

# Antenna Launchers

The art of hanging antennas has reached a new level

I do a fair amount of portable operating and need the ability to place antennas in trees. The antennas can be doublets or wire beams, and like all antennas, the higher the better.

For the last 10 years I have relied on a home-brewed slingshot. It is nothing more than a Marksman slingshot with a cheap fishing reel attached with hose clamps. The fishing line is attached to a one ounce lead sinker and then shot over the desired branch. When the sinker falls to the ground the sinker is cut off and mason's twine is tied to the end of the fishing line. Using the reel, the line is wound back over the branch and the fishing line is cut from the sinker. One end of the doublet is tied to the twine and pulled up and secured. This process is then repeated for the other end of the doublet. For heavier antennas the fishing line or twine can be used to pull up a stronger cord.

The above is an ideal description of how the slingshot launcher is supposed to work. However, several problems arise during actual use. First, the sinker seldom goes where it is aimed. If it hits a tree trunk or branch and reflects, anything in the vicinity (cars, campers, people, etc.) is then susceptible to bombardment from above. Obviously, this can be very dangerous. Second, the sinker hits the target but continues on to become entangled in other branches. The solution is to cut the line and tie on another sinker. Third, the slingshot launcher can't get the line higher than 50-60 feet so a lower elevation is used.

The list goes on, but the end result is that I have spent many hours trying to get my antennas up. Sometimes the slingshot launcher works the first time, but there have been many times when the frustration level takes over and I have to try it at a later time. My latest attempt to suspend a 44 foot doublet at 100 feet has convinced me to look at alternatives.

My research led to the Antenna Launcher website<sup>1</sup>. I was fascinated at the extent to which pneumatic launchers have developed. The general idea is that air from a bicycle pump or tire inflator is stored in a pressure chamber. A tennis ball is attached to line from a fishing reel or bow fishing reel and placed in the barrel. A trigger then releases the compressed air through the barrel sending the tennis ball to altitudes of 150 feet or more. The pneumatic launcher is built from PVC pipe and fittings. A sprinkler valve, pressure gage, relief valve, and an air gun trigger complete the launcher.

I decided that the CSV19 launcher would be perfect for my use and began studying the assembly instructions. I was hoping for a detailed drawing with the various parts labeled but didn't find one. So, I began sketching the assembly and realized that I would need to cut odd sized holes in two of the PVC fittings to a close tolerance. Also, one of the PVC sizes is not available locally and would have to be ordered. I spent some time looking at ordering all of the pieces plus a few tools and decided that the CSV19 Kits from Alan Biocca<sup>2</sup>, WB6ZQZ, were a pretty good deal.

## **CSV19 Assembly**

The kit arrived and I was pleased to see that the Pressure Chamber End cap and the Barrel End cap holes were professionally cut. Assembly was straightforward using the instructions provided online. I provided the PVC primer, glue, fishing reel, and tennis balls and was ready to try it in a few hours.

For those of you who like to read and study drawings before starting a project, I have turned my sketches into assembly drawings. A referenced materials list is also included to help identify all of the parts of the assembly. Also included is a picture of all of the launcher pieces before assembly. Study the drawings and pictures to get an idea of how the launcher goes together.

Applying primer and glue to PVC and assembling the pieces isn't hard to learn. However, keeping visible PVC joints and surrounding surfaces free from glue and purple primer is a different matter. After the first couple of joints I learned to place a circle of *FrogTape*<sup>™</sup> (masking tape) on the outside of the joint line before applying primer and glue. Assemble the pieces, and after a few minutes, remove the tape for a nice clean joint. On unpainted pieces (Upper and Lower elbows) I recommend covering the whole elbow with tape before priming and gluing. The only way I have found to remove purple primer from PVC is by sanding or a Dremel polishing wheel. However, either method dulls the shiny PVC fitting finish.

I have included a drawing of a revised version of the CSV19 that doesn't require boring precision holes in PVC pipe caps. I haven't built this version but it definitely looks feasible. This version is about two inches longer than the CSV19.

## **CSV19 Launching**

After having used the slingshot launcher for a number of years I have only one comment about the CSV19: Wow! With 50 psi air pressure I can launch my line anywhere I want the first time. The weighted tennis ball is much safer than a lead weight, very accurate, and penetrates tree foliage with ease. As with any launcher, pay attention to what you're doing and follow all safety precautions.

The pneumatic launcher costs more, requires a tire pump, and is bulkier than my slingshot launcher, but the pros more than outweighs the cons. I can now spend the majority of my time testing and operating instead of hanging antennas.

Allen Baker, KG4JJH  
[www.kg4jjh.com](http://www.kg4jjh.com)

## References

1. Pneumatic Antenna Launching Systems, [www.antennalauncher.com](http://www.antennalauncher.com)
2. A.K. Biocca Engineering, [www.akbeng.com](http://www.akbeng.com)