



HAM HUM

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



Vol. XXV
No. 3

March 1975

NEXT MEETING

WHEN: FRIDAY - MARCH 14, 1975

TIME: 7:30 P.M.

WHERE: NATIONAL GUARD ARMORY
6929 MERCY ROAD, OMAHA

PROGRAM: PRESENTATION OF ELECTRONIC AIDS TO
AIR NAVIGATION - AVIONICS
By V. Kaye Ramsey, W0SBZ, Electrical Engineer,
Northwestern Bell Telephone Company.

REFRESHMENTS - EYEBALL QSOs - VISITORS WELCOME

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: March 21st

Annual Dues:

Regular member\$7.50
 Regular member and XYL 9.00
 Student member 3.50
 (due and payable each Jan. 1)

Published by
AK-SAR-BEN RADIO CLUB, INC.
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 Omaha, Nebraska 68101
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New member initiation fee\$1.00

Quarterly for balance of year:

Regular member\$2.00
 Regular member and XYL 2.45
 Student member 1.00

FEBRUARY MEETING

It looks like everyone survived the big snow storm we had in January. I hope there wasn't anyone waiting for someone to open the door on January 10th. Hi!

I was very pleased to see the nice big crowd at the February meeting.

Would like to thank Art, WØFQB; Harry, WØNVE and Al, WØJJK for the nice talks about the past, present and future of amateurs.

Thanks to Ed, WBØBCB, who did a very fine job of explaining the slides.

Dick Pitner, WØFZO, ARRL Vice Director - Midwest Division, from Sioux City, Iowa, who presented the new FCC proposals was very impressed with the crowd and the interest of Ak-Sar-Ben Radio Club. We appreciate Dick making the trip to Omaha to speak to the Club.

We are looking forward to a very interesting March meeting. Kaye Ramsey, WØSBZ, will talk to us on Page 2

Aeronautics and we hope to be upstairs in classrooms at the Armory.

Mike W., WBØBMV

Sign on the back of a truck:
 Please don't hug me. I'm going steady.
 Service

RECENT CONTRIBUTORS

Repeater

John P. Bergmann, WBØMFL
 Bernard R. Chap, WBØEYT
 F. Hilton Norton, WBØHPP
 Damon B. Nuckols, WØUIO
 W. Earl Sorensen, WAØTMG

Autopatch

Bernard R. Chap, WBØEYT
 F. Hilton Norton, WBØHPP

WINDMILLS AGAIN — — —

Back in the dear, dead days beyond recall when Johnny Ham had to exercise considerable ingenuity to get signal on the air, one of the main problems he often had to solve was the basic one of generating electricity to run his ham equipment. This was before the time of R.E.A. (Rural Electrical Administration) power lines and many hams lived in the country far beyond the closest commercial power line. I don't know what they did in the spark days (that was before even *my* time) but when tubes became available, many hams used storage batteries to light the filaments and B batteries for the plate supply on both transmit and receive. For higher power, some guys would filch a model T spark coil and rectify the output for a powerful (and horrendous sounding) signal.

But charging the storage battery was a problem and in the 20's and 30's QST had many stories on how to carve efficient propellers and how to re-wind old automobile generators to serve as power-generating windmills. Then an outfit called Wincharger came along with the commercially made wind driven A.C. and D.C. generators and finally the R.E.A. brought power lines into the most remote hinterlands and at last everybody (nearly) had PDC signals. Now, 30 years later, according to what I've been reading in the paper, people are thinking about windmill generators again because of the energy and pollution hassle.

One yarn advocated a network of big windmills across the country at intervals, in place of the present high voltage lines and towers. I laughed up
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my sleeve at that because everybody knows you can't parallel A.C. voltages of random phase. But the scheme wasn't as far fetched as it sounded because the next week I ran across another story describing a wind generator near Rutland, Vermont that ran constantly from 1938 until 1945, feeding power into the commercial A.C. mains. It stood on a 2000 foot hill called Grandpa's Knob and had two blades each 75 feet long and weighing 8 tons apiece, turning a 24 inch diameter shaft to generate 1500 KW maximum output. Then in March 1945, one of the blades suddenly broke off and sailed down the mountainside and the mill was never repaired. The interesting part of the story was that the thing had an elaborate governor to keep the rotation at 30 r.p.m. and so undoubtedly it maintained 60 cycle A.C. output. That's why it could be paralleled with more conventional generators on the commercial mains.

