



HAM HUM

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Post Office Box 291 - Downtown Station



Vol. XXIII
No. 7

July 1973

NEXT MEETING

WHEN: FRIDAY - JULY 13, 1973

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)

WHAT: PROGRAM-SHOW AND TELL NIGHT.
ALL HAMS (ALMOST) HAVE AN ALTER-
NATE HOBBY WHETHER IT BE PHOTOGRA-
PHY, STAMP COLLECTING, R. C. MODELS,
OR WHATEVER. BRING THE HOBBY, BRING
SAMPLES, OR IF IT'S TOO HEAVY TO
CARRY, TELL US ABOUT IT.

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: July 20th

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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. 327
Associate Editor: John Snyder, WØWRT
Phone HOME: 556-1538
BUSINESS: 541-4460
Associate Editor: Ervan Heinz, WAØEEM
Phone HOME: 553-2033
BUSINESS: 553-4700 - EX. 331

NEWS NOTES

The Pine Ridge ARC held their annual picnic at Camp Norwesca (10 miles south of Chadron) on June 3rd. 42 amateur radio operators were registered with a total attendance of 88 with their families. The weather cooperated fully.

73,
Tony, KØOAL

June 19-73

Mr. Dick Eilers, WØYZV:

Many tnx for sending us Ham Hum. We are now in our new QTH and were able to get our call we had in 1920. Will appreciate it if you will change our address. We are now W5ABI and the QTH is:

Henry E. Velte
1423 Garvin Street
Conway, Arkansas - Zip 72032

Tell the Gang to keep up the good work and best wishes.

73's
Henry E. Velte

SHORT ISSUE

This issue is somewhat abbreviated as unfortunately (fortunately for her) the secretary of our editor is on vacation. Inasmuch as she is the one who does all of the work for which I get all of the credit, it is necessary to recognize the value of a secretary occasionally. If she had been here I am sure the issue would have been better organized and more complete. She will be back on the job by next month so we can go back on standard again. As she is not here to edit the copy, I will say on behalf of the Ak-Sar-Ben Radio Club, many thanks for your efforts, Zita Tesar.

WANTED

The 8 ft. Spire Jr. Tower.

Call or write:
Jerry Coufal
5327 "R" Street
Omaha, Nebr. 68117
731-0502



L to r: Joseph I. Eisenberg, WAØWRI; Mayor Edward Zorinsky; Russell A. Minks, WAØVEE
Photo by Bob Miller Studios

PROCLAMATION

WHEREAS, there are more than 450 radio amateurs in Omaha, all of whom render a public service through radio communication, both during periods of emergency and normalcy; and

WHEREAS, the radio amateur is always ready to provide communications in emergencies and keeps prepared by participating in activities such as Field Day; and

WHEREAS, radio amateurs in Omaha, in conjunction with other amateurs around the country, will be participating in Field Day on June 24 and 25, 1973 to test their readiness; and

WHEREAS, the citizens of Omaha are served by the actions of amateurs and the amateurs do not ask for or accept any remuneration for their efforts:

NOW, THEREFORE, I, EDWARD ZORINSKY, Mayor of the City of Omaha, Nebraska, do hereby proclaim the 24th and 25th days of June, 1973 as

AMATEUR RADIO DAYS

in Omaha and urge the people of Omaha to recognize this valuable asset to the City of Omaha.

EDWARD ZORINSKY

Mayor

HAM HUM

EXPERIMENTAL KB2XSE

Bob Grove, WA4PYQ

A West Palm Beach research firm (Ocean Measurements) often transmits for long periods a 150 watt carrier (Navigational experimental license KB2XSE) for their new electronic position system. Intermittent carrier transmissions are from about 9 a.m. to 8 p.m. daily on 3.3120 and 3.3050 MHz at 1 pulse per second. The

oscillators are Hewlett-Packard 5061 cesium-beam primary frequency standards.

