

# Homebrew Outbacker Outpost Tripod Antenna Mount

[Portable and field day operation] by David Tavener - **VK4ICE**



I spotted the Outpost-style Tripod constructed by Wayne Eubanks KG5RE on Ham Nation Episode 86.

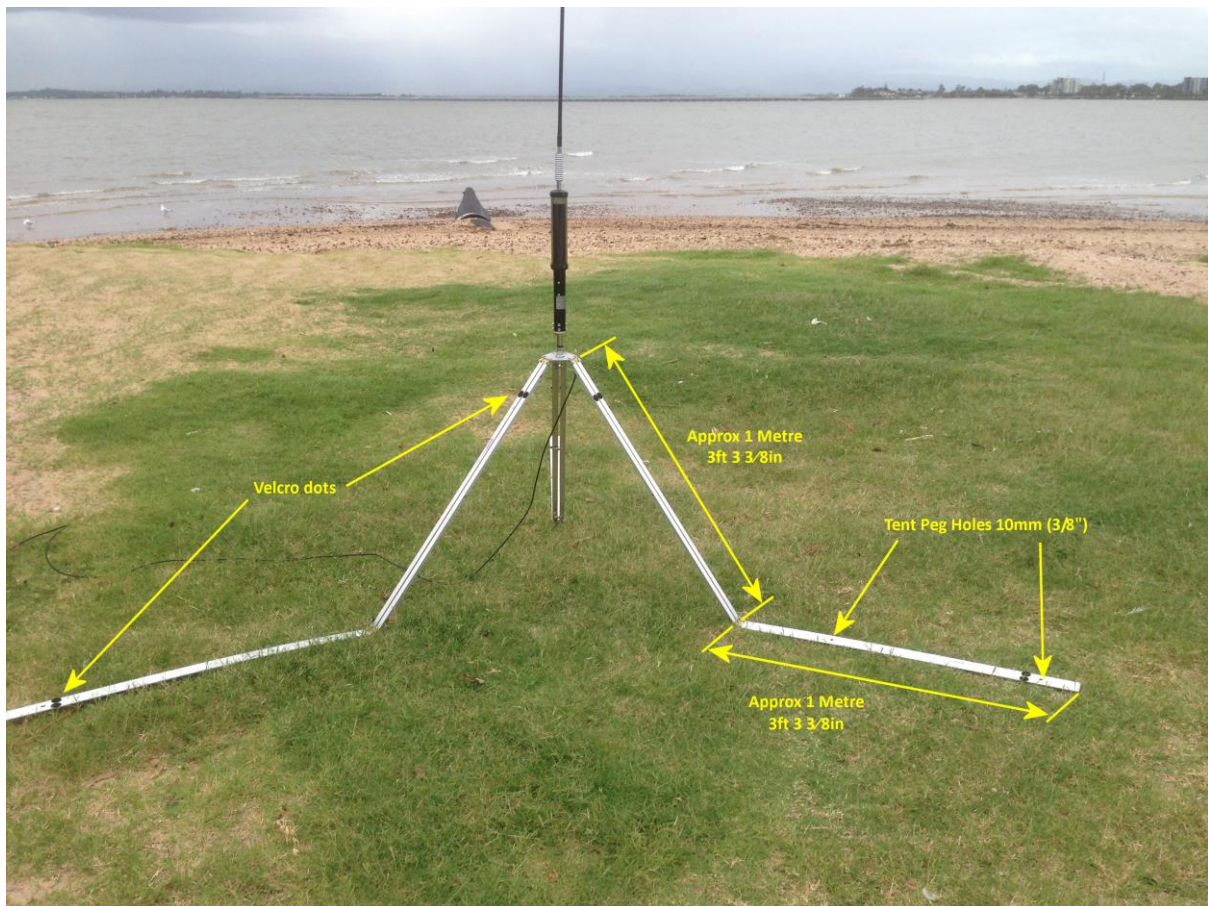
Download this episode to see a video of Wayne's version of the Outpost.

