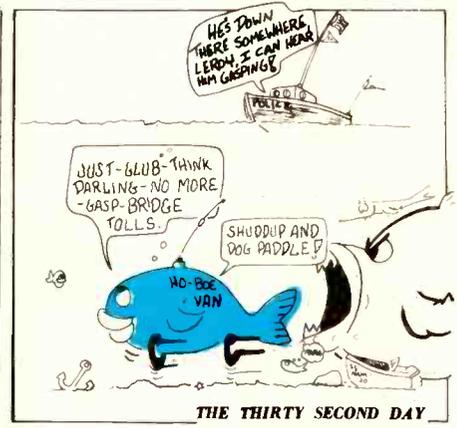
THE TWENTIETH DAY



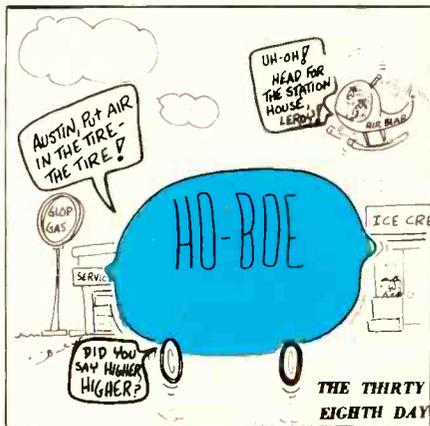
THE TWENTY-FOURTH DAY



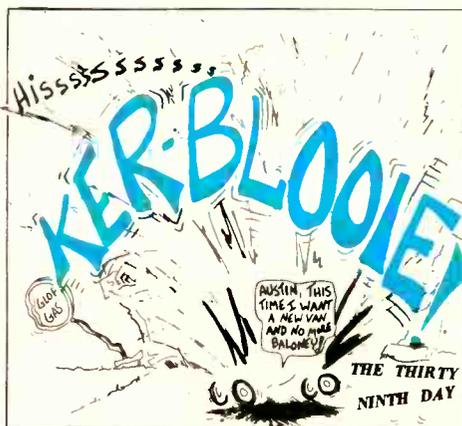
THE TWENTY-EIGHTH DAY



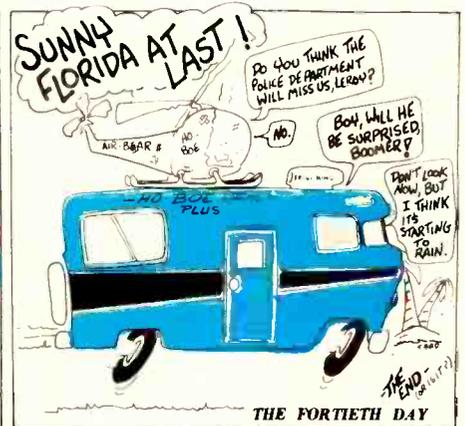
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When you see Mel's bus out on the road, give ol' "Flutterin' Lips" a shout . . . or let his driver, "Radio Red", tell you about his rig. It's a Teaberry, of course!

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COMING EVENTS!

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

Bakersfield, Calif. 1st Annual Jamboree of the Golden Empire Sideband Assoc. August 5-7th. At Kern Co. Fairgrounds, Union Ave. (Old Highway 99) and Ming Ave. For more info write: G.E.S.A. Inc., P.O. Box 967, Bakersfield, CA 93302 or call 805-399-1321.

Jacksonville, Florida, 1st Annual Jamboree of American Eagle CB Club. August 6-7th at Phillips Mall, Phillips Highway. For more info write club at P.O. Box 7205, Jacksonville, FL 32210 or call John Hollingsworth, 904-737-9527 after 5 pm.

Alexandria, La. 12th Annual CB Jamboree of Mid-State CB Radio Club, Inc., August 6 & 7th at the Rapides Parish Coliseum. For information write: Mid State CB Club, P.O. Box 1945, Alexandria, LA.

Logan, W. Virginia, Jamboree of Logan County Citizens Band Radio Club. August 6 & 7th, at Logan Memorial Fieldhouse. For more info write Chairman at P.O. Box 364, Logan, W. Va. 25601.

Raleigh, North Carolina, 7th Annual Old North State Jamboree of Raleigh United CB Club. August 6th & 7th at North Carolina Fair Grounds. For more information please contact Boyce W. Cox, P.O. Box 11167, Raleigh, NC 27604.

Jacksonville, Illinois, Annual Jamboree of Jacksonville Area CB Club. August 6 & 7th at Nichols Park, East Vandalia Rd. For more info write V. Brogdon, 830 Beesley, Jacksonville, IL 62650. (217) 245-2775.

Mt. Carmel, Illinois, 2nd National Jamboree of the Wabash Valley Co Ax Cutters CB Club, Inc. August 7th at the 4-H Center. For more info write I. Meier, 1117 Walnut Street, Mt. Carmel, IL 62863 or call (618) 262-4338 or 262-5435.

Kingsport, Tennessee Tri-City Communications Club Jamboree. August 12-14th at the Tri-City Comm. Club Bldg. (formerly Rod & Gun Club) located on Beason Wells Rd. For more

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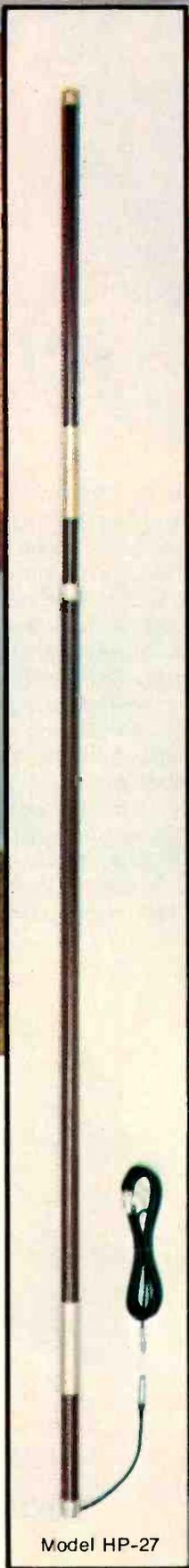
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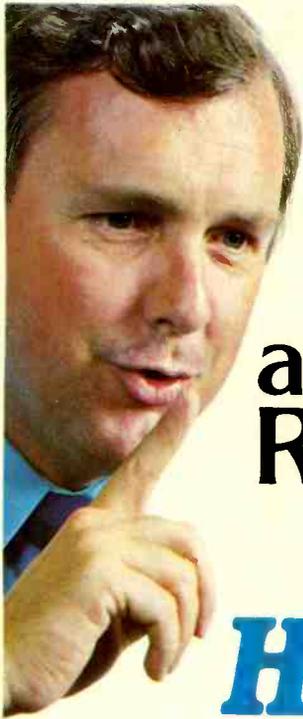
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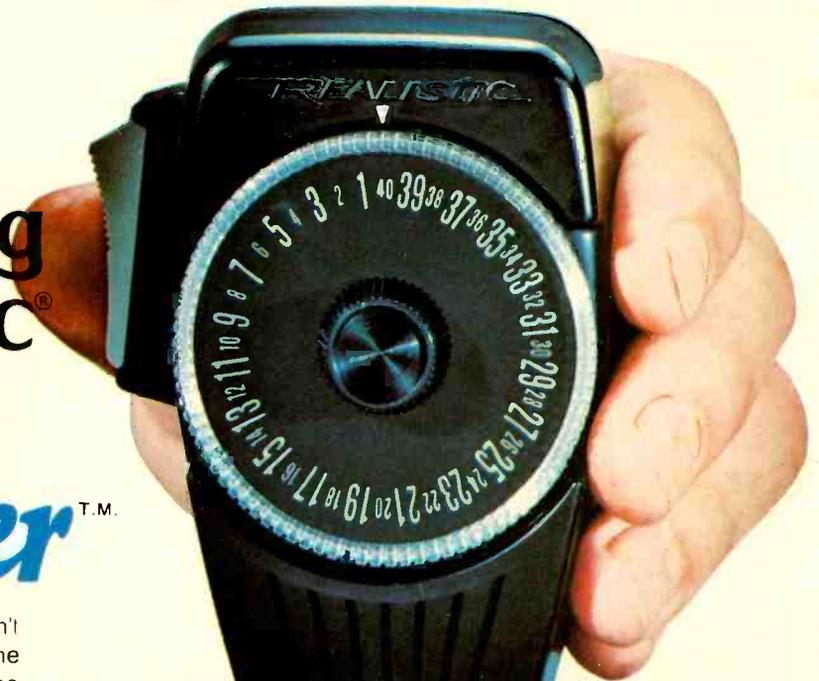
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info write Bobby Degarn, P.O. Box 774, Church Hill, TN 37642 or P.O. Box 245, Kingsport, TN 37662.

Mexico, Missouri 8th Annual Coffee Break of Little Dixie CB Club. August 13th-14th at Todd's, Highway 54 South. For more info contact James Hancock, 11 Venus, Mexico, MO, 581-5107, or Ray Kemp, 408 Eastholm, Mexico, MO, 581-0669.

Amboy, Illinois. Old Communications CB Radio Club Jamboree. August 13 & 14th at Lee County 4-H Fairgrounds on US 30. For more info write Curtis Bryant, 1228 Garfield Dr., Rochelle, IL 61068, or phone (815) 562-7096 or (815) 562-6960.

Alexander, New York, 3rd Annual Coffee Break of the Friendly Group CB Club. August 14th at the Alexander Firemens Park, Rt. 98, 1/2 mile south U.S. 20. Proceeds go to Burn Treatment Center of Western New York. Contact Ann Cory, Secretary at 5849 Broadway, Lancaster, NY 14086.

Afton, New York 1st Annual Break of "Afton Candbaggers Club." August 14th at the Afton Fairgrounds, Rt. 41. For more info write Elaine Metcalf, Chairwoman, P.O. Box 23, Afton, NY 13730.

Saranac Lake, New York, Coffee Break of Mountain Valley React. August 14th at Fish & Game Club. For more info contact React at P.O. Box 811, Saranac Lake, NY 12983.

Granite Dells, Arizona, 4th Annual Prescott Jamboree. August 19-21st, 4 miles north of Prescott on Highway 89. For more information contact chairman at P.O. Box 1802, Prescott, AZ 86301.

Lisbon, New York, 1st Annual Jamboree. August 19-21st at New York Fire Grounds, off Rt. 68 on Rt. 37. For information contact Coffee Cup CB'ers, Sue Mathews, Rt. #1, Hewvelton, NY 13654. (315) 393-7092 or 393-2687.

Eliot, Maine, 6th Annual Jamboree Camporee of Shoals CB Radio Club. August 19-21st at Locust Farm, River Rd. For more info write club at P.O. Box 807, Portsmouth, NH 03801.

Cumberland, Maryland, 3rd Annual Jamboree of Tri-State Citizen Band Radio Club. August 20 & 21st at Cumberland Fair Grounds, Rt. 220 South, 4 miles south of Cumberland. For more info write Wanetta Kesler, Memorial Ave., Lot #13, Cumberland, MD 21502. (302) 777-7490.

North Springfield, Vermont. 10-4 CB Clubs 1st Annual Coffee Break. August 21st at the Hartness Airport, Rt. 106. For more info write club at Box 44, Springfield, VT 05156. (cont'd)

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Morgantown, West Virginia, 5th Annual Jamboree of Mon-Valley React Club 2209. August 26-28th at Chestnut Ridge Camp Grounds. Coopers Rock exit off U.S. Route 48 to Rt. 73 & follow jamboree signs. For more info contact Eugene Fullmer-President, P.O. Box 1005, Morgantown, W. Va. 26505.

Fairhill, Maryland, 1st Annual Eastern Seaboard Jamboree. August 26-28th at Fairhill Fairgrounds. For more info write Manly M. Pierce, P.O. Box 221, Rising Sun, MD 21911.

Sacramento, California 1st annual jubilee of Christian Alert Int'l CB Radio Club. August 27th at Liberty Towers Nazarene Church, 5132 Elkhorn Blvd. For more info contact the club at P.O. Box 41217, Sacramento, CA 95841 or call (916) 332-5436.

Baton Rouge, Louisiana 7th Annual Jamboree and Dance. August 27 & 28th at L.S.U. Assembly Center. Sponsored by the L.A. Capital City Area C.B. Ass'n. P.O. Box 15464, Baton Rouge, LA 70895. Phone (504) 261-3179.

Corydon, Indiana, Ketuckiana CB Club Annual Jamboree, August 28. Highways 135N & 335 Jct. (Crandall Rd.) 4 miles north of State Road 64. For further information contact Larry Simcox,

(Snowbird), RR 3, Croydon, IN 47112. Phone (812) 366-3647.

Bascom, Ohio, 2nd Annual Coffee Break of the Ohio Ratchet Jaws CB Club of Tiffin, Ohio. August 28th at Meadowbrook Park. For more information write club manager, Ann Lutz, 15 Douglas Street, Bloomville, OH 44818.

Klein's Grove, Pennsylvania, Lehigh Valley CB Club Annual Coffee Break. August 28th, located 1½ miles north of Bath, Pa., off route 987. For more info write club at P.O. Box 1271, Bethlehem, PA 18017.

SEPTEMBER

Cincinnati, Ohio, Super Coffee Break & Jamboree, September 3, Stickers Grove on State Rte. 128, 7 miles north of I 74. For more information write Hilltip CB Club, P.O. Box 39423, Cincinnati, OH 45239, Attn: Vic Valentino.

Columbus, Georgia, 6th Annual Jamboree of Chattahoochee Chatters CB Radio Club. September 3 & 4th, at Clubhouse on 45th Street and River Road. For more info write club at P.O. Box 6221, Columbus, GA 31907.

Chillicothe, Missouri, 3rd Annual CB Jamboree, September 4th. Held at the

4-H Building, Hiway 36 East. Sponsored by the Livingston Co. CB Club Inc. For more information contact Wayne Jewell, "Seed Man" 715 Cowgill, Chillicothe, MO 64601, or Patty Knouse, "Peppermint Patty," 605 Jackson, Chillicothe, MO 64601, 646-3585.

Lackawanna, New York, International Ox Roast Picnic. September 10, at the Newton-Abbott Fire Hall Grove, Abbott and Lake Avenues. Sponsored by B.N.Y. CB Club of Buffalo, New York. For more information write: The Drifter, P.O. Box 33, Buffalo NY 14220 or call (716) 823-0583.

Chillicothe, Ohio, 2nd Annual Jamboree Ohio Poor Boy CB Club, September 10 & 11. Held at the Ross County Fairgrounds. Benefits, Muscular Dystrophy. For more information contact Red Bird, Lucille Robinson, Secretary, 506 Carroll Street, Weverly, OH 45690.

White Plains, New York, 1st Jamboree of the Myasthenia Gravis Foundation. September 11th at White Plains Center. For more info write Foundation at 61 Gramercy Park North, New York, NY 10010 or call (212) 982-4700.

Queens, New York, CB Jamboree, September 11. Held at the Desert Inn, 30-80 Whitestone Parkway. For further information contact American CB Radio Club, P.O. Box 321, Bronx, NY 10469.

Webster, Massachusetts 12th Annual Jamboree of Southern New England Citizens Radio Assn., Sept. 11th at Point Breeze, just off Rt. 193. For more info contact Bess Stevens, A. F. Putnam Rd., Charlton, MA 01507. (617) 248-5288.

Palatka, Florida, Bass Capital CB Club, Inc. 2nd Annual Jamboree, September 17 & 18. National Guard Armory, 1301 Moseley Ave. For more information contact Bass Capitol CB Club Inc., P.O. Box 1542, Palatka, FL 32077.

Milford, Connecticut, 7th Annual Jamboree of Nutmeg Citizens Radio Ass'n. September 18th at Knights of Columbus Hall, on Rt. US #1, between I-95 exits 34 & 35 (take Merritt Parkway Connector to I-95 South (west). For more info contact club at P.O. Box 5143, Hillside Station, Bridgeport, CT 06610.

Aberdeen, Mississippi, 4th Annual Coffee Break of the Aberdeen Communications Club. September 18th at the Junior High Gym. For more info contact Wallace Banks, Jr., P.O. Box 224, Aberdeen, MS 39730. Phone 369-4659 or 369-6593.

West Deering, New Hampshire, 3rd Annual Coffee Break, September 18th at

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Deering Fish & Game Grounds. Monitor Channel 14, KAFX-9379. For more information contact Sunshine CB Club, R.F.D. #2, Hillsboro, NH 03244.

Lake Havasu City, Arizona. Jamboree Sept. 23-25th at Crazy Horse Campgrounds. For more info write Jamboree Secretary, Box 582, Lake Havasu City, AZ 86403. Bucket Seat, Secretary.

OCTOBER

El Dorado, Kansas 2nd Annual Jamboree of Midway Emergency Radio Team Inc. October 1st & 2nd at Butler County 4-H Building. For more info contact Larry Bell, Chairman. Box 1279, El Dorado, KS 67042. (316) 321-1543 (evenings).

Kalamazoo, Michigan, 9th Annual Coffee Break of K.C.B.A. October 2nd at the Kalamazoo Co. Center Bldg., Lake Street Fairgrounds. For more info write Gene Shrout, P.O. Box 31, Comstock, MI 49041.

Transfer, Pennsylvania, 4th Annual Coffee Break of Tri-County React. October 2nd at Transfer Community Bldg. For further info: Darrell Lewis, 1545 Cranbrook Dr., Sharon, PA 16146.

Huntsville, Alabama, Space Capitol 2nd Annual Jamboree, October 9. Held at the Madison County Coliseum, Hwy. 72 West. For more information contact: P.O. Box 5231, Huntsville, AL 35805. Proceeds aid retarded citizens of Madison County.

Martinsburg, West Virginia, Coffee Break, October 9, at Holiday Inn. Sponsored by the Helping Hand CB Club. For more information contact: Fred Riggleman, Publicity Committee, Rt. 1, Box 101-32, Charles Town, W. Vir. 25414.

Macon, Missouri, 3rd Annual Coffee Break, October 16. Held at the Floral Hall, Macon County Fairgrounds Park, South on 63 Highway. Sponsored by the Long Branch Town & Country CB Club. For more information contact Floyd Smith, President, Macon, MO 63552, (816) 385-3268.

Teaneck, New Jersey, 1st Annual Coffee Break of C.B.C.'s Radio Club. October 16th at Teaneck "Rec" Hall, Teaneck, on Teaneck Road, 1/2 mile north of Rt. #4. For more information contact: Starfire (201) 288-3384.

Myrtle Beach, South Carolina, 2nd Annual Jamboree of Grand Strand React Team #2596. October 29th & 30th at Convention Center. For more info: Helen Craven, 3rd Garrison St., Myrtle Beach, SC 29577. Phone (803) 448-7268.

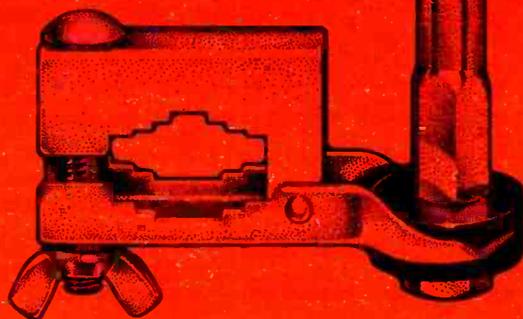
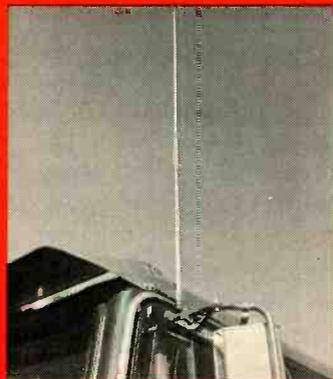
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This is the tough, top-loaded fiberglass antenna that can handle anything on wheels. Whether you're into trucking, traveling, off-road or farming, take along a Gypsy or two.

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The Gypsy comes three ways. As a single whip with a special easy to use mirror



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The Hy-Gain Gypsy. Just one of our many high performance CB antennas. See them all at your CB dealer. Or write our Department MM.

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WE KEEP PEOPLE TALKING.

Hy-Gain Electronics Corporation
8601 Northeast Highway Six
Lincoln, NE 68505

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Box 68
Naguabo, PR 00718

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ON THE COUNTERS



JAGUAR 40

Pearce-Simpson's 40-channel Jaguar Base/Mobile Transceiver is the perfect set for today's CB conditions no matter which way you use it.

At home, it produces an absolute minimum of the type of radiation which interferes with radio and television reception. And the Jaguar's automatic voltage regulator assures stable reception even if power line voltage fluctuates.

On the road, the adjustable squelch control shuts out background noise in the absence of a signal. With the Jaguar, the CBer can compensate for the constantly-changing signals caused by buildings and terrain.

Whether at home or in a vehicle, the receiver selectivity is so sharp that there's almost no "bleedover" if incoming signal quality is reasonably good. A two-stage amplitude automatic gain control assures distortionless reception of even the strongest signals. And a filter in the antenna circuit prevents powerful broadcast signals from suppressing the Jaguar's reception sensitivity.

The Jaguar also features the exclusive HetroLock™ frequency synthesis circuit to lock on to precise FCC-designated channels. And a special meter tells if power is really going out or is being reflected back at the transmitter due to a poor antenna or bad connectors.

Automatic modulation control maintains quality of your voice even when you're speaking very loudly.

The Jaguar operates anywhere because the factory-installed professional communications-type crystals were selected for high stability in climates ranging from arctic to tropical.

Suggested retail: \$339.95.

Write: Pearce-Simpson, Division of Gladding Corporation, 4701 N.W. 77th Avenue, Miami, Florida 33166, or mark number H04 on Reader Service Card.



DELUXE 40-CHANNEL MOBILE CB

Midland International's Communications Division has introduced a new full-power 40-channel mobile CB with Phase Lock Loop synthesizer.

This deluxe Model 77-838 includes such special features as: 2-way, 2-button dual electronic channel selectors on both the microphone and the unit control panel; an auxiliary volume control on microphone; and a large-scale L.E.D. digital readout channel indicator with dimmer control for visibility in all light conditions.

FCC type-accepted, the Model 77-838 has a transmitter rated for legal maximum 4.0 watt RF output power with high level modulation. The dual conversion superheterodyne receiver has RF stage, ceramic filter, variable RF gain control and full-range variable squelch. With both switchable automatic noise limiter and noise blanker and switchable high frequency audio filter, this Midland CB is one of the quietest units on the market.

The Model 77-838 mobile also features a large lighted signal/power meter and separate P.A. and external CB switches.

With the Midland Omni-Power system, the unit operates on 12-volt DC, positive or negative ground.

Complete with DC power cord, mobile mounting bracket and hardware, the Midland Model 77-838 has a suggested retail price of \$253.95.

Mark number H11 on Reader Service Card.

TOP OF THE LINE

Just introduced by Radio Shack is their new top-of-the-line 40-channel mobile Citizens Band two-way radio, the Realistic TRC-424.

The TRC-424 features phase lock loop (PLL) circuitry for full 40-channel operation with superior frequency stability, and an automatic modulation gain control circuit for full, 100% modulation without the need for a power mike.

The new transceiver is FCC Type-Accepted and Certified. Rated 4 watts maximum RF power output.

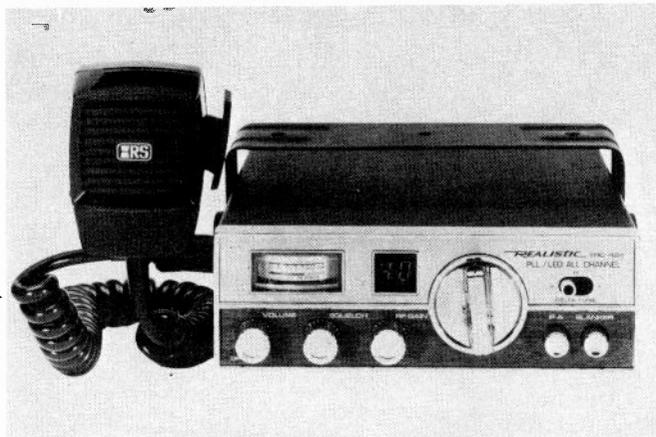
Other features include an RF gain control for adjusting receiver sensitivity, delta-fine tuning to help pull in off-frequency stations, switchable noise blanker, large LED digital readout for easy channel selection, RF/S meter and provisions for use as a public address system with an external speaker.

Operates on 12 VDC, positive or negative ground. Size: 8½ x 6½ x 2 3/16".

The Realistic TRC-424 40-channel CB transceiver, complete with mounting bracket and detachable mike, is priced at \$169.95.

Realistic CB equipment is available exclusively from more than 5000 Radio Shack stores and dealers in all 50 states and Canada.

Mark number H15 on Reader Service Card.



40 CHANNEL CB, THE FCC, AND TALK POWER

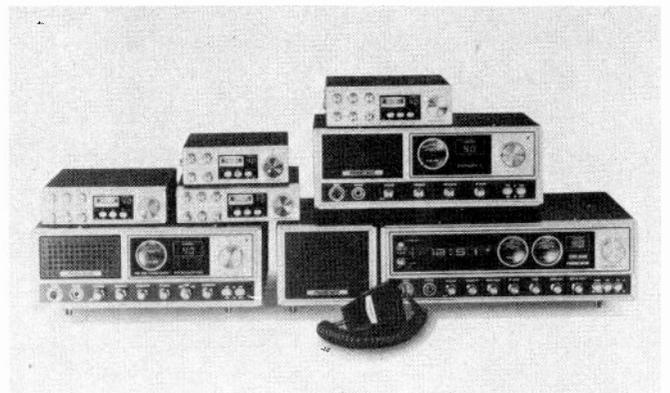
When asked recently whether the new 40 channel CB radios can provide maximum talk power over all channels, Mal Parrish, President of President Electronics, Inc., answered, "Absolutely! Contrary to some current rumors, there are no 23 channel sets that can outperform any of the properly engineered new 40's. The reason, pure and simple, is the superior engineer-

ing in the new 40 channel equipment which meets all the FCC's new tough requirements.

Parrish continued: "Take a look at the diagram of our modulation circuit and you'll see why President radios have such great talk power. On all of our radios the microphone feeds directly into a variable pre-amplifier. There is a front panel mounted mike gain control knob which allows the user to set the pre-amp so that his voice level provides all that is needed to obtain 100% modulation. After coming through the pre-amplifier, the signal goes through a beautifully designed speech compressor that squeezes any peaks that exceed 100% modulation back into the envelope. In turn, a clipper nips the top of any small peaks that still might exceed 100%. This, of course, introduces a small amount of flat-topping (distortion) which is then eliminated by a low pass filter. As an additional precaution, the signal is checked at the final amplifier by a detector, which, if necessary, tells the clipper to be even more vigilant. This whole process results in full envelope modulation, which loosely translated, means 'Talk Power'.

"The mike gain control, used to adjust the pre-amplifier, adds greatly to the flexibility of operation of President CB's. If conditions are noisy, the user can cut down on background noise by turning down the mike gain and talking closer to the microphone in a louder voice. If conditions are quiet, he can turn up the mike gain and speak softer and farther away from the microphone and still enjoy 100% modulation.

Mark number H02 on Reader Service Card.



NEW HIGH AND LOW PASS FILTERS

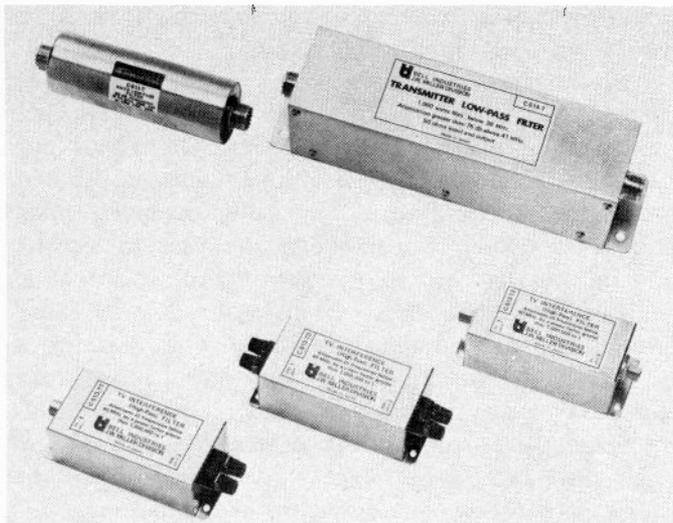
New filters that eliminate or greatly reduce interference on TV and FM receivers caused by CB or radio amateur transmitters have been introduced by Bell Industries/J. W. Miller Division of Compton, California.

Series C-513 high pass filters attenuate front end overload interference below 40 MHz by a power factor greater than 1,000,000 to 1 when installed in the TV or FM receiver antenna input.

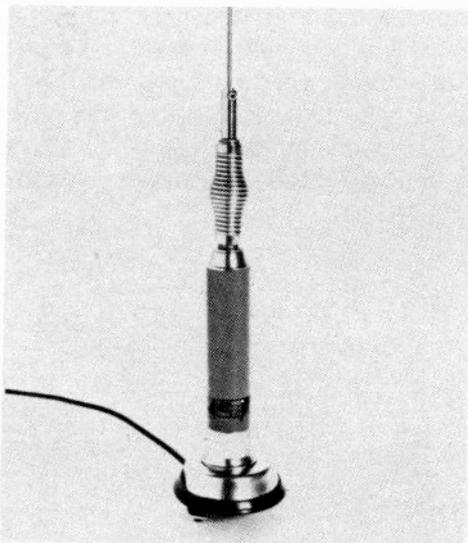
Low pass filters provide greater than 75 db attenuation for frequencies above 41 MHz when installed at CB and radio amateur antennas.

C-511-T: 25 W AM, 50 W PEP SSB

C-514-T: 1000 W AM, 2000 W PEP SSB



J. W. Miller Division offers a comprehensive line of high pass, low pass, audio and AC power line filters. For additional information, contact Jerry Hall, Operations Manager, Bell Industries/J. W. Miller Division, P.O. Box 5825, 19070 Reyes Avenue, Compton, California 90224, or mark number H03 on Reader Service Card.



40-CHANNEL CONVERTIBLE ANTENNA

An improved 40-channel CB antenna that mounts easily on trunk lip, roof or rear deck without drilling holes has been introduced by the Antenna Specialists Co.

The new model, MR176 provides a new lower profile mounting cup with a bevelled edge for better rear window clearance when used on trunk lip applications. Exclusive waterproof mount provides protection when whip is removed for car washing.

Stainless steel shock spring and 17-7PH stainless steel whip provide maximum flexibility, strength and antenna protection.

For permanent mount, a 3/8" hole is required. All mounting hardware, complete instructions and a 17-foot coaxial cable with attached radio connector are

included. MR176 is complete and ready for "no holes" trunk lip mounting as well.

The manufacturer's suggested list price is \$26.95. For further specifications contact: The Antenna Specialists Co., 12435 Euclid Avenue, Cleveland, Ohio 44106, or mark number H12 on Reader Service Card.

MOBILE CB ANTENNA

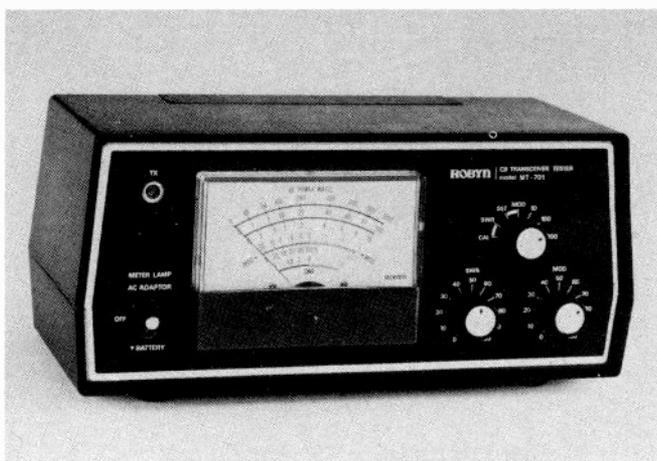
New Target magnetic base mounted mobile CB radio antennas have been introduced by S & A Electronics, Toledo, Ohio. Two tunable tip fiberglass models and a center loaded tunable tip version are available. Designed for fine reception on the road, the Target antennas have low VSWR for high efficiency.

The unique magnetic base is a safeguard against theft. It is easily removed for safe storage. Multipole ceramic magnets grip firmly with superior strength to any flat metal surface, such as a vehicle's roof or trunk. White ABS housing provides rust-proof construction.

Target magnetic mount models include:

CB-330, a 36" tunable tip fiberglass antenna; CB-332, 26" tunable tip fiberglass version; and CB-334, a 24" center loaded tunable tip antenna. All models come complete with 17 feet of coaxial cable and attached PL-259 connector. Antennas are assembled and require only insertion of the whip into the base.

The Target Magnetic Mount Citizens Band Antennas are a product of S & A Electronics, Division of The Scott & Fetzer Company, with headquarters at 202 W. Florence Street, Toledo, Ohio 43605, or mark number H20 on Reader Service Card.



THREE CB TRANSCEIVER TESTERS

Robyn International's MT Series transceiver testers are designed for monitoring the RF output, modulation level and antenna SWR of CB transceivers.

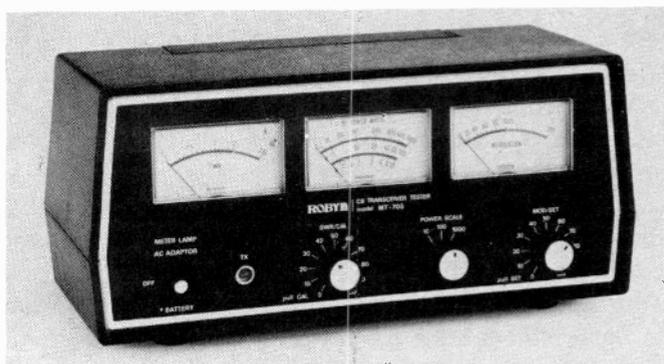
Each Robyn MT model features: neon transmit light; convenient battery or AC operation; illuminated multi-colored meters; battery-saving meter lamp switch; a



10-100-1000 power scale and numbered, CALIBRATE and SET controls for SWR and MOD (modulation) meters. Robyn MT transceiver testers may be left permanently connected, for use as a constant monitor.

The Robyn MT-701 has one combination meter that performs all three test functions for quick, efficient operation. The MT-701 suggested list price is \$59.95.

The Robyn MT-702 has one meter for RF output power and a second meter for SWR and MOD (modulation) readings. The MT-702 suggested list price is \$64.95.



The Robyn MT-703 is a deluxe three meter transceiver tester that individually monitors each function for precise, easy to read measurements. The MT-703 suggested list price is \$69.95.

Mark number H21 on Reader Service Card.

