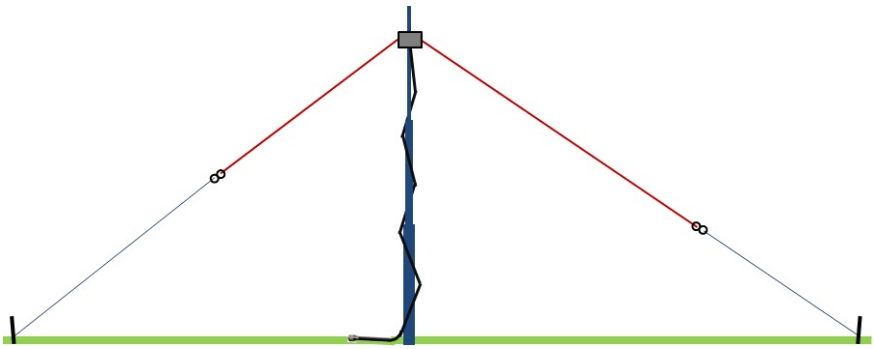

Aerial-51 Model 404-UL

7-Band, 200w

High-Performance

Asymmetrical Inverted-V

For Portable & Fixed-Station Installations

40/20/15/10/6m

(plus 17/12m with antenna tuner)

Instruction Manual

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DESCRIPTION:

The Aerial-51 Model 404-UL is a lightweight, high-performance **Asymmetrical Inverted-V** – (NOT A DIPOLE). It is purpose-designed for use with Spiderbeam lightweight telescoping fiberglass poles, but may also be used with other types of masts. It covers five bands (normally) without an antenna tuner, plus several more bands with a tuner.

The **Model 404-UL** now uses new Kevlar-reinforced wire, improving its breaking strength significantly. It is much less prone to tangle or kink than the wire previously used in the 404-UL, making it ideal for use in the field. In addition, its increased strength makes it ideal for permanent installations.

Bands Covered / Power Rating:

- 40m, 20m, 15m, 10m, 6m (SWR < 2.5:1) / 200w SSB/CW
- 17m, 12m (with ATU; SWR ~ 4:1) / 200w SSB/CW
- 30m (with ATU – SWR abt. 8:1) / Max. 50w SSB/CW

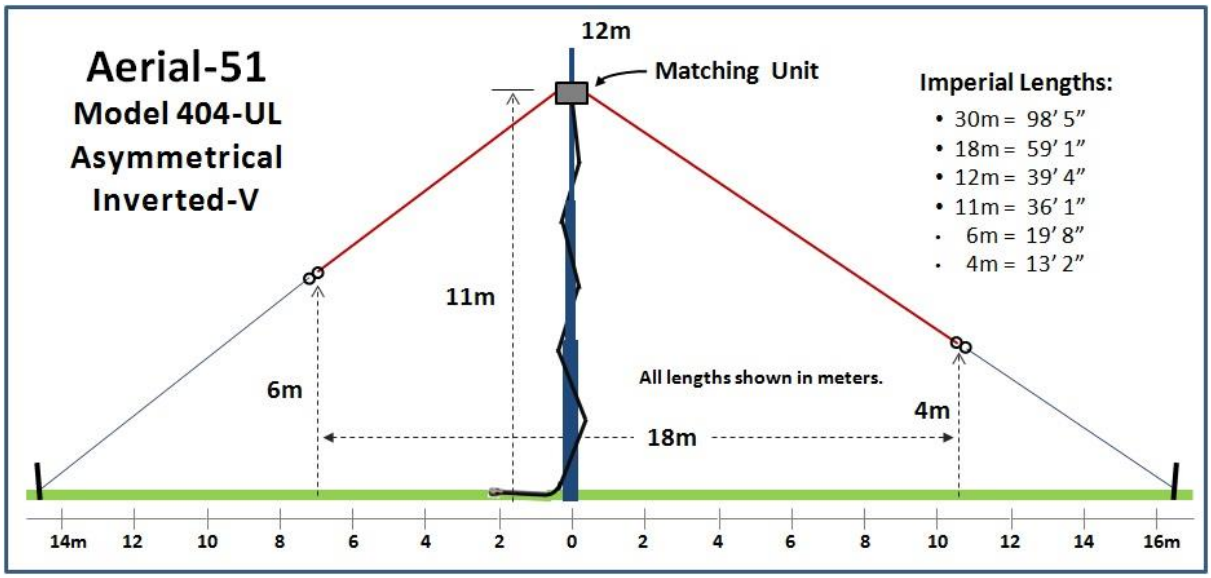
Physical Description:

- Overall Length: Abt. 20,7m (68 ft.)
- Coax Length: Abt. 12m (40 ft.)
- Weight of Antenna: 255 gr. (9 oz.)
- Weight of Coax: 180 gr. (6 oz.)
- Overall Weight: 435 gr. (15 oz.)
- Stainless Steel Hardware
- Lightweight, Kevlar re-enforced, insulated, stranded copper wire.
- RG-174 U coax (lightweight; ideal for use with telescoping fiberglass poles)

It is an "Inverted-V" antenna – not a Flat Top Dipole.

It may also be used as a flat top dipole, as long as the balun/coax is supported by a pole, mast, or tree.

THEORY OF OPERATION:



The Model 404-UL is a half wavelength long wire antenna on 40m. Though it uses a different feedpoint position, it works similar to a classical OCFD or dual-wire fed Windom. Whereas the original Windom design only covers even harmonic bands, the 404-UL was designed to also cover odd harmonic bands.