Any station receiving the signal outside of a 50-mile radius is invited to call Ocean Measurements collect with a signal report. The number is 305-848-0608.

de Florida Skip

AMATEUR RADIO FM REPEATERS IN MINNESOTA (2 METERS)

Location	Input freq.	Output freq.	Type	Sponsored by
Mpls-St. Paul	146.16	146.76	1800 Hz tone on	KØPML
Fairbault	146.16	146.76	Carrier operated	WAØSSN
Mpls-St. Paul	146.22	146.82	Carrier operated	WØPZT
Mpls-St. Paul	146.25	146.85	Carrier operated	KØLAV
Mpls-St. Paul	146.28	146.88	Carrier operated	WAØJGX
Albert Lea	146.34	146.94	Carrier operated	K2OPT/Ø
Duluth	146.34	146.94	Carrier operated	WØGUP
Rochester	146.34	146.94	Carrier operated	WAØODF
Waseca	146.34	146.94	1650 Hz tone on	WØUGR
Wilmar	146.34	146.94	Carrier operated	WØWUG
Elk River	146.37	146.97	Carrier operated	KØRTU
Mpls-St. Paul	146.94	146.46	Carrier operated	WAØNPZ
Waseca	146.94	146.46	Carrier operated	WØUGR

NOTES:

all frequencies given in Mhz

146.94 is the National Calling Frequency

146.64 is the Minnesota Point to Point Frequency

146.52 is being used as a National Secondary Calling Frequency

KØLAV

de Ground Wave, St. Paul, Minn.

FIELD DAY — 1973

Field Day 73 has come and gone. This editor was only able to get to Field Day during late afternoon on Sunday, but upon arrival, discovered that everyone was optimistic as they felt we had a very good score.

You will find pictures taken by Russ Minks, WAØVEE, and Don Novotny, WBØDRS on pages 6 thru 9.

It was the usual setup at Norv and Connie Bowen's QTH and gave every appearance of a typical Field Day, in that one tent was blown down, one mast looked like the letter "S", and various and assorted sunburns were had by all. You will get a full report next month.

Now that Field Day is over, the work of compiling and filing the report begins.

FOR SALE

Motorola 43-GGV mobile unit in operation with 34-94 and 94 direct capability. Best offer over \$65.00 takes it. Clean.

Bob Andrus, KØLUG
4116 N. 100th Street
Omaha, Ne. 68134

FOR SALE

Hybrid Phone Patch model HD15 (Heath Kit) will demo. on air.

Call 221-3374 or 457-4237

KØOQL, Bob.

The Planter of Peach Trees

The story is told of an old man who was planting peach trees and was questioned by a passing friend.

"Why do you, at your advanced age," he asked, "plant these trees? Surely you know you cannot hope to live to eat their fruit."

"I know," the old man replied, "I know I'll never live to pick a peach from any of these trees, but all my life I've been eating peaches from trees that someone else has planted. I want to plant some trees now to pay for the fruit I've eaten."

Scottish Rite Bulletin

FOR SALE

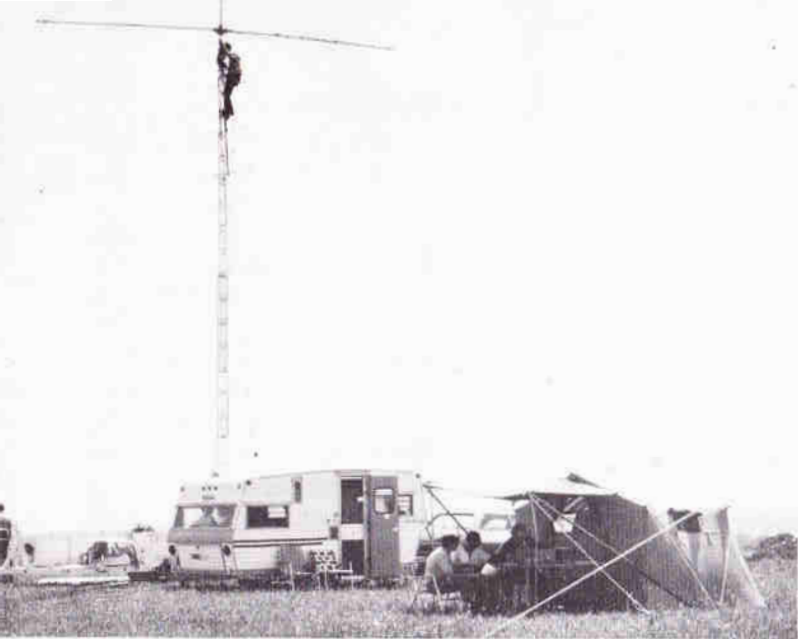
A new Clegg 27-B with 3-way toggle switch 146-148 FM 27-B in box; new Clegg AC supply in box. Both - \$385.00

