



WA4DXP

Mobile Antennas

- ◆ Mounts, Antennas, Tuners
(or not) & grounding
- ◆ Presented by M.D. Smith

Mobile Mounts are made by Comet, Hustler, Diamond, Tarheel, MFJ, and many others.

They come in many styles so shop around for what suits you best for HF, or VHF/UHF.

They come in magnet mount, trunk or tailgate mount, cut holes in the vehicle mounts, bumper mounts, under frame mounts, hood mounts, and much more. Ones made to bolt onto a trucker mirror holder for CB can be used many places.

Visit: <http://www.theantennafarm.com/>



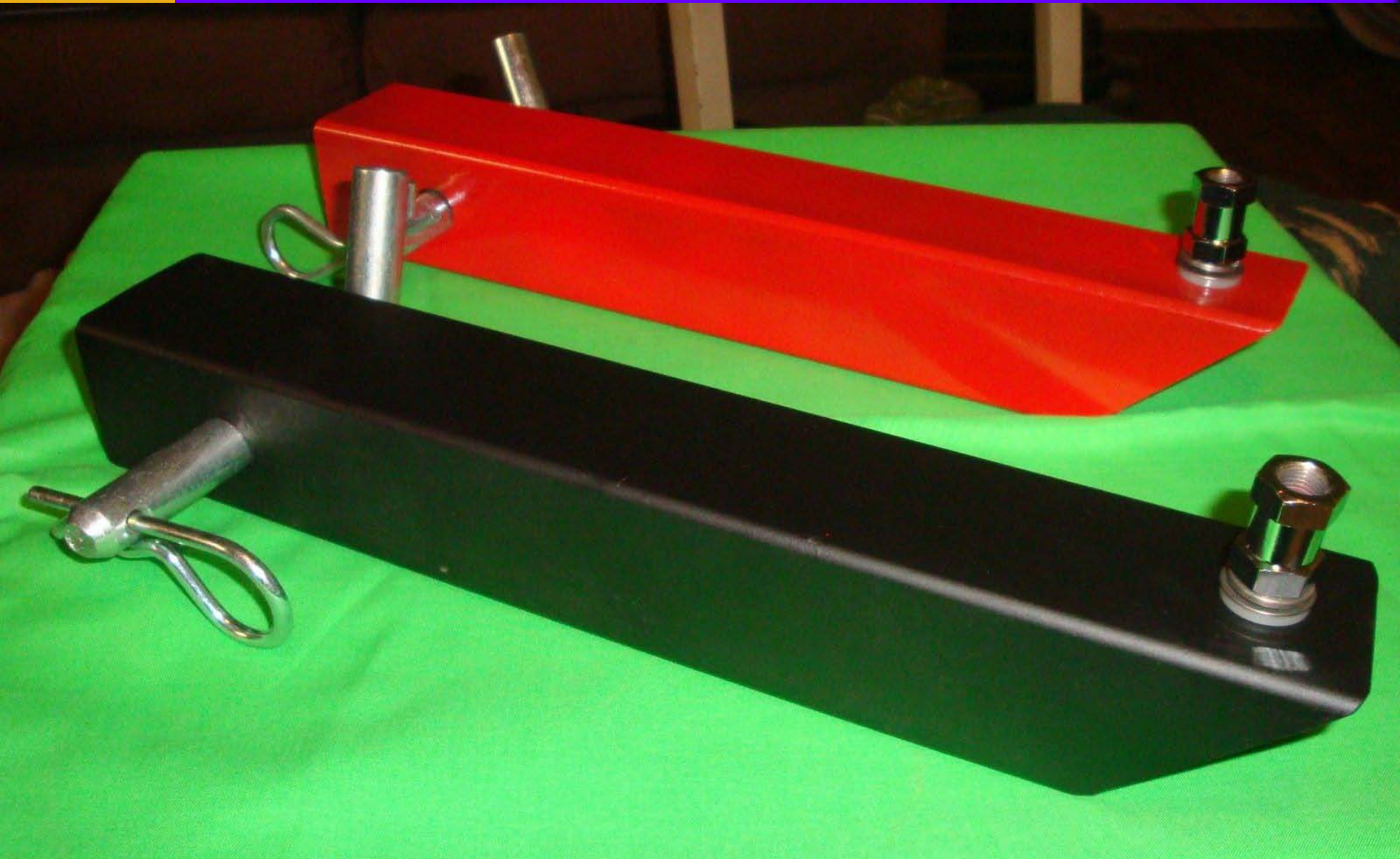
Bolt on antenna mount. . .



Same as used on heavy truck mirror mount

Sheet metal plate for mag mount & ground





◆ Mounts - 2" Hitch Insert mounts



Note: Right Angle Co-Ax connector used here, but with hole in bottom, it could be mounted that way.

