HAM HUM

Published by
AK-SAR-BEN AMATEUR RADIO CLUB, INC.
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HAM HUM is the official organ of the Ak-Sar-Ben Amateur Radio Club, Inc. of Omaha, Nebraska, mailed monthly to all members and to others upon request.

Published by:
AK-SAR-BEN AMATEUR RADIO CLUB, INC.
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Copy Deadline for Jan. is Dec. 21

Dues—Annual Basis
(Due and Payable each January 1.)
New member initiation fee $1.00
Regular member $10.00
Regular member and spouse.. $12.00
Student member $4.00

Dues—Quarterly Basis (For each quarter or part thereof for balance of calendar year.)
New member initiation fee $1.00
Regular member $3.00
Regular member and spouse....$3.60
Student member $1.05

NEXT MEETING

WHEN: December 14, 1984

TIME: 7:30 P.M.

WHERE: Heartland Chapter
American Red Cross
3838 Dewey
Omaha, NE

PROGRAM: Election of Officers

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PREZ SEZ

Don't forget the Annual Christmas Party on Sunday, December 16, at the American Red Cross Chapter House. See additional information in this issue.

Annual elections are held at the Annual Meeting on December 14, 1984, also at the Red Cross. See pages 4 and 5, of this issue, for nominees.

Also on the agenda at the Annual Meeting will be a proposal by the Board of Life Membership and a request for approval by the General Membership.

The 1984 "Ham-of-the-Year Award" will be presented along with other special presentations.

Have a safe and happy Holiday Season.

73
Dave, NØCLW

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FAMILY CHRISTMAS PARTY

It's the time of the year to be thinking of our Annual Family Christmas Party (so do come and bring the XYL and Jr. Ops). This year's party will be held at the Heartland Chapter, American Red Cross, on December 16 from 1:00 to 4:00 P.M.

Santa will be there with his bag of goodies for the kids (of course, they're all good this time of year). We've been able to get a little more budget from the Board for this activity this year and we are looking forward to watching the kids with Santa.

The adults, both members and guests, are encouraged to bring a gift for the "Adult Exchange." The gift should be suitable for anyone and in the $4 or $5 range and will be handled as before, in a general drawing of the names of those who participate by bringing a gift.

A special exchange will be handled for the ladies who wish to exchange with ladies only. This will include only items the ladies appreciate. Please mark your gift "Ladies Only Exchange" and register your item so that your name will be placed in the "Ladies Only" drawing.

The usual "Members Only Door Prizes" will be handled in a separate drawing.

We will have coffee, punch and hot chocolate, as well as ice cream. Please bring cookies, cup cakes, etc., to help fill our table of good things to eat.

Cartoons and other assorted short films will be shown throughout most of the party. We have a couple of other things planned, but you'll have to come to see what they are.

HOPE TO SEE ALL OF YOU ON DECEMBER 16TH.

de
The Christmas Party Committee

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1984 ANNUAL MEETING
AK-SAR-BEN AMATEUR RADIO CLUB, INC

The 1984 Annual Meeting will be held at the Heartland Chapter American Red Cross, December 14, 1984 at 7:30 P.M.

Election of officers and such other business as may regularly come before the meeting will be conducted.

Paid Club members will be eligible to vote — 1985 dues are payable at this meeting.

The Articles of Incorporation and Bylaws of the Club provide for the election of a President, Vice President and four members of the Executive Council each year. The President and Vice President are elected for a one-year term, the Executive Council members are elected for a two-year term. The outgoing President remains on the board of Trustees as Immediate Past President for one additional year.

The President, Vice President, Immediate Past President and eight members of the Executive Council constitute the Board of Trustees of the Club. The new Board of Trustees shall elect from the Executive Council a Secretary and Treasurer.

Sincere thanks to those whose terms expire in 1984 for their efforts in behalf of the Club. They are: William H. Martin, NØANQ, Immediate Past President; James E. Sanford, NØAIH; Marlene A. Jugel; Vern J. Wirka, WBØGQM; Brian Zdan, KMØY; W. A. Duke Humphrey, WDØEWH.

