

3 Element Beam Antenna for fox hunting

The boom is made from ½ inch SC40 pvc electrical conduit (10 ft for 78 cents) from Home Depot but other types of material can be used, even metal, but we wanted lite weight to carry around. The elements are made of ¼ inch threaded rod also from Home Depot (10 ft for \$4.70), and again other metals can be used. It changes weight and cost. Aluminum would be nice but will double the cost. Remember to make the boom longer. Mine is 36 inches but you may want a little more, so you can hold it in your hand while fox hunting. Also you can place two holes 90 degrees to the elements in this area with the spacing of a u-clamp for mounting to a pole.

The spacing of the elements are as follows:

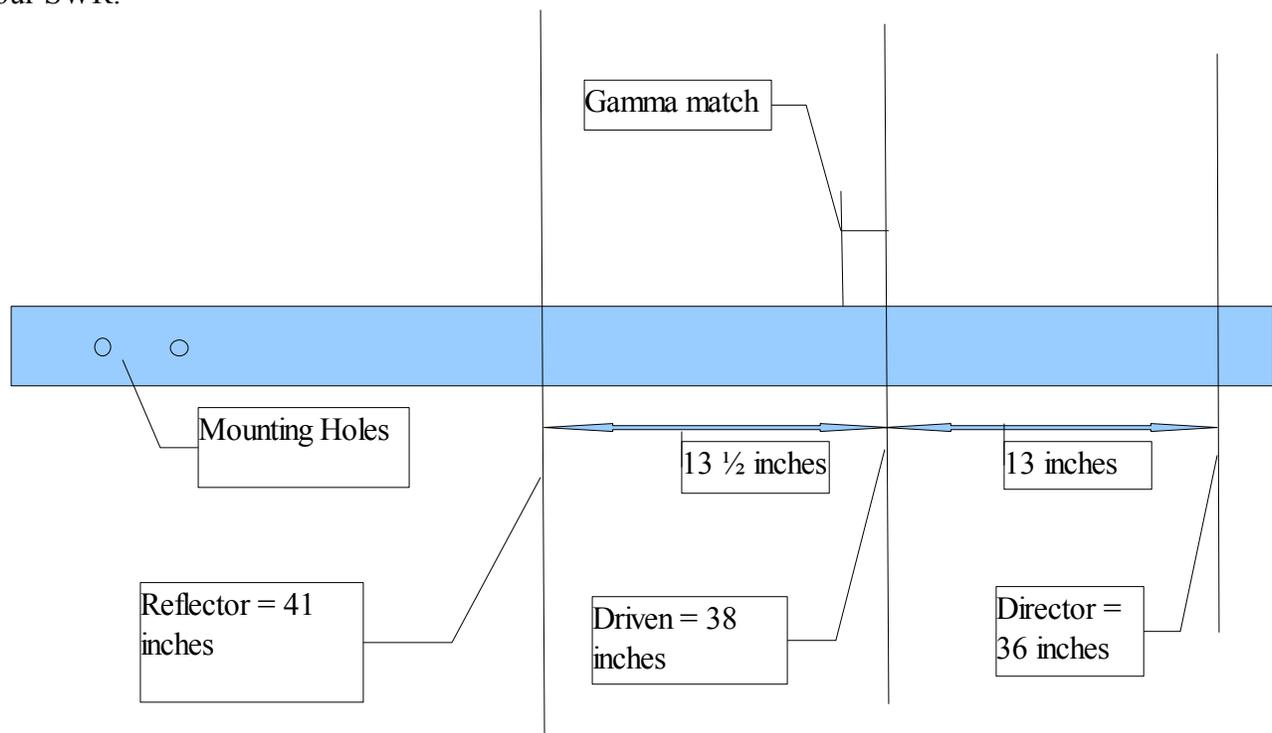
Director is 36 inches long and ½ inch from end of boom