Mounts: 2" Hitch Insert mounts & anti-rock bolt on plate

Mobile Antennas WA4DXP

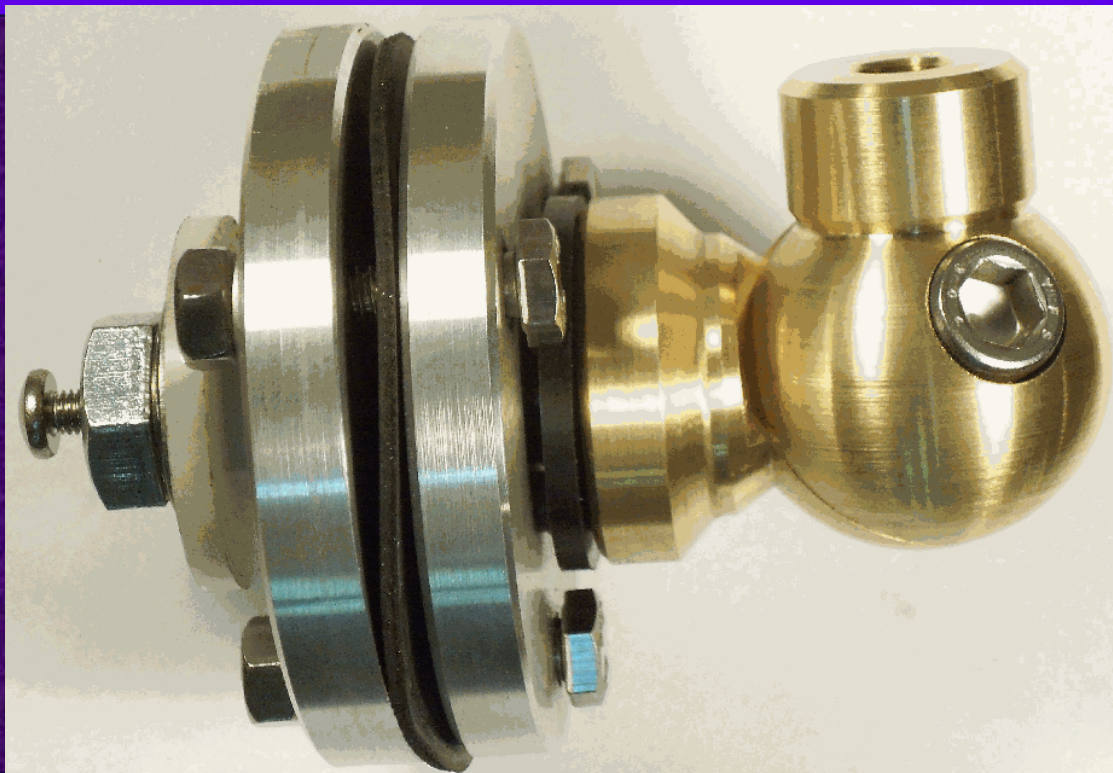


Not ideal for pickup when tail gate comes down.

- ◆ Mounts to bolt on existing trailer hitch under ball



- ◆ Mounts – cheap ball, stainless steel or all brass & stainless \$100 Breedlove?





Trunk,
hood or
hatchback
lip mount

UR

RB-400

radioshop888

Mobile Antenna Mount

<http://store.s.ebay.com/mit618> <http://store.s.ebay.com/mit618>

180° + 360°

2-axis adjustable

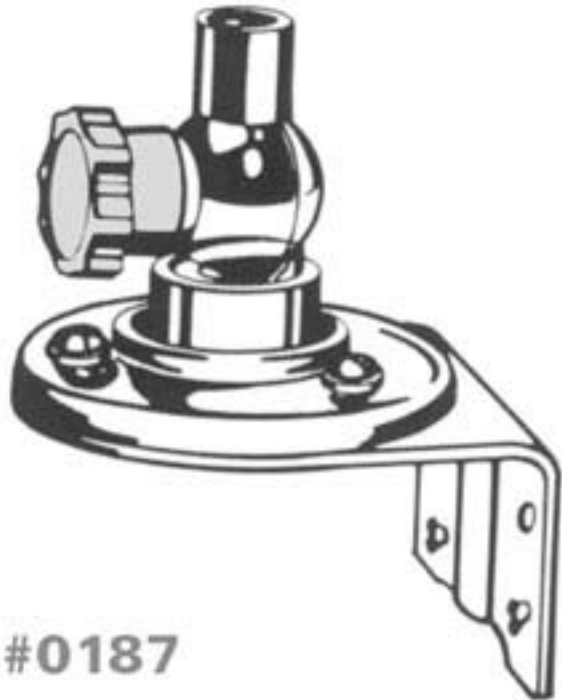
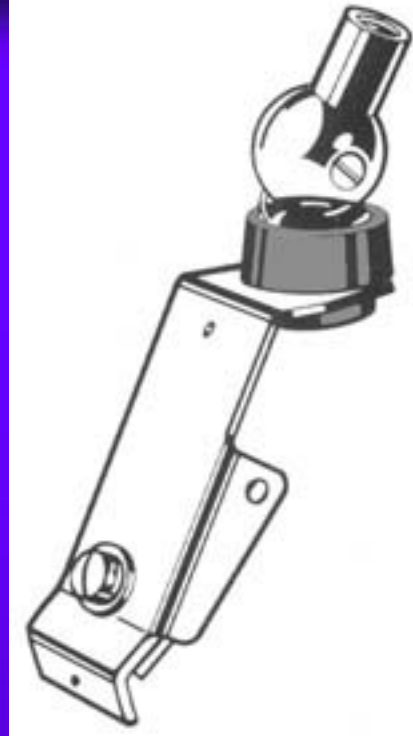
MADE IN TAIWAN

BRC ANTENNA

CAR Antenna Mount

<http://store.s.ebay.com/mit618> <http://store.s.ebay.com/mit618> <http://store.s.ebay.com/mit618> <http://store.s.ebay.com/mit618> <http://store.s.ebay.com/mit618>

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Bumper mount, tailgate, rain gutter
and bolt to side with adjustment ball
types of mounts.

#0187

◆ Magnet Mounts



UR

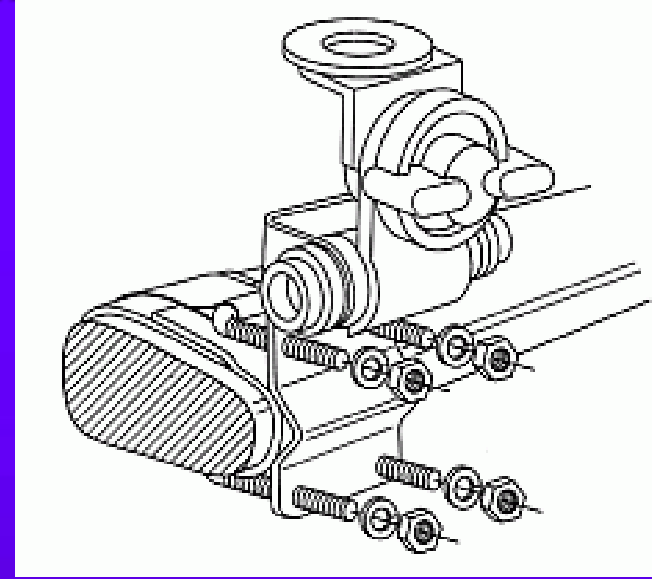
Come in ALL sizes and mounting pins from SMA & BNC to co-ax and 3/8" threaded. The triple mag mount is very difficult to remove. It's strong.