Remaining on the Board for 1985 are: Dave Hamilton, NØCLW, Immediate Past President; Sam Kaplan, WDØBVH; Dr. Charles Rush, NØAZ; Virgil Wamsat, KBØBW; Greg Zimmerman, NØBTN.

The Nominating Committee will place in nomination at the Annual Meeting those listed below and on the following page.

For President

David B. Hamilton, NØCLW

Age:	34
Address:	4805 N. 107th Street, Omaha
Phone:	493-1390
Employment:	Amato Color
Wife:	Sandy (NØCLQ)
Licensed:	1977
Hobbies:	Amateur Radio, hunting, archery, gun collecting

For Vice President

James E. (Jim) Sanford, NØAIH

Age:	40
Address:	9718 Jaynes, Omaha
Phone:	571-2704
Employment:	InterNorth, Project Engineer
Wife:	Arlene
Licensed:	1976
Hobbies:	Amateur Radio, computers, scuba diving

For Executive Council

M. Jay Nichols, KB8TR

Age:	41
Address:	1635 Peterson Drive, Omaha
Phone:	333-9412
Employment:	Manager, G. M. Training Center
Wife:	Shirley
Licensed:	1979
Hobbies:	Amateur Radio, electronics, woodworking, outdoor sports

James R. Peterson, WBØQGV

Age:	49
Address:	5208 Cass, Omaha
Phone:	558-0643
Employment:	Manager, Computer Dept., Kirkham-Michael
Wife:	Marilyn
Licensed:	1975
Hobbies:	Amateur Radio, photography, computers

James C. Faulkenberry, N5DZZ

Age:	35
Address:	5318 N. 97th Avenue, Omaha
Phone:	571-5092
Employment:	Social Security Administration, Disability Examiner
Wife:	Les
Licensed:	1975
Hobbies:	Amateur Radio, masonry, needlepoint, computers

Scott E. Persson, WBØQPP

Age:	24
Address:	2409 N. 189th Street, Elkhorn
Phone:	289-2545
Employment:	Mutual of Omaha, Programmer
Licensed:	1975
Hobbies:	Amateur radio, computers, electronics

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MINUTES OF THE GENERAL MEMBERSHIP MEETING
November 9, 1984, American Red Cross Building
3838 Dewey Avenue, Omaha, Nebraska

The meeting was called to order by President David Hamilton, NØCLW, at 7:40 P.M., with the reciting of the Pledge of Allegiance.

Motions were made and seconded to approve the minutes as published in the Ham Hum.

Treasurer's report was read by Sam Kaplan, WDØBVH and motion made and seconded to be approved as read.

Two new members were voted into the Club — Brian R. Lens, (no call) and Joseph E. Roberts, WAØSTV (General).

Many members received our Certificate of Appreciation and recognition for outstanding service for several of our last bike-a-thons and marathons, etc.

Education Committee Chairman, Jay Nichols, KB8TR, reports that there is a lot of interest in the classes and that a date may soon be set as to the location and day. Call Jay if you know of anyone interested or if any of you would assist in instructing. His number is 333-9412.

A Lifetime Membership proposal was brought up and read by David Hamilton. There were questions from the group and the majority were in agreement with it. It is still in the making.

The Club Christmas Party will be December 16, 1984, at the Red Cross Chapter House, 3838 Dewey Avenue, from 1:00 P.M. to 4:00 P.M. Santa will be there and fun is guaranteed for all. Last year many of the ladies brought so many, many trays of super delicious cookies and cakes. please don't forget them this year. There will be a gift exchange.

Jim Sanford, NØAIH, spoke to us on the Convention which is to be on September 6, 7, & 8, 1985 at the Holiday Inn Central. committees are being formed — Forums, Workshops, Banquet, Flea Market, License & Exams, Prize and Awards, Ham Caps, Equipment, Audio-Visual, Registration, Security, etc.

