



HAM HUM



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

Vol. XXIV
No. 1

January 1974

NEXT MEETING

- WHEN: FRIDAY - JANUARY 11, 1974
- TIME: 8:00 P.M.
- WHERE: FITZGERALD FRIENDSHIP ROOM,
COMMERCIAL FEDERAL SAVINGS AND
LOAN ASSOCIATION
4724 South 24th Street, Omaha
(Free parking in rear off 25th Street)
- PROGRAM: HOW TO GET INTO RTTY
By a panel of experts from Club members, chaired by
WBØGAI, Dr. Roger M. Johnson

REFRESHMENTS -- EYBALL QSOs -- VISITORS WELCOME

HAPPY NEW YEAR TO ALL!

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: January 18th

Published by

AK-SAR-BEN RADIO CLUB, INC.

Post Office Box 291

Omaha, Nebraska 68101

Editor: Dick Eilers, WØYZV

Phone HOME: 391-2255

BUSINESS: 342-1402 - EX. 31

Associate Editor: John Snyder, WØWRT

Phone HOME: 556-1538

BUSINESS: 397-3000 - EX. 3761

Associate Editor: Ervan Heinz, WAØEEM

Phone HOME: 553-2033

BUSINESS: 553-4700 - EX. 331

HAPPY HOLIDAYS

It's hard to believe another year has gone by, and your CD crew at headquarters is still at it. We note the roster in the January '73 Bulletin as consisting of nineteen people - or perhaps we should say nine people and ten hams. Since then, two of the people and three of the hams have departed. Debbie, our supplies gal, just up and left. Jerr, our Training Aids man, went into the engraving business full time. Murray, W1QIS, retired. Judy, WA1JCN, had a baby (a YL). Al, K2DDK (now W1GRE) transferred to the Technical Dept. Taking their places, in order, are Mona (daughter of Senior Asst. Secy W1UED), Jim (WA9AUM), Jeff (WA1MBK), and Rosalie (WB9FJT). Who took Al's place? Nobody; we had four attendants at W1AW while Jeff was in training, and are now down to the normal contingent.

Those of us left over from last year, plus those new since then, wish you the best for this holiday season. May

1974 be a banner year for ARRL-sponsored operating activities!

Fraternally,

George Hart, W1NJM

Communications Manager

de CD Bulletin -ARRL

KØOAL NOT SEEKING REELECTION

12-9-73

Dear Dick:

Note the December issue of QST page 86; SCM Election Notice.

My term as SCM expires 5/29/74. I will not be seeking re-election. I feel that it is time for a change and that the office be open to generate a competitive spirit for Nebraska Amateur Radio Operators.

It would be appreciated if you would publicize the above in Ham Hum. 73.

Tony

POLARIZATION

By—Cecil DeWitt, WØRMB

I recently went to a ham conference and one of the speakers made the comment that "vertical to horizontal polarization would mean 3 DB loss under ideal conditions, but this was only under ideal conditions."

Sometimes, especially at higher frequency, this may not be true. Things getting in the way of the beams may change the polarization as well as other things it can do to the beams. This polarization bending or rotation can be caused by such simple things as dust, moisture, etc. in the air and, of course trees, buildings, power lines, an airplane, clouds, air layers or fronts, and many other unpredictable things.

This got me thinking and some very simple tests were made using a hand held transceiver and a dipole. Near a transmitter there didn't seem to be much difference between polarization in a 180 degree rotation. But as the tests were made at different distances, polarization came into effect, not the original vertical polarization but maximum receive input for any one spot may be anything from 0 degrees to 90 degrees off. This makes me believe the antenna should be set both directions and polarization for maximum signal for any one station and one location.

Buildings are a good polarization rotation device in that a group of buildings will give rotation of a signal polarization 360 degrees or more and many times more than one polarization rotation may be at any one location.

How many times have you found dead spots where the signal is strong

and a few feet or inches it may be \emptyset strength? This rotation of polarization may be what is happening. A signal with no rotation and another with up to 180 degrees rotation may be cancelling and the signal of reception may be anything from full signal for no rotation of polarization to \emptyset signal when 180 degrees of rotation is present.

This test we performed in Omaha and it showed what could be expected in the environmental test of a spread out city. One of the aspects of the test was a 40' x 28' building, metal lath with stucco construction. The building was located between the transmitter and the test receiver and by walking to the north or south, different polarization could be observed. There was found to be a signal null about 5 feet to the north of the center line of the building. This could be blamed to other buildings nearby or maybe the building not being parallel to the transmitter.

