

SUPER SUMMERTIME SPECIAL ISSUE!

S9

AUGUST 1964

50c

SPECIAL REPORT ON SIGNALS

the citizens band journal

**CB & PUBLIC SERVICE
POOR MAN'S PREAMP**

**56 FOREIGN QSL SWAPPERS
CB ZONING LAWS**



The OFFICIAL CB RADIO MAGAZINE

INTERNATIONAL'S NEW EXECUTIVE 750-H CITIZENS BAND TRANSCEIVER . . . FOR PEOPLE WHO EXPECT THE VERY BEST*



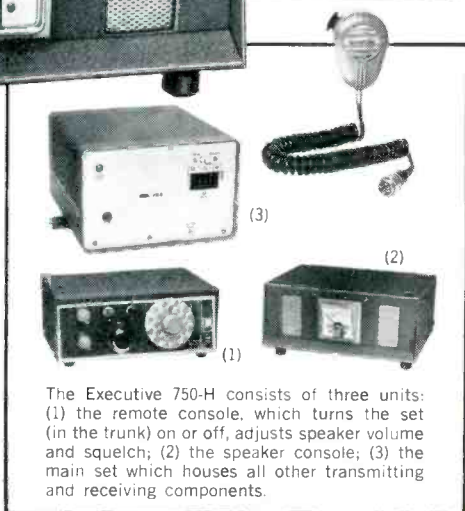
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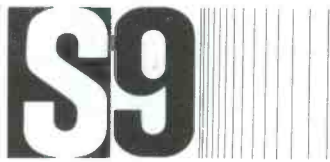
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Vol. 4, No. 8

S. R. COWAN, KBI7182, PUBLISHER

August, 1964

Cover: See page 37 for details.

the citizens band journal 14 Vanderventer Ave., Port Washington, N. Y.

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STAFF

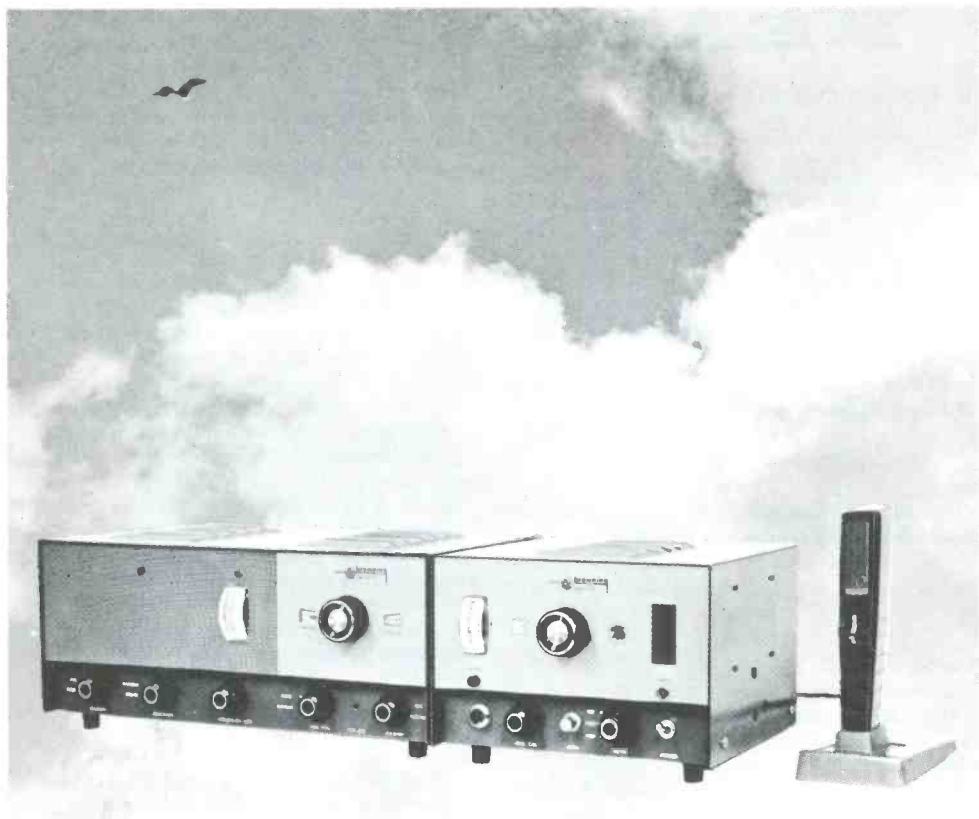
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READER MAIL

10 CODE COMMENT

Sirs:

We would appreciate 100 copies of the Official National CB 10 Code, one for each member.

James T. Carter, Corresp. Secy.
S. Calif. 11 Meter League
Bell Gardens, Calif.

Tom:

Each copy of S9 is better than the last. Keep it up, you've really got something good going. Enclosed is a self addressed and stamped envelope for a few copies of your CB 10 Code.

T. L. Matlock, Jr., KCJ8765
Greensboro, N. C.

Sirs:

Your Official National CB 10 Code is to be used by our REACT Team as our official code.

Leslie N. Cannell, KFA6882
Los Angeles County REACT
Centinela Valley District
Lennox, Calif.

Dear S9:

A lot of CB'ers drop by my CB shop and I'll be very happy to help establish a standard Official National CB 10 Code. Please send me some copies to distribute.

Robert L. France, KFC3480
Bob & Ray's Repair
Sacramento, Calif.

Dear Tom:

It is our opinion that your Official National CB 10 Code is a definite aid in emergencies. We have travelers from all parts of the country passing through this area as we are situated on US Highway #1, just south of Miami, Fla.

William Tugend, Pres.
S. Dade Emergency Commo. Assoc.
Goulds, Fla.

FLASH!

As we go to press, we expect that the S9 experimental mobile unit will be taking to the highways during the first two weeks in August. Plans call for a trip from our offices in Port Washington all the way south to the eastern coast of Florida, possibly as far south as Miami. We will be checking out several mobile rigs and antennas along the way and will most likely be in operation on all channels, with a full time monitor on Channel 11. Look for us, our call is KBG4303. The trip north should be in mid-August.

Tommy:

The Executive Committee of the SRCBC has voted to endorse your Official National CB 10 Code. We require 100 copies.

Mark Knight, Pres.
Savage Road CB Club
Annapolis Jct., Md.

This is a sampling of literally hundreds of letters which arrived at our office within the first week or two after the June issue went to subscribers and onto the newsstands. CB'ers and CB clubs in all states have given us an unprecedented vote of confidence in this first attempt at giving all CB'ers a "universal" language. Because of the great demand for reprints of this code, we will be running a tear-out of the code between pages 16 and 17 of all issues of S9, starting in this issue. Additional copies, printed on heavy, stiff, paper are available free if you send a stamped, self addressed, envelope to: 10 Code, S9 Magazine, 14 Vanderverter Ave., Pt. Washington, N. Y. 11050. Clubs requesting 20 or more copies please write on official letterhead, signed by an officer.

WHO'S A FINK?

Tom:

I was utterly shocked when I read in your June issue about how the ACBA was going to "fink off" on Part 15 operators which they thought they were going to find. It looks to me that this mess of loudmouths is trying to find some group to smear so they can look good by comparison. What can we do to fix these misguided people

Dan Fetscher,
Katonah, N. Y.

CB CONFIDENTIAL

Dear Tom:

I don't believe that our club has ever written to your magazine, but I would like to say, on behalf of our members, that your June issue really hit the nail on the head when you asked, in the *CB Confidential* story, "How many CB'ers have actually read Part 95?" I don't know about the rest of the country but up here it sometimes doesn't pay to turn on your rig what with all the unnecessary talking going on. Possibly some of these people don't realize how foolish they seem to others using CB, although I know that some just don't have any regard for others. Keep knocking these CB'ers who don't believe in rules and regulations so that sincere CB users can obtain maximum use from our rigs.

Richard Delaney, Secy.
CB Crystaleers
Athol, Mass.

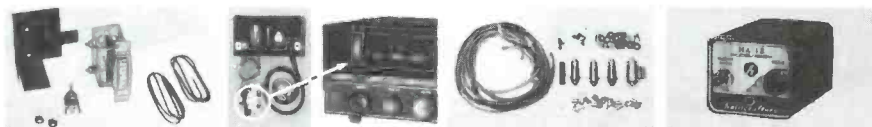


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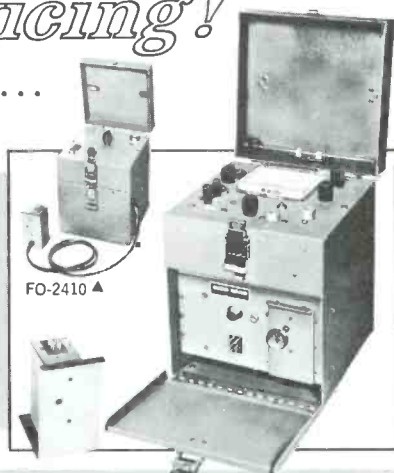
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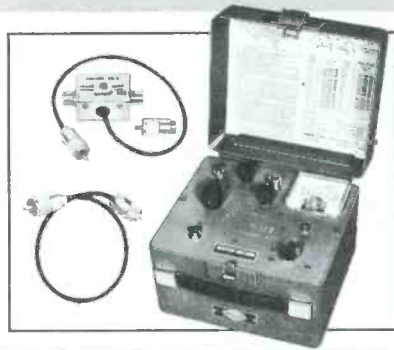
FM-5000 FREQUENCY METER 25 MC to 470 MC

The FM-5000 is a beat frequency measuring device incorporating a transistor counter circuit, low RF output for receiver checking, transmitter keying circuit, audio oscillator, self contained batteries, plug-in oscillators with heating circuits covering frequencies from 100 kc to 60 mc. Stability: $\pm .00025\%$ $+85^\circ$ to $+95^\circ\text{F}$, $\pm .0005\%$ $+50^\circ$ to $+100^\circ\text{F}$, $\pm .001\%$ $+32^\circ$ to $+120^\circ$. A separate oscillator (FO-2410) housing 24 crystals and a heater circuit is available. Dimensions: FM-5000, $10'' \times 8'' \times 7\frac{1}{2}''$.

FM-5000 with batteries, accessories and complete instruction manual, less oscillators, and crystals. Shipping weight: 18 lbs. Cat. No. 620-103 \$375.00
 Plug-in oscillators with crystal \$16.00 to \$50.00



FO-2410 ▲



C-12B FREQUENCY METER For Citizens Band Servicing

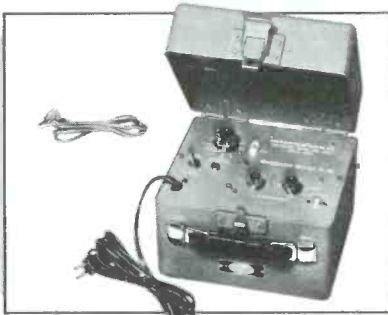
This extremely portable secondary frequency standard is a self contained unit for servicing radio transmitters and receivers used in the 27 mc Citizens Band. The meter is capable of holding 24 crystals and comes with 23 crystals installed. The 23 crystals cover Channel 1 through 23. The frequency stability of the C-12B is $\pm .0025\%$ 32°F to 125°F , $.0015\%$ 50° to 100°F . Other features include a transistorized frequency counter circuit, AM percentage modulation checker and power output meter.

C-12B complete with PK (pick-off) box, dummy load and connecting cable, crystals and batteries. Shipping weight: 9 lbs. Cat. No. 620-101 \$300.00

C-12 CRYSTAL CONTROLLED ALIGNMENT OSCILLATOR

The International C-12 alignment oscillator provides a standard for alignment of IF and RF circuits 200 kc to 60 mc. It makes the 12 most used frequencies instantly available through 12 crystal positions 200 kc to 15,000 kc. Special oscillators are available for use at the higher frequencies to 60 mc. Maximum output .6 volt. Power requirements: 115 vac.

C-12 complete, but less crystals. Shipping weight: 9 lbs. Cat. No. 620-100 . . \$69.50



C-12M FREQUENCY METER For Marine Band Servicing

The International C-12M is a portable secondary standard for servicing radio transmitters and receivers used in the 2 mc to 15 mc range. The meter has sockets for 24 crystals. The frequency stability is $\pm .0025\%$ 32° to 125°F , $\pm .0015\%$ 50° to 100°F . The C-12M has a built-in transistorized frequency counter circuit, AM percentage modulation checker and modulation carrier and relative percentage field strength.

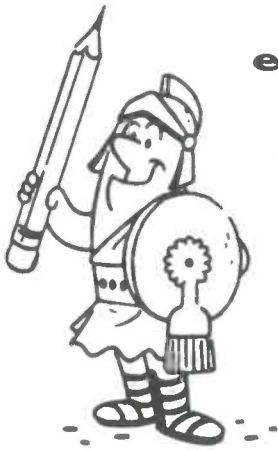
C-12M complete with PK (pick-off) box and connecting cable, batteries, but less crystals. Shipping weight: 9 lbs. Cat. No. 620-104 \$235.00
 Crystals for C-12M (specify frequency) \$5.00 ea.

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18 NORTH LEE OKLAHOMA CITY, OKLAHOMA



editorial

KBG4303 rides again!

by TOM KNEITEL
EDITOR, S9

POINT OF CLARIFICATION

From time to time we make the point here that local CB clubs are the backbone of the service and that, thus far, no "national club" of sufficient worth has come along to make us consider changing the original opinion. It does seem timely, however, to expand on this point since there is one national group which should certainly receive serious consideration from every CB'er who has a shred of public service intention in his noggin. The national group, of course, is REACT.*

We don't want anybody to get the idea that the REACT program is any breed of "national club" which is to be included in the rather minimizing statement referred to above. REACT is far from being a club—it does not aim to promote good fellowship, monogrammed beanie hats, thought control, snotty letters to the FCC and to members, and all the other sundry things you have seen pouring forth from so-called "national clubs." REACT is a serious program, set up on a national basis, for the sole purpose of achieving maximum utilization of CB equipment during any period of local, regional, or national emergency.

Members are recruited and carefully screened before they are accepted—frequently an entire local club will affiliate with the REACT program and establish their own REACT "team" (which, by the way, does not interfere with the social activities of the original club).

The REACT program has already proven itself in countless tests—search and rescue operations, floods, transportation mishaps, etc. Look through our "CB Chit Chat Column" each month for the latest feats of derring-do provided by REACT.

If you want additional information on how you can become an integral part of this im-

portant and vital CB communications network, drop a card to Mr. Henry Kreer, National Director, REACT, 5th and Kostner Avenues, Chicago, Ill. 60624.

REPRINT OF THE MONTH AWARD

Probably the biggest mistake we ever made was chiding *CB Magazine* for reprinting old articles from *CB Horizons* because it looks as if they have not only "gotten the message" but have updated their reprint tastes to include current issues of *S9 Magazine*!

If you want to flip laughing, take a peek at the article on page 15 of the May issue of *CB Magazine* (the May issue came out in mid-June); then dig out of the closet your April issue of *S9* (which came out in March) and look at page 20. Good grief—only a hair-dresser could tell the difference!

Fearless Leader, KB17181, Big Chief of *S9* teepee, him not get same chuckle out of *S9* reprint as lowly Editor. Many braves and squaws from all call areas send us smoke signals to say somebody stealing horses from *S9*, they ask, "What *S9* gonna do 'bout city slicker who take property?" *S9* reply with old Oklahoma Indian proverb: "Injun who rustle horse behind teepee cannot sell same horse to member of tribe." Most CB injuns already belong to *S9* tribe—nobody need tired old stolen horses.

ALL THE WAY

Seldom have we seen a company jump so boldly into the CB business, so a word or two to comment on these efforts seems to be in order at this point. The company in question is *United Scientific Laboratories* and they are not only full fledged card swappers (a giant full color QSL, no less) but they are also giving away some of their new rigs to

Continued on page 59

* "All About REACT," *S9*, November, '62, p. 27.

1958...the RCA Radio-Phone Series

1959...the RCA Mark VII

1963...the RCA Mark VIII

and now 1964...

THE NEW RCA MARK NINE

the latest and greatest RCA CB radio of them all

Look at some of the new features...



NEW! Combination "S" Meter and Relative RF Output Meter

"S" Meter indicates the relative strength of incoming signal in "S" units. RF Output Meter (EO) indicates relative strength of the signal being transmitted.

NEW! Spotting Switch

Permits precise manual tuning of receiver without use of receiver crystals. Receiver can be tuned (or "spotted") quickly to any incoming channel. This means, when you buy crystals for extra channels, you can (if you wish) omit the RECEIVE crystals and buy only TRANSMIT crystals.

NEW! External Speaker Jack

Lets you connect an external speaker to the set, so incoming calls can be heard in remote locations.

RCA, a pioneer in the development of citizens' band radio, has been providing quality equipment since the inception of the Class D Citizens' Radio Service in 1958. Now, these years of experience culminate in the great new RCA Mark Nine.

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Public Service, What?



SOME COMMENTS BY A POLICE OFFICER

BY DOUGLAS BICKNELL, KLJ0604

As a police officer I would like to comment on the subject of the application of CB in the role of Public Safety. With increasing interest I have been reading of the many clubs interested in this line of activity. If properly presented and utilized, CB can be one of the greatest boons to the Public Safety field. (This is a personal view, after talking with many police and fire officers throughout the State of Ill.)

The following is merely a suggestion which I hope will be of help to the CB club members wanting to go into this line of activity. This is not intended to be critical but rather suggestive.

First of all why hasn't CB radio been wholly accepted and welcomed by Public Safety officials. In cities where CB units were used these problems were most harmful.

1. A Public Safety radio room is a busy place with as many as 14 phone calls coming in per minute. Also, as many as 5 frequencies are monitored at times. The radio operator has no time to listen to idle chit-chat and signal reports. The failure to set a standby channel and using it as such.
2. At many Public Safety organizations, the late night hours are usually quiet and the radio operators use this time for radio repair. They don't care if you can't
- hear any DX and have no one to talk to, they want to get the radio fixed and be left alone.
3. The failure of most clubs to screen members. One member with a bad record will reflect on the club in general.
4. The failure to utilize proper 10 signals used by the agency in question.
5. Too many club members when receiving auxiliary badges tend to become one man police depts.
6. The failure on the part of the member to attend meetings that will be of help to him. (That is those put on by the agency in question.)
7. The tendency of the club member to be over exaggerated in making a report to the agency. Any Public Safety agency has a limited amount of man power and time. When a minor accident is reported to as a major one and as many as 3 squad cars are sent it is a waste of time and the taxpayers money. These extra cars could be used elsewhere.

I hope this will be of help to the CB club wanting to offer its time and help to a Public Safety agency.



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 "UNBELIEVEABLE"
 "JUST GREAT"
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Courier 23

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°°Tom Kneitel - S-9 magazine

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All you lucky birds with Sonars and Johnson Messengers can forget this article because this is intended for us poor folk. Now then, you other shoe-string CB'ers and I have a common problem. The wife and kids have to eat and the rent has to be paid, so you went out and bought what CB gear you could afford. Your rig has plenty of punch in the transmitter but the receiver could stand some help. That's the way I felt about my unit and what your reading is a pretty good answer to the problem.

A lot of the inexpensive units have no RF amplifiers, but a five dollar bill (you'll get some change) and an hour of effort can work wonders with your set. Here's how.

This unit has three tuned circuits to reject signals on nearby channels and a transistor amplifier to boost the input signal level. While the layout of parts is not critical these few suggestions should be followed. Take the three trimmer capacitors and mount them as far apart on the perforated board as possible. Use a transistor socket to install the 2N1178. Twenty five cents for the socket is a lot cheaper than the cost a new transistor to replace the one you burned while soldering. A piece of string will hold the antenna transformer securely if you choose to lay it on its side. Don't use wire, it confuses the electrons.

With these tips in mind, let's wire the unit.

PARTS LIST

- C₁, C₂, C₃ 3-30 mmf Trimmer capacitor
- C₄ .01 mf capacitor
- C₅ 100 mmf, 50VDC disc Capacitor
- C₆ .01 mf 50VDC disc Capacitor
- L₁ Lafayette HP-66 Antenna Transformer
- L₂, L₃ 1 megohm @ 1 watt, #24 enameled wire (see text)
- R₁ 1000 ohm @ 1/2 watt
- R₂ 470 ohm @ 1/2 watt
- R₃ 33000 ohm @ 1/2 watt
- Q₁ RCA 2N1178, 2N1179 or 2N1180 Transistor
- Sw 1 S.P.S.T. switch
- Batt 1 1/2 volt pen cell and holder
- Misc Perforated phenolic board, 6x3 inches. Transistor socket, heat sink. 4 feet RG-58/U coax

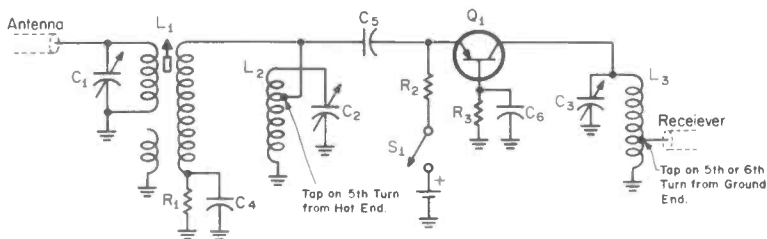
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PREAMP

**ALL IT TAKES IS \$5
AND A LITTLE EFFORT**

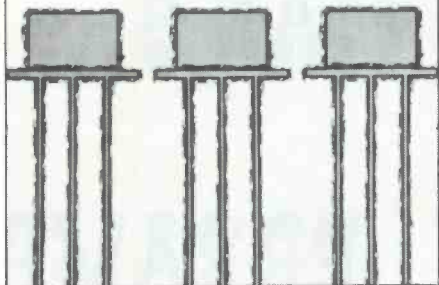
BY PETE CARR, KLP6503



S9 DOES IT AGAIN!

103 simple transistor projects

Tom Kneitel



Yes, "Mr. S9," Tom Kneitel, has created an exciting adventure through *103 Simple Transistor Projects*. His new book gives you circuits which are not only simple (2, 3, and 4 transistors) but fill every CB-shack need. Beginner and expert alike will actually enjoy building such things as: CB mike boosters, transmitters, transceivers, receivers, noise killers, channel locators, frequency standard, battery chargers/eliminators, modulation monitor, power inverter, amplifiers, and more . . . More . . . **MORE!!!** All necessary instructions (in Tom's easy-to-understand style) and hints accompany each project, and Tom has put together an entire chapter on how to construct transistor projects to get the best results.

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Enclosed is \$_____ for _____ copies of Tom Kneitel's newest book, *103 Simple Transistor Projects*. Please rush!

