

432-13WLA *

SPECIFICATIONS

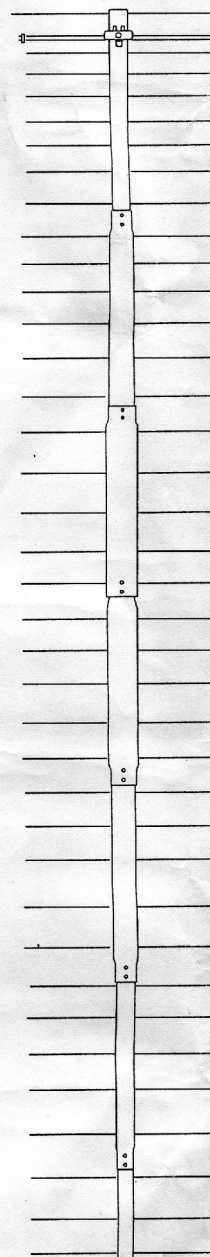
Frequency	432 MHz
Usable frequency range	420 to 450 MHz
Gain	18.6 DBD @ 432.0
Front to back	28.0 DB
Beamwidth E,H plane	16 and 18 degrees
First side lobe	24E, 23H
Recommended stacking distance	84" wide x 80" high
Feed impedance	50 Ohms unbalanced
VSWR	1.2:1
Power handling	1000 watts
Connector	'N' female
Driven element type	Folded dipole mod.
Balun	Half wave included
Element type	3/16" alum. rod
Boom length	368", 30'8", 13WL
Boom support	Overhead Dacron
Windload	2.5 sq. ft.
Mast requirements	1-1/2 to 2-1/8"
Wind survival	100 mph
Weight	12 lbs.
Shipping weight	13 lbs UPS OK

* RECENTLY REVISED WITH THE LATEST COMPUTER TECHNOLOGY PRODUCING ALMOST 1 DB MORE GAIN AND GREATLY REDUCED SIDELOBES. ALL LOBE OUTSIDE 20 DEGREES ARE DOWN BETTER THAN 23 DB! ORIGINAL UNITS RETROED WITH SIMPLE ELEMENT KIT.

FEATURES

The 432-13WL is designed to produce a four yagi antenna system with over 23 dBd gain. The 432-13WL is an excellent stand alone antenna and for the serious amateur it could make a sensational 16 yagi 432 array.

The driven element is a modified folded dipole with adjustment bars near the ends. Stainless set screws lock the joints together. At the center, a machined aluminum housing supports the element and seals out the outside environment from the main feedline and balun connectors. All three connectors on the block feature 'o'ring seals and thread into the main housing. The main input connector is 'N' female. Each parasitic element is a solid 3/16" rod mounted through the boom and insulated with black polyethylene button insulators and is locked in place with stainless keepers.



432-13WLA DIMENSIONS

ELEMENT
SPACING

ELEMENT
LENGTH

0.5		13.375
5.5		13.625
8.125		12.625
12.688		12.25
18.562		12.0
25.375		11.937
32.937		11.875
41.125		11.625
49.875	1" x .058" x 34"	11.625
59.0	— 55	11.688
68.5	U-CLIP HERE	11.562
78.437	1" x .058" x 60" SIE	11.375
88.625		11.375
99.125	1-1/4" x .058" x 60" SIE	11.437
109.375	— 112	11.375
120.875		11.188
131.875	1-1/2" x .058" x 60" SIE	11.188
142.875		11.188
153.875	1-1/2" x .058" x 60" SIE	11.188
164.875	— 172	11.125
175.875		11.0
186.937	1-1/2" x .058" x 60" SIE	10.875
197.937		10.875
208.937	1-1/2" x .058" x 60" SIE	10.937
219.937	— 229	10.937
230.937		10.875
241.937	1-1/4" x .058" x 60" SIE	10.688
252.937		10.562
263.937	U-CLIP HERE	10.75
274.937	— 286	10.75
286.50		10.688
297.0		10.5
308.0	1" x .058" x 37" SIE	9.937
319.0		10.375
330.0	1" x .058" x 57"	10.813
341.0	— 340	10.875
352.0		11.0
363.0	3/4" x .049" x 57"	11.5

DECIMAL TO FRACTION CONVERSION

.062 = 1/16"
.125 = 1/8"
.188 = 3/16"
.250 = 1/4"
.313 = 5/16"
.375 = 3/8"
.437 = 7/16"
.50 = 1/2"
.562 = 9/16"
.625 = 5/8"
.688 = 11/16"
.75 = 3/4"
.813 = 13/16"
.875 = 7/8"
.937 = 15/16"
1.0 = 1"

DIMS.
4-5-91
M.S.TAAL

432-13WLA
ASSEMBLY INSTRUCTIONS

APRIL 8, 1991

Note: This antenna can be assembled using only the DIMENSION sheet of this manual. The manual is to fall back on when questions arise. We advise you read it over first, then decide if you need it. THIS ALL CAN BE FUN IF YOU LET IT!

