



HAM HUM

Published by

AK-SAR-BEN RADIO CLUB, INC. - Omaha, Nebr. 68101
Post Office Box 291 - Downtown Station



Vol. XXI
No. 10

October 1971

NEXT MEETING

- WHEN: FRIDAY, OCTOBER 8, 1971
- TIME: 8:00 P.M. SHARP
- WHERE: RED CROSS CHAPTER HOUSE
432 South 39th Street, Omaha
- WHAT: SPECIAL REPEATER AUCTION.

How does a repeater auction operate? We got the idea from our last auction and Harry Snyder who brought some gear he donated which when auctioned provided money for the repeater fund.

So look around your shack and find items of value that you feel inclined to donate to the Club as a contribution to the repeater fund.

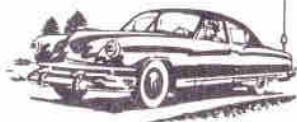
On the other side, bring your pocketbook. You may find items donated by others that you would like to have in your shack. Either way you are contributing to the repeater fund. Or, just come - for the fellowship.

Any item not sold will have to be toted home by the one who brought it.

Again, our thanks to WØNVE for the idea. We herewith invite him to come and enjoy the fun on October 8th. He already made his gift at the last auction!

AUCTION FOLLOWED BY REFRESHMENTS AND EYEBALL QSOs

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



Next copy deadline: October 22nd

Published by
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TOWER CLIMBER

Would like to thank Ray, WAØ-WOT, very much for helping me in putting my tower 10' higher; also my 2 meter beam above my tribander. Ray says that 3 element beam weighs more each time. I mean he was sweating up there. You know where it was on the ground. Hi! Hi!

WEØBMV, Mike Wilczynski

SILENT KEY

Robert M. (Bob) Fisher, WØBM (ex-WØNYU), 4220 "A" Street, Omaha, Nebraska, passed away early part of August. Was an active CW man on HF frequencies and former Club member.

DO YOU REMEMBER WHEN?

Attending college was a privilege rather than a right.
A farmer could plant what we wished.
Taxes were a nuisance rather than a burden.
The Supreme Court protected society rather than criminals.
The aged were cared for by their children.
We entered a war to win it.
Our flag was respected at home as well as abroad.
Charity was a virtue instead of big business.
U. S. Grant was the name of a President, rather than a federal handout.
The policeman was a human being instead of a fascist pig.
The American Legion had posts, not clubs.
This was a Christian nation . . .

(Reprint Claire Fryer Flyer)
From American Legion Paper

1971 HAM FEST AND STEAK FRY

By Erv Heinz, WAØEEM

A bunch of Hams whooped it up and put their Nebraska beef on the grill at the annual Ham Fest and Steak Fry of Ak-Sar-Ben Radio Club, Inc. on Sunday, September 12.

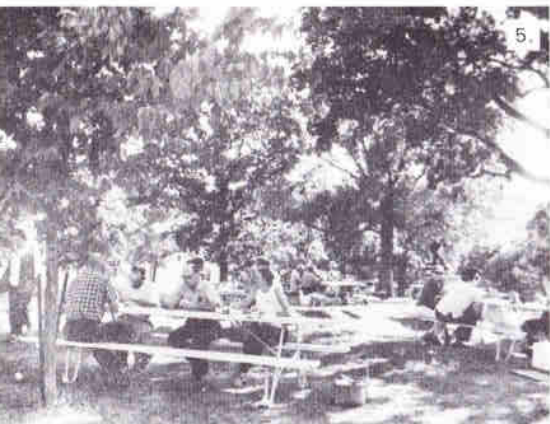
Ed Kilton, KØEYR, and Harold McClenahan, WAØDGA, (picture 1) were the chief chefs and broiled the steaks to taste.

"Happy Hank" Dworak, WAØQLE, kept the register "hot" (picture 2) and, as usual, put in a top performance of planning and organizing the group function.

Ed Askew, WAØRDZ, (picture 3) kept the little tummies filled with ice cream and pop.

The pot luck was a gourmet's delight (picture 4) with all the trimmings.





Pictures 5 and 6 tell the story of our Ham's picnic — a perfect eyeball QSO out at Cooper Farm on a typical sunny Nebraska afternoon.

Picture 7 shows Jean Kilton, XYL of KØEYR, enjoying a good-sized steak while tending one of the little ones who Lou Cutler, WØVLI, called to the attention of your photographer. Here's one of the Junior Ops who really enjoyed herself as well as the ice cream.

