Mounting Tips for the Hi-Q Series™ Series HF Mobile Antennas.
10/2006

Covered by one or more US Patent numbers:
6,275.195 B1, 6,496.154 B2

Please read tips before starting installation of your new Hi-Q ™ Antenna.

Installation and Warning Notes:

Unauthorized disassembly or failure to carefully follow instructions will VOID your WARRANTY!

Ordering and acceptance of this Hi-Q ™ antenna does not constitute a license or agreement to reproduce, manufacture, re-engineer, or copying it in any form. Hi-Q Antennas hold all patents and trade marks. Patent infringements will be vigorously challenged!

KEEP your antenna CLEAN!
Road GRIME can be CONDUCTIVE, clean the coil with RAIN-X.
We have measured on a "LIGHTNING" hit coil where the DIRTY side was as low as 220 OHMS!!!
The dirt has give a PATH for the high voltage to travel down to the TUNED frequency (i.e.: where to CONTACTOR was located).
At 500 watts the voltage is OVER 10,000 volts!!! At a kW is 23,000 V.
REDUCE the power when weather is winter like, slushy salted roads and foggy.
Protect your investment.

NOTE: We have given this WARNING for the past two years we shall NOT Replace the coil free any more!
The coil assy. Replacement is $250.00, no charge for the labour.

The Hi-Q Series antenna is designed for mobile installation. It is a center loaded HF mobile antenna. Consequently, in some base station applications (attic, balcony, out a window, on a fence, or tripod installation) you may need to provide an adequate counterpoise by running several .2 to 1/4 wavelength wires out from the base of the antenna. (See the ARRL Antenna Handbook for various counterpoise lengths and specifications.) The MFJ-909 Antenna Matcher or a simple antenna tuner will help.

The NEW Hi-Q TAD (Tune-A-Dipole) and the LATEST NVIS series of HF dipole antennas offers a bit of gain and directivities compared to the mobile vertical and it can be used in either horizontal or vertical configuration. NVIS is a VERY LOW noise antenna.
The beauty of it that you can feed it with 52-ohm coax cable, in some cases without any matching device and NO NEED for radials or counterpoise!
See photos on the website.
The NVIS antenna (TAD used on a LOW Tripod) will give you excellent SHORT range communication with LOW power at a very low NOISE level.

Every mobile installation is different, and no two vehicles have the same capacity effect on the antenna, so take time to install it properly and match it to 52 ohms.
Our antennas are in constant use around the world. We are confident that it will work superbly on your vehicle as well. If you have a problem with any installation or use, please contact us. We have years of experience and hundreds of installation histories to call on for your support. BUT only call during business hrs.
Be sure to read the SUPPORT pages on the Hi-Q website.
Keep in mind that with your NEW Hi-Q antenna you are radiating a LOT more RF than you had with ANY brand X!
Common MODE current may be evident by NOT being able to get low VSWR.
USE as MANY toroid cores and CLIP-on Ferrites to alleviate the FLOATING RF.
Use the Ferrites at EACH end of the COAX cable and the motor wires.
Use the MFJ-910 or equivalent antenna matcher to achieve the low VSWR. Anything below 1.5: 1 is acceptable.
The NORMAL Hi-Q antennas VIRGIN (No shunt coil or capacitor added) is:
10-12-15-17 and 20 less than 1.5:1 on 40 appx. 1.7:1 and on 80 it is 2.4:1
Anything greater you need to suppress the common mode current with lots of toroid and or ferrite cores.
Good ohmic grounding and RF counterpoise will pay good dividend.

IMPORTANT NOTE: 18-wheelers, most likely you want install your NEW Hi-Q antenna on the driver side MIRROR arms. This case you can use a short extension rod and a Caphat with a very short whip.
PLEASE DO NOT take the antenna through a high-pressure truck wash! Remove your antenna before taking your through the wash…duh! We offer the Giant Quick Disconnect (GQD) NEW! Stainless Steel version that allows you to quickly remove and reinstall your antenna for safety or convenience.

