KC6KWP's NEW ANTENNA PROJECT

March 2019

Background:

From 1994 until December 2017 I lived in a nice home on a large lot (read that 2 days a week yard work). In December 2017 my wife and I moved into a mobile home park and an 1800 square foot mobile home (read that – no yard work to speak of).

In my former location I had a garage with a built-in room to use as my HAM shack. I had an HF rig, a 2M rig, and equipment to do PC controlled digital work. My last and favorite antenna was a long wire (90+ feet strung between two trees and a 233 foot counterpoise mounted at about 4 feet).

During the first year at our new location I was able to use a (not so) Super Screwdriver temporarily mounted on a tripod and several temporary versions of a "BuddiPole" to make a few QSO's. All the equipment was disassembled each night and put out of sight.

The mobile home park is a 55+ age facility with a Home Owners Association and reasonable requirements for any outside construction. They do semi-annual inspections and have a 'compliance committee' to approve and monitor outside construction.

At 78 I don't work fast and normally over think a situation. When time permitted (and I got around to it) I prepared a project plan. The project plan was submitted and quickly approved. I received a call from the person representing the compliance committee (a former CalTrans employee) and arranged a meeting for the following day. The project was approved.

Project:

The day following project approval I ordered a Tarheel M75A-PKG antenna package from HRO. This order included an antenna, mounting bracket, and enough cable to mount it on a car or truck. The assembled package has a motorized variable length coil assembly that is 18 inches long when extended and has a 6 foot top-mounted whip. This assembly was mounted to a 10 foot galvanized pipe that is rated as 1 inch in diameter. The 10 foot pipe section had an 18 inch nipple connected to the top and the Tarheel assembly attached to it. The complete pipe and antenna assembly was mounted to a short 4x4 post that is part of an equipment modesty shield surrounding an A/C unit.

The Tarheel antenna requires a coax to carry the radio signals, a ground or counterpoise wire, and a low voltage control wire to expand and contract the coil in the Tarheel. Currently, the counterpoise is mounted on the roof of the mobile home. The other cables were passed through the pipe mast so they are not seen and are protected from the weather.

At the base of the mast a circular hole was cut in the home skirting to pass the antenna and control wire under the home and up to my radio room. A trip under the mobile home determined that (probably) a drilled hole would not hit the steel foundation of the home. My 8 inch by .75 inch wide bit was not long enough to drill all the way through. However, I used part of a metal clothes hanger as a bit to finish a pilot hole. Then, I was able to go under the home (again) and finish the drilling from there.

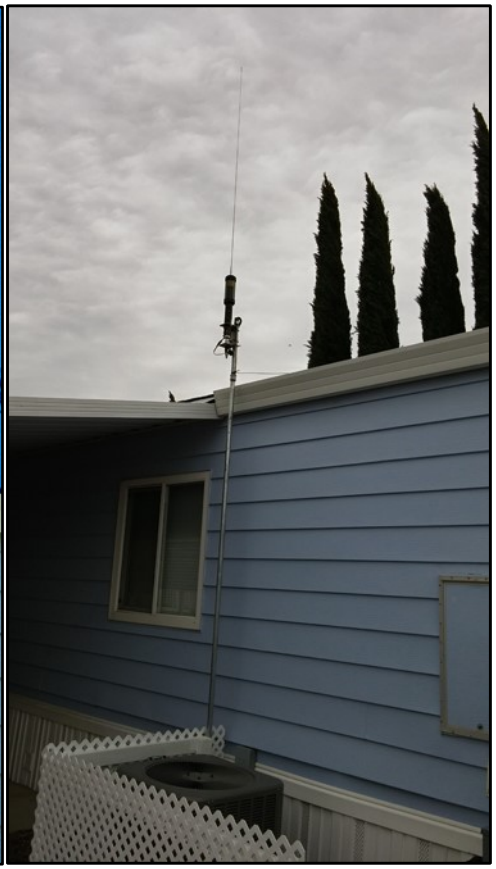
Coax and control wire were attached to the antenna at the base of the mast. Tests were run using an MFJ 269 and showed that an acceptable SWR could be obtained from 3.5 Mhz (80M) up to 30 Mhz (10 M) and all points between. Long coax wire and control wire were stretched up the stairs and over the floor to try the connections to the radio. However, I first tested the SWR and control with the MFJ 269. I assumed (wrongly) that all would work O.K.

Next, I passed the coax and control wire through the floor of the radio room and a friend pulled the wire from under the home (again) to near the base of the mast. The 2 coax cables were connected through a 'barrel' connector. After cleaning up my mess and organizing things it was time to try for a QSO! No luck! Time for dinner and a nap and "let's think things through".

The next day I started at the radio and worked my way towards the antenna mast. The first thing I found was the antenna controller was not working. Two issues surfaced. I was powering the antenna controller (3 amp draw) through a 1 amp fused circuit. A 5 amp fuse was used until I could find a 3 amp blade fuse to replace the blown 1 amp fuse. The antenna controller came with a 4 wire cable that had to be extended about 75 feet. Only 2 of the 4 wires are actually used and I made a color mistake in one of the splices. That seems to have fixed the controller for tuning the antenna.

I decided to check the coax from the radio to the barrel connector for dB loss, SWR, and apparent length. As soon as I went to disconnect the coax at the barrel connection, it was apparent the 2 connections were loose – my fault! After re-connecting the coax it was time for test QSO two. I tuned the antenna for 20 meters mid-band knowing that would provide acceptable SWR for PSK through the top of the band. There was not a lot happening on the band. However, using PSK I made a contact with Tony in Long Island, New York and another contact with Suke in Fukashima, Japan.

I plan on painting the antenna mast to blend in with the home colors. I am also going through my radio menus and setup to fine tune it and the SignaLink controller. I am not comfortable with my antenna tuning procedures and have not yet tested SSB voice. I expect to connect the antenna coax to the MFJ 269 via a coax switch and use the other position of the switch to connect to the radio. This way, I will be able to adjust the antenna to my desired operating frequency and not rely on the radio AT tuner. I expect to have a few more problems to work through. Fortunately, I enjoy this kind of work.



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