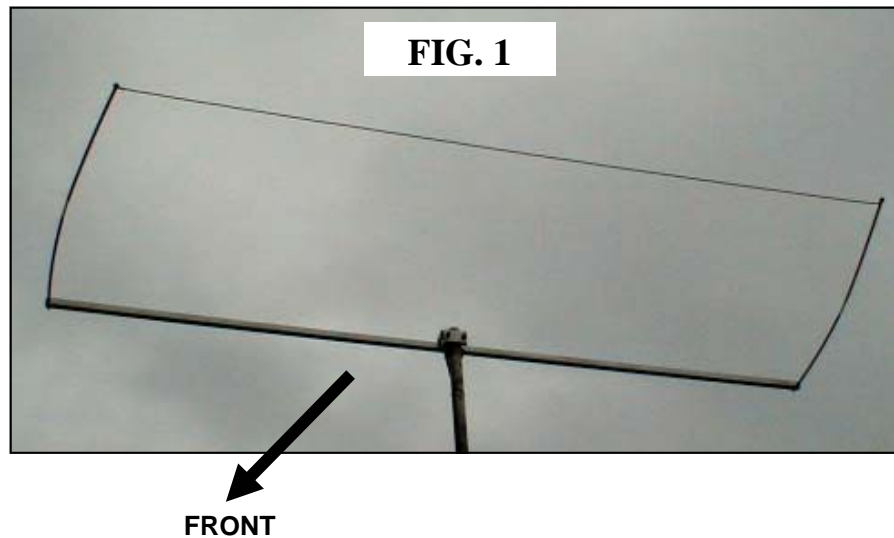


**STRESSED MOXON  
MODEL SM-50  
6M DIRECTIONAL ANTENNA**

**PARTS LIST**

PART NO.	QTY	DESCRIPTION
SUB5014	1	6 METER MATCHBOX
5015	2	3/4" SQUARE ALUMINUM RADIATOR
SUB5004	2	5/16 ROUND TUBES + SPACERS
14404	1	FIBERGLASS ANGLE
14405	2	SQUARE PLASTIC END CAPS
14407	1	ALUM. BACKUP PLATE 2 HOLES
2805	1	ALUM BACKUP PLATE 3 HOLES
14408	2	S.S. 10-32X1 1/2" SCREW
2816	2	S.S. 1/4-20X2 1/2" HEX HEAD BOLT
5018	2	S.S. 1/4-20 WING NUT
14411	2	S.S. 1/4" FLATWASHER
14412	1	5/8" X4" SQ. DIELECTRIC SPACER
5016	1	SM-50 INSTRUCTION SHEET
5004	2	VINYL CAP PLUGS
SUB5005	1	#14 FLEX WEAVE WIRE ASSEMBLY
32767	2	1/4-20X1" ALUMINUM SCREW
14418	2	S.S. 1/4 SPLIT RING LOCKWASHER



## ASSEMBLY

1. Locate the 2 square radiators, square fiberglass spacer, 2 10-32 X 1 1/2" phillips screws and 2 #10 lockwashers. Place the lockwashers on the screws. Insert the spacer into the ends of both square tubes and align the holes. Insert the 2 screws into the holes as shown in Fig.3.
2. Assemble the fiberglass mast bracket, and both extruded V clamps using the 2 1/4-20X 2 1/2" hex head bolts, lockwashers, flatwashers and wing nuts in the order shown in Fig.2, 3 and 3A.
3. Match the holes in the above assembly to the 10-32 screws installed in step 1 and assemble as in Fig. 3. Next, locate the black plastic matchbox and assemble it onto the 10-32 screws. Be certain to hold the matchbox square to the screws. Turn the screws alternately so the matchbox mounts evenly. If a screw does not turn easily, it is most likely cross threaded and should be immediately backed out and reinstalled into the matchbox. Tighten the 10-32 screws so that the lockwashers under the screw heads collapse fully.
4. Locate the (2) 5/16" tube assemblies (SUB5004). Temporarily, remove the vinyl caps. Insert these ends into the far ends of the square tubes from the side the mast bracket is on. That is, when the antenna is fully assembled, the mast bracket will be **inside** the rectangle. Leave approximately 1" of 5/16" tube extending beyond the square tube– Fig. 4.
5. Locate the Flex Weave reflector wire bag and hardware. The lockwashers and screws are aluminum and should not be substituted with steel pieces. Place a lockwasher over each aluminum 1/4-20 screw and assemble the reflector wire onto the far ends of the 5/16" tube assemblies. See Fig. 5. Tighten just enough to collapse the lockwashers. As you assemble the 2nd end of the reflector the 5/16" tubes will flex inward to accommodate assembly. This feature automatically locks the 5/16" tubes into the square radiators without the need for hardware and lends strength to the completed assembly.
6. As you mount the antenna to a mast, tighten each wing nut alternately so the mast brackets remain parallel to each other.
7. In order to accommodate maximum legal limit, we have not built a balun into the antenna, as we do in our Omniangle series. A current choke mode is recommended right below the matchbox and can be constructed by making a coil of 6 turns of your feedline coiled into a 4" diameter coil. The turns may be taped or tie wrapped together.