Picture 8 is the finale with Bob Serlet, WAØZPW, winning one of the door prizes. If you look closely, you'll see Radio's Midget Brain, Cecil DeWitt, WØRMB, talking to Dick Eilers, WØYZV, and XYL Julie.

To those who couldn't make it, we hope these pictures remind you of what you missed and that you can make the next one as well as the regular meetings. We did get to see a lot of the ol' friendly faces and enjoyed another Ham Fest.

HIGH SWR, GOOD OR BAD

Sure it's bad, we all know that! But just how bad? And how high is high? If, for example, our SWR bridge measures 3, what does this really mean in terms of reflected energy (power) coming back down the transmission line into our rig? After all, it's this reflected power indicated by a high SWR that is of concern; not simply some ratio between impedances, or voltage, and current maximum and minimum values along the line (the SWR value). Although our amplifier meter won't tell us, we nevertheless have to load (drive) the final more heavily in order to overcome the energy barrier created by this reflected power. This means a greater amount of current flow through the tube is necessary to produce the desired operating input power as indicated by the final meter values. This greater current flow may very well exceed the safe limits specified by the manufacturer thus reducing the usual lifetime of the tube.

The best way to measure the extent of the high SWR problem is to calculate the value of a term called the reflection coefficient (K) given as:

$$K = \frac{SWR - 1}{SWR + 1} \quad *K = \frac{3 - 1}{3 + 1} \text{ or } \frac{2}{4} = .5$$

For example*, if our SWR is 3, then $K = 3 - 1/3 + 1 = 0.5$. The K value, like the SWR, is in units of either current or voltage. Now, remember that power (P) = volts (E) x amps (I). Because K is both voltage and current, we can calculate the reflected power in watts simply by substituting the value of K for E and I

in the power equation. Thus, in our example:

$$P = 0.5 \times 0.5 = 0.25$$

0.25 (or 25%) is then the amount of reflected power. Therefore, if your rig is loaded up to 100 watts input, you have really increased the power to 125 watts in order to overcome the 25 watts (25%) reflected power. To calculate the true plate current, it is a simple matter to determine I from the power equation *but* using $P = 125$ watts, i.e., $I = 125/\text{operating voltage}$. The tube specs can then be checked to see if the maximum value for plate current is being exceeded. Chances are, an SWR of 3 may place a tube near or over its safe limit (if loaded to its usual operating values) in addition to the ham operating with a 25% loss in output power.

de WA2NPD

de Crosstalk, New Jersey

FOR SALE

Johnson Ranger I, with Johnson T-R switch.

Jim Anderson, KØDNE
Phone: 331-6178

MUST SELL

Heathkit DX-60B, \$45.00;
Hammarlund HQ-110C, \$100.00 Both
in good condition.

Paul Rehm, WAØSHO
Box 207
DeWitt, Nebraska 68341
Phone: (402) 683-5155

UNDERSTANDING TRANSISTORS

By Jim White

Associate Member, M.E.M.E. (WB6RAG)

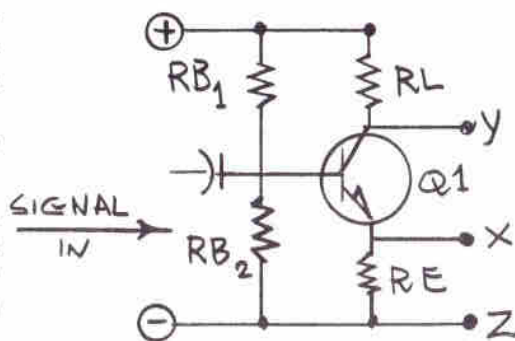
BASIC CIRCUIT DESIGN:

Q1 = Silicon transistor or a germanium transistor. (Bias of 0.5 volts required to turn on silicon transistor. Bias of 0.2 volts required to turn on germanium transistor.)

RB1, RB2 = Voltage divider to set bias voltage on transistor Q1.

RE = Emitter resistor prevents thermal runaway due to temperature variations on the transistor (similar to the cathode resistor) typical value is 0.47 ohms.

RL = Load Resistance



If RE and RL are made the same resistance value, the signal between Y and Z and X will be the same peak to peak value but 180 degrees out of phase with each other. We thus have a typical phase inverter circuit used to feed a push/pull output stage.

If RL is bridged across and the signal output taken from X and Z, we have an emitter follower circuit used as a matching device and no reversal of the signal occurs between input and output signals.

If we make RL resistance sufficiently high in resistance we can allow the input signal to drive Q1 so that the current through RL will drop the voltage at point Y to zero, thus no amplification will take place (i.e., the transistor ceases to operate) and we now have a clipper or limiter stage.