Many tests from other locations were made and many showed rotation of polarization effect. Some were clockwise, others were counter-clockwise. There seemed to be no pattern as to rotation of polarization as to cw or ccw, but a group of buildings could almost always cause some rotation of polarization, as well as trees, autos on streets, power lines (these we never knew what to expect) and other obstructions. A heavy fog did make a small change but not too much in the few checks that were made.

The conclusions I came to were:

1. For any one transmitter and one receiver, the best position was to rotate direction and rotate vertical/

horizontal position to give the best signal. Cut and try.

2. For any one antenna (fixed location, directional, changeable antenna) it is best to match the polarization plane of the transmitters that will be received.

3. Polarization is usually the same, or nearly so, but not always. But more often than not, nearly the same polarization between the transmitters and receivers gives the better results.

4. No one can predict what is going to be until you put the antenna in the location where it will be used.

5. To put up an antenna it is a matter of what you can do on the supports and luck. This is the most important as obstructions get in the way.

Of course with all this nice talk, 3 DB is what the books say. BUT what happens is something different!!

NEWS NOTES

The Pueblo Ham Club, Inc. has announced the 1974 ARRL Rocky Mountain Division Convention will be held June 7, 8 and 9 at the Ramada Inn, Pueblo. Convention Committee, P. O. Box 92, Pueblo, Colorado 81002.

If you have had enough of winter by March 31, 1974, the Playground Amateur Radio Club of Fort Walton Beach, Florida, has announced their annual Swapfest. P.A.R.C., P. O. Box 873, Fort Walton Beach, Florida 32548.

MEMBER NEWS

Enclosed check for 1974 dues and remainder for donation to repeater.

I will be unable to attend the meetings which I regret almost as much as not being able to attend Past Presidents' night. I have not been in good health, but when I stay home most of the time in ye olde shack, I think much of the fine group and am so glad to read about the newer and younger members.

Royal M. Enders, KØLYO

Recently spent some time on Montserrat as VP2MDB but heard, and worked, only one Omaha ham — Connie, WAØMYF. Everybody must be on two meters!

73,

Dave Benton, KØVVO

Dear Dick:

Just returned from Baja 1000 Mile Races in Baja, California—Mexico. Was located in Ciudad Constitution during races as one of 11 communication stations with K7VHS. My call was XE2GFQ. Very interesting and if my pictures come out, maybe I can show them if interested.

Leo Meyerson, WØGFQ

(Ed. Note: We'll be interested, Leo. Let us know how pictures come out.)

A GOSSIP: One who always gives you the benefit of the dirt. —Service

ANNUAL MEETING AND CHRISTMAS PARTY

The 1973 annual meeting and Christmas party of the Ak-Sar-Ben dio Club, Inc. was held on December 14th in the cafeteria of the World Insurance Company with approximately 95 adults and 25 children in attendance. Treasurer Kelly, WAØUZX, greeted members and guests as they arrived and collected membership dues for 1974.

A welcome and greeting was given by President Russ Minks, WAØVEE, who is making a fine recovery after his recent surgery. He then called upon Dick Eilers, WØYZV, Chairman of the Nominating Committee, to present the slate of officers for 1974. Following this, balloting took place for election of officers with those selected by the Committee being unanimously elected (see page 6).

President Minks called Dick Eilers, WØYZV, to the stand and presented to him a Lifetime Member Certificate which entitles him to lifetime membership in the Club. This presentation was made with the approval of the entire membership in appreciation of his many services in behalf of the Club.

Reigning President Russ Minks, WAØVEE, then turned the gavel over to President-Elect Vernard (Rip) Riportella, WBØGAJ, which action was applauded by those in attendance. Past President Ed Askew, WAØRDZ, then took his place at the lectern and presented to Russ Minks a plaque in appreciation of his service to the Club during his year as president.

After the business details were out of the way, the annual meeting turned

into the Christmas party of the Club. Christmas carols were sung with Bob Lockwood, WAØDHU, leading. As usual, Bob did a terrific job!

The evening would not be complete without the gift exchange and drawing for door prizes. Those who brought gifts participated in this exchange and, of course, were eligible for door prizes which were distributed on the basis of a drawing from the entire membership list.

