

TF3DX/M



With the shorter top whip

It measures 4.67 m from the street and 3.44 m from the top down to the intake.

It is long enough to resonate on 160 m using the inside coil and tuner, a combination that works on any frequency through the HF range. Still it is low enough to get me through the traffic, except it just touches on a one low bridge in my neighborhood.



With the longer top whip

This way it reaches up to 6 m above the street, or 4.77 m between top and intake. One can drive around with it in rural areas with caution. But it only takes about half a minute to change tops, so it is no big deal to drive with the shorter whip normally and switch to the longer whip as circumstances permit.



The longer whip and a coil

I have 2 coils to put in the antenna itself, one for 160 m and another for 80 m. The inside tuner takes care of shorter wavelengths. A coil raises the current distribution on the lower bands for higher radiation resistance and efficiency.



The longer coil currently at hand is too short for 160 m, it happens to resonate at 2.2 MHz with the longer top and the difference is taken up by a coil inside the car. That is the antenna used for the QSO with JA7FUJ on 160 m CW, November 17th 2009.

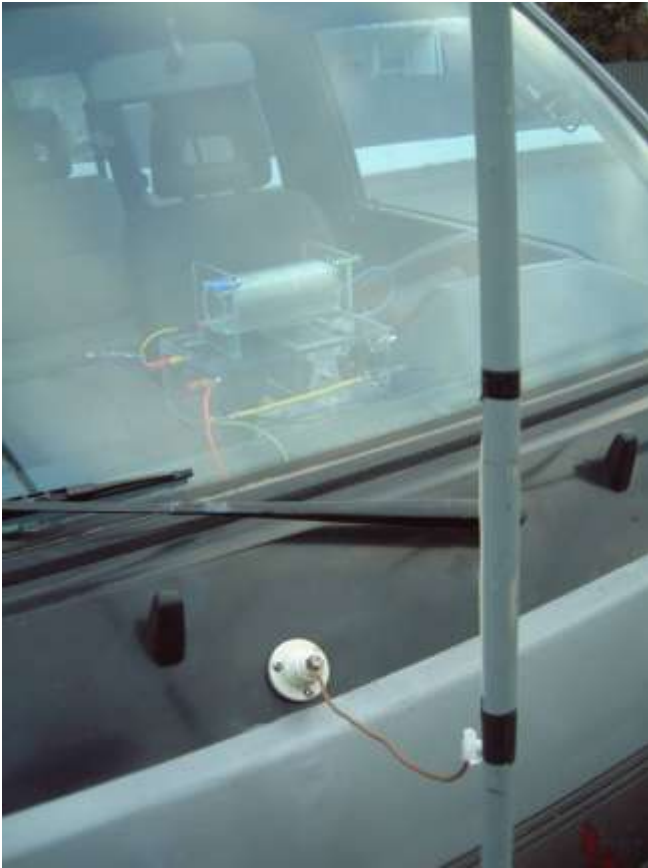
Top whips and 160 m coil

This picture shows the two whips and the 160 m coil. "Bayonet" couplings make it very easy to change whips and coils.

Lower part

The lower part is a strong fiberglass rod from a boat antenna. Alone it makes a decent receiving antenna when resonated with an inside coil at 80 m and up.

It may even be used for transmitting, especially on the higher bands.



The internal wire was removed from the boat antenna rod, so it may run lower than the intake. It plugs into an aluminum pipe for support and easy removal.

The pipe is fastened to a winch bracket with slightly rubber cushioned clamps. The fiber rod seems strong enough to absorb driving impacts. This arrangement is superior in stability to the usual spring mount system, whose swaying constantly kicked in the internal transceiver tuner on the lower bands, disrupting QSOs.

Up to several kilovolts are developed at the intake when the internal coil is used for resonating.

This calls for a decent ceramic feed-through and short leads to minimize capacitive current to the car body.





Note the high antenna current, close to 2.5 A on the thermocouple ammeter. What produces field strength is length times current in the antenna, not 50 ohm or 1:1 SWR as many people believe! Switched autotransformer accommodates the low resistance at resonance that results from minimizing losses, near 12 ohms on the lower bands.