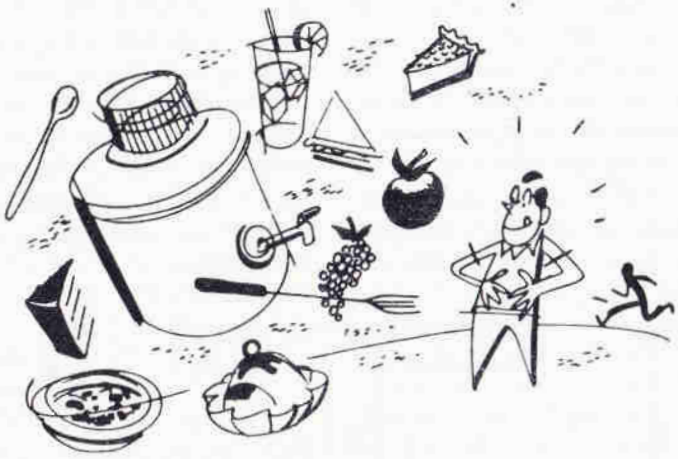
HAM HUM

AK-SAR-BEN
RADIO CLUB
INC.

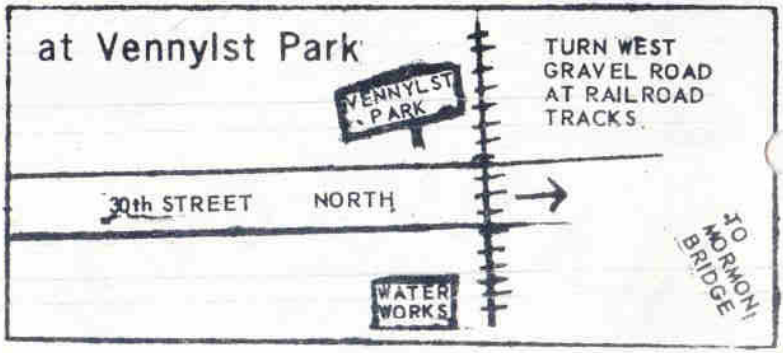
WØEQU

September 1958 P.O. 626 Omaha 1, Nebr. Vol. VIII No. 9

let's have a picnic



on september 14th



Regular meeting September 14 to be a PICNIC. The September meeting will be a picnic held at Vennylst Park. This park can be reached by going north on 30th Street and the entrance to Vennylst Park is on the West side of the street, a block after Fillmore Street or just before you reach the waterworks at the North end of town. A sketchy map shows the way. The picnic starts at 2:00 PM and chow down will come about 3:00 to 4:00 PM. Admission is $.75 for adults and $.25 for those under twelve years of age. Bring the whole family as there will be activities for all. We hope to see a lot of out of town hams at this picnic and every one is invited. Refreshments areplanned for a possible 150 people and our feelings won't be hurt if twice that many attend. We'll scrounge up the food somewhere. There will be a transmitter hunt on 420 megacycles so bring your snoop loop, demensions shown on the sketch below. I think many of you remember our 420 megacycle transmitter hunt last year which was a lot of fun. There will be games including the tube selector where you put the tube in the right socket, keying with your left foot, egg throwing contest, etc. There will be a transmitter on 50.446 and 29.5MC to guide in any mobiles.

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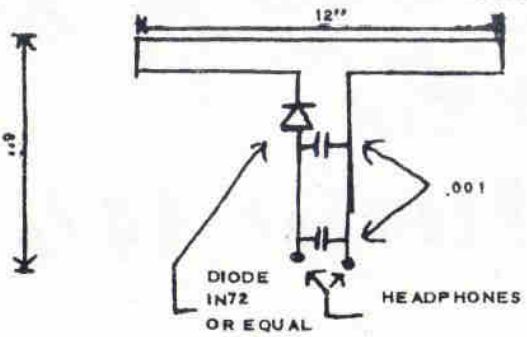

SINGLE SIDEBAND - Part 4

Now that we have generated a signal with two sidebands and a suppressed (eliminated) carrier, the only remaining question is how to get rid of one of the sidebands. This is done by one of two methods, namely, the filter method and the phasing system. This month the filter method will be discussed.