Dr. Coy Byrd, WA4HAV
Route 5, Box 101
Kannapolis, N. C. 28081
Phone: (704) 857-9507

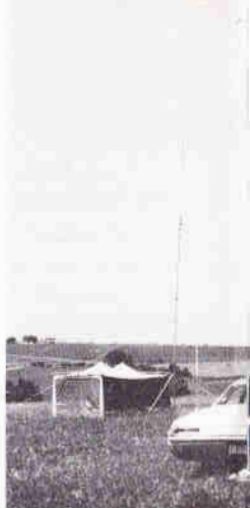
Grandfather Test

On his 50th wedding anniversary, a kindly old gentleman we heard about turned to his silver-haired wife and said, "When I stood up before the preacher with you all those years ago, little did I think that a half a century later, and without any teeth, I would be sitting here trying to eat peanut brittle to keep from hurting the feelings of a 12-year-old granddaughter whose scout troop is selling the stuff."

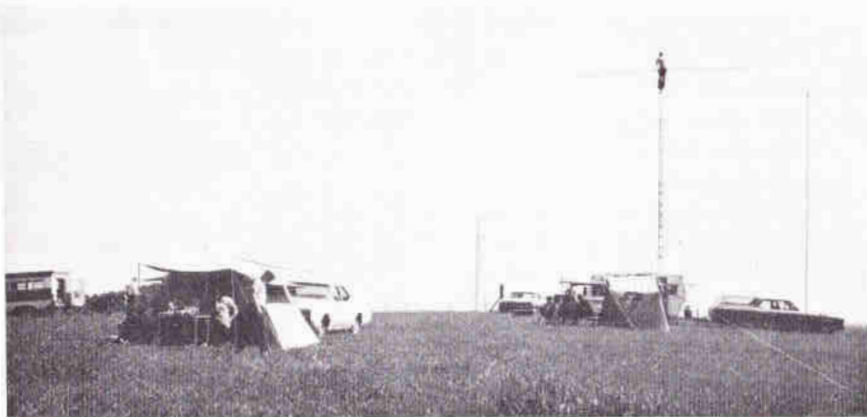
The Little Gazette



Trailer VHF shack; Rick, WAØZQX on tower.



20 M shack on
15 M shack and



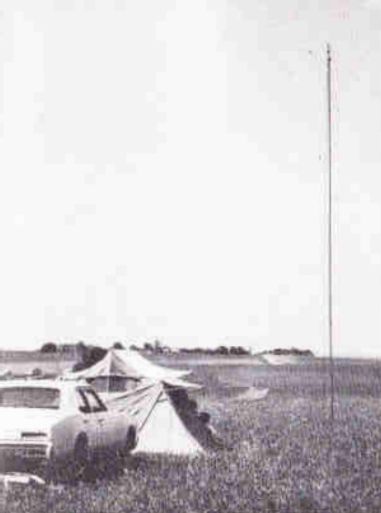
Looking south — 75 M on left, 40 M shack in front;
a VHF shack with Norval's antenna in background.

Norval
from



20 M shack





Left with vert. antenna, 75 and antenna center.



Part of 75 and 15 M crew. Left: Joe Eisenberg, WA0WRI; Bob Lockwood, WA0DHU; Lynn Blesh, WA0ODH.

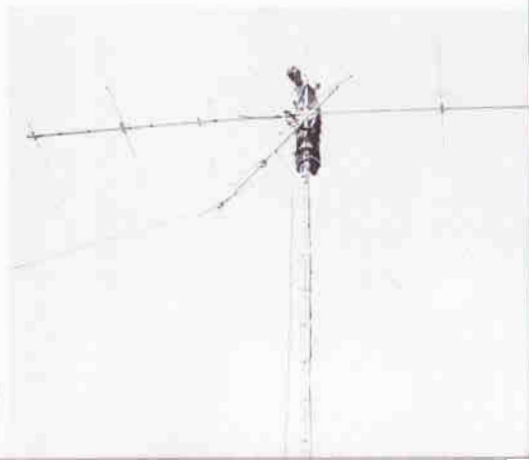
FIELD DAY '73 PHOTOS



40 M shack, Harold, Abrahamson, WA0ORC at mike.

and Connie's house and antenna as seen field day site.