◆ Other Mounts

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So as not to cover license plate an offset hitch mount is made, and various truck bed mounts are available. Also the 1 1/4" inserts as well as 2".



◆ Tarheel Mounts



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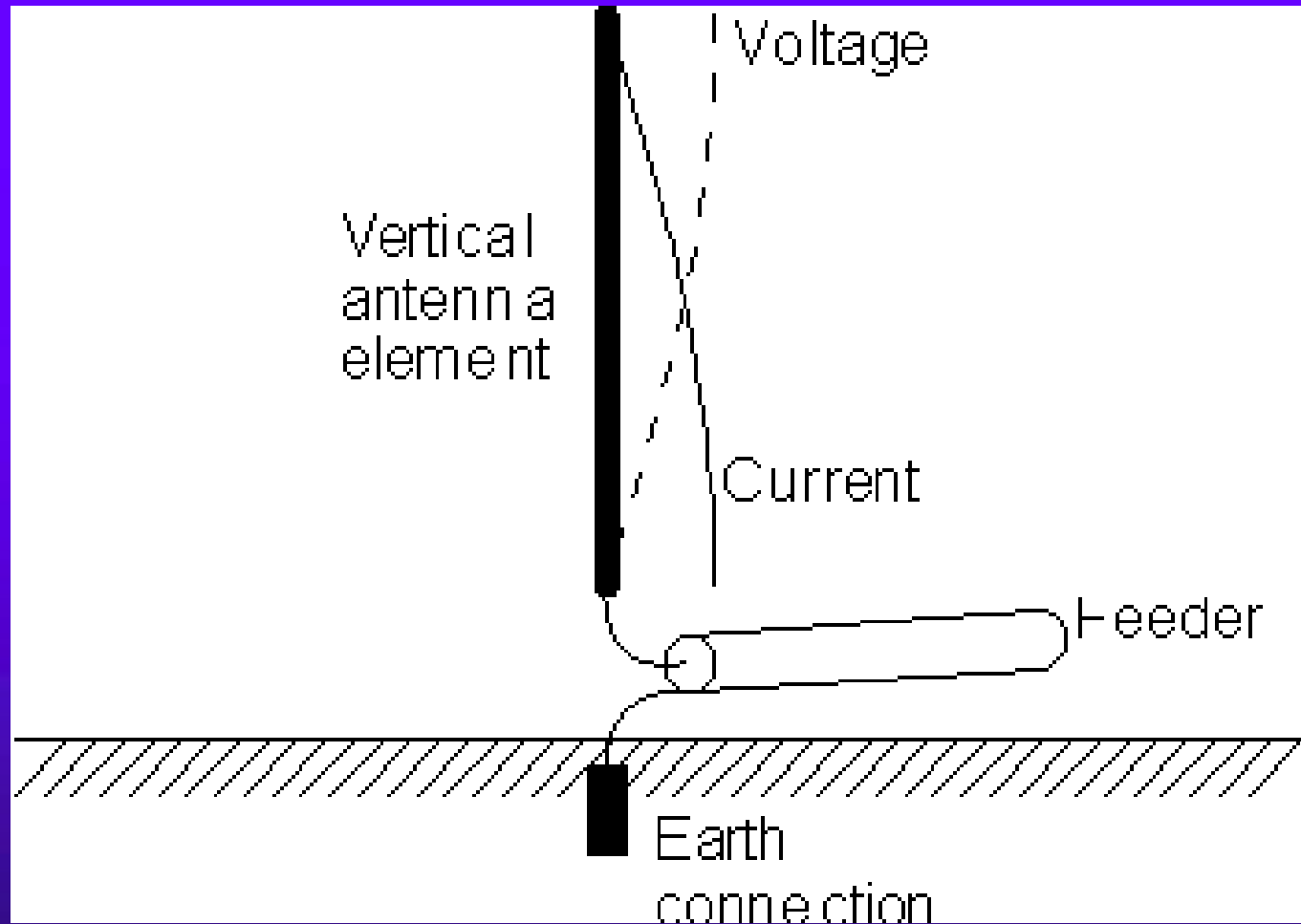


◆ Tarheel Mounts



I favor center loaded HF antennas. I know the screwdriver antenna is the most popular these days even if a bit pricey. And the “Hamsticks” I have used on my bike work very well, and have the coil near the top of the black 4’ section with adjustable steel whip on top. Hustler with the center loaded coils let the heavy radiation base section be straight. Base & coil needs to be clear of the car body if possible, or at least away from it. The antennas with the entire coil at the base I believe are least best unless they have a very long top radiator section. Roof mounted with a tri magnet would be best.

Mobile Antennas WA4DXP

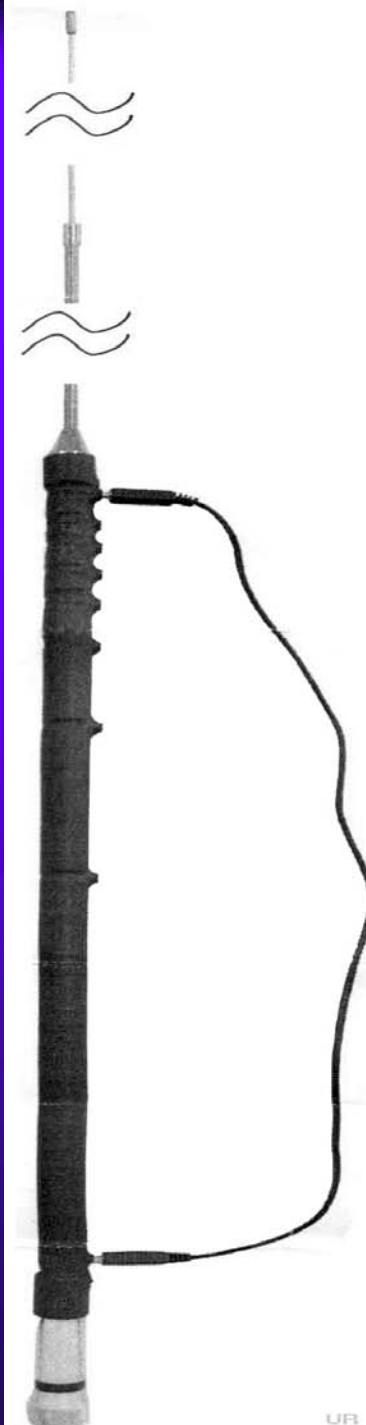


◆ $\frac{1}{4}$ wave antennas

Mobile Antennas WA4DXP (Best to ROOF mount this one since it's a base loaded coil at lower freq.)

