

Tree Antenna Sky Hooks

By G8MNY

(Updated Jul 09)

(8 Bit ASCII Graphics use code page 437 or 850)

There are several ways to put a rope in a tree...

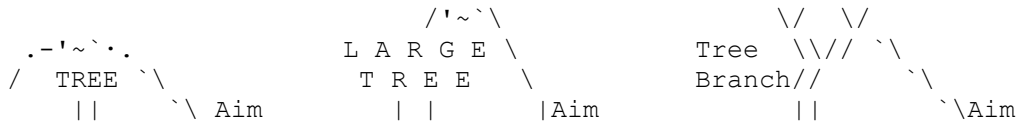
BOW and ARROW

The normal arrow is too light to pull up much so adding a weight to the point will greatly help, suitable are a layer or two of Pb solder/steel/Cu wire tightly wound on to double or treble the weight of the arrow.



No point is needed, as there is a danger it could hit someone or get stuck firm in the tree bark. Attach a thin string or thin fishing line to the rear of the arrow. Estimate how much line is needed to do the shot and unravel that amount in neatly and untangled front of you, if ground is too rough spread it out on a tarpaulin etc. When placing the arrow in the bow make sure there is no risk of line entanglement with you or the bow.

What to aim for.



- 1/ Aim shot to either clear the whole tree, if you can get to the other side.
- 2/ Or aim much steeper, to fall into the top of the tree so that line falls through middle of tree canopy,
- 3/ Or over a suitable branch if your aim is good.

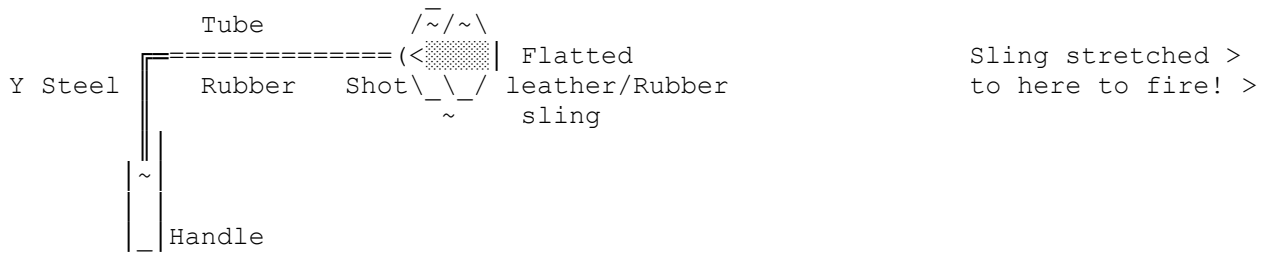
Done in the winter with no foliage, you can see far more of what you are doing. N.B. Thick foliage also grabs the line making the arrow difficult to free up so that gravity does the work.

CATAPULT

This is much the same as for the bow and arrow, but you must use thin fishing line, then pull over a thicker line. The shot weights (tear drop shaped or just cubes of lead (10-15mm sides) with a hole drilled through it, are small and not very visible, so use brightly coloured ones e.g. Orange/Red not green/yellow/brown, as this will help spotters the other side of the tree to see the shot. As with bow and arrow a heavier weight is need if there is sticky leaves or soft bark that "grab the line" and then you can loose some line and the weight.

The knot must be a suitable type for mono filament that does not over stress (knot) the load carrying side, I found several (at least 3) simple loop knots work on the fee end around the incoming line (see insulator and eyelet diagram below), and can be undone with patience.

The pre-laying out of unknotted line is very important, but I have seen combined fishing reels used (on handle) with only occasional line fouling.



I have seen this method used for a very cluttered site, with great success getting over specific tree tops/branches at 40m up and clear 30m depth of forest at the same time. With the fine line needed for log shots, windage is a problem, and must be considered when aiming so the line drifts into the tree as needed.

Often a high shot is best coming down in the tree if you can't reach the other side of the tree!