If we arrange the values of RB2 and RB1 voltage divider resistors so that the voltage between the base and emitter on Q1 is now 0.4 volts for silicon, this transistor will not operate until such time as the signal voltage adds to the 0.4 volts DC bias and the bias level reaches 0.5 volts which then switches the transistor on and we now have a circuit which will pass positive peaks or pulses only.

By studying the above methods you can see what can be done to a simple transistor NPN stage to make it operate in different modes.

(Editor's note: This series of lessons is relayed to SKIP via the Tulare County Amateur Radio Club's publication: "Gridleak.")

de FRESNO SKIP

TECHNICAL DEPARTMENT

Carl Estey, WA0CQG
Technical Material Editor

Well, here it is September again! It seems like this summer certainly has fled. Autumn leaves will be falling soon, and in a little while, the first snow. But summer couldn't have left us that soon! Maybe there still are some good days left for mobiling. Speaking of mobiling, (this might be just a little late in the season to think about it), but how many of you have seriously considered the possibilities of VHF mobile? To many of us, the idea of VHF operation is probably best symbolized in our minds by bands where the telephone is just as usable and useful as the radio equipment. That, however, is a stereotype that one puts aside when a little experience has been gained with these "freakwencies."

With QRM as heavy on the low bands as it is, it seems to me that while a person can obtain better results with higher power and SSB, the same energy might be better, and therefore more enjoyably spent in the construction and operation of VHF equipment. When I became interested in VHF a few years ago, the first question that I asked was, "What is different about VHF?" The answer was a simple, "not a thing." This answer is true. Electronics and its associated principles are the same whether they are applied at 1mc or 1000mc. While the details, such as lead dress, may change a little as you change frequency of operation, these variations are minor.

It is with this in mind, as well as the achievement that VHF operators made

at the Field Day in June, that I suggest that you investigate the possibilities of VHF; that you weigh the consequences of making simple additions to your present equipment so that you too can operate on the QRM free bands. Don't say that any investment of time and the little money that it takes is wasted, since the only contacts that are possible are local stations. A number of the local six meter operators have attained WAS/six meters and many others are right at their heels. As for the possibilities of mobile operation (I guess that this is how the whole discussion started), it is fairly common to work VHF stations mobile running low power (less than ten watts) 30 miles or so away. QRM is almost unheard of. The only noise to be expected is ignition noise and this seems to be far less than on the lower frequencies. Antennas are no problem since they are generally short and small. The car radio whip will work fine on 2 meters and with a short extension made out of a coat hanger and alligator clip, will do a good job on six.

To help you investigate the possibilities of VHF operation, I took a look through some recent magazines just to get an idea of the printed material available. While this is *brief* and lacks some rather interesting articles elsewhere, I hope that it will give you an idea of the who's, how's, and why's of VHF. Many of these articles were selected because they make use of your present equipment.

"Six Meter SSB, the Simple Way," Ries, Page 11, Jan., '62 QST
 "An All Transistor Six Meter Receiver," Daskam & Troiano, Page 29, Feb. '62 QST
 "The Heavyweight," Vreeland, Page 32, March, '62 QST
 "A Two Meter Mixer (20 to 2 mtrs)," Page 62, October '62 QST
 "A Two Meter Transverter," Manly, Page 28, Sept., '63 QST
 "A Simple Hetrodyne Unit for 50 Mc. SSB," Blodgett, Page 46, April '64 QST
 "An All Transistor 50 Mc. Station," Page 11, May '64 QST
 "Low Drain Six Meter Mobile Receiver," Hanson, Page 19, June '64 QST
 "A High Performance Two Meter Converter," Gibbs, Page 50, June '64 QST
 "The Companion Six Meter Transmitter," Green, Page 53, Sept., '64 *Popular Electronics*
 "Single Sideband Ideas for the VHF Man," Tilton, Page 212, *Single Sideband for the Radio Amateur* or May 1957 QST

de SPLATTER, Minneapolis, Minn.

— WHAT GIVES —

The other evening while enjoying a QSO with a few friends, we were rudely interrupted by a couple of gentlemen??? who were somewhat put out that we were using the frequency. It seems that they had a couple of pieces of traffic to pass along. By listening for a bit I was able to determine that these gents were from a local net and had moved off the net frequency to handle this traffic. Now the group that I was in QSO with had been given the old heave-ho only a few minutes before from a frequency that was some 3 or 4 kcs away from the above mentioned net. If the people that run this net would have used the frequency that they so loudly demanded as theirs to handle their traffic instead of just a meeting place, this little episode would not have occurred.

