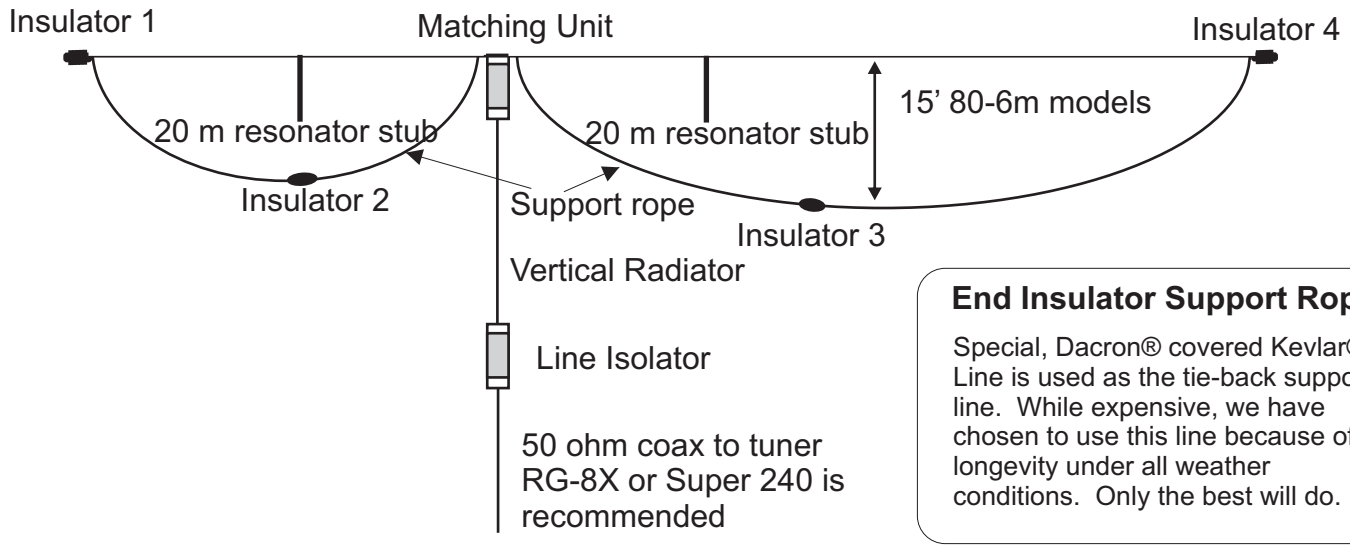
CAROLINA WINDOM® 80 Compact™



End Insulator Support Rope

Special, Dacron® covered Kevlar® Line is used as the tie-back support line. While expensive, we have chosen to use this line because of its longevity under all weather conditions. Only the best will do.

There are several differences between the CAROLINA WINDOM® 80 and the CAROLINA WINDOM® Compact 80™. From the diagram above, it is obvious that the new "Compact™" series is much more complex, in that it has 20 meter resonator stubs and it's top elements are folded back toward the matching unit.

Folding the elements shortens the overall length of the antenna dramatically, achieving a nearly 50% length reduction. The dimensions and geometry of the folded element are critical and we have installed insulators # 1 and #4 at specific points. ***To maintain performance and SWR curves, do not move the insulators.*** The droop distance is less critical but for best results, the installation instructions which follow should be followed closely.

Inverted-Vee Configuration

It is best to install the antenna as a flattop, as shown. The CAROLINA WINDOM® Compact™ can be installed as an inverted-V, but the angle between legs must be as large as possible. An inverted-V configuration brings the folded-back ends of the antenna closer together and much closer to the Vertical Radiator. This can alter the tuning and radiation patterns of the antenna. Never use an angle between legs of less than 130°. An angle greater than 140° is recommended.

As with all *multiband* antennas, an inverted-V configuration with an angle less than 120° between legs will result in loss of low angle radiation. This effect is not unique to the CAROLINA WINDOM®, but applies to all multiband antennas not operating on their fundamental frequency. Moving the elements closer together results in signal cancellation and alteration of the radiation pattern. Essentially, you loose the low takeoff angles required for the long propagation paths necessary for DX operation. Keep the angle between legs larger than 140° and this effect will be minimal.

If you must use a smaller angle between legs, add a few feet to the length of the black line which holds the ends of the antenna to the matching unit. This will increase the droop and move the ends of the antenna further from the Vertical Radiator. ***Consider 130° between legs to be the absolute minimum*** and increase the element end droop as much as possible consistent with an acceptable change in SWR which will result from the change in element geometry.

20 meter Resonator Stubs

One other addition to the CAROLINA WINDOM® Compact™ are the 20 meter stub resonators. These lower the resonant frequency on 20 meters which lowers the SWR. 20 meter performance is further enhanced by the addition of the resonator stubs. ***Do not modify or eliminate them.***

Caution KEEP ANTENNAS AWAY FROM ELECTRIC UTILITIES.

Read and apply all applicable information which precedes this page. Review in installation and weatherproofing proceeders in the Product Manual.

___ 1. Install antenna support ropes. Use the pulley system descried on page 9 of the Product Manual.

___ 2. The antenna should be in the clear and far away from anything metal - **ESPECIALLY Power Lines.**

___ 3. If a metal center support is to be used (i.e., a tower or mast, see page 17 of the Product Manual for details).

___ 4. The antenna should be as straight as possible. Read the information on the previous page for information concerning inverted-V configurations.

___5. The configuration and geometry of the antenna should not be changed as far as the location of the insulators is concerned.