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Start from the left side of the schematic and work toward the right. After mounting the three trimmers and the antenna transformer push the transistor socket through the board somewhere between the second and third tuned circuits. The coils L_2 and L_3 are easy to wind so don't worry if there's a little space between the windings. The range of the trimmer is large enough to compensate. L_2 has 23 turns wound on a 1 watt, 1 megohm or higher resistor. Scrape the enamel from one end of the wire and solder to the resistor lead close to the body. Wind five turns and twist a half inch tall loop. Then add the other 18 turns and solder the wire end to the other resistor lead. L_3 has the same number of turns L_2 but has no loop. After winding the coil, locate the fifth and sixth turns from the ground side and scrape off enough enamel for a good solder connection. Install L_2 and L_3 on the board close to their respective trimmers and complete the rest of the wiring. Before installation double check the board for good solder connections and proper wiring.

The unit is wired to the set through short lengths of RG-58 coax cable. Pull the bottom plate off your rig and locate the push-to-talk relay, relay tube or switch. Find the wire that goes to the first tuned circuit of your receiver and remove it. Now take the coax marked "Antenna" and solder the center lead to the relay where the wire was. Connect the braid to the chassis. Next, take the coax marked "Receiver" and attach the center lead to the same lug on the first receiver tuned circuit where the old wire was. Button up the set and tune to your local call channel.

Taking one of your wife's emery boards or a non metallic tuning tool, adjust L_1 and C_1 for peak signal. Then tune C_2 and C_3 for peak signal. Jump back and fourth between these two since there is some interaction which will effect tuning.

What you will hear is not a booming increase in the volume of strong stations since the receiver AVC circuit limits their strength. But you will hear a very noticeable increase of the more distant locals. This is especially true of mobile units where antennas are shorter in length and lack a good ground plane.

You can put the circuit board in a *Minibox* or put the bare chassis on the back of the set. But if you mount the chassis near the set put a small heat sink over the transistor to help it get rid of tube heat. If you use this unit in the car put a drop of glyptol (what?) or common glue on the trimmer screws to keep that fine tune.

S9

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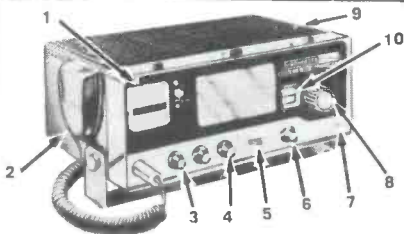


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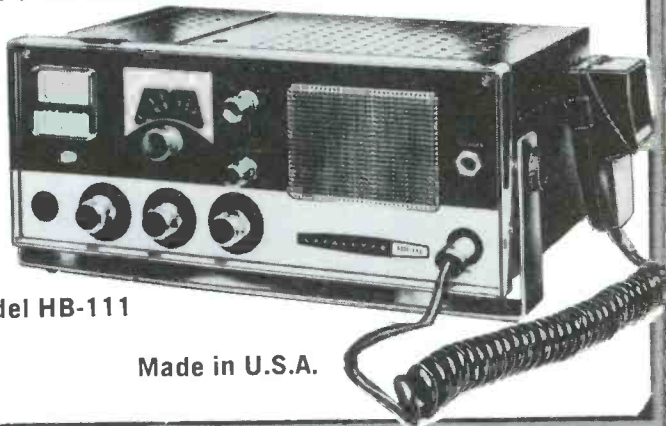
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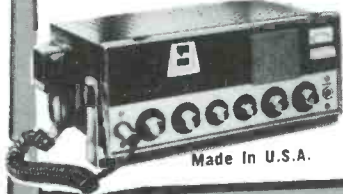
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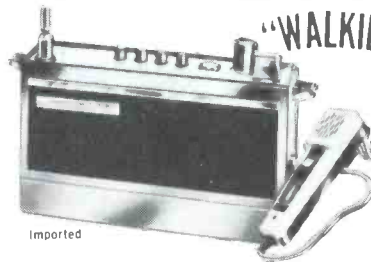
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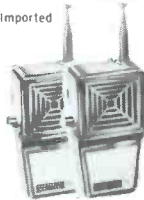
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MORE ON ZONING LAWS



CITIZENS BAND LEGAL NOTES

BY MAURICE J. HINDIN, W6EUV

One of the State Supreme Court cases involving the relationship of radio activity and local ordinances which is most frequently cited by lawyers is a case known as the Appeal of Lord. This case was decided in the Supreme Court of Pennsylvania.

The case developed as follows: Mr. George Lord was an amateur radio operator who lived in the Borough of Munhall, Pennsylvania. He desired to erect a 32 foot mast in the backyard of his home to support a beam antenna. He was advised that it was necessary for him to secure a building permit before he could erect the mast. He thereupon applied to the appropriate authorities for a building permit. In due course, the permit was denied. After exhausting his procedural remedies before the Board of Adjustment, Mr. Lord instituted a law suit in the Court of Common Pleas to compel the issuance to him of a building permit. The case was tried before the Court of Common Pleas and resulted in a victory for Mr. Lord. The Court ordered a building permit to be issued to him.

The city authorities then appealed the judgment of the Court of Common Pleas. The appeal was heard by the Superior Court. After hearing the arguments presented on the appeal, the Superior Court entered a judgment reversing the judgment of the Court of Common Pleas and upheld the ruling of the Board of Adjustment in denying Mr. Lord's application for a building permit.

Mr. Lord thereupon filed an appeal in the Supreme Court of the State of Pennsylvania. The Supreme Court, after a full hearing, reversed the judgment of the Superior Court and reinstated the Order of the Court of Common Pleas which had ordered the grant-

ing of the building permit to Mr. Lord.

This case has been frequently cited because the Supreme Court of the State of Pennsylvania reviewed, at some length, the history of zoning laws. Since amateurs are frequently involved in legal problems involving zoning laws, reference to the case of the Appeal of Lord may be helpful. While no cases have as yet appeared involving citizens band operators, the same problems exist for them as for amateurs. Hence the case is of interest to citizens band operators also.

The Supreme Court, in reviewing the history of zoning laws, pointed out that, historically, owners of real property have enjoyed the right to use their property as they see fit provided that such use does not (1) violate laws of a State or the Federal Government; (2) create a nuisance; (3) violate a covenant or deed restriction; (4) violate valid zoning ordinances.

Zoning ordinances, on the other hand, have been upheld by the Courts if they are reasonably necessary for the preservations of health, safety, morals or the general welfare of the community. Zoning ordinances have been held invalid, however, where they have been found by the Courts to be unjustly discriminatory, arbitrary, unreasonable or confiscatory. It can readily be seen that whether a particular zoning law is valid or not may depend upon a number of variable circumstances. Very often the only way in which the validity of a zoning ordinance can be tested is by court proceedings.

For anyone interested in reading or referring to the Appeal of Lord Case, it is officially cited as 368 Pa. 121, 81 A. 2d 533.

S9

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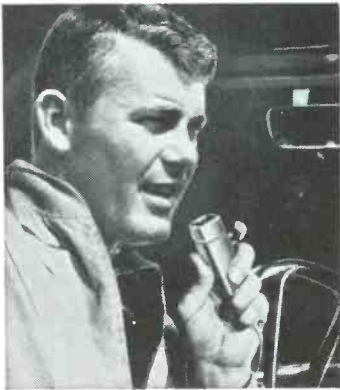
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A CONFIDENTIAL DISSERTATION OF THE PROPAGATIONAL ASPECTS OF ELECTROMAGNETIC ENERGY IN THE 11 METER WAVELENGTH, ESPECIALLY RELATING TO THE DECAYING CHARACTERISTICS OF SAME . . .

or

WHAT'S HAPPENING TO CB SIGNALS?

BY GEORGE HAYDEN, KEA5088

During the past several years there has been a drastic reduction in the number of skip openings on the Citizens Band. What has happened? Why have conditions gotten so bad? Will there ever be a return to the *Good Old Days* when a listener in New York City, for example, could hear New Orleans, Denver, and Minneapolis on the same afternoon and think nothing of it?

In order to understand what has taken place in the Citizens' Band and make a prediction about the future it is first necessary to discuss the basic principles of 11-meter propagation.

MODES OF PROPAGATION

The Ground Wave. Figure 1 shows what happens to a radio wave when it leaves a transmitting antenna. The signal travels outward in all directions, moving simultaneously along the ground and through space.

The part of the signal that travels along the ground remains in contact with the earth until it dies out. The effects of the earth on these *ground wave* signals are much like the effects of friction on a ball rolling along a flat surface. The loss of energy due to friction tends to slow the ball down and finally bring it to a complete halt.

Similarly, the earth weakens the radio signal traveling along the surface, and it rapidly *attenuates*, or wears out. The extent to which the earth affects a radio wave depends on the type of ground over which the signal travels, the wavelength of the signal, and the total power the transmitter is radiating.

In general, smooth ground is better than rough terrain, flat preferable to mountainous. Also, with the same kind of ground the longer the wavelength the further the signal will travel. In most cases, 11-meter signals do not travel more than several miles.

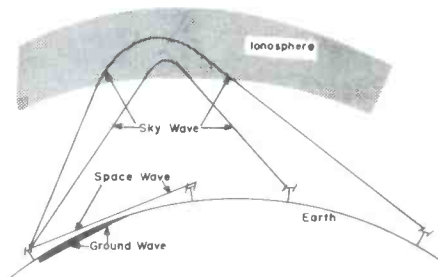
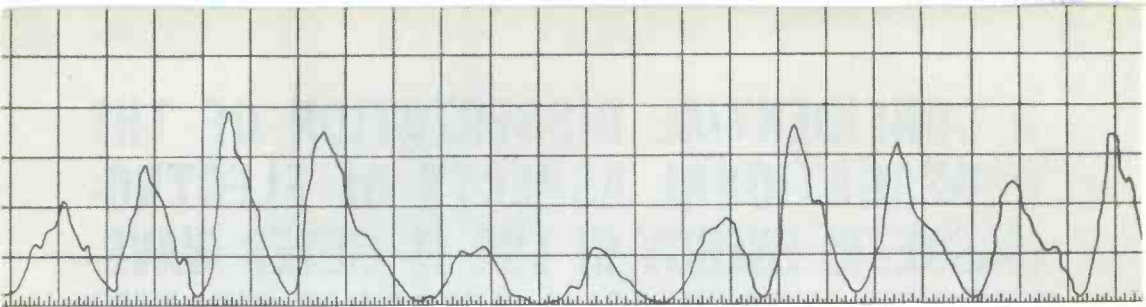


Fig. 1—Modes of propagation of a radio wave.



The Direct Wave. Part of the radio signal leaving a transmitting antenna travels in the lower atmosphere. This *direct*, or *space wave* can travel direct from the transmitting antenna to the receiving antenna if the latter is not too far beyond the curvature of the earth. For this reason, the kind of transmission just described is also referred to as *line of sight*, since the transmitting and receiving antennas are within "sight" of each other.

It is apparent that the higher above ground the antennas are, the further the distance covered. The television antennas atop the Empire State Building in New York City, for example, over 1000 feet above the ground, cover an area greater than 50 miles in all directions from New York.

Line of sight distances for a height above ground of ten feet for both transmitting and receiving antennas are approximately three miles. If both antennas are 50 feet above ground, coverage is extended to 18 miles.

In addition to height above ground, atmospheric effects can sometimes influence line of sight coverage distances, but these are not significant in comparison to antenna elevation.

Both the ground wave and the space wave discussed thus far travel relatively short distances. Their chief advantage lies in the fact that their characteristics do not change radically from night to day, from one season to the next, or from year-to-year. Such changes, which are of major importance, *do* take place, however, when it comes to Citizens' Band DX.

The Sky Wave. Another look at Figure 1 will show that a third component of the signal travels upward toward outer space. The signal is shown striking a region in the upper atmosphere and being returned to earth some distance from the transmitter. If it were not for this region, called the *ionosphere*, most long distance high frequency radio communication would be impossible, and there would be no such thing as Citizens' Band DX.

The ionosphere is an electrified region beginning at an altitude of about fifty miles and extending several hundred miles up. It has the unique property of being able to reflect certain radio signals and return them to earth. The part of the radio wave which travels to the ionosphere and is returned to earth is called the *sky wave*, and from here on our discussion will deal solely with sky wave signals and their dependence on the ionosphere.

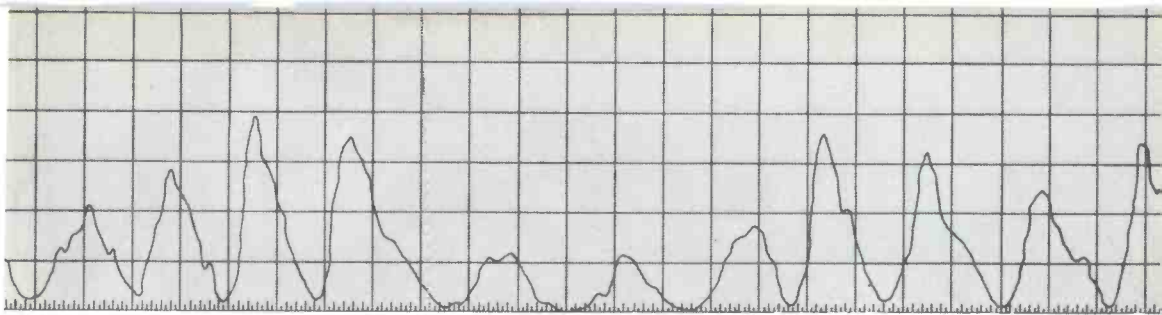
FORMATION OF THE IONOSPHERE

The ionosphere is formed primarily by ultra-violet and other radiation from the sun. This radiation interacts with gases at different altitudes above the earth, and these become electrified, or *ionized*. They then have the ability to reflect certain radio waves in the high frequency range from 3 to 30 megacycles (mc).

The intensity of ultra-violet radiation reaching the upper atmosphere is subject to considerable variation. As a result, the ionosphere itself, which depends on this radiation for its existence, is also subject to wide variation. These variations occur from day to night, between one season and the next, and also from year to year, over an eleven year cycle.

One result of these ionospheric variations is that the range of frequencies the ionosphere will reflect is subject to considerable change.

Of prime importance are the year-to-year changes, referred to as the 11-year sunspot cycle. This is the case because the amount of ultraviolet light reaching the earth depends to a great degree on the number of sunspots appearing on the sun.



During the period 1957-59, for example, more sunspots were observed on the sun than ever before in history. As a result, the intensity of ultraviolet radiation striking the ionosphere was greater than had ever previously been observed. As a consequence, the range of frequencies the ionosphere was able to reflect was greater than ever before observed, and conditions on 11 meters were the best in the history of radio. At the same time, the lower frequencies were very poor.

Since 1958, when the number of spots on the sun reached a high never before observed, there has been a rapid decline in sunspot activity. With this decline has come a deterioration in the bands that were best during the 1957-59 period, and this includes the 11-meter band. Since we have not yet reached minimum sunspot activity, conditions will continue to decline for another year or so before any improvement begins.

The picture, fortunately, is not all black, and there is evidence to indicate that during years of minimum sunspot numbers propagation of 11-meter signals improves at some periods because of other factors than sunspots. Before going into these factors we must first briefly discuss the structure of the ionosphere, so that we can fully understand transmission of signals in the Citizens' Band.

THE STRUCTURE OF THE IONOSPHERE

Ionization in the upper atmosphere occurs at different altitudes. This is so because ultraviolet radiation occurs over a relatively wide band of frequencies, which penetrate the atmosphere to different levels. Since the gases in the upper atmosphere respond to different wavelengths in the ultraviolet range, there is a tendency for ionization to occur more at some altitudes than at others.

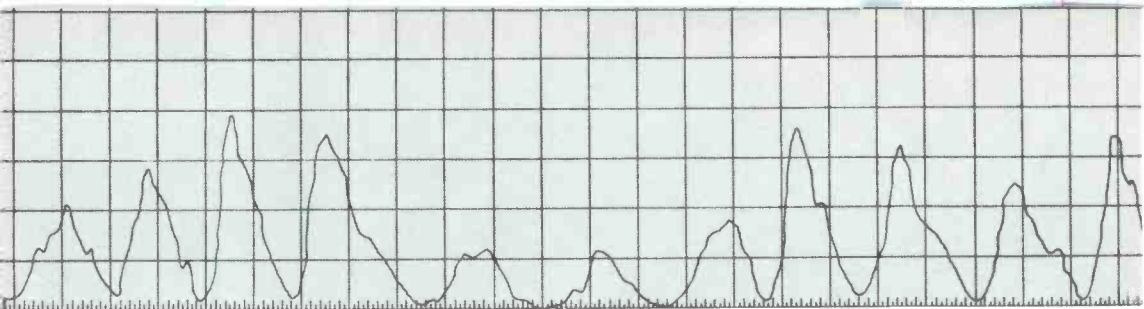
There are four levels, or layers, at which maximum ionization occurs, designated D, E, F₁, and F₂. These layers exhibit changes in height and characteristics from day to night and season to season. Figure 2 illustrates the layers of the ionosphere, typical heights, and daily and seasonal variations.

The D Layer. The D layer is the lowest region of the ionosphere. It exists at a height of about 30 miles. Less is known about this layer than the others, even though it is closer to earth than any other ionospheric layer. It is believed that during radio storms most of the absorption of radio waves takes place in this region. Ionization in the D layer is low, and follows the angle of the sun in the sky, being maximum around noon and minimum at night.

The E Layer. The E layer occurs primarily during the day at an altitude of about 60 miles. The levels of ionization in this layer are considerably higher than in the D layer. Like the D layer, ionization is maximum at noon and drops nearly to zero at night.

During the daylight hours of the summer months the E layer is often capable of reflecting 11 meter signals up to distances of about 1200 miles. This effect, which is sporadic in nature, is one of the most important means of propagating signals in the Citizens Band. It will be discussed in more detail later, under the heading, "Sporadic-E Propagation."

The F Layer. In the daytime there are two F layers—the F₁ at an altitude of about 125 miles, and the F₂ layer at a height of from 100 to 250 miles and above, depending on the time of day as well as the season of the year.



Although ionization in the F_1 layer is much greater than in the E layer, the F_1 layer behaves similarly to it. Ionization is maximum when the zenith angle of the sun is maximum, while at night the F_1 and F_2 layers combine, leaving a single layer as shown in Fig. 2.

The F_2 layer is the most important region of the ionosphere. Regular variations in these layers occur from hour to hour, from season to season, between one location on earth to another, and over a longer period which depends on the sun, and sunspots.

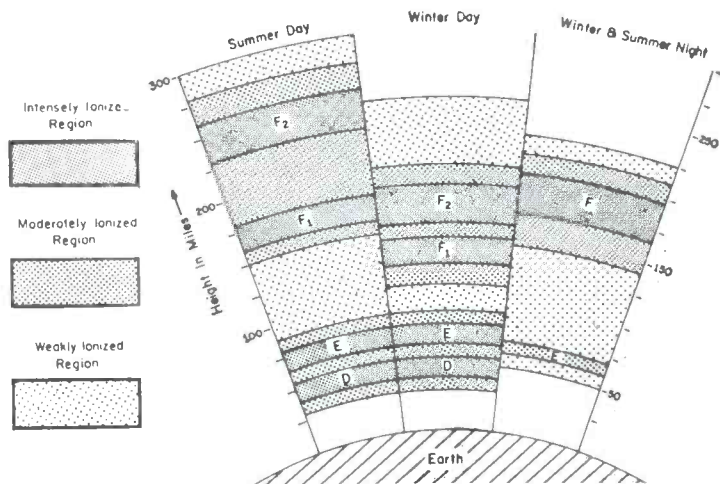


Fig. 2—Daily and seasonal variations in the ionospheric regions.

DIURNAL VARIATIONS

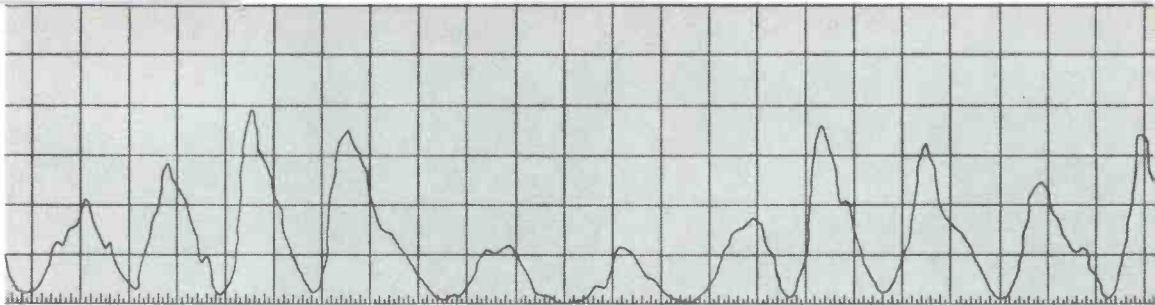
The characteristics of the ionosphere change from day to night because the earth rotates and the amount of ultraviolet radiation reaching the earth's atmosphere, therefore, varies. During the day, radiation is most intense, and ionization is maximum. At night, ionization is at its lowest. Normal ionization in the D, E, and F_1 layers varies from a minimum around sunrise to a maximum around noon, and back to minimum again shortly after sunset.

The F_2 layer is more highly ionized than any of the other layers, and under normal conditions it can reflect higher frequencies than the other layers.

The properties of the F_2 layer are such that during the nighttime hours in the United States propagation of 11-meter signals is never regularly possible. As a result, long distance reception of CB signals during the nighttime hours can only occur because of some unusual condition in the ionosphere.

SEASONAL VARIATIONS

The ionosphere is stronger during the daylight hours of the winter months, when the sun is closer to the earth, than during the summer. Frequencies during the daylight hours of the winter months are, therefore, usually considerably *higher* than those used during any other season. On the other hand, the nighttime ionosphere is stronger during the summer months than during the winter, because of shorter periods of darkness.



GEOGRAPHICAL VARIATIONS

The ionosphere is also stronger in tropical regions, where the sun is more directly overhead, than in temperate or polar regions. As a result, higher frequencies can be used for transmission to tropical areas than to other areas of the world.

The heights of the D, E, and nighttime F layers remain fairly constant throughout the year. The D layer is about 40 miles above the earth's surface; the E layer's average height is approximately 70 miles, and the peak intensity of the F layer is located at about 175 miles. The daytime F₁ and F₂ layers, on the other hand, vary from season to season. These variations in layer heights are shown in Figure 2.

THE SUNSPOT CYCLE

If day to night and season to season variations were the only factors affecting the levels of ionization in the ionosphere then seasonal values would recur from year to year at the same geographical location, and the long range pattern of frequencies over a particular circuit would be a simple matter to predict. Unfortunately, this is not the case.