FREQUENCY CHART

FREQUENCY / JUMPER POSITION	OVERALL LENGTH
80M BAND (3.7MHz / NO JUMPER NEEDED)	69.13 in 1756 mm
40M BAND (7.05MHz / JUMPER P1 to P2)	52.75 in 1340 mm
30M BAND (10.1MHz / JUMPER P1 to P3)	55.70 in 1415 mm
20M BAND (14.15MHz / JUMPER P1 to P4)	61.61 in. 1565 mm
17M BAND (18.2MHz / JUMPER P1 to P5)	60.23 in. 1530 mm
15M BAND (21.1MHz / JUMPER P1 to P6)	58.46 in. 1485 mm
12M BAND (24.95MHz / JUMPER P1 to P7)	59.25 in. 1505 mm
10M BAND (28.5MHz / JUMPER P1 to P8)	53.34 in. 1355 mm
6M BAND (50.5MHz / JUMPER P1 to P9)	55.90 in. 1420 mm
2M BAND (146MHz / JUMPER P1 to P9)	57.87 in. 1470 mm



◆ Antennas – Opek all bands for \$65

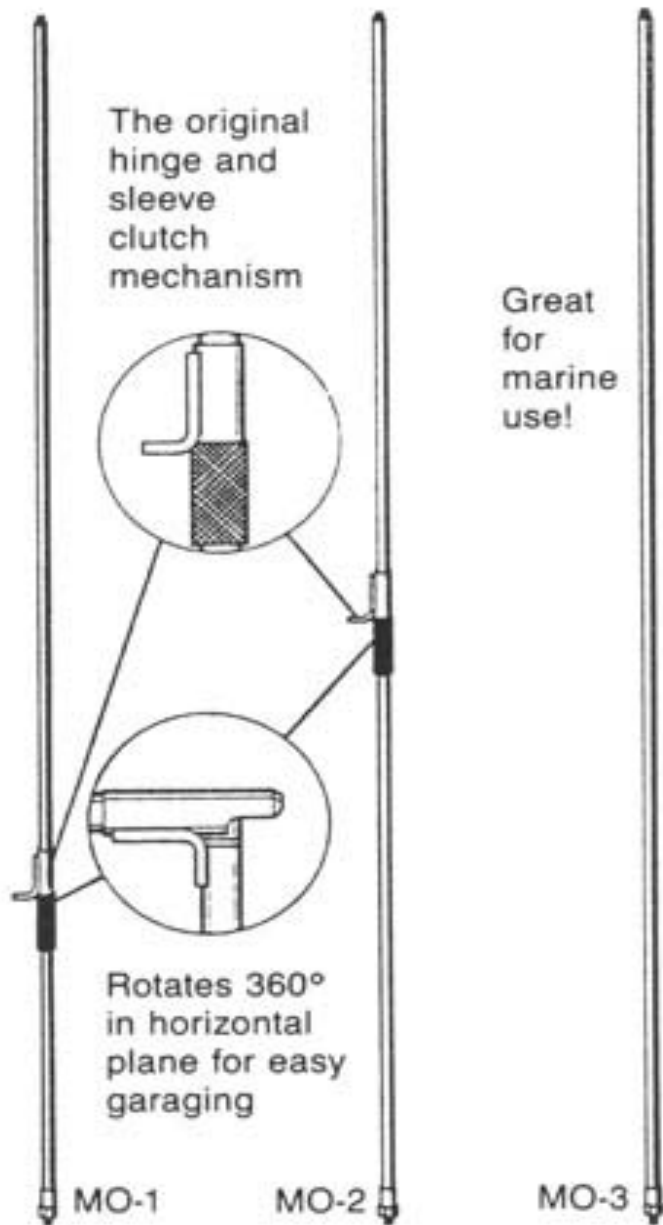


Do it yourself, just have a base, coil with a clip wire to tap in different spots and a whip and you are set for most bands. You mark your spots for each band as you tune them and you can usually go back to the center of the band of choice as you change taps.

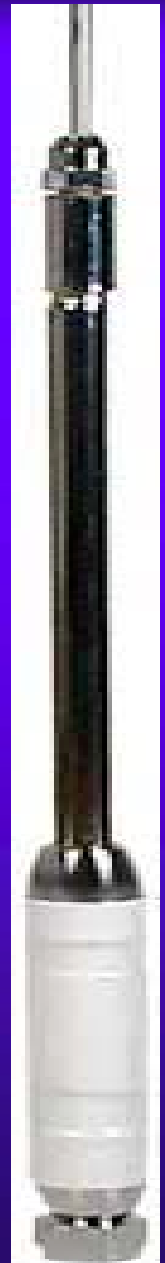
This looks like the MFJ antenna I have brought tonight.

◆ **Home Made Antennas**

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Hustler base sections 54" can fold at 27" or 15" from base. Either works on 6 meters with no coil or with coil attached. Solid base available. Coils are between \$17 and \$25 good for 400 watts and \$22 to \$48 for 1,000 watt coils. Quick Disconnect only for light antennas (20 & up).



◆ Antennas: Hustler base and coils



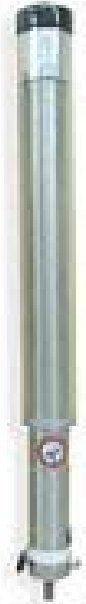
◆ Hamsticks in all bands \$19.00 each

Bulk of coil is near the top of the base section making it nearly a center loaded antenna. They work very well.

