

The Comet SBB-15

Amateur Radio projects are often born out of necessity and lack of anything available commercially. That has been the case for several mobile antenna spring projects for antennas made in Japan. Apparently, the Japanese do not have much problems with trees and obstructions because they build long mobile antennas that are extremely rigid. That rigidity, where I live, has cost me hundreds of dollars in multiband VHF-UHF high gain antennas being broken. This project began because of my Comet SBB-15 contacting a tree limb hanging out over a rural country road that I have lived on for more than 40 years. In the past, I have always tried to mount my MFJ, Diamond, and Comet Antennas low enough on my vehicles to avoid tree limbs. It has helped increase their life expectancy but it has hurt performance from my rural location.

The other day, I moved my SBB15 Comet off my bumper, where it performed very poorly, out to the hood of my Suburban. Doing so gave it a better counterpoise to operate on and moved the radiator into a location not hindered by body proximity. That move, within two days, cost me the upper coil and top whip of my antenna. The replacement part is now in shipment for a cost of more than \$30.00.



I have broken the same coils and whips of several a Diamond SG7900A antennas and two MFJ 1432 antennas which are basically the same antenna as the SG7900a. I looked for way to mount a spring to the MFJ antennas. The original ideas never worked using a couple of older antenna coils that I never replaced the whips because I could purchase the entire antenna for not much more money.

When I broke the SBB-15, I again started looking for a way to mount a spring. The Comet antenna uses a different physical design to the coil than the Diamond/MFJ and that challenged my thinking. It finally occurred to me that it might be possible to thread the top of the coil to a 3/8x24 SAE thread which would enable the easy mounting of a non-tapered spring. One thing I did not want to lose was the ability to fold the whip down. After a few measurements, I realized that by threading the top 5/8" of the coil, I could retain the ability to unscrew the locking nut and fold the antenna over. Before starting, be sure to measure the whip length settings. From the top of the base coil to the first coil in the whip. The 5/8" mark was just below the lower set screw hole. If one has a metal lathe, it would probably be much quicker, more accurate, and a lot easier to cut down the top of the whip mount. However, since I don't own a lathe, I used a grinder. By using the side of the grinding wheel and rolling the coil in my hands while grinding, I was able to take off enough metal to be able to use a 3/8x24 die to thread the whip



mount for a standard steel spring. I ground the top down to 7/16" of an inch and then put in a vice and cut the threads. The final step, of course, is to cut off the excess whip to maintain the proper length of the overall whip with the new spring on the base coil. The length of the whip to the first coil will vary according to Comet as it is a factory-tuned antenna. Keep the length combined length of the lower set screw + spring + whip to the coil the same as the original factory length and it should work without any problems. That is how I cut mine.



The finished project will look like this. Most of the straight springs I have looked at all had a one piece 3/8x24 stud on one end of the spring and a threaded hole on the other. Mounting the spring to the coil requires a 3/8x24 antenna mount nut.

The Diamond SG7900a and MFJ 1432

These antennas were easier to work than the Comet. I used the same technique but the Diamond and MFJ have a reduced whip mounting that provides a limit to the grinder. I again used the side of the grinder wheel and rolled the coil as I ground it down using the lip as the gauge for the depth of the threads. Again, be careful not to over grind when removing excess to be able to thread the top. I also used a micrometer on these coils to keep from over grinding. Use the same technique when cutting the lower whip section.



One thing that this mod will help stop is the problem of the Diamond and MFJ antenna vibrating at highway speeds causing the antennas to gradually inch up and lay over. I had fought this problem caused by an internal spring not designed for Texas highway speeds. The spring helps stop that vibration that pulls the fold over section to pull up and out at 70mph.