There's something new in the wind too — a thing called the Chase windmill. It is a square, wooden structure on the bottom, changing to circular about halfway up. Each of the bottom sides is louvered to catch the wind from any direction and divert it upward within the tower. The fan is set horizontally in the top circular portion of the tower and drives an attached electrical generator.

Perhaps a return of the old, wind-driven generator is not far off and for us hams there's the extra bonus of it being a fine place to tie an antenna!

by WØHKF

de The Ground Wave

NEW MEMBERS ADDITIONS TO ROSTER

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Omaha, Nebraska 68134
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RIPPLE IN POWER SUPPLY

The percentage of ripple in the DC output voltage from a power supply can be measured with a VOM or VTVM. First measure the DC output voltage. Next, set your VOM to the output function or a VTVM to its AC function. Now measure the same point on the rectifier output. This gives you the AC ripple voltage contained in the DC output.

To find percentage of ripple, divide the AC reading by the DC reading and multiply by 100. For example, if the measured AC is 2 volts and the measured DC is 280 volts, the percentage of ripple is:

$$\% \text{ Ripple} = \frac{2}{280} \times 100 = 0.7\% \text{ (Approx.)}$$

Some receiver and amplifier manufacturers specify the percent of ripple at the power supply output. If you are not certain, consider the ripple excessive if hum can be heard easily from the speaker when the volume control is turned all the way down.

WBØBMV

OTHER SEMICONDUCTOR DEVICES

By W6WYD

THE STABISTOR: Zener diodes are not available with breakdown voltages much less than 3 volts. In applications where a lower voltage is needed, stabistors may be used. In contrast to zener diodes which are connected in the circuit so as to be reverse biased, stabistor diodes are forward biased. The stabistor diode has a very high resistance in the forward direction until a certain "breakover" voltage is reached. The stabistor resistance then drops to a very low value and conduction occurs freely.

The action of the stabistor diode is thus very similar to that of the zener, the essential difference being that the stabistor is used in the forward direction. Since breakover occurs at a very low voltage, the stabistor is frequently shunted across meter

movements for overload protection.

A practical multi-range voltmeter using stabistors for meter protection is shown in Fig. 15.

Resistor R_s is chosen of suitable value that the voltage drop across the stabistor diodes with full scale current (500 μ a) is just below the breakover voltage of the stabistors.

The breakover voltage of the SG-22 stabistors used is a little over 0.5 volts. Assuming the internal resistance of the meter movement as 200 ohms, the voltage across the diodes at full-scale deflection is 0.5 volt. When I_m is greater than 500 μ amp, diode D_1 conducts. The purpose of the other diode is to protect the meter against reverse current of over 500 μ amp through the meter, which would occur if the test leads were reversed to the voltage being read.

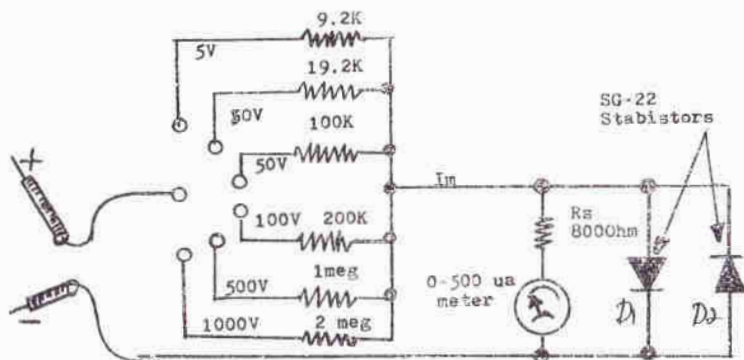


Fig 15:

A multirange voltmeter using stabistors to protect against overload.

de Ventura Co. (CAL.) ARC

HAM HUM

TRANSMITTER HUNT

The next in our series of transmitter hunts is scheduled for Sunday, February 23, at 1:30 P.M. on 146.94 MHz.