After a double sideband suppressed carrier (dssc) signal has been generated in the balanced modulator the signal is passed through a selective filter which accepts one sideband and rejects the other. The output signal of the filter is a single sideband suppressed carrier (sssc) signal, or as it is more commonly called, single sideband, SSB. The operation can best be understood by refering to the block diagram. A suppressed carrier frequency of 500 kc. has been chosen to illustrate this explanation. See Fig. 1.

The oscillator operates at .0 kc., and is crystal controlled for maximum stability. The 500 kc. signal is fed to the balanced modulator. An audio signal is generated in the michrophone, amplified and also fed to the balanced modulator. The dssc output of the balanced modulator is fed to the filter. If the audio signal ranges from 0 to 3000 cycles per second, the lower sideband will occupy from 497 to 500 kc., and the upper sideband will range from 500 to 503 kc, as is shown in illustration A. The carrier, at 500 kc, is of course, suppressed. If the filter, of the passband type, covers from 500.5 kc. to 503.5 kc., as is shown in illustration B, the upper sideband will be passed by the filter, while the lower sideband will be rejected. The whole process merely consists of "superimposing" one sideband or the other on the filter passband, as is shown in illustration C. It now can be seen that which sideband is selected by the filter can be determined by where the (suppressed) carrier oscillator operates. If a Collins mechanical filter is used to select the sideband, the lower sideband will be chosen if the (suppressed) carrier frequency is at 457 kc.,

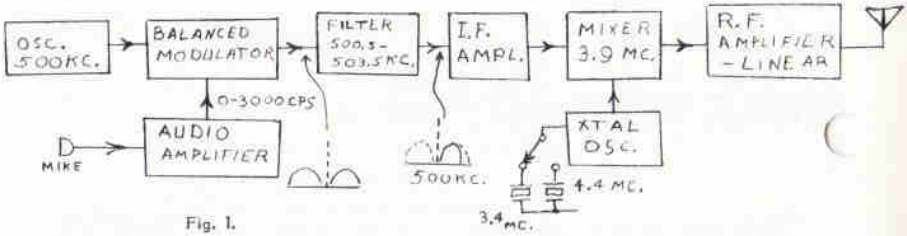

Fig. 1.

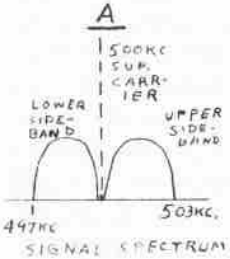

Illustration A

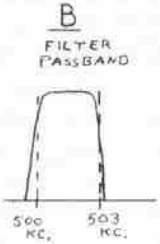

Illustration B

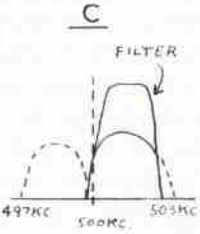

Illustration C

Frank Cooper, Ex-WØIOS is now Ex-W1IOS, having recently moved to New Jersey where he is heading up a plastic plant in Newark. Home QTH will be Short Hills, New Jersey and by the time you read this should be moved in and settled. Within a couple of months you should be hearing a familiar voice signing W2IOS.

XYL Lotus and family were visiting in Omaha and said Frank would have liked very much to come with her but could not leave at this time. He wished to convey his best wishes to all his Omaha friends.

Ferris WØYZK

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FOR SALE:

1 - New Hy-Gain Five Band Doublet Antenna, Model No. 5 BD, in original carton, with instruction, $12.50.

Art Gaeth, W QB
Fire Alarm Hdqtrs.
1103 North 40th Street

and the upper sideband if the carrier frequency is at 453 kc. Your author strongly recommends that the only oscillator that isn't crystal controlled in a SSB exciter by the VFO oscillator that isn't crystal controlled in a SSB exciter be the VFO oscillator. A self controlled oscillator will drift, and the less the number of self controlled oscillators in an exciter, the less the drift. As to the filter, if the suppressed carrier is placed about 20 db. down on the slope of the filter, the carrier suppression will be increased, and the lowest modulating frequencies (corresponding to from 0 to about 400 cycles) will also be suppressed. Also, because the filter has a slope on the other side, the highest modulating frequencies (corresponding to 3500 cycles and up) will also be suppressed, thus giving a restricted speech range, in accordance with good amateur practice.