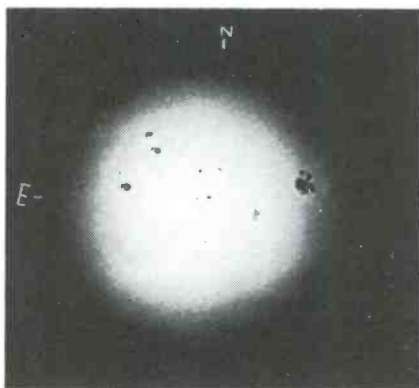


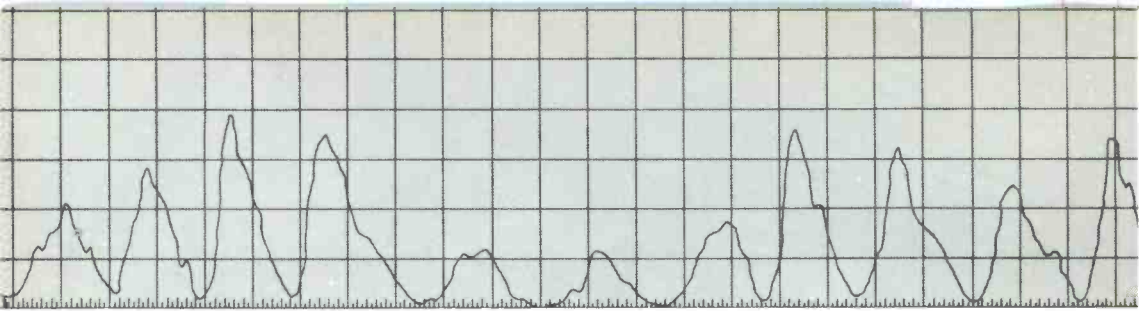
Fig. 3—Sunspots

The most important factor influencing the ionosphere is sunspot activity.

Sunspots. Sunspots are enormous craters on the surface of the sun which are surrounded by whirling masses of hot gas. See Fig. 3. Although the nature and origin of sunspots are not fully understood, it is known that sunspots are one of the principal sources of ultraviolet radiation from the sun. Since ultraviolet radiation affects our ionosphere, the importance of sunspots cannot be overemphasized.

Sunspots are a part of the sun's surface, and move across the face of the sun in an east to west direction as the sun rotates. It takes a spot approximately 13 days to move across the visible face of the sun which is about half the period of rotation of the sun, or 27 days.

In the middle of the 18th century accurate records of sunspots started being kept, and in the middle of the 19th century a German pharmacist named Hendrick Schwabe discovered the sunspot cycle. After observing



the sun on every clear day for almost twenty years he noted that the number of sunspots on the sun varied over a wide range. During some years he found the sun virtually covered with spots. During other years there was hardly a spot to be seen. Observing that these changes seemed to occur in a regular manner, he concluded that sunspots came and went in a periodic fashion.

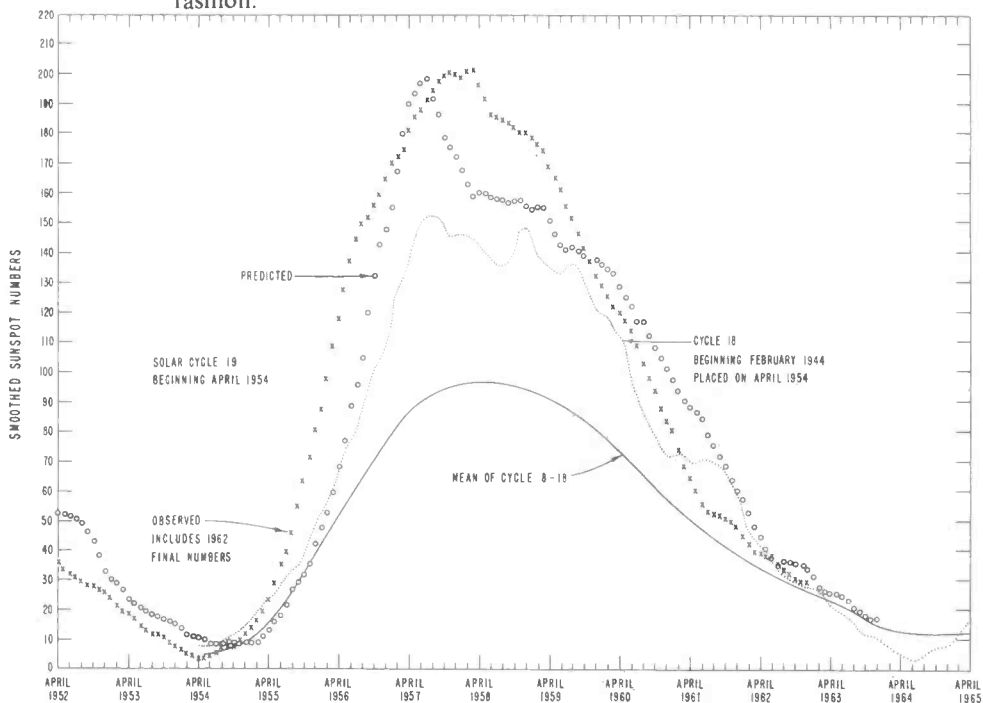


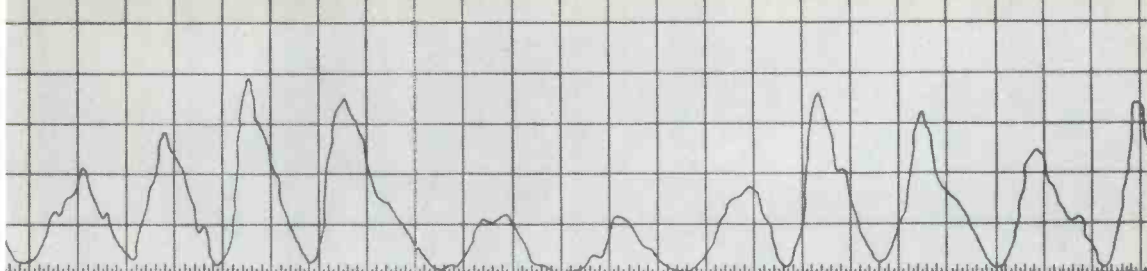
Fig. 4—The Sunspot Cycle. Progress of the present sunspot cycle, both predicted as well as observed is shown. In addition, the last complete sunspot cycle, for 1944-1954 is shown, as well as a curve giving the average of all cycles from the mid-nineteenth century through 1954.

Figure 4 shows the periodic fashion in which sunspot activity has varied over the past 20 years. There is also shown on Fig. 4 the average value for all cycles observed since the middle of the nineteenth century. The number of years for a complete cycle from minimum to maximum and back to minimum again varies, but has averaged about 11 years. For this reason the cycle is referred to as the 11 year sunspot cycle. It should be noted, however, that some cycles have been as short as nine years while others have taken as long as 14 years. The *average* is 11 years.

A study of Figures 4, 5, and 6, illustrates the tremendous importance of sunspot activity on CB propagation.

From Figure 4, we can see that in 1957 and 58 sunspot activity was at a maximum, while during the past several years it has been low.

Figures 5 and 6 show the range of useful frequencies in the United States for different distances up to 2400 miles between the transmitter and receiver.



For December of 1958, a month of high sunspot activity we can see from Fig. 5 that propagation of 11 meter signals via the regular F_2 layer of the ionosphere is possible for circuits from about 1000 miles and up. The curve marked 24 on Figure 5 is typical of a circuit between New York City or Washington, D.C. and Denver, Colorado, and shows that during the winter, CB propagation was possible every day for about four hours. As the distance increases, the useful period also increases.

Figure 6, for this past and coming winter, for low sunspot activity, shows a striking difference. We can see that there is no time when regular 11 meter openings can be expected. Since the curves give *average* values it is possible that on some days there will be openings for a limited period, but these cannot be reliably predicted.

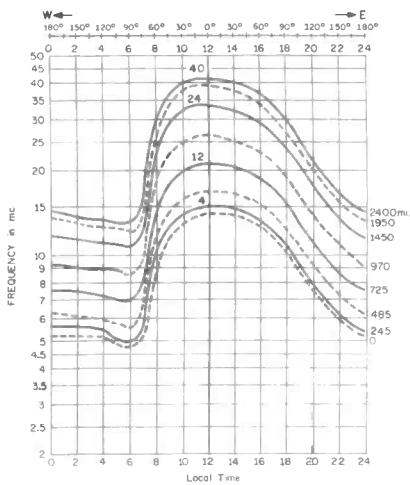


Fig. 5—Range of useful frequencies in the United States for different distances during the winter period of sunspot maximum conditions (December, 1958). Curves show that 11 meter contacts were possible on a regular basis from one to five hours daily, depending on distance between locations.

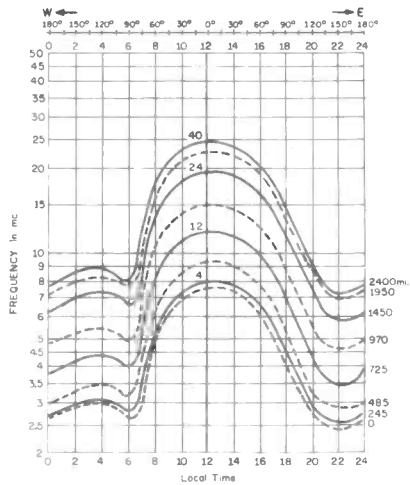


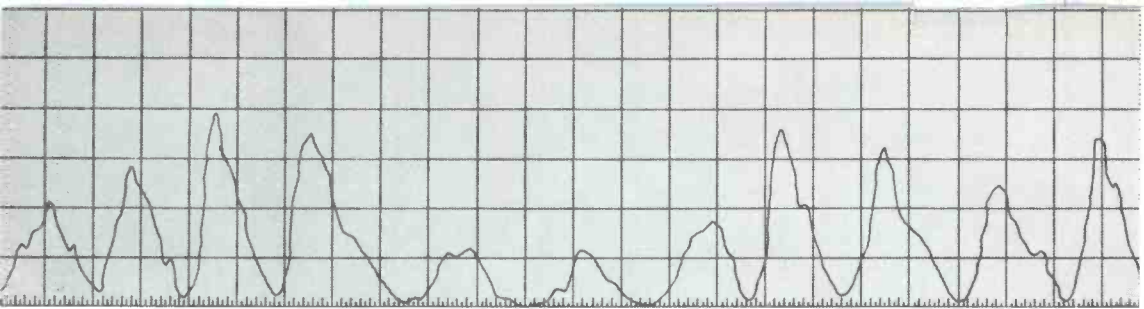
Fig. 6—Range of useful frequencies in the United States for different distances during the winter period of sunspot minimum conditions (December, 1963-64). Curves show that 11 meter contacts were virtually impossible on a regular basis.

How long will these conditions continue? Another look at Figure 4 shows that the present sunspot cycle is not expected to reach a minimum until sometime in 1965. There will be another year of relatively low activity after that. Since the time it takes to go from low to high sunspot numbers is less (average 4 years) than the time to go from maximum to minimum (average 7 years) we can expect that by the winter of 1966-67 sunspot numbers will have risen enough to give regular openings over some U.S. circuits.

It is fortunate, however, that other variations in the ionosphere occur even during sunspot minimum which under certain conditions are advantageous to the propagation of CB signals over long distances. These are generally referred to as Abnormal Ionospheric Variations.

ABNORMAL IONOSPHERIC VARIATIONS

In addition to the regular diurnal, seasonal, geographical and cyclical



variations in the ionosphere, there are certain abnormal variations, which are of short duration and which are caused by disturbances on the sun; Although these are of relatively short duration, have a significant impact on radio signals in the Citizens' Band.

IONOSPHERIC STORMS

These storms fall into two general categories—the ionospheric disturbance or storm, and the sudden ionospheric disturbance (SID). The former can either develop gradually or begin suddenly. They last from several days to a week or more. The SID, on the other hand, always starts suddenly and infrequently lasts more than an hour or so.

Both the ionospheric storm and the SID disrupt radio communications by severely limiting the ionosphere's capability to reflect high frequency radio signals.

SID's are caused by flares on the sun; these are tremendous explosions which occur within the sun and burst through its surface. They are almost always observed in or near sunspots. Flares spew forth tremendous quantities of radiation and X-rays, cosmic rays, and other atomic particles which are usually referred to as corpuscles. Much of the radiation reaches the D layer of the ionosphere, where it forms a barrier of intense absorption, thus preventing signals from penetrating to the regular layers of the ionosphere. If the storm is severe enough a complete blackout may occur, making most short wave radio communications to many parts of the world impossible.

METEOR SCATTER

Meteors, or shooting stars, as they are also called, are objects which vary in size from large boulders to microscopic particles. These are constantly entering the earth's atmosphere from outer space.

Hundreds of millions of these particles enter the earth's atmosphere every day, and during certain times of the year, when meteor showers occur, the number is even greater.

Since meteors travel at very high speeds, up to 50 miles a second and even more, they usually burn up in the atmosphere before reaching the ground.

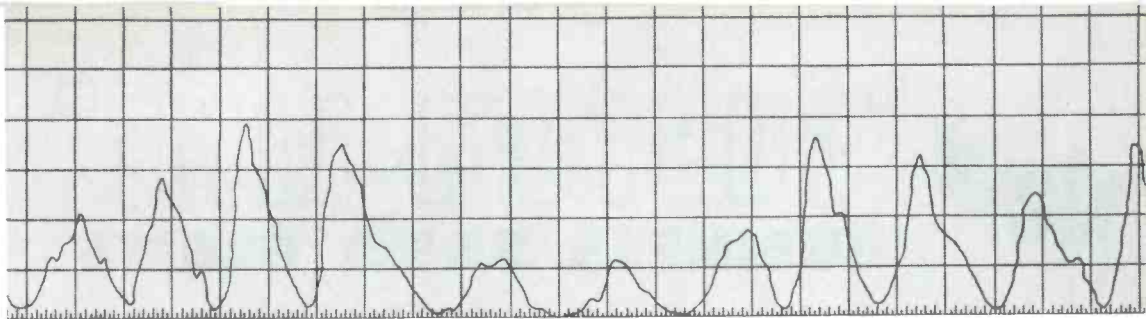
When a meteor enters the atmosphere, the intense heat generated by friction causes it to leave a trail of ionized gas behind it. The ionization produced by meteor trails is often intense enough to propagate 11 meter signals to distances of about several hundred miles. These openings occur in bursts which last from several seconds to a few minutes. They are more likely to occur during meteor shower activity such as the Perseids, which occur in early August, or the Geminids in December.

SPORADIC-E PROPAGATION

There sometimes occurs, at the lower limits of the E region of the ionosphere, "clouds" or "patches" of extremely high ionization, which are capable of reflecting frequencies much higher than the F layers of the ionosphere can.

These clouds occur at random and are short lived, lasting no more than several hours. For these reasons they are called sporadic-E (E_s) clouds.

Because of the high ionization in E_s patches they are often capable of propagating 11-meter signals.



Since the height of these areas is about 60 to 65 miles, the distance to which E_s reflected signals can travel is limited to a distance of about 1000 miles. Because of this, E_s openings are referred to as *short-skip* propagation, as opposed to *long-skip* of up to 2500 or more miles when propagation takes place via the much higher F layers of the ionosphere.

Short skip openings, which can occur from distances as close as 30 to 50 miles or so outward can take place via northern lights, or Sporadic-E.

E_s activity varies according to the time of day or season of the year. It is most common in the late Spring and Summer months. There is a secondary peak during the winter months but not nearly as common as during the summer.

E_s occurs most frequently during the daylight hours, peaking around noon. During the summer, E_s also occurs at night, but not as frequently as during the day.

Sporadic-E varies with latitude, there being an increase in this type of activity as we move south from temperate toward equatorial regions. Consequently circuits close to the southern extremities of the temperate zones may observe this effect, more than more northerly locations particularly during the daylight hours, and to a much greater extent during the summer months.

Although the mechanism of E_s is not clearly understood, it has recently been suggested that E_s appears to be more common during years of low sunspot activity. As a result, reception of 11 meter signals via this mode of propagation should be fairly frequent during the period of May to August for the next few years.

A recent theory of an Australian scientist, Dr. J. D. Whitehead, explains E_s as due to the presence of wind shears—an upper atmosphere condition in which wind velocity at a given altitude is zero while winds immediately above and below run in opposite directions at speeds of up to 200 m.p.h.

The theory holds that this action, in conjunction with the earth's magnetic field, pulls electrons from above and below into thin patches at E layer height.

SUMMARY

As the minimum of the present sunspot cycle (expected in about a year) approaches, receiving conditions will continue to worsen. As a result, DX via the regular layers of the ionosphere will remain poor, perhaps deteriorate somewhat. The outlook is bleak, but it is not entirely hopeless, for propagation via aurora, meteor bursts, or sporadic-E clouds, will still be possible. During years of low sunspot activity, there is evidence to indicate that E_s activity increases, so that during the summer daytime periods there is likely to be considerable DX in the Citizens Bands. A return to the "Good Old Days," however, will probably not take place before the sunspot cycle is on the upswing, probably the winter of 1966-7 or 67-68.



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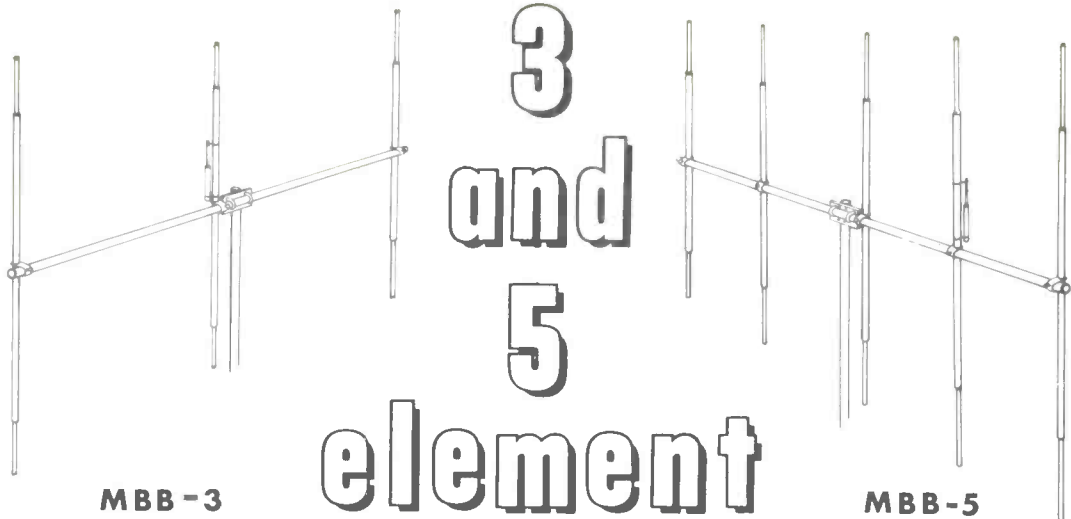
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10.1db. over iso. source		12.4 db. over iso. source
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1 KW A.M. or C.W.	Power Ratings	1 KW A.M. or C.W.
2 KW P.E.P. S.S.B.		2 KW P.E.P. S.S.B.
1.5/1 or Better	Standing Wave Ratio	1.5/1 or Better
60° horizontal	Beam Width at 1/2 Power Points	40° horizontal
85° vertical		70° vertical

MOSLEY MBB-3

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17 ft. 11 1/2 in.	Maximum Element Length	17 ft. 11 1/2 in.
9 ft. 8 in. horizontal	Turning Radius	14 ft. horizontal
6 ft. vertical		12 ft. vertical
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BY JIM KYLE, IOW0901

Since the SWR meter is such a simple and comparatively inexpensive gadget, accuracy of match between antenna and feedline has become a topic of high interest in CB circles. I even heard a fellow the other night on Channel 11 talking about how his SWR was 0.7! !

The fact that an SWR of 0.7 and one of 1.4 are identical would add humor to the situation were it not so widespread a notion that the lowest possible SWR is best. Actually, an SWR reading of 1.000 is the best you can have; no meter made in this country will read anything lower.

The term SWR stands for *standing wave ratio*, and it's a measure of the ratio between the peak voltage present on the feedline and the lowest or valley voltage present elsewhere on the line.

Through some mathematical relationships we won't go into in detail, the SWR is also identical to the ratio of feedline impedance and antenna impedance. In other words, if your antenna has an impedance of 52 ohms and you feed it with 52-ohm coax, the SWR will be 1.000 since that's what you get when you divide 52 by 52.

If, on the other hand, your antenna had an impedance of 21 ohms and you tried to feed it with 52-ohm coax, your SWR would be 52/21 or 2.48.

The major effect of a high SWR is to increase feedline losses, and both the original feedline loss and the SWR must be fairly high for the increase to be appreciable. However, it's a point of pride with good operators to keep the SWR as low as possible (remembering not to try to get lower than 1.000) and so some type of matching device is frequently needed.

The first important thing to note about such matching devices is that they must be placed at the antenna, *not down at the transmitter*. A matcher or "antenna tuner" at the transmitter will reduce the SWR between transmitter and antenna tuner, but it won't do a thing about the SWR on the rest of the feedline. To get all the benefits the tuner must be as close to the antenna as possible.

Overcoming this drawback is the fact that a good antenna tuner will allow you to load up just about anything made of metal.

What the antenna tuner does is to *transform* the actual antenna impedance to the right value to match the feedline, usually either 52 or 75 ohms.

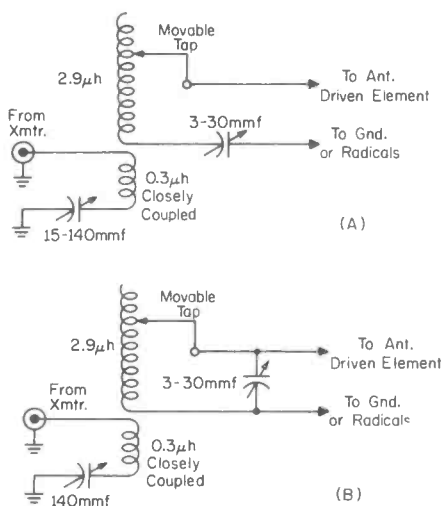


FIGURE 1. Schematics of two basic types of antenna tuners. A is for most antennas; B is for "voltage-fed" variety. Coils can be made from a length of Airdux 808 inductor by unwinding one turn at one end, counting down 19 turns, clipping wire, counting eight more turns, clipping again, and discarding rest of coil. Unwind two turns in each direction at each clip point so that you come up with a 17-turn coil and a 4-turn coil, separated by 1/2 inch on the same set of supports. The big coil will be 2.9 microhenries and the smaller one about 0.3. Movable tap can be a soldered joint, or a miniature alligator clip. When proper tap point is found, however, the connection should be soldered.