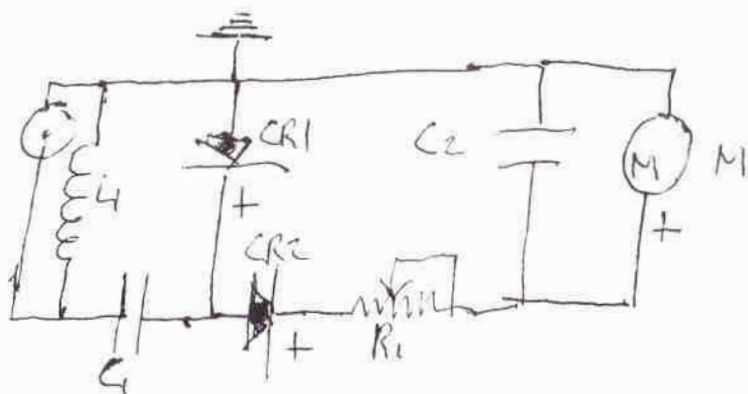
KØPQR, Tom will be the "fox" and believe me, he can be awfully foxy. Each hunter will throw fifty cents into a pot; the first to find the foxy fox will walk off with the loot.

The art of direction finding is no game but rather serious business. We may be called upon to use our

direction finding skills during an emergency situation or to track down an illegal operation.

Here is a chance to have lots of fun while developing our skills. If you haven't taken part in previous fox hunts, why not get ready for future hunts. All future transmitter hunts will be on frequency 146.52 MHz. Our next hunt will be April 13th, so come on guys, let's have fun!

SIMPLE DIRECTION FINDING EQUIPMENT FOR FOX HUNT BY WAØDHU



- C1 - 100PF ceramic
- C2 - .01 UF ceramic
- CR1-CR2 - Heath 56-20
- L1 - 100 UH choke
- R1 - 100K pot
- M - 100 UA meter

I use a .4 element cush craft beam in conjunction with this circuit to complete the DF capability. This circuit when used with the above beam will give measurement for close-in work.

If fox has 1 watt ERP, unit is good for one-half to one block range. Ideal for close-in range.

WEATHER WATCH 1975

By—Bob Lockwood, WAØDHU

A.R.E.C. is now on the move to train members in the art of weather watching. A tour of the Offutt Air Force Base weather station will be held on Friday night, February 28th, for A.R.E.C. members.

Purpose of the tour is to acquaint A.R.E.C. members with the equipment used, what it can do and what it cannot do. It will also train members to be accurate in reporting weather conditions to Offutt. It will spell out where we fit into the overall picture in being part of a very effective early warning system should severe weather conditions develop for our area.

Again, we sincerely hope we never see a tornado but if one was spotted and reported, it would give those in its path precious time, thanks to the efforts of amateurs trained for the job.

IN SYMPATHY

Members of the Ak-Sar-Ben Radio Club, Inc. extend sincere sympathy to Joe H. Roberts, KØKEO, and his XYL Dorothy for the untimely death of their son, Joe Howard Roberts, Jr., who passed away recently at age 50. He is survived by his wife Elizabeth and two sons, John and Joe H. III.

MEMBER NEWS

John P. Bergmann now has an advanced class license and a change in call from WNØMFL to WBØMFL. Congratulations, John!

READER NOTES

Dear Sirs:

I have received Ham Hum for several years and really enjoy it although I have never written you to tell you before now. But I want you to know I do enjoy it and appreciate you sending it to me.

My address has changed. Would you please send it to my new address? Thanks very much.

Harold W. Evatt, K4ZDC
Star Route
Norris, South Carolina 29667

A.R.E.C. NEWS

By—Bob Lockwood, WAØDHU

With 'spring just around the corner and with the possibility of floods, major storms and other such emergencies, Douglas County A.R.E.C. is on the move preparing for whatever might develop.