While the annual meeting was in progress, the Junior Ops were entertained with movies and were provided with special Christmas treats, including crackerjacks and candy, which they thoroughly enjoyed.

Everyone seemed to have a good time. To top off the party, ice cream, coffee, pop and homemade cake was served. The cakes were provided by the XYLs. Our thanks to them!

FINANCIER: One who can support both his family and the government.

Service

RECENT CONTRIBUTORS

Repeater Fund

Royal M. Enders, KØLYO
Raymond F. Kydney, WAØWOT
Robert C. Lockwood, WAØDHU

Auto Patch

Donald H. Filbert, KØAJO
Robert C. Lockwood, WAØDHU
M. Eugene Mockabee, KØDNU

1974 BOARD OF TRUSTEES

President	Vernard (Rip) Riportella, WBØGAJ	(1974)
Vice President	Marion (Mike) Wilczynski, WBØBMV	(1974)
Past President	Russell A. Minks, WAØVEE	(1974)
Executive Council	Delbert G. Gibson, KØUIV	(1974)
	Dr. Roger M. Johnson, WBØGAI	(1974-75)
	Lloyd McElhaney, KØDKM	(1974-75)
	M. J. (Jack) Prall, WØODL	(1974)
	Patrick Scolla, WBØEGR	(1974-75)
	Harry C. Snyder, WØNVE	(1974-75)
	Frank D. Taylor, WØGOJ	(1974)

PAST PRESIDENTS OF THE CLUB

1945	Nels Peter Nelson, W7RCF (Ex-WØYDC)
1946	John F. Leeder, WØUFD
1947	Arthur R. Gaeth, WØFQB
1948	Herbert D. Curry, WØQXR
1949	Elmer N. Stein, Ex-WØAVM
1950	Dr. Leon Becker, W6AID (Ex-WØBBX)
1951	Earle E. Olson, WØJKE
1952	John W. Orr, WØPHW
1953	Rev. R. J. Strange, WØQHG
1954	Frank W. Cooper W3NV (Ex-WØIOS)
1955	Arthur E. Stadler, W9KHD (Ex-WØQMD)
1956	Dick L. Eilers, WØYZV
1957	Curtis D. Hicks, KØAMM
*1958	Edward Gutmann, WØCQX
1959	David A. Hollander, W6COJ (Ex-WØCJW)
1960	Max N. McKinney, WØYVV
1961	John A. Droescher, KØKWB
1962	Royal M. Enders, KØLYO
1963	Joseph F. Berounsky, KØQDB
1964	Louis A. Cutler, WØVLI
*1965	Edmond E. Donze, WØYEV
1966	Byron J. Smith, Sr., WAØICK
1967	Ervan D. Heinz, WAØEEM
1968	Robert C. Lockwood, WAØDHU
1969	Royce E. Johnson, WAØKIL
1970	Harold E. McClenahan, Jr., WAØDGA
1971	James C. Droege, WØYCP
1972	Edward F. Askew, WAØRDZ
1973	Russell A. Minks, WAØVEE

*Deceased

HAM HUM

SOLDERING

By—Cecil DeWitt, WØRMB

1. CLEAN IRON.

Oxide does not conduct heat.

SIZE OF IRON.

The need of the right heat is very important. Too low heat and the solder just dabs on the work — doesn't flow. Cold solder connections. Too much heat can destroy parts and printed circuit boards.

3. TEMPERATURE.

To make a good connection solder has to unite with the metal that it is bonded to. To do this enough heat is needed to flow the solder and make it unite with the top layers of the metal.

If heat is too much, parts may be damaged or if heat is on the wire for too long a time, the heat can also damage parts.

A soldering gun is probably the worst type of soldering tool when it comes to building kits. More trouble is put in kits by guns than all other soldering irons combined.

The correct way to get heat to the solder and work is to take an already hot soldering iron, well tinned, and apply a small amount of solder to the connection to be soldered. (I like to have a very small bit of molten solder on the tip of my iron when I make a connection as this makes a good thermal connection between the iron and the work.)

Many people use a gun by putting the tip against the work and then putting on the power (switch). This means that the soldering iron tip is cold and goes hot. The work surface does the same, only the wires, etc.

connected to it carry heat to parts connected at the same point and damage may result from such action.