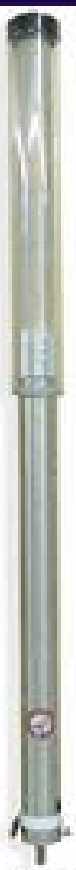


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Scorpion Antennas



Fully Retracted



Fully Extended



NOV 25 2007



Antenna, Screwdriver, 3.5-30 MHz, 3/8-
24 in. mount, 200W PEP, 73 in. max.
height, Motor Switch Included,
Kit - - \$390.00
SD330-3-8

◆ Diamond Antennas



**MFJ HF Portable/Mobile Manual
Screwdriver Antennas MFJ-1664**
80-6M (10' Whip), 40-6M (4.5' Whip)
Manual Screwdriver Antenna
Price: \$169.95



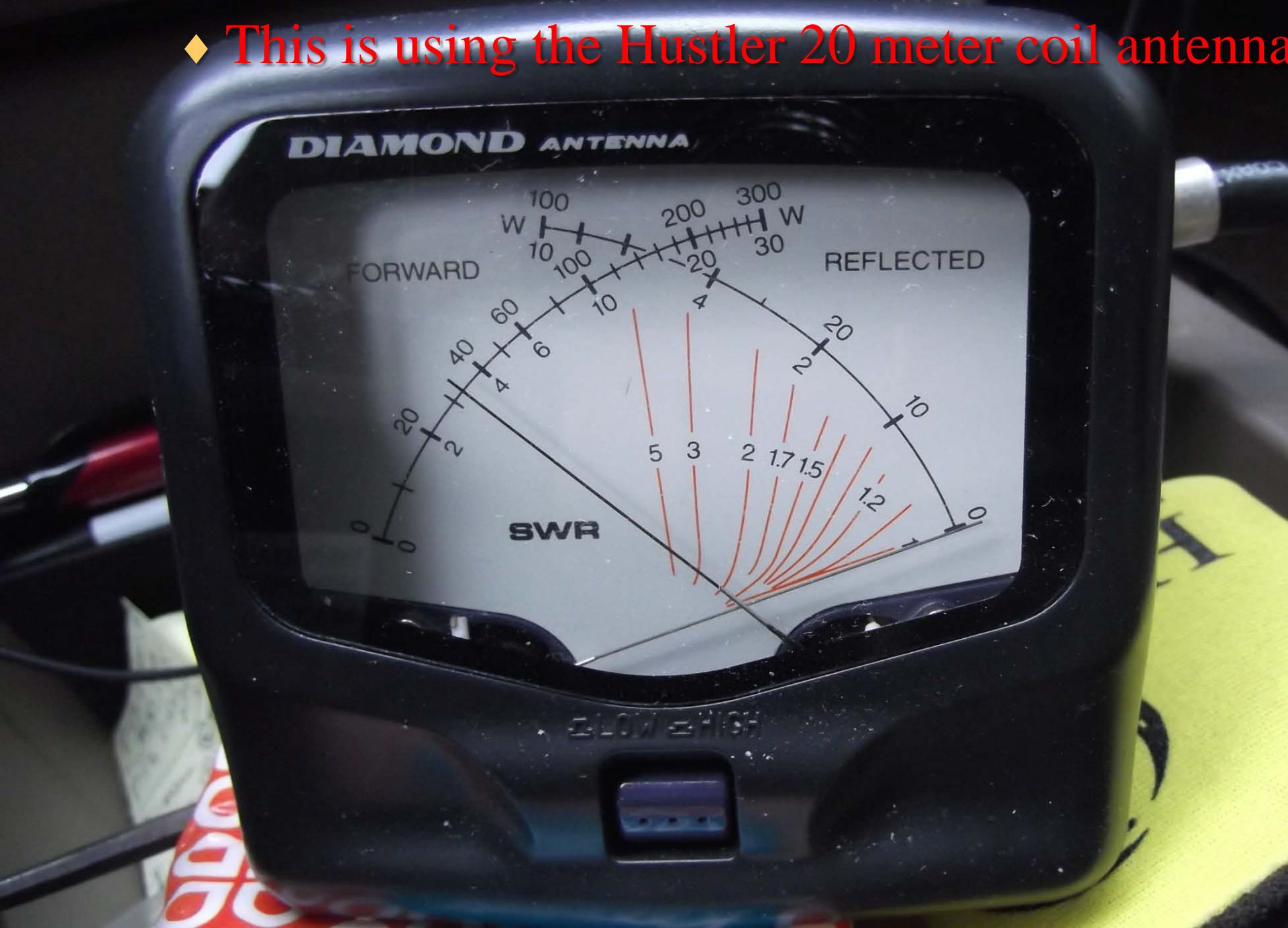


- ◆ Tuners: best located close to antenna



◆ No matching network needed when tuned properly

◆ This is using the Hustler 20 meter coil antenna





If you only have a SWR meter to tune your mobile antennas, that is fine. Dual meters are greatly preferred over the old single meter with switch for forward & reverse power. Sweep band in a tune or AM position to see if your antenna needs to be shortened or lengthened to center on your favorite frequency. 20 M and up are quite broad, but 40 M and down are sharp before SWR gets high.

Using a MFJ antenna analyzer is the best of all worlds. You can connect AT the antenna base and tune the antenna perfectly. Also works OK at the end of a 2 meter-mag mount with cable attached inside your car. You will use the Antenna Analyzer many times over the years.

MFJ-259C Antenna Analyzer.

SWR and Complex Impedance

530 KHz to 230 MHz

\$269 at GigaParts.