But the single sideband signal is at 500 kc., and of course that isn't within any of our bands. Now how do we get the signal into a proper band? Referring back to the block diagram again, it will be seen that an amplifier, at 500 kc., receives the output of the filter, which is a single sideband signal. This stage is just an I.F. amplifier, and operates exactly the same as an I.F. in a receiver. The signal strength is built up, then the signal is fed to a mixer stage, where it is mixed with a signal from an oscillator. If it is desired to transmit a SSB signal at 3900 kc., in the 80 meter band, either a 3400 kc., or a 4400 kc., signal is mixed with the 500 kc. SSB signal. Here again is a mixer circuit, with its sum and difference output frequencies. If a resonant circuit, tuned to 3900 kc., is placed in the output of the mixer, and if the 500 kc. SSB, and 3400 kc. oscillator, are both fed to the mixer, the sum frequencies will be chosen in the output. The signal will still be upper sideband. if the 4400 kc. oscillator signal is used instead of the 3400 kc., signal, the difference frequency will be chosen, and the signal will be lower sideband. This principle of sideband inversion will be explained in a future issue. A linear amplifier, operating at 3900 kc., increases the signal strength and feeds the signal to the antenna. The diagrammed exciter shown here is of course crystal controlled, and would operate on only one band. This series will have construction articles on a filter type SSB exciter, with VFO, for all bands. NEXT MONTH: The phasing method of SSB generation.

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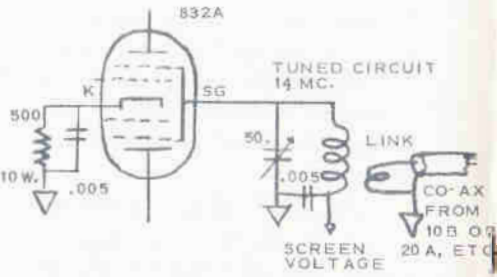
V H F News

Dear Editor:

Here are some late VHF happenings...also some topics of VHF interest.

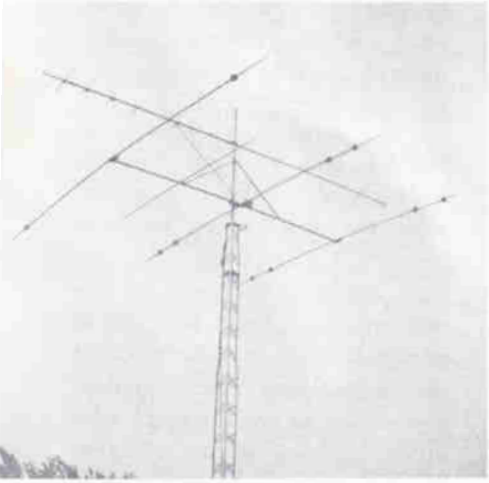
There seems to be some interest in the use of SSB on the VHF bands. It is not very difficult to generate an SSB signal on either 6 or 2 meters. Two meter SSB is a little more convenient because of the mixing frequencies involved.

A brief description of WØOHP's equipment for 2 meter SSB follows: The SSB signal is generated in any conventional exciter such as the Central Electronics 10B. This SSB signal will be at 14 mc. Then, a 130 mc. signal (carrier only) is generated by using an ARC-5/T-23 VHF surplus transmitter and starting out with a 7222.2 xtal. The 130 mc. carrier and the 14 mc. SSB signal are heterodyned together in the 832A final of the ARC-5 and the plate tank of the 832A is tuned to 144mc. This 144mc. SSB signal may then be run through an appropriate linear amplifier to build up the signal to any power desired. The 14mc. signal is injected into the screen grid circuit of the 832A and a tuned circuit is placed in this screen circuit, with a link coupling for the 14mc. SSB. It would not be necessary of course to use the ARC-5/T23 in order to generate the 144mc. SSB. An oscillator, multiplier chain could be built up, starting with one of the newer overtone crystals or else another type of surplus xmtr. could be used such as the 522. A typical circuit is shown. Anyone interested in more details could write to George David WØOHP in Lincoln. (He should be in a call book, or get in touch with me.)