Heat sinks may help but why not do it right the first time. Heat the gun tip up before it reaches the work and as soon as the connection is soldered, remove the heated tip from the work. This lets the wires from the work serve as a heat sink.

SOLDER

The type of solder can make a big difference. (We aren't even talking about acid core in this article.)

60-40, 50-50, 40-60. This is the reference to the amount of tin to lead that is in soft solder. 60-40 is 60% tin and 40% lead.

Each mixture of solder has its own best use. 60-40 is about the best all around solder for normal use. 50-50 is for bare metal use when metal has not already been tinned.

40-60 to 10-90 makes good fill solders, auto bodys and such.

Tin in solder helps lower the melt temperature and makes solder flow easier. 60-40 flows easy and 40-60 takes more heat and is not as easy to flow.

WORK SURFACE

Clean work surface is a must. The metal to be soldered must be free of dirt, oil, finger prints, corrosion and oxides. Any and all of these will prevent a connection and uniting between the metals to be soldered and the solder.

FLUX

The flux is an aid in cleaning the work surface. Anything that will clean the surface will do. Acid (a no-no in radio work) rosin, soap, steel wool, anything that will let the metals combine.

For radio work, non-corrosive flux is only kind that can be used. (NO ACID.) Clean surface, good solder, right soldering iron temperature, and you have a big part of the solder job licked.

(Ed. Note: Use of acid-core solder will void guarantee on kits.)

FOR SALE

Gone TR4. Must sell Galaxy V with AC and DC supply. Will throw in mike, antenna, SWR meter and 30 feet of coax. Priced for quick sale.

Robert Broom, K00QL
Office: (402) 221-3374
Home: (402) 457-4237

FOR SALE

HR-10B Heath receiver.

Charlie Hicks, WA0UMR
7528 Maywood, Ralston
Phone: 331-6245

FOR SALE

New Drake SC-6 receiving converter, solid state with attached P/S CPS-1. IF 13.5-17.5 MHz output 49.5-54 MHz; warranty.

P and H transmitting converter, 175 watts, with attenuator pad if used with exciter of 100 watts or more.

Excellent combination for a 6 meter Ham, no TVI.

Package \$200.00 or make offer.

Royal M. Enders, K0LYO
Phone: 571-0680

IT HAPPENED IN JANUARY

Jan. 8, 1815—At Battle of New Orleans, Gen. Andrew Jackson's 6000 Americans defeated a British force which lost over 2000 in killed, wounded and captured; ("Old Hickory" lost only 7 killed, 6 wounded.)

Jan. 10, 1889 — Massachusetts adopted the secret ("Australian") ballot, leading the way for other states.

Jan. 15, 1870—The donkey as symbol of Democratic Party born in a cartoon by Thomas Nast.

Jan. 24, 1899—Humphrey O'Sullivan, of Lowell, Mass., granted patent for rubber heels.

Jan. 26, 1911—Glenn Curtis flew his invention, a hydroplane, off San Diego, Calif., taking off from and landing on water.

de Service

"After the Bawl Was Over," she got her new fur coat.

de Florida Skip

S-S-S-S-S

More words start with the letter "s" than any other letter of the alphabet, according to Merriam-Webster, the dictionary people. In Webster's Seventh New Collegiate Dictionary there are 140 pages of "s" words alone, running from "Saanen" to "syzygy." The letter with the fewest number of words is "x."

de Service

(Ed. Note: The words with the fewest number of letters are "a" and "I.")

NET NUTS

A Guest Editorial by
Tom DiBiase, WB8KZD

Once you become a regular check-in on a fairly active cw traffic net you will begin to notice several types of operators who stand out in the crowd. These include the ones who are exceptionally good in their procedure, and equally as good with a key. Unfortunately, there are all too few of these. More often than not, the ones that will attract the most attention are those whose procedure and sending leave much to be desired. If you are anything like me, watch out, because these guys will give you an ulcer while they drive you up the wall. Let's meet some of them:

SLOPPY SIDNEY. This one sounds like he's sending in Chinese with his left foot, using two pieces of rusty stranded hook-up wire for a key. He wouldn't be so hard to cope with if he weren't a regular NCS!

WHERE'S-HE-AT WALTER. Here's the guy who never puts in more than a 229 signal, and when he's NCS he starts the net 2 Khz low and *exactly* 3 minutes late. Arrgh!