Rick's still putting up the 2 M colinear. ➔





2 A.M. — 40 meter loggers find humor at this hour while op snags another point.

3 A.M.

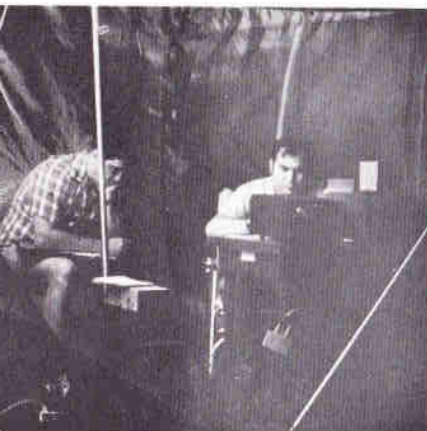
Lynn Blesh, WAØODH, racks 'em up on 75 with logger (unknown).

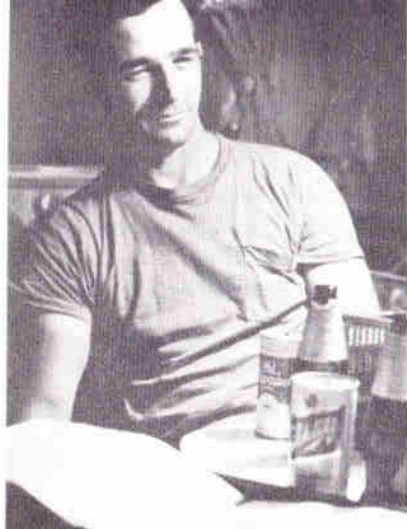
Lynn Blesh, WAØODH, on 75 while John, WBØFGE takes a breather.



20 meter shack. Op is possibly Frank Taylor, WØGOJ, Logger unknown.

Unknown op keeps 40 meters open.





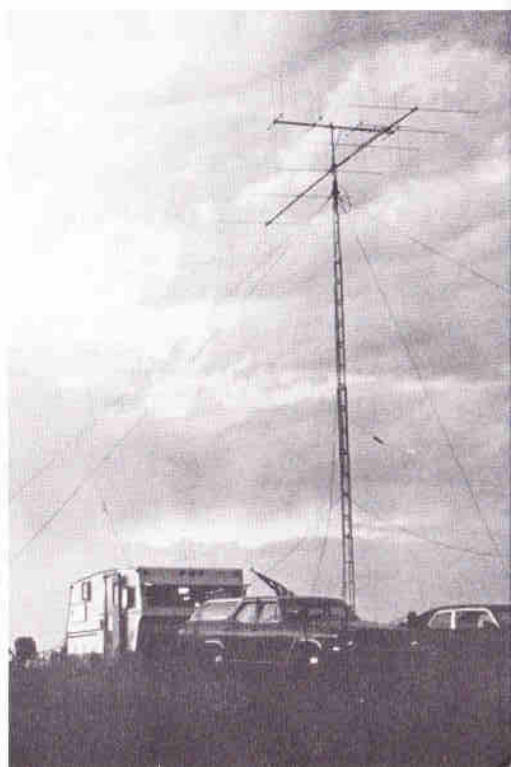
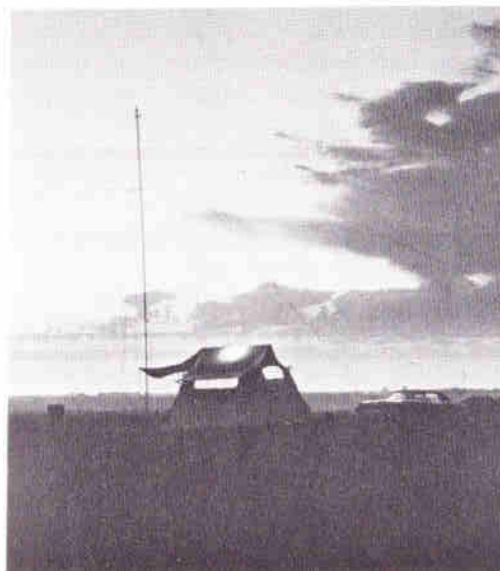
3:30 A.M. — Mike Wilczynski, WBØBMV, keeps an eye on VHF activity.