Those of us that do not participate in nets are willing to move away from

announced net frequencies so those in the net can carry on their business, *BUT* when nets start sending people all over the band to handle traffic with no regard to QSO's already in progress, it's about time that net managers and N.C.S. personnel take a good hard look at their operating procedures. Other hams all over the bands have moved so these nets can operate and from my viewpoint and others the frequency we moved away from is for the net to operate on and this should include handling its traffic, as well as the roll call. Now I am in no way against nets if they operate their chosen frequency and do not include the whole band in their operation to the annoyance of others who are trying to enjoy a few minutes operation.

HR

de Grid Leak, Central Nebr.

REPEATER NEWS NOTE

Due to interference problems we had considered changing the frequency of the Council Bluffs 146.22-146.82 Repeater. By changing gear we have solved the problem and the repeater will remain on 22-82, 24-hour operation. This repeater is a back-up to the 3494 repeater in that it can be converted to these frequencies should the other one break down.

Our thanks to KØJUI, Leo, not only for the maintenance of this repeater but for sending the information to us on the news card enclosed with his Ham Hum.

FOR SALE

RCA carphone 12 volt 2 meter FM with control head. This unit crystaled 146.34T and 146.94R, \$40.00.

Hustler coils, all bands. Call me for prices.

Charlie Michel
2015 North 50th Street
Omaha, Ne. 68104
Phone: 551-0085

HELP!

A type 6A8 tube in my mother's old Zenith console radio has lost its filament.

I've tried most of the local suppliers and they simply don't stock such an old type. I'm sure there must be plenty of good ones around yet either used or unused. If you have a 6A8 or 6A8G, please contact me at 556-1538.

John D. Snyder, WØWRT
Omaha, Nebraska

TO ALL CW OPERATORS

By—Jim Anderson, KØDNE

In QST or "Hints and Kinks" back in the early 1960's, note was made of using beeswax on the feet of your sliding key or bug.

I have always wondered where I might buy more beeswax. My hunk of wax shows little use now. Recently I was browsing at Tandy Leather Corp., at 84th and West Center Road. I found beeswax on display @ \$.49 for 1½ oz. cylinder, and 1 lb. cylinder for \$2.95.

If you have a sliding bug in your shack, try beeswax on its feet. It works!

Two things in life I've had and ample:

Good advice and bad example.

Service

FOR SALE

Model 19 teletype with table, power supply, and near new IC type TU. \$100.00 for all and I'll help you set it up in your shack.

Heath HX-10 SSB Transmitter with built-in FSK, \$125.00. MXB 3-headed tape distr., \$20.00. Model 14 typing reperf without keyboard (receive only), \$25.00. Teletype paper, reperf or page print. Model 26 Teletype, \$20.00 as is. Good frequency counter, \$65.00.

J. F. Thompson, KØJBD
21 Kurtwood Drive
Council Bluffs, Iowa 51501
Phone: 328-2764

ARE YOUR THOUGHTS ABOUT GROUNDS WELL GROUNDED?

Many people take ground for granted. By pushing a copper rod into this substance that is beneath us, you think you have a perfect ground. This is far from true. Let us investigate this substance that is beneath us to see what factors affect the resistance of a ground. Actually, the resistance of a ground is made up of the resistance of the lead-in, the resistance of the rod, the resistance of the rod-to-earth contact and the resistance of the earth surrounding the rod. The resistance of the others is insignificant when compared to the resistance of the earth surrounding the rod. Without consideration of the nature of the soil surrounding the rod, it will be found that 90% of the total electrical resistance is generally within a radius of 6 to 10 feet from the rod.

Another factor that has a great effect on the resistance of ground is the dampness of the earth. When the moisture content of the soil falls below 20%, the resistance goes up rapidly. In other words - as moisture content increases, resistance decreases. This is why the resistance of a ground rod driven into the earth will often more than double from a wet spring to a dry fall.

Type and nature of surrounding soil is also very important. In tests made, it was found that the resistance was but 14 ohms in a soil containing brine wastes, ashes or cinders; in a clay soil, gumbo, loam, adobe or shale, the resistance rose to 24 ohms; when the clay, gumbo, adobe and shale soil contained large amounts of sand and

gravel, the resistance came up to 93 ohms, while soil composed of sand, gravel and rock (with no clay or loam) showed a resistance of 550 ohms!

All of the above, plus a few words added by your Editor, is contained in a well written article by Robt. Ruyll, WØFCH, and forwarded to SKIP by Russ Smith, W6ONK, who keeps us supplied with worthy articles that we try to publish as time and space permit.

de FRESNO SKIP, CA.