QUICKER-THAN-LIGHTNING QUINCY. This lunatic insists on setting his keyer at 35 wpm when he can only send at 15 wpm. By the time he finishes sending what he's trying to send (somewhere in between all those "or signs), he could have sent the same thing at 5 wpm.

TARDY TONY. This bird checks in about 20 minutes late with a list of traffic a mile long. On top of it all, you've needed him for an outlet all January 1974

through the session. Fat lot of good he does, after 90% of the check-ins have already been excused!

IMPATIENT IRVING. He's always the first one in the net. He lists several pieces of traffic, but if all stations needed to pass the traffic have not checked in within two minutes, he breaks in and asks for QNX. If you ask him to wait, he leaves anyway.

HELPFUL HERMAN. This wonderful soul will volunteer for absolutely *anything*. Trouble is, after he volunteers for a job, he never shows up to do it.

BOASTFUL BARNEY. Before he sends a message he always sends "QSK," but don't miss anything because you couldn't break in on him with a crowbar!

IMPOSSIBLE IVAN. This is the NCS who you'd swear never ran a net before, even though he's been doing it for years. He starts to ragchew when his buddy checks in, while stations are waiting to pass traffic. He has no idea what the net's side frequencies are, so he makes up his own as he goes along. If one station checks in with THRU 10 and another with THRU 1, who do you think he'd send off with the THRU rep first? You guessed it! If a station checks in at 15 wpm he'll come back at 25, and if one checks in at 20, he'll reply at 10. You better ask for QNX, because he'll keep you for at least a half hour, even if you checked in "QRU." How this oaf ever got the job in the first place is a mystery.

THOUGHTLESS THEODORE. This clod has decided he's going to make the BPL this month, but seems to check in with his big load of junk

traffic only when the net is overloaded already. Wonder where he is when the traffic is light?

These are just a sampling of some of the characters who daily invade an otherwise efficient and smooth-running circuit. You probably know some of them, and maybe you can think of others. Thank heaven there aren't too many of these guys around, but maybe you'll recognize some of them. Maybe one of them is you!

de CD Bulletin
ARRL

FOR SALE

Galaxy GT550 transceiver with VOX and AC power supply - \$450.00

Tom Bradburn
Phone: 291-7924

WANTED TO BUY

Used Motrac U71 HHT 2 freq. standard squelch

Used Motrac U71 LHT 2 freq. standard squelch with extender

(both for 36-42 Mhz)

Also (H21) low band handie talkie and HT200 for 36-42 Mhz

Used Motrac U54HHT 2 freq. with "PL"

Used Motrac T54MST 2 freq. with "PL"

(both for 450-470 Mhz)

Contact Jerry Coufal, WBØDEK
5327 "R" Street, Omaha
Phone: 731-4482

FOR SALE

Heath SB610 Signal Monitor - \$50.00

John A. Cook, KØWVF
3419 Mason Street
Omaha, Ne 68105
Phone: 345-5513

FOR SALE

Motorola T-43 GGV with PL 34/94, 25 watts with cables, speaker, mike and 5/8 wave antenna. Best offer.

Tempo EMH 6 channel hand-held walkie talkie. 34/94, 94/94, 22/82, 16/76, 52/52, 10/80 with desk top charger tempo ACH, GE nicad batteries, Helican antenna and carrying case - \$235.00 (8 months old)

Jerry Coufal, WBØDEK
5327 "R" Street, Omaha
Phone: 731-4482

FOR SALE

EICO 753 with AC and DC power supply - \$125.00

Motorola 140D 22/82, 34/94, 94/94, 60 watts - \$75.00

Motorola H23 lunch box 34/94 - portable supply with 4 batteries and charger and AC supply - \$90.00

Ray Kydney, WAØWOT
6746 Florence Blvd.
Omaha, Nebraska 68112
Phone: 453-2845

NEW MEMBERS ADDITIONS TO ROSTER

Robert R. Beals, KØDEW
1405 Forest Avenue
Red Oak, Iowa 51566
Phone: 623-3765

Donald H. Filbert, KØAJQ
106 Frank Street
Council Bluffs, Iowa 51501
Phone: 322-1242

Eldin R. Filley, WNØKHR
2630 North 70th Avenue
Omaha, Nebraska 68104
Phone: 553-8626

Charles K. Hicks, III, WNØLJP
R. F. D. #2
Plattsmouth, Nebraska 68048
Phone: 298-8154