Keeping 6 meters open at 4 A.M.
Ops unknown.

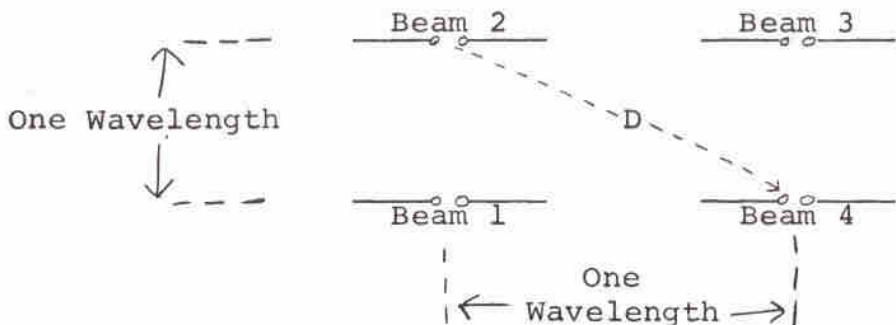
VHF shack at 5 A.M.

75 meter shack at 5 A.M.



UNIVERSAL MATCHING HARNESS FOR STACKING 4 BEAMS

Many VHF/UHF amateurs like to use multiple arrays of beam antennas to obtain higher gain and lower angle of radiation. One of the popular arrangements consists of 4 beam antennas stacked 1 wavelength vertically and 1 wavelength horizontally to achieve high gain, low angle of radiation with minimum side lobes. The arrangement is shown in Figure 1. (The feed points only are shown for clarity.)

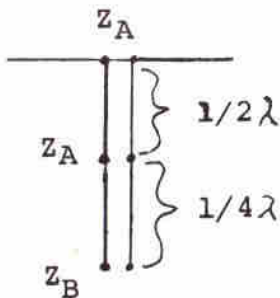


Note that the dimensions vertically and horizontally between feed points are 1 (wavelength) so that the diagonal distance D can be easily calculated.

$$D = \sqrt{1^2 + 1^2} = \sqrt{2} = 1.41 \text{ (wavelengths)}$$

Now it so happens that one of our matching tools consists of 1.5 wavelengths of open wire line. It is also a fact that this value has to be reduced slightly by the velocity factor (97.5% for open wire line) so that the 1.5 wavelength reduces to 1.46 wavelength or just a little more than the diagonal distance between the beam feed points. This is good because all we have to do to keep our harness tight is to change the stacking distance a very small amount either vertically or horizontally or just pull the center of the matching harness a little off center from the plane of the beam feed points.

What I am getting at by the above discussion is that I now have a very nice method of matching 4 balanced feed antennas from a single feed point. Each of the 4 antennas can be thought of as a single antenna, fed by $\frac{1}{4}$ wavelength transformer and a $\frac{1}{2}$ wavelength of transmission line. Thus



Z_A = Antenna Feed Impedance

Z_B = Impedance at Transmission Line Connection Point

Now how do we use this?

Let us assume that I have purchased 4 swan antennas, which have an advertised feed impedance = 105 ohms. Further let's assume that my feed line from the shack will be 200 ohms impedance (that is RG8U and a balun). Obviously, if I want to stack (parallel) 4 antennas to match into 200 ohms, I must first make each 105 ohm antenna look like 800 ohms, at the feed point. (Four 800 ohm antennas in parallel = $\frac{800}{4} = 200$ ohms.)