14 mc. tuned circuit in the screen lead of the 832A final in the ARC-5, for injection of SSB signal. The tube is driven on 130 mc. and serves as a mixer, with output on 144 mc.

Many of the amateurs who are familiar only with the DC bands are somewhat vague as to the type of antenna it takes to do a good job on VHF. The accompanying photo shows the complete beam set up at the QTH of Milt Krogstad, WØFKG.



718 North 86 Street. As can be seen, the bottom antenna is the HY-Gain tri-bander and higher on the mast is the 15 element wide-spaced Telrex for 144mc. This long yagi is capable of 16 db. forward gain and is a good type for long range 2 meter work.

An exceptionally interesting article on scatter communication appears in the August '58 Radio and TV News. This article is written in very down-to-earth language and should be of interest to all hams and especially so to the

Dick Shepoka, KØPMR

Dick Renard, KØBOO

Here are photos of two of the most active VHF men of the area. Shown is Dick Ranard, KØBOO in Lincoln. Boo and his partner Dick Shepoka, KØPMR both operate from their portable setup high on a hill west of Lincoln. All their gear is in a converted trailer. At present they are on both 6 and 2.

50mc. has been open a tremendous amount of the time all summer long and many new states have been worked by the local fellows.

If any of you fellows have good clear photos of VHF gear, antennas, or other items of interest please send some to me and we'll get them in Ham Hum.

73, John Snyder, WØWRT
2402 So. 43 Street
Omaha 5, Nebr. RE 1538

Fay Powell, WØISV is sporting a new Hammarlund HQ-170, which he says is to cut out the clutter in the Q'so.. Somehow we feel that in the deep dark reaches in the back of the mind Fay is giving some thought to operating sideband. The new HQ is that kind of receiver and one of these days we may hear the carrier drop out of Fay's signal.

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IMPORTANT ANNOUCEMENT

"Eleven Meters is out"

The Federal Communications Commission has now made final its proposal concerning the eleven meter band and effective September 11, 1958 amateurs no longer have the use of the eleven meter band which covers 26,960 through 27,230 kilocycles.

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A note from John Orr, WØPHW lets us know that his feelings are entirely in accord with the article we received from WØLFM, Dick. As you may recall, Dick was of the opinion that field day is to accomplish a specific purpose of establishing the procedure and means to communicate with other stations in an efficient manner rather than using field day as an excuse for a picnic which unfortunately we will have to agree has been done in the past. Perhaps some others of you may like to point out your preference for using field day as it is intended to be used or as a picnic?

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FOR SALE:

Want to print QSL cards, letter heads and such? An 8 x 12 printing press is for sale complete with type at a fraction of regular cost. Contact Al McMillan, WØJJK, Box 465, Papillion, Nebraska.

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Official bulletin, number 667 from ARRL tells us that the next frequency measuring test will take place starting at 2130 EDST September 17. W1AW will be the call letters and the frequencies will be approximately 3502, 7027 and 14104 kilocycles. Of course the object is to determine the exact frequency they are using and advise ARRL. Another series of test transmissions will be on 0030 EDST September 18 on approximately 3623, 7112, 14184 kilocycles. You who tell another amateur they are 26.8 cycles out of a band should do pretty well on this test.

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DX News

John WØMYO has caught a few choice tidbits of DX including AC3, ZK2, and VK9. Big fat Jerry, KKP, has accounted for a few choice ones on CW and at last count had about 55 stations worked with 33 of them confirmed. John, KWB, has been chasing some of the DX but we don't have a count of his success. Mack, YVV, has a confirmation on 134 from ARRL. DeDe has landed an FO8 station on Clipperton Island. Those of you who are chasing DX should not fail to have a self addressed and stamped envelope at the Zero District QSL manager who is Alva A. Smith, WØDMA at 238 East Main Street, Caledonia, Minnesota. DX seems to be a bit slow at this time of year but there have been a few openings and there should be some expeditions to rare and exotic places in the near future. Those who are persistent DX men have found that it does not pay to work the band edge. Most successful DX men will certainly tell you that it is much better to stay ten or fifteen kilocycles away from any band edge to keep from being lost in the QRM no matter how big your antenna or strong your signal. That seem to be the DX story for this month and yours truly will be scanning the bands to add to the 85 confirmations now on hand.