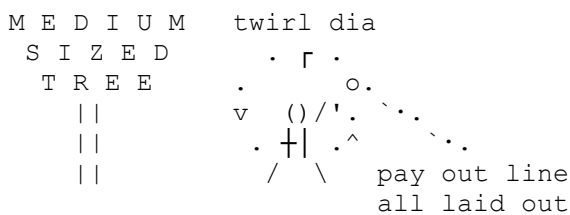
FISHING ROD

Similar to both of these methods is casting a weight over a tree. Again a far degree of skill is needed to get the line and weight over the part of the tree needed as there is no aiming system with a fishing line. But the range (possibly not height unless you stand on steps for more room) may be well over other methods!

TWIRLING (Slingless shot)

This method uses stronger line and heavier weight and for temporary aerials attached to the same line is actually the quickest system.

A weight > 100gm, e.g. plumb bob is tied to nylon cord (e.g. builders orange marking line) and make sure the fixing is very good and will not pull out of the weight, and then with a meter of line to the weight you twirl this around in a vertical manner in line with the target. Your hand needs protection and a leather glove must be worn. As there is danger of 'miss fire' is you let go at the wrong time, make sure other people and cars etc. are well clear!



Unlike the previous 2 methods your strength timing and skill are more important.

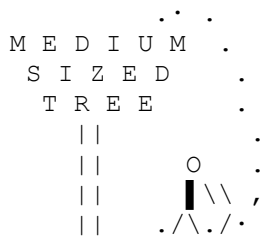
Make sure the line is going to pay out freely and that you are not going to get entangled.

I have put lines into trees at a good 18M with this method. Due to the heavier weight, the tree grabbing problem of the line is less, except for miss fires where the shot has to be pulled from the wrong branch etc. In that case beware of knotting the cord around a branch!

Often a high shot is best coming down in the tree especially if you can't reach the other side of the tree!

BACK THROW

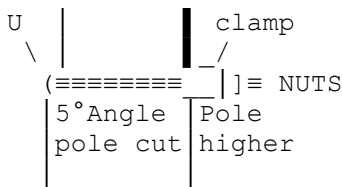
Bob VK6BE reminded me there is another method, and that is to stand with your back to the tree and lift a stone in a short line/sling (he suggest a long sock).



You effectively turn yourself into a Trebuchet machine. There is a mechanical advantage to this method, as both arms are used and the sling length speeds up the shot. Bob says 60ft can be reached my this method.

TALL POLE METHOD

This is a non ballistic method. I use 17m of very thin set of telescoping poles. e.g. poles of 1.25" 1.5" 1.75" and 2" with matching size U exhaust clamps done up over the joins, so that the U is only over the thinner pole and the clamp over the larger one.



The top pole has a Y shaped twig put in it, to take string over the top.



Extend the pole set on the ground (do clamps up as needed) to be taller than the wanted anchor point in the tree. Tie a hefty weight (half brick) to the string and put a long loop of the string over the top pole Y.

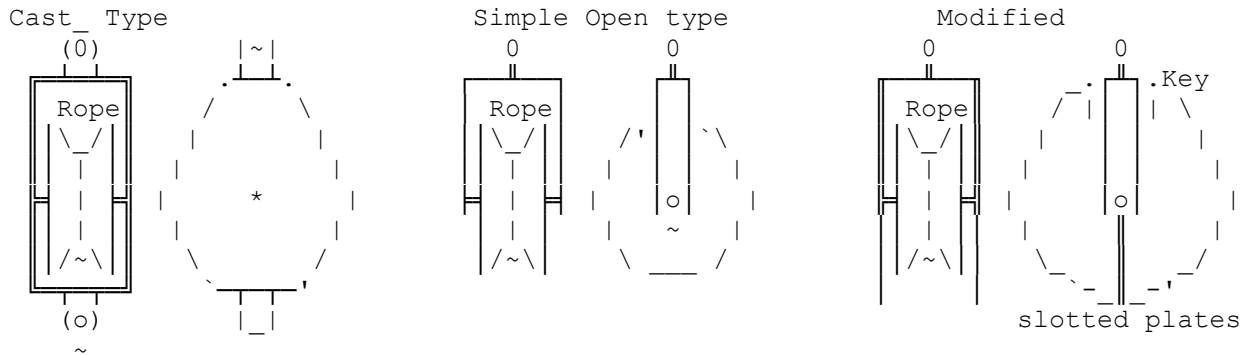
Walk up the fragile set of poles with someone footing the base keeping it on the ground. Carefully position the whole pole against your target point in or above the tree.