"SUPERSWAMPER" OUTDOOR CB BASE ANTENNA

The Hustler "Super Swamper" Model 27-TD delivers up to 25% greater range than comparable outdoor base antennas, according to New-Tronics Corporation of Cleveland Ohio, the originator of the Hustler brand of CB and amateur antennas. New-Tronics engineers produced the rugged "Super Swamper" for the CB'er who wants the most possible range from his base station plus the added bene-



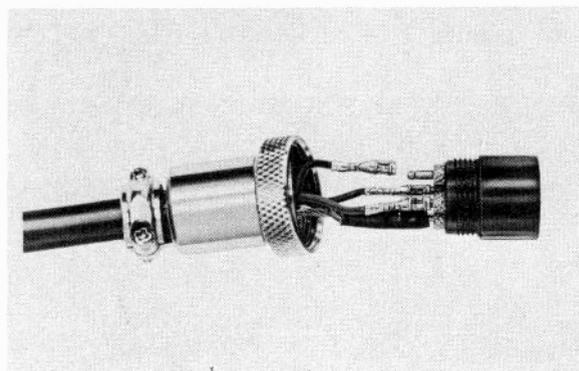
fit of an omni-directional full-coverage transmitting and receiving pattern.

The "Super Swamper" is designed for extra-long-distance two way base communication on 23 or 40 channel CB, AM or SSB. Power gain of this exceptional base antenna is greater than 4.25 db, compared to a 1/4 wave ground plane. The Swamper's .64 wavelength plus full size, 1/4 wave radials puts the majority of the signal out where the CB'er wants it—at a low angle towards the horizon, not up toward the sky like many other designs.

A sealed RF power "step-up" transformer, DC grounded for lightning protection and static drain off, provides peak power performance in any weather. SWR of the "Super Swamper" is 1.15:1 at resonance and 1.5:1 or better over the entire 40 channel CB bandwidth.

Height of the radiating element of the Swamper is 22 3/4" and the three 1/4 wave radials are 108" each. The Hustler "Super Swamper" is constructed only from heavy duty weatherproof materials to assure problem-free outdoor antenna installations. The Swamper is supplied complete with all mounting hardware, element end caps, and factory marked dimensions. The antenna is designed for quick and easy assembly and installation. It mounts to a vertical support up to 1 3/4" OD. Suggested list price of the Hustler "Super Swamper"—Model 27-TD is \$63.55.

Mark number H08 on Reader Service Card.



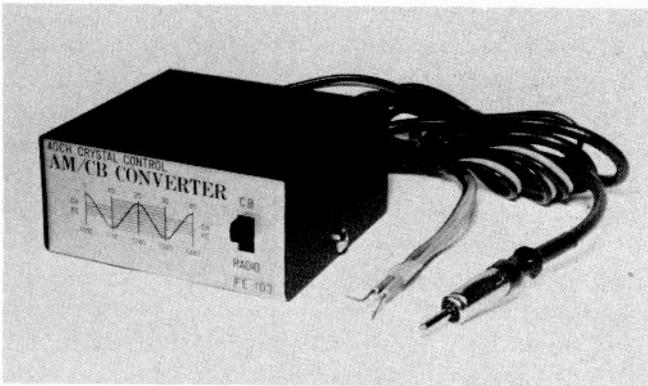
THE ADAPTA-CON (C-714) NO SOLDER CB CONNECTOR

Superex will introduce at the summer CES, a special connector in the popular 4-pin pattern, that requires NO SOLDERING. The four pins in the plug have push on connectors which are easily crimped on to the proper four wires as shown in the instructions supplied with each unit. The suggested retail value of the ADAPTA-CON is \$2.50.

The ADAPTA-CON SOLDERLESS connector is also supplied standard with the following Superex products: PV-1—Hand contoured Power Microphone; MA-506—Dynamic hand-held microphone.

For further information contact: Mr. Michael Solomon, Superex Electronics Corporation, 151 Ludlow Street, Yonkers, New York 10705, or mark number H17 on Reader Service Card.

(continued)



AM/CB CONVERTER

Clifford Industries, Inc., has announced a new addition to its accessory line, which includes regulated and filtered power supplies.

The new addition is a solid state AM/CB converter operating on 13.8 volts negative. This unit is designed to limit ignition noise by using one choke and a transformer.

The unit's specifications are as follows:

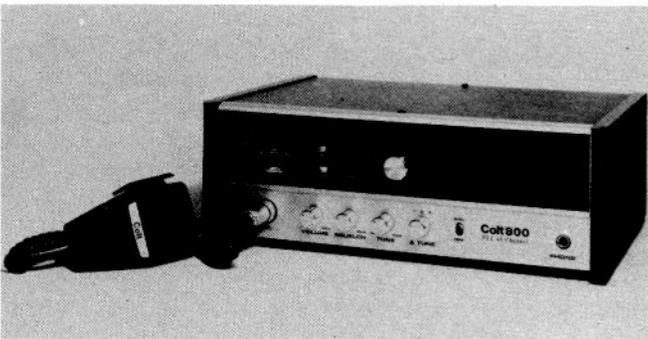
Frequency Range: 26.965-27.405 MHz

Sensitivity: 5 Microvolts (at 15 dB S+N/N)

Conversion Frequency: 1,000-1,440 KHz (on AM dial) for 40 channel

This unit is considered to be superior to any other crystal controlled CB converter.

For further information, contact Mr. Robert H. Lorey, Director of Marketing, Clifford Industries, Inc., or mark number H14 on Reader Service Card.



COLT INTRODUCES DELUXE 40 CHANNEL BASE STATION

Colt Communications, Inc., announced the introduction of its new Colt 800 Deluxe 40 Channel Base Station.

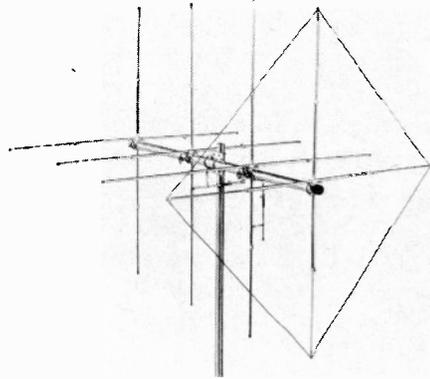
The precision engineered Colt 800 features phase-lock-loop (PLL) circuitry with advanced digital techniques to synthesize frequencies covering all 40 transmit and receive channels. This sophisticated circuitry with better stability achieves superior performance levels and greater dependability than conventional crystal controlled units.

The chrome finished matte black face panel is sectionalized for instant control recognition and includes LED digital channel readout, switchable auto-

matic noise limiter, delta fine tuning, illuminated power s/meter, tone control, as well as receiving and "on the air" transmit lamps.

Colt 800, priced at \$259.95, also includes a deluxe dynamic microphone, public address control, external speaker jack and operates on positive or negative ground.

Further information is available by writing: Colt Communications, Inc. 5725 N. Central Avenue, Chicago, Illinois 60646, or mark number H19 on Reader Service Card.



WILSON'S 8 ELEMENT SHOOTING STAR CB ANTENNA

When your main consideration is performance, consider the 8 element Shooting Star with DPE. This amazing 8 element antenna has a gain of 14 dB. It uses a 16 foot boom with six scientifically spaced 18 foot elements, and a quad reflector to obtain the best combination of the 14 dB gain and front to back ratio separation of 38 dB. It's the same design used to bounce signals off the moon!

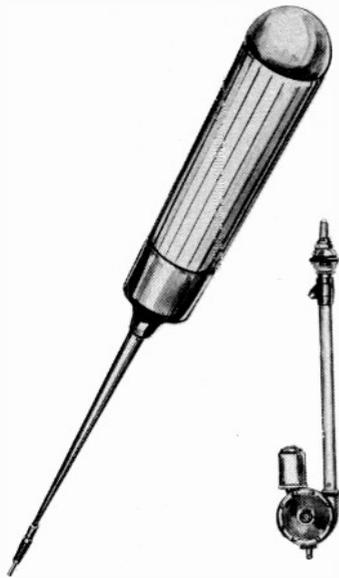
The Shooting Star weighs 28 pounds. A windloading area of only six square feet. The vertical to horizontal separation is 20/25 dB. It has the Wilson amateur beam's 2 kW power handling capability. Suggested list price is \$149.00.

For further information, contact Wilson Electronics Corp., 4288 S. Polaris Ave., P.O. Box 19000, Las Vegas, NV 89119, or mark number H13 on Reader Service Card.

ANTENNA WITH TRANSMIT-ACTUATED LAMP

"Breaker Beam", a fully automatic, motor driven CB/AM/FM mobile antenna which offers an exclusive "fail-safe" mast nesting function with ignition switch off and a transmit-actuated neon lamp that glows when in use, has been introduced by EV Game Inc., of Freeport, N.Y., electronic communications, audio equipment and accessory marketers.

The automatic "fail-safe" antenna nesting action featured with the new "Breaker Beam" combination antenna, unveiled at the NewCom Show in Las Vegas, insures automatic retraction of the antenna mast into is recommended rear cowl housing mount as soon as vehicle ignition, or unit, is switched off, thus guarding the forgetful driver against vandalism.



Another exclusive "Breaker Beam" feature is the transmit-actuated neon lamp which glows whenever the mobile CB user "keys" the microphone and goes "on the air". Consequently, other CB'ers on the road, especially at night, can visually spot a "good buddy" at short or long distances.

The "Breaker Beam" telescope antenna extends to a 40" length, has an above center loading coil which is situated on the 4th section of its 5-unit mast and has an extremely low SWR. This excellent SWR is made available with a fine tuning, signal-splitting Coupler using a CB Tuning/Trimmer Condenser.

A company spokesman also noted that "Breaker Beam" exhibits complete operational stability and versatility in each mode. He added that once the antenna is tuned for minimum VSWR (Channel 20 recommended), the antenna will extend to a pre-determined length for optimum reception. In addition, FM capability holds at maximum efficiency due to the unique design of the antenna.

Made to retail for around \$79.00, "Breaker Beam" is designated as Model 10-500 and may be used for CB Channels 1 through 40, extending from 26.8MHz to 27.6MHz; has a 60pFd nominal AM capacitance; and is complete with pre-set, extra-long cables which should not be trimmed at installation. The antenna mast is made of stainless steel while the housing is fabricated from heavy duty, weather resistant metals. The antenna is cowl-mounted and features a permanent, magnetic, 12VDC/5 Amp. (max) motor drive. Packaged in an attractive, multicolored, self-serve box that is easily displayed on distributor and dealer shelves, each is complete with all connecting cables, wires, and installation instructions.

Mark number H09 on Reader Service Card.

HEATHKIT CATALOG

The latest Heathkit Catalog lists nearly 400 electronic products in kit form.

Among new products featured in the catalog are a



3-band UHF/VHF scanner, a matching stereo tuner and amplifier, a five-function aircraft clock timer and a programmable home heating control which is said to save up to 10% on home heating bills.

The catalog also describes nearly 400 other electronic kits including automotive and marine accessories, amateur radio equipment, test instruments, learn-at-home electronics courses, stereo equipment and color TV's.

The catalog is available free from Heath Company, Dept. 350-13, Benton Harbor, Michigan 49022, or mark number H06 on Reader Service Card.



"STACKABLE" TVI FILTER

The Model 1118, a "stackable" coaxial low pass TVI Filter, is being introduced by Gold Line of Norwalk, Conn., the leading domestic manufacturer of CB accessories.

Designed to plug right into the back of a CB rig, this small unit, which measures 3½ inches in length and 5/8 inch in diameter, eliminates the need for a jumper cable. It gives excellent suppression above 36 MHz, but allows the CB signal to go out full strength. For really tough problems, a second or even third unit connected directly to the first will double or triple the amount of suppression.

Gold Line designs and produces a broad range of CB accessories including a complete line of connectors, adapters, fittings, filters, matchers and VSWR meters. Mark number H07 on Reader Service Card.

(continued on page 107)

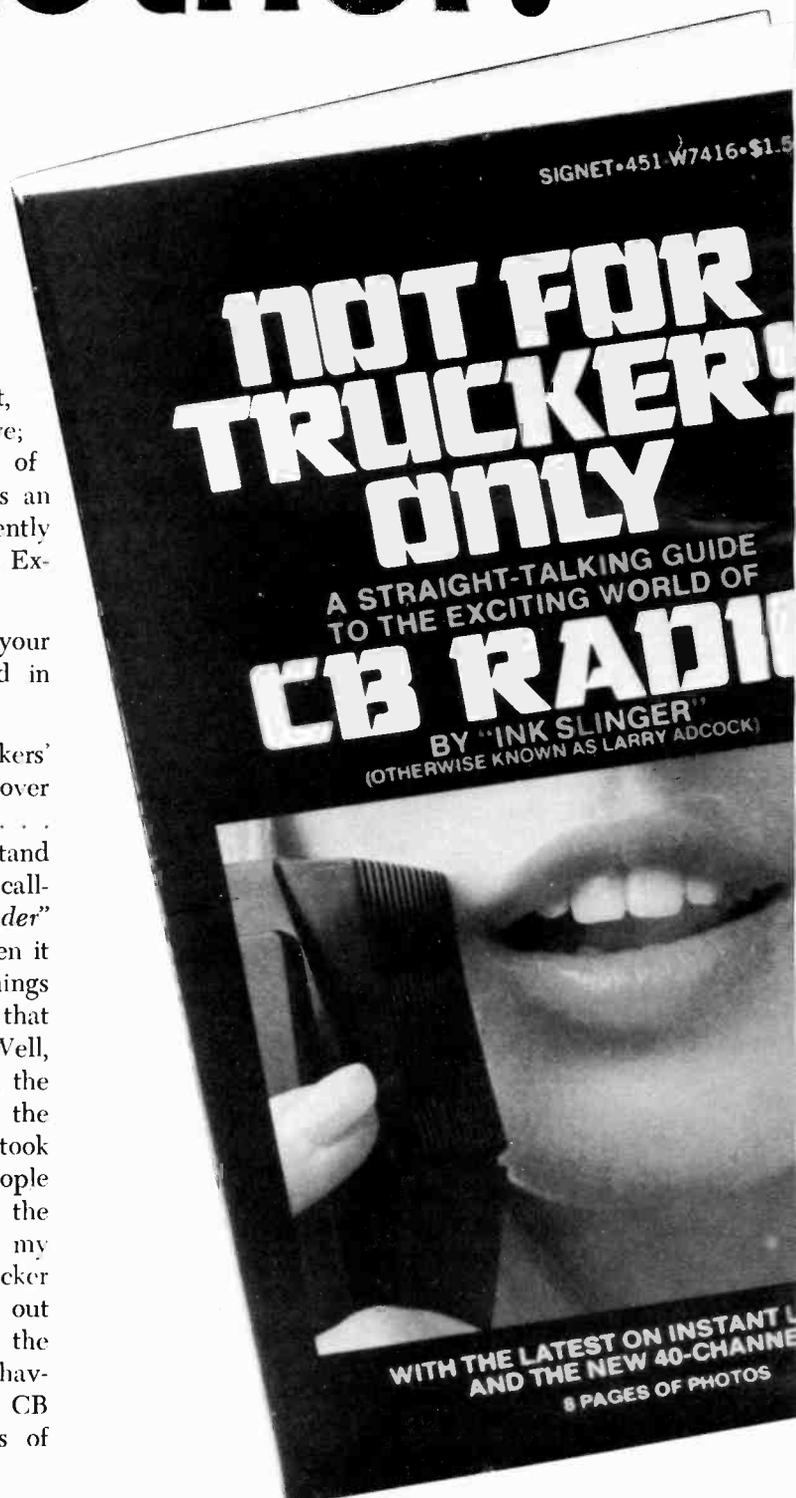
We Interview A CB Author!

LARRY "Inkslinger" Adcock has written what his publicists are modestly touting as the "best book on CB radio in the civilized world," a paperback entitled, *NOT FOR TRUCKERS ONLY* (Signet, 174 Pages, \$1.50). The modesty is not misplaced since it is one of the few books on CB radio we've seen that doesn't read like some engineers manual. In fact, Adcock's book is downright entertaining. But more important, it is very informative, accurate and comprehensive; and, for a change, it is a book authored by one of us—an honest-to-goodness CBer. Adcock himself is an interesting character. We talked with him recently about his newly released book, his life, and times. Excerpts of that interview follow.

S9: You've been a newspaperman all your life. How did you become interested in the subject of CB radio?

ADCOCK: Back during the independent truckers' strike of 1973-74, I was assigned to cover the story from Minneapolis-St. Paul . . . Like most people, I couldn't understand why all those truckers out there were calling themselves names like "Steel Bender" and "Lone Coyote" and all. That's when it dawned on me that there were such things as "handles" on the CB airwaves, and that handles were a big part of the fun. Well, the more I learned from the truckers, the more I was hooked on CB. I wasn't the only one, you know. CB radio really took off right after that strike. Millions of people wanted to get into CB radio, just like the truckers. Before long, I had a rig in my car and there I was talking with my trucker buddies and four-wheelers I'd meet out on the road—people from all over the country, from all walks of life. I was having the time of my life. I decided that CB radio was the most important means of communication since the mouth.

Q: You're really high on CB. It comes through in the book, for sure. But there were plenty of books on the market when you



became interested in CB. How come you decided to write your own?

A: There were plenty of books, that's right . . . but they were all what I call "tool box" books. How to connect this wire to that and a lot of other stuff about as interesting as watching bread bake. To me, CB radio was one helluva story and there wasn't anything on the market, in the way of books, that was exciting, let alone interesting. So I started a file. (That's what newspapermen do. We're a bunch of pack rats, actually.) Pretty soon, the file turned into a book and here we are.

Q: What's the most exciting thing about CB radio, in your opinion?

A: I answer that in the book by quoting a CB'er from Maine who wrote: I've been all over the country, driving sixteen and seventeen hours a day, sleeping in truck stops and rest areas, listening and talking on the CB the whole time with four-wheelers and eighteen-wheelers and even two-wheelers and base stations all along the way . . . and I'll tell you, what's going on out there is the first really positive social expression I have seen on a major scale in this country in almost fifteen years, "The CB is the one place in America where total strangers are cooperating for the common good . . . suspicion, mistrust and negativism have swept through us like a plague, strewing alienated paranoids in its wake. Nobody trusts anybody anymore, except on the CB radio where everybody trusts everybody. By God, I hope it's contagious."

Q: You don't really believe that it's all sugar and spice and everything nice in CB radio, do you?

A: No, of course not. There are plenty of problems. Idiots getting on the air and whistling into the mike. At three in the afternoon in any major city, turn on the CB radio and it's "romper room time." But I'll tell you this, the good experiences I've had and heard about the CB far outweigh the problems and I'll take those odds any day. I'd rather put up with a few clods now and then than have some restrictive new laws slapped on us by Uncle Charlie. So far, CB has worked pretty darn well and I think it should stay free of interference, despite the problems made by some ignorant CBers. Remember the blizzards in the northeast and the midwest this past winter? You didn't see any problems on the air then, that's for sure. CBers were standing by to help in the emergencies. I personally know a couple in Illinois who were stranded out on an interstate highway for eleven hours who say they owe their lives to CBers who spotted their location for the police.

Q: What about CBers and the "smokeys?"

A: Everybody knows that some CBers drive faster than fifty-five from time to time. What many forget, of course, is that some folks without CB drive faster than fifty-five, too. The difference is that CBers have something to give the smokeys in return for knowing their locations. I just got a news release from the Minnesota Highway Patrol. Here's what it says, in part, about the relationship of CB'ers and "smokeys":

"A good number of CB operator are now using their mobile communication devices not only to inform other operators of where the state troopers are, but to also inform the troopers of traffic hazards, dangerous conditions or even other motorists who are flagrantly violating the law.

"In an informal survey of State Patrol responses to CB transmissions received in January by troopers who monitor Channel 9, the emergency channel, the State Patrol finds over 600 instances of service rendered in response to reports of dangerous conditions or requests for assistance. Included were reports of accidents,

What? Another CB Book?



stranded motorists, animals or objects on the roadway as well as weather and road information . . .

"The State Patrol also reported that 125 instances were reported in which troopers received reports of specific traffic violations which could endanger other motorists, such as extremely high speed, driving while intoxicated or driving the wrong way on a one-way roadway. A total of 46 arrests were made in response to these reports..."

I think that's pretty typical of the experience of "smokey" around the country. We get along. In the book, I suggest that we Cbers ought to take a smokey to lunch every so often.

Q: You have a unique sign-off that you use on the air. Give it to us to close off the interview, will you?

A: You got it . . . "This is that one *Ink Slinger* from the Deep Freeze State sayin' to you, take it easy . . . but take it."

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you need a dealers line: **PRESIDENT**

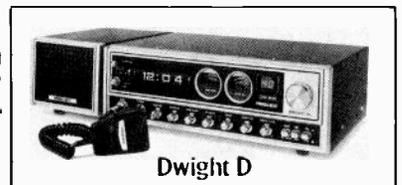
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John Q



CLERCOM INC.
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Dwight D



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Grant

Clercom does not claim to be No. 1 or even No. 2, however, we are big enough to serve you and small enough to know you and appreciate your business. We are a "DEALERS DISTRIBUTOR" as we do NOT retail out the front door, publish retail catalogues, mail out "Discount Price List" or encourage sale of lines sold in "Discount Stores." Your business is our business. Your success is our success.

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131 C Route No.1 Williamsburg, Ohio 45176

Washington

The Leo CB Personality

by PAPERDOLL, KMI-4549

REGAL Leos keep both hands free to CB as they are being chauffeured round town in their country cadillacs. Don't burst their majestic bubble, though, because for all their super ambition they more than likely will someday own that cherished chariot flashy enough to catch your eye. Leader of the pack Leos are almost always a success story in themselves. Their highnesses, a domineering lot, usually manage to manage others—can absolutely not be pushed around by anyone. Kings and queens of the road, fer sure. Sunny dispositions and flair for the dramatic brighten many a dull life and also put Leos on center stage where they just thrive on the attention of all. Put your Leo YL or buffalo on a pedestal, adorn them with loving flattery and you will be forever rewarded. It's a treasure to be pleased by a Leo. Fiery and highly spirited, these energetic people charge the atmosphere wherever they may be. You not only hear their strong modulation that can wash out all 40 channels, but you can feel their presence near you. Leo's keen sense of humor and fun makes this youthful species a delight also to the hearts of children. A truly domestic lot, they also manage to keep excellent order of their dens and enjoy doing so. Typical handles for this sign might be: Queen Bee-Ver, Snagglepuss, Catnip, Sun King, Happy Harry, Mother Goose.

AUGUST STAR CHECK

LEO—Unexpected good fortune makes buffalo Leos growl and YL Leos purr with pleasure this month. Single Leos love life picks up again after having had a terribly long drought. August 13th may prove to be the only 10-77 day. 14th New Moon in your sign, though, puts all the good numbers upon you.

VIRGO—Attend to all necessary and important paperwork and decision-making before the 22nd when Mercury, your ruler, reverses gears and makes you spin your wheels needlessly. Some VIP comes into your life after the 20th and paves the way to future happiness. Keep all channels clear and listen carefully.

LIBRA—A new job or promotion is definitely in line for lucky Librans this month and good luck in general career-wise for the year to come. The 13th and 14th of August are highlighted by an old good buddy of yours. 22nd is a time to release the mike key and do a silent number on the world. Do not listen to or be part of any gossip at that time.

SCORPIO—Time to get ready for those fall classes you've decided to take to better yourself. Competitive Scorpions always need an added challenge. You may also be going abroad after the 22nd for a well-needed vacation. Sea cruise, maybe? We'll be 10-10 on marine channel 14. Don't be disappointed if someone you meet on the 22nd turns out not to be such a good buddy.

SAGITTARIUS—Expecting a greenstamp settlement? August 20th could bring that windfall of good luck. May have to be split two ways though. End of month also brings prophetic dreams. Caution is advised on the 22nd for all work 20 matters involving major decisions, signing documents, and verbal messages that cannot be reversed.

CAPRICORN—The earth moves under your surestep feet this month as you make plans to get hitched, fer sure. A steady loved one is about to become your better, er, other half 10-4. Business minded Capricorns may also increase their assets by bringing in a new business partner after New Moon of the 14th. Already married Capricorns benefit through their better half.

AQUARIUS—Work load is lightened and responsibilities are cut after the 20th when beneficial planetary influences hammer down through your work 20. Health also improves. Full moon of the 28th could bring to light structural flaws in any joint assets you may have. Be prepared for an annoying greenstamp hassle.

PISCES—Starry eyed Pisceans are definitely in the clouds this month as many YL's/buffalos are attracted to them. One lucky one may be singled out for a lifetime partnership. Make sure you find the RIGHT one before the 22nd, when ruling planet of marriage sector in your chart does a bouncearound. Already mated Pisceans will be doing their leisure time in shanty shakers and seafaring vessels this month.



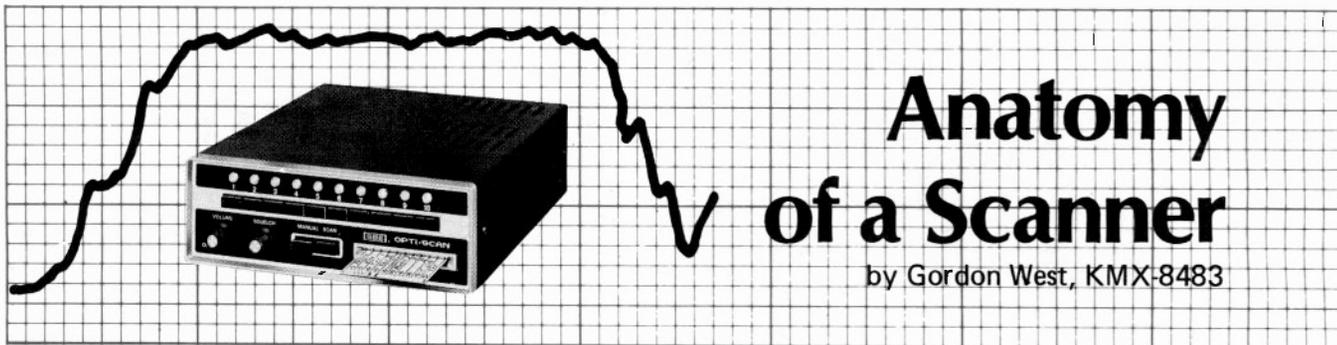
ARIES—Rugged Aries take time out this month to lay cornerstone for new home 20 or to add to and improve present one. You somehow manage moderation in work and take a lot of time for sunny August leisure. 14th is a 10-4 day for a sportive vacation. 22nd is a time to curl up with a good book and turn up the squeelch.

TAURUS—Taureans hammer down on the boulevard this month in their new rigs all equipped with the latest CB gear. Your bodacious new sound gets you plenty of attention, don't you know. Weekend of the 13th and 14th brings a home 20 family reunion. Vacation plans for the 22nd may have to be scrapped for at least a month.

GEMINI—Geminis finally begin to capitalize on past year's golden opportunities toward end of August. Greenstamps start pouring in then. Good time to invest that lettuce and double it. From August 22nd and for a few weeks thereafter keep close track of details. You may have tendency then to absentmindedly misplace articles in home 20. Also be sure to lock doors when leaving.

CANCER—End of August begins a year of blessings for Cancer folk who have the insight to pick up on opportunity when it knocks. Expansion is the key word to describe your lives now, but watch that the expansion is not in your waistline while you're being treated so well. Communications get all mixed up on the 22nd. Don't mail anything of importance that day and watch what you say!

73's and 88's
till next month



Anatomy of a Scanner

by Gordon West, KMX-8483

PART 9 : GENERAL MOBILE RADIO SERVICE

LAST month we talked about scanners and the reception of UHF signals. When we described some of the signals that could be picked up a scanner, we talked about Class "A" CB signals. Class "A" Citizens Band is located in the UHF spectrum, and many CB'ers who want to utilize their equipment in a businesslike manner have often overlooked the advantages of Class "A" Citizens Band—now entitled "General Mobile Radio Service." Here are the frequencies allocated to Class "A" Citizens Band:

"CLASS A" GENERAL MOBILE RADIO SERVICE CHANNELS

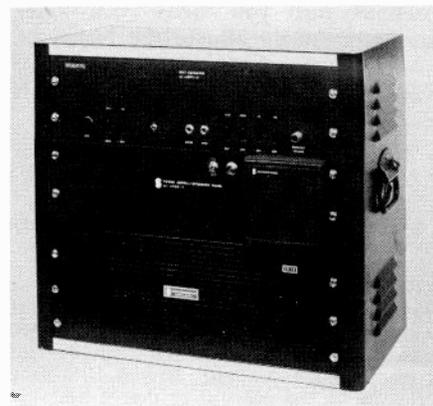
Base/Mobile MHz	Mobile MHz
462.550	467.550
462.575	467.575
462.600	467.600
462.625	467.625
462.650	467.650
462.675	467.675
462.700	467.700
462.725	467.725

As you can see, there are eight paired Class "A" CB channels which total 16 different frequencies on UHF. These paired channels are separated by 5 MHz, with base stations and mobile stations permitted to use the 462 MHz frequencies, and only mobile units permitted to use the 467 MHz frequencies. An example of mobile and base simplex communications would be, let's say, a plumbing service who would be broadcasting on 462.725 MHz from a base station and receiving their mobile units 5 MHz up on 467.725 MHz. The mobile units, in turn, would broadcast on that frequency but receive the base station on 462.725 MHz. Mobile

units, on their primary frequency, would not be able to hear each other broadcasting back to the base.

A more elaborate system would be when the base station utilizes an automatic repeater with "local" control. Yes, that's right, on Class "A" CB repeaters may be used. When the plumbing organization now utilizes a repeater, all mobile units on the other circuit would be able to hear each other as their signals are automatically retransmitted through the repeater. Needless to say, this would give mobile to range quite an extension if the repeater station is located high on a hill. Repeaters may be controlled by land line wires so that the base station can be several miles away in a valley—yet will have good transmission and reception range to the mobiles because the electronics and antenna are high on a nearby hill.

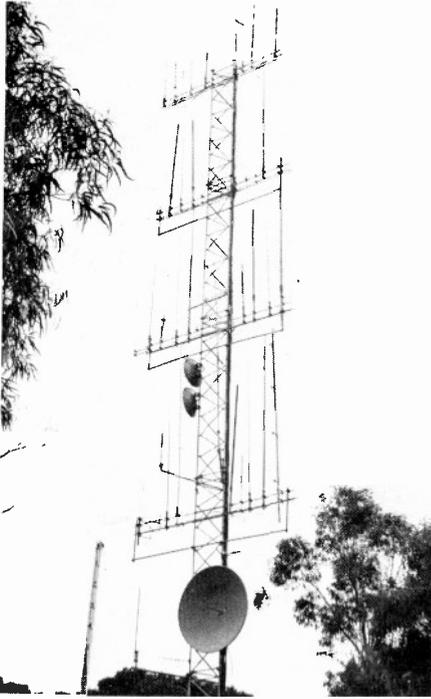
Other adaptations could be two mobile units communicating directly with each other on the base/mobile frequency, or on the mobile only frequency. Mobile units wishing to communicate locally with other mobile units, yet not wishing to activate the repeater, would operate on the 467 MHz area with their sets on a secondary channel, commonly called "repeater talkaround." This allows for approximately five miles or less mobile to mobile coverage without the use of a repeater—nor is there a likelihood of the base station picking up their transmissions. What's the range of Class "A" Citizens Band? First of all, there's virtually no skip on Class "A" CB. Since up to 50 watts of output power may be used, you might think that the range would be substantially increased over Class "D" Citizens Band. Generally, there is a marked ground wave



Class "A" CB Repeater

improvement—especially in cities where UHF signals become quite reflective. Two mobile units in a city might communicate up to five to eight miles away. If one were sitting high atop a hill, it might communicate to another mobile unit up to 70 or 80 miles away on a clear channel. Two mobile units going through a 1500 foot mountain top repeater could communicate conceivably over 100 miles. Noise is almost nonexistent on UHF, and all signals utilize FM for greater readability and clarity.

Since the units are FM, they are more expensive—generally starting at about \$500 each. But believe, FM communications offer a great deal of ear comfort over double sideband AM or single sideband communications. Who is eligible for Class "A" Citizens Band? About the same number of people who are presently operating on



Mountain top Class "A" Repeater. Location on "Community" antenna tower.

Class "D" Citizens Band, but there are a few "catches" on going on Class "A." First of all, before you can go out and buy equipment, most sellers of Class "A" CB equipment want to see your completed Class "A" Citizens Band license which is filled out on FCC form 400—free at this time. If you have no license, you'll probably not be sold equipment. If you need a license, and also need equipment, the two-way radio dealer who probably specializes in business band equipment will be more than happy to help you fill out the license, hopefully anticipating selling you equipment. The license is good for five years. In some of the larger cities where frequencies are quite congested on UHF, it may be necessary to attach to the license additional documents—again check with your business or land mobile radio dealer.

The next step is channel selection. Your license does not permit you to operate on all of the eight pairs of channels, or 16 individual frequencies. It's up to you to try, through the use of a scanner monitor, to pick the quietest channel for your intended operation. This is best determined by a programmable scanner. If you are going to be operating with a base station, or a repeater station, you'll want to analyze channel pairs. If you are simply going to be operating two mobile units or two hand-held FM units, then you'll want to look at the mobile only frequencies. You don't want to try and operate mobile to mobile on frequencies allocated also for base stations because those large powerful bases many miles away could completely cover up

any mobile to mobile coverage you want to achieve.

Once you find a quiet pair of frequencies, 5 MHz separated, you put them in on your FCC application form 400.

Now you've got to explain to the FCC why you want Class "A" CB. Since this General Mobile Radio Service is much more regulated, and not abused as Class "D" Citizens Band is, the FCC officials are checking out each applicant carefully. The last thing they want is more hobby type of communications with nonsense messages on this premium UHF spectrum. You must state definite reasons why you need this type of communications for either your business or personal use—and yes, you can use it to call home for personal matters. It's not like business band where it has to be kept exclusively business, you can combine your personal and business communications all on one channel and service. Be brief but thorough when you point out why you need Class "A" CB.

Here's one explanation that would probably not get approval:

"I request Class "A" CB because I would like to find new friends and talk about hobby type matters relating to radio transmissions. There is no one in specific that I wish to communicate



Class "A" CB UHF Base Station

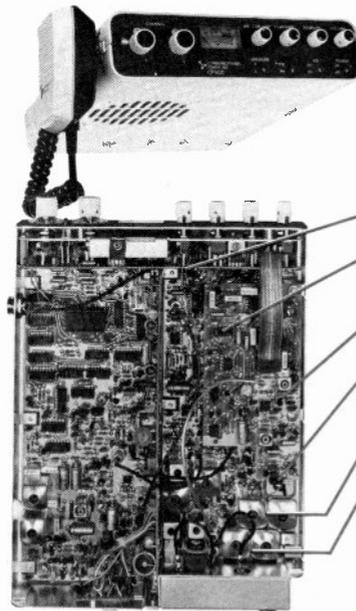
to—only to make new friends on the air."

This one would undoubtedly fail the test for a need of Class "A" CB.

However, I'm sure that the following would be granted a Class "A" CB license:

"I request Class "A" CB service to fulfill my communication needs from my automobile to my home, which I work out of. My wife answers business calls at home and needs to transmit messages to me regarding potential clients for our home based business. My home

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Distributor inquiries invited.*



Class "A" CB 8 Watt Mobile Unit

is located in a valley, with a mountain separating home antenna location to the next city over where I generally travel to. Since I cannot maintain direct communications, I further request permission to operate a type accepted repeater at a specified location atop the mountain range that separates my home from the area that I drive in."