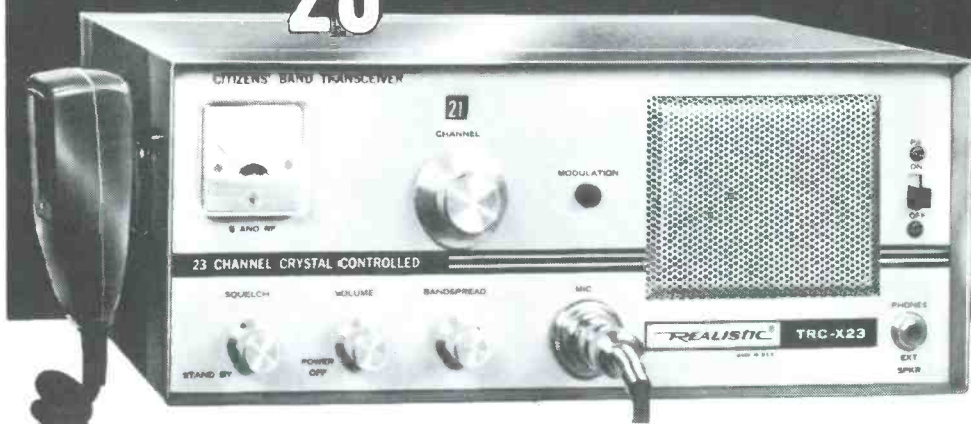
Figure 1 shows the two basic configurations of an antenna tuner, with parts values appropriate for operation anywhere in the 11-meter band.

The capacitors can be either small air-spaced variables, or mica or ceramic trimmers. Once set for operation on your favorite channel, they should never need readjustment. The coil can be either a fixed unit such as "Airdux" or "Miniductor," a slug-tuned coil, or a rotary variable inductor such as that used on the military ARC-5 transmitters. The air-spaced type is to be preferred. The whole thing can be put together in a plastic refrigerator box, sealed against the weather, and taped to the antenna pole.

For most commercial CB antennas, the circuit shown at A in Figure 1 is the right one to use. This is also the circuit to be used with half-wave dipoles, and any other type of antenna which is said by its designer to be

Continued on page 58

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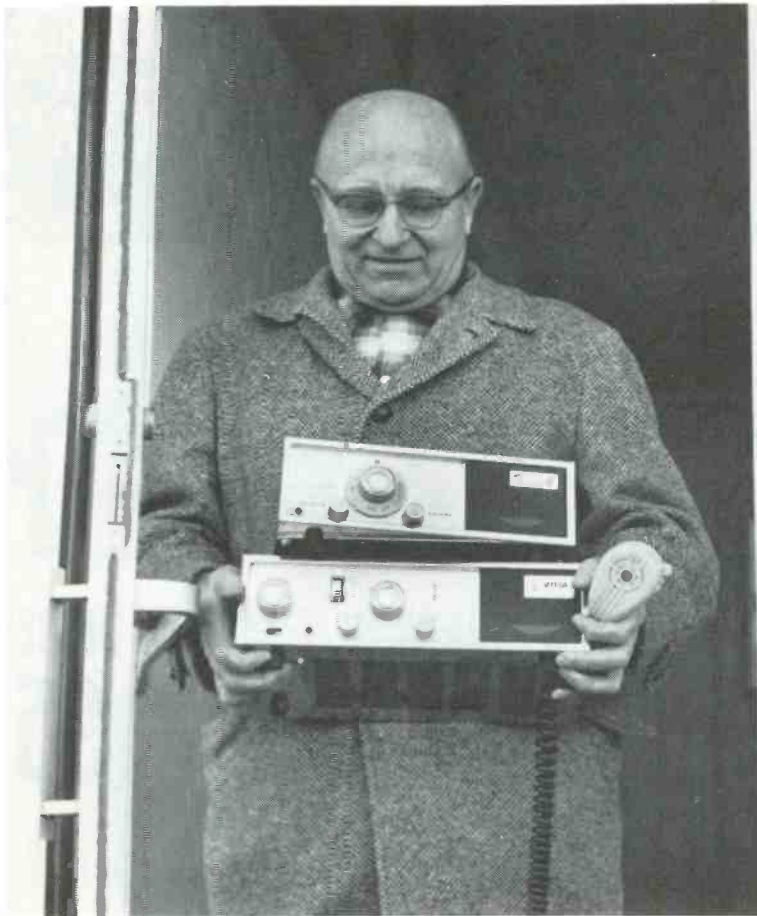
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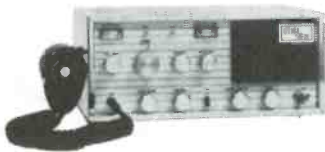
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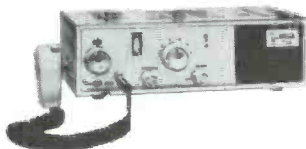
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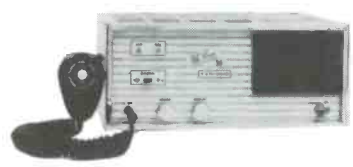
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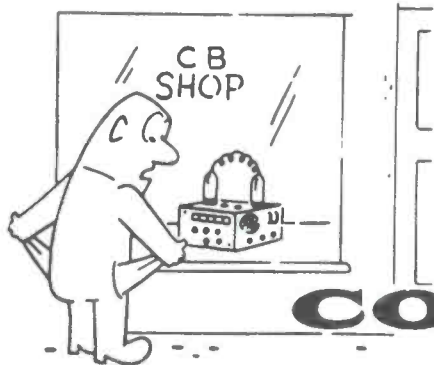
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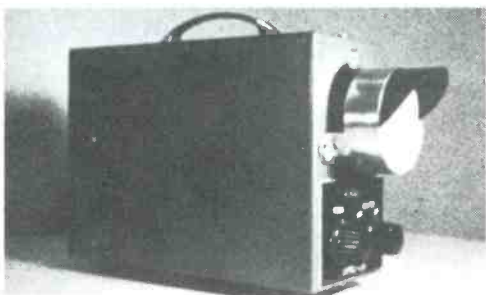
Interesting item this month from Superex Electronics, 4 Radford Place, Yonkers, N. Y. They've come up with a nifty pair of comfortable and highly sensitive headphones with a 4 to 16 ohm impedance. They have thick poly-foam ear cushions to insure complete comfort, even over prolonged periods of use. Sound reproduction is high quality making it a simple task to copy stations through severe interference which would make loudspeaker copy impossible. Model CB-S, net price \$24.95.



Kolin Engineering Co., Box 357, Bronxville, N. Y. passes along news of their Model NL-1 solid state subminiature noise limiter. Slightly larger than a postage stamp, the NL-1 offers up to 27 DB noise attenuation on all receivers employing a diode detector—regardless of the power

supply voltage of the set, be it 6, 12 or 117 volts. The NL-1 requires no power or batteries and it connects in minutes with 3 simple connections and a switch which provided allows you to cut the NL-1 in and out of the receiver circuit as needed. The gang at Kolin sells these through distributors, however they will be made available directly from the factory to S9 readers (but you've got to tell them you're an S9'er). Net price is \$7.95.

C-Z Labs, P.O. Box 142, Centuck Station, Yonkers, N. Y., are now making and marketing two coaxial feedthru capacitors, .5-40 amps and .1-20 amps. If you are having problems with mobile noise being generated by your car's voltage regulator, two of these capacitors on the regulator will make you happy. See ad in this issue for further details.



A new device to delight CB'ers is being offered by Control Products, 123 Avenue U, Brooklyn 23, N. Y. The unit, known as the *Moniscope*, is a miniaturized cathode ray monitor with a 2 inch screen. Some (only a few) of the uses to which you can put the *Moniscope* are: visual tuning of incoming signals, for exact adjustment of speech clippers and other audio devices, to check modulation on both incoming signals and signals from your own transmitter, checks percentage of modulation, and to "see" different types of interference. The *Moniscope* is *not* a kit, it is a completely wired and factory tested unit. All it takes to connect it to your rig is one wire and a shield. Price is \$34.95, postpaid.

If you're looking for a handy CB log book, stop your searching because the boys at Allen Electronics, 41-42 Main St., Flushing 55, N. Y. have just what you're looking for. Selling for 75¢, the book has room for 29 entries per page and contains 35 pages. Each entry has room for no less than 14 items pertaining to the particular contact or monitoring.

Webster Manufacturing, 317 Roebling Rd., South San Francisco, Calif., has announced their *Trans-Pager* selective tone control for CB rigs. Although the unit was designed for use with the Webster Band-Spanner 412, it can be connected to any CB rig. Operating from either 12 VDC or 115 VAC lines, it sells for \$69.50.



for 100 mw use. Give up? It's Westinghouse Electric Corp., Television-Radio Division, Metuchen, N. J. The model 870TCR9, besides being a CB transceiver, offers reception on the standard broadcasting band. It comes with a leather carrying case and an earphone hook. Price is \$119.95 per pair. The Model 869TC9 is similar, but without the broadcast receiving capability. Price is \$99.95 per pair. These units offer communications up to 5 miles.

Westinghouse has also provided for shorter range units with their "House and Yard Communicators" which provide about a quarter of a mile DX. The Model 960TC4 sells for \$39.95



Two new items which will probably sweep the CB field are wild, wild, tie clasps offered by the Apollo Engraving Co., 10 Avenue O, Brooklyn, N. Y. 11204. One has your callsign combined with a golden microphone, and the other (for eyeball QSO'ing) shows your call with a miniature eye. Either one is \$1.50.

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per pair, and the Deluxe Model 961TC4GP for \$49.95 per pair. Further data on these top notch products may be obtained from Mr. H. Paxinos at the Westinghouse Division mentioned above.

The demand for mobile receiving converters is now being met by Aquaspace Development, Box 586, Canoga Park, Calif. Their series of *Crowne Converters* offer your choice of CB, the marine band, 4 Ham bands, the FM broadcast band, aircraft band, and commercial bands. The CB unit sells for \$19.95 and Aquaspace will send you additional informat on upon request. The company is also seeking dealers and is willing to consider franchised area assignments. They will shortly announce a Part 15 "transreceiver" adaptor designed to operate through the auto radio. A card or letter addressed to Mr. A. J. Crowne, President, should bring results.



Our old friends at RCA have a new CB rig, the Mark Nine. The set features a combination S-meter and output meter, a spotting switch, an external speaker jack, TVI filter, 1 RF and 2 IF stages, 9 transmit channels and a tunable receiver. Price is \$134.75, ready to operate on 117 VAC. Mobile power supply for 6 or 12 volts is optional at \$19.95.

CB'ers will welcome a new transmitter board just released by Demco Electronics, Bristol, Ind. The new modular transmitter board is a highly efficient RF final for replacing old transmitter modular boards in any Demco Satellite or Sampson (Model T-110A) transmitter. The unit features a 5763 final and can easily handle 5 watts input (these tubes are capable of running 25 watts). Instructions and schematics are \$1.50, and they go into detail on how to get 25 watts out of the transmitter board for Amateur or foreign CB use.

A magnetic bracket for microphone mounting has been announced by Turner Microphones of Cedar Rapids, Iowa. No more need to drill holes in the dash because a powerful magnet does the job of the screws. Available through outlets at \$1.50.

You constructors will be happy to learn that Holstrom Associates, P.O. Box 8640, Sacramento 22, Calif., has introduced a line of EMI cabinets, aluminum boxes, chassis and electronic hardware, which will be marketed through radio

**TONE ALERT QSL
MODULATION RE-58/U PL 259
5 WATTS INPUT ADJUSTABLE SQUELCH CONTROL
SUPERHET CIRCUIT HI GAIN
52 OHM COAX**

In CB Language:

"MIKE" MEANS "TURNER"

No wonder. Most CB transceivers come with Turner microphones. Naturally. Fine equipment deserves the finest microphones. Turner.



355C

350C

254C

THE TURNER MICROPHONE COMPANY
945 17th Street N.E.
Cedar Rapids, Iowa

In Canada: Tri-Tel Associates, Ltd.
81 Sheppard Ave. West, Willowdale, Ontario

distributors. These products are available in natural aluminum or painted grey hammertone and special sizes and shapes can be furnished to any specifications—and this includes chassis punching. Prices are highly competitive and Holstrom is willing to furnish free catalogues on their products. Certain dealerships and manufacturers representative territories are still open. Holstrom's other CB products have earned this company a fine reputation and dealers and individuals should certainly welcome these latest additions to their line.



Just about the niftiest CB goody ever to show up is the jazzy and sophisticated "CB lapel pin" shown here. The pin itself is a burnished heavy gold metal with baked blue and red enamel. The pin is about the most dignified symbol of the CB service we've yet seen and it has drawn considerable comment worn on trial runs. The first batch has just been run off and the supply is limited, so if you want one you had better get on the ball. The exclusive distributor is Allen Electronics, 41-42 Main Street, Flushing 54, N. Y. Price is \$2, prepaid. Send your order to Bob Fisher, KBC4196 and he'll rush it through.

Probably the second biggest national interest (CB is first, natch) is "jes feeshin," and one of the companies selling CB gear has deduced that CB'ers, therefore, are probably great fisherman (don't tell us that you never heard CB whoppers at the last club meeting). The company is Custom Electronics, 2929 Fulton St., Brooklyn 7, N. Y. and they've brought out an electronic fish caller. Running on penlight batteries (it's transistorized), all you have to drop one end of it in the water and it transmits certain sub-audio sounds which scientific research has indicated are irresistible to fresh or salt water fish. It pulls 'em to you like a magnet—only thing it doesn't

**BIG DOINGS
IN S9
NEXT MONTH**



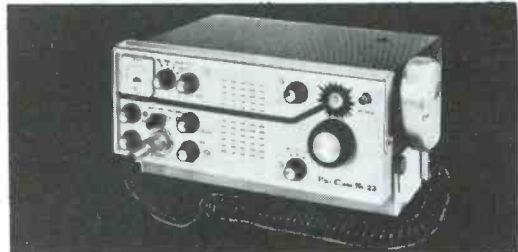
Next month S9 strikes again with a giant SUPER issue—that's almost 20 times the amount of information to be found anywhere else at 50¢ per copy.

Yes, CB's largest circulating monthly magazine comes on big with a colossal issue containing a special 16 page section all about CB antennas. The section will be a book in itself, a primer on everything you will ever need to know about choosing the proper sky hook for your particular needs and getting the most out of it. You'll get the last word on working with coaxial cables, connectors, and with the different types of antennas encountered by CB'ers. That's just a sampling—take our word for it, this will be an issue that other publications will be swiping from for months to come!

Reserve your copy now—our giant Super Special issues are gobbled up fast and they sell for \$1 if you goof on the newsstand and have to come humbly to our office for a copy. A subscription NOW gets you a reserved copy and for less than 42¢—plus 11 more BIG issues of S9 several days before your non-subscribing friends can seek them out on the stands. Use the postage-paid envelope between pages 48 and 49 for rapid service. If you mark the envelope "ACDA" we'll enroll you in the most idiotic CB club ever conjured up and send you an outrageous certificate.

NOW THERE ARE TWO GREAT!! POLY-COMM® 23 CHANNEL

CB TRANSCEIVERS WITH SPECTRAMATIC TUNING



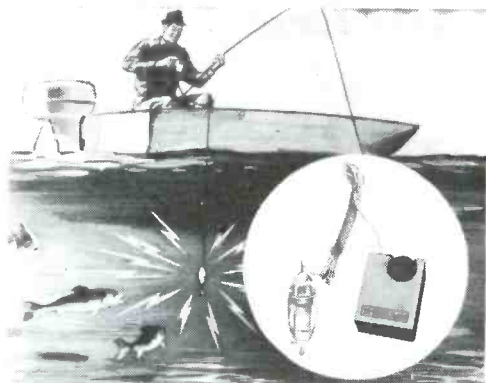
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do it hang them on the hook. If there are any fish in the area, they'll come 'a running to the TR-Sonic Fish Caller. Price is \$12.95.

S9 Lab Reports

TRAM MODEL TR-70C

The Tram 23 is now available in the Model TR-70C specifically designed for mobile service. It embodies special features which provide convenient, efficient and safe mobile operation. Foremost in this regard is an audio-visual spotting system for finger-tip control over the entire Citizen's Band to enable one to keep eyes on the road when channel selections are made. The receiver section has high sensitivity, excellent selectivity with intelligent and pleasant sounding audio quality. The transmitter is exceptionally efficient and can be modulated a full 100 percent.

Other features are: 12 tubes used to provide 17-tube performance, plus 4 silicon rectifiers; double conversion receiver with 7 double-tuned RF and IF transformers; 23 crystal transmit positions with provisions for one crystal receive position (external panel-mounted socket); illuminated transmit-channel indicator; illuminated accurately calibrated manual tuning dial for receiver coverage of all 23 channels; illuminated S-meter; noise limiter with on-off switch; fully adjustable squelch; power on-off switch with volume control; peak modulation indicator; access door for transmitter crystals; 4" heavy-magnet speaker; universal mounting bracket; transistorized power supply for 6 or 12 volt operation.

CIRCUITRY

A dual-conversion superhetrodyne receiver employs an RF stage consisting of a low-noise



The Tram Model TR-70C C-B Two-Way Radio. Note the large tuning dial and full-view S-meter. The transmit channel selector is directly below the meter. The crystal socket for a crystal-controlled receiver channel is at the right. Below this is a spotting indicator lamp and switch. The modulation-peak flasher is at the lower right.

dual triode to provide high sensitivity and gain with good signal-to-noise ratio. The rating in this respect is .3 microvolts for a 10 db signal-to-noise ratio. A low-noise triode mixer is used with the first oscillator which is crystal controlled to eliminate frequency drift which might otherwise occur if a tuneable self-excited oscillator were used instead. The first IF is operated at a high frequency to minimize the possibility of images or interference from other radio services, while the 2nd and 3rd IF is used at a low frequency to provide the selectivity needed to eliminate adjacent-channel interference. The selectivity is rated at 5 kc band-width between the 6 DB points with adjacent-channel rejection at

-60 DB. The second conversion oscillator is tuneable to any of the 23 channels with a separate crystal socket and a switch on the panel for crystal-controlled receiver operation on one selected channel.

An adjustable squelch operates over a wide range and effectively removes background noise during no-signal periods, while a series-gated automatic noise limiter virtually eliminates impulse-noise peaks. The audio circuits are tailored to provide the most intelligent speech reproduction with an AF power output up to 4 watts.

TRANSMITTER

The transmitter employs a crystal-oscillator/buffer stage and a class C final amplifier. A unique method of shifting crystal frequencies makes it possible to use only 13 crystals to cover all 23 channels. The final amplifier, with a 5763 tube, utilizes a high-Q tank coil in a pi network designed to operate into a load of 50 ohms. The circuit efficiency is high with a power-output rating of 3½ watts. Another feature is a high-Q parallel-tuned trap coupled to the final tank coil to minimize harmonic radiation.

Two high-gain pentode speech amplifiers are used ahead of the modulator tube which is a properly matched husky 7189 that provides more than enough audio power to provide complete 100-percent modulation. A small panel lamp flashes when modulation peaks reach 98%.

AUDIO-VISUAL SPOTTING SYSTEM

The audio-visual spotting system makes it pos-

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Featured on the Cover of June S9

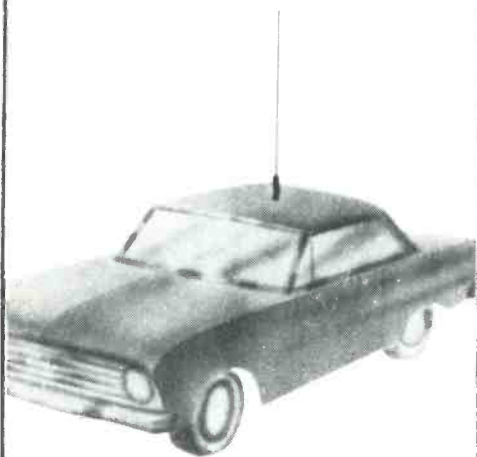
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The new Style 240 — handsome white fiberglass with chrome plated hardware — sets the standard for judging excellence in all CB roof top antennas.

Keen and flexible, this whip has the superior qualities of Columbia Products exclusive filament oriented fiberglass construction: greater resistance to precipitation static than conventional metal construction; less hazardous under live wires; will not take a set, springs back to its original position after repeated impact; is non-corrosive. Easily installed. 45" height above vehicle top.

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Columbia Products Co.
Subsidiary of Shakespeare Co.
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sible to set the transmitter frequency to any receiver channel without necessitating the visual observation of the receiver or transmitter channel-dial numbers. All that is necessary to accomplish this is to throw the "spot" switch on and rotate the transmitter channel selector to the point where an audio tone is heard in the loudspeaker or to where the S-meter reads full scale. Conversely, the receiver dial may be tuned to a transmit channel by rotating its dial for the audio tone or S-meter indication.

PERFORMANCE

Excellent performance was obtained from the Model TR-70C. Receiver operation is stable with fine sensitivity measured as .75 uv for a 10 DB signal-to-noise ratio (400 cps 30% modulated) with good selectivity measured as per specifications and with better than 70 DB image rejection. The a.g.c. action is such that an 80 DB change of input signal produces an audio-level change of only 10 DB. The squelch operates nicely and the automatic noise limiter is most effective for ignition noise. Audio quality is clean and crisp. A nice feature of the receiver is its large dial with wide-spaced channel markers and numerals, making channel identification rapid and easy.

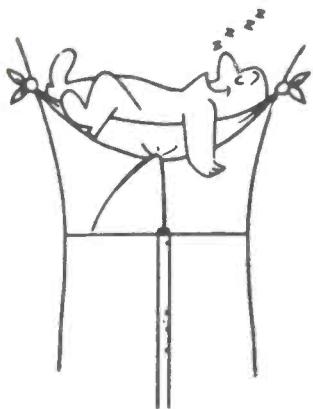
The transmitter carrier output power measured a full 3½ watts for all channels except at the end of the range where it dropped only slightly. This is just about as high as any output power we have measured on a CB unit and in addition, the TR-70C is one of the few conventional CB transmitters we have found to deliver a completely 100-percent modulated signal; in fact, it is possible to actually overmodulate it, but thanks to the modulation flasher indicator, the modulating level may be held below the point of overmodulation. In this connection, the voice level or the speaking distance from the microphone should be held to a point where only an occasional flash of the indicator lamp occurs. During operation one is not likely to take such precautions, for which case it might have been better if a mic-level control had been provided so that the maximum permissible operating level could be limited according to the operator's voice characteristics and his mic-handling tendencies. The use of an external-accessory speech compressor or limiter¹⁾ could be used to hold the modulation to 100 percent and at the same time to raise the effective average power.