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As most of you know, the club is the owner of a number of items. We have test equipment, scopes and other gear. Unfortunately we have lost track of many of these items and request that anyone who has some of this equipment drop their postcard (furnished free with this issue) in the mail WITHOUT FAIL listing what they have. We have requests for the use of this gear but can't locate many of the items. PLEASE let us know what you have right away.

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Any licensed amateur living in Omaha who is interested in becoming a member of MARS net on VHF frequencies of 143.46 and 143.99 MC, please contact Loyson Troth, KØBRS, 2524 Franklin St., Bellevue, Nebraska. Phone Bellevue 2418.

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We received a card from Doug Pendray KØLDH letting us know that he was going into the Navy the 11th of July. Unfortunately this was too late for our August issue but perhaps this issue will be forwarded to Doug. Doug also tells us that the first week he received his technician license he made 85 contacts, 55 of them being DX contacts (by DX Doug apparently means out of town), working 23 states and one Canadian station. Doug uses a Globe Scout 680, Hammerland HQ110 receiver and high gain five element beam 30 feet in the air. He says he did not think it was possible to do this on six meters. Apparently that's the thought of a lot of fellows until they do get on six and find that when the band is open it has great potential. We hope you are able to work out your first liberty so that you can drop in on a club meeting Doug.

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DAKOTA DIVISION CONVENTION

The 1958 Dakota Division Convention will be held in Sioux Falls, South Dakota on September 20 and 21st. This is sponsored by the Sioux Falls Radio Club and there should be a number of fellows participating from this area. Incidentally, any of you who are VHF men working two and six meters keep on the look out for Burt WØRYG. We believe he will be operating on six meters but certainly will be operating on two meters from the Dakota Convention. Burt will have either a single ten element yagi antenna or possibly several of them stacked. This should be a good chance for those two meter operators that require South Dakota for WAS.

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Ham Hum

Published by
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Post Office Box 626
Omaha 1, Nebraska

HAM HUM is the official organ of the Ak-Sar-Ben Radio Club of Omaha, Nebraska, Mailed monthly to all members and to others on request.

AUCTION

There will be an auction at the October meeting so everydy bring along those items that have been gathering dust for years. We would like to see some nice equipment down there but bring what you have and we will try and dispose of it for you. The owner will set the starting price for bidding and when no bids are entered at the rock bottom price the item will not be auctioned. On all items that are auctioned the Club will receive 10% of its selling price which goes into the Club Treasury. Naturally, we hope that you will all have a few dollars in your pocket to make this a big success, both by swapping around gear through the auction and getting a few dollars in the Club Kitty.

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As few of you may know, Dr. Lee de Forest is a native of Council Bluffs, Iowa. Dr. de Forest has occasion to celebrate his 85th birthday on the 26th of August. As most amateurs do know, Dr. de Forest is the inventor of the "Audion" or control grid tube, without which radio certainly would not be as it is today. Perhaps someone else might have thought of the control grid tube if Dr. de Forest had not, but that would be pure speculation and in any event radio certainly would not have reached its present state of technical development in our opinion. While Dr. de Forest is probably best known among laymen for the "Audion". His many other accomplishments contribute to his stature. Many regard him as the father of amateur radio and as such we think it entirely fitting if all who read this will send him a QSL of congratulations on his 85th birthday. Dr. de Forest's address is 8190 Hollywood Blvd., Los Angeles, California.

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An old friend and ex-local was in town a few days ago, none other than Ace's Queen's and Jack's. For those of you that are new to the area or club, the translation reads, Tom Fifer, WØAQJ. Tom was on a vacation trip and stopped to say hello to those at WRL. Tom is still with Westinghouse at Cleveland, Ohio and for some time has sported a K8 call, Though memory fails as to the call letters. Tom says he gets our paper, so perhaps he will take note and put one of those reply cards to use in letting us know the call and any gossip from his locale.

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P. O. BOX 626
OMAHA, NEBRASKA

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Omaha, Nebr.
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NEXT MEETING
PICNIC
VENNYLST PARK
SEPTEMBER 14, 1958
2:00 P. M.

Form 3547 Requested