Installation Guidelines

1. *Please carefully inspect your new antenna for any damage that may have occurred in shipping. As you can see, we have taken every precaution to make sure your new antenna arrives in factory perfect condition. If the parts box or tube is crushed, dented, or damaged in any way, please inform the carrier IMMEDIATELY.*
2. *Your antenna has been fully insured for shipping, but take time to inspect it carefully when it arrives. Keep the shipping tube for storing the antenna when not in use or for shipping should it become necessary to do so. Take digital pix of the damage if any.*

   Included in your packages should be:
   - *a) One Hi-Q™ HF Antenna with coil assembly, lower mast and motor housing with 3/8-24 NF threaded mounting base. If you have ordered a GQD, (Giant Quick Disconnect) or WQD (Whip Disconnect) (highly recommended) it may be installed or packaged with your antenna.*
   - *b) An Installation Kit consisting of two polycarbonate insulator wafers, one (1) 3/8-24 bolt, several stainless steel washers and a 3/8 lug for the coax cable center. The FEED point can also be ONE of the 3, ¼-28 bolts for more convenient pick up.*
   - *c) We are slowly getting away from the SHUNT coil, since the MFJ-910 and the MFJ-909 capacitive antenna matcher does an excellent job at a very low cost. IT MAY BE INSTALLED AT the RIG end. (you can still use a shunt coil plus the MFJ-909 if you have lots of STATIC electricity build up potential.) Use it to match the antenna to 52 ohms during low band operation. Typically the shunt coil best used right at the antenna base, one end to the 3/8-24 mounting bolt or to one of the three base support*

bolt and the PIGTAIL from ground to the 8th turn of the shunt coil. This will change up/down in # of turns.

d)

e) (Optional hardware may include the base for your GQD, a Whip Quick Disconnect (WQD), and pre-drilled MB-8 mounting bracket.

f) NOTE: the photo shown on the Accessory website page is and example of how to install an UNUN if you chose to use one. We are NO LONGER sell UNUN's or pre-assembled MB-8 mounts. Use the MFJ-909 instead!

g) The TWO wires: RED & BLACK are the 12 VDC motor wires. The TWO WHITE wires are the REED SW PULSE output to use with ANY controller that needs a pulse to count (like an MFJ-1922 etc.)

h) The RXE-040 or –050 Self-Resetting Circuit breakers have been installed at the motor terminals.

i) On OLDER Hi-Q-Antennas a MAGNET at the motor coupler for your SAM of SDC-100 (MFJ-1922/1924 antenna CONTROLLER. The magnet location can be found JUST above the motor with a VOM and a REED SW. Appx. 2-1/2 "from the 6/32 Phillips screws holding the motor in place. The REED SW can be installed EXTERNALLY.

j) NOTE: As of 9/05 we have a NEW MOTOR and MOTOR MOUNT, in most types the REED SW is INTERNALLY installed near the magnet (s)

k) This is a $50.00 worth up upgrade at no cost to you!

l) Check out the HUGE savings on the antennas offered as PLUG and PLAY!

NOT INCLUDED are the stainless steel whip(s) you'll need. These are available at Radio Shack and cost about $15 per copy. You may want to have two of them if you want to get the MOST out of the antenna performance. However, a single 5-foot whip is a good compromise. If you want maximum performance, cut the whip as long as possible, but keep safety in mind. Never exceed 13'6" maximum height without bending or restraining the whip. You may want to order several of our Whip Base Adapters that turn the resultant whips into beautiful extensions for your Hi-Q antenna. If you have purchased the Hi-Q-4/80 antenna then one 5 ' or even shorter whip will serve you fine, but for the greatest radiation Efficiency on 80/40 use the longest whip you have with a CapHat.
NOTE: In the PLUG and PLAY packages the 4' whip is NO LONGER included!

The CapHat MUST BE raised at least 1 or 2 foot above the coil with an EXTENSTION ROD, available as an optional item.
In some cases where you want to keep a LOW profile a 2' extension rod with a CapHat ONLY can cover 10-80 M with same efficiency as if you have used a long with only.