The Tram TR-70C Mobile CB radio is well styled from an appearance and functional standpoint. Weight is 17 lbs. with a size of 5½" H. X 11" W. X 9" D. It is priced at \$288.00, complete with crystals needed for all 23 transmit channels, Turner 355-C push-to-talk hand-held microphone, universal mounting bracket and power cable which must be specified for type of operation (6 or 12 volt negative or positive ground). The manufacturer is Tram Electronics, Inc., Box 187, Winnisquam, N. H.

1. Such as the Waters Mfg. Compreamp Model 359 or the Comtran Associates Compressor Model C-II.



S9 is the nation's largest circulating CB publication.



ANTENNAS

by LEN BUCKWALTER, KBA4480

Looks like *Antenna Specialists* has busted the price on computers. No, we don't mean the big IBM machines that rent for \$10,000 a month. It's a little "CB Computer" (see photo). Feed in information, twirl the dials and it reads out interesting facts about a CB antenna. In computer fashion, the gadget converts deceptive db into work-a-day watts.



We saw the CB Computer in action at the recent electronic parts show in Chicago where it was first introduced. As explained by Allan Weltman, a field engineer for *Antenna Specialists*, it tells the CB'er the number of watts he can expect from different antenna types. Here's an example: let's say the output of a transceiver is 3.5 watts. Dial this figure on the top edge of the wheel, as shown in the photo. Next, look up the manufacturer's specs to see what he states for antenna gain in db. This number is found near the bottom of the wheel, in that column of db figures. In the little window are the various wattages. Thus, if you're talking about an antenna with 3-db gain, the transceiver's output is raised by the antenna to 6.97 watts of effective radiated power.

The gadget should have special appeal for the pour-on-the-coals operator with a big 10-db antenna. He can now taunt anyone with the claim; "I'm putting out a legal 35 watts,"—and have the figures to prove it.

The other side of the CB Computer (which will be available from *Antenna Specialist*

dealers), gives calling channels and a call-letter guide, also in dial-em-up form.

In other CB exhibits at the show, new antennas appeared, improvements were apparent and more manufacturers were in evidence. Some items: *New-Tronics* offers its former ham-only "Hustler" for CB. It's an 83-inch whip which folds down to clear the opening in a garage or car-port. The hinge part is held rigid by a sleeve clutch arrangement. In another line, *New-Tronics* features the Phantom (looks like a regular car-radio antenna). It rises to 60" and collapses to 27". Both Hustler and Phantom have novel markings etched into the top, tunable sections to serve as a guide for tuning to frequency. *Master Mobile* weighed in with a marine CB antenna called the "Ocean Sentry"; a shortened half-wave (72") with loading coil placed at the top of the whip. Needs no grounds or radials and has a matching harness at the bottom which may often connect directly to a rig without additional coax. For base station, the company introduced its Dyna-Master, a co-linear reaching up ¾-wave and epoxy-sealed against weather. A new entry in the CB antenna field is *Francis Industries*. Their big one is the Octopus (it doesn't have eight arms, but "reaches out in all directions," according to the company.) It's a half-wave base-station job. *Francis* also has an 8-foot whip called the Amazer which, incidentally, can match your wood-paneled station wagon. The antenna is finished in a rich mahogany color. And, in addition to the little computer mentioned earlier, *Antenna Specialists* displayed their Super "Maggie Mobile" whips. A significant improvement here; you can now get a spring kit with the roof-top antennas. A flexible stainless-steel spring, it protects the whip against damage. Some new roof-top mounting methods by *Antenna Specialists* eliminate any bulge in the car headliner. *Columbia Products* exhibited their Wondershafts—fiberglass jobs for base, mobile and marine use.

Continued on page 59

Heathkit's great base station deserves



an equally fine working partner!



In a two-way radio communications system, overall performance is only as good as it's weakest link. The deluxe Heathkit GW-42 "Master Station" CB Transceiver teamed up with the powerful GW-52 1-watt "Walkie-Talkie" brings you Citizen's Band radio facilities of outstanding capability with complete freedom and mobility of operations. Check and compare the many features offered in Heathkit equipment with any other... see why Heathkit is your best buy in CB!

"Master Station" CB Transceiver

- 5 Crystal-controlled transmit & receive channels • Built-in 3-way power supply • Built-in 4-tone selective call circuitry • All-channel receiver tuning • Built-in tuning meter • Adjustable squelch control • Switchable automatic noise limiter • Push-to-talk microphone • Beautifully styled • Easy-to-build.

Kit GW-42... 23 lbs. \$119.95
Assembled GWW-42... 22 lbs. \$189.95

1 Watt Walkie-Talkie

- Rugged 10-transistor, 2-diode circuit • Long-range transmitter—1-watt input • Sensitive superheterodyne receiver with RF stage • Adjustable squelch control • Automatic noise limiter • Crystal-controlled transmit & receive channels • \$20 rechargeable battery included

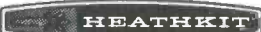
- Built-in 117 v. AC battery charger • Built-in battery condition meter • Easy circuit board assembly.

Kit GW-52... 4 lbs. \$ 74.95
Assembled GWW-52... 4 lbs. \$124.95



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GX-124R-1

CB CASEBOOK

by **LEE AURICK, KCD5514**

MT. PLEASANT RD. RFD 1
COLUMBIA, PA.

WOULD YOU LIKE TO READ ABOUT YOUR COMMERCIAL USE OF CB IN S9? IF SO, WRITE TO US.



OK gang. This month we're going to college, and the only prerequisite we have in mind is a genuine interest in CB radio.

Your S9 reporter is grateful to Lonnie D. Small, Business Manager for Campbell College, Buie's Creek, North Carolina, for calling our attention to the activities of the Cape Fear Valley Citizen's Band Radio Club, and for giving us permission to quote from the college paper, *Creek Pebbles*.

"The only requirement we have for membership is a bona fide interest in CB, and anything in the way of equipment that will stay on the FCC-assigned frequencies. Our normal range here is about 30 miles," Lonnie reports.

"Other than this, all you need is a genuine liking for people."



B. F. (Benjamin Franklin) Kendall, a shut-in for the past five years, put it this way: "CB is like the old country party-line telephone. You really know what is going on around the neighborhood," he said.

Lonnie Small, sponsor of the club's activities on the college campus continued. "The club grew out of the desire of a number of Campbell College students to coordinate their activities with the more than a dozen people in neighborhood; a club of more than 25 'red hot' CB bugs dedicated to a wide variety of community public services.

"I have a fatherly pride in the abilities and enthusiasm of our college boys, and take great interest in the many types of activities to which they apply their knowledge of radio.

"Everett Turlington, a Buie's Creek contractor, is president of our club, and has a station that gives him direct-call range of 100 miles. He is perhaps the best equipped station in this area. He, and his wife Panzie, frequently play host to CB'ers from miles around who drop in for 'an eyeball.'

"Although, to outward appearances, CB is making new friends for many college students and community people, our radio activities count for a good deal more than this, and have many practical uses."

"Our club activities are tied into the nationwide Civil Defense net. During the recent Alaskan disaster, for example, the club members aided in relaying a message from a man in Alaska to his wife in Vass, N. C., advising that he was safe.

"Along with Ivan Strickland of the college maintenance staff, and student Mark Stearn, we man a 'react monitor' service that keeps the club on the alert for Red Cross duty, police assistance and rescue work, and aid to wrecked or stranded motorists.

"An important part of the club's work involves the very real encouragement given to shut-ins. Bobby Crumpler, KCJ4570, for example, enjoys his 'ear-to-the-world' from an iron lung at a Fayetteville nursing home, and the Rev. H. E. Jackson, almost blind, retired evangelist, maintains close contact with former parishoners, at the flick of a switch.

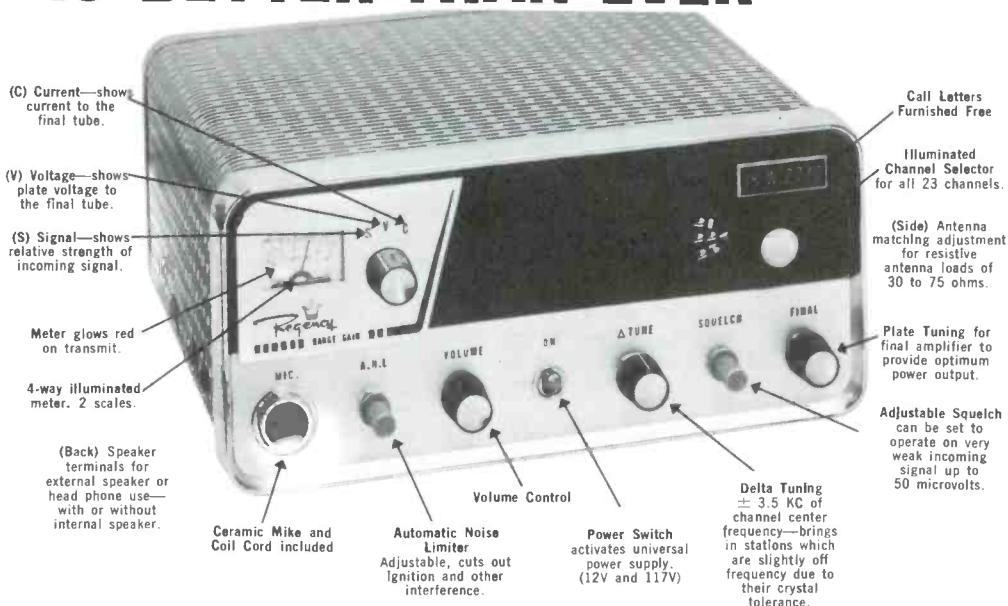
"Five years ago B. F. Kendall, then a high-school senior, had a blow-out on his car, was thrown into a tree near his home, and paralyzed from the waist down. Since then he has spent most of this time in bed, watching, through a picture window, the flow of traffic past his home.

"Dan Wood, golf pro at Sippihaw Country Club, gave B. F. a CB radio; that is how he and the club got together.

"The set was fine, but B. F.'s antenna was only propped up on a bird bath. The club got the REA people at Dunn, N. C. to donate an old pole, and Erwin TV and radio donated the cable. We got all the other hardware together, brought it

Continued on page 58

THE BIG ^{Regency} RANGE GAIN TRANSCEIVER IS BETTER THAN EVER



NEW Chrome Front Panel—meter escutcheon—control knobs Metering Scale Squelch Circuitry

Now the best transceiver is even better. The new Regency "Range Gain" with its exclusive Double Side Band Reduced Carrier Transmitter gives you all the power you need for horizon-line operating range PLUS metered control so you do not exceed the FCC limit. Plus you get new clarity in reception . . . pulls in even more distant signals than ever. 23 crystal-controlled channels—transmit and receive included. The word is out. Ask your friends about the "Big R." There is nothing on the market to match it, and the price is right. See your Regency dealer now.

12 MONTHS—1 FULL YEAR—WARRANTY ON UNIT AND CRYSTALS

INTRODUCING NEW REGENCY ROMPER TRANSCEIVER, USES ONLY ONE CRYSTAL PER CHANNEL TO TRANSMIT AND RECEIVE



Here's where big savings are yours. Now with the Regency Romper, one crystal does the job of two—it both transmits and receives—reducing your crystal cost by one-half. No coil tuning is required—just plug in the crystals. Switch provides for variable tuned reception of all 23 channels or crystal-controlled operation.

FOR COMPLETE TECHNICAL INFORMATION WRITE:

 **Regency** Electronics, Inc.

7900 Pendleton Pike • Indianapolis, Indiana 46226

CANADIAN CB CAPERS

We are looking for Canadian readers to become S9 AREA PUBLIC RELATIONS EDITORS (APRE's), similar to the system used so successfully by John Krejc in his "CB CHIT CHAT" column. Canadian readers who would like to become local S9 reporters (and earn some ready cash) please drop me a note and let me know that you're interested.

XM49-405

by JOHN BURNUP, XM49-405

9268 CUMMINGS AVE.
OTTAWA, ONT., CANADA

excellent talk on GRS by Mr. Bruce Spanton of the D.O.T. He explained the Regulations and cleared up a lot of points that were bothering club members. This relationship between the D.O.T. and the club should help eliminate a few problems.

From XM61-264 Cecil S. Aucoin of Campbellton, New Brunswick come the news that they are hoping to start a Club called the Restigouche Krystal Crackers. (If any club would like to assist them in getting started please write to me.) Cecil has been made a Canadian Area Public Relations Editor for S9 so if there are any CB'ers in his area who need help please call on him. On May 21st five CB'ers were interviewed on Radio Station CKCD.

I received a letter from John Harding of J.&J. Electronics, 434 Kensington St., St. James, Manitoba who is very interested in CB. He desires any information from the readers regarding CB in Manitoba, particularly in the Winnipeg area. He stated that if a club is not in existence he would try to get one started. Please send John any information you can. He has been appointed a Canadian Area Public Relations Editor for S9.

One of my most avid readers is XM44-571 Franklin O. Dayton of 525 George St., Sarnia, Ontario. Frank wrote that he would like to see clubs monitoring channels published in S9. (I am at present working on this.) Also he has asked that a club directory be published showing the mailing addresses of the Secretaries. Will do my best Frank. Frank has also been appointed a Canadian Area Public Relations Editor. Keep the letters coming Frank, its people like you that make my job easier.

XM54-051 Roy Fong, 260 Begin St., Box 304, Chicoutimi, Quebec he been appointed a Canadian Area Public Relations Editor.

XM49-825 Jack Marco, 245 York St., Ottawa 2, Ontario is the Ottawa Area Public Relations Editor. Jack does considerable travelling in the Ottawa Valley and Northern Quebec as a CB Dealer.

One of the most widely travelled CB'ers is XM41-2882 Jim Auteri whose base is at 71 York St., Toronto, Ontario. Jim is a member of the National Literary Guild Ltd. and as such he covers Canada from coast to coast. I expect a great deal of added coverage from him. When you hear him in your town say hello.

The Canadian Area Public Relations Editor program is now starting to take shape. There are still a lot of areas that need to be covered so if you are interested drop me a line and details will be sent.

S9

Last month I presented some of the Radio Act as it applies to Canadian CB for your information and comments. An Amateur Radio operator asked me if CB Clubs police their own members, such as they do in the Ham clubs. This I thought was a wonderful idea. Why not prevent problems for the CB'er before the D.O.T. is forced to take action. Do your club by-laws have a section to cover infractions. I believe that if some attempt was made by the clubs they would receive more favorable reaction from the authorities and this is certainly what we all want.

I have received some very nice letters from the States and each one mentions the same thing. WHY IS IT THAT ONLY ABOUT 10% OF THE CANADIANS WHO LIST THEIR NAMES IN THE S9 SWAPPERS COLUMN REPLY? This I have no answer for, I can only apologize and tell them that I will do my best to remedy the problem. It is always nice to see our names in print, however many CB'ers spend a lot of money swapping QSL cards and are very interested in a reply. This is a courtesy that must be carried on. I try to answer each card received as soon as possible and at present I receive about twenty a day and love to get them.

XM48-037 Jim Brown, President of the Tri-County General Radio Service has been appointed a Canadian Area Public Relations Editor for S9. He reported that on May 5th, 1964 that XM48-010 Gord Pigden put out a call to Ken Broad of Madoc, Ontario, advising him of a search being carried out by Constable Gordon of that area and requesting added help for a man presumed lost in the area. Within half an hour they had about twenty CB'ers, four mobiles, ten walkie-talkies, one jeep and also XM11-056 and XM48-462 arrived with Walkies. The search was under the net control of Constable Roy Gordon, who stated he was more than pleased with the assistance given.

The Golden Triangle (GRS) Radio Club of Ottawa continues to grow in membership. They now put out an excellent club paper under the guidance of the Editor XM49-542 Reg MacIntyre. At their last meeting they received an

PART 15

KORNER

by DEAN DETTON, NORTHERN 17

74 59 MAGAZINE

Everyone keeps bugging us to explain exactly what Part 15 really is. The following explanation popped into our mailbox from Richard Peterson, PACIFIC 760, 6584 El Greco Rd., Goleta, Calif. Dick's explanation is about as simple and complete as anyone could want so we run it here for the benefit of those who have asked for this information.

We've been hearing a lot about Part 15 citizens band operation lately—perhaps you're considering buying Part 15 equipment. Before a 100 milliwatt transceiver is purchased, the advantages and limitations of Part 15 operation should be reviewed.

First of all, Part 15 refers to the section of the FCC Rules and Regulations pertaining to the operation of unlicensed transmitters. The operation of such transmitters is legal, provided that they are certified to meet the requirements of Part 15. Part 15 specifies the use of a single element 5-foot antenna attached to the transmitter, power input not exceeding 100 milliwatts, and operation within the 26.97 to 27.27 mc. band. Unlike the 5-watt Part 95 rules, ragchewing, DX work, and experimentation are permitted in the Part 15 band, if a 100 milliwatt transmitter is used. The 11 meter band allocated for Part 15 use can provide long-distance contacts up to 3,000 miles, under favorable

PART 15 CHANNELS	
Channel A	26.995 mc/s
Channel B	27.045 mc/s
Channel C	27.095 mc/s
Channel D	27.145 mc/s
Channel E	27.195 mc/s
Channel F	27.235 mc/s
Channel G	27.245 mc/s
Channel H	27.265 mc/s

conditions. Part 15 stations may be used to contact only other 100 milliwatt Part 15 stations. Communication with 5-watt CB stations or amateur stations is not permitted, and call letters assigned to FCC-licensed stations may not be used by Part 15 stations.

Part 15 rules allow the radio hobbyist to get on the air without taking the FCC code and theory tests as required for an amateur license. However, until recently the only Part 15 rigs available have been hand-held walkie-talkies. Because they are portable, walkie-talkies cannot incorporate high-gain type antennas for receiving, although such antennas would increase the operating range and would be legal. The range of a walkie-talkie may be increased by taking it to the top of a mountain or high building, but this is obviously impractical. Consequently, the

APPLICATION FOR FREE PART 15 STATION IDENTIFIER CERTIFICATE

To register your Part 15 "unlicensed" CB station with 59 and receive your special station identifier certificate, do the following:

- Fill in the application below, or facsimile if you don't want to cut your copy of 59.
- Enclose your completed application form together with a self-addressed stamped (5¢) envelope, in another envelope addressed as follows:

Part 15 Department
59 Magazine
14 VANDERVENTER AVENUE
PORT WASHINGTON, L. I., N. Y. 11050

Name: _____ CB Call: _____

Address: _____

City: _____ Zone: _____ State: _____

Part 15 Channel: _____ Type of unit: _____

No. of units: _____ Date: _____

I enclose 50¢ for the 1964 Part 15
Callbook/Handbook.

Signature: _____

range of the hand-held unit is normally about one mile.

Equipment recently developed for the Part 15 hobby band by the *International Crystal Manufacturing Co.* makes possible communication with other Part 15 stations a thousand miles away, or more (during favorable atmospheric conditions). Such extended range is possible because the transmitter is housed with the transmitting antenna on a mast which may be mounted 50 feet or more above ground. Under normal atmospheric conditions, the area of coverage for a Part 15 station is given by multiplying the antenna height above surrounding terrain by 19. With an antenna height of 50 feet, it should be possible for a Part 15 operator to contact any similarly equipped station within a 950 square mile area (about 17 miles away, in any direction), if the noise level at the receiving station is not excessive. It is possible, using a remote mount 100 milliwatt transmitter, to rag-chew for hours at a time with local P-15 stations on phone or CW code; or work DX when an out-of-state P-15 station is heard. For receiving, a horizontally polarized "beam" antenna is recommended for greater range.

One may wonder how such low-power equipment can provide reliable communications. It is true that, in general, signals from

a P-15 station across town will not "pin the S meter." However, because there is no legal height limit or feedline loss for P-15 antenna installation, the P-15 signal will be down about 12 DB., or two "S" units below the signal of a 5-watt Class D CB station.

Although the operation of 100 milliwatt stations is regulated by the FCC rules, the FCC does not issue call letters. To make identification of P-15 stations easier, station "identifiers" have been issued by S9 Magazine. Application for a station identifier can be made by filling out a form published frequently in the magazine.

A regular column in S9 Magazine describes the activities of P-15 enthusiasts and clubs around the country, DX contacts, and operating schedules. The *Part 15 Handbook and Callbook* is published by the Cowan Publishing Corp., 14 Vanderventer Avenue, Port Washington, L. I., N. Y. 11050. The book lists the location and identifiers of P-15'ers registered as hobby Part 15 stations. The legal requirements for 100 milliwatt operation are described, with pertinent portions of Part 15 Rules reproduced in the Handbook. Commercially available hobby CB equipment is described. The book is priced at 50¢ postpaid.


Continued on page 58

DO YOU HAVE YOURS?

Price \$1

1964 PART 15 handbook callbook

Editor: Tom Axvirel, K8C4703, B 13
Assistant Editor: Lida Neva
Production Manager: Sal Werhahn, K8S4802, N 800
Editorial Consultant: Dave Dittus, N 17



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They're being gobbled up pretty fast—the 1964 PART 15 HANDBOOK/CALLBOOK, that is. Just in case you have seen a copy yet, it's a listing of more than 6,200 Part 15 "hobby" CB stations (calls, names, addresses, channels), plus features on the *how* and the *why* of Part 15 legal hobby CB'ing, plus all the rules and regulations you will need to know to get yourself established in this fascinating aspect of CB'ing—the only way to legally "rag chew" on 11 meters—or the other Part 15 bands! There are some interesting Part 15 rigs shown too, one selling for less than \$70!

Get your copy right now! Immediate delivery! The 1964 PART 15 HANDBOOK/CALLBOOK sells for \$1 postpaid, but if you are a registered Part 15 operator (that is, if you have an S9 Part 15 identifier callsign), the book is only 50¢. Order from:

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August 1964 • 47

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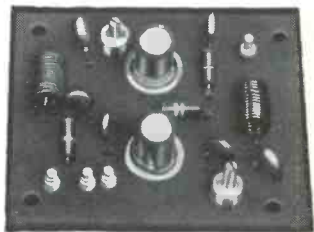
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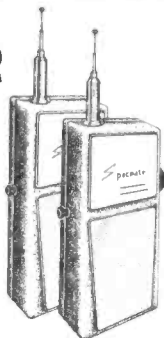
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GARFIELD, N. J.**

EXTERIOR

The Twenty-One Radio Ass'n of Hawaii recently held a special election to replace their vice president, Dave Aunkst, K1C0655, who is being transferred to California. Elected was John Shivik, 1W7369. The club meets every second Wednesday night, and the club can be contacted on channel 11. President, Roy Ward, K1G0171; Vice President, John Shivik, 1W7369; Director and CD coordinator, Bill Yant, KEB2665; Director, Larry Rutledge, K1G0141; Director, Tom Pitcher, KBC9967; Secretary-Treasurer, T. M. Benninghoven, K1G0141-U3.