He will probably have to submit much more detailed explanations on the repeater station, or he might be able to find a community operated repeater that will allow him to transmit and receive through. Many community repeaters are sponsored by local two-way radio shops to encourage users on Class "A" CB. The Class "A" CB user no longer needs to worry about how signals are being re-transmitted—he only needs to share a portion of the repeater upkeep cost which generally does not exceed \$20 a month.

Class "A" CB is virtually uncrowded (Class "A" licensees only total 4,500 as opposed to 10 million Class "D" licensees)—but believe me, the operators on Class "A" guard their frequencies zealously. They will not tolerate any foolishness on these frequencies. Generally Class "A" CB'ers rarely communicate with other stations they do not know—however, the rules do not specifically prohibit this type of communications. Most folks on Class "A" utilize their communications for explicit purposes, not just for ratchet jawing.

Although the start up expense is a little bit more than Class "D" CB, take a listen to Class "A," and I think you'll find a pleasant difference. If you really do need substantial communications either simplex or through a repeater, Class "A" CB might very well be the General Mobile Radio Service for you.



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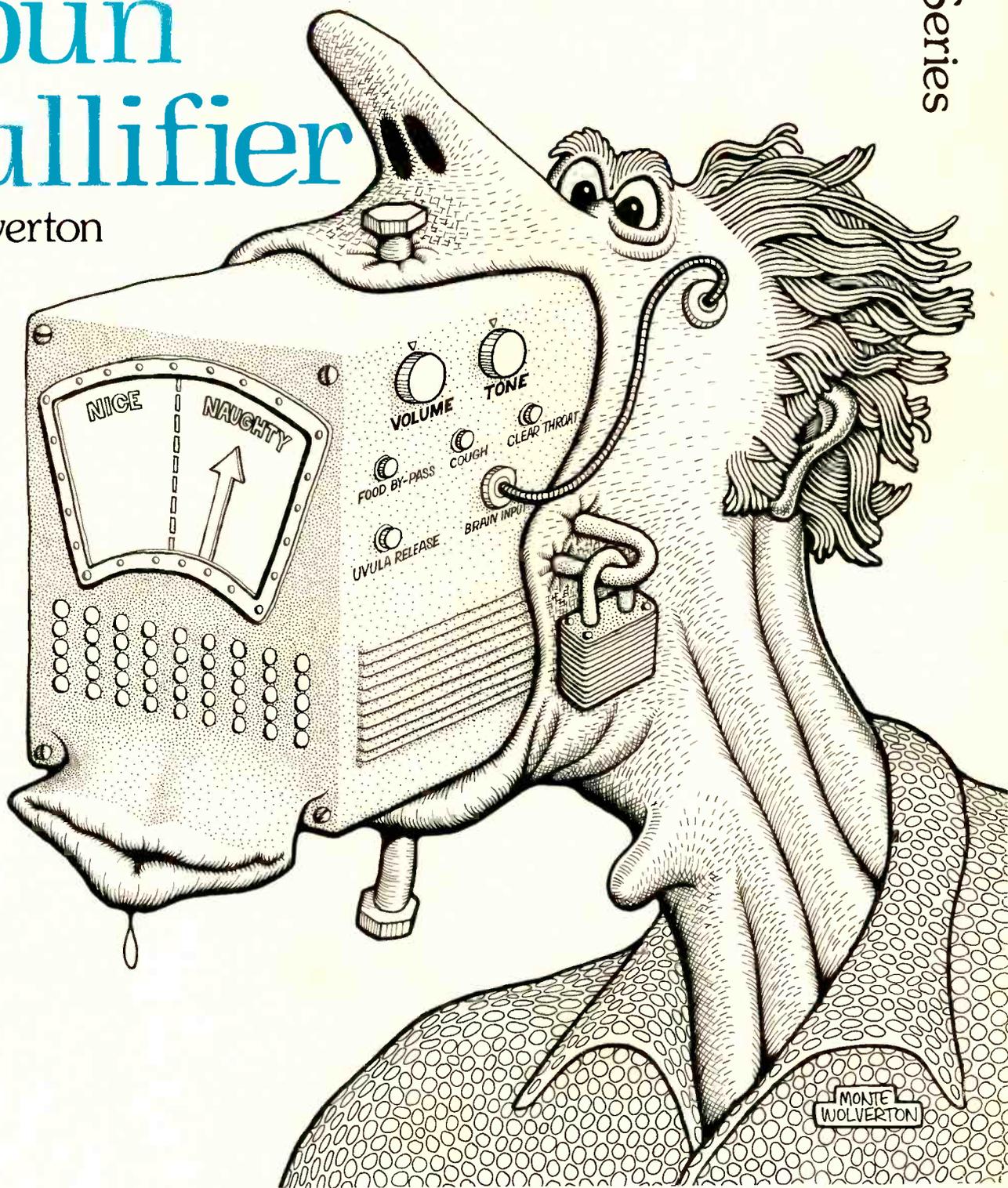
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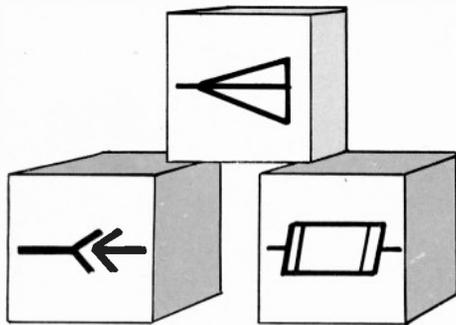
Naughty Noun Nullifier

by Wolverton

CB Types: Number 8
of a Series



Uncle Charlie recently ordered several thousand of these for permanent installation in the mouths of those who have the habit of using bad language on the channels. The device contains a compact computer with a listening vocabulary comprising the entire English language. Detecting a forthcoming evil utterance while it is yet in the brain, the mechanism quickly attaches an alligator clip to the person's uvula, rendering the virulent verbiage void. Nice words are permitted to exit by means of an auxiliary mouth at the bottom of the machine, which also facilitates eating.



Basic Radio

by Irving Tepper

PART 18 Transformers

ONE of the most important reasons for the use of AC is the ease by which the voltages may be changed in value by the use of a *transformer*. A *step-down* transformer is used to reduce the voltage and a *step-up* transformer is used to raise the voltage. Since the transformer couples the source voltage to the load by magnetic lines of force no direct electrical connection exists between the two. Another advantage of the transformer is that it has no moving parts and so needs no care or maintenance. In addition, transformers are very efficient, often as high as 98% effective.

Transformers can be divided roughly into three groups. First, we have those transformers that operate at the power line frequencies; these are called *power transformers*. Second, we have the group of transformers designed for use at audio frequencies called *audio transformers*. Third, we have *radio frequency transformers* designed to operate in the radio frequency range. Our discussion now will be confined to power transformers though many of the concepts to be covered will also apply to the audio transformer types.

Mutual Coupling

In order to understand the operation of a transformer we must recall the behavior of a magnetic field about a coil. Any change in current through the coil, a rise or fall, causes a change of magnetic field. A current rise causes an expanding field and a current decrease causes a shrinking field. As long as the magnetic field is in motion it will induce a voltage in its own coil called a counter EMF (or a back EMF) which opposes the applied voltage.

If a second coil is positioned so that the magnetic lines of force generated by the first coil cuts across the second coil, the two coils are said to be *inductively coupled*. This is depicted in Fig. 6.1. When an AC voltage is applied to one winding, that

winding is called the *primary*. The resulting magnetic field, cutting across the windings of the second coil, induces an AC voltage in that coil. The second coil is called the *secondary* and its output voltage is referred to as the *secondary voltage*. This effect is called *mutual induction* or *mutual coupling* and is the basis for transformer operation.

It can be seen in Fig. 6.1 that not all of the lines of force generated by the primary cut across the secondary winding because of the high reluctance of the magnetic path (air). The extent to which the two coils are coupled is expressed as the *coefficient of coupling*, *k*, a measurement of the percentage of primary lines of force that reach the secondary. The coefficient of coupling is expressed as a factor, *k*, between zero and one, with one representing maximum coupling. Fig. 6.2 illustrates the effect of the coefficient of coupling upon the output voltage of the secondary. In circuits (A) and (B) the primary and secondary are physically parallel and as close as possible to produce the maximum degree of coupling. If all the lines of force generated in the primary cut across the secondary, we will have a *k* of one or *unity*. With the primary and secondary placed at right angles as in (C) minimum coupling occurs; *k* is equal to zero. Any physical position between parallel (zero degrees) and the 90° position will result in an output voltage less than maximum but more than zero. The precise voltage at any angle can be found from

$$E_{\text{sec}} = E_{\text{max}} \times \text{Cos } \theta$$

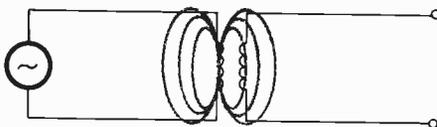


Fig. 6.1—Two coils coupled by magnetic lines of force are said to be inductively coupled and form a transformer.

where E_{max} = the secondary voltage at maximum coupling

$\text{cos } \theta$ = the cosine of the angle between the primary and secondary

E_{sec} = the secondary voltage

For example, we can calculate the output voltage of the secondary at angles of 45° and 90° given that at zero degrees (parallel), $E_{\text{secondary}}$ is 24 volts at maximum.

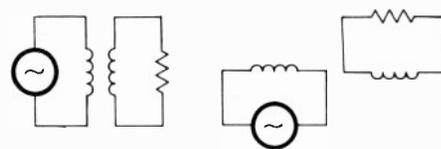
$$E_{\text{sec}} \text{ at } 45^\circ = E_{\text{max}} \times \text{Cos } 45^\circ \\ = 24 \times 0.707 = 16.968\text{V}$$

$$E_{\text{sec}} \text{ at } 90^\circ = E_{\text{max}} \times \text{Cos } 90^\circ \\ = 24 \times 0 = 0\text{V}$$

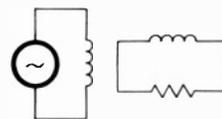
Transformer Construction

As shown in Fig. 6.1, a transformer that uses air for the magnetic path does not conduct all the primary lines of force to the secondary. As a result, despite the parallel positions of the two windings, unity coupling is not achieved. All power transformers (audio transformers too) are therefore built around iron cores.

Transformer Cores — Transformers used for power line frequencies must have an iron core to provide a low reluctance magnetic path which will

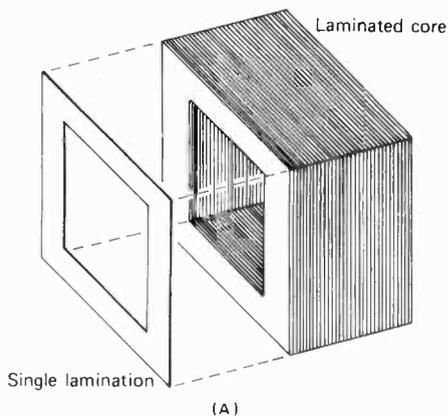


(A) Maximum coupling — coils parallel

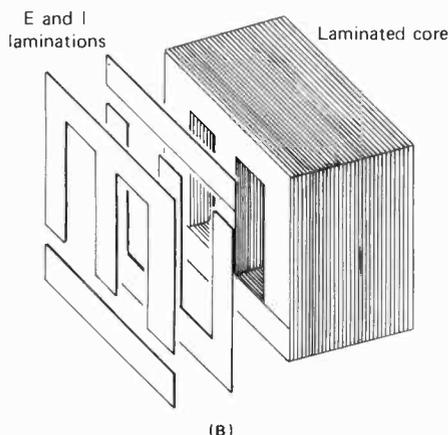


(B) Minimum coupling — coils at right angles

Fig. 6.2(A) and (B)—Primary and second windings are placed in parallel or end to end for maximum possible couplings. This makes possible the highest coefficient of coupling. (C) With the secondary positioned at right angles to the primary the coefficient of coupling is reduced to zero and no induced voltage appears across the secondary.



(A)



(B)

Fig. 6.3(A)—Laminated CORE construction for a power or audio transformer. (B) Laminated construction of the SHELL type transformer core.

concentrate the lines of force around the windings. This transformer, called an *iron core transformer*, is used to provide the voltages needed by electronic equipment in order to operate.

The cores are generally made in one of two forms. The core type construction (O shape) is shown in Fig. 6.3(A) and the shell type construction (E shape) is shown in (B). The core type is made from a number of thin silicon steel stampings called laminations. Each lamination is coated with an insulating lacquer or varnish and then assembled to form the transformer core. The shell type core is the more frequently used shape. Each layer of the core consists of an E and I shaped section of metal butted together. Each layer of sections is reversed so that the I sections will be held in place. The laminations are then pressed together to form the core.

Transformer Windings—The basic transformer consists of two windings formed on one of the cores shown in Fig. 6.3. The symbol for this type of transformer is shown in Fig. 6.4(A). When an AC voltage is applied to the primary winding a voltage will appear across the secondary winding by magnetic coupling.

An exploded view of the transformer windings and core construc-

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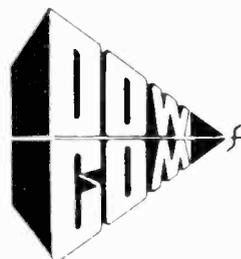
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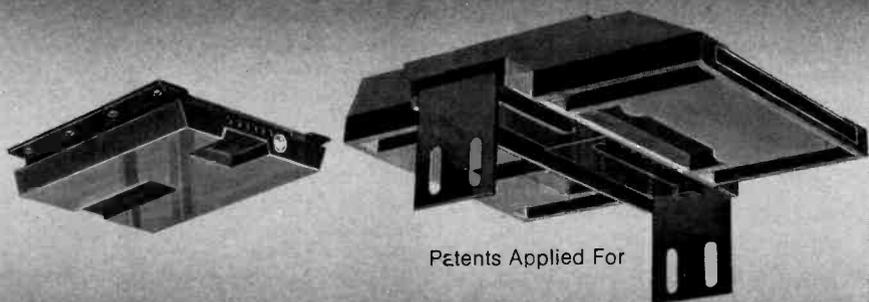


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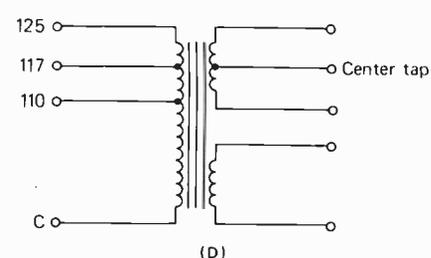
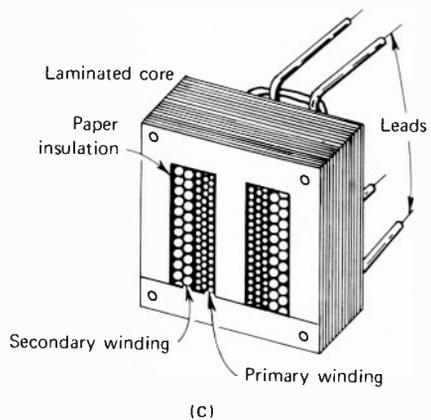
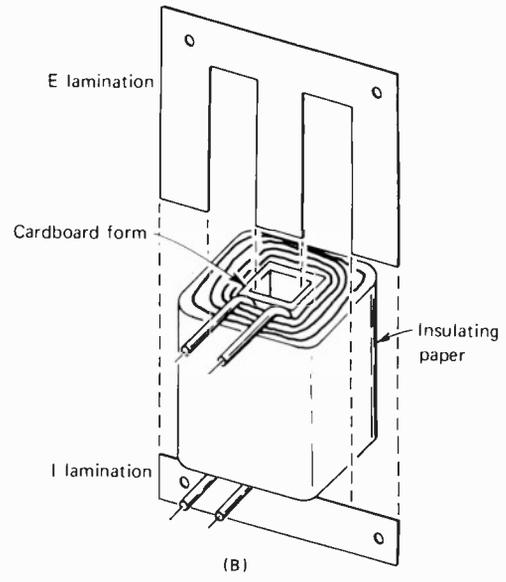
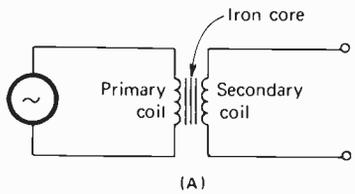
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Fig. 6.4(A)—Symbol used to represent the basic iron core transformer. The primary is the winding to which the power is applied. (B)—An exploded view of the basic power transformer construction. The core passes through the center of the windings and wraps around the outside of the winding. The areas of the core through which the windings run are called the windows. (D)—Symbol of a transformer with a tapped primary to accommodate different values of power line voltages. One of the two secondary windows is center tapped.

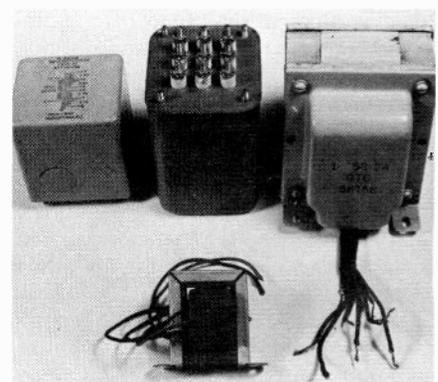


tion is shown in Fig. 6.4(B). The primary winding is wound, in layers, on a rectangular cardboard form. This winding usually consists of many turns of fine wire that is insulated with an enamel coating. This thin layer of insulation permits many layers of wire to be placed in a small space.

The last layer of wire used to form the primary winding is covered with a sheet of insulating paper or cloth. The secondary winding is then wound on top of the primary. When the secondary winding is finished it too is covered with a layer of insulation. The frame is then assembled through the center of the windings staggering the E and I sections as explained earlier.

The completed transformer appears as shown in Fig. 6.4(C). From this drawing it is possible to see that the windings are completely surrounded by the core to provide the maximum possible magnetic coupling. This provides a coefficient of coupling that is extremely high, almost unity.

Very often a transformer will contain more than one secondary winding and in some rare cases more than one primary. Some of the windings,



Some typical power transformer construction styles. On the left is an hermetically sealed power transformer (air tight enclosure) with solder lug connections on the bottom. The center power transformer is also a sealed unit but with threaded stud connectors. Both of these transformers were designed for use by the armed forces and are highly reliable units. On the right is a type of construction used for civilian applications such as entertainment electronics and communications. The transformer construction is not air tight but the windings are varnished to protect against moisture. Connections to the windings are made through the color coded leads that project from the bottom. In the front center we have a simple unshielded open channel frame power transformer similar to that used on the experiment board. Photo by I. Kahn.

both primary and secondaries often have additional connections called *taps*. When the tap is located at the center of the winding it is called a *center tap*.

Transformer Operation

In order to understand the operation of the transformer it is necessary for us to examine it under different operating conditions and to consider its different characteristics. These are its voltage, current and power characteristics under loaded and unloaded conditions.

No Load Conditions—A transformer with no load connected to its secondary can be represented schematically as shown in Fig. 6.4(A). With no connection made to the secondary, the primary appears as a simple iron core inductor to the applied voltage. The primary current will depend upon the amount and frequency of the applied voltage and the inductance of the primary winding. The back EMF generated by the primary is opposite to the applied voltage and nearly as great, resulting in a very small current flow that is lagging the primary voltage by 90°. This small current is called the *exciting current*.

Winding Phase—The magnetic field produced by the primary cuts across the secondary winding producing a voltage. The phase of the voltage developed across the secondary winding, as compared to the primary voltage, may be one of two states, *in phase* or 180° *out of phase*, depending upon the direction of the secondary winding. See Fig. 6.5. When phase (or polarity) of the transformer windings are of importance to the operation of a circuit, dots are placed at the ends of the windings which have the same instantaneous polarity. For power application the winding phase is of no importance.

Voltage Relationship—The voltage induced into the secondary winding

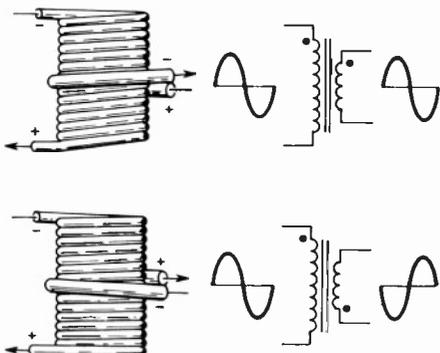


Fig. 6.5—The phase, or polarity, of the voltage across the secondary winding of the transformer as compared to the primary voltage, is determined by the direction of the secondary windings. Dots are placed at the ends of the winding that have the same instantaneous polarity.

of the power transformer is determined mainly by the ratio of the primary to secondary turns and the voltage applied to the primary. Figure 6.6(A) shows a transformer with a primary winding of five turns and a secondary winding of two turns. Because of the presence of the core, the lines of force generated by the primary cut both the primary and secondary turns with the same strength.

If the voltage applied to the primary is 5 volts the counter EMF developed across the primary will be so close to 5 volts that, for the sake of simplicity, we can consider the voltage to be that applied, the 5 volt input. With 5 turns of wire on the primary and a 5 volts across the primary, we have a voltage distribution of *one volt per turn* or 1 V/T. Since the secondary winding is also subject to the same magnetic field as the primary, each turn on the secondary will have an induced voltage of one volt. Thus, for a 2 turn secondary there is a 2 volt output.

If the secondary winding is increased to 7 turns (Fig. 6.6B) each turn develops one volt for a total output of 7 volts. From these illustrations we can see that the volts-per-turn ratings are the same for both the primary and secondary windings. From

this, we can derive the following relationships:

1—The volts-per-turn (V/T) on the primary can be obtained by dividing the primary voltage, E_p , by the number of turns on the primary, N_p .

$$V/T = \frac{E_p}{N_p}$$

(cont'd)

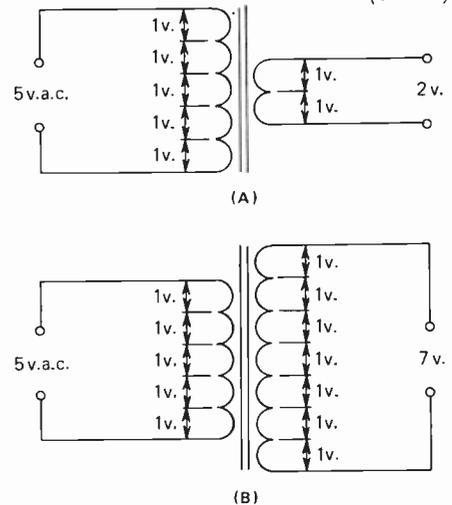


Fig. 6.6(A)—Five volts applied to a 5 turn primary creates a voltage distribution of one volt per turn for both the primary and secondary. The two turn secondary provides a 2 volt output, a *step-down* action. (B) With the same one volt per turn rating but a 7 turn secondary, the output voltage is 7 volts, a *step-up* action.



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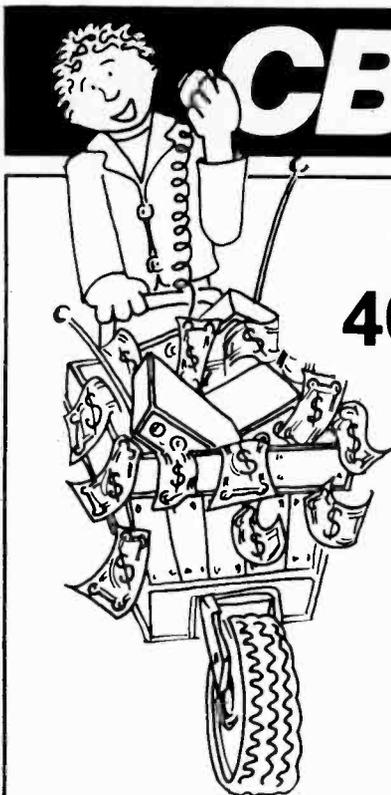
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2—The volts-per-turn on the secondary can be determined from

$$V/T = \frac{E_s}{N_s}$$

3—The above formulas can be transposed and then divided so that they appear as

$$\frac{E_p}{E_s} = \frac{N_p \times V/T}{N_s \times V/T}$$

Since the V/T ratings are equal in a transformer, they cancel and leave only the relationship

$$\frac{E_p}{E_s} = \frac{N_p}{N_s}$$

This important equation tells us that the ratio of the primary to secondary voltage is equal to the ratio of the primary to secondary turns. Given any three of these quantities the fourth can be computed. The above formula can be further simplified so that the secondary voltage can be determined from:

$$\begin{aligned} E_s &= \frac{N_s E_p}{N_p} \\ &= \frac{N_s}{N_p} \times E_p \\ &= TR \times E_p \end{aligned}$$

If, for example, a transformer has 250 primary turns, 50 secondary turns and a primary voltage of 115 volts, the secondary voltage may be determined as follows:

$$\begin{aligned} E_s &= TR \times E_p \\ &= \frac{N_s}{N_p} \times E_p \\ &= \frac{50}{250} \times 115 \\ &= 23 \text{ volts} \end{aligned}$$

Consider a second problem. Another secondary is to be added to the above transformer to provide a 50 volt output. How many turns are required for this new secondary winding?

Known: $E_p = 115V$
 $E_s = 50V$
 $N_p = 250V$
 $N_s = ?$

$$\frac{E_p}{E_s} = \frac{N_p}{N_s}$$

Transposing to find N_s we have:

$$\begin{aligned} N_s &= \frac{E_s N_p}{E_p} \\ &= \frac{50 \times 250}{115} \\ &= 108.695 \text{ turns} \end{aligned}$$

Since we must wind complete turns, a more realistic answer would be 108 or 109 turns.

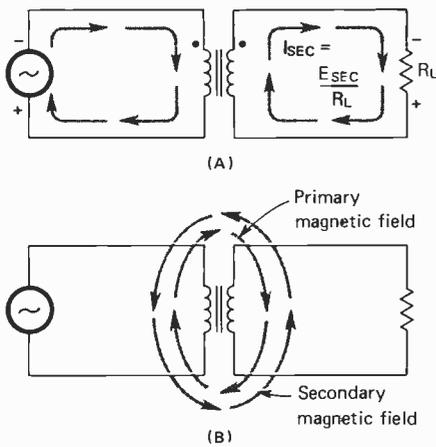


Fig. 6.7(A)—The primary and secondary currents flow in opposite directions when the transfer is loaded. Because the current directions are opposite, the two magnetic fields are opposite in polarity (B) and cancel.

Effects of Connecting a Secondary Load—When a load is connected across the secondary winding (Fig. 6.7A), a current will flow through the secondary winding as illustrated. The amount of the current flow is governed by Ohm's law where $I_s = E_s/R_L$. The current flow in the secondary winding creates a second magnetic field that will combine with the magnetic field generated by the primary winding.

As shown in Fig. 6.7(A), the primary current enters the top of the winding since it is negative at that instant. It also leaves the top of the secondary winding because it is negative at that same instant. Following the current paths of both windings it is possible to see that $I_{primary}$ and $I_{secondary}$ are flowing in opposite directions.

Since the primary and secondary winding currents flow in opposite directions, their corresponding magnetic fields will also flow in opposite directions. (See Fig. 6.7B). Since the secondary magnetic field is opposite in polarity to the primary magnetic field, it cancels a portion resulting in a reduced primary counter EMF. Since the primary counter EMF is reduced, the primary current increases. The result of the increased I_p is a greater primary magnetic field and a restoration of the counter EMF so that E_{sec} is maintained at almost the same level as when it was unloaded. Our simple conclusion is that as I_s is increased I_p increases.

Current Ratio—The strength of the magnetic field developed in a transformer core is determined by the number of turns in its windings and the current flowing through those windings (the ampere-turn rating or AT). Since the magnetic field in the core is the same for all windings on the transformer, the ampere turns rating of all the windings must be the same.

Therefore:

$$AT_{pri} = AT_{sec}$$

or

$$N_p I_p = N_s I_s$$

The above formula can be transposed to show

$$\frac{N_p}{N_s} = \frac{I_s}{I_p}$$

We showed earlier that

$$\frac{N_p}{N_s} = \frac{E_p}{E_s}$$

By substituting, we have

$$\frac{E_p}{E_s} = \frac{I_s}{I_p}$$

Note carefully that the current ratio is the inverse of the voltage ratio. This means that as we step the voltage down the current available from that secondary will increase. As we step the voltage of a secondary up, the available current decreases.

How this information may be applied to a practical problem is shown below. A 117V to 12.6V step down transformer is designed to supply two amperes to its secondary load. If we wish to fuse the primary for protection what should be the current rating of the fuse?

$$\begin{aligned} \text{Known } E_p &= 117V \\ E_s &= 12.6V \\ I_s &= 2A \\ I_p &= ? \\ \frac{E_p}{E_s} &= \frac{I_s}{I_p} \end{aligned}$$

Transposing to find I_p we have

$$\begin{aligned} I_p &= \frac{I_s E_s}{E_p} \\ &= \frac{2 \times 12.6}{117} = 0.215A \end{aligned}$$

The fuse can be no smaller than 0.25A and should be no larger than 0.75A or 1A.

Power Ratio—Basically, a transformer is a device used to transfer electrical power from one circuit to another by magnetic coupling. This transfer of power should be accomplished with a minimum of loss, preferably no loss at all. What this means, then, is that the power absorbed by the primary should be equal to the power delivered to the secondary level. This may be expressed mathematically as

$$E_p I_p = E_s I_s$$

$$\text{or } P_{pri} = P_{sec}$$

where P_{pri} = apparent primary power in VA.

P_{sec} = apparent secondary power in VA.

(cont'd)

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Experiment #21—Power Transformers

Materials:

- 1—Chassis constructed in Exp. #16, Part 14
- 1—Roll of #32 enamelled wire, Radio Shack #278-011
- 1—Roll of #22 enamelled wire, Radio Shack #278-003
- 1—VOM, Radio Shack #22-202A
- 16—4" 20D common nails

The purpose of this experiment is to verify and reinforce transformer theory. The two coils of enamelled wire will be used as the primary and secondary of a power transformer you will assemble. The source voltage for this power trans-

former will be the 12.6 volt secondary of the transformer on the chassis. *Under no conditions are you to connect this home-made transformer to the 117 volt power line.*

The results obtained with this transformer will not be perfect as the core used is very inefficient because it is not a closed loop and is not laminated. In spite of this, the principles of operation will be made very clear as you proceed through the following steps.

PART I

1—Wire the circuit shown in Fig. 1(A) and (B).
2—Place winding #2 as far from #1 as the lead length will permit. Turn on the power and note the following:

A) The voltage reading across the secondary, winding #2. It should read very close to zero volts.
_____ VAC

B) How the winding vibrates if the turns of wire are loosely wound on the spool.

C) How the winding gets hot after being powered for 10 or 15 seconds. This is due to a high current flow because of a low X_L .

3—Add a core of 12 nails and note the following effects:

A) The coil no longer gets as hot because the addition of the core has increased X_L , and lowered the current.

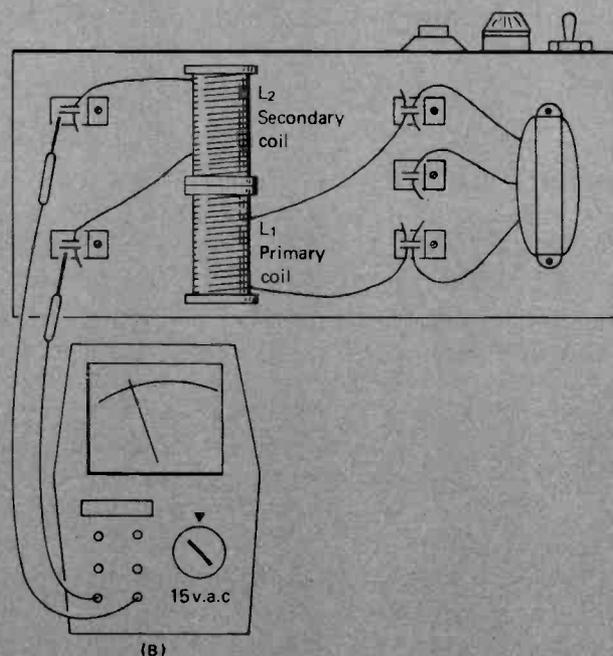
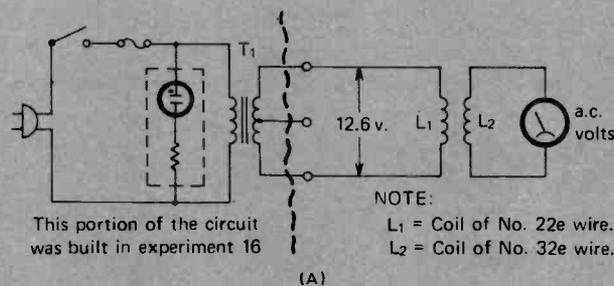
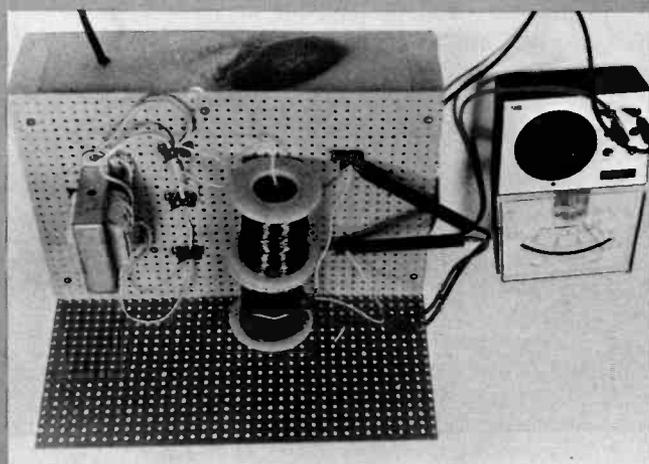


Fig. 1—(A)—Circuit wiring to test transformer action. Transformer T₁ is the step-down unit mounted on the chassis and its secondary acts as the source voltage for the experiment. (B)—Pictorial layout for the circuit of (A).



Arrangement of the two coils used to form the transformer. Photo by I. Kahn.

B) The core nails vibrate causing a buzz because they are loose in the form. This is a common occurrence in commercial transformers when the laminations are loose.

4—Turn off the power and remove the core nails.

PART II

5—Place the two coils as close together as possible as shown in Fig. 1(B) and apply the power. Note the voltage reading. Position the two coils for a maximum reading on the 0-15 VAC scale.

_____ VAC

6—Gradually tilt the secondary so that the windings are no longer parallel. See Fig. 2(A). Estimate a 45° angle and read the output voltage.

_____ VAC, 45°

7—Continue tilting the secondary until it is at right angles to the primary (Fig. 2A) and observe the secondary voltage. _____ VAC, 90°. Shut the power off.

PART III

8—Place the cores back in a parallel position and insert the core nails, 8 from each side as shown in Fig. 2(B). Pack the nails as tightly as possible. (Use more than 16 if needed).