The discussion of the Convention was the "Program" for the evening.

The meeting for the evening was over at 9:30 P.M. Doughnuts and coffee were served.

Respectfully submitted,
Ellen Morrissey, WBØHWF
Executive Secretary
in the absence of
Virgil Wamsat, KBØBW
Secretary

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Annual Christmas Party

RED CROSS CHAPTER HOUSE

3838 Dewey Street — Omaha, Nebraska

Sunday, DECEMBER 16, 1984

1 - 4 P.M.

**Santa Claus*

**Gifts for the Children*

**Coffee - Punch - Hot Chocolate Provided*

****Please Bring** *Cookies, Cakes, etc. for the enjoyment of All.*

**Adult Gift Exchanges & Member Door Prize Drawing*

**Cartoons & Short Films Shown Continuously*

Plus —

A Surprise or Two!!

Merry Christmas
from

WAØVEE
Russ Mrsiks

Scott Persson WBØQPP

Mitch Gagne
NØAZF

Dale Humphrey
WDØEWH

Sam Kaplan
WDØBVH

Charlotte Kaplan XYL

Mike Maynard
WBØBJY

DAVE
NØCLW

John Ferrel
WØYDV

KØZQ
John Amelon

Sid & Madean Rieck WØWWH

WBØGQM

Ray Fink
WDØGIL

WØYZV
XYL

KAØDMB

Lloyd McElhaney
KØPKM

John Buckner
NØAJU

D R Eilers
Jeulene Eilers

Walt Brown

Jim Sanford
NØALX

Lee Brown
XYL OF KAØDMB

Charles A. Michel KØQVL

Sandy Hamilton
NØCLQ

Arlene Sanford KAØTKW

N5DZZ

Jay Nichols
KBØTR

Ellen Morrissey

Kay & Jim Wilson
KLN WBØJPN

Norval Rasmussen WAØNPF

Connie Rasmussen WAØMYF

DOUGLAS COUNTY EOC POLICY STATEMENT

Amateur radio equipment in the Douglas County EOC is the property of the City of Omaha. The AK-SAR-BEN Amateur Radio Club has a contract with the City to test, maintain and operate this equipment. This contract is automatically renewed each year, unless cancelled by written notice from either of the two parties.

Members of the AK-SAR-BEN Amateur Radio Club are encouraged to familiarize themselves with the station operation, and use the facility for contests or other scheduled events. Non-emergency operation must be scheduled ten days in advance, to insure access into the facility.

Control operators must use their own call sign. Use of the Club call is NOT authorized, except in time of emergency, or when specifically authorized by the Board.

To arrange for facility orientation, or access for scheduled events, please contact your Club President, the Douglas County Emergency Coordinator, or the Midlands AREA EOC Coordinator.

The Board

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LET'S GET DOWN TO EARTH

Part I

Many HAM HUM issues ago I presented the concept of tower grounding utilizing the Ufer grounding system. Recall that Dr. Ufer determined that cast-in-place concrete tower bases can provide adequate grounding under certain moisture and soil conditions. Well...this concept was lauded by some, while others were a bit skeptical.

Good earth connection implies a good antenna system. Did you ever wonder why the inverted vee up the street works better than yours? Remember, earth is an antenna reflector. Vees, dipoles, long wires, delta loops, verticals, beams...the array makes no difference...all depend on earth for a reference point. Well, that's not quite correct, but let's not consider arrays that need artificial reference points.

Many of you have inquired about the effectiveness of driven grounds on antenna systems. This paper should provide you with a general idea of how these electrodes work, and some insight on how to apply them.

Nothing is quite so abundant as the earth's soil. We are more apt to think of earth as something to be tilled for planting, or excavated for a new tower base, providing the beer holds out. Earth has electrical properties just as other conductors and insulators do. Actually, earth is a poor conductor compared to copper wire, but, if the area of the current path is large enough, conductivity can be quite high.

(Continued on opposite page)

Resistance to current flow through an earth electrode has three components. (See Figure 1.)