The wire ties are color coded to aid in the installation of the antenna
Cut them as directed in the instructions which follow.
White wire ties **are used at random in conjunction with colored wire ties. They help keep the various parts of the antenna in neat sub-parts. Cut them as necessary to free the wire you are working with.**

___ 6. Once the support ropes are installed and secured, lay the antenna assembly on the ground and cut the **ORANGE** wire ties. There will two sets of wires connected to the matching unit. The long side of the antenna is identified by yellow wire ties and the short side by red wire ties.

___ 7. Cut the RED wire-ties on the short side of the antenna. You how have two coils of wire. One is made of stranded #14 hard drawn copper and has a short, black insulated wire attached. The second wire is an insulated #14 stranded wire. All of the coils are separately held together with white wire ties. You will cut the white wire ties at the proper time. This avoids wire tangles, so don't cut them before directed.

___ 8. Cut the WHITE wire ties on the #14 bare, stranded copper wire and uncoil it using a hand over hand motion. T*his is important to avoid kinks and tangles.*

At this time, don't bother unwinding the short, stiff wire located about 16' from the matching unit. Don't unwind the insulated wire until step # 22.

___ 9. Carefully tie your antenna support rope to insulator #1 (see diagram on proceeding page). This is the insulator closest to the matching unit.

___ 10. Cut the **YELLOW** wire-ties and unwind the long end of the antenna on the ground. **Do not** cut the white wire ties at this time. Follow the instructions in step #8 to unwind the wire.
At this time, don't bother unwinding the short, stiff wire located about 16' from the matching unit or the coil of insulated wire.

___ 11. Carefully tie your remaining antenna support rope to insulator #4. This is the insulator closest to the matching unit on the long leg of the antenna.

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___ 12. Pull the antenna a few feet into the air. Carefully remove any kinks and twists in the bare copper antenna wire. *The two coils of Black insulated wire will be hanging from the end insulators.*

___ 13. Cut the WHITE wire ties on the insulated wire on the short end of the antenna. Lay this wire out on the ground using a hand-over-hand motion.

___ 14. Cut the White wire ties on the insulted wire on the long end of the antenna. Lay this wire out on the ground using a hand-over-hand motion.

___ 15. Pull the antenna into the air so that you can easily reach the matching transformer.

___ 16. Apply coax Seal to the two WHITE WIRES exiting the Matching Unit as directed on page 3 of the Product Manual.

___ 17. "Kneed" (squeeze and press) the Coax Seal™ again to assure a perfect seal. Make sure it "whets" (sticks) to the case and to the wire.

___ 18. You received a length of coaxial cable with two PL-259 connectors installed. This is the *"Vertical Radiator."* Screw one of the Vertical Radiator's PL-259 connectors onto the Matching Transformer's mating SO-239 connector. Tighten with hard finger-thumb pressure. Apply Coax Seal as shown on page 3 in the Product Manual. Make sure it "whets" to both the coax and the Matching Unit's case.

Do not cover the hole in the bottom of the matching unit's case.
NOTE: Connect the coax so the hole in the bottom of the Line Isolator is pointed down.

___ 19. Optionally, cover the Coax Seal with electrical tape (not supplied with the antenna) to keep it clean.

___ 20. You received two short lengths of small, black Dacron® covered Kevlar® line in the package. This type of line should last for many years in the sun. It is extremely strong. Each line is approximately 12 feet long, so they are interchangeable. This Kevlar® line holds insulators #2 and #3 to the matching unit, folding the bottom part of the antenna back toward the matching transformer. Insulated, #14 stranded wire is used to assure the proper shape and esthetics of the bottom element. There is no load on this wire, so flexibility, not strength is the reason this particular wire type was chosen. It will not kink or tangle like high strength wires tend to do.

Tie one end of each of the Kevlar lines through the empty hole in the #2 and #3 insulators.

___ 21. Tie the other end of each of the black lines through the appropriate eye-bolt on the matching unit. The lengths of the support lines are pre-measured, so use the entire length.

___ 22. There is a stiff, #12 insulated black wire on the long and short wire elements. They are attached approximately 16' from the matching unit. Straighten out these black wires and let them hand vertically from the horizontal wires. For esthetic reasons, you will want to make these wire as straight as possible. Solid wire is used and once bent into shape, it will hold that shape.

___ 23. Pull the antenna further into the air so that the bottom end of the Vertical Radiator is easily reached.

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___ 24. Screw the remaining PL-259 on the lower end of the Vertical Radiator coaxial cable into one of the SO-239 connectors on the Line Isolator. It doesn't matter which end of the Line Isolator **UNLESS** there is a small drain hole in only one end of the Line Isolator, make sure the hole is toward the ground.

___ 25. Attach your coaxial cable to the remaining SO-239 connector on the Line Isolator. Apply Coax Seal to each of the two coaxial connectors on the Line Isolator. RG-8X or Super 240 coax is recommended. Super 240 is a low loss, high power version of RG-8X and is available from the RADIO WORKS®. Light weight coaxial cables are recommended because they put less physical stress on the antenna.

___ 26. Pull the antenna into the air. Don't Pull the antenna up tight. It performs best when the ends are slightly higher (1 or 2 feet) than the feedpoint.

___ 27. Let the Vertical Radiator swing in the "breeze." DO NOT TIE or RESTRAIN IT SO IT CAN'T MOVE. Doing so will cause antenna or connector failure during high winds.

___ 28. Before applying power, measure across the PL-259 at the radio end of your coax. You should have resistance reading of about one-ohm. This is normal. If you use an antenna analyzer, you will find a resonance around 3650 kHz +/- 50 KHz. On the higher frequency bands, except for 20 meters, resonance will occur just above the band limits. On 20 meters, resonance should be about 14.2 MHZ.

___ 29. Connect your coax to your tuner and enjoy your new, high performance antenna.