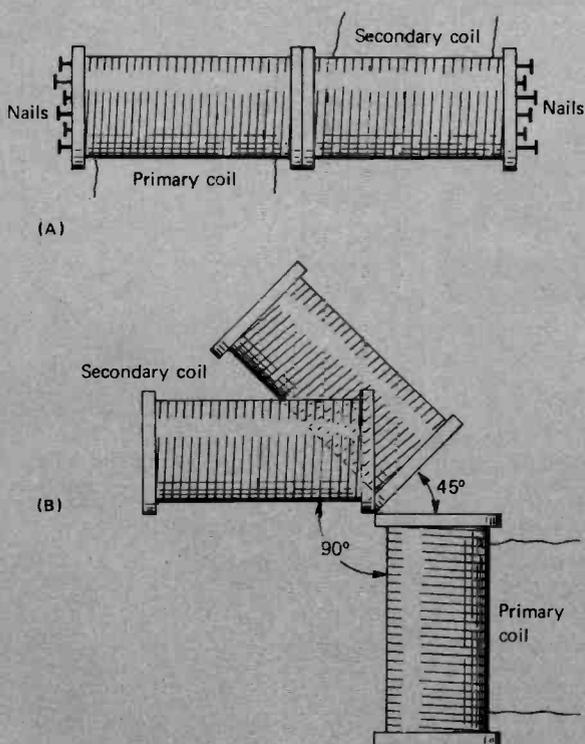
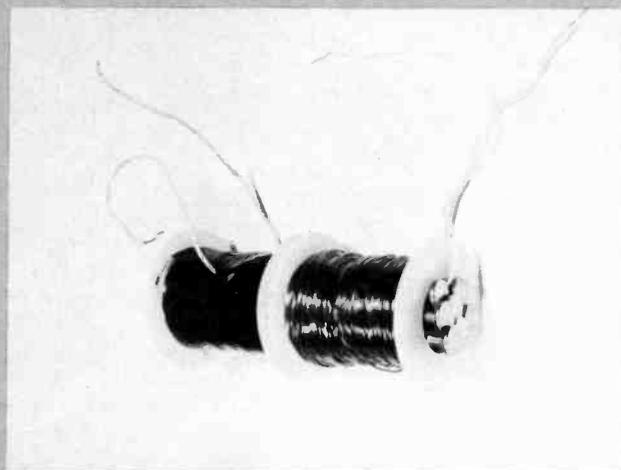


Fig. 2(A)—The positions of the primary and secondary at 45° and 90° angles. (B) Position of the two windings with the 20D nails used for the core.



Primary and secondary windings with the 20D common nails used as the core. An additional 8 nails are inserted from the other end. Photo by I. Kahn.

9—With the circuit wired as shown in Fig. 1 and the voltmeter on the 0-60 volt range, apply power. Note and record the secondary output voltage. _____ VAC, with core.

PART IV

10—Rewire the primary circuit by adding the two parallel 10 ohm resistors as shown in Fig. 3.

11—Connect the AC voltmeter across the parallel resistances with the meter range set at 0-15 VAC.

12—Prepare a jumper wire with which to short the secondary winding and then apply power.

13—Observe the voltage drop across the 5 ohm resistance in the primary when no load is placed on the secondary.

Short the secondary winding with the jumper wire and note the increase in voltage across the 5 ohm resistance. While the voltage increase was small because of the inefficiency of the transformer, it did indicate a rise in primary current when the secondary current was increased.

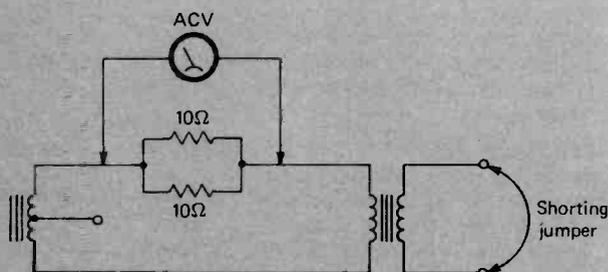


Fig. 3—Insertion of the 5 ohm resistor in series with the primary permits the measurement of the rise in primary current when the secondary is shorted.

BASIC RADIO (continued)

Transformer Losses

Under ideal conditions, the power absorbed by the primary equals the power delivered to the secondary load. While the practical power transformer is very efficient, it is not perfect. Transformer losses occur in both the windings and the core and result in the conversion of the electrical energy into useless heat.

Copper Losses—Whenever a current flows through a conductor power is lost in the form of heat due to the resistance of that conductor. The greater the value of the resistance or current the more heat (power) dissipated. Since the primary and secondary windings of the transformer are wound with copper wire, they produce a heat loss called the I^2R loss or copper loss. This loss can be minimized by using the proper diameter wire. A diameter that is too small introduces excessive resistance. If the wire diameter is made larger than necessary the physical size of the transformer is increased and the cost of the transformer is increased needlessly. The wire diameter is made large enough to carry the required current and no larger.

Eddy Current Losses—The core of a power transformer is made of a ferromagnetic material such as soft

iron or silicon steel. While not the best electrical conductor, the core material will conduct an electric current. When the primary of the iron core transformer is energized from an AC source, the fluctuating magnetic field will cut through the core material as well as the secondary windings. This results in an induced voltage in the core that causes random loops of current flow as shown in Fig. 6.8(A). The result of these core currents, called eddy currents, is a loss of power in the form of heat.

To reduce the losses resulting from eddy currents, the transformer cores are laminated as shown earlier in Figs. 6.3(A) and (B). The laminations are thin strips of the core material insulated from each other and pressed together to form the core. Because the laminations have a small cross-sectional area they have a high resistance and the induced core voltages cause smaller eddy currents to flow. This technique greatly reduces the losses due to eddy currents.

Hysteresis Loss—When a magnetic field passes through a transformer core, the core material becomes magnetized. To become magnetized the domains within the core have to align themselves with the external field. When the field direction is reversed all the domains must reverse their

positions so that they are aligned with the new field. When the power transformer is operated from the 60 Hertz power line, the domains will have to change alignment twice each cycle or 120 times per second. The energy used to realign the domains is dissipated as heat within the core and called *hysteresis loss*. The loss is kept to a small level by proper choice of the core material.

Transformer Efficiency—To determine the efficiency of a power transformer both the input and output power must be known. In the perfect transformer, P_{in} and P_{out} are equal. In the real transformer the difference between P_{in} and P_{out} represents the power used up by the various losses, I^2R , eddy currents and hysteresis.

The percentage of efficiency of a transformer may be calculated from

$$\% \text{ Efficiency} = \frac{P_{out}}{P_{in}} \times 100$$

where P_{in} = the apparent input power in VA

P_{out} = the apparent output power of all the secondary windings in VA.

To find the efficiency of a power

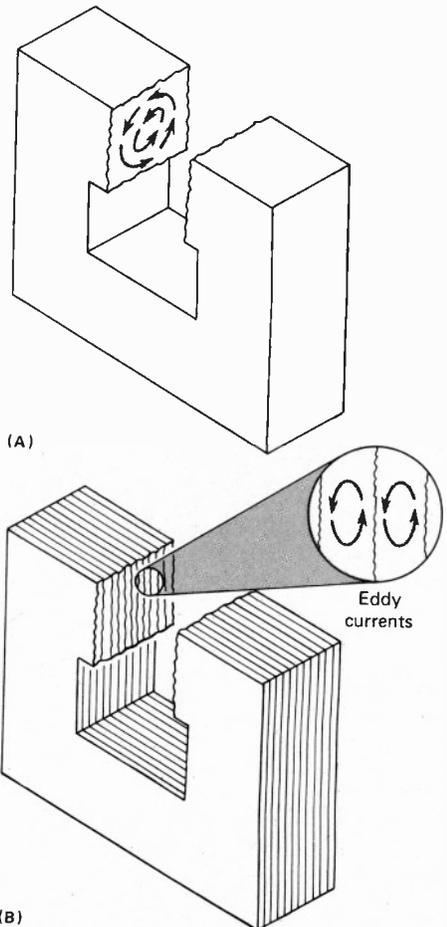


Fig. 6.8(A)—Voltages induced in the core by the magnetic fields cause small currents to flow in the core. These are called eddy currents and result in a loss of energy in the form of heat. (B)—By laminating the core, the eddy currents are reduced as explained in the text.



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transformer given an input of 117 volts at 2 amperes and an output of 12.6 volts at 18 amperes, proceed as follows:

$$\begin{aligned} \% \text{ Efficiency} &= \frac{P_{\text{out}}}{P_{\text{in}}} \times 100 \\ &= \frac{E_{\text{out}} \times I_{\text{out}}}{E_{\text{in}} \times I_{\text{in}}} \times 100 \\ &= \frac{12.6 \times 18}{117 \times 2} \times 100 \\ &= \frac{226.8}{234} \times 100 \\ &= 96.9\% \end{aligned}$$

The efficiency of the transformer is 96.9% because of the loss of 7.2 watts in the core and the resistance of the windings.

Transformer Ratings

Power transformers are rated by the following criteria:

- 1—Primary voltage
- 2—Voltage delivered by each secondary winding.
- 3—Current available from each secondary winding.
- 4—Frequency of operation (power line frequency).

Winding Data—The secondary windings of a power transformer are rated in terms of the maximum voltage and current they can deliver to a load. For example, the transformer shown in Fig. 6.9 has two secondary windings, 450 volts center tapped and 12.6 volts center tapped. The 450 volt winding can supply a maximum current of 200 mA, limited by the diameter of the wire it is wound with. The 12.6 volt winding can supply a maximum of 4 amperes because of the large diameter of the copper wire used for its winding.

The primary winding is only identified by its voltage rating. No current rating is given for the primary since it drains from the source only the amount of current dictated by the secondary loads. If the transformer is operated unloaded, I_p would be close to zero amperes, only the exciting cur-

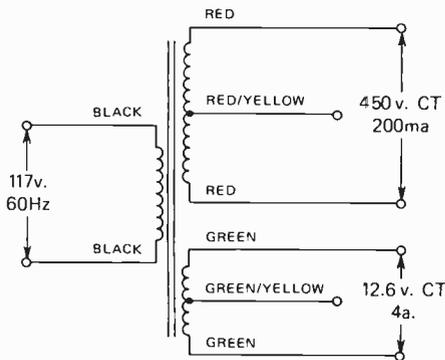


Fig. 6.9—A typical power transformer and its ratings. The voltages and currents are always given in RMS values unless otherwise noted. The colored leads used to identify the windings are standardized for most transformers.

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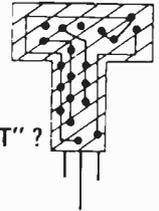
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rent. If the transformer of Fig. 6.9 is fully loaded, the primary power dissipation will equal the *total* secondary power dissipation and I_p will be determined from

$$I_p = \frac{(I_{s1} \times E_{s1}) + (I_{s2} \times E_{s2})}{E_p}$$

For the transformer of Fig. 6.9, the primary current would be

$$I_p = \frac{(450 \times 0.2) + (12.6 \times 4)}{117} = 1.2A$$

As the technician selecting the power transformer, you would not concern yourself with the primary current rating; the transformer manufacturer would select a wire diameter for the primary capable of handling this current.

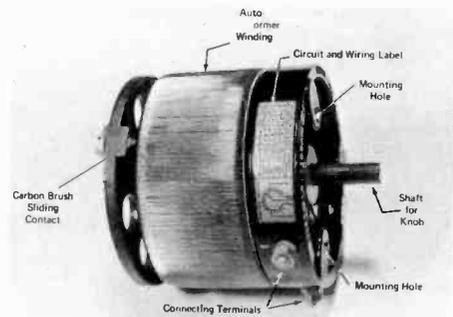
Frequency of Operation—The frequency of operation of a power transformer must be that of the power line, most often 60 Hz. If the frequency applied to a power transformer is higher than its rating, the inductive reactance of the windings increase causing greater internal voltage drops and therefore less output voltage. Losses in the core also increase thus reducing efficiency. Increasing the applied frequency above the design frequency, however, does not damage the transformer.

If the applied frequency is reduced below the design frequency, the inductive reactance of the transformer windings decreased and the current flow through the windings increases. If the decrease in frequency is great enough, the increase in current could be enough to damage the transformer. From this it can be seen that a transformer can safely be operated *above* its rated frequency but not below.

Transformer Color Code—After a transformer is built and enclosed, it is difficult to tell which wires attach to which winding unless the leads are color coded. When electronic equipment was all vacuum tube operated, the transformers were built with several secondary windings for tube filaments and high voltages. The color code developed for these transformers is in use today, more or less, but there are fewer secondary windings. The color code listed below will help identify windings on older salvaged, power transformer as well as modern units.

WINDING (Color)

- Two wire primary (Both wires, black)
- Tapped primary (Start wire, black—First Tap, black/yellow°—Second Tap, black/red)
- High voltage (Both wires, red)
- High Voltage center tap (Red/yellow)



Typical auto-transformer. When the knob shaft is turned the entire rear ring rotates, moving the carbon brush along the transformer windings. Photo by I. Kahn.

Filament winding, 5V (Both wires, yellow)

Filament winding #2 (Both wires, green); tap (Green/yellow)

Filament winding #3 (Both wires, brown); tap (Brown/yellow)

Filament winding #4 (Both wires, slate); tap (Slate/yellow)

*All two color wires are 50% each color and very often defined as *black with yellow tracer*, or *red with yellow tracer*, etc.

Many transformers with single secondary windings do not observe any color code for the secondary winding but do for the primary wires.

Auto-Transformers

The auto-transformer consists of a single winding on a suitable core, tapped to provide the primary winding and tapped at a second point to provide the step-up or step-down function. The circuit symbols for the auto-transformer are shown in Fig. 6.10(A) and (B). Symbol (A) shows the arrangement for step-up operation and (B) for step-down function.

The voltage across the entire transformer winding in (A) is induced by passing a current through the primary leads, 1 and 2. The stepped-up voltage is taken from the secondary terminals 1 and 3. Note that the secondary *includes the entire primary winding*. For step-down operation in circuit (B) the secondary consists of only a portion of the primary. If the primary has 117 turns and an applied voltage of 117 volts, there would be a distribution of one volt per turn. If the secondary was tapped at 30 turns, it would result in an output of 30 volts.

The auto-transformer has no particular advantage over the conventional transformer except, perhaps, price; its cost may be lower. It has, however, a few disadvantages, one being no isolation between the primary and secondary windings. It finds great use as a *variable transformer* as shown in Fig. 6.10(C). The output

For Information About Our Advertisers . .

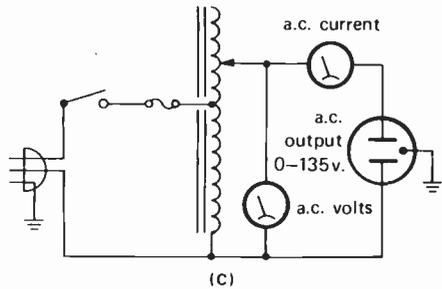
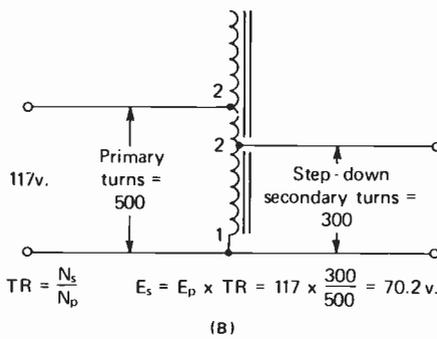
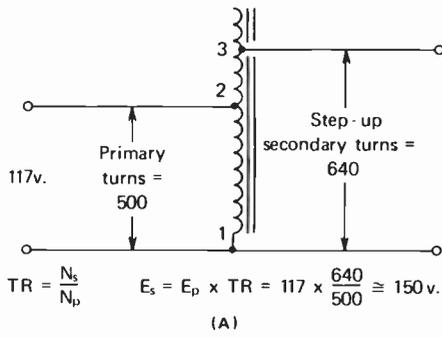


Fig. 6.10(A)—Auto-transformer set for step-up action. (B) Auto-transformer set for step-down action. (C) Variable auto-transformer used for testing and experimenting.

to discuss practical operating circuits, circuits that CB'ers can construct and make use of.

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Suggested Reading

- Schrader, R. L., *Electronics Communications*, Third Ed., New York: McGraw Hill, pp. 80-87.
 Tepper, Marvin, *Basic Radio*, Second Ed., Vol. II, Rochelle Park, New Jersey: Hayden Book Co., pp. 2-43 to 2-58.

Self Check Questions

1—The use of AC for transmitting power from the generator to the site of use is because the AC can be stepped up and down in voltage with ease by the use of transformers. T or F.

2—A transformer provides a direct connection between the primary and secondary winding. T or F.

3—When DC is applied to the primary of a power transformer there is no output on the secondary winding. T or F.

4—What factor or factors determines which transformer winding is the primary?

5—The primary and secondary windings are coupled by magnetic or mutual reluctance. T or F.

6—When k equals 1, the coupling between two coils involves 100% of the lines of force generated in the primary. T or F.

7—When the primary and secondary are in parallel and tightly coupled, k is equal to zero. T or F.

8—Determine the output voltage from a secondary winding that is set 85°

voltage is continuously variable from zero to 130 volts for an input of 117 volts. The output voltage and current are metered and the line is fused to protect the entire unit.

Next Month

In the next installment we will cover the operation of solid state diodes and also their applications, if space permits. At long last, we will begin

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KW5

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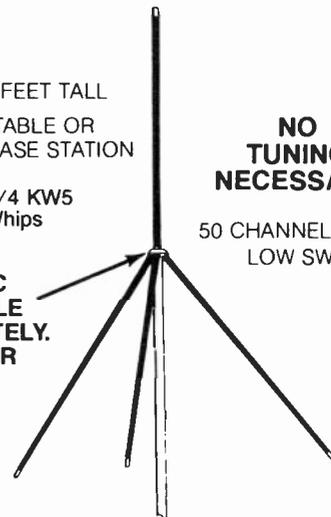
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to the primary, if the maximum output voltage is 52 volts.

9—Transformer iron cores, compared to air cores increase the mutual conductance. T or F.

10—Transformer cores are constructed with a closed magnetic path to provide maximum coupling between the primary and secondary. T or F.

11—When a power transformer has no load on its secondary the primary current flow is _____ (high, low, medium).

12—Dots, placed at the ends of windings of a transformer symbol indicate:

- (A) That these ends of the windings are always positive.
- (B) That these ends of the windings are always negative.
- (C) The use of heavy gauge wire for these windings.
- (D) That the instantaneous polarities of these points are always the same.

13—What is the approximate counter EMF in the primary of a transformer if the applied voltage is 120VAC?

14—What is the V/T rating of a transformer whose primary winding is operated at 120VAC and has 360 turns?

15—A transformer that has an input voltage, E_p , of 117VAC, has two secondaries with the following turns ratios. Find the secondary voltages.

- A) TR = 4:1 step-down
- B) TR = 3.7 step-up

16—As the secondary of a transformer is loaded, the

- (A) secondary current increases.
- (B) the primary current increases.
- (C) I^2R losses increase.
- (D) All of the above.

17—A power transformer is operated from a 117VAC line. It has two secondary windings each rated at 12.6 volts. One secondary is loaded at 1.5

amperes, the other at 3.0 amperes. Determine the primary current of this transformer so that we may select a proper fuse to protect it.

18—The power dissipated in the total secondaries is slightly more than that dissipated in the primary. T or F.

19—What are the types of losses introduced in a power transformer?

20—How are the losses minimized for each cause?

21—What would be the effect of operating a transformer designed for 60 Hz at

- (A) 400 Hz
- (B) 20 Hz

22—Why might it be possible for a transformer designed to operate from either 117VAC or 220VAC to have two primary windings?

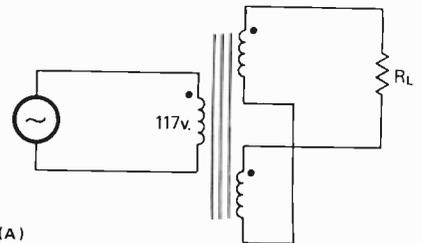
23—For what reason would the primary of a power transformer have one or more taps near one end of the winding?

24—The color code for transformer wire would indicate the primary windings as _____.

24—The color code for the primary winding of a power transformer would be black leads. T or F.

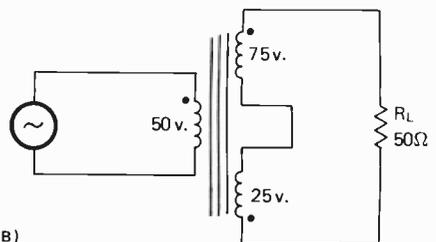
25—Auto-transformers provide no isolation of between their primary and secondary windings. T or F.

26—Assume all three windings, in the transformer shown below, have the same voltage. What value of voltage will appear across the load, R_L .



(A)

27—Calculate the current flow through R_L in the circuit shown below.



(B)

28—How many volts output can be expected from a transformer with a TR of 1:5 when 50 volts DC is applied to the primary?

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Answer Key

- 1—T
 2—F, it provides DC isolation and only magnetic coupling.
 3—T, Direct current is not coupled by a power transformer.
 4—The winding to which the input voltage is applied.
 5—F, coupling is by mutual induction.
 6—T
 7—F, with tight coupling k would be one or close to it.
 8— $E_{sec} = E_{max} \cos 85^\circ = 52 \times 0.087155 = 4.532V$.
 9—T
 10—T
 11—low
 12—D
 13—approximately 120 VAC
 14— $1/3$ volt per turn. $V/\frac{T}{3} =$
 $E_p N_p = 120/360 = 0.333$.
 15—A) $E_s = \frac{N_s}{N_p} \times E_p = 1/4 \times 117 = 29.25V$
 B) $E_s = \frac{7}{3} \times 117 = 273V$
 16—D
 17— $I_p = \frac{(E_s I_s) + (E_p I_p)}{E_p}$

$$= \frac{(12.6 \times 1.5) (12.6 \times 3)}{117} = 0.485 A$$

- 18—F, it is slightly less. The primary power also includes the power dissipated by the transformer losses.
 19—A—I²R losses
 B—Eddy current losses
 C—Hysteresis Losses
 20—A—I²R losses. Large diameter wire (low R).
 B—Eddy currents—Laminated cores
 C—Hysteresis—Proper choice of core material.
 21—A—Less output voltage but no harm to the transformer.
 B—Damage to the transformer due to excessive currents.
 22—The 220 volt primary would be powered by the 220V line and when using a 117 volt line the power would be applied to the 117 volt primary. This would maintain the proper TR and produce the same secondary voltages in each case.
 23—In some areas the power line

voltage may be higher or lower than the normal 117VAC. The proper tap will provide the TR to deliver the correct secondary voltages.

- 24—Black
 25—T
 26—OV—The secondary windings are in series but the phase of each winding is opposing. Since the voltages are equal they cancel to produce zero volts output.
 27—Total E_{sec} is $75-25 = 50V$.
 $I = E/R = 50/50 = 1A$.
 27—1 ampere. The total secondary voltage is $75-25 = 50$ volts since they are wired series opposing.
 $I = E/R = 50/50 = 1A$.
 28—OV. When DC is applied to the primary there is a sudden pulse of output across the secondary as the magnetic field rises to its maximum. When the field levels off to a constant value no further induced voltage appears. Transformers work on AC only.



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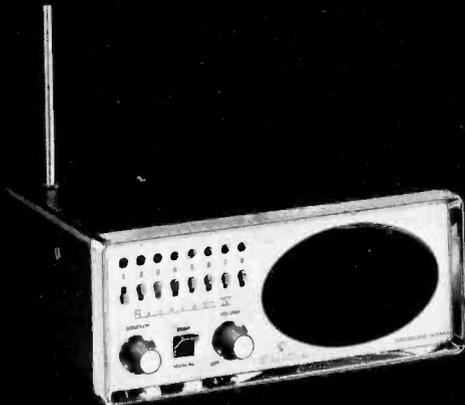


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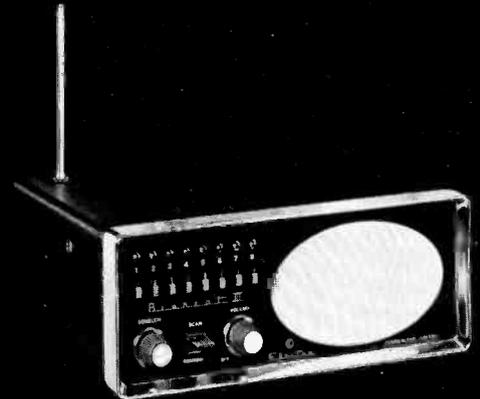
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by Robert Leighton, CHOCOLATE MOOSE

HELLO? What's . . . how do you turn this thing on? Testing, one, two, three, testing . . . Am I . . . Oh, I'm on? Now? Okay . . .

This is C-M, short for Chocolate Moose, long for Robert Leighton, and I'm new to this here CB radio stuff, so please bear with me while I get my ears on. Yessirree, I don't do anything without my Mouseketeer hat.

Anyhow, ol' Tomcat called me one day and told me he wants me to write something with a teen appeal in CB RADIO/S9. Well, my ears were bad that day, and while he said he wanted me to write about something humorous in nature, I thought he said "ruinous to nature", like "R-Son", arson. So I wrote

this ten-page article on pollution and fires and stuff, and he sends me back a big, fat NEGATORY in the mail!

Fortunately, everything's been cleared up. I spoke to Tomcat again when the reception was a bit better. I now know that he wants me to write something "humorless (naturally);" just something "ASS-i-NINE". And that's exactly what he'll get. And you'll read.

Hope you like the articles, cartoons, poems, short stories, parodies, satires, and typographical errors to come.

Seventy-three's,
CHOCOLATE MOOSE
(Robert Leighton)

PRESENTATION OF POOR BUDDY AWARDS

Every day hundreds of honest, law-abiding citizens perform outstanding humanitarian services via their CB radios. Scientists have yet to find a cause for these mysterious actions. But in the meantime, the rest of us continue to jam the waves, screw up fellow drivers, and just generally be out-and-out pains in the seat covers. And I do not mean women.

It is for those average and below-average people that E-Z STOLE, Inc., makers of two-channel CB radios, have designed and presented their "Poor Buddy" awards. Each winner receives a handsome plaque made of a paper plate and aluminum foil, as well as the autographs of Wink Martindale and Frank Arnetta (who played Bozo the Clown from 1959-1961).

Says E-Z STOLE's president, Jack Cass, "We just want to let those few, small, basically insignificant people somewhere out there know we care about them."

The following CBers will receive the "Poor Buddy" award this year:

Edna Kebooky, Buffalo, N.Y.: During a blizzard she directed her IRS man straight into the middle of Lake Erie.

Sid "Sidney Boy" Neyboy, Molotov, Ct.: Through

the use of highly advanced equipment, he talked 5 by 9 on forty different channels, simultaneously, non-stop for eight weeks.

Muggsy Calhoun, Leghorn, Tx.: He listens for distress calls, drives over, and robs the trusting buddies at gunpoint.

Sally Forthe, Newirth, Neb.: When her CB broke down for two weeks she screamed across the county.

Bernie Roger Thicolt, Old Phegbeat, N.Y.: As an April Fool's joke he sent 'Uncle Charlie' letters to every CBer in his neighborhood. He was last seen April 3, heading west very rapidly.

And an Honorable Mention to Edgar Wreet who, despite being unable to talk since eating epoxy glue in 1973, still insists upon conversing over his CB with hand signals. His handle, by the way, is "Handle".

If you know of anyone who deserves to receive a "Poor Buddy" award, send a short summary telling who it is and why to:

Poor Buddy
c/o Robert Leighton
S9 Magazine
14 Vanderventer Ave.
Port Washington, N.Y. 11050

COMMON BELIEFS . . . WHICH ARE COMPLETELY BANANAS

Just in case you didn't know,
CB is not a place to go.
Not Costa Brava, Casco Bay,
I'd just as soon keep you away.

And many think that CB is
Initials of folks in show biz.
I'll tell you something—that's all wrong.
You think that It's Chuck Barris?? GONG!
It doesn't mean Carol Burnett
Or Charles Bronson—and don't forget
Crosby, Bing or Bozo Clown,
Cosby, Bill or Charlie Brown.
It's none of these that I have told
And yet there's more, some new, some old.

Here's a bunch that's quite incredible—
Some think that CB is edible!
Like Corned Beef, which you put on rye

Or Coffee Beans, at prices high.
Or Coors Beer, Canned Beets, I'm not done!
A Cook Book couldn't list each one!
While all taste fine, as I suspect.
They nonetheless are incorrect.

While you are young, a CowBoy's neat.
To ride a bronco's quite a feat.
At older ages you take looks
At Captain Bam in Comic Books.
A few more years, you're College Bound,
Then you Come Back to solid ground.
At last you're Chairman of the Board,
The knowledge learned, the planet toured.

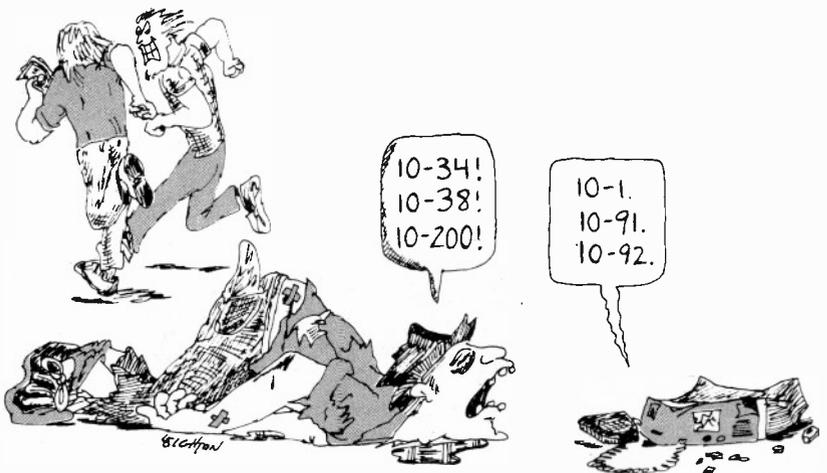
Now, if you have a CB, fine.
You don't get mixed up all the time.
You know it means a "Citizen's Band" . . .
But call it a "CB" . . . WE understand.



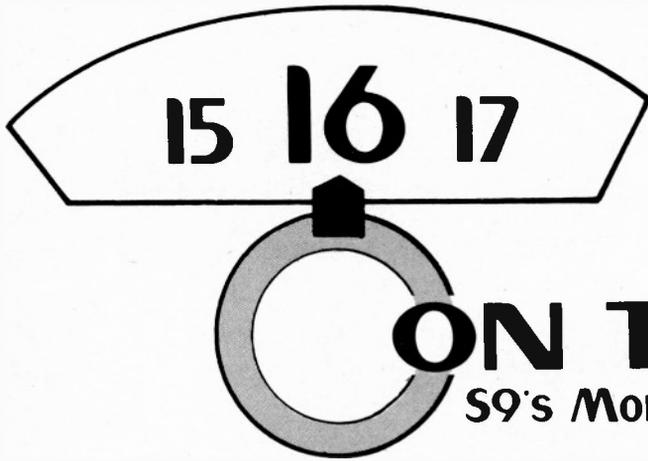
"I must find somebody to kill . . .
BZZT!! and I've found YOU, Billy
Turner, so get to bed!"



"Smokey! Smokey!"



"All that time we spent learning the
language and what do you know —
we've landed next door to a CB'er!"



by **Bill Sanders.**
SSB-295
KW-5304

ON THE SIDE.....

S9's Monthly Column for Sidebanders

SIDEBANDER IV

SBE, Inc., has added a new mobile CB transceiver to its new line of 40-channel CB radios.

Designated the Sideband IV Model (SBE-28CB/A), the new unit is a compact, 40-channel SSB/AM mobile transceiver featuring digitally synthesized circuitry for stable, accurate frequency generation on upper sideband, and AM frequencies on all forty Citizen's Band channels. RF output of the unit is 4 watts AM and 12 watts SSB PEP. Features include an extremely sensitive receiving section with both a switchable noise blanker and switchable noise limiter. Other controls are squelch, volume, SSB clarifier, and RF gain control for adjusting receiving sensitivity to near or far stations.

A back-lit front panel meter registers power out and signal strength. A red transmit light is located to the lower right hand side of direct-reading channel selection dial. The unit also has a PA switch position that activates a 3 watt public address circuit. A dynamic microphone with coiled, full-length cord and four-contact, front-connecting jack is also supplied.

The Sidebander IV carries a suggested list price of \$379.95 and is available at SBE dealers throughout the country. Further information is also available by writing SBE, Inc., Dept. P, 220 Airport Blvd., Watsonville, Calif. 95076.

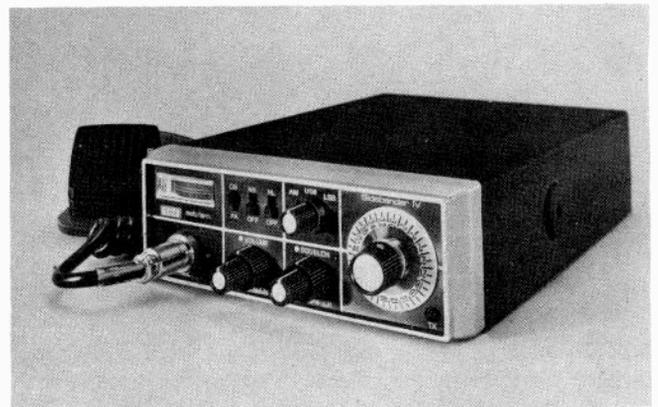
THE MOBILE SCENE

What with the balmy weather upon us, everybody who can afford the gasoline seems to be on the open road—and Sidebanders are in there with all of the other vehicles! So it might be worthwhile to spend some thought on mobile operation.

It's no big secret that portable installations just don't seem to pack the clout of base stations. On the AM channels this can sometimes (more often than not, in fact) mean getting buried beneath the pileup of heavy carriers holding down the channel.

On the sideband frequencies we have usually been able to keep it organized enough to have somewhat less of a mob scene on a given frequency at any given time, however the problems still exist of the base stations banging out a lot more signal than those on wheels. So it is still up to the base station operators to be aware that, most especially during the time of the year when there are a lot of mobiles on the road, that these units with the weaker signals get some sort of preferential treatment in getting in their shot at using the channel. Chances are they aren't going to hold it up for a long time anyway, and it is generally the practice for base station Sidebanders to delay the chatter for the few minutes that portables can get their messages through.

One way that base station operators do this is by allowing a short (maybe 2 or 3 second) lag between transmissions so that any mobiles out there in the hinterlands can get an edgewise word in if they want to use the frequency. Don't forget that mobile operation isn't quite as predictable (in terms of signal coverage) as is base station operation. With a base station you generally know from experience that you are getting a withering signal into some areas, while you may be a bit feeble in others. With portables, this is a constantly changing situation—you may be in a dead spot one minute and a few hundred feet



Sideband IV Model (SBE-28CB/A).

“Somewhere there is an optimum number of frequencies for everyone to use...but what is that number?”

down the road you could be in some spectacular spot for communications—and another half-mile down the road you could hit the bottom of the communications barrel again for a few miles.

So the mobile trying to get on the frequency might only be in suitable communications range for a very brief period of time—perhaps rounding the crest of a hill or something like that. Let him take fullest advantage of this—give him his chance before he finds out that the only thing he can hear is the splash from the AM'er in the next car!