1. Assemble the boom. NOTE that dimensions have been provided so you can tell which piece goes where. Use 8-32 x 1-3/4 inch screws through the swages in the largest diameter (1-1/2") section. Use 8-32 x 1-1/2 inch screws in the swages of the 1-1/4 inch diameter sections. If you are cramped for space you can install all the elements in each section before connecting the boom sections. If you do it one section at a time follow the dimension sheet carefully.

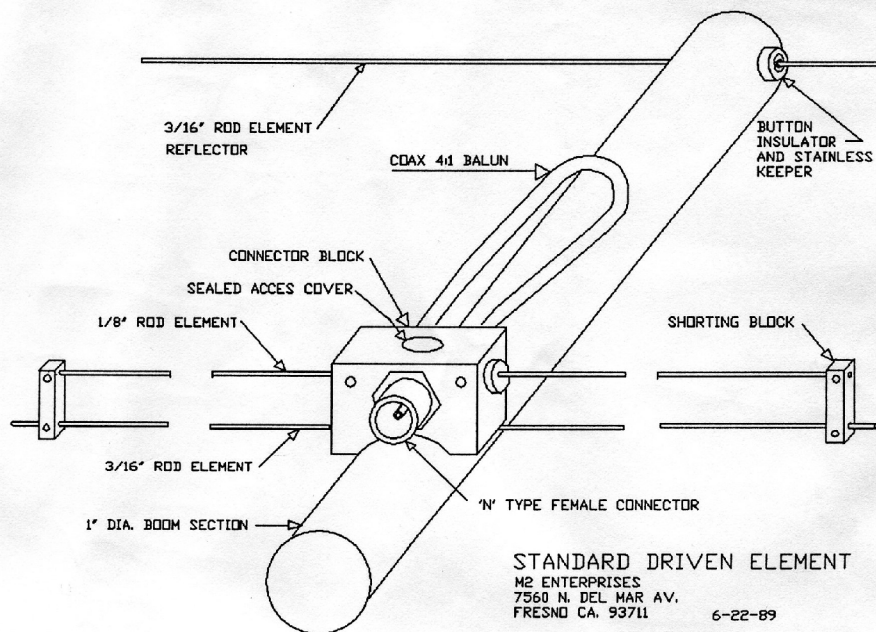
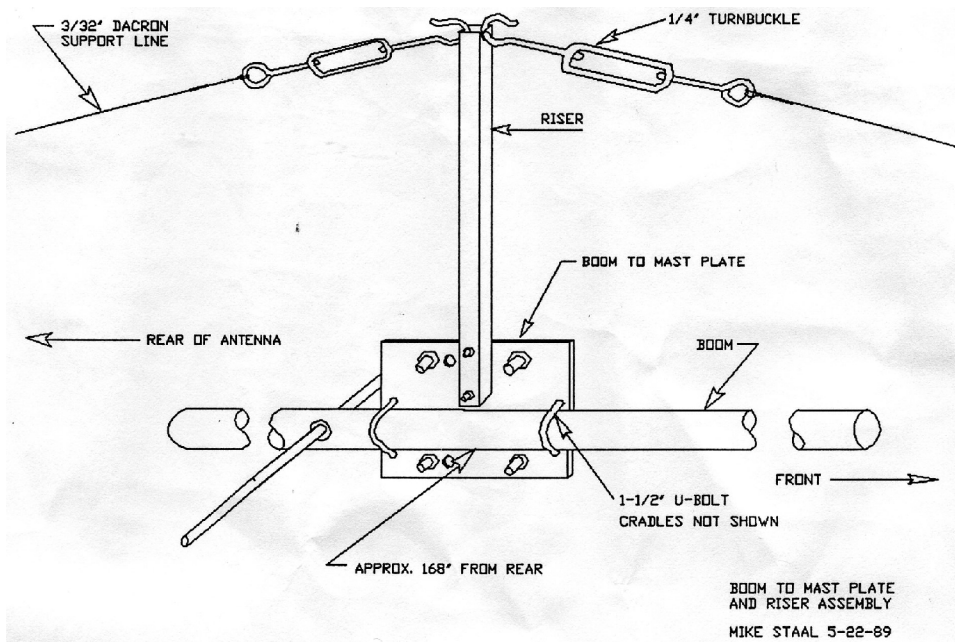
2. Before installing the elements we suggest you lay them out in THE ORDER THEY MOUNT IN THE BOOM. Place them IN THAT ORDER on the sticky side of a piece of masking or duct tape. The tape holds them in order during installation in the boom.

3. START WITH THE REFLECTOR. To install the element, first push on a black polyethylene button insulator. Insert the element through the correct hole in the boom and slide on the other button from the other side. Don't bother centering just yet. Lets just get them all in the RIGHT holes first OK?

4. The second element is the BOTTOM HALF of the FOLDED DIPOLE DRIVEN ELEMENT and it is 13.625 (13-5/8") long. Install it in the hole right in front of the reflector. Now continue until you have all the elements installed in the boom.

5. CENTERING THE ELEMENTS. Don't over complicate your life with half lengths less boom diameter and all that. Using a tape measure or straight ruler, just equalize the measurement on either side of the boom...like one side is three lines past the 5 and the other side is seven lines past the 5. Adjust till they're both five lines past the 5, GOT IT? Try to hold it to 1/32 of an inch.