Coil can be expanded to vary inductance

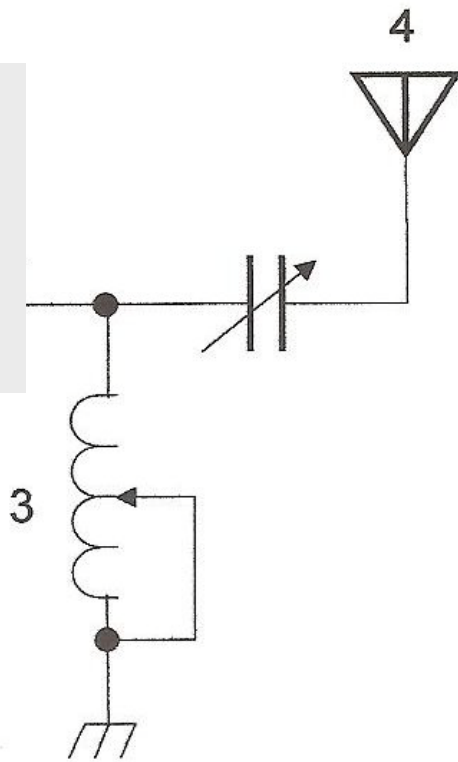


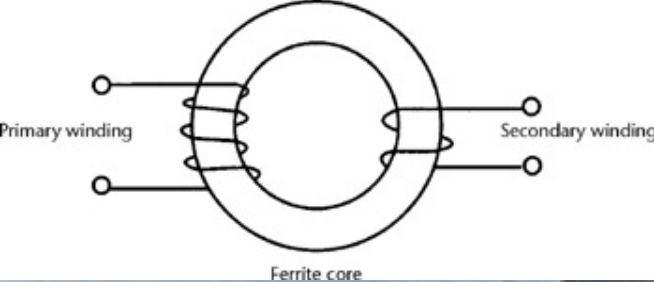
Figure T3

You can tune your antenna directly to make a 25 ohm into a 50 ohm match with a “L” network or use a 2 to 1 toroid balun to couple antenna to feedline. Mostly needed on 80 meters.



Cactus says this small enameled wire inductor is about 2 micro henries and variable by expanding or compressing.

“L” network of Cactus K4YMB for 80 meters. This coil is the inductor part and the antenna has some capacitance to make the network that brings the plain antenna from what might be 25 ohms up to a perfect match of 50 ohms. You DO have to retune if you change bands. On 40 you expand the coil somewhat for a match and it’s not needed on 20 and up.

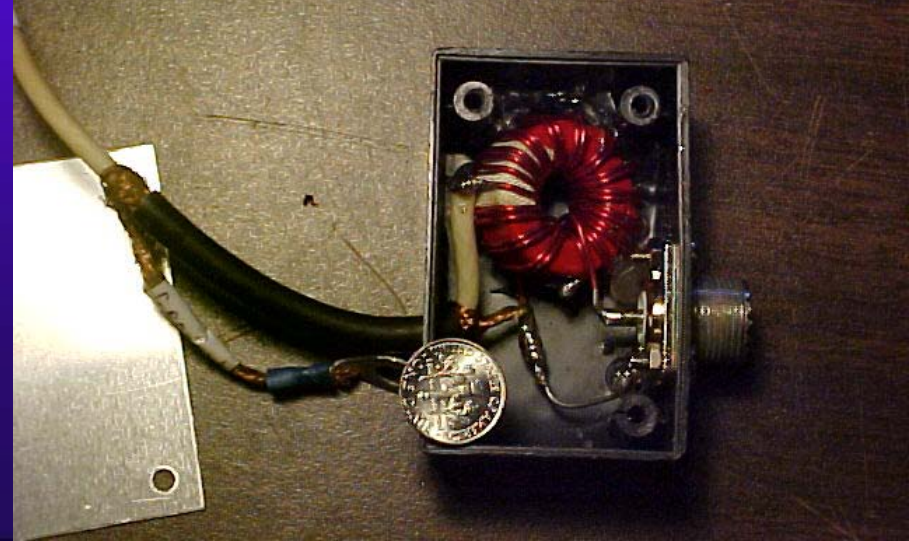
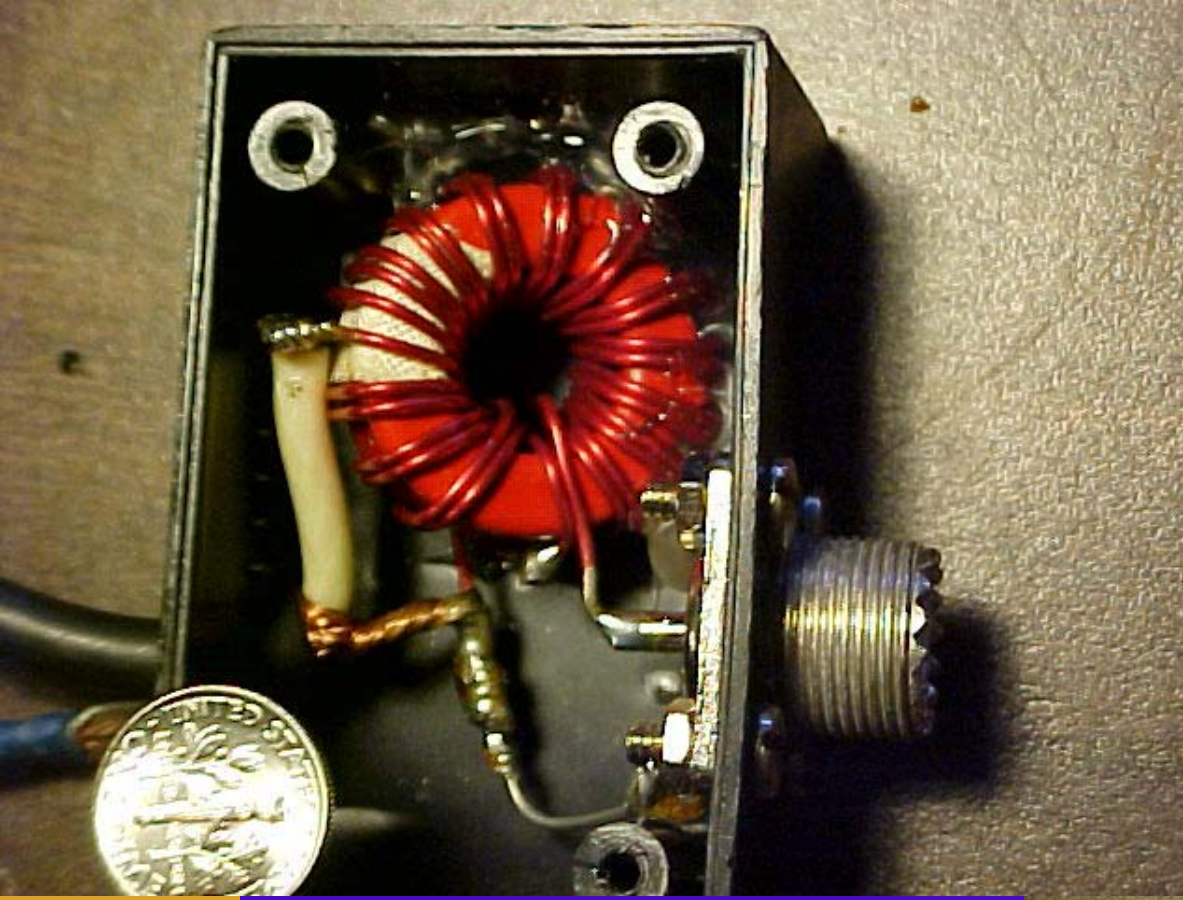


Note the toroid chokes on the control line and the handy quick disconnect for the cable.