And if you are a base station who is listening to a portable unit operator getting hoarse trying to call another station—be a pal and offer to relay the fellow or gal's message!

If it's an out-of-towner in the portable, someone looking for road instructions, you might like to give the operator a quickie course in the local Sidebanding scene—which frequencies are in use, which frequency is used for calling, the date and time of the next sideband club meeting—any homey little advice which will let the operator know that the Sidebanders from wherever it is you hail from are every bit as nice as the Sidebanders from wherever it is he or she hails from!

I'll never forget the red faces one day when a guy with a definite out-of-town accent appeared on Center Slot looking for road instructions—his operating practices and procedures were slightly different than those most of the locals in my area were used to (not wrong—simply a slight variation—but nevertheless courteous). *Holy cow*—at least six base station operators quickly responded to him—only two wanted to give him the road instructions, at least four other guys were calling him *dummy*, *AM'er*, and worse! All four were competing with one another as to the most effective way to read him the riot act for not operating in conformity of local tradition. The punch line is that he turned out to be the brother of the President of one of the sideband clubs in the area—

came 150 miles out of his way on his vacation at the demanding of his brother who wanted him to meet “some of the greatest Sidebanders on the 11 Meter Band!” I wonder if he really thought so...after that hairy legged delegation rolled out to greet him!

Sure, the guy didn't know all of the in's and out's of local operating—but it could have been laid on him gently and courteously rather than having it bashed over his head with a lead D-104!

So—it's good to keep in mind that Sideband practices *do* vary (sometimes greatly) from one geographic area to the next—and the out-of-town guy you are chewing out and calling a *dummy* might well have been active on Sideband before you were even an AM'er yourself. So go easy on the short tempers! Nobody's impressed, and if you're courteous the other guy will eventually go back to West Chicken Feather and tell of his locals that you guys and gals are tops. In any event, the locals in my area are *not* thought of very highly in West Chicken Feather!

Another point worth remembering is that local Sidebanding frequencies vary from place to place, and your own favorite local frequency may be strictly *Ancient Mary* elsewhere. Before you fire up your sideband rig in unknown territory, QSY around a bit to see if you can hear that familiar sideband chatter on one or more frequencies—and then use those frequencies. When in doubt, or if you can't seem to hear any Sidebanding in operation—best bet is to start out on the lower side of 16 and take a shot at that; that failing, (if you can) QSY up to .405 lower side and try there, if no response, try .395 and then other lower frequencies, one at a time. If you try this one-at-a-time stunt and don't get a friendly Sidebander by the time you've made it back down to about Channel 15—chances are you've found one of the few spots in the world devoid of Sideband operation—or else your rig is dead.

Also, I would strongly advise obtaining a set of ID numbers which can be used nationally from the

Atlantic to the Pacific, from the Gulf of Mexico to Hudson's Bay—your own local or regional club numbers may be hot stuff in your own home town but they will probably be next to (or worse than) useless when you venture forth outside of your own normal operating area. See the box at the head of this column for information on getting yourself established on a coast-to-coast basis!

FIXEM-UP DEPT.: SIDEBAND ID NUMBERS

Single Sideband operators don't use AM type handles or unit numbers for identification purposes. Instead they use special Sideband ID numbers. Those many readers who have written to us asking about how they may obtain a set of these numbers are advised that we recommend joining the SSB Network, which is the nation's oldest and largest group of Sidebanders. A self-addressed stamped envelope sent to the Sidebanders' Service Bureau, P.O. Box 381-R, Smithtown, N.Y. 11787, will bring you information telling how you can become a part of this vast network. Their national "SSB" ID numbers can be obtained without cost or fee. We suggest that all Sidebanders avail themselves of this opportunity to join this network—even if you are a future Sidebander, or an old-timer who already has "local" numbers.

FREQUENCY TALK

I've gotten several letters saying that, despite my own estimates (based upon industry sales figures) of the number of Sidebanders actually on the air, and the apportionment of a suitable percentage of frequencies for Sidebanding (my guesstimate has been 2 to 4 of the old-band channels, plus 5 of the new top-band frequencies, for a total of about 8), that in several areas there are a sufficient number of Sidebanders to keep at least 5 *additional* frequencies occupied. Other readers have complained that they are desperately trying to maintain the Sidebanding integrity of only 3 or 4 frequencies in their respective areas and can't seem to use the frequencies sufficiently to keep them clear of Ancient Mary! In fact, they have taken us to task for suggesting so many frequencies be used by Sidebanders that I've got them QSY'ing all over the place to nail down a couple of frequencies. On the other hand, several readers (most notably in the Pacific northwest) apparently are unconcerned with such matters and cannot understand why I don't declare as sideband territory a bare minimum of frequency space from .315 right on up to .405—and presumably a couple of additional frequencies from the old lower frequency channels! Let me first say, that I am not the special deity in charge of frequencies—I only pass along what comes through here from my readers and from what appears to be reasonable based upon industry sources.

Legal MOBILE Power Doubler is here at last!

Not only double your power and increase your transmit range, but operate your CB anywhere. The heart of the 4X is a nickel cadmium battery pack which constantly recharges itself so you need never be without operating power, even with a dead car battery or power blackout.

- Emergency power pack (Dead battery? Blackout?) YOU can still operate.
- AC capability (Plugs in at home, motel, etc.)
- Portable (Operate anywhere, camping, hiking, etc.)
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- Works with ALL mobile sets - 23, 40 channel, AM, SSB (Even base rigs with external 12 volt power).



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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.

The bumper stickers are available in the following slogans:

- (1) CBers Do It Better
- (2) CB RADIO SAVES LIVES
- (3) EMERGENCY CB 2 WAY RADIO
- (4) MONITOR 9—CB RADIO

Price is \$1.00 each or 3 stickers for \$2.00. Add 25 cents 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

Fact of the matter is that the majority of readers of this column seem to be happy with and able to handle some 2 to 4 of the old channels and 4 to 6 of the new ones—at least that's what the mail *seems* to indicate on a national basis. If you've got different thoughts or needs—your area operators have not let us know about them! Do you think that it would be more realistic to push for *more* frequencies to be unofficially designated for *Sidebanders Only*—keeping in mind the plight of those who are suffering with the job of keeping even 2 or 3 frequencies going; or do most of you think that 5 new ones and a couple of the older ones are OK—or *too much*? Of course, keeping in mind those operators in areas where there are wall-to-wall Sidebanders and where they seem to require a lot of frequency space.

Somewhere there is an optimum number of frequencies for everyone to use, frequencies which meet our needs now and for the next few years. But what is that number—5, 8, 10, 15—or *what*? And which specific frequencies or channels do most of you think are the best ones to use? Got an opinion? Jot it on the back of a QSL card or post card (9-million words or less) and send it to me. I'll let you know the results!

ROSTER OUT

The copy of the SSB Network roster I was using was so old and outdated that it was tattering at the edges—well they have just brought out the first part, Volume I, of a multi-volume, updated and expanded membership roster showing *SSB Network* number,



An effective educational tool in helping to maintain the integrity of local Sidebanders' frequencies is this clever mini-poster devised by the SSB NETWORK. These are displayed at CB shops, coffee breaks, jamborees, club meetings, and anywhere else AM'ers congregate. These have proven really effective in improving local sideband communications. SSB NETWORK members can get a packet of 10 of these by just asking for them from SSB Network HQ—and enclosing a self-addressed stamped (35c postage) large brown (at least 9 by 12 inch) return envelope. Always mention your SSB NETWORK number when writing to them. This illustration shows how one of the mini-posters would look with sideband frequencies written in—since varying geographical areas use different frequencies, the mini-posters are sent "blank," so that users can fill in local frequencies for their own areas.

first name of member, and the state/province location of each. Volume I covers all members with the membership numbers SSB-0 to SSB-5000, inclusive. Other volumes are currently in varying stages of production and will be announced as they become available. We like this Volume I 'cause it's easy and concise; found it to be an invaluable aid in operating base and portable (I have a copy for each installation). This publication, which lists 5,000 Sidebanders, is only \$3, postpaid, from The SSB Network, P.O. Box 381-MR, Smithtown, N.Y. 11787. If you include your QSL card (wallpaper) with your roster order, they'll send you one of theirs—very sharp too, I might add!

Just before I wrapped up this month's column I learned that the folks at *SBE Inc.*, makers of one of the more popular line of mean sideband gear, have started packing *SSB Network* membership applications in with their new sideband equipment as it leaves the factory. One *more* step towards building together the bond of unity between all Sidebanders—a unity which is needed in order for sideband interests, coast-to-coast, to establish the necessary one *loud* voice and clout to get Sidebanders a fair shake! We salute *SBE Inc.*, their action is helping to work towards a better and stronger Sideband service; and we salute the *SSB Network*, since 1964, their innovative and forceful approach has been the most vital and useful national champion for Sidebanders. How about it—all sideband manufacturers—isn't it time *you* helped to get it all together too? We hope that *SBE's* positive action on behalf of a strong Sideband service will inspire others.

And *your* voice and support is needed too—*you*, the Sidebander! It's time we *all* got it together—it's important! If you haven't yet added your voice and support to this growing national effort to save Sideband—well, you're missed, and who but yourself will you have to blame when the sideband channels are so saturated with Ancient Mary that you can't get a QSO across town—and if you've listened to what's happening on some of the newly allocated frequencies you must certainly be aware that the time to act is NOW! If you haven't yet become part of the *SSB Network*—we suggest that you don't let another day slip by without moving in that direction. They've got a new wallet-sized membership card too—and the message on the reverse of the card *really* tells it like it is!

Also—I just got a look at the absolutely fantastic "Sidebanders' Money" they've devised and are distributing as unique souvenirs—far out, and *very* clever! They're including this outrageous "Sidebanders' Money" with some of their new memberships—at least while the supply lasts! So—like, it's time to hook into the *SSB Network*! Send them a self-addressed stamped envelope and they'll send you an application and fill you in. The QTH is above! Do it now! You're needed!

Bill Orr on Antennas

THE MONSTER QUAD, THE KING OF CB ANTENNAS

Part One

QUESTION: How many types of CB antennas exist? Mercy!!

Look through the pages of this magazine and look through some of the back issues. You'll find that you can purchase a bewildering variety of exotic looking antennas for sums up to several hundred dollars, and all of the ads extol the virtues of these marvelous devices.

And you are lucky at that! Look at some other CB publications and see the ads from some garage-shop operators who are really selling junk disguised as antennas. It seems everybody is in on the game, trying to separate you from your dollars with fancy promises.

One of the better antenna types of great interest to the CBers is the *Quad beam*, so-called because of its square or diamond shape. You've probably heard a lot about it, and some of what you hear or read is true. This column will give you the run-down on the Quad antenna and I'll give you information on building a Quad, if you want to take a crack at it.

The Beginning of the Quad

The Quad antenna was first conceived in 1939 by a radio ham who worked at the shortwave broadcast station HCJB in Quito, Ecuador. Radio HCJB used a 10 kilowatt transmitter, but the engineers had a

hard time keeping it on the air because of antenna breakdown. Situated at 10,000 feet in the Andes Mountains, Quito had an unfortunate combination of high altitude and high humidity. All of the beam antennas tried at HCJB just couldn't withstand this environment and eventually broke down and flashed over.

To solve this problem, Clarence Moore, the radio ham, designed a new form of beam antenna made of loops. Since the loops had no end points, it was thought that corona breakdown would be eliminated. And that's exactly what happened! HCJB was back on the air and the funny-looking beam made up of square loops proved to be a powerful device. Reports flooded the station, attesting to the efficiency of the new antenna design.

When Moore returned to the United States, he applied for a patent for his new antenna and many radio hams started building their own version of the Quad antenna. And by 1941, just before World War II, the Quad antenna had proven itself to be one the better inventions credited to radio hams, working to solve unusual communication problems.

The Quad—How Does It Work?

Clarence Moore described the Quad loop as "a pulled-open folded dipole" (Figure 1). This is a pretty good description. The folded dipole is often used in TV antennas, but until Moore came along, nobody thought of opening it up into a loop. When this was done, it was found that the loop exhibited power gain! That is, it provided about 2 decibels gain over the dipole—a classic case of something for (almost) nothing. It didn't seem to matter if the loop was square, diamond-shaped or even a circle—it worked!

And as in the case of the Yagi beam, adding parasitic elements to the loop produced a beam antenna which, element for element, provided more power gain than the classic Yagi antenna design. The basic Quad loop may be also thought of as two half-wavelength antennas placed one above the other and interconnected by the tips, which fold inwards as shown in Figure 2. The arrangement may be either square (as shown in illustration A), or diamond-shaped (as

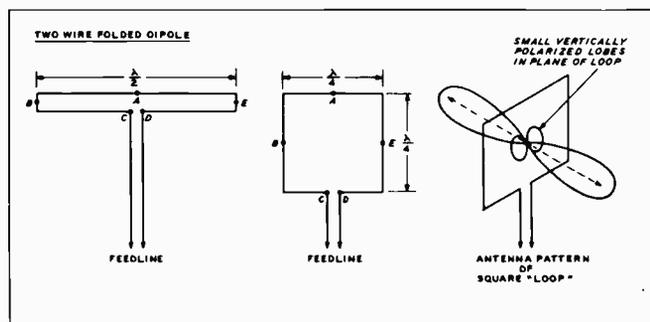


Fig. 1—The two wire, folded dipole may be formed into a loop having two parallel elements, one above the other. The pattern of this loop (center drawing) is horizontally polarized, in and out of the page. The loop provides about 2 decibels gain over the dipole antenna. Points A through E of the dipole correspond to like points of the loop. The right illustration shows the radiation pattern of the loop, which has small "ears" at right angles to the main lobe. (This drawing, and others in this column, are courtesy of Radio Publications, Inc.).

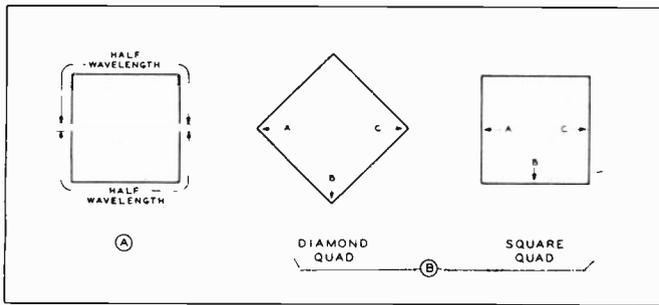


Fig. 2—The basic Quad element may be thought of as two half-wavelength antennas placed one above the other and interconnected by the tips, which are folded inwards. A typical Quad element is about one-quarter wavelength on a side, or one wavelength in circumference. The Quad may be either diamond or square in shape (B) with no difference in performance. For vertical polarization, the loop should be fed at either A or C. For horizontal polarization, the loop is fed at B. Parasitic elements have no feed point and work equally well with either polarization.

shown in illustration B). The Quad loop, moreover, can be vertically or horizontally polarized depending upon where the feedpoint is chosen. For vertical polarization, the loop is fed at either A or C. For horizontal polarization, the loop is fed at B. Additional loops are commonly used as parasitic reflectors and directors and require no feed point. Since they have no feedpoint, but are just a continuous loop of wire, they "don't know" the polarization of the driven element and work equally well with either polarization—but I am getting ahead of the story.

The Most Popular Quad Beam

The most popular Quad design is the two element Quad, which has a driven loop antenna, plus a second loop which acts as a reflector element (Figure 3). The two element Quad provides a power gain of about 7 decibels over a dipole, or about 8.8 decibels gain over a ground plane antenna. This is a very impressive gain in signal strength! As the boys in the back room say, "It's like taking your socks off when you wash your feet".

The two element Quad is quite small, the side dimension being only slightly over 9 feet, with a spacing of 6 to 8 feet between the elements

(continued)

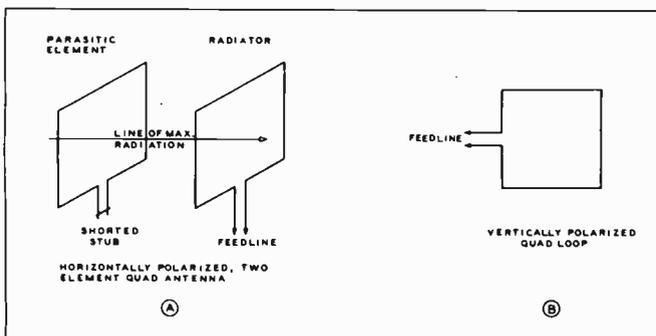


Fig. 3—The two element Quad is formed from two vertical loops placed as shown in illustration A. The loop serving as a reflector either has a shorted stub to allow adjustment of the wire length or is pre-cut larger in size than the radiator (driven element). If the driven element is fed at the middle of one side, the Quad is vertically polarized. Maximum radiation is in a line perpendicular to the plane of the loops and through the driven element.

Which of these three Traffic Radar Detectors is best for you?

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Complete dimensions for a two element Quad that will cover all 40 CB channels are given in Figure 4.

This simple Quad beam can be fed directly at the side of the driven element loop by means of a 50 ohm coaxial line, such as RG-58/U. The center conductor of the line is connected to the top wire of the loop and the outer conductor is connected to the opposite wire at points A-B, as shown in the illustration. Directivity is at right angles to the plane of the loops and through the driven loop, as indicated. The SWR on the transmission line for this Quad design will run about 1.2-to-1 at the center of the CB range (about channel 20) and about 1.8-to-1 on channels 1 and 40. That's not bad for a simple antenna that really provides a signal wallop!

A Three Element Quad?

It would seem logical to add a director element to the two element design to make a three element Quad. Unfortunately, while theoretically possible, it is mechanically difficult to build and erect as the center element interferes with the support and rotating mechanism of the array. It is much more practical to jump to four elements, as they are arranged symmetrically on each side of the support structure of the antenna, as shown in Figure 5.

The Four Element "Monster" Quad

The four element Quad is the antenna causing the most excitement on CB radio. It is composed of a driven loop, a reflector and two director elements. This Monster Quad provides over 13 decibels power gain compared to a ground plane antenna, and is

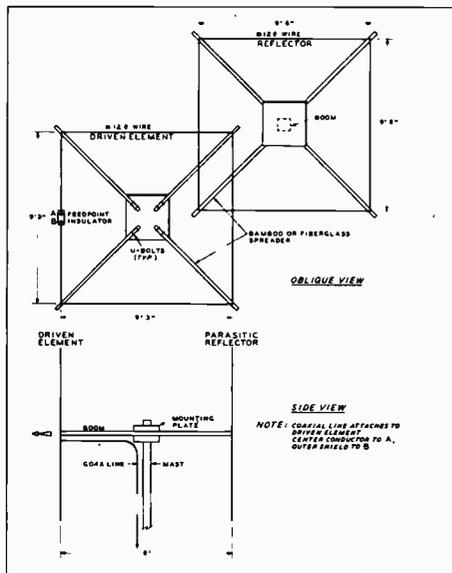


Fig. 4—The two element CB Quad. Oblique view shows placement of elements. Driven element is fed at points A-B with a 50 ohm coaxial line (RG-58/U). Center conductor of line is attached to A and shield of line to B. Coat joint with RTV compound ("bathroom caulk") to make it waterproof. Side view of Quad (below) shows elements mounted on wood boom. Element spacing may be reduced from eight feet to six feet to save space, with no ill effect on antenna. Coaxial line is taped to mast and boom to keep it out of the way.

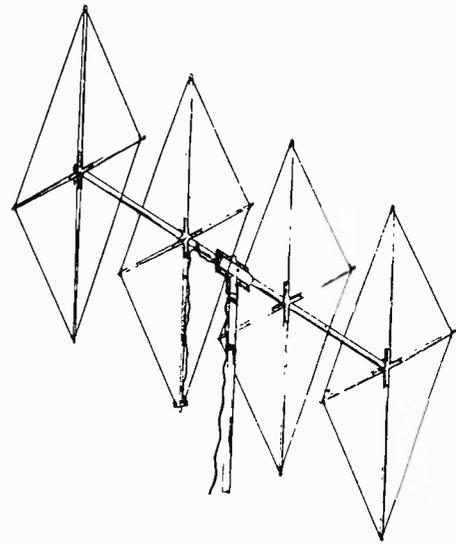


Fig. 5—The four element "Monster" Quad, King of CB antennas. The four element Quad provides the highest gain per unit of size of any equivalent antenna. Either diamond or square configuration may be used and the Quad can be either horizontally polarized (as shown) or vertically polarized as discussed in the text. This Quad is constructed on a 16 foot boom made of aluminum tubing. The element crossarms are fiberglass. The reflector is at the left, with the two director elements at the right. The driven element is fed with a coaxial line. Directivity of the antenna is to the right.

about the largest practical beam antenna for CB use. For those CBers who have the time and patience to erect this excellent antenna—and who have the space—it will provide superior results for transmitting and will make the 5 watt CB station sound like it is using 100 watts! Best of all, the gain is available on receiving as well as transmitting and it will give your CB receiver the ears of an Iriquoise Indian scouting party!

As mentioned earlier, the Quad antenna can be either vertically or horizontally polarized by proper placement of the feedline on the driven loop. The Quad shown in Figure 5 is horizontally polarized, as the feed point is at the bottom of the diamond. If the feedpoint were at one side (it doesn't matter which side), the array is vertically polarized. All this is summed up in Figure 6. Regardless of the polarization, the parasitic loops remain the same.

Your Choice of Polarization

It doesn't take a genius to realize that the Quad beam may be switched back and forth from horizontal to vertical polarization by using two loops for the driven element and switching back and forth between them with a relay mounted at the antenna. As the reflector and director elements "don't know" the polarization impressed upon them, no switching is required for the parasitic elements. Some exotic designs eliminate the switchover relay and use a tricky phasing harness that permits both horizontal and vertical polarization to be achieved at the same time, and with the use of only one driven loop.

The Beam Pattern of the Quad

Generally speaking, the beam pattern of the Quad resembles that of the Yagi beam, although—element

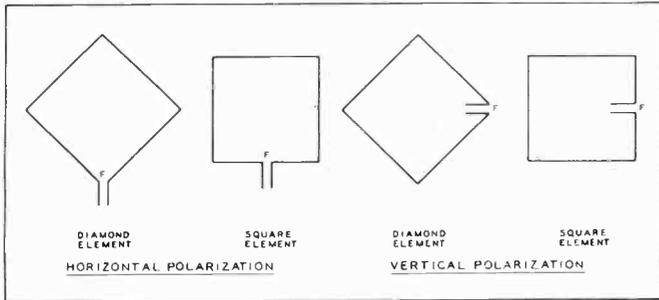


Fig. 6—Horizontal or vertical polarization of Quad antenna is determined by placement of feedpoint (F). Parasitic elements remain the same regardless of polarization of driven element. Most CB antennas are vertically polarized, although some CBers use horizontal polarization because it reduces interference from vertically polarized signals.

for element—the pattern of the Quad is “tighter” (narrower) than that of a Yagi. A Monster Quad must be aimed quite accurately, as the beam pattern is very sharp.

Quad Construction

Quad construction is quite different from that of the Yagi antenna. The most popular arrangement is to make a cross-type framework that supports the wire loops. The framework is often made of bamboo poles, or of the more expensive, durable *Fiberglass* poles. (Old pole-vaulting poles make excellent Quad crossarms).

Some manufacturers make the Quad crossarm structure of aluminum tubing. When this is done, the structure should be broked by insulators at various points to prevent it from acting as an antenna itself and distorting the gain pattern of the Quad. The supporting boom of the Quad is generally made of aluminum tubing, and special support fixtures are available which permit the insulating arms to be affixed to the metal boom, as shown in Figure 5.

Before you—dear reader—bombard me with letters asking who sells Quad kits, I'll tell you right now: I don't know. Quad manufacturers pop up and disappear with lightning-like rapidity and you'll just have to watch the pages of S-9. (Hint: some of the ham magazines such as CQ and QST often run advertisements for Quad antennas).

Let's Build a Demi-Quad Antenna

For starters, how about cutting your teeth on a demi-Quad antenna (Figure 7)? This is a compact and inexpensive antenna that may be supported by a single pole. In effect, it is the driven loop for a larger Quad array. As shown, the antenna is vertically polarized, with the feedpoint at A-B.

This little antenna is bidirectional (figure-8 pattern in and out of the page) and provides about 3.5 decibels gain over a ground plane. This is a lot of gain for such a simple antenna. It requires only a half-turn for complete coverage and is light enough to be supported by a TV rotator. (continued)

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Demi-Quad Assembly

The complete antenna is shown in Figure 7. A light bamboo frame supports the wire loop in the vertical plane. Each side of the loop is about a quarter-wavelength long—9 feet, three inches, to be exact. The loop is broken at one side for the transmission line.

The framework for the little antenna is assembled from four lengths of bamboo pole attached at their large ends to a plywood center plate by means of galvanized iron U-bolts. Each pole should be given a good coat of spar varnish to protect it from the weather. Instead of bamboo, some experimenters have used PVC water pipe (plastic) with some success. The bamboo poles should be wrapped with electrical tape between the joints to help retard splitting.

Small holes are drilled near the tips of the poles to pass the antenna wire which is threaded through the poles after assembly of the framework. Each end of the wire is cleaned and the ends are passed through the holes of the side insulator, wrapped back upon themselves and soldered. Enough tension may be imparted to the wire to keep it taut by loosening the center U-bolts and spreading the butt ends of the poles.

Cut the center plate out of 1/2-inch plywood and give it several coats of outside house paint so that water will not attack the edges. Drill the plate for the U-bolts (before painting) and temporarily as-

semble the poles to the plate. Mark the center of the plate and measure out 6'6 1/2" on each arm from the center point. This is where you'll drill a hole in each arm to pass the antenna wire. Use #16 enamel covered copper wire, stretch it out to get rid of the kinks,

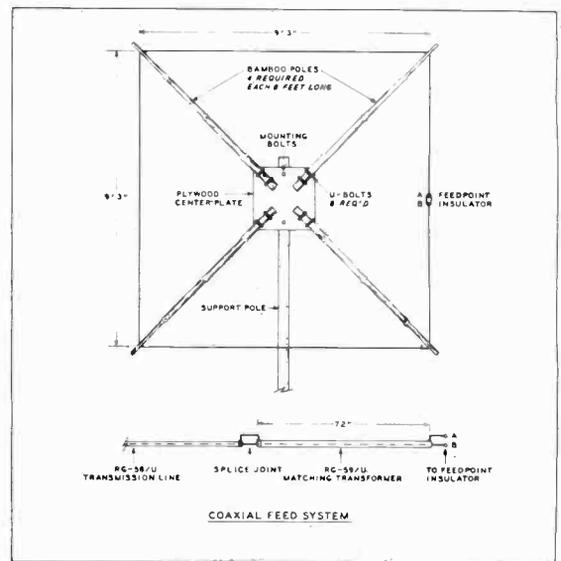


Fig. 7—Want to build a simple Quad antenna? Cut your teeth on the Demi-Quad, shown here. A single loop, the demi-Quad provides worthwhile gain and is easy to build and get working. Note that a six-foot section of 75 ohm coaxial line (RG-59/U) is used as a matching transformer between the transmission line and the antenna. Line is brought up support pole (which may be wood or metal) and then over to the feedpoint insulator, as discussed in the text.

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and attach it at the marks before you drill the holes. Use string and tape. If it seems loose, you may have to move the holes out on the arms a bit. When you have found the correct points, drill each hole carefully and feed the wire through the holes.

The Feedline

The feedline consists of a 50 ohm coaxial line (RG-58/U) long enough to reach from the CB gear to the antenna center plate. At the plate is a splice joint and a 72-inch length of 75 ohm coaxial line (RG-59/U) runs to the antenna. This short section of line serves as a matching transformer which lowers the SWR on your transmission line. The length of the RG-59/U line is critical only within an inch or two. The easiest and best way to make the splice is to place UG-88/U coaxial connectors on each line and then connect them together with a UG-914/U splice. (The corresponding *Amphenol* numbers for these gadgets are 31-002 and 31-219 respectively). Wrap the splice joint with a layer of vinyl tape to make it waterproof.

The free end of the 75 ohm line is now attached to the center insulator of the antenna. The line should be supported from the center pole so that the weight does not pull at the antenna wire. Extra line length is coiled up at the splice in a roll about 10 inches in diameter.

The center conductor of the 75 ohm coaxial line is

soldered to the top side of the antenna loop and the outer conductor pig-tail to the other end of the loop. The pig-tail should take the strain if the line is pulled. When connections are complete, the end of the line and the exposed pig-tail should be covered with water from entering the coaxial line under the jacket. with RTV compound ("bathroom caulk") to prevent

Antenna Installation

A wood support pole or section of metal TV mast serves as the support for the Demi-Quad. You can use a TV rotor or turn the antenna by hand (the "Armstrong" method). If you measure the SWR on the line near the transmitter, you'll find it will probably run between 1.3-to-1 and 1.7-to-1 across the 40 channels. The flat surface of the loop is aimed in the direction you wish to receive or transmit.

Play around with this simple antenna for a while and see how you like it. And then perhaps you'll be interested in building a bigger Quad. Stay tuned in!

More Quad Information?

For those readers who want more information on theory, design and construction of the Quad antenna, the following handbooks are recommended:

"All About Cubical Quad Antennas" (Price \$4.95)

"The Truth About CB Antennas" (Price \$5.95)

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S9 LAB REPORTS

The equipments shown here were put through their paces by Larry Friedman. Included along the battery of test gear employed is a B&K #2040 Signal Generator. Bird wattmeters. Tektronix RF spectrum analyzer, several regulated power supplies, and DB meters. Equipments selected for testing and review

have unusual features, features which might be of high interest to a specific CB communications need, or overall performance of unusually high quality. Manufacturers wishing to submit transceivers and other equipment for testing and review in this column should contact the Editor.

• PRESIDENT WASHINGTON

Description: A 40 channel AM/SSB transceiver for mobile, base, and P.A. operation. Requires a power source of 12 to 13.8 VDC with negative or positive ground and 120 VAC. Overall dimensions are 13 $\frac{3}{8}$ -in. wide x 5 $\frac{1}{2}$ -in. high x 12 $\frac{1}{8}$ -in. deep.

Features include double conversion, a remote speaker jack, a P.A. speaker jack, S/RF/SWR meter, RF gain, Mike gain, L.E.D. digital channel indicator, front panel headphone jack, and clarifier.



There are front panel controls and switches for: Channel selection, volume, squelch, Mike gain, RF gain, AM/USB/LSB mode, clarifier, and PA/CB.

Standard equipment includes a microphone, mobile mounting brackets, a DC power cable, and an AC power cord.

Receiver Test:

AM input sensitivity0.45 μ V
 Adjacent channel rejection61 dB
 SSB opposite sideband rejection 44 dB
 AGC action12 dB
 Input level for S9 meter reading 18 μ V
 Clarifier range \pm 1.25 KHz

Transmitter Test:

AM RF output into 50 ohms 3.7 watts
 SSB RF output into
 50 ohms12 watts P.E.P.
 85% modulation sensitivity
 (0 dB is average)+11 dB
 Modulation limited to 100%yes

Editorial Comments: Relatively large front facing speaker provides excellent received signal clarity.

• MIDLAND 77-882

Description: A 40 channel AM transceiver for mobile, and P.A. operation. Requires a power source of 12 to 13.8 VDC with negative or positive ground. Overall dimensions are 6 $\frac{3}{8}$ -in. wide x 2 $\frac{1}{4}$ -in. high x 7 $\frac{7}{8}$ -in. deep.

Features include double conversion, a remote speaker jack, a P.A. speaker jack, Delta tuning, CB feed through PA speaker, and S/RF meter.

There are front panel controls and switches for: Channel selection, volume, squelch/PA, noise blanker, ANL, and CB monitoring through PA speaker.



Standard equipment includes a microphone, mobile mounting bracket and a DC power cable.

Receiver Test:

AM input sensitivity0.6 μ V
 Adjacent channel rejection62 dB
 AGC action9 dB
 Input level for S9 meter reading 70 μ V
 Delta tuning range+1/-1.5 KHz

Transmitter Test:

AM RF output into 50 ohms .3.9 watts
 85% modulation sensitivity
 (0 dB is average)+16 dB
 Modulation limited to 100%yes

Editorial Comments: Front panel indicator shows when there is a serious antenna mismatch.

GENERAL ELECTRIC 3-5871

Description: A 40 channel AM transceiver for mobile, base, and P.A. operation. Requires a power source of 12 to 13.8 VDC with negative or

positive ground and 120 VAC. Overall dimensions are 11 $\frac{3}{8}$ -in. wide x 4 $\frac{1}{4}$ -in. high x 9 $\frac{5}{8}$ -in. deep.

Features include double conversion, a remote speaker jack, a P.A. speaker jack, S/RF meter, L.E.D. digital channel indicator, delta tuning, tone control, and a front panel headphone jack.

There are front panel controls and switches for: Channel selection, volume, squelch/tone, ANL, delta tune, and PA/CB.

Standard equipment includes a microphone, mobile mounting bracket, a DC power cable, and an AC power cord.



Receiver Test:

AM input sensitivity0.45 μ V
 Adjacent channel rejection64 dB
 SSB opposite sideband rejection 00 dB
 AGC action 8 dB
 Input level for S9
 meter reading100 μ V
 Delta tuning
 range+600/-1800 KHz

Transmitter Test:

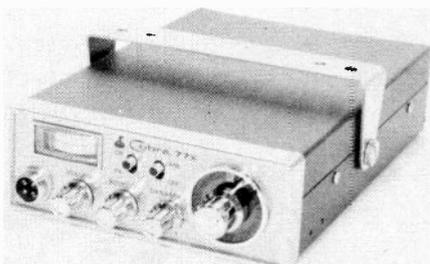
AM RF output into 50 ohms 3.7 watts
 SSB RF output into
 50 ohms00 watts P.E.P.
 85% modulation sensitivity
 (0 dB is average)+16 dB
 Modulation limited to 100% yes

Editorial Comments: The front facing speaker produces unusually clear reception.

• **COBRA 77X**

Description: A 40 channel AM transceiver for mobile, and P.A. operation. Requires a power source of 12 to 13.8 VDC with negative or positive ground. Overall dimensions are 5 $\frac{7}{8}$ -in. wide x 2 $\frac{1}{4}$ -in. high x 8 $\frac{1}{2}$ -in. deep.

Features include double conversion, a remote speaker jack, a P.A. speaker



jack, Dynamike (modulation and PA volume control), and S/RF meter.

There are front panel controls and switches for: Channel selection, volume, squelch, Dynamike, PA/CB, and ANL.

Standard equipment includes a microphone, mobile mounting bracket and a DC power cable.

Receiver Test:

AM input sensitivity0.5 μ V
 Adjacent channel rejection 64 dB
 AGC action 10 dB

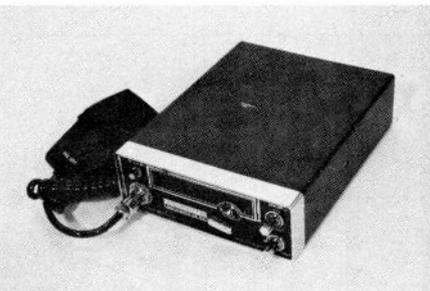
Transmitter Test:

AM RF output into 50 ohms 3.7 watts
 85% modulation sensitivity
 (0 dB is average)+6 dB
 Modulation limited to 100%yes

Editorial Comments: This transceiver features an S-meter calibration of 6 dB per S-unit. The dynamike functions as a power mike, and must be adjusted for 100% modulation using an external modulation indicator.