With the advent of the Blizzard of '75, city officials, civil defense leaders and the National Guard are getting their heads together to develop plans of action in preparing for possible emergencies. Douglas County A.R.E.C. is involved in this planning in a big way.

Dick Eilers, WØYZV and Hugh Tinley, KØGHK have worked very hard in talking to the appropriate officials of civil defense and the National Guard and have gained considerable ground in getting A.R.E.C. involved in emergency communications for our community and the surrounding area. A meeting of core group members was held at

Dick Eilers QTH for the purpose of informing A.R.E.C. officials of the plans set up by Civil Defense and National Guard. This was followed by a very informative Tuesday night A.R.E.C. net on February 11th with Wm. Dean Noyes, Coordinator Omaha-Douglas County Civil Defense and Disaster Area, explaining to A.R.E.C. members the planning which is taking place and where Douglas County A.R.E.C. fits into the picture. A question and answer session then took place in which A.R.E.C. members had the opportunity to question Dean Noyes. The session proved that A.R.E.C. is on the move in Douglas County.

We prepare for possible emergencies and then pray they never materialize, but we do have the responsibility to be prepared!

C.Q. FIELD DAY

June is just around the corner and that means Field Day. Now is the time to start thinking and planning for it. I am!

I have been asked to be the chairman for this activity and accept with great pleasure. To make this the best of all Field Days, I need your help — yes, YOUR help. How can you help? Give me a call and let me know what you would like to do and YOU can help make this the best Field Day of all. Let's hear from you!

R. W. (Harp) Harper, WBØMWB
Phone: 453-7355

SPECIAL EFFECTS SHOW

April 12 and 19, at 8:00 and 9:30 P.M., KØEXK (Radio Engineering ARC) will produce a special effects show to raise money for new equipment. If you like electronic gadgetry, you'll love this. Cost: \$1.00.

Further details available from KØEXK or WBØCMC.

ARRL RTTY BULLETINS

For those members who now have their own RTTY setup as part of their ham station, here is the information on the ARRL Bulletin transmissions. You can copy your own bulletins "hot off the wire."

W2QFR RTTY bulletins are transmitted on precisely 3620 KHz on Tuesdays, Thursdays and Saturdays at 0100 C.U.T. and on precisely 14090 KHz on Saturdays and Sundays at 1615 C.U.T. On Sundays only, immediately following the 14090 KHz transmission, the bulletins will be sent again on 14095 KHz using 170 cycle shift with the antenna beamed toward Europe at about 50 degrees.

W1AW RTTY bulletins are transmitted on 3.625, 7.095 and 14.095 MHz on Sundays, Tuesdays, Wednesdays, Thursdays, Fridays and Saturdays at 0300 C.U.T. Also W1AW transmits on 3.625, 7.095, 14.095, 28.090 MHz on Tuesdays at 2130 C.U.T. and 3.625, 7.095, 14.095, 21.095, 28.090 MHz on Wednesdays at 2300 C.U.T. and 3.625, 7.095, 14.095, 21.095, 28.090 MHz on Thursdays at 2130 C.U.T.

de Ground Wave

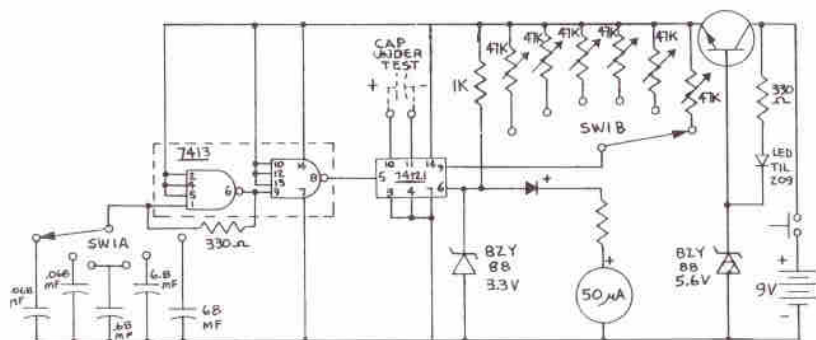
A CAPACITY METER

By Bob Palmer, G5PP

from Midland Amateur Radio Society News Letter

For those who would like to have an exercise with the use of IC's and also find the value of those capacitors in the junk box, which have long since had their values rubbed off, the unit described will prove of interest.