Driven is 38 inches long and 13 inches center to center of Director

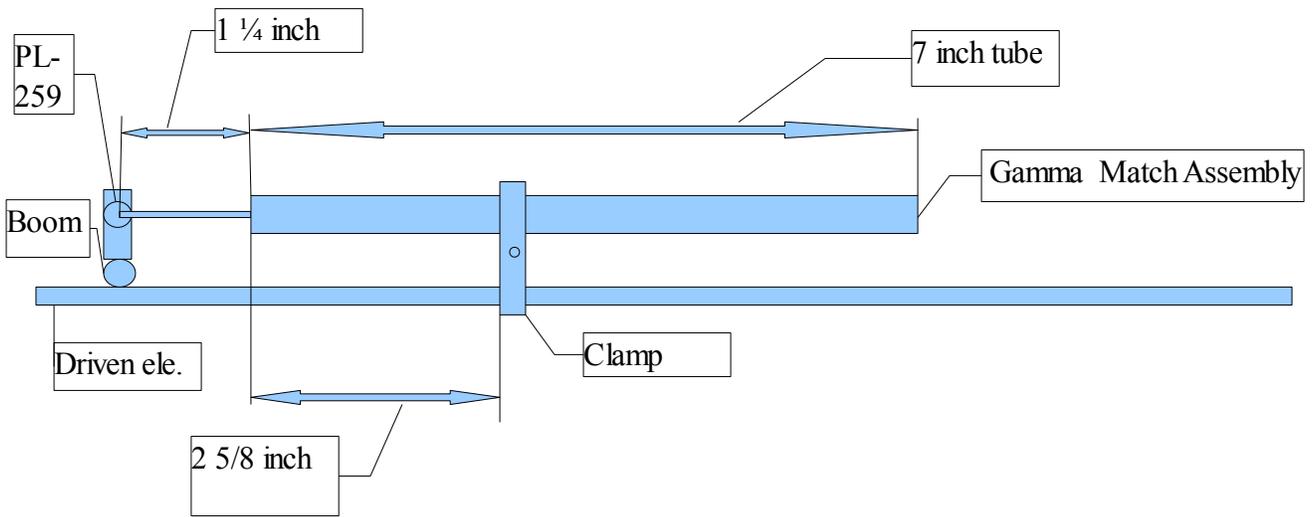
Reflector is 41 inches long and 13 ½ inches center to center of Driven

The elements are made with threaded rod ¼ in. diam. With a nut used to center the element on the boom and some super glue to lock it in place. Another nut may be placed on the other side of boom if you don't want to take the finished antenna apart quickly. The PL 259 is mounted close to the boom using an angle bracket connected to the driven element. This should be made of metal or plastic but plastic will need to ground the PL 259 case to the driven element. This also uses another nut to jam it against the other nut on the driven element.

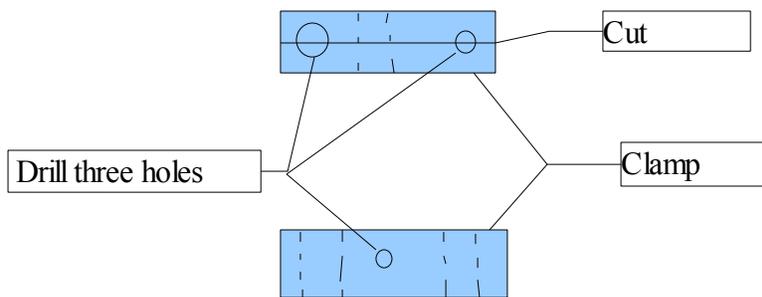
The gamma match is made using no. 12 solid wire about 7 inches long soldered to the center of the PL-259 inside a 3/8 aluminum tube 7 inches long. The tube end is 1 ¼ inch up from the center of PL-259 and the clamp is set at 2 5/8 from the end of the tube. This will give you a good starting point to set your SWR.



The gamma match is in effect a small var. cap of 12 to 25 pf and is adjusted by moving the tube up or down. The wire inside can be any type of coated metal and some times it even better to add more insulation just to hold the wire in position and not flex while adjusting. I used an old ink pen case that just fit inside the tube.



To adjust the swr you would set the tube at 1 ¼ and adjust for low swr at the frequency you want them adjust the clamp for lowest swr. The clamp should be made after the PL-259 is mounted so you can get a better spacing measurement for the holes between the driven element and the 7 inch tube as this will vary between antennas a little bit. The way I made my clamp was to use a piece of square tube, drill the holes and then cut in half.



I hope you all enjoy the Fox hunts coming up.