• **RAY JEFFERSON CB-740**

Description: A 40 channel AM transceiver for mobile, and P.A. operation. Requires a power source of 12 to 13.8 VDC with negative or positive ground.



Overall dimensions are 6 $\frac{1}{4}$ -in. wide x 2 $\frac{1}{4}$ -in. high x 8 $\frac{5}{8}$ -in. deep.

Features include double conversion, a remote speaker jack, a P.A. speaker jack, and an S/RF meter.

There are front panel controls and switches for: Channel selection, volume, squelch, and PA/CB.

Standard equipment includes a microphone, mobile mounting bracket and a DC power cable.

Receiver Test:

AM input sensitivity 0.3 μ V
 Adjacent channel rejection 62 dB
 AGC action 5 dB
 Input level for S9 meter reading 150 μ V

Transmitter Test:

AM RF output into 50 ohms 3.9 watts
 85% modulation sensitivity
 (0 dB is average) +11 dB
 Modulation limited to 100% yes

Editorial Comments: This rig features unusually high speech compression. Even a very low voice level will fully modulate this rig.

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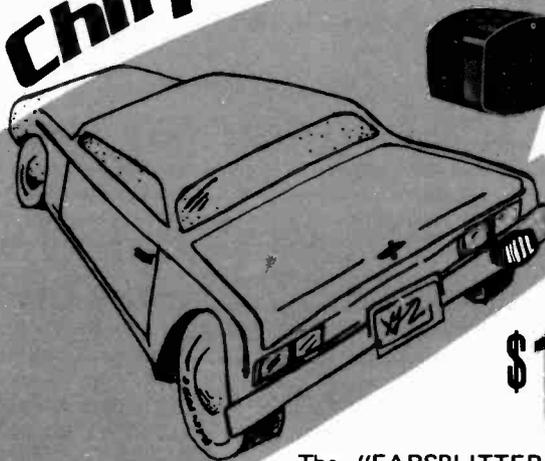
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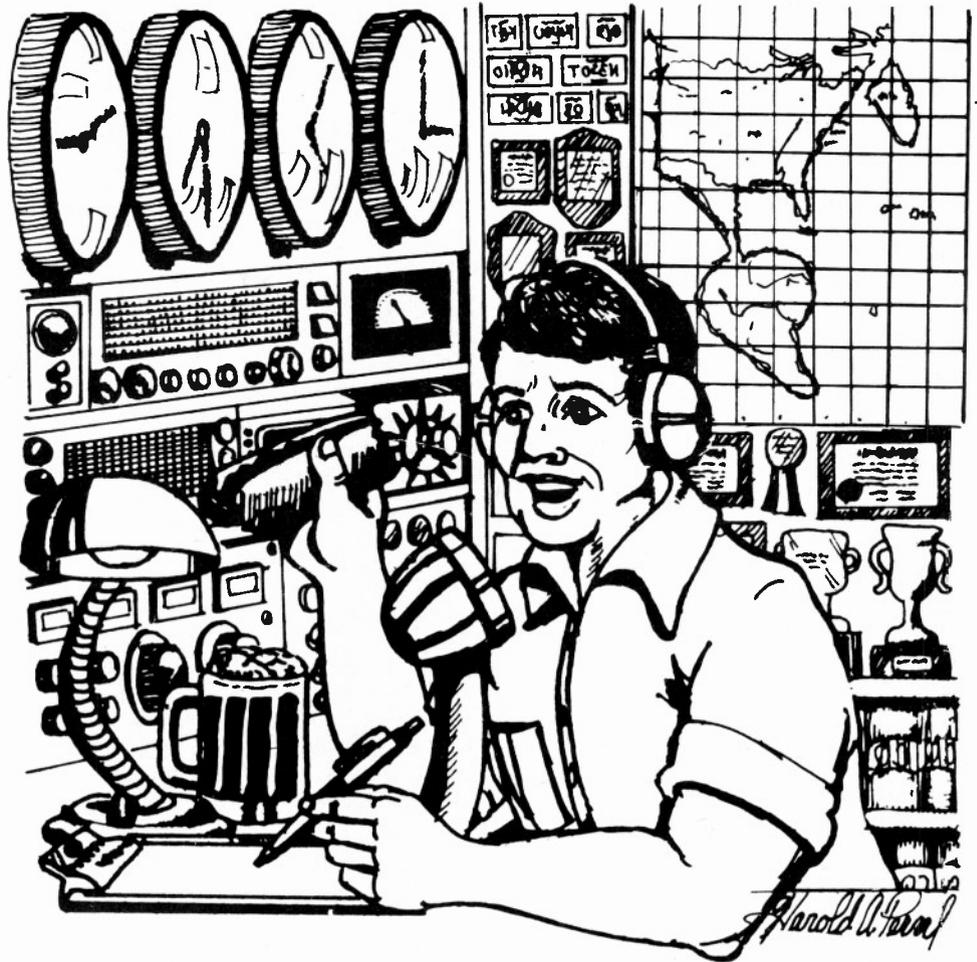
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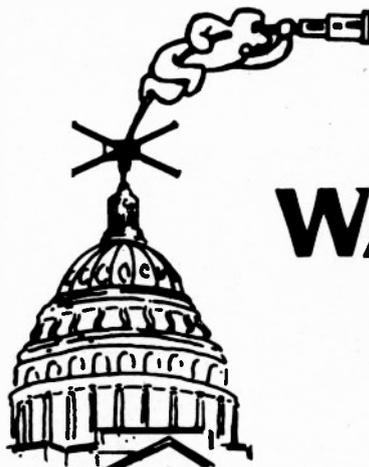
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WASHINGTON OUTLOOK

U.S. INDICTS MAN IN SALES OF ILLLEGAL CB LINEARS

A Federal grand jury in Los Angeles has returned a two-count indictment against a radio store owner on charges of illegally selling radio frequency power amplifiers for use with Citizens Band transmitters.

The indictment was announced by United States Attorney William D. Keller. It involved Il Young Park, 43, owner of Park's Radio Company, 12408 Santa Monica Boulevard, Los Angeles. If convicted, Park would be subject to a maximum penalty on each count of a \$10,000 fine and a year in prison, or both.

Douglas W. Lofgren, Assistant United States Attorney who presented the case to the grand jury, said this was one of the first such indictments in the country to be returned against a seller of such illegal amplifiers.

Federal law limits the power output of CB transmitters to 4 watts, and makes it unlawful for anyone to sell an amplifier that would increase the power beyond that limit.

Lofgren said the case resulted from a continuing investigation by the Federal Communications Commission into the use and sale of illegal CB amplifiers. These amplifiers interfere with television and radio reception, stereo and telephone equipment and other CB users.

FCC ALERTS CB'ERS ON CORRECTING NAMES AND ADDRESSES

The FCC alerted Citizens Band operators to the proper procedure in notifying the Commission of a change of name, address or station location.

The Commission pointed out that attached to each CB license is a name correction/change of address card, FCC Form 555-A. It said CB'ers should use this form only to inform the FCC of changes.

At present, the Commission said, many CB'ers are returning the cards to the FCC without indicating any of these changes. Processing and han-

dling these cards puts an unnecessary burden on the Commission staff, which already is dealing with record numbers of CB applications, the FCC said.

The Commission emphasized to CB'ers:

DO NOT return the name correction/change of address card unless you are notifying the FCC of a specific change of name, address or station location.

FCC ISSUES RECORD NUMBER OF CB LICENSES

The FCC announced today it had issued 678,330 Citizens Band licenses in February—the highest in any month in CB history.

The upsurge boosted the total of licensed CB'ers to 8,818,815.

Indicative of the continuing high interest in CB, the FCC said it received 504,486 license applications in February.

PETITION TO WAIVE MARKETING DATE FOR HAND-HELD CB TRANSCEIVERS

The Commission has received a petition to waive the cut off date for marketing of hand-held CB transceivers. The petition was filed by Radio Shack and asks the Commission for relief by extending the cut off date for marketing of these CB units from January 1, 1978 to May 1, 1978.

Radio Shack alleges that it has an unspecified inventory of hand-held CB transceivers. These units can be disposed of prior to January 1, 1978 as required by present FCC regulations only at a loss. To avoid such an economic loss Radio Shack requests the Commission to waive Sections 15.59 (g) and 95.641(c)(6) and permit Radio Shack to market these units.

ALBUQUERQUE, N.M. CB CASE DENIED

The Commission has denied the Safety and Special Radio Services Bureau application for review of the FCC Review Board's decision released last

November 11 dismissing an order to show cause why the license of John K. Mollert of Albuquerque, N.M., for Citizens radio station KGX-9897 should not be revoked.

The show cause order, released July 23, 1975, charged Mollert with various violations of FCC rules including Section 95.95(c)—failure to identify his station and the station he communicated with—and 95.41(d)(2)—operating on a frequency (Channel 21) not authorized for communications between units of different Citizens stations. Mollert also was charged with failing to make his station available for inspection by authorized FCC personnel in willful violation of Section 95.103 of the rules and Section 303(n) of the Communications Act.

In an initial decision released June 10, 1976, FCC Administrative Law Judge Joseph Stirmer dismissed the show cause order. While finding that Mollert had violated the rules and the Act as charged, Judge Stirmer concluded that Mollert's conduct was not sufficiently flagrant to justify revocation of his license.

The Commission's Safety and Special Radio Services Bureau appealed the judge's decision.

The Review Board, after reviewing the initial decision and all other matters of record, agreed with Judge Stirmer's decision not to revoke Mollert's license. It said it was satisfied that the judge's findings adequately and fairly reflected the evidence of record.

The Board said it did not believe that permitting Mollert to continue as a Commission licensee would in any way adversely affect the Commission's continuing need and ability to enforce its rules governing the citizens service.

While it did not condone Mollert's behavior, the Board said that in light of mitigating circumstances, the public interest did not require revocation of license because it believed Mollert could be relied on to operate his CB radio in full compliance with the rules.

HELP!

With CB application receipts of nearly 1 million for the month of January, the FCC is asking applicants to:

- Mail CB applications only to this address:
Federal Communications Commission
Gettysburg, Pa 17326
- DO NOT SEND ANY MONEY! Filing fees are no longer required.
- If you are under 18 years of age, do not submit an application. Only persons 18 years of age or older are eligible to hold a license.
- Carefully read the instructions on the application form 505 and complete all appropriate items.

- Sign and date the application. If all applicants follow the above, delays in issuing licenses will be eliminated.

REVIEW GRANTED IN ANCHORAGE, ALASKA CASE

The Commission has granted its Safety and Special Radio Services Bureau's application for review of a Review Board decision that revoked the license of Terrance R. Noonan, Anchorage, Alaska, for citizens band radio station KFV-7748, but refused to issue a cease and desist order against him.

By order released February 28, 1975, the Safety and Special Radio Services Bureau directed Noonan to show cause why his license should not be revoked for numerous violations of the Commission's rules and the Communications Act and to show cause why he should not be ordered to cease and desist from further violations.

In an initial decision released November 7, 1975, FCC Administrative Law Judge Arthur A. Gladstone revoked Noonan's license and ordered him to cease and desist from further violations.

Noonan appealed the judge's decision to the Review Board, which said it was "satisfied that the judge reached a proper resolution of this matter in revoking Noonan's license." Noonan did not seek review of that determination and subsequently submitted his license to the Commission for cancellation.

The Board refused, however, to issue a cease and desist order. It stated that it did not believe issuance of a cease and desist order directed to future operation without a license in violation of Section 301 of the Communications Act of 1934, as amended, was authorized under Section 312(b) of the Act.

The Board said it theoretically could issue a cease and desist order with respect to the rule violations, but if Noonan's license were revoked and he continued to operate, the problem of continuing rule violations by a person who has no license was not a real one. The real problem, the Board said, would be the illegal operation without a license (which could not be remedied by adherence to the operating rules). The Board added that since it could not issue a cease and desist order to enjoin anticipated operation without a license, it made little sense to enjoin continued violations of the rules alone.

In appealing this Review Board action, the Safety and Special Radio Services Bureau contended that the cease and desist order issued by the judge

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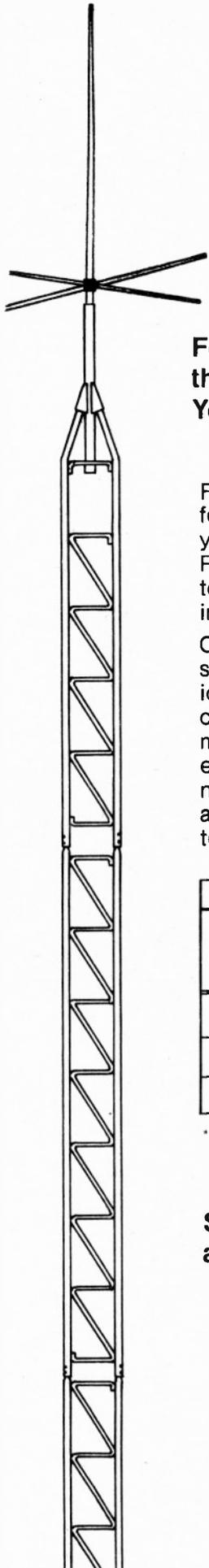
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Self-Supporting Height of Towers*																
Tower Model	Wind Load = 20 psf								Wind Load = 30 psf							
	No Ice				½" Ice				No Ice				½" Ice			
	Antenna Area, ft ²								Antenna Area, ft ²							
	0	2	5	10	0	2	5	10	0	2	5	10	0	2	5	10
20	39.1	31.9	23.8	15.8	26.1	22.7	18.6	13.7	32.0	24.9	17.6	11.1	21.3	18.0	14.1	9.9
25	44.7	37.6	29.4	20.4	29.8	26.5	22.3	17.1	36.6	29.5	21.9	14.4	24.4	21.1	17.2	12.5
45	56.8	50.4	42.3	32.2	37.9	35.0	31.1	25.7	46.4	40.1	32.4	23.6	31.0	28.1	24.3	19.3

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was directed not merely to operation without a license but also to continued future violations of the rules that were the basis of the revocation. It argued the Board's interpretation of the Communications Act to preclude imposition of these sanctions concurrently was erroneous.

Thus, the question posed by the application for review was whether the FCC has authority to issue a show cause order that contemplates the possibility that a cease and desist order may be issued with an order of revocation based on the same conduct that compelled revocation.

The Commission said the issue raised by the Bureau was an important one of law and policy not previously addressed by the Commission and one that ought to be resolved.

The Commission noted that at the time the Bureau issued the show cause order, the judge issued revocation and cease and desist orders, and the Board issued a revocation order but refused to issue a cease and desist order. Noonan was a Commission licensee. The FCC said if it determines that it has the authority to invoke both sanctions for the same misconduct, it could also determine whether Noonan should now be subjected to a cease and desist order on the basis of the existing order to show cause.

Thus, it concluded, although Noonan has not submitted pleadings in response to the application for review and is no longer a licensee, he is still at least in theory a party in interest to this proceeding and therefore should have the opportunity to file a brief.

It said the Bureau and Noonan would have 30 days to file briefs on the question and an additional 10 days to file reply briefs.

CB LICENSEE TO OPERATE BY REMOTE CONTROL

The FCC has granted Beacon Marine Corporation, Cape Canaveral, Fla., special conditional authority to permit operation of Citizens Band transmitting equipment by wireline remote control link in connection with the operation of its CB station, KFY-7372, in the Personal Radio Service.

At the same time, the FCC notified the U.S. Coast Guard of this action.

Beacon Marine is a commercial business corporation engaged in the sales and service of radio and electronic equipment.

In seeking special authority, Beacon Marine indicated that the remotely controlled transmitter would be used only in connection with the transmission of public service messages relating to emergency activities, such as the relaying of emergency weather conditions and locating lost boats, etc.

It stated that it would not be used for transmitting communications in connection with Beacon Marine's regular commercial business activities.

(Part 95 of the rules prohibits operation of a CB station by remote control "except remote control by wire upon specific authorization by the Commission when satisfactory need is shown.")

Finding that Beacon Marine has made a satisfactory showing of need, the Commission granted its request subject to several conditions, including:

- An authorized control operator must be on duty at the control point during periods when the remotely controlled transmitter is in operation.
- The control point must have adequate means to aurally monitor all transmissions and to render the transmitter inoperative should improper operation occur.
- The remotely controlled transmitters must be protected adequately against access by unauthorized persons and against unauthorized station operation, either through activation of the wireline control link or otherwise.
- When operated in the wireline remote control mode, the station may not be used in connection with the regular commercial business activities of the licensee.
- The station may be used to transmit public service messages relating to any type of emergency situations (including maritime) involving the immediate safety of life or protection of property.

In addition, the Commission directed Beacon Marine to provide semi-annual public notice to all maritime users within its service area, inviting attention to its non-association with the U.S. Coast Guard's recommended maritime safety communications system. The FCC also required the licensee to submit a written annual report detailing the operation, the steps taken to meet the conditions of this authorization and any problems encountered.

SHOW CAUSE NOTICES

Houston, Tex., Charles W. Hobley, KWG-0923. Ordered to show cause why the license should not be revoked for willful violation of various sections of Part 95 of the rules including Section 95.103 by refusing to make his station available for inspection by Commission personnel after such personnel properly identified themselves and requested permission to inspect his station.

North Miami, Fla., Joseph E. Flynn, KCH-8938. Ordered the licensee to show cause why the license should

not be revoked for willful violation of various sections of Part 95 of the rules including Section 95.95(c) by operating without being identified by its assigned call sign at the beginning and conclusion of each transmission or series of transmissions.

The Commission ordered the following licensees to show cause why their licenses should not be revoked for violation of Section 308(b) of the Communications Act of 1934 by failing to respond to official communications:

- Lewistown, Ill., Dennis L. Smith, KPM-8487.**
- Midlothian, Ill., James G. Umgelder, KIX-2636.**
- Middlesboro, Ky., Danny R. Smith, KYM-6897.**
- Pittsburgh, Pa., James R. Carey, KSN-0242.**
- Corpus Christi, Tex., Ronald G. Winston, KSA-0837.**
- Granger, Utah, Norman E. Middleton, KWK-3803.**

The Commission 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:

- East Boston, Mass., Maryann R. Scuturio, KADM-4885.**
- Fort Lauderdale, Fla., Donald G. Everett, KADJ-9320.**
- Toa Alta, P.R., Jose A. Molina Torres, KACC-0594.**
- Dade City, Fla., Oscar W. Richardson, JKV-5199.**
- Alexandria, Va., Raymond J. Reppert, KEV-7899.**
- Olympia, Wash., Clyde H. Parsons, KBO-7748.**
- Renton, Wash., Franklin M. McTee, KFN-1413.**

The Commission ordered the following licensees to show cause why their licenses should not be revoked for violation of Section 308(b) of the Communications Act of 1934 by failing to respond to official communications.

- Beverly Hills, Calif., Terry H. Allen, KHV-9404.**
- Santa Ana, Calif., Claddis Tripp, KNQ-6429.**
- Washington, D.C., Thomas D. Taylor, KJX-7787.**
- Cape Canaveral, Fla., Joseph J. Tripp, KJK-8973.**
- Muskogee, Okla., Lavern Ray Trussel, 'OG-0253.**
- Oklahoma City, Okla., Dennis A. George, KYF-5352.**
- Dyersburg, Tenn., Charles L. Bush, KIQ-8804.**

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Memphis, Tenn., Raymond L. Maharey, KSH-3363.

San Antonio, Tex., San Antonio Detective and Security Agency, KJR-5849.

REVOKED

Anchorage, Alaska, Gary P. Fisher, KIY-7267. Ordered that the license be revoked for willful violation of various sections of Part 95 of the rules including Section 95.91(b) by communicating with other radio stations without observing the five-minute silent period between contacts.

Anchorage, Alaska, Randy J. Dennick, KJN-5160. Ordered that the license be revoked for willful violation of various sections of Part 95 of the rules including Section 95.93 which requires that all transmissions for testing purposes shall be identified by the station's call sign.

Huntington Beach, Calif. Michael T. Boucher, KFZ-9793. Ordered that the license be revoked for willful violation of various sections of Part 95 of the rules including Section 95.41(d)(2) which prohibits interstation communications on a frequency reserved for intrastation communications.

Commerce City, Col., G P Steel Erectors, licensee of Citizens radio station KJM-9455. Revoked, for willful violation of various sections of Part 95 of the rules including Section 95.95(c) which requires the operation of a CB radio station to give that station's call sign at the beginning and conclusion of each transmission or series of transmissions.

Bothell, Wash., Phillip S. Shaffer, KFW-0704. Ordered that the license be revoked for willful violation of various sections of Part 95 of the rules including Section 95.95(c) by failing to identify either his or the other station by call sign at the beginning and end of communications.

Baltimore, Md., Ronald L. Taylor, KEU-3708. Ordered that the license be revoked for willful violation of various sections of Part 95 of the rules including Section 95.83(a)(6) which prohibited the transmission of communications which were not directed to specific stations or persons.

Cupertino, Calif., Michael Gitschel, KEU-4528. Ordered that the license be revoked, effective May 11, 1977, for willful violation of various sections of Part 95 of the rules including Section 95.95(c) which required the operator of a CB radio station to give that station's call sign at the beginning and conclusion of each transmission or series of transmissions.

Fort Lauderdale, Fla., Robert M. Bowden, KGK-6215. Ordered that the

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license be revoked for willful violation of various sections of Part 95 of the rules including Section 95.35(a)(1) which required prior Commission approval for an increase in the number of transmitters.

Butler, Wis., Mark Lassanske, licensee of Citizens radio station KJW-7592. Ordered that the license be revoked for willful violation of various sections of Part 95 of the rules including Section 95.95(c) which required CB stations to transmit their Commission-assigned call sign at the beginning and end of each transmission or series of transmissions.

The Commission ordered that the following licenses be revoked, effective May 20, for violation of Section 1.89 of the rules by failing to respond to official communications.

Nome, Alaska, Alaska Cab Company, KEY-7121.

Oakland, Calif., William B. Rivers, KSS-6331.

Ocala, Fla., Robert J. Roberts, KLR-6020.

Blaine, Wash., Joseph A. Colon, KHP-9712.

SENT NOTICES OF APPARENT FINANCIAL LIABILITY

The Commission issued Notices of Apparent Liability to Monetary Forfeiture on various dates 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:

Chicago, Ill., Ramon L. Garcia, \$50, KACG-9519.

Cicero, Illinois

Joseph E. Zavoral, \$50, KJE-5767.

Mary J. Borgioli, \$50, KJE-5779.

Baltimore, Maryland

Edward H. Samuels, \$150, KBX-3686.

Patricia E. Stevenson, \$50, KAFO-6264.

Hayward Lewis, \$50, KQQ-1659.

Charles G. Miller, \$50, KSA-9804.

Alfred Gibson, \$50, licensee of station KRH-6709.

Wichita, Kansas

Robert D. Dewitt, \$50, KFJ-5666.

Michael D. Irvin, \$100, KBU-1195.

Donald B. Smith, \$50, KDS-67204.

Winfield, Kan., Robert F. Ennis, \$50, KADA-8966.

Eagle River, Alaska, Elsie M. Dufour, \$50, KADN-8762.

Lakeport, Calif., Herbert V. Keeling, \$100, KFE-7163.

Lakeport, Calif., Richard E. Scarborough, \$100, KABH-1749.

Berwyn, Ill., Robert J. Hunter, \$50, KADX-9245.

Lincolnwood, Ill., Martin M. Zivin, \$50, KAIA-6671.

Morton Grove, Ill., Richard J. Freedkin, \$50, KRF-60053.

River Forest, Ill., Joyce C. Tasch, \$50, KAIT-1306.

Stone Park, Ill., Lois A. Hanks, \$50, KEC-5973.

Wauwatosa, Wis., Timothy J. Burd, \$50, KEI-2700.

Orlando, Fla., Daniel Hill, \$50, KZL-8136.

New Orleans, La., Alfred R. Taplin, \$50, KJP-5969.

Baltimore, Md., Thomas B. Stevenson, Jr., \$50 KAFO-6253.

Baltimore, Md., Alvin E. Aydtlett, \$50, KGY-8564.

Salisbury, Md., Walter Clifton, \$50, KFX-3589.

Delmar, Md., Benjamin Thomas Vanderwende, Jr., \$50, KXP-3091.

Stafford/Stafford Oaks, Va., Horace S. Goad, \$50, KSG-6016.

Wichita, Kan., Richard B. Gartin, \$50, KJZ-7527.

Frederick, Okla., J. D. Morton, \$50, KLV-1513.

Ringold, Ga., Conley P. Newby, \$50, KSP-6830.

Chattanooga, Tenn.

Donald C. Henley, \$50, KZH-1995.

Charles A. Sparks, \$50, KYA-5089.

Jon M. Hardin, \$50, KACD-4252.

Jerry L. Schrimphser, \$50, KYY-2824.

Newton, Kan., James E. Duncan, \$50, KHW-0734.

Shickley, Neb., Lyle W. Wagers, \$50, KFD-0648.

Anaheim, Calif.

Charles E. Davis, III, \$100, KZI-3741.

James L. Cox, \$100, KXO-9843.

Garden Grove, Calif.

Richard E. Barkelow, \$100, KZB-8015.

Robert W. Black, \$150, KNW-7519.

Richard T. Wagner, \$100, KEO-1290.

Ronald L. Keeling, \$150, KQI-1533.

Edward L. Elliot, Jr., \$150, KNS-4797.

Huntington Beach, Calif., Robert E. Leidner, \$100, KSR-5202.

Lakewood, Calif., Daryl L. Willis, \$100, KDO-2263.

Norwalk, Calif., Ottos Bowling & Trophy Company, \$100 KES-8161.

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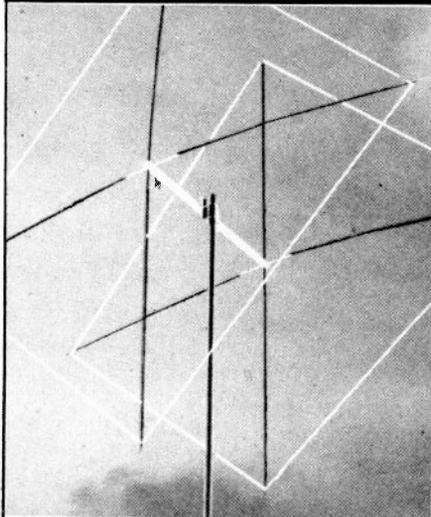
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Shepherd, Tex., Willie S. West, \$50, KZM-6445.

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Lansing, Ill., Louis Dekker, \$50, KAEP-9245.

Hammond, Ind., Johnny M. Cannon, \$50, KTV-5191.

Munster, Ind., Richard J. Podolak, \$150, KCN-5093.

Baltimore, Md., James Porter, \$50, KJP-21215.

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Philadelphia, Pa., Roy M. Barkewich, \$50, KMZ-5870.

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Gerald A. Massuto, \$50, KEC-2320.

West Point, Va., Eddie L. Chamberlain, \$50, KMN-2680.

Arecibo, P.R., Hermogenes Torres, \$50, KQC-0513.

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Hato Rey, P.R., Miguel Rafael Santiago, \$50, KACX-4708.

Albuquerque, N. M., Don Highlander, \$50, KAJR-7527.

Columbus, Ga., Joey M. Herring, \$50, KABN-4608.

Baltimore, Md., Thomas B. Stevenson, Sr., \$50, KAFO-6263.

Arecibo, P.R., Luis G. Valencia, \$50, KAIT-7813.

Florida, Puerto Rico

Juan Jose Arenas-Lusena, \$50, KLM-8525.

Jaime J. Carrero-Rodriguez, \$50, KOU-3678.

Miguel Santiago, \$50, KAHY-9868.

Santa Ana, California

Romeo Fournel, Jr., \$200, KAAR-2182.

Frank R. Liegmann, \$150, KJU-3671.

Tustin, Calif., Joseph W. Armfield, \$100, KACD-5706.

Westminster, California

Carl W. Boliou, \$100, KSW-4186.

Eugene L. Franklin, \$200, KCR-8844.

Chattanooga, Tenn., Don J. Faulkner, \$50, KLI-8921.

DISMISSED, SET ASIDE, ETC.

The Commission, by its Safety and Special Radio Services Bureau dismissed proceedings on cease and desist orders and orders to show cause for the following:

Phoenix, Ariz., Richard Collis, KEL-8183.

Riverview, Mich., Ralph C. Hemmingway, KWD-3137.

Reidsville, N. C., Charles L. Carter, KDX-7407.

Mount Vernon, N.Y., Henry Harris, KDV-9923.

San Antonio, Tex., Richard L. Jacobs, KOT-4188.

Detroit, Mich., Tommie L. Brown, KGR-2672.

Forth Worth, Tex., Don R. Smyth, KEJ-1696.

Waterford, Calif., Richard L. Shepard, licensee of Citizens radio station KHP-9025. Stayed nunc pro tunc Order of Revocation until October 5, 1977, unless set aside or affirmed by subsequent order.

The Commission, by its Safety and Special Radio Services Bureau dismissed proceedings on orders to show cause for the following:

Casselberry, Fla., John M. Klele, KGI-5136.

Kansas City, Kan., Joseph W. Miller, KEN-5077.

Anchorage, Alaska, Joseph F. Berger, Jr., KXQ-1489.

St. Louis, Mo., Dale F. Ullrich, KYT-6668.

Edison, N.J., Fortunato Landscaping, Inc., KAB-0934.

The Commission dismissed proceedings for the following:

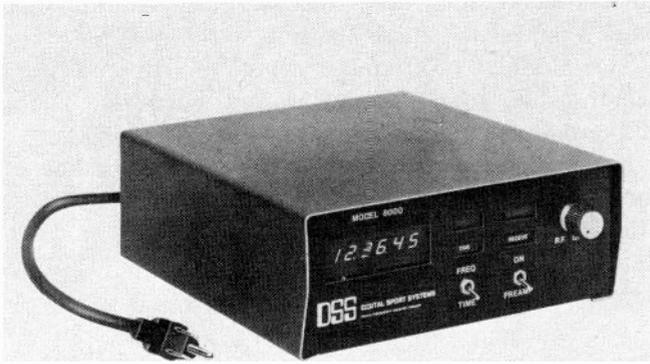
Louisville, Ky., Eugene K. Miller, licensee of Citizens radio station KDZ-1884.

Pittsburgh, Pa., Nicholas D. Farina, KDY-9385.

Mt. Edgecumbe, Ak., Island Taxi Co., Inc., KBK-4690.

ON THE COUNTERS

(continued from page 57)



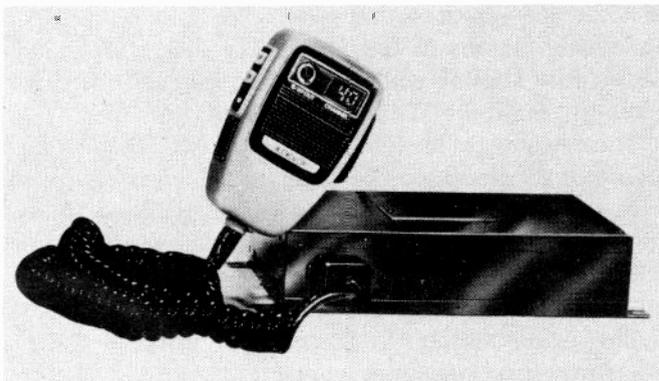
FREQUENCY COUNTER/TIME OF DAY CLOCK/PREAMP

A one-of-a-kind unit, with 3 built-ins, is now available from Digital Sport Systems, West Liberty, Iowa.

Named DSS 8000, this extraordinary system features a 6 digit frequency counter with a range of 2-55MHZ, a time of day clock that reads out to the nearest second in a 12 or 24 hour mode, and a tunable preamp with 0-20 DB Gain and 1-250 watts RF power in. All these great features and in a compact size. 10 x 8 $\frac{1}{4}$ x 3 $\frac{1}{2}$ ".

DSS, an innovator in miniaturized citizen band radio accessories and electronic monitoring equipment, has pioneered several other new products including a 3-in-one unit, digital readout Wattmeter, Frequency Counter, SWR and a new base preamp in two models, one for CB, the other for 2 meter.

For more information, write Digital Sport Systems, P.O. Box 377, West Liberty, Iowa 52776, or mark number H25 on Reader Service Card.



MAJOR CB PROBLEMS SOLVED

Audiovox Corporation, has introduced its 40 channel remote CB transceiver with "full control" microphone. The innovation is a totally new concept in CB equipment which has been designed by Audiovox to solve the cost, space, and theft problems associated with the CB community.

Model MCB-5000 is a 40 channel transceiver which

utilizes existing speakers, features an easily concealed "full control" microphone and a totally out of sight control module. The mike which mounts on the dash and puts virtually all controls, from pushbutton channel selector to scan control switches, into the hand of the user, is designed to be easily disconnected and hidden from view when not being used. The control module, because of its unique size, 8 $\frac{1}{2}$ "w x 1 $\frac{5}{8}$ "h x 5 $\frac{7}{8}$ "d, can be installed behind the dash, under the seat, or in the trunk of the vehicle thereby affording the entire system total security.

The new Audiovox can be easily wired to any existing radio/tape system and with its automatic standby, allows both CB and music to be heard at the user's preference through the already owned speakers. This attribute enables the MCB-5000 to function independently by being plugged into an existing speaker or operate with any radio/tape system (a simple converter permits the unit to function as a base station when attached to a radio/tape system in the home).

Audiovox is offering the owners of car and or home radio/tape systems a chance to add a CB unit that is small in size, small in price, theft resistant and doesn't require the expense of additional speakers. According to Audiovox, "the transceiver will be of great benefit to dealers and distributors as well as users. It will simplify the marketing concept while cutting down dealer and distributor inventory requirements. The numerous variations of CB units (AM/FM multiplex CB, cassette or 8 track) no longer need to be carried to such an extent."

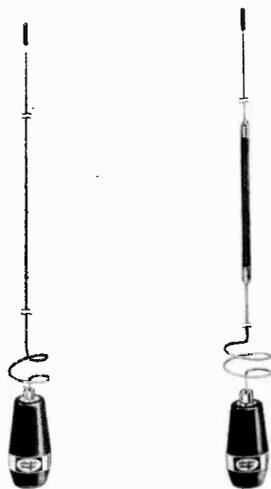
Suggested list price for Audiovox model MCB-5000 and mounting hardware is \$199.95. Trunk mount optional. The unit measures 8 $\frac{1}{2}$ "w x 1 $\frac{5}{8}$ "h x 5 $\frac{7}{8}$ "d.

Mark number H26 on Reader Service Card.

PHELPS DODGE ENTERS CB ANTENNA MARKET

Phelps Dodge Communications Company has entered the CB antenna market with the introduction of a full line of vehicular antennas including a series of matched accessories and hardware for mounting.