6. INSTALLING THE KEEPERS. Once all the elements are centered, sight down the tips of the elements and look for the one you blew BIG TIME. Readjust as needed. Start the keeper with your fingers just to get it to hold so you can push it on with the PUSH TUBE (3" X 3/8"). Firmly grasp the element and the boom simultaneously with one hand while pushing the keeper on with the other hand. If the element



slips or you push the keeper on too far, just remove the element, push the keeper completely off and start again.

7. MOUNTING THE DRIVEN ELEMENT. Use the 8-32 x 1-1/4 inch screw to attach the driven element. Unless you want the feed line coming off the rear of the boom, face the female 'N' connector down the boom. Insert the 8-32 x 1/4" set screws into the shorting blocks and slide the blocks onto the ends of the driven element tips to the distance shown on the DIMENSIONS SHEET. Tighten the set screws gently for now with the 5/64" ALLEN WRENCH we provided. You may want to TWEAK the match later once you have the feedline on.

8. INSTALLING THE BALUN. You will find two (2) funny looking nuts in your parts bag. These nuts have a small neoprene seal on one face. Install the nuts on the two female balun connectors with the seal side OUT. Now screw on the balun connectors, tighten them gently with a 7/16 inch end wrench and then run the SEAL NUT up against the face of the connectors. Tighten the seal nuts gently while holding the connector nuts with another wrench or pliers.

9. BOOM TO MAST PLATE. First attach the square 18" support rise to the plate with 2 8-32 x 1-1/4 screws. Locate the two large holes at the top of the mast and rotate the tube so the holes are AWAY from the plate. It is best to mount the plate at the CENTER OF BALANCE but this point changes radically when a feedline is installed. We recommend you install the feedline on the antenna first and then attach the plate at the balance point. Don't overtighten the U-bolts around the boom.... It's not going to slip or rotate.

10. Install the U-clips through the boom at each end and add the keepers to hold them in the boom. Adjust the turnbuckles so just one thread comes through into the inner body. Hook them into the support mast. Attach one end of the Dacron support line to one of the U-clips with a clove hitch or 3 half hitches and pull the knot tight. Attach the other end to the other U-clip with the same knots. Now bring the excess cord to the support tube and cut the cord at the center of the loop. Lay the boom flat or better yet with a couple of 2 x 4's under each end to bow it up slightly. Attach the dacron to each turnbuckle, pull tight and knot as before. Pick up the antenna and adjust the turnbuckles until the boom is level.

11. SETTING THE ANTENNA UP FOR AN ARRAY OF TWO OR MORE! First....all the boom to mast plates should be mounted in exactly the same spot as this keeps the antenna PHYSICALLY IN PHASE with the other antennas. SECOND....all the driven element blocks should be on the SAME SIDE, all UP or all DOWN. NO MIRROR IMAGE HERE or the antennas will be 180 degrees out of phase. This causes a MAJOR hole in the pattern right where your main lobe should be! THIRD....and

this is what separates the men from the boys, the feedlines should be phase matched. In simple terms and in simple arrays this means all the feedlines should be the same length or in more specific terms, the same ELECTRICAL LENGTH. If this part confuses you or you are not sure, please give us a call so we can help you achieve that big signal you've always wanted.

432-13WLA PART LIST

DESCRIPTION	QTY
Boom section 1-1/2 x .058 x 60" SBE	1
Boom section 1-1/2 x .058 x 60" SOE	1
Boom section 1-1/4 x .058 x 60" SOE	2
Boom section 1 x .058 x 57" plain	1
Boom section 1 x .058 x 58" plain	1
Boom section 3/4 x .049 x 27" plain	1
Boom to mast plate 4 x 6 x 3/16"	1
Vertical support mast 3/4 x 3/4 x 18" alum.	1
U-bolt and cradle, 2"	2
U-bolt and cradle, 1-1/2"	2
Dacron support cable 3/32 x 25 ft.	1
Element set 38 pieces 3/16 x see dims	1
Driven element	1
Balun, RG-6U half wavelength 4:1	1
Assembly instructions	1
IN THE PARTS BAG	
Button insulator 3/16" polyethylene	74
Keepers, 3/16" stainless	80
Shorting bar, 1/4 x 3/4 x 1.532" alum.	2
Turnbuckle 1/4" alum. body	2
U clips, 3/16" rod alum.	2
Nut, 5/16-18 hex ss	8
Lockwasher, 5/16" ss	8
Screw, 8-32 x 1-3/4" pan head ss	6
Screw, 8-32 x 1-1/2" pan head ss	4
Screw, 8-32 x 1-1/4" pan head ss	5
Set screw, 8-32 x 1/4" int. hex ss	4
Nut, 8-32 hex ss	15
Lockwasher, #8 split ring, ss	15
Seal nut, 3/8-32 hex	2
Nylon ties 6"	5
Allen wrench, 5/64"	1
Push tube, 3/8 x 3" alum.	1

Carefully designed, tested and manufactured by:

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