

TAPE MEASURE BEAM ANTENNA

Materials list

- 1 x 33" Main Tube (Boom)
- 1 x 20" Cross Tube (rear reflector)
- 1 x 16" Cross Tube (centre driven element)
- 1 x 12" Cross Tube (front director)
- 1 x 41-3/8 Steel Rule (Reflector)
- 2 x 17-3/4 Steel Rule (Driven elements)
- 1 x 35-1/8 Steel Rule (Director)
- 3 x saddle Clamps
- Electrical insulating tape
- 6 x self tapping screws
- 3 feet of RG58 Coax
- 1 x RF connector of choice (PL259/BNC etc).
- 1 x Gamma match (5 inches of 14–18 gauge wire)
- 6 x Pieces of Velcro

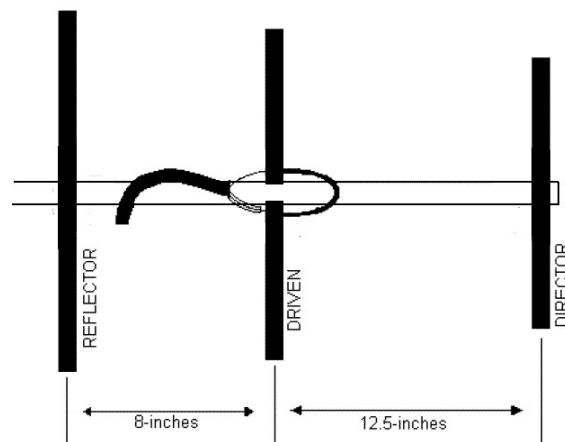
Tools

- Tape measure for measuring
- Soldering iron and solder
- Screwdriver
- Strong scissors or sheet metal cutters
- Junior hacksaw (for cutting pipe)
- Sandpaper
- Safety glasses
- Gloves

Notes:

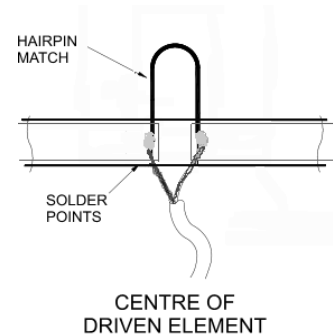
The boom/cross tube material I found most suitable was round 21mm black plastic conduit (you can get white too but black seems to be cheaper) and the associated saddle clamps.

Try to use a wide steel tape measure, as this gives it better stiffness in winds, $\frac{3}{4}$ to 1 inch seems best.



BUILDING PROCEDURES

1. Find and mark the centre of each cross tube.
2. Draw a centre line along the length of each tube passing through your centre mark, this is the line used to get your saddle clamps fixed straight, so make this line accurate, if you don't then the elements won't sit square on the boom.
3. Offer up a saddle clamp to each cross tube and mark the holes on the centre line and drill small pilot holes ready for the self tapping screws. Take special care to get these accurate on the centre line and in the middle of the tube.
4. Loosely fasten the saddle clamps to the cross tubes with self tapping screws.
5. Identify the correct steel rule to the correct cross tube and fix the director and the reflector steel rule elements in place (making sure each is centred) using insulating tape, two strips on each side is sufficient.
6. Remove the paint off the back of the tape on one end of each driven element and roughen up with sandpaper ready for soldering.
7. Make a U shape out of the 5 inch wire, strip the Coax and solder the centre of the Coax together with one end of the matching stub to one of the driven elements and the braid of the coax and the other end of the matching stub wire to the end of the other driven element.
8. Make sure all of the wires are properly soldered and as close to the end of the tape as possible.
9. Fix the driven elements to the cross tube with insulating tape; make sure you have a $\frac{3}{4}$ " gap between them in the centre.
10. Connect the radio RF (PL259/BNC) connector plug to the other end of your coax.
11. Fit a piece of Velcro to the end of each measure and to the corresponding cross tube, this allows you to fold the elements for transport and storage.
12. Trim the sharp corners off the tips of the elements for safety (only remove minimal amount).



13. Slide each cross tube over the boom and tighten the screws, do not over tighten so as not to strip the plastic.

14. If you find the SWR is a little high, it can be adjusted by simply adjusting the gap between the two driven elements until it is acceptable.

Job complete !!! Happy hunting.

Based on the original WB2HOL design
http://home.att.net/~jleggio/projects/rdf/tape_bm.htm