The line is designed around base loaded and center loaded models. Disguise and combination antennas will also be available. The Model 45L is a base loaded antenna with an overall length of 49 inches. The Model 35S is a center loaded antenna with an overall length of 36 inches. Both antennas incorporate a number of distinctive design and construction features. At the base, the antenna whip is formed into an integral open helix coil eliminating the need for springs found on conventional antennas. Whips are stainless steel and, in the case of the Model 45L, centerless ground and tapered. Bases are fabricated in two sections, the upper of black Lexan polycarbonate containing the loading coil and joined to a highly polished copper, nickel, chromium plated lower section. This two part base allows quick, half-turn disconnect of the entire



coil and whip section of the antenna from the vehicle to discourage theft. In the case of both models, coils are hermetically sealed. All antennas are furnished complete with 17 feet of factory attached RG-58A/U feedline plus a separate type UHF solderless male connector.

The antenna, mount and all necessary hardware for installation is packaged in transparent, plastic tubes providing high product visibility and attractive graphics. Eyelets are furnished for J-hook mounting.

For further details, write: CB Antennas, Phelps Dodge Communications Company, Route 79, Marlboro, New Jersey 07746, or mark number H22 on Reader Service Card.



MODULAR IN-DASH 40-CHANNEL CB WITH AM/FM/MPX RADIO

Medallion, a Division of Midland International Corporation is introducing the Model 63-030 modular in-dash 40-channel CB with AM/FM/MPX radio.

The Model 63-030 has been approved by the FCC as being in compliance with technical requirements for type acceptance and certification.

To fit space requirements of any vehicle, the modular design of the Model 63-030 puts CB circuitry in a separate "black box" unit that can be located in any convenient location: On firewall, under seat, in trunk.

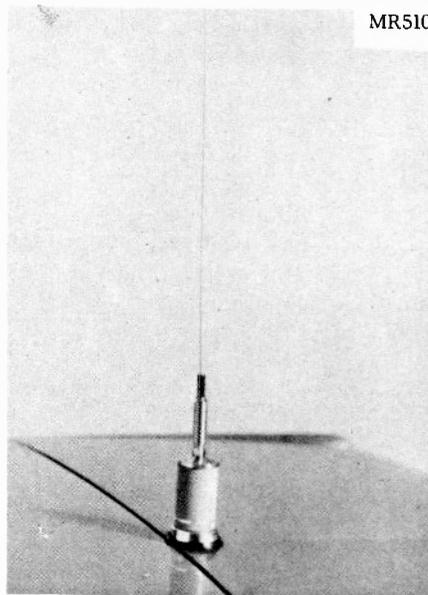
The full-power CB has dual conversion super-heterodyne receiver with built-in automatic noise limiter. Variable squelch control and 2-speed, 2-but-

ton channel changer are located on microphone. Special CB monitor switch.

The high performance AM/FM/MPX radio has 5-pushbutton tuning, local/distance switch, full-range tone, balance and fader controls.

The Model 63-030 comes complete with multiconnector cable, trim plates, GM and Ford-style knobs and installation hardware.

For more information about the Medallion line of car sound products, write to: Medallion Division of Midland International Corporation, P.O. Box 1903, Kansas City, Mo. 64141, or mark number H23 on Reader Service Card.



"BIG MOMMA"

The famous "Big Momma" mobile CB antenna by Antenna Specialists is now available with a new low profile design and exclusive water proof mount for car wash protection. The new 40-channel model, MR510, 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.

The new low profile feature gives the MR510 an added measure of versatility. The antenna, which is equipped with a 17-foot coaxial cable with an attached 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 rooftop mounting.

The manufacturer's suggested list price is \$36.95. For further specifications contact: The Antenna Specialists Co., 12435 Euclid Avenue, Cleveland, Ohio 44106, or mark number H24 on Reader Service Card.

TRAM D12

The Tram D12 is the rugged little 40-channel CB rig that can go anywhere and keep you in touch with the rest of the world. This mini mobile gets the job done equally well in a compact sports car, a mobile home or in the cab of an 18-wheeler.



Features: Compact, takes up very little space. Front microphone receptacle saves mounting space. Anti-theft mounting device included free. Full 40-channel operation. Variable noise limiter. PPL circuitry, Mic gain, PA capability.

Transmitter Specifications:

AM Output Power—(Max. allowed by FCC), Modulation Capability—100%, Harmonic Suppression and Spurious Emissions—Better than FCC requirements, Frequency Response—300 to 4000Hz \pm 6db. General: Channels—40, Frequency Range: 26.965 to 27.405MHz, Frequency Tolerance—0.005%, Operating Temperature Range— -30°C to $+50^{\circ}\text{C}$, Microphone: Dynamic with push-to-talk switch and coiled cord, Supply Voltage—13.8V AC (positive or negative ground). Current Drain—Receive: 1.3A @ maximum audio output, Transmit: Full mod . . . 1.8A, Meter—Illuminated, indicates receiving signal strength and relative power output. Size $2\frac{1}{8}$ " (h) x $5\frac{1}{2}$ " (w) x $6\frac{7}{8}$ " (d). Weight— $2\frac{1}{2}$ pounds.

Receiver Specifications:

Sensitivity—.7uV for 10db (S+N)/N signal mod. 30% @ 1kHz sine wave, AGC—Change in audio output less than 12db from 10uV to 1.0 volt. Squelch—Adjustable. Threshold less than .5uV. Tight more than 200uV. Audio Frequency Response—300 to 3000Hz. Distortion—Less than 10% at 3.0 watts output. Adjacent Channel Rejection—More than 55 db @ .7uV. Intermodulation Distortion—More than 55db, IF Frequency—4.655 MHz, 455kHz, Noise Limiter—Series gate ANL, RF Gain (LOC-DX)—30db gain reduction in LOC position.

Manufactured by Tram/Diamond Corporation, Lower Bay Road, P.O. Box 187, Winnisquam, New Hampshire 03289. Pioneers in CB since 1960.

Mark number H25 on Reader Service Card.

ROTOR OFFERS HIGH ACCURACY & EASY OPERATION

The Cornell-Dubilier communication rotor system, Big Talk™, combines accuracy, ease of operation, quietness, and attractive styling in a deluxe rotor motor, control box package.

The stained wooden cabinet Big Talk control box enables the operator to preset four rotor positions for instant selection with push buttons. The four most used positions can be identified by the snap-off, etched button cover. The settings and identification can be changed at the operator's discretion. (continued)

... Use S9 READER SERVICE.

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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.

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- BLEEDTHROUGH FROM OTHER CHANNELS

PLUS . . .

Fantastic "Private Mode" bonus feature allows you private conversations car to car. Installs in 5 minutes. Requires no power. Connects between any CB set and CB antennas.

Double Mobile CB Power Output LEGALLY! With the GBP-X2M-mobile version of our famous GBP-X2 Booster Power Supply.



GBP-X2M **\$77.77**

- Increases average power twice as much as the best power mike.
- Works with all rigs — 23 channel, 40 channel, AM and sideband.
- TVI filter so extra power won't interfere with TV sets.
- Easy to install in any vehicle.

Send Check, Money Order, Bank Americard or Master Charge Number With Expiration Date. Now in Stock for Immediate Shipment.

Dealers Inquiries Invited.



Glatzer Industries Corp.

268-6 Huguenot Street New Rochelle, N.Y. 10801 (914) 576-2700



Big Talk™
Communications Rotor — Model BT-1

A dial control offers a 360° scale for rotation to "zero in" on a signal from any direction.

Both dial and preset buttons are activated by a Start Button that positions the rotor to the selected direction and automatically shuts off all power. A neon light illuminates when the power is on and the antenna is turning.

The Big Talk rotor is encased in a "Bell" housing of cast aluminum for complete weather protection. The powerful motor, 800 inch-pounds of stall torque, turns heavy antennas even under severe wind and ice conditions. A disc brake holds the antenna securely in a stopped position, and 50 ball bearings help

rotate up to 500 lbs. of balanced weight. The unit can be mounted in-line or tower. It requires ordinary 115 Volt AC, 50/60 Hz current, and weighs 17.5 lbs.

For further information, please contact Mr. Douglas Graham, CORNELL-DUBILIER ELECTRIC CORPORATION, 150 Avenue L, Newark, N.J. 07101, or mark number H26 on Reader Service Card.

CARE AND MAINTENANCE ITEMS FOR ANTENNAS

Two CB antenna care products by GC Electronics should make it easier to protect CB investments.

The Tennacap (18-1080) fits over and protects the base threads when the antenna is removed for car washes or theft prevention. It can also be used to protect antenna connector threads of transceivers. Aluminum cap fits all standard base loaded antennas and will not rust or split like steel or plastic types.

For weatherproofing antenna threads, use a small dab of Tennialube (18-927). Formulated of type Z5 silicone compound, Tennialube will make it easier to remove your CB antenna for car washes or theft prevention. Use of Tennialube will keep threads from rusting and help prevent corrosion.

GC Electronics manufactures Globe transceivers, CB antennas, and a complete line of CB accessories.

GC Electronics, 400 South Wyman, Rockford, Illinois 61101, or mark number H27 on Reader Service Card.

CB SPECIALS—R.F. DRIVERS—R.F. POWER OUTPUTS—FETS

2SC481	1.85	2SC767	15.75	2SC866	5.85	2SC1449-1	1.60	40081	1.50
2SC482	1.75	2SC773	.85	2SC1013	1.50	2SC1475	1.50	40082	3.00
2SC485	1.10	2SC774	1.75	2SC1014	1.50	2SC1678	5.50	2SC608	4.85
2SC502	3.75	2SC775	2.75	2SC1017	1.50	2SC1679	4.75	SK3046	2.15
2SC517	4.75	2SC776	3.00	2SC1018	1.50	2SC1728	2.15	SK3047	3.75
2SC614	3.80	2SC777	4.75	2SC1173	1.25	2SC1760	2.15	SJ2095	3.50
2SC615	3.90	2SC778	3.25	2SC1226A	1.25	2SC1816	5.50	SK3048	3.25
2SC616	4.15	2SC797	2.50	2SC1227	4.50	2SC1908	.70	SK3054	1.25
2SC617	4.25	2SC798	3.10	2SC1239	3.50	2SC1957	1.50		
2SC699	4.75	2SC781	3.00	2SC1243	1.50	2SF8	3.00	2SK19	1.75
2SC710	.70	2SC789	1.00	2SC1306	4.75	HEP-S 3001	3.25	2SK30	1.00
2SC711	.70	2SC796	3.15	2SC1306-1	4.90	2SD235	1.00	2SK33	1.20
2SC735	.70	2SC799	4.25	2SC1307	5.75	MRF9004	3.00		
2SC756	3.00	2SC802	3.75	2SC1307-1	6.00	4004	3.00	3SK40	2.75
2SC765	9.50	2SC803	4.00	2SC1377	5.50	4005	3.00	3SK45	2.75
2SC766	10.15	2SC839	.85	2SC1449	1.30	40080	1.25	3SK49	2.75

JAPANESE TRANSISTORS

2SA52	.60	2SB187	.60	2SC458	.70	2SC815	.75	2SC1569	1.25
2SA316	.75	2SB235	1.75	2SC460	.70	2SC828	.75	2SC1756	1.25
2SA473	.75	2SB303	.65	2SC478	.80	2SC829	.75		
2SA483	1.95	2SB324	1.00	2SC491	2.50	2SC830	1.60	2SD30	.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
2SA643	.85	2SB415	.85	2SC563	2.50	2SC1061	1.65	2SD151	2.25
2SA647	2.75	2SB461	1.25	2SC605	1.00	2SC1079	3.75	2SD170	2.00
2SA673	.85	2SB463	1.65	2SC620	.80	2SC1098	1.20	2SD180	2.75
2SA679	3.75	2SB471	1.75	2SC627	1.75	2SC1098	1.15	2SD201	1.95
2SA682	.85	2SB474	1.50	2SC642	3.50	2SC1115	2.75	2SD218	4.75
2SA695A	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	1.75
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
2SB22	.65			2SC712	.70	2SC1243	1.50	2SD352	8.00
2SB54	.70	2SC206	1.00	2SC713	.70	2SC1293	.85	2SD380	5.70
2SB56	.70	2SC240	1.10	2SC732	.70	2SC1308	4.75	2SD389	9.00
2SB77	.70	2SC261	.65	2SC733	.70	2SC1347	.80	2SD390	.75
2SB128	2.25	2SC291	.65	2SC739	.70	2SC1383	.75	2SD437	5.50
2SB135	.95	2SC320	2.00	2SC715	1.75	2SC1409	1.25	MPS-U31	
2SB152	4.50	2SC352	.75	2SC762	1.90	2SC1410	1.25	at 4.00 ea.	
2SB173	.55	2SC353	.75	2SC783	1.00	2SC1447	1.25	MPS 8000	
2SB175	.55	2SC371	.70	2SC784	.70	2SC1448	1.25	at 1.25 ea.	
2SB178	1.00	2SC372	.70	2SC785	1.00	2SC1507	1.25		
2SB186	.60	2SC394	.70	2SC793	2.50	2SC1509	1.25		

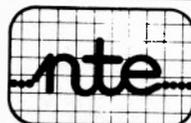
POWER-TRANSISTORS HIGH-VOLT. TV. TYPE

BU204	1300V	3.90	BU207	1300V	5.40	2SC1172B	1100V	4.25
BU205	1500V	4.70	BU208	1500V	6.25	2SC1308	1100V	4.95
BU206	1700V	5.90	2SC1170	1100V	4.00	2SC1325	1100V	4.95

OEM SPECIALS

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	2N3250	3.40	2N3903	.20	2N4443	1.20
2N398B	.90	2N1483	.95	2N2325	2.00	2N3250	.50	2N3904	.20	2N4852	.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	2N3906	3.75	2N5130	.20
2N501A	3.00	2N1549	1.25	2N2329	4.75	2N3414	.17	2N3925	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
2N552A	.85	2N1554	1.25	2N2484	.32	2N3417	.20	2N3957	1.25	2N5294	.50
2N677C	6.00	2N1557	1.15	2N2712	.18	2N3442	1.85	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	2N4121	.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	C103V	.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	C106d1	.50
										C106d2	.75

SILICON UNIUNIONS		INTEGRATED CIRC.		RECTIFIERS	
2N2646	.50	2N4871	.50	UA703C	.40
2N2647	.60	2N4891	.50	709C OP. AMP.	.25
2N6207	.55	2N4892	.50	741C OP. AMP.	.25
2N6208	.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			UPC100Hz	at 6.00 ea.
				NE555	at 1.25 ea.



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**CB POWER MIKE
ELIMINATES NOISE BY
LETTING IT IN,
BOOKLET EXPLAINS**

How does a CB noise-cancelling mike keep unwanted sound out?

Not, as you might think, by trying to block it out, but by letting all of it in.

This seeming paradox is among the basic facts on CB power mikes in a new booklet published by Telex Communications, "The CB Power Mike Fact Book."

The explanation of the riddle is that when noise strikes both sides of the sound-sensitive element inside the mike, the pressure is equalized—that is, the pressure on the back side of the element neutralizes that on the front side. The noise is cancelled out.

This explains why you are cautioned to speak with your mouth very close to a noise-cancelling mike. In this way, your voice is projected just on the front side of the element. If you speak some distance away, your voice strikes both sides of the element and the sound is reduced, if not cancelled out.

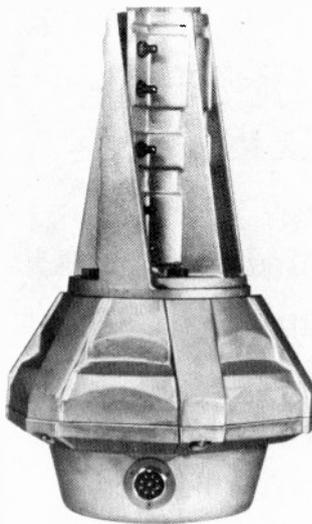
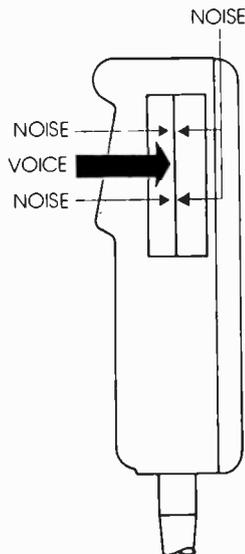
Other basic points covered in the 10-page booklet include "Why the Microphone is a Most Important Part of Your Transmitter"; "Will a Power Mike Work With My 40 Channel Radio?"; and "The Special Advantages of CB Power Mike Headsets."

The booklet, with drawings and photos, may be obtained from Telex dealers or by writing to: Telex Communications, Inc., 9600 Aldrich Avenue South, Minneapolis, Minn. 55420. In Canada: Telak Electronics Ltd., 690 Progress Avenue, Unit 3, Scarborough, Ontario, M1H 3A6, or mark number H18 on Reader Service Card.

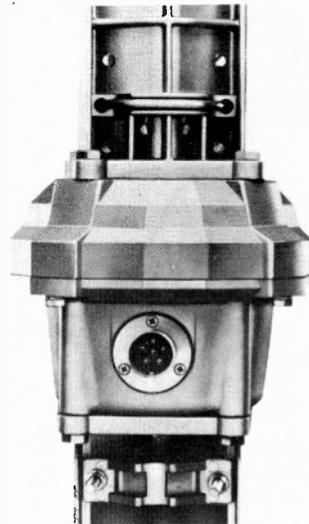
NEW WR 1000 ROTOR FROM WILSON

The rotor everyone has been waiting for is now available from Wilson Electronics Corp. The WR 1000 has been designed to handle the largest antenna arrays up to 25 sq. ft. Stainless steel spur ring gear design is superior to prop pitch models and provides a full 4,000 inch pounds of turning torque. The solonized controlled wedge-type braking system requires 12,000 inch pounds before overriding. The WR 1000 weighs 60 lbs., is 11" x 19" high, and features 116 steel ball bearings. It can handle over one ton of balanced weight. Suggested list price is \$429.00.

Also available is the model WR 500 Rotor, considered mechanically superior to other rotors presently being marketed, with 780 inch pounds of turning

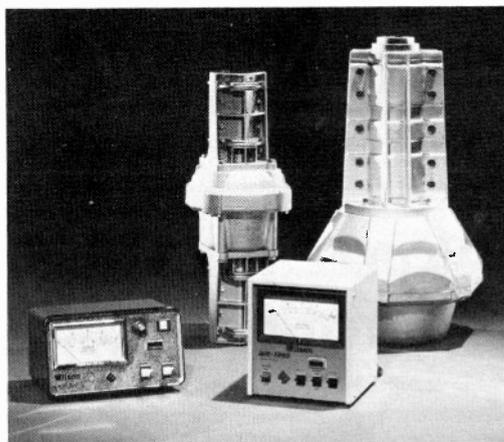


WR1000



WR500

torque before stalling, a special disc type built-in braking system requiring 1,300 inch pounds of torque before windmilling which is twice that of other comparably priced rotors on the market. The WR 500 has a 96 steel ball bearing raceway capable of handling



750 lbs. balanced weight and assures elimination of side torque jamming when rotor is mounted in line with the mast. Suggested list price is \$119.95.

For further information, contact Wilson Electronics, Corp., P.O. Box 19000, Las Vegas, NV 89119, or mark number H10 on Reader Service Card.

CB ANTENNA CONSTRUCTION MANUAL

The Tenna-farm is now offering this manual for those of you wanting to build your base antenna. Included are easy non-technical instructions with pictorials for building high performance beams, quads, verticals, and groundplanes.

This manual concentrates on ease of assembly and the use of common locally available hardware to build truly high performance antennas. Of course do-it-yourself saves many dollars, but, it also yields a pride not obtained when purchasing boxed antennas from a manufacturer. The complete manual is available from The Tenna-farm, 1117 Dewitt Terrace, Linden, N.J. 07036, or mark Number H16 on Reader Service Card.

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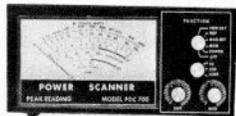
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PDC 2812 Frequency Counter



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MADE PRODUCTS INCLUDE:

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Readers... We need your help!

In addition to S9, we also publish a trade magazine for CB dealers. It's very important to us to have this magazine reach every CB dealer in the country, no matter how large or small.

We'd like you to help us by filling in the names and addresses of every CB dealer that you know about. In return for your time and effort, we'll extend your subscription to S9 by one month for every new dealer name you send us that isn't already on our list.

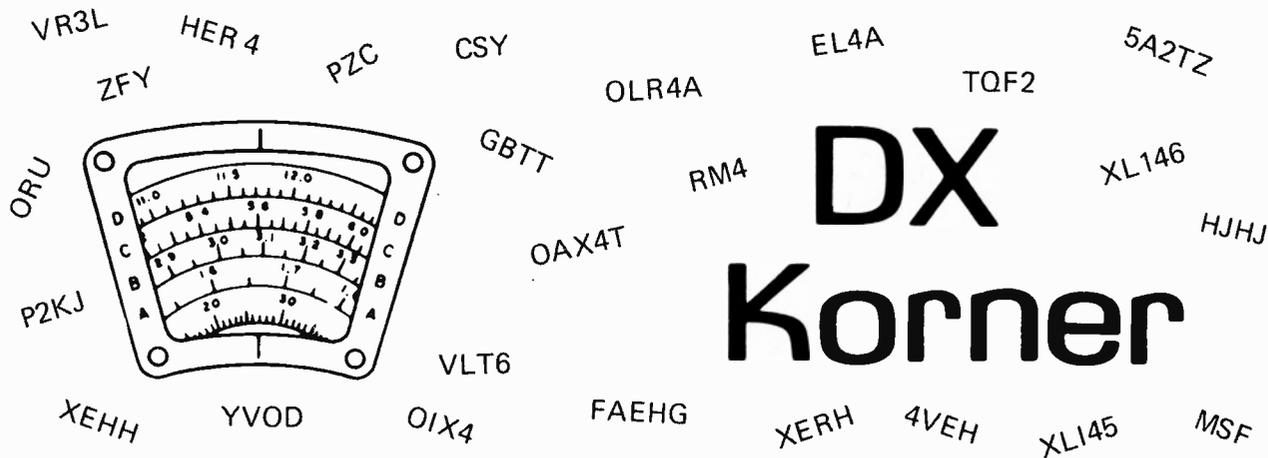
If you're not a regular subscriber, or if the names you send us are already on the list, we'll still send you a gift in appreciation of your efforts.

The dealers names you send need not be exclusively CB stores. They can be department stores with CB departments, or any other type of store that retails CB equipment.

The accompanying card next to this message requires no postage. Be certain that you include your name and address fully so your gift will reach you properly.

Tnx and best 73's.

Dick Cowan
Publisher, CB Radio/S9



Send SWL reports to:

Don Jensen
 c/o CB Radio/S9 Magazine
 14 Vanderventer Ave.
 Port Washington, NY 11050

MOST SWLs have, frequently, heard the broadcasts of the Voice of America on shortwave. There are, in the U.S. proper, four transmitting sites of the VOA. In addition to the powerful shortwave transmitters at Greenville, North Carolina, there are Stateside VOA stations at Bethany, Ohio, and, in California, at Delano and at Dixon.

Many listeners also know that the Voice of America transmitting facilities also are used, at various times, by the American Forces Radio and Television Service with programs for servicemen overseas, and by United Nations Radio.

Less well known is the fact that VOA facilities are used for a short time daily for the programs in Spanish, Portuguese and French of the Organization of American States. The OAS, the organization of the countries of this hemisphere and headquartered in Washington, D.C., can be heard from 2345 until 0130 GMT. As of this writing, a good frequency to try is 6,040 kHz.

But the VOA and its piggyback riders are not the only shortwave outlets in the U.S. There are three totally independent SW broadcasters in the United States. All three of these stations—KGEI, WINB and WYFR—have religious connections.

KGEI's call letters hark back to the early days when they belonged to a west coast General Electric (GE) shortwave outlet. KGEI today is owned by the Far East Broadcasting Company which operates shortwave stations from the Philippines and elsewhere in the Orient.

KGEI, according to its announcements, "is dedicated to the purpose of promoting good will, better understanding and friendship among the peoples of the Americas." Its slogan, therefore, is "The Voice of Friendship," or in Spanish, "La Voz de la Amistad."

KGEI is located at Redwood City, California, though it announces as San Francisco.

You can hear this station with its English language "Golden Gate to Friendship" at 0700 GMT and again at 1000 GMT. A frequency to try is 5,980 kHz. If you want to try this during its Spanish programming and at a more reasonable hour, look for KGEI at 0100 GMT on 9,615 kHz.

The second independent shortwave voice in the United States is located at a small town in Pennsylvania with the improbable name of Red Lion!

This is WINB—which stands for World Inter-National Broadcasters. Unlike KGEI, whose prime target is Latin America, WINB says it directs its programs mostly to Europe, the Mediterranean and North Africa. Its programs are heavily religious in nature and are in English. It has been criticized at times for programs which have been termed as politically ultra conservative.

Recently SWLs have reported WINB broadcasting in English around 0000 GMT on 11,710 kHz.

The third U.S. private shortwave voice is the International Voice of Family Radio, WYFR. This is a shortwave broadcaster that has changed ownership and call letters a number of times over the years. It was once known as WRUL and later as WNYW. As the former it was headquartered in Boston and, as WNYW, in New York, although its transmitting site has always been at Scituate, Massachusetts.

Today, WYFR has its studios in Oakland, California, though—for the moment at least—the transmitters are on the Atlantic coast of New England.

That situation, however, won't last long. Construction has already begun at a new WYFR transmitter site 16 miles from Lake Okeechobee in central Florida. The move is to be handled in several phases. The first phase includes the building of a transmitter structure and two pairs of dual rhombic antennas to direct the programs to Europe and Latin America. Also a

These Ethiopian technicians were on the staff of Radio Voice of the Gospel, ETLF, in Addis Ababa, Ethiopia, when this picture was taken some months ago. Now, presumably, they are working for the Voice of Revolutionary Ethiopia, following the nationalization of the missionary broadcaster by the country's military government. (SEE TEXT)



new 100 kilowatt transmitter is to be added. Presently, at Scituate, there are three 100 kw'ers and a pair of 50,000 watt transmitters.

One advantage to the southward move for WYFR is space for antennas. At the old New England site there is only 40 acres available. The central Florida location will have 660 acres. Until the shift can be completed, WYFR will use both facilities.

According to reports from SWLs, at this writing WYFR can be heard in English on 6,155 kHz around 0100 GMT, on 11,780 kHz at 2200 GMT and on 17,845 kHz about 1800 GMT.

For QSL hunters, here are some addresses:

KGEI, Friendship Station, Redwood City, CA 94063.

WINB, Post Office Box 88, Red Lion, PA 17356.

WYFR, Family Stations Inc., 290 Hegenberger Rd., Oakland CA 94621.

ETLF, owned by the Lutheran World Federation, was one of the most powerful religious radio stations in the world and its broadcasting complex just outside Addis Ababa was valued at about \$12 million.

Shortly after the nationalization of the station, LWF general secretary Carl H. Mau Jr., in Geneva, Switzerland, said that the "abrupt and sudden action" came as a shock, although, he said, it was not "entirely unexpected."

The Ethiopian members of the staff were kept on by the government but the 23 broadcasters from other countries were gone from Ethiopia by April 1. The station now announces as the Radio Voice of Revolutionary Ethiopia.

DX CLUB INFO—The Association of North American Radio Clubs (ANARC), the umbrella organiza-

WHAT'S NEW

STATION 'GOBBLED UP'—Early on the morning of March 12, the government of Ethiopia announced it was taking over the powerful shortwave stations of ETLF, the Radio Voice of the Gospel in Addis Ababa.

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
Order No. 799
Paper \$5.95 Hardbound \$8.95

- **Practical CB Radio Troubleshooting & Repair**
Complete details on CB operation, installation and repair, including 21 programmed troubleshooting charts and complete schematics for 18 popular transceivers. Also an in-depth section on antennas and feedlines. 238 pps.
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- **Citizens Band Radio Service Manual**
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Ship the books listed below. To cover shipping, I've added 50¢ for the first book and 25¢ for each additional book. Enclosed \$ _____

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tion of the major shortwave and DXing clubs in North America, has now issued its third annual list of clubs.

The ten-page list includes full membership on the 18 full and associate clubs that comprise ANARC. Every serious SWL and DXer should be a member of at least one DXing club if he or she hopes to really keep up to date on what is happening in their hobby. The ANARC list will give you all the information you'll need to know to decide which of these clubs fits your needs.

A copy of "Directory of DX Club Publications and Services Available in North America" can be yours free from ANARC, 557 North Madison Avenue, Pasadena, CA 91101. However, you *must* include with your request a large size (No. 10) business envelope addressed to you, with 24 cents mint (unused) postage stamps affixed. Canadian readers should send a self-addressed envelope with 24 cents worth of Canadian postage (but do not stick the Canadian stamps to your enclosed self-addressed envelope). Overseas readers should send three International Reply Coupons (IRCs).

IN THE MAILBOX

Richard Varron of Wayne, NJ, is chairman of the Frequency Recommendation Committee of ANARC (see above). Varron's committee works in cooperation with many of the major shortwave broadcasters of the world, helping them locate clear frequencies for their broadcasts to North America.

"We have been able to resolve several QRM (interference) problems in the past," Richard writes, "and we were responsible, in part, for moves to clearer channels by Bulgaria, Finland, Belgium and the Vatican."

Richard says he would like to hear from any SWLs having problems with stations beaming programs to North America which are causing interference to each other.

Readers may write Varron at 55 Eleron Place, Wayne, NJ 07470.

The next letter in the box is from Joaquin Velvet of Petaluma, CA.

"I've been reading your articles in S9 for six months, about as long as I've had a CB radio," Joaquin writes. "Now I am very interested in SWLing. I've received a QSL from NHK Japan and, hopefully, will receive one from HCJB, Quito, Ecuador.

"You said in one of your articles that a receiver should have good frequency readout, sensitivity and selectivity. The receiver I have is an old, used set that only makes a stab at these. I plan on buying a new one.

"Radio Shack has the DX-160. If you can give me any information about it I'd appreciate it."

Okay, Joaquin, the DX-160 has got to be one of Radio Shack's more popular items. A recent survey of one DX club showed that of the nearly 500 receivers owned by members nearly 30 percent were DX-160's.

(continued)

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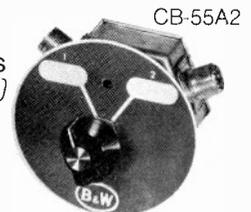


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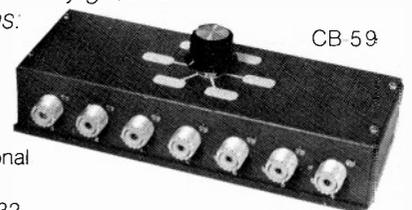
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CB-55A2

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CB Usage Tips From S9

(CUT OUT & PLACE AT OPERATING POSITION)

Preferred & Designated Channels

- Channel 8 Agricultural operations
- Channel 9 Emergencies only
- Channel 13 Maritime
- Channel 16 Single Sideband only
- Channel 18 Single Sideband only
- Channel 19 Trucks/Vehicles in transit*
- Channels 36 thru 40 Single Sideband Only

*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, 18, 36, 37, 38, 39, and 40, 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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It's sort of like buying a great jacket really cheap, but it's slightly irregular... you just adjust your body to fit... it's a bargain.

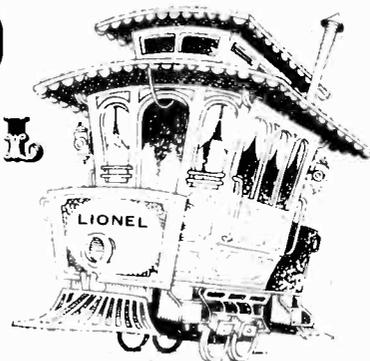
Return with us now to those days of yesteryear; to some of those countries which no longer exist and happier times by quickly taking advantage of our Hammond World Atlas Sale. We have, direct to you, both the Hammond Medallion and Hammond Ambassador Editions for the ridiculously low price of \$6.00 each post-paid. These fine vintage volumes (circa early 60s') sold for much much more and will enhance any coffee table. They're brand new, sealed in cartons. You can always scotch-tape some of the new names onto the maps. Rest assured though, most of the world including the U. S. has remained intact through these times.

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WANTED OLD LIONEL TRAINS



Especially pre-WW II "O" Gauge and Standard Gauge. Certain engine models are particularly needed. These are 5344, 700E, 763, 773 and 736. Also want 256, 260E, 255, 263, 752. Passenger cars bring good prices in excellent or better condition.

These trains will be for my personal collection. For that reason I can offer top cash or great swaps in radio equipment. Certain accessories bring mucho money. For example, the Lionel Industrial Power Station, Hell Gate Bridge, Scenic Park, etc.

I don't collect American Flyer or Lionel "O 27" gauge, but I will pay extra premiums for Ives models. Don't be bashful. Those old clunkers in your basement or attic will look great on my den walls.

Please write: **DICK COWAN**, Publisher S9,
14 Vanderventer Avenue, Port Washington, New York 11050

Better still, call collect, if you're not certain what you have.

516/883-6200



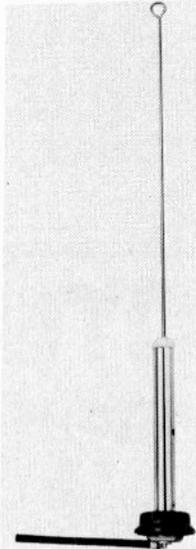
The Monitor Post

by Rick Maslau, KNY2GL

GAIN ANTENNAS FOR 850 MHz BAND INTRODUCED

Two new 3dB gain rooftop collinear antennas for three different frequency ranges bracketing the new land mobile 850 MHz band have been introduced by Phelps Dodge Communications Company.

The Cat. No. 882 antenna has been designed for the 806-866 MHz private dispatch band and 870-890 MHz mobile receive frequencies in HCMTS, while the Cat. No. 1065 antenna covers the entire 825-890 MHz HCMTS band. The Cat. No. 882 provides a 2:1 VSWR over the 60 MHz private dispatch band or can operate as a 1.5:1 VSWR receive-only antenna in HCMTS diversity application. The Cat. No. 1065 antenna, with a 1.5:1 VSWR across its 65 MHz bandwidth, operates as the transmit-receive antenna in HCMTS diversity applications.