1) Resistance of the electrode itself, and the cable connections to it. Rods, pipes, masses of metal, and other conductors are commonly used for earth connections. These are usually of sufficient size or cross-sectional area that their resistance is a negligible part of the total system resistance.

2) Contact resistance between the electrode and the surrounding soil. This resistance is much lower than you might think. If the electrode is free from paint, grease, or other insulating materials, and the soil is packed firmly around the electrode, contact resistance will be negligible. Rust on an iron electrode has little or no effect since the rust, or iron oxide, is readily soaked with water, and has less resistance than most soils.

3) Resistance of the surrounding earth. A driven electrode radiates current in all directions. Think of the electrode as being surrounded by *shells of earth,* each shell of equal thickness. The earth shell nearest the electrode has the smallest surface area and offers the greatest resistance. The next earth shell is somewhat larger, and offers less resistance, and so on. Finally, at some distance from the electrode, the inclusion of additional earth shells does not add significantly to the resistance of the earth surrounding the electrode. Generally, the resistance of the earth depends on soil material, moisture content, and temperature. There is no average soil resistance. Soil will range from about 500 to 50k ohm-centimeter. (An ohm-centimeter is the resistance of a one cubic centimeter of material.)

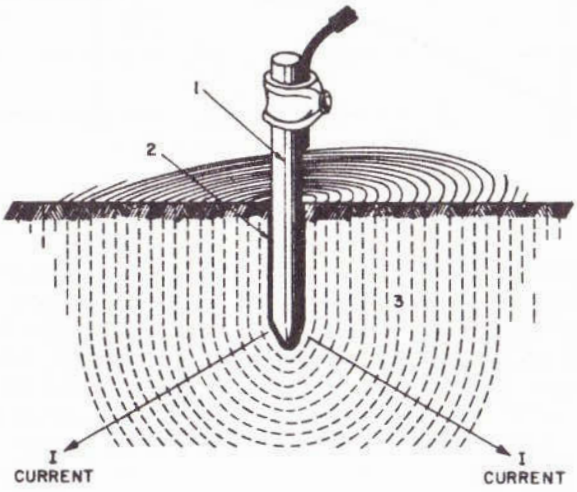

FIGURE 1

(Continued on page 12)

(Continued from page 11)

Let's discuss the principles involved in earth-resistance testing. Refer to Figure 2 during this discussion, as you recall the earth-shell concept.

Assume you have three ground rods driven some distance apart, and a voltage applied. (Figure 2 (a).)

