

The Repair of the Hi-Gain 18AVT Antenna

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A common fault with 18AVT antennas seems to be the top coil going open circuit. This was the fault with mine. I sought advice via the packet network and got replies from South Australia and Canada. Both replies suggested that the end caps could be driven off the outer casing as it is only glued into the end caps.

Well they must have used better glue on mine because I could not budge them.

The casing of the coil was made of fiberglass not some form of hard plastic or ceramic as I had previously thought. So nothing to be lost I sawed the end caps off the tube. The construction is an inner tube with the loading coil wound on it and slipped inside the outer fiberglass tube. The coil is connected to screws in the aluminium casting inside the end caps. The screws were steel and had rusted out.

As you will have lost some length from the outer tube by cutting off the end caps you will need to cut the same amount off the inner coil former. You will probably need to remove a few turns from the coil but they can be tucked up in a coil inside the former.

As we are trying to do a better job than Hi-Gain I drilled two more holes into each of the castings and tapped them for 1/8th screws. Don't go down more than 3/8 inch or you will come out

through the end cap. If you don't have a 1/8th plug tap then go and buy one it will be well worth the effort. The biggest failure with this coil would seem to be poor connection between the wire and the aluminium casting. I am not sure but I think the steel screw corroded the wire. To overcome that problem I used brass screws and two of them to decrease the connection resistance and improve the chances of maintaining a good connection over a long period.

I had originally intended to solder the wire to the screw heads but I discovered that the wire is aluminium! Using brass washers under each screw head I wound the wire around both screws. It would be better to make some aluminium washers and so further reduce electrolytic corrosion. Go gently with the wire as it is very brittle.

After connecting one end of the coil to the screws araldite the outer former into the end cap. Before it sets check that you have a connection from the cap to

the other end of the coil. After it sets repeat with the other end of the coil.

As the overall length has changed a little and the coil might have lost a couple of turns you may have to adjust the top whip a little. However you should now have your multiband vertical antenna back in operation.

After I reassembled the coil I found that the tube below the coil was loose. It would not come off and I could not see how it was attached to the coil. Using a multimeter wriggling the tube caused a break in the connection to the bottom end cap.

It was a very brief interruption but would play havoc with the swr.

To fix this problem I drilled three small holes into the tube close below the coil and drove some stainless steel self tappers into the tube and into the internal part which is attached to the coil. This stopped the movement and has made the fitting rigid.