Check out the SINGLE LOBE HEIGHT Adjustable CapHat for the STANDARD SS whips. $15.00

NEW! Corona balls for Heavy Duty whips; $10.00

Note: Although many of the Hi-Q-HF mobile antenna users have tuned the Hi-Q antenna to 6 M with short whip, NOT all set up will give you the benefit of 6 M operation. In some cases one can find 6M by using an antenna analyzer and keeping the long whip may find the MULTIPLE wave length for 6 M. I however RECOMMEND that you DEDICATE a separate antenna for the SIX Meter band.

Please take the precautionary step of testing your new antenna motor on the bench first. The high-quality 12 vdc hi-torque motors require less than 500ma. So any 12vdc source will work. You may simply apply +12 vdc to either lead or use a DPDT switch (SEE page 8 for how to wire the DPDT SW.) To reverse polarity to determine which pair results in the up or down motion of the contactor in the coil. Note polarity for remote switch installation later. Look up the MFJ/Ameritron SDC-100 or MFJ-1922 or MFJ-1924 SIMPLE controllers, we tested them and works GREAT.
I NO LONGER recommend ANY autotune controllers, so far every one of them has failed several times and have gone back to the DPDT SW!

If you ordered the Ferrite Clip-on to use as RF chokes on the motor DC lines, install them as close to the motor as possible. Simply loop the motor leads through the cores, one at a time. You may want to slip a piece of shrink tubing over the whole assembly to hold them together and for protection. Attach an additional length of wire to each lead if you need longer wires to reach your 12vdc source.
Good idea is to use some ferrite clip-ons on the coax cables BOTH ends.
When shipped, the contactor is ordinarily set close to the MIDDLE position of the coil housing. This is to give you some leeway when you first apply 12 volts to the motor. The 80 meter position is usually about one inch from the bottom of the loading coil (except, of course, on the -5/160).
If you are using the MFJ-1922 or the Ameritron SDC-100 controller then move the CONTACTOR all the way to the BOTTOM BEFORE marking the base location of the CONTACTOR, THEN MOVE UP at least 1 or two coil turns and MAKE THIS the 000 on the digital read out.
The controller is counting the revolution of the motor shaft, ONE PULSE by one revolution, or 20 TURNS per inch on Hi-Q-2.5, -3 and -4. (Hi-Q-5 is TWO pulses per turn and ¼-28 actuator shaft.) You need a REED SWITCH to sense this pulse before the controller will work! Magnet can be found appx. 2.5" above the four 6/32 Phillips head screws. REED SW mounts outside on the Hi-Q-Antennas delivered before 04/05. ALL 2006 RT antennas has BOUILT in REED SW and magnets.

As you move up in frequency, the contactor will be moving toward the top of the coil. Be sure to monitor its travel, at least until you get a good feel for where it loads the best. Higher frequency…fewer coil windings, naturally. Moving from band to band will require the largest movement of the contactor. Movement from one frequency to another within the band will probably only requires a slight "tweaking" ups or down. Remember, to move up in frequency, move the contactor up.
Moving from 20 to 17 may require only a slight adjustment and the same from 17 to 15 and so forth. BE CAREFUL not to run the contactor into the top of the coil as doing so may damage the motor. (The RXE-040 or 065) circuit breakers will protect the motor for up to 5 seconds of stall, and then reduces the current to less than 100ma, which will reduce the likelihood of motor damage.

3. ***Install the antenna with the 3/8-24 bolt to the car's mounting bracket or bumper mount. If you have purchased the optional GQD (strongly recommended), install the base first, using the supplied hardware. If you are bolting the antenna directly to the mount, proceed in the same way. (Let us know if the mount you are using is thicker than ½" and we'll supply you with a longer bolt.)***

The antenna must be insulated from the vehicle ground. Use the two supplied polycarbonate or Delrin insulating wafers. Be very certain that the mounting surface under these insulating wafers is perfectly flat. Some bumper hitches, especially the receiver type (Reese, U-Haul and others) have "punched" rather than drilled holes. Punching tends to leave a concave rim around the edge of the hole and when tightening the antenna mount, the concave shape will break the washers. Thin stainless steel shims should be used if this is the case. Otherwise, use our predrilled mobile mount (MB-10) to be sure that the mounting surface is flat. Use a large, yellow lug for the feed point from the coax center conductor. The coax shield goes to the mounting bracket ground lug.