## TUNEUP

1. Mount the antenna in the clear. Temporary tune up can be done at a height of 10'-this approximates free space. Connect an antenna analyzer, VHF V.S.W.R. bridge or VHF wattmeter through a short length of coaxial cable. **If using a transmitter, we suggest using low power for tuneup until you get the antenna adjusted.**
2. The resonant frequency is adjusted by lengthening or shortening the 5/16" rods- Lengthening the rods will lower the resonant frequency. To move a rod; hold the square radiator with one hand while grasping one of the 5/16" rods close in to the square radiator. Flex the 5/16" rod to relieve pressure on the mounting hole. At the same time slide the rod in or out as required. When unflexed, the rod will stay put.  
**Note:** Be sure to lengthen or shorten the rods in **equal** increments.
3. The forward direction of this antenna is toward the square driven element. That is, if the driven element (square tubes) is facing broadside north– then the antenna is aimed North.

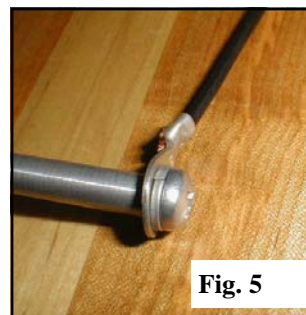
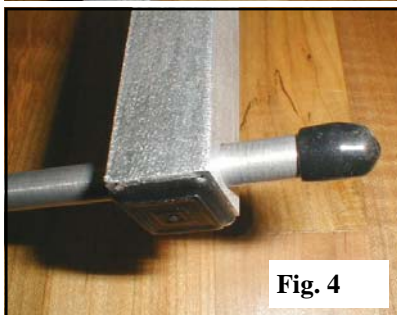
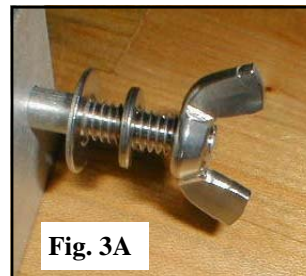
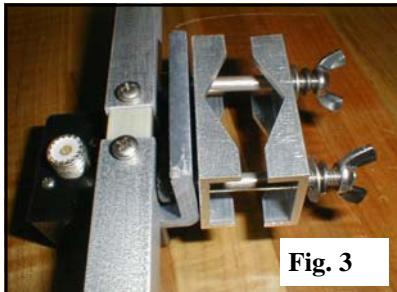
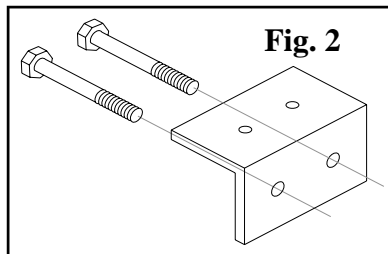
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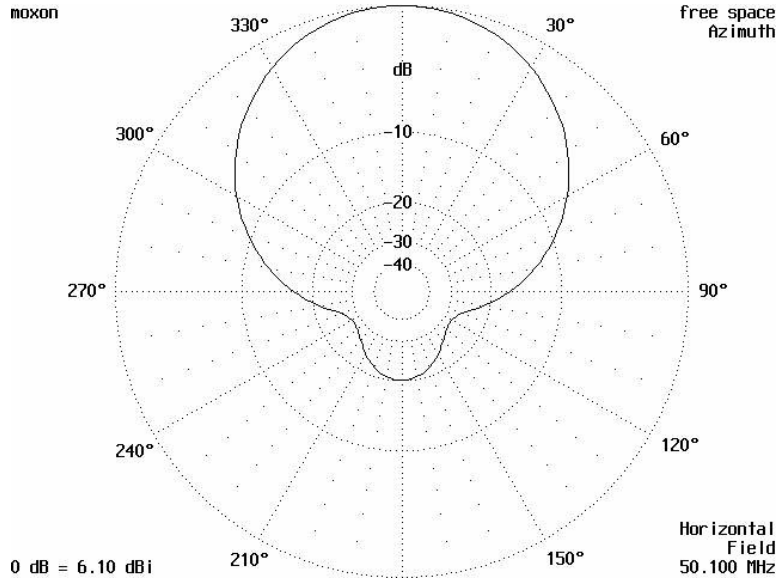
## HOW THE ANTENNA WORKS

The Moxon may be thought of as a 2 element Yagi with the driven and reflector tails bent in towards each other. The close proximity of the tails results in a second coupling mechanism (in addition to the classic mutual coupling from the parallel elements). The combined coupling results in a front to back ratio that is superior to a 2 element DE-REF Yagi, similar gain and a much smaller footprint.

NOTE:

IF YOU EXPERIENCE DIFFICULTY TUNING THE ANTENNA, CHECK YOUR COAXIAL CABLE AND CONNECTORS FOR SHORTS, OPENS AND CONTINUITY. AN EXCELLENT TEST IS TO PLACE A KNOWN, GOOD VHF TERMINATION ON ONE END AND MEASURE THE V.S.W.R. WHILE FLEXING THE CABLE AND CONNECTORS. IT IS NOT AN EXAGGERATION, TO SAY THAT CLOSE TO 100% OF ANTENNA PROBLEMS CAN BE TRACED TO THIS SINGLE FAULT.





### SPECIFICATIONS

Polarity:	Horizontal
Gain:	5.8dBi
Front to Back	17dB
Design Z:	50 Ohms
V.S.W.R. Bandwidth:	1.4MHz Between 1.5:1 Points
Power Handling:	1KW
Weight:	3 lbs
Size:.	Rectangular; 84"X31"
Materials:	6061-T6 Aluminum, Fiberglass
Hardware:	Stainless Steel

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