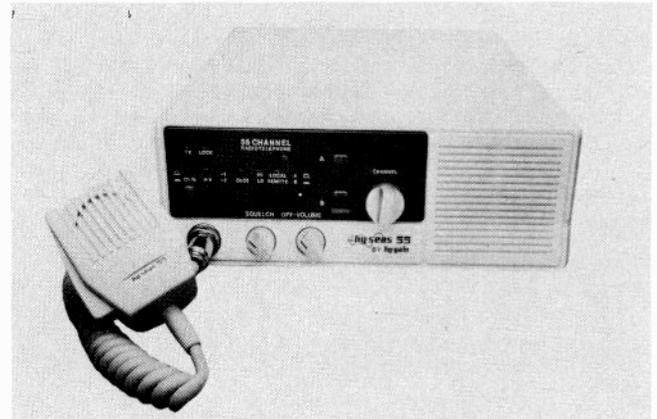


Overall height of both antennas is 15 inches. Both types have a chrome plated lower section and Teflon dielectric filled phasing section. The Cat. No. 882 utilizes a high conductivity 18-2 MN stainless steel whip as its upper element and has a low profile mount. The Cat. No. 1065 is similar to the Cat. No. 882 but employs a multi-element matching circuit to achieve its bandwidth. The Cat. No. 882 is furnished with 17 feet of RG-58A/U feedline and a BNC connector when used with the 806-866 MHz band. The Cat. No. 1065 is furnished with 9 feet of T5-50 low loss feeder and a TNC connector for HCMTS applications.

For further information, write: Rooftop Antennas, Phelps Dodge Communications Company, Route 79, Marlboro, New Jersey 07746.

A HIGH PERFORMANCE VHF-FM MARINE RADIOTELEPHONE

Hy-Gain announces three high performance VHF-FM Marine Radiotelephone products.



In addition, the company announced a 10 band, 2 priority all purpose scanner; a new combo base console that receives a Hy-Gain I or II for dual purpose home/auto use; two hand-held CB transceivers; a base station antenna; and two new AM/FM in-dash radios combined with the remote CB and an antenna for a complete car audio/communications system.

The Hy-Seas 55 is PLL synthesized and it comes complete with 55 U.S. and international marine channels, including all authorized U.S. marine channels. With an honest, 25 watt rating (legal maximum), highly efficient circuitry and exceptional frequency stability the Hy-Seas 55 concentrates your signal for crisp, clear transmission and greater range under all conditions.

Front panel controls include on/off/volume, squelch and illuminated 55-channel selector. There are instant-on pushbuttons for priority channel 16, second priority channel 6, weather 1 and 2, high/low power, remote unit, and channel selector readout. High reliability LED lamps indicate transmit, phase lock, channels 6 and 16, weather, high power, and remote control operation.

The Hy-Seas 55 is now available at \$695.00 manufacturer's suggested retail price.

FIRST-OF-ITS-KIND VHF-FM DELIVERED

Heralding a new era of marine communications, the first-of-its-kind keyboard channel entry VHF-FM marine radio was delivered and sold by one of the

West's leading marine electronic specialty organizations, Bartell Marine Electronics in Newport Beach, California. The keyboard entry 55 channel VHF-FM transceiver was designed and manufactured by SBE, Inc., which introduces a totally new concept in channel selection for the marine industry. All 55 Domestic and 78 International channels are accessed by the front back-lighted keyboard.

Bartell Corporation's Sales Manager, Ray Hart, was the first in the country to receive and sell SBE's first keyboard transceiver, Serial Number 000000001.

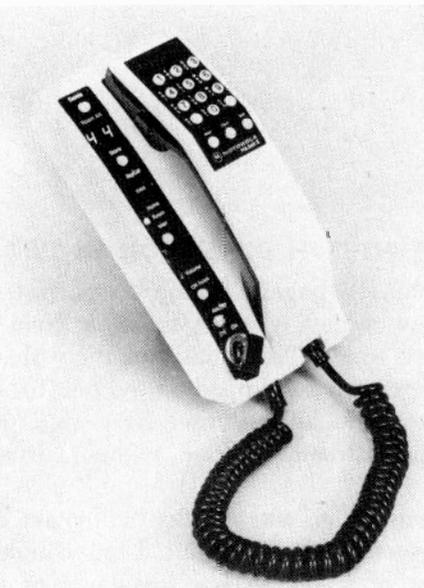
Paul Alfrey, a Newport Beach, California yacht designer and builder, states, "When I saw this new keyboard idea of channel entry, I decided to wait for this transceiver for my new 52 foot sailboat. Now that I've tried it out, its far superior to any type of channel entry system that I've used before. I can go from channel 6 to channel 88 in just 3 quick punches of the keyboard in less than 1/2 a second." Pete Provost, Bartell's General Manager, claims, "The keyboard concept to channel selection is a new and refreshing way for us to sell radios and eliminate the problems of crystals. Every channel they need is accessed by the keyboard, whether they cruise in the United States, Canada, or Mexico. Even the 4 weather channels are accessed on the keyboard."

List price for the SBE Key/Com 55 is \$599.00, and they are now available and type accepted for sale throughout the United States and Canada by marine electronics specialty houses and marine electronic distributorships.

For further information on both marine as well as citizen band keyboard entry transceivers, contact SBE at 220 Airport Blvd., Watsonville, California 95076.

MOBILE TELEPHONE CONTROL HEAD

Motorola Communications Group is announcing a new Microprocessor Controlled Pulsar II Mobile Telephone Control Head.



The new Pulsar II control head features significant technological advancements over conventional units because it offers push button dialing, abbreviated dialing for as many as ten numbers, on-hook dialing and call processing, recall of last number dialed, telephone number display, channel review and select, channel number display, and illuminated dial pad and graphics.

PULSAR II features push button dialing allowing the subscriber maximum ease and speed of dialing. The Push Button Pad is conveniently located on the back of the handset allowing the subscriber to dial the phone number in complete safety and with one hand.

The deluxe version of the Pulsar II control head allows a subscriber to have abbreviated dialing for up to ten numbers. These ten numbers are selected and programmed by the subscriber from the dial pad and can be easily changed. The underside of the hand set contains a handy reference directory to identify the stored numbers and their memory location digit.

On Hook Dialing allows a telephone number to be entered from the dial pad with the handset in the cradle and will hold the number in the microprocessor. When the subscriber wishes to place the call, he obtains dial tone and by pressing the "SND" button initiates the dialing. If the dialed number cannot be completed for any reason and the subscriber wants to try again, the last dialed number is held in the microprocessor (until replaced by another number). This number can be easily redialed by obtaining dial tone and depressing the "SND" button to re-initiate the call.

The most compact and versatile unit available, the Pulsar II control head contains an L.E.D. (Light emitting diode) channel number display to identify the particular channel being sequenced in the manual mode or to review the channels programmed in the Roam or Home mode of operation.

Both the key pad and control panel graphics are softly illuminated for user convenience at night. When a call is received an electronic ringer provides a pleasant call alert with sufficient volume to be heard even in high ambient noise environments. (continued)



Electronic Fleamarket

*a new monthly publication
from the publisher of S9*

THE ELECTRONIC FLEAMARKET is a complete new shopping source for anyone interested in buying, selling or swapping used electronic equipment of any kind.

It will appeal to CBers, hams, experimenters and professionals.

THE ELECTRONIC FLEAMARKET will contain thousands of classified ads on transmitters, receivers, transceivers, test equipment, amplifiers, antennas, towers, stereo equipment, etc.

It will also contain ads from retailers, wholesalers, and manufacturers offering used equipment for sale.

Classified ads will be published free of charge to all regular subscribers of S9. Free ads will be limited exclusively to individuals. Commercial ads may be ordered at a rate of 25 cents per word, with a \$3 minimum. Non-commercial ads for non-subscribers are 10 cents per word, \$1 minimum. THE ELECTRONIC FLEAMARKET will be available on a paid subscription basis only at a cost of \$10 per year. All issues will be mailed by first class mail on the tenth of each month.

SPECIAL CHARTER SUBSCRIPTION rates available to S9 subscribers at a saving of 20%. Use the special sub blank below and get your first year's subscription for just \$8. But don't delay!



ELECTRONIC FLEAMARKET
14 Vanderventer Avenue
Port Washington, NY 11050

Please enroll me as a charter subscriber to

"ELECTRONIC FLEAMARKET" at the rate of \$8.00

Name _____

Address _____

City _____

State _____ Zip _____

THE MONITOR POST (continued)

If the subscriber removes the hand set from the cradle or pushes the "Off-Hook" button and the channels are occupied the busy light will provide visual indication of the condition along with a busy tone in the hand set.

The Pulsar II features Home, Roam, and Manual modes of operation.

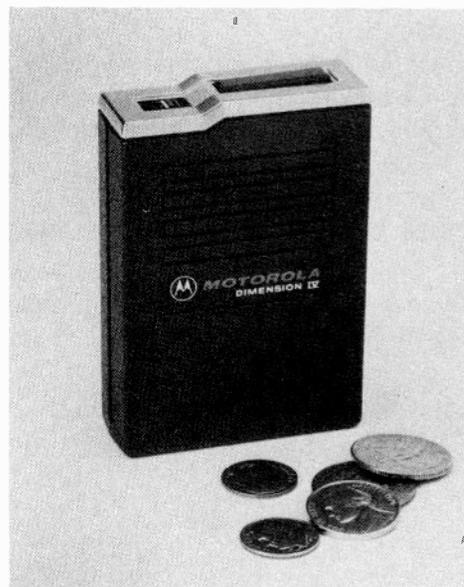
In the Home mode the radio scans and selects only those channels available in the Home city. These channels are Hardware programmed in the radio and prevent the radio from locking on a foreign unwanted channel.

In the Roam mode the subscriber selects the channels to be scanned in the city (other than Home city), where he is operating. This selection can be simply changed as the subscriber travels from city to city.

The Manual mode is used in systems where automation does not exist. The subscriber individually selects an open channel to contact the mobile operator. The control head can be programmed to scan the desired channels while on hook.

Motorola, Inc., is a diversified manufacturer of high technology radio and data communications products.

For information about the Pulsar II Mobile Telephone Control Head contact Barbara Bennett, Literature Distribution, 1301 E. Algonquin Road, Schaumburg, Illinois 60196.



THE FOURTH DIMENSION IN PAGING

Dimension IV pagers, Motorola's newest offering in tone-and voice paging, takes its name from the fourth dimension—"time." This small, uniquely shaped, lightweight pager can be clipped on the belt for convenient and comfortable all day use. Its design permits the user to be extremely active without dislodging the unit.

Advanced design and excellent audio are highlighted in the features of this new unit. The technology behind this pager offers an exceptional level of operational

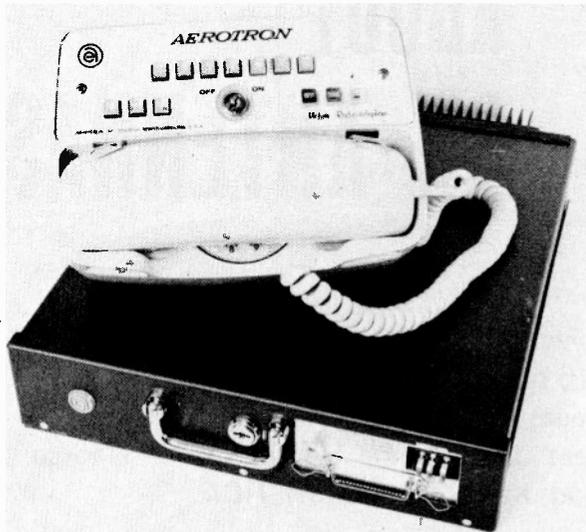
performance, versatility and ruggedness. A unique antenna, positioned along the perimeter of the circuitry, enhances the high band VHF and UHF pager's sensitivity.

MODULAR MOBILFONE

With the introduction of the new RCU/MTU25 Mobile Radio, Aerotron announces the expansion of its series of full duplex, solid state, modular construction, mobile telephones for the Radio Common Carrier (RCC) and Mobile Telephone Service (MTS and IMTS).

Featuring 25 Watts out of the duplexer, this 14 channel radio is service plug compatible with standard Secode or Fantron control heads and is offered with options that include a time-out timer and a complete selection of control head options including color.

Inquiries should be addressed to Aerotron, Inc., P.O. Box 6527, Raleigh, N.C. 27628.



Since saving "time" is usually the reason for using a paging system, the new Dimension IV pager is aptly named. In addition to saving you time by keeping you in touch while on the move, this pager is also priced in the middle of Motorola's wide variety of paging products. And, it's available in all frequency bands; low and high band VHF and UHF.

For further information on the Dimension IV pager, contact Barbara Bennett, Marketing Services, Motorola Communications and Electronics, Inc., 1301 E. Algonquin Road, Schaumburg, Illinois 60196.

GUIDE FOR LAW ENFORCEMENT AGENCIES ON USE OF VOICE SCRAMBLERS

The Commerce Department's National Bureau of Standards has produced a simply-written, well illustrated guide for law enforcement agencies to assist these agencies in the selection and procurement of voice scrambling equipment.

As the guide states in the introduction, "radio communications are not private." Criminals, as well as law-abiding citizens attracted by police activity, have the

... Use S9 READER SERVICE.

Free Classified Ads

Your classified ad may be run Free of Charge in *THE ELECTRONIC FLEAMARKET* — this offer is good for all S9 and/or Fleamarket subscribers every month. Please limit ads to thirty words or six lines and not more than two ads per month. You can buy, sell, swap or advertise for QSLs. Your ad may cover ham gear, CB gear, test equipment, stereo, or anything else an electronic hobbyist may find of interest.

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.

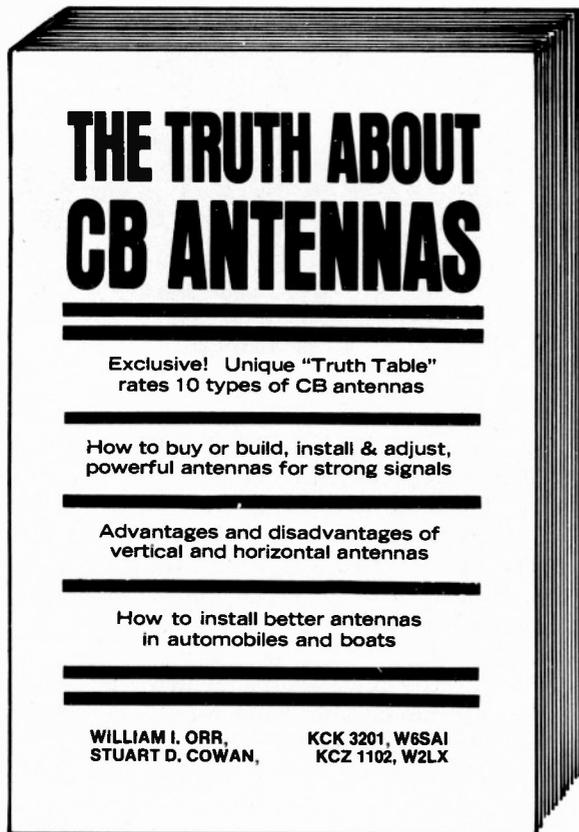
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Your CB antenna is the key to clear, reliable communications. Most CB antennas are improperly installed and adjusted. They do not work anywhere near peak efficiency. Moreover, to impress buyers a barrage of non-facts about inferior antennas is

used by some antenna manufacturers to gain quick sales. Now, for the first time, this new Antenna Handbook exposes false claims and gives you a unique "Truth Table" so you can determine for yourself the true power gain of any CB antennas!

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Sirs:

Please send me.....copies of **THE TRUTH ABOUT CB ANTENNAS**

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“Criminals, as well as law-abiding citizens attracted by police activity have the capability of listening to police...”

capability of listening in to police communications systems. The advantages to the law breaker are obvious—knowledge of police movements allows him to plan his own activities. The radio-listening citizen may decide to rush to the scene of a major police activity, perhaps impeding the policeman's job.

Because of these and other problems, some police departments have purchased equipment which can scramble the operator's voice at the point of transmission and unscramble it at the receiving end. Thus the privacy of the communication is maintained. The guide notes that a survey of 428 law enforcement agencies found that 40 used scramblers and that 225 expressed a need for them.

—123.050 MHz assigned to heliports;

—122.850 and 122.950 MHz for additional assignment when such assignment was requested for communication with aircraft at altitudes greater than 10,000 feet above the runway elevation and for assignment to private fields.

In addition to these five unicom frequencies, the frequency 122.9 MHz was termed multicom and was assigned for the purpose of directing activities air-to-air, air-to-ground or ground-to-air, such as agriculture, ranching and conservation, forest fire fighting, advertising and parachute jumping.

The publication, titled “A Guide to Voice Scramblers for Law Enforcement Agencies,” assists police departments in identifying their radio privacy needs and equipment performance requirements. It discusses technical and support considerations and describes in detail the characteristics of various scrambler systems. Finally, it outlines considerations for purchasing scrambler equipment.

The guide was prepared by NBS' Law Enforcement Standards Laboratory for the National Institute of Law Enforcement and Criminal Justice of the Justice Department's Law Enforcement Assistance Administration. The guide is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The price is \$1.05 per copy. Order by stock number 003-003-01735-3.

ADDITIONAL FREQUENCIES ASSIGNED

The Commission has amended its rules to provide for the use and assignment of additional aeronautical advisory and aeronautical multicom frequencies and a realignment of certain existing frequencies in the 122.6875-123.0875 MHz band.

On July 31, 1974, the Commission initiated an inquiry to review problems relating to the growing congestion on the frequency 122.800 MHz assigned to

aeronautical advisory stations (unicoms) at uncontrolled airports. Unicom are used for advisory and civil defense communications primarily with private aircraft stations.

In the inquiry notice, the Commission pointed out that congestion on the primary unicom frequency (122.800 MHz) had been increasing steadily for the past decade to the point where the safety of flight might be compromised, particularly in the more densely populated areas of the country.

Therefore, it requested comments that would confirm the problem and would serve as a basis for the design of an effective and equitable solution.

Unicom originally operated on the following frequencies:

—122.800 MHz, standard unicom where there was no control tower or Federal Aviation Administration (FAA) flight service station at the landing area;

—123.000 MHz, standard unicom where there was a control tower or FAA flight service station at the landing area;

The frequency 122.925 MHz was available for multicom use on natural resources programs.

The Commission found that separating these special purpose communications had not provided a corresponding distribution of usage, noting that the special frequencies were being used very lightly while congestion on 122.800 MHz grew daily.

Under the amended frequency plan the following allocations will be made:

- 122.700 MHz—Aeronautical Advisory (AA)—uncontrolled fields
- 122.725 —AA—private airports not open to the public
- 122.750 —AA—private airports not open to the public and air-to-air communications (air-to-air usage is permitted only after January 1, 1978)
- 122.775 —Future AA or multicom use
- 122.800 —AA—uncontrolled airports
- 122.825 —Future AA or multicom use
- 122.850 —Multicom
- 122.875 —Future AA or multicom use
- 122.900 —Multicom
- 122.925 —Multicom-Natural Resources
- 122.950 —AA—Airports with a control tower
- 122.975 —AA—high altitude
- 123.000 —AA—uncontrolled airports
- 123.025 —Future AA or multicom use
- 123.050 —AA—heliports
- 123.075 —AA—heliports

(continued)

THE MONITOR POST (continued)

The Commission said the frequencies 122.700 and 122.750 MHz are now being used by the Federal Aviation Administration for Flight Service Stations. Therefore, it said the assignment of these frequencies for aeronautical advisory use will be coordinated with the FAA until January 1, 1978. The Commission emphasized that the frequency 122.750 MHz will not be available for air-to-air use until January 1, 1978.

The Commission said it was redesignating the 25 kHz channels between 122.7 and 123.1 MHz for aeronautical advisory or multicom for either present or future use. It noted that although they previously had been designated as Air Traffic Control channels, the FAA had indicated no planned usage for this function on these frequencies.

Since the two high altitude unicom frequencies (122.850 and 122.950 MHz) which had been used for aeronautical advisory stations serving aircraft at altitudes of greater than 10,000 feet had been underused, the Commission said it would assign only one frequency, 122.975 MHz, for high altitude unicom purposes, leaving 122.850 and 122.950 MHz for other uses.

It said it would assign 122.950 MHz for unicom use at controlled airports and 123.00 MHz for assignment at uncontrolled airports.

The Commission assigned the frequencies 122.700, 12.800 and 123.000 MHz for use at airports with no control tower, which will allow approximately 700

ground stations on each of the frequencies resulting in significantly reduced congestion on 122.8 MHz which now has over 2,000 assignments.

Although applicants may request a frequency, the Commission said it would reserve the right to assign a particular one.

Other changes include deletion of the use of 122.850 and 122.950 MHz at private airports and the substitution of 122.725 and 122.750 MHz with the latter frequency to be shared with air-to-air use (after January 1, 1978); retaining 123.050 MHz for use of aeronautical advisory at heliports and adding 123.075 for that purpose; and expanding the use of 121.95, 123.3 and 123.5 MHz to include glider to tow-ship communications.

The Commission pointed out these changes would be implemented gradually over a two-year period. It said if an applicant seeks only a frequency modification to comply with the new frequency assignments, no competing applications will be entertained. Required frequency changes resulting from this order will be accomplished as follows:

- a) Those licenses which are newly issued, modified or renewed before February 1, 1979, will be changed to the new frequency at the time of issue, modification or renewal.
- b) Other licensees will be issued supplemental authorizations prior to February 1, 1979, to be effective that date.

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 \$50.00 prepaid. For further information dealers should contact Herb Pressman, Advertising Sales, CB Radio/S9 Magazine, 14 Vanderverter Ave., Port Washington, NY 11050. Phone: 516/883-6200.

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Rates for CB SHOP are 10 cents per word for advertising which in our opinion is obviously of a personal and noncommercial nature. A charge of \$1.00 per word is made to commercial and business advertisers, publications, and all clubs and organizations of any kind (minimum ad \$40.00). Regular CB RADIO/S9 display advertisers are exempt from the CB SHOP minimum rate. A 5% discount is in effect for an advance insertion order for 6 consecutive months. ZIP code not counted as a word.

We do not bill for advertising in CB SHOP. Full remittance must accompany all orders

sent in; otherwise ad will not be run or acknowledged. We reserve the right to refuse to accept any advertising which we feel is unsuitable or inappropriate.

Closing date is the 5th of the 3rd month preceding date of publication.

Because advertisers, services, and equipment contained in CB SHOP have not been investigated, the publisher 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, CB RADIO/S9 Magazine, 14 Vandeventer Ave., Pt. Washington, N.Y. 11050.

AWARDS CERTIFICATES for Public Service and Emergency Radio operations. Send \$2.00 each, name, address, and event. 49er Radio Club, Box 1400-CB, Downey, CA 90240.

CB SYNTHESIZED CRYSTALS- Dealers and repairmen only. Phone or write for our list of H.F. and L.F. crystals. In stock now for immediate delivery. (S-E Crystal Dept. Rt. 2 Box 375, Hillsboro, Mo. 63050. 314 789-2683).

WANT TO BUY - Tram TR-70, Tram D201, and E.C.I. Courier IM. Gerald Schneider 1104 Address, Borger, Texas 79007.

CB Radios at WHOLESALE PRICES! Listing 50 cents. Going Ham? YAESU FT-101E in stock. **SIDE BAND SPECIALTY**, Box 573C, Oak Harbor, WA 98277.

THE CB DEALER'S HANDBOOK- Secrets of making big money selling CB. Start at home with little or no investment. How to do it right and avoid costly mistakes. Buying, advertising, markups and more, explained in layman's terms. Only \$4.95 postpaid. Vann, 107 Hopper Ave., Ithaca, NY 14850.

GLOW-WORM lights your mobile antenna tip. Converts radio waves to red light. No wires to connect. Use on coil loaded antennas. Guaranteed. \$1.25 postpaid. Box 473, Columbia, MO 65201.

BEARTECTOR RADAR DETECTOR FROM PRIME ELECTRONICS \$79.95 plus \$2.00 shipping. Beats Fuzzbuster and all others. Receives all moving radar. Many CB products at lowest prices. No dealers please. Catalog 25 cents. Lee Sales Company 6912A, Marion, Shawnee, Kansas 66218.

LINEAR AMPLIFIERS - Amateur Base and Mobile Amplifiers. Discounts on Kenrich, Palomar, J.V. Associates, General, Hyden, V-J Products, Pride. Also discounts on CB Antennas and meters. Pere Company, 108 Garfield Place, Cincinnati, Ohio 45202.

BOOST YOUR CB OUTPUT WITHOUT LINEARS' Boosters easily built with Radio Shack parts or equivalent for \$16. Plans and parts list only, base and mobile, \$7 or each \$5. Quick Service Plans, Box 868, Clemmons, NC 27012.

LIGHT YOUR EARS! Micro CB Antenna Earlight mounts in one second to the tip of your CB (or SSB) antenna and lights when transmitting. Verifies function of final output stage of your 4 watt (or greater) transceiver. Special 25,000 hour neon bulb in unit draws less than .06 watt. \$3.00 or 2/\$5. NY resident add sales tax. **FIREFLY ENTERPRISES**, Box 471-S, Richmond Hill, NY 11418.

YOUR CB CALLSIGN OR HANDLE CARVED IN WALNUT STAINED PINE! Approx 4 x 20 inches. \$8.00 each. Sawdust Dept. S-9 P.O. Box 327, Stevensville, Michigan 49127.

WANTED!!! Demco Modulators. Will Pay according to condition. Call collect. 201-363-2853.

I'M LOOKING FOR A USED CB SET - any kind. Must work or need only minor repair. I'll pay shipping. Send particulars including price. All correspondence answered. Lisa Foster, Box 522, Levittown, PA 19058.

BREAKER...BREAKER!!! Spin-dial 57 Ten-codes...glance at 64 CB Jargon definitions on-the-spot. Quick, easy to use Road Coder. Clips to all visors, any vehicle. \$1.95; 2 or more \$1.75 each. Money-Back Guarantee. Rush order to: Hass Enterprises, P.O. Box 14002, Raleigh, N.C. 27610...10-10.

C/B HAM DEALER: Send your letterhead for free catalog. SILTRONIX, MIDLAND, PEARCE-SIMPSON, D&A, BLACK CAT, HUSTLER, AVANTI, etc. Appliance & Equipment Company, Inc., 2317 Vance Jackson, San Antonio, TX 78213. 1-512-734-7793.

CB ANTENNA CONSTRUCTION MANUAL: Easily assemble high performance beams up to 15 DB gain, plus quads, verticles, ground-planes and more all from common hardware-you save 80%-our simplified non-technical instructions with pictorials assure quick easy assembly and excellent performance. For complete manual send \$4.00 cash, check, money order. **ANTENNA-FARM**, 1117 Dewitt Terrace, Linden, N.J. 07036.

C.B. CLUBS- 3-line Engraved Pin Badges, \$1.50. Free Sample and Information to Clubs. **WHARTON PLAQUES**, Worcester, NY 12197

DEALERS MOVE UP TO THE BEST; TRAM We offer you the best wholesale prices on TRAM. Send letterhead or business card for the lowest wholesale prices in the country. **POWER COMMUNICATIONS** Box C, Whitesboro, NY 13492.

QSL 100%- Huge buddy packs. More you send more you get. J.P. Bartling, Box 15424, Orlando, FL 32808.

DEALERS WANTED: Profitable sparetime business, best wholesale prices, CB radio/antennas/monitors/accessories. Central USA for best shipping. Send card or letterhead for price sheet. **Sunridge Electronics, Inc.**- Rt. 2, Box 375 S, Hillsboro, MO 63050.

OSL CARDS - Top Quality, Reasonable Prices 12 colors, gloss-coated, custom made for you. **FREE CATALOG.** Write to **CBC CLUB**, Dept S9, Box 703, Lexington, NC 27292.

CB RADIOS, VHF/UHF monitors, crystals, antennas. All brands. Lowest pricing possible. Southland, P.O. Box 3591-F, Baytown, Texas 77520.

CB PAGING SYSTEM! Call your base or mobile station while their radio remains silent! Stop listening to noise, voices while waiting for a call. Beautiful Styling, Low Cost, Retail - Wholesale. **Phasic Systems**, 11011 SW 88 ST., F-215, Miami, FL 33176.

PROTECT YOUR HANDLE from the unscrupulous! Register your handle to establish that you are the rightful user. Notarized registration certificate complete with your handle and call. Send \$3.00, handle and call letters to **International Registry Board**, P.O. Box 73, Staten Island, N.Y. 10301.

CB DIRECTIONAL FINDING LOOP ANTENNAE. Pinpoint any CB transmitter in minutes. Send \$14.95 check or money order to **Ruden Enterprises**, Box 1023, Frazer, Pa. 19355. For fast service (COD) call 215-363-9452.

SPECIAL-600 QSL IRC's-only \$3.00. QSL catalog (\$5.00 deposit required). **Tower-SV**, Drawer 10083, Charleston, S.C. 29411.

BATTERY*CHECK shows condition of your vehicle electrical system under all driving conditions. Detect trouble before it becomes catastrophic. A must for mobile CB. DeLuxe thru-panel BC-12-DTP, \$39.95; Economy thru-panel BC-12-ETP, \$15.95; Economy dash mount BC-12-EBK, \$18.50; Write for **BATTERY*CHECK** Report. Dealer and Distributor inquiries invited. **ELECTRONICS SPECIALISTS**, Box 122, Natick, Massachusetts 01760.

POLICE SCANNERS, MONITORS. Choose from name brands like **REGENCY**, **BEAR-CAT** and others. Also crystals, antennas, and frequency directories. Complete selection of Citizen Band transceivers, antennas, and accessories. **Harvey Park Radio**, P.O. Box 19224 Denver, CO 80219.

BE AN EMERGENCY CHANNEL 9 MONITOR! We'll show you how. We invite you to join the United States Emergency Assistance Radio System (U.S. EARS). Members identify with their state name (such as Louisiana State Emergency Radio). We are not accepting **INDIVIDUAL** and **TEAM** membership application, send a self-addressed stamped envelope to: **U.S. EARS**, Headquarters, P.O. Box 1956, San Jose, CA 95109.

NATIONAL CHRISTIAN CB CLUB FORMING. Find hundreds of new friends, service opportunities. Make travelling time count. Invites all John 3:16ers to join. Great opportunity Luke 10:1; 1 Corinthians 9:22 & 16:9. Send stamp: **Christian CB Club** Box 21611, Concord, CA 94521.

\$1.00 ENGRAVED HANDLE PINS. 1" by 3" plastic. White letters on red, blue, black, green and walnut. Black on white, yellow. Metalized gold or silver finish, black letters \$1.50. 16 letters, spaces per line (1 or 2), 3 lines add 50 cents. **HOLLY ENGRAVING**, Box 3926-G, Hollywood, Florida 33023.

CONVERTER- 2 meter ham band to AM broadcast band, \$8.95 ppd for complete kit. Send stamp for flyer containing many other exciting kits. **Electronics Hobbies**, 3421 S.E. Hawthorne Rd. Gainesville, Fla. 32601.

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CBERS'...JOIN - "National Highway Patrol Observers"...Report Emergencies!...Help Save Lives!... Lifetime Membership \$7. - Includes: Two Jumbo Bumper Stickers, Lifetime Membership Card and the publication, "How to Observe and Report Emergencies!". Write: **NHPO**, Box 374-S, Visalia, CA 93277.

CB'ERS...Fine silver and gold CB jewelry. Send for free brochure. CB JEWELRY, P.O. Box 291, Oakland Gardens, NY 11364

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BEST PRICES - On Johnson, SBE, Motorola, Browning, Midland, Courier, Antenna Specialist, Avanti, Antenna, Inc., Shakespeare, Turner, Astatic, Mura, Para-Dynamics, Vanco, and Gold-Line. Write for fee price list. CRS COMMUNICATIONS, 1552 Central Park Ave., Yonkers, NY 10710.

SPECIAL MONEY MAKING OFFER! Full information and sample (\$3 value). Send \$2. TOWER 9813-SV, Charleston, SC 29410.

"CARD SWAPPERS DIGEST" SEND NAME ADDRESS, \$1.00 COPY. YOUR NAME WILL BE PUBLISHED IMMEDIATELY. CARDS, DRAWER P, LEXINGTON, N.C. 27292.

"TRI-EX Tower Model 3-54, Galvanized Steel Self-Supporting with Winch and Cables, Needs Base- Available from Factory, \$700.00 F.O.B. Endicott, NY, K.R. Hancock, P.O. Box 299, Endicott, NY 13760; Phone: 607-748-1501"

DEALERS ONLY! Send letter head for free price sheet. Same day service, most major brands in stock, competitive prices, personal service, monthly specials. Dixie C.B., Rt. 3, Box 517A, Prairieville, LA 70769.

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SUITABLE FOR FRAMING! Beautiful 8x10 color poster - "THERE'S NO OTHER HOBBY...QUITE LIKE CB!" \$3.00. Universal, 29 Old Orchard, Dept. P-2, Portchester, NY 10573.

CB RADIO SLIDING CAPABILITIES - Ham Radio conversions to CB easily achieved using simple tools. Step by step illustrated instructions available. Details, \$1.00, Refundable. TECHNICAL PUBLICATIONS, Box 649-S8, Milwaukee, Wisconsin 53201.

MOBILE IGNITION SHIELDING provides more range with no noise. Available most engines in assembled or kit-forms, plus many other suppression accessories. Free Literature. ESTES ENGINEERING, 930 Marine Dr., Port Angeles, WA 98362.

NEW BEARCAT 210 programmable scanner with direct digital readout. No crystals needed. Factory sealed carton. Must sell. \$275.00. Dennis Bird, 2307 N Benson Rd., Fairfield, Conn. 06430. Call 203-255-0812.

BEARCAT 101 programmable scanner. No crystals needed. Six months old. Excellent condition. Must sell. \$225.00. Dennis Bird, 2307 N Benson Rd., Fairfield, Conn. 06430. Call 203-255-0812.

NEW CHANNELS! Copyrighted book details how to install sliders, increase power, add new channels to most new and old units. Many pages. \$9.95; TECOM, Box 696, Welcome, NC 27374.

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, Ohio 43140. (614) 852-9446.

WORLD'S No. 1 Manufacturer, electronic keyers, telegraph hand keys, code practice oscillators, SWR meters with antenna tuner in one unit, allowing tuning AM or CB antenna to best performance; other items. Dealers, operators, send for free catalogs, best prices. GLOBALMAN, Box 388S, El Toro, Calif. 92630. Telex 678496.

CB DEALERS, send your letterhead or business card today for our price list. We are a complete and service distributor: TWE, Dept. S, P.O. Box 4200, Victoria, Tx 77901.

SIDEBAND DECALS! Tell the world that Sideband is the greatest! Spectacular new 3-1/2 inch 3-color water transfer Sideband decals! One decal only \$1.25 ppd! Two or more only \$1, ea., ppd. Dealers wanted! Sidebander's Service Bureau, Box 381-Y, Smithtown, NY 11781.

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WANTED FOR \$\$\$CASH- Back in 1957 the Lionel Co. Made a small set of toy trains specifically designed for girls. It had a pink locomotive and several other cars, all in pastel shades. The set wasn't very popular, hence not too many sold. However, I need this set for my collection, and am willing to pay up to \$400 cash for a complete set in mint condition. If you have this item please write: Dick Cowan, S9 Magazine, 14 Vanderverter Ave., Port Washington, NY 11050.

SIDEBANDERS! Old Timers! Newcomers! Future Sidebanders! Affiliate with the largest, oldest and most well known SSB Network! No charge for SSB ID numbers from current numbering blocks. Lots of extras and goodies available! Send self-addressed stamped envelope for FREE info and application. No Obligation! Sidebanders' Service Bureau, P.O. Box 381-X, Smithtown, NY 11787.

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