Cactus now uses a 2 to 1 RF transformer built by K4POZ, changing his raw 25 ohm resistance at the antenna base to 50 ohms at the coax feed. Inside the plastic box is a toroid 2 to 1 RF transformer. (next)

However, as you saw, I get a 1:1 match with my hustler and no matching devices at all at center frequency. I only have a very small mismatch at 80 meters.

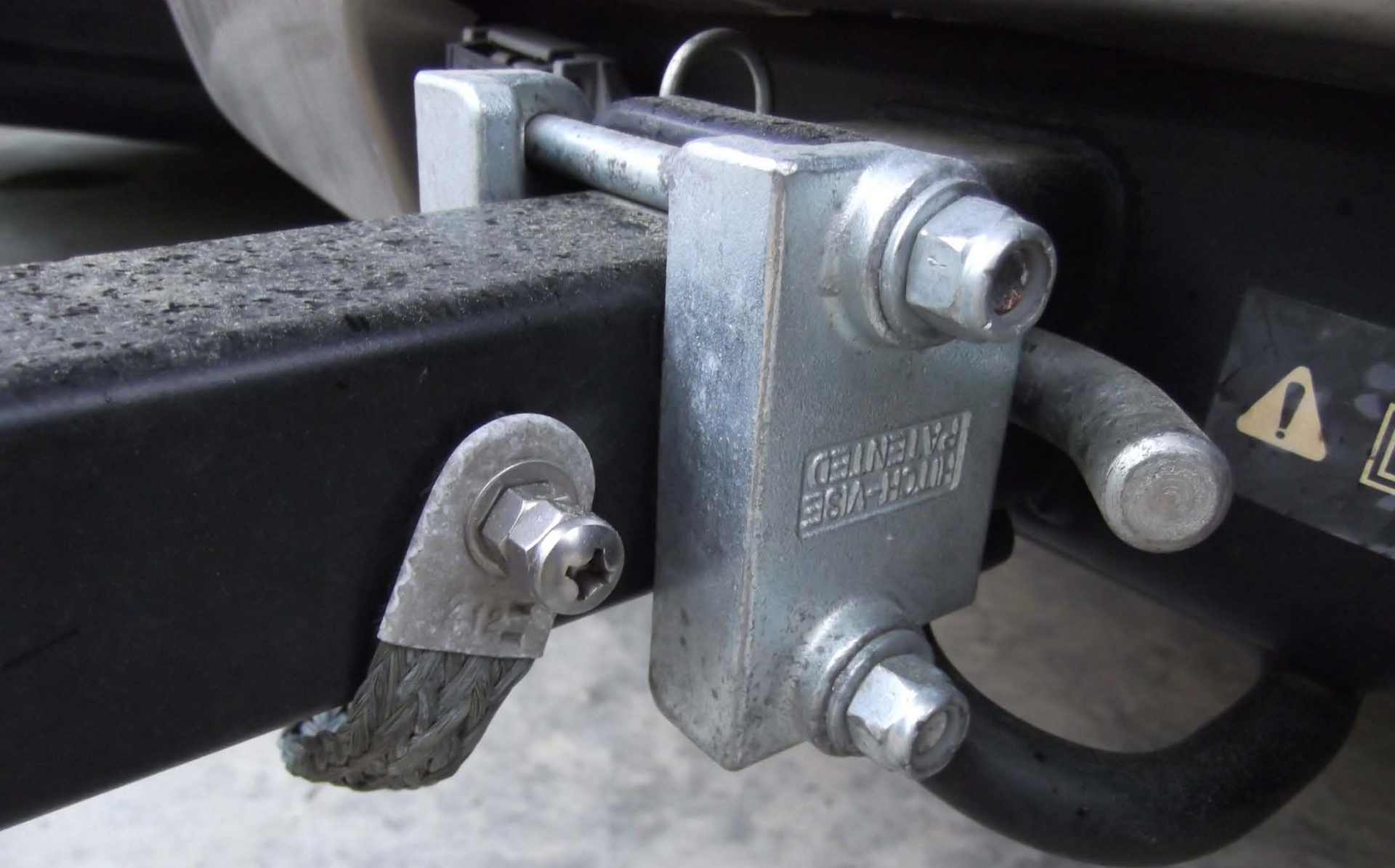
Inside the K4POZ box is about #14 or #16 enameled wire. Both windings are interleaved around the core. Coax feed is input and the output cable connects to the antenna.



◆ Grounding, very important

A close-up photograph of car stereo wiring. In the center, a silver metal connector is being inserted into a black plastic housing. To its right, another similar connector is visible. A white plastic connector with three terminals is at the top left. A bundle of braided metal wires is connected to the central assembly. Various black and silver cables are tangled in the background. The scene is set against a dark, textured surface, likely the interior of a car.

◆ Radio located under front passenger seat, grounded to seat bolt that holds extension for head.



◆ Grounding, very important



◆ Chokes on control cables and feedlines are good idea.