It works great on 15m as well! The SWR on 6m is also good.

In addition to the classical hf bands (plus 6m), the 404-UL also works great on 17 and 12m. Its SWR is a little high on these two bands, and requires an antenna tuner, but its balun is hefty enough to sustain operations on those bands at the specified power level without damage to the balun.

The SWR is too high on 30m to allow matching with an antenna tuner and running full power. If you must use this antenna on 30m, REDUCE POWER.

DO NOT ATTEMPT TO RUN MORE THAN 50w ON 30m WITH THIS ANTENNA.

HEIGHT IS MIGHT!

The Model 404-UL was designed with lightweight yet high quality material, enabling it to be mounted high on lightweight telescoping poles. This is a huge advantage for portable operations. It also enables quick and easy installation by one person.

To enable placing the feedpoint as high as possible on lightweight telescoping poles, thin coax was chosen rather than RG-58, AIRCELL-5 or LMR-240. This helps keep the weight to an absolute minimum.

You may extend the feedline with any 50 Ohm coax.

The additional loss in power of this thin coax compared to RG-58 (12m/40ft.) is less than 1dB on 10m. It is much less on lower bands. The performance advantage of a higher feedpoint far outweighs the loss of a fraction of a dB additional cable loss.

INSTALLATION:

Due to its lightweight material, it is strongly recommended to use a center support (i.e. fiberglass pole) with this antenna, and slope its two ends at approximately 45 degree angles to nearby trees, fences, or extended to ground stakes with longer ropes. Lightweight rope is also recommended, such as the Spiderbeam 2mm Kevlar rope. Of course the ends may be mounted higher, even as a flat-top antenna, as long as the feedpoint is supported by a pole.

The **Model 404-UL** may be used with non-fiberglass poles or masts, such as aluminium, steel, or even wood. Trees make good center supports if you can keep the legs of the antenna out of the branches. Again, it is important to support the feedpoint.

DO NOT INSTALL IT USING ONLY TWO END SUPPORTS.

THIS COULD DAMAGE YOUR ANTENNA.

When fastening the ends of the antenna to their support (or ground stake), there should be a little slack in the line. Do not attempt to pull it tight. ***Let it Swing!***

Installation on a Spiderbeam 12m Fiberglass Pole:

When installing the Model 404-UL on a Spiderbeam 12m lightweight fiberglass pole, do not attempt to place the antenna all the way to the top of the pole. The antenna should be fastened at the junction of the top two segments (specifically, at the bottom of the top segment).

DO NOT: Assemble the entire antenna and pole on the ground then attempt to pivot it into an upright position. This might damage the pole.

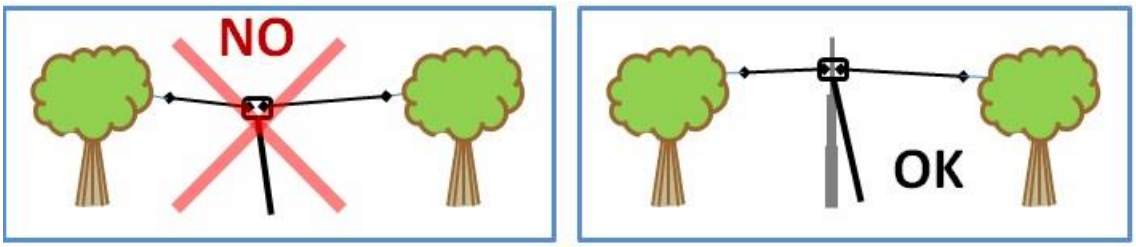
DO: Strap the collapsed pole to a solid object such as fence post or stake in the ground and attach the antenna. Then simply telescope it up, one segment at a time. If you are using the optional clamp set and guy belt, be sure and insert these over the top of the pole before securing the antenna to the pole.

For temporary operations and when you are certain it will not be a windy day, you may get by without any guy ropes. THIS IS ALWAYS RISKY.

For permanent installatons or use on windy days, the pole should be guyed in 4 directions at 7 meters height. This is the bottom of the 8th segment, counting from the bottom. Guying instructions are available from Spiderbeam on request.

INSTALLATION ALTERNATIVES:

The antenna may of course be installed as a flat top dipole, but then the feedpoint and coax should be supported by a pole or tree; otherwise the tension on the wire might break it.



DANGER: When spanned between two trees as shown on the left, swaying of the trees in the wind may possibly break the wire of the antenna. Therefore, always support the antenna at its feedpoint, and then droop the wire legs slightly. There is no need to pull them tight. That only places unnecessary strain on the wire.

BEWARE OF POWER LINES: Always erect the antenna a safe distance away from the nearest A.C. power lines.

KEEP WIRES HIGH ENOUGH – OUT OF REACH OF CHILDREN OR ANIMALS !!! Normally this is not a problem, but in some field installations when no elevated end supports are available, we typically extend the end support lines and run them to distant ground stakes. KEEP THE END INSULATORS HIGH ENOUGH to be out of reach of children.

FOR BEST PERFORMANCE: Erect the antenna away from nearby obstacles such as houses or garages. Obstacles can disrupt and distort the radiation pattern; installation near the house can cause bi-directional EMI – your transmitted signal may disturb consumer appliances, and the consumer appliances (i.e., wall-wart power supplies, LED lamps, and especially plasma TVs) may cause excessive noise level in your receiver.

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