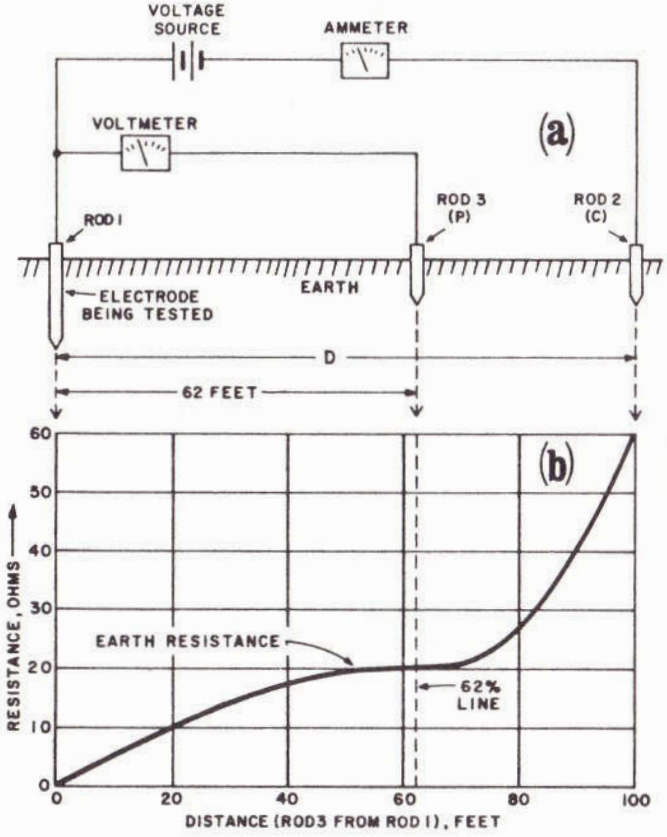

FIGURE 2

The current between rods 1 and 2 is measured with an ammeter while the voltage between rods 1 and 3 is measured with a voltmeter. If rod 3 is located at various points between rods 1 and 2, you can get a series of voltage readings. Applying R=E/I will provide the earth resistance at any measured point. For example: If the measured voltage between rods 1 and 3 is 30 volts, and the measured current is 2 amperes, the earth resistance at rod 3 is 15 ohms. A series of resistance values can be plotted against distance to obtain a curve as in Figure 2b. Note that as rod 3 is moved away from rod 1, the resistance value increases, but the rate at which the resistance increases gets less and less, until a point is reached where the rate of change becomes so small that the resistance can almost

be considered constant. When this occurs, the earth shells between rods 1 and 3 have so great a surface area that little is added to the total resistance. beyond this point, as rod 3 approaches the earth shells of rod 2, the resistance values rise sharply.

Now assume rod 1 is the earth electrode under test. From a typical earth-resistance curve, such as the curve shown in Figure 2b, determine the resistance between the rod and earth. We call rod 2 the *current-reference probe C,* and rod 3 the *potential-reference probe P.* The correct resistance will be obtained if *P* is placed at a distance from the center of the earth electrode (rod 1) equal to 62% of the distance between the earth electrode and *C.* For example: In Figure 2b the distance from the earth electrode (rod 1) to *C* is 100 feet, 62 feet from the earth electrode, the resistance is 20 ohms (Figure 2b). This procedure works well for simple electrodes such as driven rods. It also works well for a group of driven rods. But, you must determine the electrical center of the electrode system. Accuracy of the readings increases if the earth resistivity is fairly constant. finally, *C* should be far enough away from the earth-electrode to be sure that the 62% distance is out of the sphere of influence of the the earth electrode.

Sound confusing? Well it is and it isn't. I'll try to simplify this mess next month when we'll continue with topics such as Basic Test Methods, the effects of different soil types, seasonal variations and how to improve earth resistance.

References: Manual For Earth Resistance Measurement
Oil and Gas Journal
Institute of Electrical and Electronic Engineers (IEEE)

de NØAIH

(TO BE CONTINUED NEXT MONTH)

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ATTENTION CLUB MEMBERS

You may have noticed the change in access to the Red Cross building for our meetings. The Red Cross has been experiencing security problems and has changed the building access policy. After normal business hours, we must *enter and leave* the building through the Blood Services (North Door). Do not leave the building through the West doors; an automatic alarm will sound and the security of the building will have to be checked. The Red Cross apologizes for this inconvenience.

de Mitch NØAFZ

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NEW MEMBERS

Brian R. Lens, (no call)
15315 Jones Circle
Omaha, NE 68154
334-5952

Joseph E. Roberts, WAØSTV
609 South East St.
Valley, NE 68064
359-2446

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CHANGE OF ADDRESS

William J. Abbott, NØZX
11608 Davenport Plaza #23
Omaha, NE 68154

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TRANSMITTER HUNT

The next Transmitter Hunt will be Sunday, 16 December, at 4 PM. The starting point is the parking lot west of UNO. If you can't participate, try to listen on 146.52. John, CMC, has built an interesting ID for the Rabbit.

Last month Kim, WDØBGT found it in only 44 minutes and will hide it in December. Everyone found it in less than an hour, including one guy whose technique does not include a directional antenna.