ATLANTIC

From Frank Karcher, S9, A.P.R.E. comes the news that a fire has destroyed the entire shack and card collection of R. C. Bridges, Jr., 1206 West Dixon Blvd. Shelby, North Carolina. R. C. had one of the finest collections in this part of the country, so let's all help build a bigger and better one again. Here goes my card to R. C. Let's get him started again.

The 11 Meter CB Club, Inc., of Baltimore, Maryland meets the 2nd Thursday of the month at the NCO Club, 2nd floor, 5th Reg. Armory, Baltimore, Maryland. All visitors are welcome.

The quiet rural community of White House, Tennessee, became a bee-hive of activity when CB'ers combed a wooded area in a night long search by over 300 persons for a 7 year old boy. The search was augmented with a closely organized hunt by CB radio operators from Mid-Tennessee, Donelson, Nashville and Goodlettsville CB Clubs. Wives of CB Club members stood by their sets, notifying other club and CB members from Carthage, Lebanon, Gallatin, Hartsville and Hendersonville. Civil Defense units joined the search later in the night. The child, Vernon Ray Escue, said he spent the night sleeping on a rock, after becoming lost in the heavily wooded area near his home. He told the Sheriff he was not scared a bit by the experience. Sheriff Wade had nothing but praise for the great job done by the CB'ers in the area, and for the cooperation in answering the call for help in this matter. Thanks to A.P.R.E. Cecil Pryor, KDE0841.

The Citizens Radio Emergency First Aid Squad of Washington, D.C. meets the second and fourth Saturdays of each month at the Mount Pleasant Library, 16th and Lamont St., N.W. from 7:30 p.m. to 9:00 p.m., and area CB'ers are welcome to attend and join the squad. President of the group is Quentin Tabscott, K1G0106.

From the Winchester-Frederick County CB Radio Club, Winchester, Virginia comes the news that the club has worked two years in the famous Apple Blossom Festival to provide communications. Another club project was the famous North-South Skirmish Ass'n, which is a nation-wide civil war outfit, in which the club also provided communications for the various events. President, Lee Holler, KCF1042; Vice President, Dick Swisher, KCG0300; Vice President, Bill Schuller, KCG1468; Secretary, Jerry Hand, KCG0275; Treasurer, Hubert McArtor, KCG0996; Sgt. at Arms, John Kerns, KCF2243.

NORTHERN

Recently the South Shore Rescue Rangers with a membership of over 37, held a practice drill. The drill was held to determine how long it would take the membership to find a vehicle in the City of Brockton, Mass. The group is a member of REACT and monitor channel 15, 24 hours a day. Meetings are held the 1st and 3rd Mondays of the month at 8:00 p.m. Officers include: Secretary, Ralph Myra, KBA1081; Chairman, Dick Newell, KBB0845; Treasurer, Dick Pratt, 1W5620; Business Manager, Roger Altieri, KBC1869.



CB comes to the rescue in one of Brooklyn's high crime-rate areas. The photo above shows Steve Kappel, KB10638, National Sales Manager of e.c.i. electronics communications inc. (on the right) donating the first of five CB rigs to Rabbi Samuel Schrage, head of the "Macabees' Volunteer Patrol." The Macabees are a non-sectarian volunteer group of citizens who patrol the Crown Heights section of Brooklyn, an under-policed area which has been the scene of numerous muggings and other crimes of violence. Hearing of the urgent need which the Macabees' had for mobile and base communications gear, e.c.i. President Pete Robins quickly rushed to the aid of the group with the five Couriers. The Macabees have now made CB an integral part of their operations, using it to dispatch patrol cars to trouble spots in Crown Heights. Thanks to public spirited e.c.i. for helping the public learn, in one more way, that CB is useful, and that people in the industry, like Pete Robins, are public spirited enough to lend a hand to a needy cause. Our hats are tipped to Pete, one of CB's "nice guys."

Officers of the New England CB Council are: President, John Morgan, KBA2346; Vice President, Bill Kichton, KBC5118; Secretary, Claire Laundre, KBE-0492; Treasurer, Ken Whipple, 1Q2219. The council is made up of membership of members of every club throughout the New England.

The Squares Citizens Radio Club of Mount Kisco, New York, was formed about 4 months ago and has a club membership of 21 at this writing. The club meets the first and last Saturdays of each month. Their first club project is a fund raising drive for Radio Free Europe.

The Schenectady Search Unit, Schenectady, New York has been formed by their Co-ordinator, Al Davis, Jr., KKD4639; Shirley Lamothe, KKD1840; Dom DeVito, KB12778; and alternate, Bob DeVito, KBG8721. The basic aims of the unit are to help in search with the local police, sheriffs dept. and State Police. Each member joins on a voluntary agreement and is responsible for his own actions. All CB'ers in Schenectady and surrounding areas are invited to join. Acting Secretary of the group is Patricia Davis, KKD4639.

The Queens Chapter of the C.B.R.R.L. meets at the

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Be a free, independent, thinker! Join CB's second largest do-nothing organization!

When you join the ACDA you will have **nobody** telling off the FCC in your name; the ACDA will **not** try to sell you beanie hats and red shirts; we **will not** assess you with a tax; we **will not** announce officers before the election (because we don't have officers); and we **will not** do anything else that you would rather we did not do! Anyone can join!

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OFFER LIMITED, SO HURRY!



Ever wonder how CB Editors spend their few minutes of spare time? Here's a rare photo of S9 Editor, T. K., caught by the candid camera while shopping at Allen Electronics in New York. Grabbing the Courier back (on the right) is Bob Fisher, KBG4196. Despite all the goodies, T. K. was only able to make it out of the store with a few PL-259's stashed in his trouser cuffs.

K of C #1314, 62-58 Fresh Pond Rd., Ridgewood, New York, the second Friday of each month, 8:00 p.m. Why not try to attend their next meeting, it may be a change for you. Station of the Month, May, was Thomas Van Brunt, 2Q4918.

Adirondack CB'ers, Inc., a group now numbering some 60 members in Warren and Essex counties, New York State held its first annual meeting recently and elected the following slate of officers. President, Ernest Duffany, KID1256; Vice President, Charles Reynolds, KIC7998; Secretary, Florence Wells, KID5885; Treasurer, Charles Barton, Jr., KID6545. The club monitors channel 12, in the North Creek-Chester-Town-Minerva area, and meet at the North Creek Firehouse on the 4th Wednesday of each month.

CENTRAL



Pictured above in the Ingham County CB Club Emergency Van. This is a project that took over a year in planning and the dream finally came true. The club monitors channel 15 and uses channel 2 as their emergency channel. Pictured are left to right: a group of teen marchers checking in to teen headquarters, who were aiding the Aiding Lukemia Stricken American Children Drive and President of the club, Bill Davis, KHG8672 and ALSAC District Chairman, Sam Farhat.

The Heart of America CB Ass'n of Kansas City, Kansas, are now officially a part of the KC CB scene. The club monitors channel 9 and is trying to get as many channel 9'ers interested in the group as possible, to put across a worthwhile program of communications. President, Wayne Sexton, KGH1240; Secretary-Treasurer, Marcia Brown, KGI0248. Chairman of the steering committee is Joe Ash, KGI3836.

The North Area Emergency Radio Team has resumed their week-end road watches. They have been extremely busy on holiday week-ends such as Me-



Redondo Beach Coffee Break, Redondo Beach, California. In 1963, about 75 CB'ers attended this coffee break, now in March 1964 over 400 have attended many times. Door prizes play an important part of the group, but coffee, punch and donuts are FREE. Meetings are held every 1st and 3rd Friday of each month. The Redondo Beach Coffee Break joins other clubs in their activities. They have representatives that travel to other meetings for various fields of radio entertainment. Thanks to Phyllis Roberts, 2303 Marshall Field Lane, Redondo Beach, California.

morial. Their mobile units have with every available emergency equipment. If you are passing through the KC, Mo. area, call on channel 21 for assistance.

The Boonslick CB Club of Boonville and New Franklin, Missouri are planning a big picnic and CB get-together for early July (too late for publication). President of the unit is F. E. Boehm, KGH1094; Secretary, Frank Burkhead, KGI4449. This large central Missouri club monitors channel 11 for emergency service.

Shirl Schaaf, KGH1666, S9, A.P.R.E., ye old school teacher will try to make the rounds to the many jamborees and club meetings as possible, so why not send Shirl your meeting dates and club papers for publication in the "greatest column yet." Contact S. Schaaf, 1300 East 65th, N. Kansas City, Missouri, or call her on channel 21. Let's all keep her busy.


Chain Gang CB Club Area 18 Inc., meets at the Randell Town Hall in Basset, Wisconsin every second Monday of the month at 7:30 p.m. President of the newly reporting group is Bob Matthews, KIJ5201; Vice President, Lillian Wozniczka, KHD4368; Secretary, Betty Larson, KLF0234; Treasurer, Beatrice Matthews, KIJ5201; Corr. Secretary, Viola Hamilton, 18B0069. Poor Bob with all those woman. Any clubs wishing to exchange club papers contact: Mrs. Lillian Wozniczka, Rt. 2, Box 202, Oakwood Shores, Salem, Wisconsin 53168.

Newly appointed A.P.R.E., Mark Templin, attended the Tri County CB Clubs Annual Spring Cook Out recently at the American Albanian Club, Norton, Ohio. Attending were about 400 happy, smiling CB'ers to enjoy bacon, eggs, home fries and barrels of coffee. President of the group is Blaine Smith, KHI0245. Blaine informs us that a Steak Cook is in the future. More info at a later time.

The Hall of Fame CB Club, Canton, Ohio meets the 1st and 3rd Saturdays of each month at 7:30 p.m., in the American Legion Hall, North Industry, Ohio. The club boast a membership of 140. WOW! The club is headed by Frank Evans, KHH2386. Frank tells us that the club is sponsoring a campaign to promote



Executive Committee of the Midlands CB Jamboree. Left to Right—Henry Carlock, Secretary-Treasurer; Lynn Mixon, President; Bill Higginbotham, Vice President; Jim Buffington, Jamboree Chairman and S9, A.P.R.E.



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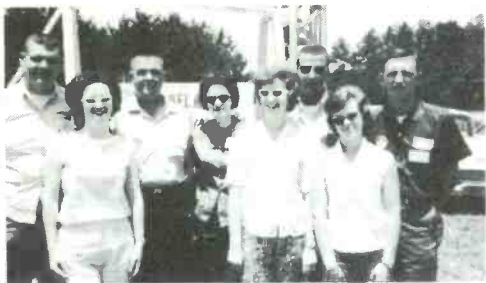


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Pictured above is members of the CB Volunteer Rescue Squad, a new and growing club in Russellville, Alabama. The membership consist of Franklin, Colbert, Lauderdale and Winston Counties. This club also is open for membership to wives and already they have an excellent response.

more courtesy and better operating practices on CB. They feel they can accomplish this by providing a good example to the CB'ers in the area.

The Wayne-Medina County CB Club has 30 members and meets the 3rd Tuesday of every month at the Orville, Ohio, Phone Office, they're small now, but they're growing says President Chuck Police, KHE0665. Other officers are Vice President, Ray Forney, KH14309; Secretary, Ulys Gunnells, 19Q3751.

Officers of the Goodfellows CB Club: President, Rich Bojan, KHC9793; Vice President, Nick Fisher, KHC-6059; Treasurer, Chester Neal, KHD5629; Secretary, Al Lewis, KHD2358. The club was formed in November of 1963 and already claims about 40 members. Meetings are held at the Stone Park Fire House, 35th and LeMoine, every 2nd and 4th Friday of each month at 7:30 p.m. Perspective members are asked to contact any of the officers of the club on channel 1.



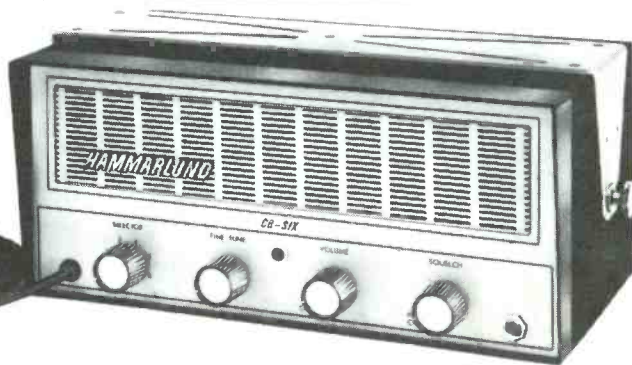
The Scottish Inn, Mile 25½ Seward Highway, played host to the S-9 Radio Group of Alaska at its Annual Dinner Meeting Saturday night, May 16th. Cocktail Hour was begun at 7 P.M. and the Group enjoyed a delicious steak dinner followed by a call to order at 9 P.M.

SOUTHERN

Recently formed is the Bexar County CB Emergency Service, which serves the Bexar County and San Antonio, Texas area. The group was formed to help in large emergencies and are connected with the Bexar County CD and all of their members have taken the advanced First Aid Training. Membership is presently at 26, although they expect 65 in the next 60 days. How's that for growth! President of the group is Bill Lane, KEE3879; Vice President, Carl Raymond, KED-1132. The group has a total of 9 officers which includes a Board of Directors. Lots of luck to the newly organized club.

The Greater Baton Rouge Citizens Ass'n holds their meetings the second Monday of each month in the Chamber of Commerce Bldg., 564 Laurel St., Baton Rouge, La. The Ass'n consist of 75 members and is quite an active group. Highway signs have been placed informing that channel 9 is the local monitoring channel. The club is part of a radio communication link

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If you have already gone the route of "bargain" CB equipment you know the frustrations that a "cheapie" design can lead you to. There is no substitute for quality—for quality is performance—and performance is what you must have in a CB unit.

Sure, you can pay a lot less than \$179.50 for a CB Transceiver—but will it perform to your expectations? Will it do the job you want it to? Probably not.

Conversely, you can pay more, but you can't buy more usable CB performance than is found in the Hammarlund CB-6. Check the features listed, then send for a complete data sheet. Better yet, stop in and see it at your local Hammarlund CB Dealer.



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■ Will Not Overload ■ 1000 Times Better Desensitization Rating Than Most Comparable Transistorized Units ■ ±3 KC Fine Tuning Control For Receive Channels ■ Quiet on Standby—Clear on Receive ■ 6 Channel Crystal Controlled transmit and receive ■ Dual Conversion Super-het Receiver with 0.5μ Volt sensitivity and extraordinary selectivity ■ 3 Watt-Plus Power to the antenna ■ 5 Watt audio to oversize speaker ■ Superb squelch and noise limiter ■ Press-to-Talk Ceramic Mike with Coil Cord and Mike Jack ■ Universal Power Supply—6 or 12 volt DC and 117 volt AC.

between Alexandria and New Orleans. President, Bill Boucher, KKR0281; Vice President, Lee Wilson, Jr., 8Q1520; Secretary, Bill Johnson, KEB1338; Treasurer, Fred Dawson, KEA1372.



WESTERN

Although only about one year old, the Great South-west CB Club Inc., Emergency Corps, has gone a long way in providing services to local authorities—services which were unavailable or very difficult to obtain in time. These services include recovery of drowning victims, fighting grass fires, traffic direction, searching for lost children, and virtually any other emergency operations requiring skilled personnel with radio communications. President of the group is H. E. Hammond.

New Board officers of the Emergency Communications Organization are, Leon Grisgton, KEB5046; Bill Roach, KEH7398, Bill Mann, KKV5930.

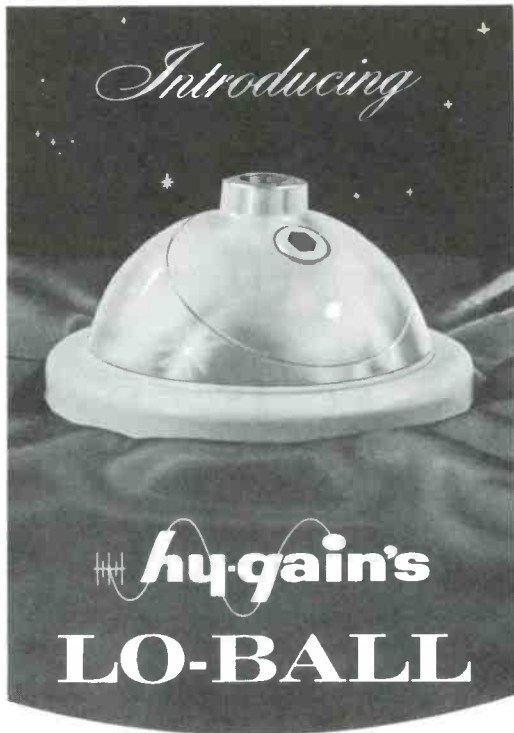
The Centinela Valley REACT was formed in the fall of 1963 and now boast a roster of 41 members and provides a 24 hour, 7 day monitor service on channel 9 for all CB'ers in need. President of the group is Bill Meyer, KFA0229; Vice President, Gene Hales, KEJ2020; Secretary-Treasurer, Bob DiDomenico, KFA8677; Communications Officer, Les Cannell, KFA6882.

The Los Angeles Council, South Bay District of Boy Scouts, held a two day encampment during Easter vacation. Over 1000 scouts were camped three miles north of Pioneer Town in the Hi-Desert country of California. The CB Radio Club of Yucca Valley, Joshua Tree and Twenty-Nine Palms furnished communications for the campout 24 hours a day. RMF.



The Hi-Desert CB Radio Club cooperated with the San Gabriel Valley Club in handling the communications for the big Motorcycle Rodeo held recently at Twenty-Nine Palms, California. Mobile units and base stations in Yucca Valley, Joshua Tree and Twenty-nine Palms kept the numerous check points for the cyclists in constant touch with each other. Paul McCormick, Chairman of the Hi-Desert Club, KFA0581, used his base station in Joshua Tree to log all communications. The club also recently won the Sweepstakes Trophy in the big Turtle Race Parade. Congrat'ds. RMF.

S9 — The oldest national CB publication!



**THE NEW
LOW PROFILE LOOK
in Mobile Antenna
Body Mounts**

Beautifully sculptured to blend with modern auto-maker design, Hy-Gain's *Lo-Ball* is the most daring advance in mobile antenna body mount design since the introduction of the split-ball mount. Hidden beneath the regal surface of the *Lo-Ball* is super-strength die cast construction that insures the maximum rigidity and stability required in properly supporting mobile communications antennas. The *Lo-Ball* is adjustable from 0 thru 70 degrees — can be used with a kilowatt mobile transmitter — accepts standard 3/8"x24 thread fittings — may be used with a mobile whip or spring and whip — uses standard mounting template for ready replacement of most split-ball mounts. It's available in two models...

Model BDYF—Heavily chrome-plated surface with molded cyclac base, rubber body washer and heavy gauge back-up plate **\$4.77** CB Net

Model BDYSF—Cadmium-plated surface with molded cyclac base, rubber body washer and heavy gauge back-up plate **\$3.95** CB Net

See the *Lo-Ball* and other outstanding automotive antenna accessories available from Hy-Gain. They're in stock now at Hy-Gain Distributors the world over.

HY-GAIN ANTENNA PRODUCTS CORP.

8595 N.E. Highway 6, Lincoln, Nebr.

The Antenna Manufacturer with a Record of "FIRSTS"



Ventura County coffee breaks are held the 1st and 3rd Fridays at the Port Hueneme Community Center in Port Hueneme at 7:30 p.m.

The Tri County CB Radio Club again helped the vaccine clinics, with 28 mobile units. A dutch treat fish supper was given to Don Knott, Vice President of the club who is leaving Rocky Mount for Bamberg, Germany.

The Mission City CB's of Santa Clara, President, A. E. Pessoa, KFC4457 reports quite a picnic held at the Niles Canyon Park. Last count approximately 600 people present.

A very successful coffee break was held by Don and Joyce Smith, KXX1976 of Lancaster. 12 families of the Pomona Valley Eleven Meter Ass'n attended.

The Redwood CB's of Eureka, Calif., reports their new officers, President, Wayne Walker, KFC0435; Vice President, Oscar Brundin, 12W4742; Secretary-Treasurer, Eileen Jarose, KFD4967. The club holds their meetings the 2nd Thursday of each month at the Arcata Airport in McKinleville.

Valley Citizens Radio Ass'n Inc. and the Mobile Auxiliary Communications of Sepulveda, Calif., held their County Fair at the Devonshire Downs in North Ridge. Many prizes were given away. The Fair was a huge success. Louise Shoop, KFA7226, is the new editor of their bulletin.

The Second Annual Coffee Break at the Salton Sea State Park turned out to be a huge success. Thanks to Maggie and Jay, KEJ6267, of Compton, Calif.

San Gabriel Valley REACT new officers are: Pres., Don Helgerud, KEJ7320; Vice-Pres., Bob Cottom, KFA-2208, Sect'y, Florence Breece, KFA5236; Treas., Paul Breece, KFA5236; Communications Chairman, Carl Nottunok, KEJ1393; Public Relations, Bill Unthank, KFA2896. This club is really growing as 26 members.

The La Sierra CB Club 1964 officers, Pres., Clyde Noyes, KFA2851; 1st Vice Pres. John Parker, KEJ5541; Sect'y, Pat Dean, KFA9772; Treas., Bob Beckham, 11W8249; Sgt. at Arms, Frank Cawthon, KEJ5258. This club started with a bang membership of 38. The general purpose of this club is family, social and charitable affairs. All CB'ers in the area are welcome to join.

The Tri Valley Radio Club of Thousand Oaks, Calif. are planning a campout with the Orange County Club. Many things have been planned, all have been invited. The new officers of the club are: Pres., KEJ3841, Andy Miller; Vice Pres., KEJ5279, Hank Madden; Sect'y, KFA2768, Fred Schrader; Treas., KEJ3841, Zelpha Miller.

Weekend Warriors, A new CB Club has started in the San Lewis Obispo area. Citizens Banders in the area should write to 1108 Lakeview in San Luis Obispo, Calif. Meetings are held the first and third Tuesday night of each month. The location, try channel 11.

Southern California Broadcasters sent word that they now meet on the 1st and 3rd Saturday nights, 471 W. 41st, in Los Angeles. Need more information? Channel 14.

Southern California 11 Meter League. In Bell Gardens, still hold regular meetings each month. Socials on the 1st Thursday and the business meeting on the 3rd Thursday nights. Club address is P.O. Box 2012 in Bell Gardens, California.