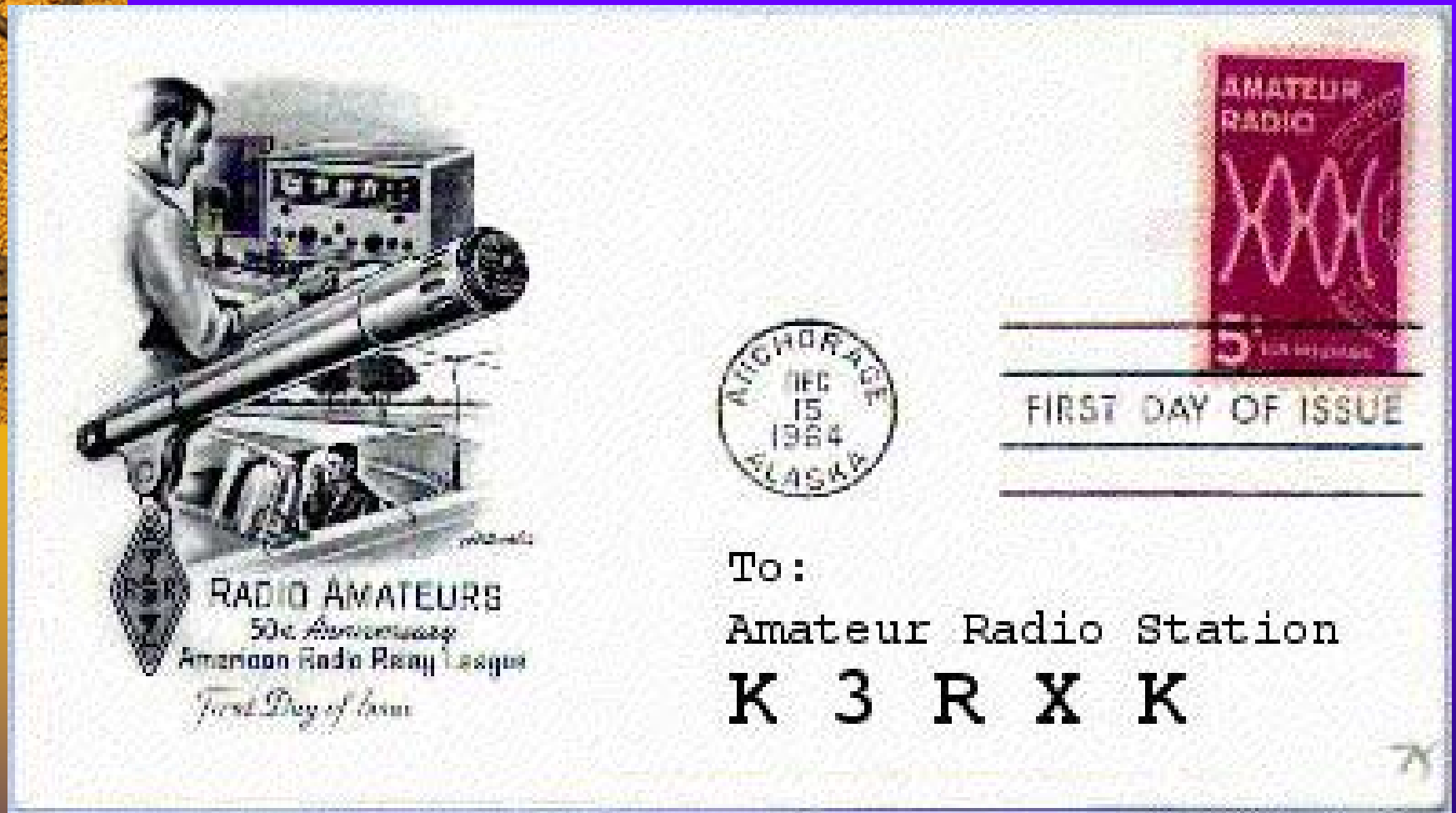
The summary is that whether you are looking for HF, VHF, UHF or ALL of them together, which I do, you can be set. The Yaesu FT-857D and the Icom-7000 both cover HF through 440, and have individual coax outputs for HF and VHF/UHF. I use a dual band mag-mount on the roof for 2M/70cm and the Hustler for all other bands. I use either Hustler or Hamsticks on my bike.

Mounts are everywhere and every type from the heaviest for giant screwdriver antennas to light mounts on cars, trucks, motor homes and yes, even a bicycle. TUNE that antenna for best performance. Ground rig and antenna base well. Happy mobile hamming.



- ◆ Trivia – what year did this stamp come out?

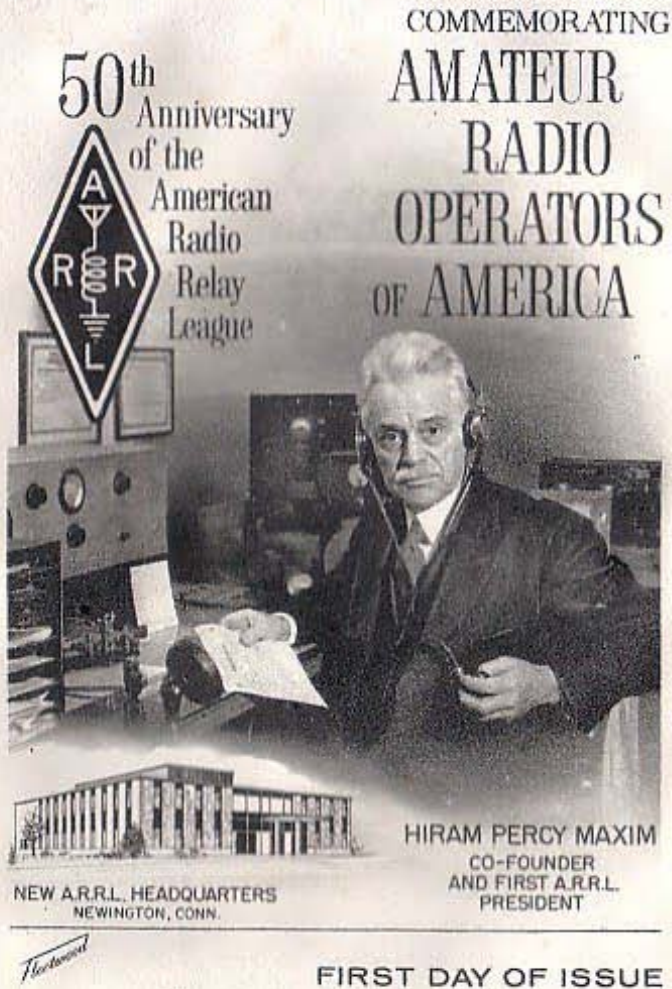
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◆ Trivia – 1964 on 50th Anniversary of ARRL



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The End

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