Participants included:

Kim	WDØBGT	Bill	WA9ASD
Duke	WDØEWH	Doug	KØBOY
Rich	WAØZQG	Jay	KB8TR

Info from John, CMC

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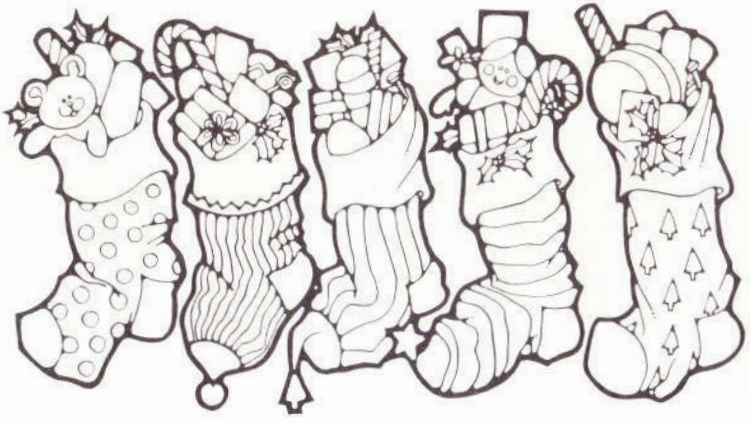

HAM HUM SWAP

NO CHARGE FOR HAM RADIO ADS (NON-COMMERCIAL) SUBJECT TO SPACE LIMITATION. MUST BE SUBMITTED IN WRITING TO P.O. BOX 291. SEE COPY DEADLINE PAGE 2.

FOR SALE: Realistic VHF Scanner. B Channel very sensitive AFC'd RF stage — $39.

Pocket-size 4 chan. UHF Scanner — $59.

B&K 500w isolation XfMR. 9 output voltages — $49.

Rich WAØZQG, 322-7775

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LIFETIME MEMBERSHIP PROPOSAL

ATTENTION ALL MEMBERS:

The Board of Trustees proposes to offer Lifetime Memberships to Members of the Ak-Sar-Ben Amateur Radio Club, Inc. This proposal will be offered for approval by the General Membership at the December 14, 1984 General Membership Meeting. If approved, this will establish an additional membership class in the Bylaws.

Ak-Sar-Ben Amateur Radio Club, Inc. Members-in-good-standing for two or more consecutive years, may apply to the Board of Trustees for Life Membership. Contributions to the Life Membership Fund may be made for a member, or member and spouse, at the rate of 12 1/2 times the annual Full Member membership rate.

Interest earned for each Life Member may be deposited to the General Fund to pay the annual dues for surviving Life Members. The principal amount, or any portion thereof, may only be transferred to the General Fund when a Life Member becomes a Silent Key. At that time the Board of Trustees shall have the authority to transfer the principal amount and any remaining interest in behalf of the deceased Life Member, and utilize those funds in the interest of the General Membership. The Board of Trustees may appoint an administrator for the Fund, who shall also be a Life Member.

Future officers and administrators of this plan are cautioned that the intent is to allow the interest and principal amount to accrue until sufficient funds are available to authorize the purchase or construction of membership clubhouse. While nothing shall prevent the membership or the Board of Trustees from carrying out their rights and responsibilities granted them by other parts of these Articles, these members are encouraged to give careful consideration to disbursement of these funds.

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LARSEN ANTENNAS TAKE ON SHUTTLE COMMUNICATIONS

"The operation was an unqualified success!", so said ARRL's general Manager Dave Summer, K1ZZ reviewing the recent amateur radio operation of Owen Garriott, W5LFL, from the orbiting Space Shuttle Columbia. And so it was also for Carl J. Henniger, KA7GHR, who made his successful contact on an afternoon shuttle pass over Portland, Oregon.

"I did it with my mobile rig sitting in front of my garage with 45 watts of power feeding into a Larsen Külrod Antenna", Carl said. "I was sure thrilled 'cause I was competing with the moon bounce boys with their yagis and big antenna arrays."

KA7GHR also uses a Larsen Külduckie portable antenna on his handheld rig and monitored the space shuttle with that transceiver though he didn't try a contact. "It was just as good as you ever hear somebody talk on two meters", Carl concluded.