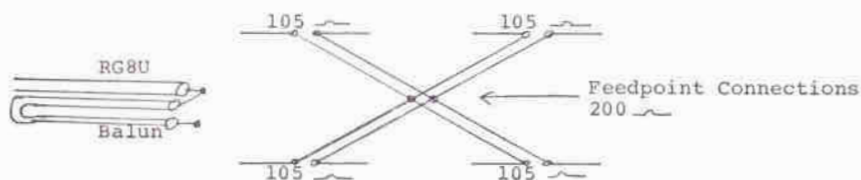
In order to make 105 ohms look like 800 ohms I will calculate and use a $\frac{1}{4}$ wavelength of open wire line as a transformer. To do this I refer to the ARRL handbook.

Z Matching Section = $\sqrt{Z_{in} \times Z_{out}}$ which in this case;

Z Line = $\sqrt{105 \times 800} = \sqrt{84000} = 290$ ohms of open wire line.

DO NOT USE 300 OHM TV LINE OR OTHER PLASTIC LINES.

Again from the handbook, 290 ohm line can be made by using No. 12 wires and spacing them, with a few plastic spacers, 0.5 inches center to center. Now I have shown how you make a harness for 1 antenna – how do I do it for 4? Well, if I connect all these $\frac{1}{4}$ wave harnesses together at the center and extend each one $\frac{1}{2}$ wavelength, I have the following:



The harness for the 4 antennas is now in the form of an "X" and

$$L = 1.46 \times \frac{11800}{F_{MHz}} \text{ inches}$$

The system can be constructed of two, 290 ohm open wire transmission lines of length L, connected at the centers as shown. The system may be fed with 50 ohm coax line and balun as indicated.

This matching harness eliminates the horizontal feed line common to most matching systems. The beams are fed in phase.

W2EIF, Jo Kilgore

de Pack Rats



SPIRE TOWERS

The Best Ham Tower
For 15 Years

- * Self-Supporting With A Tri-Bander (A)
- * 32' - 40' - 48' - 56'
- * 3 Mounting Bases
- * Heavily Galvanized

(A) Limited to JR TriBander, unless guyed, on 5S' towers.

SPIRE CONSTRUCTION

Heavy steel "beaded" channel design for exceptional strength—much stronger than tubular of same weight. "X" bracing & bridge type construction for exceptional torsional stability. Positive riveted construction & heavy galvanizing makes it exceptionally durable for minimum maintenance. Tapering design provides "nesting" shipment at lower cost to you, as well as lighter sections as you go higher, making it easier to erect.

THREE BASES: Rigid concrete (recommended base is 3x3x3' in firm soil, 32/40' models, and 4' deep on 48/56' models). **Hinged concrete** base provides option of lay-over, providing you have suitable gin-pole and tackle facilities. And the **EARTH ANCHOR** base requires no concrete and holds well in firm (clay, etc.) soil and may be relocated later.

A custom drilled rotor plate is provided that accepts all CDE rotors (AR22R, TR44, HAM-M) and also the HY-GAIN 400 with slight enlargement of bolt holes. A friction thrust (lateral) bearing is included.

\$79.95
32 FOOT TOWER

"THE BEST TOWER VALUE!"



TOWERS WITH RIGID CONCRETE BASE

69C091	32'	133 lbs.	\$ 79.95
69C092	40'	175 lbs.	104.95
69C093	48'	243 lbs.	144.95
69C137	56'	308 lbs.	189.95

TOWERS WITH HINGED CONCRETE BASE

69C055	32'	147 lbs.	\$ 89.95
69C056	40'	189 lbs.	114.95
69C057	48'	248 lbs.	154.95
69C138	56'	313 lbs.	189.95

TOWERS WITH EARTH ANCHOR BASE

69C094	32'	197 lbs.	\$119.95
69C095	40'	233 lbs.	141.95
69C096	48'	330 lbs.	239.95
69C139	56'	455 lbs.	284.95
69C100	"T" wrench to drive anchors (8 lbs.)		9.95

Includes anchor base and anchors (anchor bases require no concrete). Earth anchors screw into the ground and hold well in firm soil. May be removed and relocated later.

"HI-SPiRE" towers shipped truck collect from Indiana.

When you need "ham" gear & accessories.....call H. I.!



CALL: Tues./Sat.-Noon/5PM
Al McMillan W0JJK

WRITE: HOBBY INDUSTRY
Box 864
Council Bluffs, Iowa - 51501