FOR SALE - PRICED TO SELL

- 1 - National, Model NC-173, Receiver with matching speaker
 - 1 - Globe Champion, Model 300-A, Transmitter
 - 1 - Astatic Mike, Model D-104-C
- Jack Larson, KØEQK
4531 Walnut St., Omaha
Phone: 551-7711

WANTED

Looking for some 826 tubes.
Call Bill McKenna
391-2066

FOR SALE

Prop pitch motor with indicators.
Will rotate all antenna ... \$60.00 cash.
100 Kc crystal calibrator Heathkit,
HD-20 \$5.00.
Miscellaneous items.
Lou Olsen, WNØFFA
6306 North 32nd Street
Omaha, Nebraska
Phone: 451-0557

WANTED

I'm looking for some standard 19" rack panels particularly the larger sizes, e.g. 10" in ht. or more.

Aluminum preferred but steel O.K. used O.K. if not too large holes.

John D. Snyder, WØWRT

3221 South 45 St.

Omaha, Ne. 68106

Home: 556-1538; Work: 541-4460

FOR SALE

One - Hy-Gain 6 el. 6 meter beam in A-1 Cond.

Two - Hy-Gain 8 el. 2 meter beams, also in A-1 Cond.

Contact Harry Snyder, WØNVE
c/o Radio KHUB,
Fremont, Ne. 68025

or via 2 meter repeater.

MISSING ANYTHING?

I'm lost and can't seem to find my way home. They put the name "Dixon" on the bottom of me. Please claim me because I'm left from Field Day 1971. I'll be at the October meeting.

We were left at the picnic at Cooper Farm. Two of us are marked "Serlet"; three of us are unmarked. Please pick us up at the next meeting.

SHOULD CLUB GET SIGNAL GENERATOR?

It was brought up at the Board meeting that it might be an idea if the Club would purchase a signal generator for the use of the members as this is one piece of test equipment that is the hardest for the average ham to get. We ask the general membership to send in a card with your written opinion or tell one of the Board members at the next meeting.

If the Club does buy this generator we are going to set up a system whereby one of the Board members who is centrally located will take charge of it, and any Club member can then use the generator for a donation of \$1.00 per day. The donation has a two-fold purpose: one, to defray the cost of the generator; and two, to discourage a member from borrowing it without using it right away, which would tie it up for the other Club members.

The signal generator has a micro-volter on it and has continuous frequency coverage from 2 to 500 mhz, so it would be useful for all ham equipment. So send in your card or let us know at the next meeting.

Jim, WØYCP

FOR SALE

Motorola 41V 94-94 and 34,-\$50.00
Galaxy FM 210, 94-76-34

AC-DC Power Booster - \$150.00

Jay C. McAleer, WAØLLQ

839 South Polk Street

Papillion, Nebraska 68046

Phone: 339-3448



WORLD RADIO'S "HAM-HUM" SPECIALS

DON'T MISS OUT ON THESE BIG VALUES! Reg. Special

AMECO - CN50 (wired) 6M Converter (14MHz-I.F.)	\$ 49.95	\$ 24.95
AMECO - PS1 (AC supply for converters)	13.95	8.95
ASTATIC - 521 (Ceramic Hand Mic.-PTT & Coil Cord)	10.00	4.85
GONSET - GSB201 MK4 (Linear-2KW-115/230VAC)	525.00	395.00
GALAXY - R530 Receiver (500kHz-30.5mHz)	895.00	495.00
DRAKE - TC6 (Xmt. Converter from 14mHz)	250.00	149.95
DRAKE - 2AC (plug-in 100 kHz calibrator)	18.75	14.95
DRAKE - TR6 XCVR (Less blanker)	599.95	399.95
RAYTRACK - HORIZON 6 Linear (6M-2KW, W/PS)	649.95	349.95
AMECO - TX62 (6 & 2 AM/CW Xmtr-115VAC)	159.95	119.95
GALAXY - MMB210 (mob. mount for FM210)	5.95	3.95
WORLD'S - DUO-POWER 300 (12/120V P/S for xcvr.)	149.95	49.95
RECEIVER (Midland 1/2- 30 mHz, bfo, 115V)	49.95	29.95
COAX (100 ft. RG8/U with PL259 ea. end)	17.28	12.95
GALAXY - AC210 (24VDC @ 1 Amp)	49.00	9.95
B & W - FC30A (30 Amp. Fil. Choke for G.G.)	33.40	14.95

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