Continued on page 58

NEW ALLIANCE TENNA-ROTOR[®] for CB Installations

The patented-rigid-offset design distributes the load over a greater area and gives the rotator a superior strength to weight ratio. Ideal for use with amateur multiband (tribander type), and CB Beams.* This compact unit is stronger and lighter, therefore making it safer and easier to install. The Rotator unit is fully enclosed in a weatherproof, strong ribbed die-cast zinc housing. An important performance feature is the combination of the worm gear and magnetic brake, which has a high resistance to windmilling.

The completely transistorized Model C-225, solid state control features a patented phase-sensing electronic bridge circuit. All you do is turn the knob and the antenna will automatically sync to that direction.

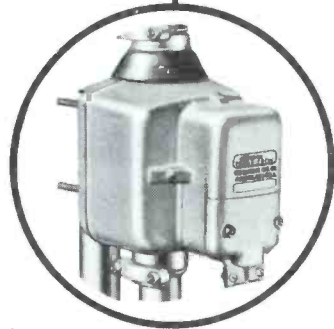
If you can lift and mount your antenna on the Tenna-rotor, it will support it, hold it, and turn it.

**Recommended mounting one foot maximum above the rotator.*

For complete details write:



Listed & CSA Approved



Model C-225



The **ALLIANCE** Manufacturing Company, Inc.
(Subsidiary of Consolidated Electronics Industries Corp.) **ALLIANCE, OHIO**

CB CALENDAR

COMING EVENTS — COMING EVENTS

The Evansville Citizens Radio League is sponsoring its 3rd Annual CB Jamboree July 26th at the 4-H Club Center, 7 miles north of Evansville, Indiana on US #41. Contact: Walt Kleitz, 398 South Boeke Road, Evansville, Indiana.

2nd Annual Home Show and Radio Communications Jamboree, sponsored by the Lynwood Chamber of Commerce in co-operation with the Southern California Radio Assistance Unit, September 11th, 12th, and 13th, at Bateman Hall, Lynwood Community Center, Lynwood, California. Contact: Norm Wasserman at the Chamber of Commerce of Mike Kurtzman, of the club at P.O. Box 127, La Mirada, California.

CB Jamboree, August 2nd, sponsored by the C Banders Radio Club of Western, Pa. Place: Renzie Park, McKeesport, Penna. Contact: Box 157, East McKeesport, Penna.

July 26th, 3rd Annual Jamboree sponsored by the Twin Pike County CB Club, Pittsfield, Illinois, at the Pittsfield City Lake. Contact: Bill Green, 623 North Monroe, Pittsfield, Illinois.

Gulf Coast CB Jamboree, July 25th and 26th, at Mathis State Park, on Lake Corpus Christi, Mathis, Texas. Contact: Gulf Coast CB Jamboree, Rt. 1, Box 174-K, Mathis, Texas.

Kenosha, Wisconsin CB Club Corn Roast Jamboree, August 2nd, at Lakeview Putting Course, south of Kenosha on Sheridan Rd. Wisconsin Highway #32, 1/2 mile north of Illinois, Wisconsin state line. In Illinois, Sheridan Rr. is Highway #42.

2nd Annual West Coast Jamboree, Saturday and Sunday, August 1st and 2nd, at the Santa Cruz County Fairgrounds in Watsonville, California. Contact: P.O. Box 1152, Mt. View, California.

4th Annual Jamboree of the Tri-State 11 Meter Club, September 13th, at Lake Austin in Jefferson County, Ohio. Monitor channel 9 and 11. Contact P.O. Box 13, Steubenville, Ohio.

International Convention in Neuvo Laredo, Tamps, Mexico, across the river from Laredo, Texas, September 18th, 19th and 20th. Contact: Manuel Flores, 1314 Iturbide Street, Laredo, Texas.

Fort Henry CB Radio Club, Inc. is holding their annual Jamboree July 26th at Wheeling Park. The club hails from Wheeling, West Virginia.

The High Knob CB Jamboree, July 25th and 26th, located on High Knob in the Jefferson National Forest near Norton, Va. Prizes galore!!!!!! Contact P.O. Box 886, Kingsport, Tenn. Thanks to Ralph F. Dougherty, 5W1315, S9, A.P.R.E.

Corn Belt CB Radio Club is sponsoring a gigantic CB Jamboree, August 8th and 9th at Izaak Walton League, 1 1/2 miles south of Highway 30, on south 12th Ave. Road, Marshalltown, Iowa. Monitor channel 11, and follow the signs.

CB Jamboree, sponsored by the Norwalk Nor-Watters of Norwalk, California. The event will be in conjunction with the Annual Norwalk Fair, October 24th and 25th, at the Fairgrounds proper. Monitor channel 9 and 15.

Seacoast Citizens Radio Club, 2nd Annual CB Jamboree, Sunday, August 30th, Lake Lenape Park, Mays Landing, New Jersey. Rain date, September 6th. This should be better then last years.

Mississippi State-Wide CB Fest, sponsored by the Jackson CB Radio Club and Auxiliary, August 9th, Jim Hankins Air Service Hanger, Allen C. Thompson Field, Jackson Municipal Airport, Jackson, Miss.

Third Annual CB Picnic sponsored by the Southeastern Pennsylvania Citizen Radio Club, Sunday, August 16th, Smedley Park, Media, Pa. on US Route 1. Contact: Bob Kaufman, 4915 Shepard Street, Brookhaven Penna. Rain date August 23rd.

CB Jamboree, sponsored by the Chicago Citizens Radio League, at the All Saints Picnic Grove, Route 72, Higgins Road, just east of River Road, Sunday, August 30th. Contact: 3905 N. Troy, Chicago, Illinois. Monitor channel 9.

St. Lawrence Valley CB Jamboree, July 26th at the Norwood-Norfolk Rod and Gun Club located off Route 56, between Norwood and Raymondville, on Plumbrook Road. The event is sponsored by the St. Lawrence County M.C.E.U. and the C-Way CB'ers Club. Monitor channel 11 and follow the signs.

Piedmont North Carolina CB Jamboree, July 26th at Miller Park, Winston-Salem, North Carolina. The event is sponsored by the Winston-Salem CB Radio Club. Jamboree control, monitor channel 11.

Cowan CB'ers Jamboree, September 13th at Smith Auditorium Memorial Park, New Castle, Indiana. Contact: W. Clawson, Box 38, Cowan, Indiana. Remember September 13th.

The Ten-Ten CB Club Inc., Jamboree will be held September 5th and 6th in the National Guard Armory at Ranger, Texas. Contact: Jessie True, 114 N. Seaman, Eastland, Texas 76448.

First Annual State of New Hampshire CB Jamboree in Rochester, N. H., July 26th, Sunset Recreation Center. Contact: Sunset CB'ers CB Radio Club, P.O. Box 418, Rochester, N. H.

Southern California CB Jamboree, Sept. 6th and 7th, Fairmont Park in Riverside, California. Contact: P.O. Box 8036, La Sierra, California.

August 15th and 16th, **Great Lake 2nd Annual Jamboree**, at Green Acres Recreation Area, Washington, Michigan.

CB National Jamboree, Ross Park, Binghamton, New York, August 1st. Contact: R. T. Reagan, 86 S. Washington St., Binghamton, New York.

October 11th, **Bell City CB Radio Club**, Lake Compounce, off Route 72, Bristol, Conn. Contact: Ted Singleton, 79 Lillian Rd., Bristol, Conn.

Soiciable 5 Watt CB Picnic, August 30th, Bradys Run Park—Shelter #10, Beaver, Pa. Contact: Roy Shelter, Enon Valley, Pa.

3rd Annual Jamboree, July 25th and 26th, Marshall, Texas. Contact: Caddo District CB Club, P.O. Box 792, Marshall, Texas.

Roanoke Valley Jamboree, Lakeside Park, Salem, Va., July 18th and 19th.

Batavia CB Radio Club, August 23rd at West Batavia Sportsman Club, Contact: Box 142, Batavia, New York.

1st Annual Southern N. E. Jamboree, July 31st, August 1st and 2nd, Westport, Mass.

North Country C Bees, Berlin, N. H. October 10th and 11th. More info forthcoming.

5th Annual Convention and Trade Show, August 22nd and 23rd, Hotel Monticello, Norfolk, Va. Host clubs are the Portsmouth-Suffolk-Virginia Beach.

1st Interstate CB Jamboree, sponsored by the CB Socialites Radio Club, August 8th and 9th, at the American Legion Farm on the Mass., New Hampshire State Line. Contact: Bill Bertholdt, Laurel Ave., Plaistow, N. H. Monitor channel 9.

Hootnanny Jamboree, September 4th, 5th and 6th and 7th, over the Labor Day Weekend. Albertson Midget Lakes, Dalton, Ga. Follow the signs to the lakes, 5 miles north of Dalton just off highway #71. Monitor channel 11. Fun for all.

The Georgia Citizens Band Council is planning a Jamboree for the week-end of August 1st and 2nd, at Stone Mountain State Park, Georgia. Contact: P.O. Box 136, Decatur, Ga. Dixie Communications Club Inc.

The Seacoasters Citizens Radio Club of West Atlantic City, New Jersey will sponsor a CB Jamboree in September, details are not available at this writing.

Fifth Annual Club CB Family Picnic of the Five-Eleven Radio Club, Inc., will be held on September 13th at White Swan Park, Parkway West, near the Greater Pittsburgh Airport, Allegheny County, Pa.

Circus City CB Club of Peru, Indiana, announce a QSL Jamboree to be held August 9th. Place: the 4-H Fairgrounds, just north of Peru, 1 1/2 miles on State Route #31.

The 1964 **Maumee Valley CB Round-Up**, largest one day CB gathering Sunday, September 20th, at the beautiful Memorial Coliseum, Fort Wayne, Indiana.

The Allen County CB Radio Club of Lima, Ohio, will hold their annual CB Picnic, Sunday, August 2nd. The event will take place at the Allen County Fairgrounds.

The Burlington Amateur Radio Club has announced its International Field Day, July 26th, at the Cliff Side, at the end of Flynn Ave., Burlington, Vermont. Contact CB'er Fred Perry, KBC1944, 14 Camels Hump Road, Winooski, Vermont.

CB Chicken Bar-B-Que Jamboree, Sunday, September 27th, at Halfmoon Beach, on the Mohawk River, Crescent, New York. Contact: Stephen Stracher, 21 West Erie Street, Albany, New York.

Metropolitan Denver Citizens Radio Club will hold their CB Jamboree, August 16th at the Jefferson County Fairgrounds. News of the event, comes from Herb Brown, 15W1898. The jamboree will serve the Denver and Colorado area.

Southwestern Ohio Citizens Band Ass'n, P.O. Box 231, Mason, Ohio will hold its 2nd Annual Nationwide CB Jamboree, Sunday, August 16th at the Warren County Fairgrounds, State Route #8, Lebanon, Ohio. Remember August 16th.

Penova CB Club Jamboree, August 9th at New Waterford Fish and Game Park, New Waterford, Ohio. Monitor channel 9 and REACT monitor channel 22. Rain or Shine. Plenty of prizes. By the looks of the map, New Waterford is on Route 421, just off Route 7. Great idea, supplying maps with the flyers. Lots of luck to the group.

Bergen County Citizens Banders Jamboree, September 13th, at Sun Dance Lodge, Route 46, Caldwell, New Jersey. Come early and stay late. Should top last year. Jamboree Chairman, Larry Katz.



CARD SWAPPERS UNLIMITED

We're working on a few birds with the same stone this month. For one thing, because of the special issue we had originally decided to eliminate the Swappers altogether in this particular issue of S9. In addition, we have been on the receiving end of an increasing number of gripes about people who send in their cards and then refuse to reply to cards which are sent to them. Rather than pull the popular Swappers' column entirely out of this issue until the new swap system starts in the September issue, we decided to give you a special treat and list some of the much-asked-for foreign swappers. The last time we ran some of these addresses you dug them *the most*.

These addresses were received from first, second, and third hand sources and we can't guarantee that the fellows still swap. However, at one time or another each of these stations has swapped with North American CB'ers and/or SWL's. We suggest that when sending to any of these stations you enclose an International Reply Coupon, which is available for a few cents from any Post Office in the U.S. or Canada. This coupon may be exchanged for postage stamps in most countries of the world (except Russia and the satellites). If you can purchase recent vintage uncancelled stamps of foreign countries you can substitute these for the International Reply Coupons. The stations listed here, by the way, are *not* CB'ers, they are short wave listeners. In many countries of the world the governments license short wave receiving sets and assign them "callsigns" which are similar to our CB calls. In some cases, the "callsigns" are issued by semi-official SWL clubs.

Before we get to this month's swappers, here are the winners of Swappers' Awards for this month. Free copies of the Swappers' Award rules may be obtained by sending a stamped, self addressed envelope to: Swappers Award Rules, S9 Magazine, 14 Vanderventer Avenue, Port Washington, N. Y. 11050.

- SACA 156 Gene Coken, KCD3646, Bethlehem, Pa.
157 Marc Joondeph, KBG9040, Ridgewood, N.J.
158 Robert Thatcher, KBG7687, Hudson, N.Y.
159 Robert Gillespie, KHG1923, Willowick, Ohio
160 Ed Ross, KCG3689, Eastville, Va.
161 Bruce Holt, KGC1311, Colorado Springs, Colo.
162 Ruth Neal, KFA4500, Bakersfield, Calif.
163 William Wheaton, KBG8537, Hillside, N.J.
164 Harry Okey, WPE6ETT, La Jolla, Calif.
- PX-25 284 George Hunt, KBJ1722, Middletown, N. Y.
285 Wayne Oehler, KHC2157, Milwaukee, Wisc.
286 Robert Wishnoff, KBJ1899, West Babylon, N. Y.
287 Jerry Barnes, New York, N. Y.
288 Charles Spain, KDC2313, Auburn Hgts, Mich.
289 Bruce Holt, KGC1311, Colorado Springs, Colo.
290 Steve Minish, KCJ6262, Winston Salem, N.C.
291 William Larsen, KEH0651, Midwest City, Okla.
292 Michael Kaplan, KKD0491, Maplewood, N.J.
293 Jim Heiple, KEC0272, Fayetteville, Ark.
294 William Caruso, KBI7636, Plainfield, N.J.
295 Don Brandt, Short Hills, N.J.

- 296 Betty Tynsdale, KFG0730, Eugene, Oreg.
297 Harry Okey, WPE6ETT, La Jolla, Calif.
- PX-50 243 Paddy Kuttrell, KEB3369, Fayetteville, Ark.
244 George Masny, KKD3296, New York, N. Y.
245 Baily Curtis, KCG0346, Elkins, W. Va.
246 Wayne Oehler, KHC2157, Milwaukee, Wisc.
247 Jerry Barnes, New York, N. Y.
248 Charles Spain, KDC2313, Auburn Hgts, Mich.
249 Bruce Holt, KGC1311, Colorado Springs, Colo.
250 Dick Dill, KHD7546, McLeansboro, Ill.
251 William Caruso, KBI7636, Plainfield, N.J.
252 Steve Sellers, WNSICF, Kenedy, Texas
253 Betty Tynsdale, KFG0730, Eugene, Oreg.
254 William Larsen, KEH0651, Midwest City, Okla.
255 Mitchell Cohen, KBI6803, Roselle Park, N.J.
256 Francois Goyer, XMS3463, Drummondville, P. Q., Canada

- PX-75 189 Wayne Oehler, KHC2157, Milwaukee, Wisc.
190 Jerry Barnes, New York, N. Y.
191 Charles Spain, KDC2313, Auburn Hgts, Mich.
192 Bruce Holt, KGC1311, Colorado Springs, Colo.
193 James McClure, KHJ2703, Yawkey, W. Va.
194 Bill Giles, KKI0688, College Park, Md.
195 Betty Tynsdale, KFG0730, Eugene, Oreg.
196 Bobby Denholtz, KBI8237, Short Hills, N.J.
197 George Solomon, KKG3692, Hellertown, Pa.

- PX-100 176 William Holt, 2W7638, Dunellen, N.J.
177 Dewey Watkins, 24Q0244, Washington, D.C.
178 Wayne Oehler, KHC2157, Milwaukee, Wisc.
179 Bruce Holt, KGC1311, Colorado Springs, Colo.
180 William Wheaton, KBG8537, Hillside, N.J.
181 Betty Tynsdale, KFG0730, Eugene, Oreg.
182 George Solomon, KKG3692, Hellertown, Pa.

- PX-125 123 R. N. Abercrombie, Birmingham, Ala.
124 Robert Gillespie, KHG1923, Willowick, Ohio
125 Ed Ross, KCG3689, Eastville, Va.
126 Dewey Watkins, 24Q0244, Washington, D.C.
127 Rick Stephens, KFD5533, Palo Alto, Calif.
128 Marc Joondeph, KBG9040, Ridgewood, N.J.
129 Betty Tynsdale, KFG0730, Eugene, Oreg.
130 John Andresen, Fulton, Ill.

- PX-150 112 Ruth Neal, KFA4500, Bakersfield, Calif.
113 Nancy Dash, KID8898, Erie, Pa.

- PX-175 107 Wally Foster, KFA1060, Sierra Vista, Ariz.
108 Gene Bull, KFA1059, Sierra Vista, Ariz.

- PX-200 102 Dan Guthrie, KDB1435, Spruce Pine, N.C.

- PX-225 101 Dan Guthrie, KDB1435, Spruce Pine, N.C.

- MSA 126 Eddie Becker, KCG0706, Alexandria, Va.
127 Ruth Neal, KFA4500, Bakersfield, Calif.

- SSC-1 133 Bert Fodren, KEG3491, Plainview, Texas
134 Betty Medearis, 18B0339, Chillicothe, Ill.
135 Scott Bruning, KGC1056, Colorado Springs, Colo.
136 Bruce Holt, KGC1311, Colorado Springs, Colo.
137 Ruth Neal, KFA4500, Bakersfield, Calif.
138 Bob Berg, 10W2121, Ft. Worth, Texas

- SSC-3 107 Gene Bull, KFA1059, Sierra Vista, Ariz.
108 Wally Foster, KFA1060, Sierra Vista, Ariz.

- SSC-6 103 Fred Martz, KID0007, Hustontown, Pa.

- SSC-7 103 Fred Martz, KID0007, Hustontown, Pa.

- SSC-10 102 George Thayer, KID2617, Hustontown, Pa.

- SSC-12 101 Dan Guthrie, KDB1435, Spruce Pine, N.C.

- SSC-13 101 Dan Guthrie, KDB1435, Spruce Pine, N.C.

The following foreign swappers are listed for this month only. If you would like to be listed in our regular monthly swappers column listing, you may submit your QSL card (one for each month you want to be listed) and 10¢ for each month's listing. Do not send checks, stamps, or money orders. Cards submitted without proper payment will not be run, acknowledged or returned. Cards for the October listing must be in our office not later than August 10th. Send your cards (in envelopes and without any scribbling on them, if possible) to: Cardswappers Unlimited, S9 Magazine, 14 Vanderventer Avenue, Port Washington, N. Y.

Due to the large number of complaints regarding unanswered swappers' cards, we feel that in all fairness to those people who are earnestly pursuing this hobby we should start off our September listings right from scratch, not using the previously sent-in cards in our files, as we had previously hoped to do. This way we can be pretty well assured of removing most of the possibility of deadbeats who have plagued our listings in the past. This will be an inconvenience to those people who sent in their advance cards in the past and honestly intended to answer all cards sent to them, but (as is usually the case) the innocent bystander must be inconvenienced to take care of a few inconsistencies.

Oh, before we go, be sure to send your QSL card to KKD5719, United Scientific Laboratories, Dept. S9 (that's important, don't forget the department), 35-15 37th Avenue, Long Island City 1, N. Y. In return you will receive a snappy looking QSL card with a registered serial number. This will mean that you have a chance to win a free CB rig—one of the brand new designs which USL is putting on the market. If you don't have a regular QSL, you may use the coupon from their ad in this issue.

Here are the swappers for this month:

5A-6621 R. A. Mewse, c/o Aeradio, Ltd., P. O. Box 655, Tripoli, Lybia
 DE-9012 Rolf Erny, Offenburg/Bd., Witsenstrabe 2, Germany
 DE-A00331 Hermann Norden, 795 Biberach/Riss, Keplerstraße 23, Germany
 DL-6626 Lee Jung, Angelweg 27, Heidelberg, Germany
 DM-1765/L Thomas Poppitz, Dresden A-21, Enderstraße 4, Germany
 G-1516 Clifford Tooke, 158 New River Cresce., Palmers Green N-13, London, England.
 G-9653 Harold Burton, 10 Gray Ave., Murton, Seaham Co., Durham, England
 G-9703 Pete Jackson, 32 Bedford Dr., Whitehouse Common, Sutton, Colfield, England
 G-9810 Mike Bland, 19 West Road, Oakham, England
 G-9987 Johnathan Gentry, Gailey Vicarage, Stafford, England
 GI-9831 Dave Waugh, 19 Pine St., Belfast 7, N. Ireland
 GI-10691 Dave Vizard, 14 Glencairn Dr., Glengormley, Newtonabbey, N. Ireland
 GW-4194 William Lewis, 5 Galon Uchaf Rd., Merthyr, Glam., S. Wales
 GW-8444 Jack Thomas, "Tyn Glat," Bodffordd, Llangerni, Anglessy, N. Wales
 GW-10546 Mickey Morgan, 35 Aur-yr-yn View, Newport, Mon. Wales
 HM1AP Byong Foo Cho, Central Box 162, Seoul, Korea
 I1-10797 Costanzo Cicognani, Via Lungo Tronto 1, Ascoli Piceno, Italy
 I1-10899 Alberto Paleari, Via Revere 18, Milano, Italy
 I1-11048 Giuseppe Vecchi, Salita Oregina 14-10, Genova, Italy
 I1-11085 Gino Cuzzucoli, Via S. Elia 27-Lazzaro, Reggio, Cal., Italy
 JA1-1953 Kiroshi Ohkubo, 110 Fukuhara, Kasama City, Ibaraki, Japan
 JA1-2263 Kenichi Ito, 134 Iriyamachi Taito-Ku, Tokyo, Japan
 JA1-2845 Isao Numa, 281 Setagaya-1-Chome, Setagaya-Ku, Tokyo, Japan
 JA6-1420 Mutumasa Inoue, c/o Fuke, 443 Mannici Kasuga, Kumamoto City, Japan

LA-M3767 Dag Ottesen, Vestanfjell, Frammos pr., Sandefjord, Norway
 MP4-1-413 1935877 SAC Reading S., c/o Communic. Ctre., RAF Bahrein, BFPO 63, London, Engl.
 NL-673 Ankie Kardolus, Laan Van Overvest 78, Delft, Holland
 NL-794 Wout Kardolus, Laan Van Overvest 78, Delft, Holland
 OH-1674 Jaakko Madeviki, Nakkila, Finland
 OK1-553 Josef Musil, P. O. Box 165, Pizen 1, Czechoslovakia
 OK1-7251 Jan Synek, Svobody 2, Liberec 13, Czechoslovakia
 OK1-9114 Antko Zdenek, Rokycany, Via P. O. Box 69, Praha 3, Czech.
 OK1-12439 Sarka Vovsova, Smlouva 429, Pardubice, Czech.
 OK3-9280 Tibor Polak, Nove Zamky, Cyrilometodejska 8, Czech.
 ONL-170 Jacques Camille, 86 ch. de Wavre Jodoigne, Belgium
 OZ-DR1167 Per Cederholm, Grønagervej 23, Copenhagen, Denmark
 OZ-DR1233 Tom Iversen, Fribjerg 32, Nordborg (AIS), Denmark
 OZ-DR1236 Flemming Nielson, Liden Kirstensvej 11, Roskilde, Denmark
 OZ-DR1257 Paul Erik Skov, Haraldsgade 37, Herning, Denmark
 OZ-DR1261 Palle Nielsen, Humlebaekgade 13, Copenhagen N, Denmark
 PA-6130 W. Swaan, Sandecampaan 29, Heiloo, Holland
 PY1-13332 Emanuel Filho, P. O. Box 359, Niteroi, R. J., Brasil
 REF8762 Bernard Baulu, 29 Rue Jules-Massenet, Le Mans(Sarthe), France
 REF11100 Jacques Parmantier, 10 rue Domrey, Paris 13, France
 REF13269 Bernard Dupin, 22 Ave. Buenos Ayers, Nice (A.-M.), France
 SM3-E82 Stig Nyman, Backvagen 36, Skovde 3, Sweden
 SM3-3256 Tord Grip, P. O. Box 1403, Bollnas 3, Sweden
 SM4-2825 Rolf Johansson, Brovall, Dala-Husby, Sweden
 SM5-A03 Gunnar Olsson, Gjutargat 36, Vasteras, Sweden
 SM5-E68 Owe Nordin, P. O. Box 35, Hellestad, Sweden
 SP6-510 Stanislaw Borowik, P. O. Box 329, Opole 1, Poland
 SP9-624 Jan Brzoza, P. O. Box 152, Bytom 1, Poland
 UBS-5263 Val Antonov, Box 44, Dniepropetrovsk, Ukraine, USSR
 UQ2-22333 Karl Jelinskis, Karl Marx Str. 62-26, Riga XI, Latvia, USSR
 YO9-8588 Nicolae Duja, via P. O. Box 95, Bucuresti, Romania
 ZS-6005 Noel Langham, 77 Taft Avenue, Brakpan/Tvl., South Africa

S9

HAMBONE?