[http://dts.podtrac.com/redirect.mp4/twit.cachefly.net/video/hn/hn0086/hn0086\\_h264m\\_864x480\\_500.mp4](http://dts.podtrac.com/redirect.mp4/twit.cachefly.net/video/hn/hn0086/hn0086_h264m_864x480_500.mp4)

I quickly put one together exactly as Wayne assembled his. I felt mine was a little too wobbly and was not happy with the way the rivets held the hinges to the aluminium, so in true Ham style, I re-constructed mine differently. Wayne's tripod is taller than the one I built, his leg material lengths are longer. I chose my lengths to ensure there was zero wasted material from the 3m standard lengths available from the hardware store.



From the photo above, you can see Wayne used a triangular top plate for the Outpost. I worked out you can have a larger plate area from the same width of flat plate aluminium by using a hexagon instead. Wayne used a 3/8" antenna fitting on his... I used an M-Type right angle fitting to transition from RG-58 coaxial cable to the UHF antenna base. This will allow me to use many more antennas in my collection such as a 6m ¼ wave or a dual-band 2m/70cm antenna. I found a **UHF to 3/8"** adapter on eBay from Germany to allow me to fit ham sticks, **Wolf River Coils**, or even a Little **Tarheel ii** could be used. I could have used Monel rivets to put this all together, but I had stainless bolts and Nylock nuts on hand. Whatever does not have Nylocks, was treated with 222 Loctite or lock nuts.



### To the build...

The standard hardware store length for aluminium here in Australia is 3 metres (about 10 feet) which fits nicely in the station wagon for the ride home.

### My parts list is as follows:

Two x 3 Metre (approx. 10') length 20mm x 20mm ( $\frac{3}{4}$ " x  $\frac{3}{4}$ " aluminium angle 3mm thick ( $\frac{1}{8}$ <sup>th</sup>) for the upper legs.  
 One x 3 Metre (approx. 10')m length 50mm (2") flat bar 3mm ( $\frac{1}{8}$ <sup>th</sup>) thick  
 100mm (4") flat bar 3mm ( $\frac{1}{8}$ <sup>th</sup>) thick for the top plate (an offcut I had laying around from another project, 500mm long makes a few hex sections).  
 Six x 50mm (2") solid brass hinges  
 Nuts, bolts, washers, Loctite (or rivets)

### The Construction:

I clamped my two lengths of angle together with vice grips and cut into thirds using an aluminium blade on my compound saw. This will give six pieces of angle for the top of the leg sections. The 50mm (2") flat bar was cut in thirds for the bottom leg sections. I also drilled two holes in the flat plate to allow me to tent peg the tripod down if required.

The angle was again clamped together and three holes were drilled for the bolts and spacers at about the middle, and 50-100mm, (2-4") from each end using a drill press. This will make rigid upper leg sections. Space the angle sections apart so the 50mm brass hinges (2") will fit comfortably across the gap. I used a stainless steel washer and a nut for this spacing. Wayne used nylon spacers. I guess the idea is to use whatever you have on hand to keep costs down.

The Hex is fairly easy to cut out using a compound saw. If using 100mm (4") flat aluminium, mark the material at half the width of the material and draw a line down the centre of the material. Draw a 60 degree angle from this point to both edges. Measure the length of this line and transfer measurement to each side of the material. From this point, a 60 degree line should connect to the centre line again, completing the hex. If it looks like a hexagon,

you can now cut it out by using the mitre setting on the compound saw. (If not, better stop and check your measurements).

To find the centre of the hex, use a pencil to mark three lines across from a point on one side, to the opposite side. These should all cross in the middle, giving the actual centre. You can drill this to suit whatever antenna fitting you are going to use. About half inch for 3/8" 24TPI fitting, 14mm for UHF fitting. (SO-239 bulkhead fittings and lock nuts work great as an M-Type antenna fitting). I used a step drill for this task.

Place the hinges on the hex section and mark where you will need to drill for bolts or rivets (whichever you prefer to use).

Hinges can now be fitted to both ends of the upper leg sections, then fit the bottom leg sections. (Hole size will depend if you are using nuts and bolts or rivets).

Finally, the top plate can be fitted to the legs. I had to radius the inside of the top legs slightly on a Linisher to allow the legs to hinge fully under the top plate.