The circuit is straight forward and when completed, works very well indeed and gives direct reading of the values of capacitor under test.



All pots are the sub-miniature preset type, all capacitors are 12V transistor types and the values are not critical.

Calibrate by using 1% tolerance capacitors across the test points and adjusting the appropriate pot for full scale reading.

Range 1 ... 0-100pf, use 100pf +/-1%

Range 2 ... 0-1000pf, " 1000pf 1%

Range 3 ... 0-0.01mf, " 0.01mf 1%

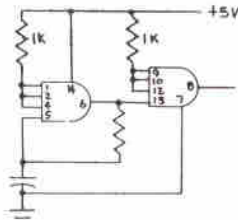
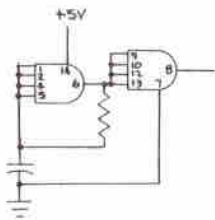
Range 4 ... 0-0.1mf, use 0.1mf 1%

Range 5 ... 0-1mf, " 1mf 1%

Range 6 ... 0-10mf, " 10mf 1%

The unit consumes about 40ma so just press switch long enough to find range.

Editorial Comment - Manufacturers of integrated circuits recommend that unused gate inputs are either connected to used inputs or taken to the plus rail via a 1K resistor. Pins 2, 4 and 5 of the 7413 above could be connected to pin 1, and 10, 12, and 13, connected to pin 9, or pins 2, 4, 5 via 1K to +5V, and pins 10, 13, 12, via 1K to +5V.



de PACK RATS, Philadelphia, Pa.

HAM HUM

SWOOP

By Elise White

in The Round Table, Denver ARC

Antennas are a very individualized and personal possession.

How Hygain, Mosley, Webster, Newtronics and Gotham ever sold that bunch of flea brains on the value of their products is beyond me.

The antenna engineers would never recognize their equipment once it is in use. The modifications, additions, or subtractions and original mounting angles defy all rules and regulations. Get a bunch of these yahoos together and the ensuing arguments are hot and heavy.

The relative merits of deck mount or bumper mount for mobile operation can lead to blows.

The angle of an inverted V, horizontal or vertical can look like a drug addicted spider's web. One gentleman's execution of an inverted V was to bend both ends up at a 45 degree angle and put one leg about ten feet ahead of the other. He couldn't get out of the shack, but it was the only antenna to have and deeply resented any suggestions. Then there was another who had a 14AVQ, who decided that additional resonators would improve his signal. The only improvement so far is the weight of the antenna and the lightening of his pocket book.

A narrow minded landlord who wouldn't permit an antenna was fooled by an ardent ham who mounted a long wire with a pair of rubber bands and a couple of thumb tacks. It worked! (W5KR note: has anyone seen W5DX's installation through the banana plants and his indoor 2-meter beam?)

Then there was the guy who had a tower erected and called back a couple of days later complaining that he had shadows on his TV.

Or the youngster who mounted his 18AVQ on an axle and has 120 ground radials so far, wants to know if he should put another wire to the cold water line.

How about the 80 meter op who rear bumper mounted his Hustler on his new VW and can't understand where the motor noise is coming from?

How about the lady ham who thought a chrome antenna ruined the decor of her new car and talked her husband into painting it the same color?

Or the ecologist bug who bicycles to work yaking on 2 meters with a 19-inch piece of coat hanger mounted on the handlebars?

The purist who wants to be CW mobile and complains about the antenna chopping his signal up. It couldn't be the extra dits and dahs he sends over those assorted chuck holes.

There is the apartment dweller who mounted his vertical vertically toward California and doesn't understand why he can't talk to New York. Mounting it that way would make him horizontally polarized.

How about the shipboard operator who uses a long wire and the whole ocean and a steel tanker for ground? Sounds like he's sitting in the front yard.