Even if you're a tried and true CB'er, clear to the bone, perhaps you are considering the possibilities of Ham radio. Or maybe, like many S9'ers, you already hold a Ham ticket. In any event you will enjoy reading "CQ Magazine, The Radio Amateur's Journal," which is published each month by the same company which brings you S9. CQ's pages are chock full of construction projects, humor and fiction, Ham station activities, VHF news, DX propagation predictions, etc. Curious? A sample copy of CQ will be sent for only 50¢—a 1 year subscription is \$5. Special trial introductory (new CQ subscribers only) offer for S9 readers: 6 months of CQ for only \$2. Subscribe now and receive the giant \$1 November issue in your subscription at no additional cost!

CQ Magazine, Dept. CB
 14 Vanderventer Avenue
 Port Washington, N. Y. 11050

LOW S.W.R.

Continued from page 31
“current-fed.” The circuit of B is for “voltage-fed” antennas. When doing such things as loading up the window screens, try both arrangements and use whichever works best.

To use the tuner, connect the coax from the transmitter to the “input” connector, which should be a coaxial type. Connect the tuner output to the antenna, but do *not* use coax here. Ordinary No. 18 copper wire is suitable for these connections since they will be short. Now you’re ready to adjust everything.

With the SWR meter in the line between transmitter and tuner, fire up on your favorite channel and tune C₁ until you get a power-output reading on the meter. Switch to the SWR position and tune C₂ for the deepest dip you can get. Then switch back to forward power to see if you still have any going out (it’s easy in the initial stages to set the tuner up so that nothing goes anywhere!) Adjust the coil one turn, or move the tap one turn, and repeat the tuning. If your SWR reading is lower than it was the first time, you’re going in the right direction. Continue moving the tap or adjusting the coil, a turn at a time, until the SWR starts going back up. If the second reading is higher than the first, reverse direction on the coil and continue. When you go past the position of best SWR, reverse direction of coil adjustment and move slowly (a quarter or even an eighth of a turn at a time). You should find the point of 1.0 SWR rapidly with this technique.

Once this point is found, seal all adjustment screws with a drop of Duco or Glyptal so they won’t be moved, and you’re done. The SWR is 1.0 on your favorite channel, and shouldn’t rise *appreciably* at either end of the band.



CB CHIT CHAT

Continued from page 54

REACT of South West La., held their monthly meeting at the Pancake house (Sepulvula & Hawthorne Blvd.) under the leadership of Bill Carpenter, this fine group is still growing. Channel 11 is on the air for any one who needs help while in the area.

Pomona Valley 11 Meter Association (not League), meets the 1st Tuesday of May, with about 80 of their fine members present. With their new jackets, and ID tags, complete with patches for the jackets, the group looks sharp. Anyone wishing a copy of the newsletter, the Printed Circuit, should drop a dollar (buck well spent) to Box 656, in Pomona, California.

REACT of Orange County, now has its communications Van ready to roll. Any other CB club in the Southern Calif., area who wishes to view this piece of equipment write P.O. Box 26, in Midway City, Calif. Completely equipped with all necessary radio gear for any emergency with 700 Watt Generator, this mobile communications van is now affiliated with the Salvation Army Disaster Communications Net. Meetings are held the 3rd Thursday night at Santiago Park in Santa Ana. Channel 3 is monitored.

Cabrillo 11 Meter CB Club, Box 375, in Oxnard, now holds coffee breaks the second Friday night of each month. Port Hueneme Community Center. Business meetings the first Monday night, same place. Once again try channel 11.

There are many fine Citizens Band Club organizations and coffee breaks, that have never been given nation wide publicity in S9 Magazine. For this reason PLEASE send all club informaton, Name of Club, Address, name of president, meeting night, coffee break nights, club channel, coming events, plus any other information on your club. I would like also to have each month, a copy of each club paper. If any club in the 11 area would like, let me know as to the time and place of your meeting and I will be glad to attend. Bob Blakely, 11W8551, A.P.R.E. for 11, 1918 Harbor Blvd., Costa Mesa, California.

PACIFIC

Newly reporting club is the Coos Emergency Volunteers Inc., who boast a membership of over 30 at this writing. The club meets the 3rd Friday of each month at 7:30 p.m. at Charleston Fire Hall, Charleston, Oregon. The club monitor channels 9 and 11 and use channel 20 as their emergency freq. President of the group is G. J. Brown, KFF0667.

REACT of the Golden Gate Area was formed in November 1963 and is fast becoming a very efficient operating communications net. The group covers the Bay area very well, which includes many surrounding counties. Chairman of the newly reporting group is Bill Anderson, KFC2774. The club provides 24 hour monitoring on channel 11 with an alternate channel being 9. Membership meetings are held the second Tuesday of each month at the John Muir School, corner of Cambridge and Crestmoor in San Bruno. All visitors are welcome. The group would like to hear from other REACT Teams in the area, contact: P.O. Box 1641, San Bruno, California.

Newly elected officers of the Gallatin County CB Ass’n which is held semi-yearly are President, Carl Koeber, KLD0527; Vice President, Pat Johnson, KLD-0521; Secretary-Treasurer, Dick Blankenship, KFJ-1923. This newly organized club hold its meetings every second and fourth Thursday of the month, with emergency drills on the first and third Thursdays. Both commence at 7:30 p.m. The club has painted and erected monitoring signs for the benefit of travelling CB’ers and the unit monitor channel 9 during the day, and the local merchant police provide an all night monitor on channel 11. Channel 16 is used for emergency work. Present club membership is 18.



PART 15

Continued from page 47

Operation is permitted on any frequency between 26.97 and 27.27 mc., but to avoid interference with Class D CB stations, practically all hobby stations use the channels shared with Class C radio control equipment. Of the eight channels, lettered A through H, channel A (26.995 mc.) is most widely used as a calling and working frequency.

In summary, Part 15 operation is a hobby growing in popularity with CB fans around the country—it provides the best way to enjoy CB as a hobby—legally. As more CB’ers get on Part 15 for non-essential communications, it will be easier to use the Class D CB channels when there is an essential message to transmit. See you on channel A!



CASEBOOK

Continued from page 43

to his house, and the Mangum Electric Company helped us set the pole. Everyone helped; students, business men, and CB neighbors from several nearby towns. CB radio has opened the door to the world for B. F. again. His mother says the only problem she has now is getting B. F. to turn off the rig long enough to get the sleep he needs. B. F. is an inspiration to every-

one of us. That boy has more interest in, and a keener appreciation of, what is going on in this world than you have any idea.

"I know that the CB experiences our students share here at Campbell College will be carried into life with them. And I know they will be better people for having given something of themselves in community service, and for having received so much in return."



ANTENNAS

Continued from page 41

ROTATOR TIP

Just under most directional beams is the rotor motor, a mechanism which swings the antenna to any direction. Year after year it obeys the commands of the CB'er below—until its gears and motor grind to a halt with an agonizing squeak. Rotors need some attention. At least every five years, the rotor should be lubricated. First step, after opening the rotor housing, is to clean the inside. The gears are lubricated with heavy grease. Don't use carbon-type or white grease. (Suitable heavy grease is usually stocked at a local gas station.) To complete the job, lightly oil the motor bearings. The rotor is then ready for another five years' service.



KBG4303 RIDES AGAIN

Continued from page 7

lucky S9 readers. Full details are in our Card-swappers Unlimited column this month and also in their ad.

ANOTHER NATIONAL CLUB

The mailbox provided us with a brochure for the *National Association for Citizen Band Radio, Inc.*, which has as their "association goal" to "protect your radio channels and obtain for you the same privileges on CB radio as the amateurs enjoy on their channels." In order to join you must sign a pledge to support this goal, send \$6 for one year's membership fees (a membership pin available for an *additional* \$5). In return you will receive a certificate and a "certified membership card." There is a special deal of the 1 year membership together with the pin for *only* \$10. The NACBR already has a president, even though it wasn't made clear as to who elected him.

Guess the people at club headquarters haven't realized that CB'ers already sank their loot into several previous clubs which have come and gone with similar worthless pitches, only for less of an investment.



S9 pays highest authors' rates.

(Advertisement)

CB IN ACTION

By Len Haas,
Sales Manager,
Pearce-Simpson, KBG7527



Mobility—the whole country is on wheels. And CB is moving right along with the trend.

Two weeks ago we had to make an auto trip from Miami to Denver and back again. That's a lot of driving in a two week period—and it gave us plenty of opportunity to tune in on "CB in Action" across the country.

Traveling up the Florida coast we had a QSO with a vacationing CB'er on wheels, heading south. He told us of construction ahead on Route 27 and we saved several hours by taking a spur road and cutting back in 30 miles further upstate.

As we passed through the Florida Panhandle, we monitored a conversation between a moving concrete truck and his home office. We would tell you what they said, but it would be a violation of 605 Title 47 USC!

We got a skip all the way from Miami in the evening—but couldn't return the contact.

In Shreveport the next day, we got the low-down on the town's best hotel from a friendly CB'er. Also the best place to avoid ptomaine poisoning! Passing through Dallas we tuned in on a CB network, used by a taxicab fleet. They were nice enough to steer us through town via traffic-free back roads. On the way to Amarillo we spoke with a dozen farmers and cattlemen, using CB systems to help run the vast agricultural part of Northern Texas. And finally, on to Colorado, where I was guest speaker to a group of wonderful CB dealers and enthusiasts in Denver.

Let us point out that during the trip we were using our CB to help gather information on CB usage, which can be utilized by Pearce-Simpson in improving the design of future CB equipment. We were not engaged in meaningless "visiting" by air. The first citation of Part 19 violations has just been awarded by the FCC in Fort Lauderdale, Florida—\$300 for idle chit-chat! Pretty expensive conversation.

WIN A "COMPANION" CB

You can help to keep the air clean of jamming and talk about the weather. Help to prevent restrictive changes in Part 19. Tell us the many ways that CB is being used in the public interest. If we use your story in our column or in Pearce-Simpson advertising, you will win a brand new "Companion" CB. The first award will be made next month, and another will follow every four months thereafter. Send your "CB in Action" story to: Len Haas, PEARCE-SIMPSON, INC., 2295 N. W. 14th Street, Miami, Florida. See you next month with tips on tune-up and preventive maintenance!

LET'S CLEAR THE AIR

About C/B Crystals

TO THE CITIZENS BAND USER WHO KNOWS AND WANTS THE VERY BEST: Today's James Knights Citizens Band Crystals are built with the same care that is exercised in the production of crystals used in space programs and by the Army, Navy, Air Force and other discriminating users. All Golden Line Crystals exceed the industry standard, set up in the Military Specification MIL-3098. All crystals including Citizens Band, are unconditionally guaranteed.

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Sandwich, Illinois

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This precision engineered signal suppressor will "hold down" those blasting locals which overload your receiver, while still permitting weak distant stations to come through. Easily attached to any rig which has AVC. Weighs only 12 oz. and designed in attractive silver, gold and black colors. This is a MUST for every CB'er who has ever wished that there were no such things as "loud locals" to jam a CB channel! Less than \$20. Write for further details and the name of your nearest dealer. Dealer inquiries invited.

BAUER ENTERPRISES, INC.

P.O. Box 657

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RUSH me details of your Model 62 CB Signal Suppressor, and give me the name of a local dealer!

Name: _____ Call: _____
Address: _____
City: _____ State: _____ Zip: _____

CB SHOP

Rates for CB SHOP are 10¢ per word for advertising which, in our opinion, is obviously of a non-commercial nature. A charge of 25¢ per word is made to all commercial advertisers or business organizations. A 5% discount is in effect for an advance insertion order for six consecutive months.

We do not bill for advertising in CB SHOP. Full remittance must accompany all orders and orders sent in otherwise will not be run or acknowledged.

Closing date is the 15th of the 2nd month preceding date of publication.

We reserve the right to reject advertising which we feel is not suitable.

Because the advertisers and equipment contained in the CB SHOP have not been investigated, the publishers of S9 cannot vouch for the merchandise or services listed therein.

QSL CARDS, EYEBALL CARDS. The largest designs, colors, cardstock. Samples—10¢. APRIL SIGN, 56290 Van Dyke, Washington, Mich.

CB QSL CARDS—100 two-color \$3.00 postpaid, samples—10¢. Rusprint, Box 7575, Kansas City, Missouri 64116.

QSL's CB, WPE SAMPLES 10¢. NICHOLAS & SON PRINTERY, P.O. BOX 11184, PHOENIX, ARIZONA 85017.

SUPERIOR RHOMBIC ANTENNA: Guaranteed to be superior to any other antenna on the market or money back. Increases your range and reduces noise level. Excellent where long distance communication is necessary. 12DB Forward Gain, 100 DB Front to Back ratio. Works well on all channels. Easy to match to transmitter. Easy to install. This is the same antenna used by the American Telephone & Telegraph Company for overseas communications. ORDER NOW!! Only \$19.95. The Hilliard Laboratories, Box 2614, Macon, Georgia.

QSL's. ASSORTED OR ALIKE. Down to earth prices. 5¢ stamp for samples. Allen Welch, Mt. Union, Pa.

FREE SAMPLES—CB QSL CARDS—\$2.50 per 100 in 3 colors, POSTPAID. Garth Printing Company, Box 51S, Jutland, New Jersey.

FREE SAMPLES—CB QSL CARDS—\$4.00 PER 100—TWO COLOR—POSTPAID. QSL PIONEER, P.O. BOX 2451, PATERSON, NEW JERSEY.

CONVERT the inexpensive Surplus BC-659 to CB with crystal filter, AVC, squelch bias, Pi coupling, electronic push to talk, xtal controlled receiver, 2 RFs, 14 tube operation. Conversion parts kit and plans \$20.60. Plans only, \$2.00. Jay's CB Service, P.O. Box 173, Citrus Heights, Cal.

CB Calibration—Repairs. Free estimates, reasonable prices. FCC licensed. Northwest Camera & Electronic Repair, 3119 Arcade Bldg., Seattle, Wash.

Now a 23 channel switch to fit model 50 or 100 International Executive (and many other brands). Get complete enjoyment with this new 23 channel switch. Can be installed in 5 minutes in all model Executives. \$17.50 postage paid from the factory. See your dealer or order direct. LOGAN RADIO SUPPLY, 2110 Ave. "J", Lubbock, Texas, Phone SH 4-1433. Dealer inquiries invited. Money back if not satisfied.

ABSOLUTELY BEST PROTECTION YET! Large federal warning decals displayed on your windshield warn against the serious crime of tampering with or stealing your CB equipment. A necessity in alerting the public and preventing your losses. Rush \$1.00 for each pair of three color decals to: ARTCO, Box 8202, Atlanta 6, Georgia 30306. Return mail delivery!

CB QSL cards. Free samples. Little Print Shop, Box 9401, Austin, Texas.

QSL's 100 for \$3.00. 28 New Drawings. Samples 10¢. Brigham, Colson St., North Billerica, Mass.

CB QSLs "The Best of Letterpress" Samples 10¢. Hutchins Brothers, Thorndike, Maine.

QSL's 100 only \$3.00, samples 25¢ refundable. Redbird Hill, Freedom, Indiana 47431.

WOULD LIKE INFORMATION on Jamborees, Indiana, Ohio, Illinois, Kentucky, dates, etc. Mc-Cartney, Freedom, Indiana 47431.

FCC WARNING DECAL against unauthorized use. 2x3 35¢; 4/\$1.00. 3x4 65¢ 2/\$1.00. POLICE EMERGENCY DECAL 65¢ 2/\$1.00. Box 457, Encino, California.

QSL's Different Blue Eagle Background confirming data Glittering Gold Embossed Trial 25—\$2.00. Samples 10¢. Andy's, 12 Bridge, Amsterdam, N. Y.

Beautify your CB QSL cards with raised printing. Catalog and samples 10 cents. Sacandaga Press, Broadalbin, New York 12025.

GLOSSY 3-COLOR QSL CARDS. 100-\$4.50. Free Samples. Rutgers Vari-Typing Service, Thomas Street, Riegel Ridge, Milford, N. J.

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QSL's. Top quality, reasonable price. Samples 20¢. CB Press, Box 281, Oak Park, Illinois 60303.

CB QSL's \$2.00 per 100 postpaid. Glossy 2-colors. Free sample. Hobby Print Shop, Umatilla, Fla.

COLORED EYEBALL STICKERS—Lick and stick . . . 99 for 50¢. EYEBALL, Post Office Box 10125, Louisville 10, Kentucky.

New CB QSL's. Free samples. John, P.O. Box 3554, Austin 4, Texas.

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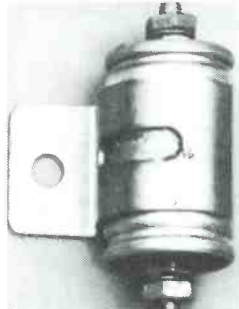
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QUALITY QSL's . . . Custom and Stock. Samples 10¢, 25¢, 50¢. Savory, 172 Roosevelt, Weymouth, Mass.

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CB QSL SWL Cards that are different. Quality Card Stock. Samples 10¢. Home Print, 2416 Elmo, Hamilton, Ohio.

CB, WPE QSL CARDS samples 20¢. Sakkers, W8-DED S9, Box 218, Holland, Michigan.

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QSL-CB-SWL Letters and Cards. \$2.00 and \$3.00 per 100. Samples 10¢. Martin, 828 Schuykill Ave., Reading, Penna. 19601.

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CHEAP! CHINTZY! RUN OF THE MILL QSL's, but what do you want at 1¢ each? Send 10¢ for wild samples. Save your money for a Rainy day! Nussbaum, 1440 54th St., Brooklyn, N. Y., 11219.

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CB Transmitters \$6.00. Other bargains, catalog 10¢. Vanguard, 190-48—99th Ave., Hollis, N. Y. 11423.

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LOG BOOK for CB'ers. 1965 S9 call map printed on inside cover in red and black. Plastic ring binder opens flat with 1200 lines 17 inches long for calls. \$1.00 postpaid. CAROLINA CAMERA PUBLISHERS, Post Office Box 1728-S, Wilmington, N. C. 28402.

IMPROVE SELECTIVITY, increase sensitivity! Install Dual Conversion easy-do adapter kit. HE-15, A; 15B; 115B; 20, A, B, C; 90; 800, 910, B; Mark VII; 770, 1, 2; Messenger; GW-10, etc. \$15.50, with tubes \$17.50 Also, SPEECH CLIPPER-kit complete \$17.85 or \$5.00 deposit plus C.O.D. Results! Not promises. Free literature Dept. #8S, BAINBRIDGE Radio, 2839 Briggs Ave., New York 58, N. Y.

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 Business band antennas also available

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USED POLY-COM 23 like new \$275. Bob Reagan, 86 South Washington St., Binghamton, New York.

CREATE—a QSL with a "Sampler Instruction Kit" 25¢. Samco, Box 203-S, Wynantskill, New York 12198.

YOUR CALL in gold face, black outline 3x1¼" individual decal letters. Apply inside/outside glass, on metal or wood. Your call sign—\$1.00; Two sets—\$1.50. FREE MONITORING DECALS with each set. (Specify one channel.) Postpaid. NORDLUND—18Q5121; 7635 West Irving Park; Chicago, Illinois 60634.

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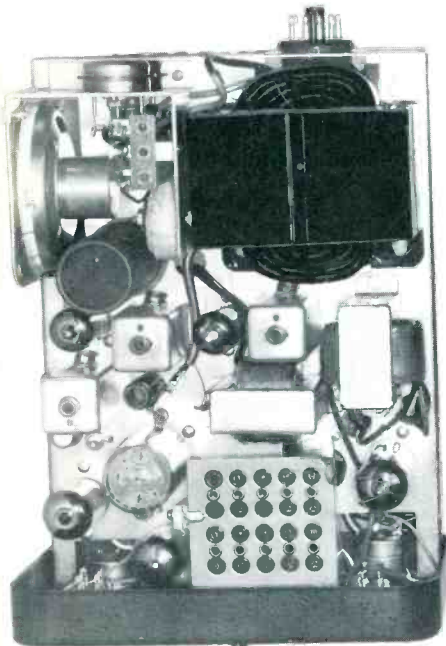
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