Roy M. Kaiser, KØIPV
5834 Western Avenue
Omaha, Nebraska 68132
Phone: 551-0942

Tom Mahoney, WNØLJY
3711 North 56th Street
Omaha, Nebraska 68104
Phone: 451-7233

Irene McShane
XYL of WAØLHC
2801 North 52nd Street
Omaha, Nebraska 68104
Phone: 556-8946

Thomas O. Moeller, WAØEXQ
2235 St. Mary's Avenue
Omaha, Nebraska 68102

Ellen Riportella, WNØJLT
XYL of WBØGAJ
806 Bellevue Blvd. South
Bellevue, Nebraska 68005
Phone: 291-7347

WANTED

To buy or borrow and have duplicated, manuals for the following surplus equipment:

1. OS-8C/U Oscilloscope
2. TV-10 Test set, electron tube
3. IM-89/UR indicator, standing wave

Contact WAØDXY at 809 Wood Street, Norfolk, Nebraska 68701 OR on the Nebraska noon or evening nets.

Thanks,

C. R. Carey, WAØDXY

To know what everybody knows is to know nothing.

de Florida Skip



"Doesn't the fact that you're not contributing at all to the Gross National Product bother you?"

Cushcraft Is Ready for 2 Meter FM

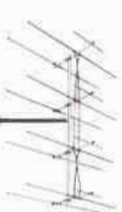
NEW ARX-2

**\$22.50 *6db
Ringo - "Ranger"**

Both models featuring:
DC ground, PL-259
connector, quick in-
stallation on most top
1-1/4", 137-160 MHz.
The difference is in the
price.

\$14.50 "RINCO" AR-2 *3.750B

Designed the most popular
low-cost 2 meter and 3.75
MHz model
convert your AR-2 to the
Ringo - "Ranger" ARX-2.
KIT ARX-2.....\$8.95



PIPELINE TO DX
20 element collinear at a very realistic price. VSWR over a 2
MHz range less than 2:1, and handle the legal limit with easy
52 Ohm coax feed. A solid 14.2 db gain with high F.B. User
reports put this array on top for RESULTS on long-haul
DX. The 2 meter model DX-120 is the big item today - but if
you work 220 or 440 there is a model for these bands too!
Especially great for repeater links, etc. Supplied less boom/
most pipe of 1-1/2" o.d. Length info below.

DX-120.....(146 MHz).....118"	8 Lb.	\$32.50
DX-220.....(1220 MHz).....78"	4 7 Lb.	\$24.50
DX-440.....(440 MHz).....42"	4 6 Lb.	\$21.50

A144-4
\$11.95
9 DB GAIN!



BIG GAIN
2 Meter
Beams
A147-11



Best designed for mounting on masts or tower
aluminum, minimum support struts. Includes
boom, length 44" and topset element in
40". Forward gain of 9db and 7/8 of 20db.
Feedpoint impedance for 50 ohm coax line,
and bal connector for PL-259, F249, FM and
411. 2 center 1/4" x 1/4" x 1/4" \$11.95
A144-4.....\$11.95

VERTICALLY POLARIZED & OPTI-
MIZED 146-148 MHz. TAKES IJK
& COAX FEED WITH PL-259

"4-POLE"
146-220-435 MHz Model A
2 METERS AFMD
4-POLE! Do it right with
1/2 wave dipole and take 1KW
backscatter with a complete 1KW
package. Includes complete 1KW
watts and harness ready to
connect PL-259. Dipole mount
on 1/2" dia. aluminum pole with
1/4" dia. 1/8" dia. 1/8" dia. 1/8" dia.
KING PIN. AFMD 146-220-435 MHz
(435 MHz - 8").....\$46.50
AFMD.....\$46.50
AFM2D.....\$44.50
AFM4D.....\$42.50

THE RINCO AR-2 & OTHER MODELS ARE FCC TYPE ACCEPTED FOR REPEATERS!

Hobby Industry

A full line of
"ham" equipment
for your operating pleasure

● 73,
● ae

HAM HUM



HOBBY INDUSTRY 16TH & AVE. 'G', Council Bluffs, Ia. 51501
MAIL TO BOX 864, PH. 323-0142, NOON-5 PM, TUES / SAT.
STORE HOURS ARE: TUES.-WED.-FRI.....NOON TO 5 PM.
THURS...NOON TO 8 PM & SAT. 9 AM TO 5 PM.