Yes, Yes. Now if you'll get the brand and do like I did you'll strain out all the QRM, talk to the world and never have an SWR over .5 to .5. Ain't it wonderful?

de OFF RESONANCE

HAM HUM SWAP

FOR SALE: Motorola Handie talkie (34-94) AC, DC, Supply, Charger, Batteries.

Bernie, WBØEYT Phone: 731-0128

WANTED: 80-10 SCVR with DC supply.

Bernie, WBØEYT Phone: 731-0128

FOR SALE: Sams photofact #83-675 with file cabinets.

Make offer. Ask for REI Radio Club at 341-7964 or 553-6414.

FOR SALE: Tempo One with AC, 4 months old, absolutely mint - \$300.00; SB200, mint - \$200.00;

Bought estate of complete YAESU line and must sell Tempo.

Don Waldrep, Route 1-A, Afton, Iowa 50830

FOR SALE: DRAKE T4XB, R4B, AC4 power supply in MS4 speaker, cables and manuals. All in first class condition - \$675.00.

Dave Jonnson, WAØSPF, 9412 Laurel Ave., Omaha, NE 68134; phone 571-1683.

FOR SALE: Motorola HT-200 Handie-Talkie, receive 146.94, trans. 146.34-146.94; charging stand and leather carrying case included - \$200.00.

Mel Cunningham, KØVLA, 3435 South 126 Street, Omaha, NE 68144; home 333-7368; work 342-7600, X2738.

FOR SALE: KWS-1 75A4, Navigator, H.G. Hi Tower Eico 450 Scope, Eico 369 TV sweep gen Heath Ignition Scope, Heath Grid Dip D-104, Vibroplex/case, auto paddle key 300 watt linear chassis, BC-221/AC/PS Teletype-scope-T.U., phone patch, CW panel RCA-WR50B-R.F. sig. gen, 2 mtr ARC-4 Bar-Dot gen, BC-603-D/20-28 Mc. FM Rcvr RDW-2 Panoramic Scope, 2" Radar Scope Ind.

Yours Truly,

Harold C. Cook, WØKNT

6950 Lexington Ave., Lincoln, NE 68505

(Ed. Note: Thanks for your check. It will be used to help defray postage for Ham Hum.)



Hobby Box 864 Council Bluffs, IA. 51501
Industry **NEW FM GEAR - !**

MIDLAND

MODEL 13-505

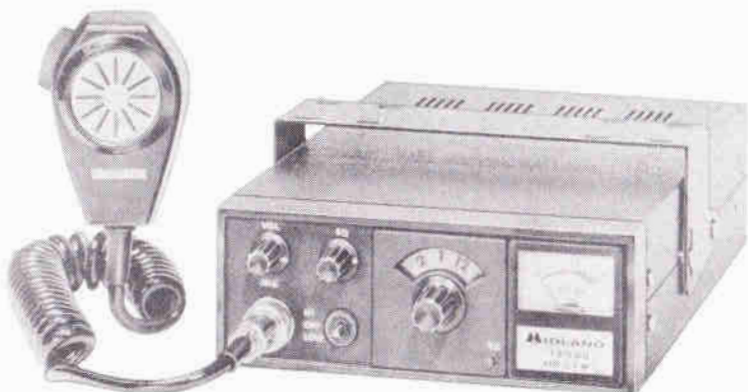


\$309.95

- Separate channel selectors give simultaneous or selective control of 12 crystal controlled transmit and 12 receive channels
- Discriminator meter shows frequency shift of received signals, doubles as a calibration meter for both receiver and transmitter sections
- S/RF/SWR meter shows received signal strength, RF power output, and switches to show antenna SWR
- 30-watt/5-watt output power—13.8 volt DC operation

MIDLAND

MODEL 13-500



\$259.95

- FULL 15 WATTS of output power—power control lets you adjust output from 9 to 15 watts
- Complete multiple FET front end coupled with high Q resonator filter and ceramic filters—exceptional sensitivity, selectivity and intermod rejection
- Large back-lighted S/RF meter, easy-glow yellow channel selector dial