Pull on the free end string to raise the weight to the top. When it is over a suitable branch, lower the weight. With careful jiggging the weight should come down ok through the tree branches. Avoid knotting it around branches if recovering for a 2nd attempt!

HALYARDS

For permanent locations it is desirable to have halyards at each end of HF wire aerials so that they can be lowered for maintenance and tuning up the aerial etc.

A simple mostly enclosed galvanised cast pulley that has a crude steel pin bearing well need to greased. (e.g. hot runny grease dripped in to centre axle)



On simple open ones where there is a real chance of the rope fouling when it come off the pulley, I found that a piece of suitably cut tin plate could be added to each side of the pulley block wheel to stop the rope fouling and jamming the pulley by falling off the side of the wheel. The slotted plates have a key cut at the top to locate the inverted U bracket, they also have bent back edges to be smooth to the rope.

Much better and more expensive types are available from chandlers.

The halyards are threaded up to be continuous loops so that if the aerial breaks then it can still be lowered. Also for the tree end there is a put up rope that was placed over a high branch to hall the halyard pulley up.

Polypropylene rope (e.g. 6mm draw rope) is OK, but does have a short lifetime of only a few years in the sun before it disintegrates! Never trust it for dangerous work where people could get hurt!

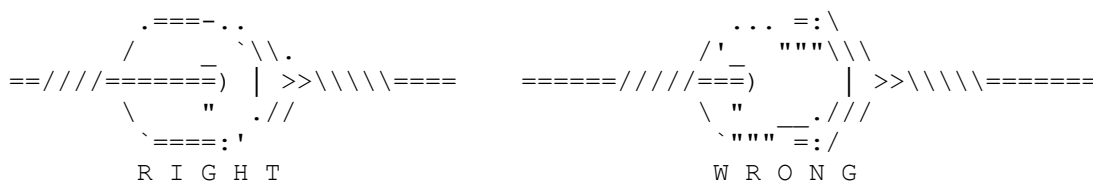
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Tree.....Pulley   Spring
:      O.....eee.∞----
:      :      /      Insulator
:      :      / Loose
:      :      / Pull Down
:      :      / Loop
:      :      /
:      Tension
Tie Off  Weight
    
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Note the initial pull up rope will soon be overgrown into the tree bark and the pulley will not be recoverable after a few years.

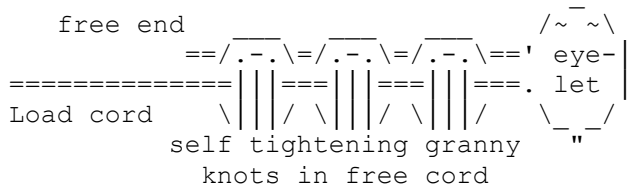
INSULATORS

For fair Wx /P activity end insulators are not needed as dry string, nylon, or polyprop, are all excellent insulators at ham QRP levels (<1kW). But in permanent and for wet conditions good insulators are needed as arcing/losses could occur, especially in coastal sea spray areas.



Black plastic egg insulators are ideal for the middle of a dipole where low weight is important and due to the low the Z the insulation requirements are minimal. Ceramic ones are best used at the ends where their weight is less important and will not reduce the aerial's height by as much.

With tough wire a tight wrap of the tail end may be adequate, but for the rope or thin wire then self tightening knots that do not knot the tensioned feed line should be used. This is an ugly but safe knot system....



TENSIONING

To maintain and control tension on a permanent installation, I use a 10kg heavy weight (old transformer). But I found this was not too effective, because the mass and the pulley friction would be slow at keeping the tension, resulting in the middle of the aerial bobbing up and down with the wind. So I tried adding some long coil springs out of a chest exerciser (was not mine) or cow fence types used in line with the aerial give quicker strain relief (no mass) than the tensioning weight, and maintain aerial tension better. I painted these to reduce further rusting and one mounted each end just before the insulators. This has stopped the bobbing around as about 0.5m stretch is available with no slow mass to allow for the wind and tree sway. A bunjee may have similar performance, but a short lifetime!

See my TECH bul on "Casting Lead Throwing Weights"

Why Don't U send an interesting bul?

73 de John G8MNY @ GB7CIP