4. ***The shunt coil may be installed at the mounting point as well (see page 9 of this guide). The shunt coil can be installed either at the base of the antenna at the 3/8-24 mounting bolt or by using a "T" type coax connector at any point in the cable within 2 feet of the antenna base. Simply add the shunt from the connector center to ground. Usually 7-10 turns of wire (1.5" diameter) and a small spread will do fine for 75/80 meters, and 4-8 turns for 40 meters. When operating on higher frequencies the RF will simply "look through" the shunt or UNUN. (See the additional information enclosed on this.) If you'd rather, the shunt may be switched in and out with a good quality ceramic switch. If you are using the MFJ-910 antenna matcher, it can go in the COAX line between the radio and the antenna, close to the operator's hand.***

5. ***Alternatively, you may choose to install the optional UNUN instead. (Available from*** www.coilws.com ***the one you may need is the one offers at least four choices of impedances. The other unit I recommend is the MFJ-909 antenna matcher.***

6. ***Be sure to use copper braid for grounding straps to the vehicle chassis. RG-8 size coax cable braid makes excellent grounding straps.***

7. ***For optimal performance of your new Hi-Q antenna, we recommend that you elevate the feed point as high as is practical and safe. (NOTE: for safe highway over head clearance, be sure that your total antenna height does not exceed 13'6". You must always use caution with the long whip installed, as many places your car will easily fit, your antenna WILL NOT!).***

   The whip can be as short as 2 feet for excellent 10 through 40-meter operation and 7 feet or longer for the lower bands. Again a CapHat will greatly reduce the whip length and INCREASE the RE (Radiation Efficiency!). A Whip Quick Disconnect (WQD) is recommended for the whips. (We manufacture an all-brass, silver-plated Whip Quick Disconnect (WQD)—see website "Accessories" section.) The coil's top cap is aluminum and the 3/8-24 tread can be worn out by changing whips too often. NEW: WQD with FOLD-OVER top!

8. *The use of a WQD is recommended.) Do not use a stainless steel split (lock) washer between the whip and the top of the coil. If you feel you must use a washer, use a soft, copper washer (a 3/8 lug with wire end cut off will do nicely). If you use our Capacity Hat with your Hi-Q antenna, you will find that the antenna Is more efficient. And use's less coil windings. The best location for the Cap Hat is a foot or two above the loading coil, (CapHat extension Rods can be found on the Accessories page on the website, 1', and 2' long $20.00 ea.*

The WQD is MANDATORY if you use a CapHat with the Extension rod. Also:
The WQD has a 3/16" diameter hole on the male part; use this to SUPPORT IT WHILE UNSCREWING the whip or if the whip got too tight on the WQD FEMALE. IF NOT OBSERVED you tend to make a $200.00 mistake! The WQD may UNSCREW the COIL CAP and RUIN the whole coil assembly!!!
A 3/16 dia. Pin will do the job.
DO NOT USE the LARGE 16&32" caphats on the Hi-Q-2.5 antennas.

NOTE to Hi-Q -2.5 and -3 "S" model users: DO NOT USE LARGE CapHat or 102" whip, when you hit a tree or? You will damage the coil assembly (cost you $125.00 for a new one!.)

9. *If you experiencing trouble attaining a satisfactory VSWR, usually 1.5:1 or lower, you may have to use a variable inductor (0-15µH) or variable capacitor (100-1200 pF). This situation is not typical, and will certainly vary with the type and size of your vehicle. In some rare cases, a separate antenna tuner may be needed. It is also a good idea to use the Ferrite clip-on, data type line chokes on the wires coming out of the antenna motor leads to suppress the common mode current. Wrap the wires around the core at least once. Do the same thing for the coax cable. Toroids may also be used. This will eliminate the RF "pick-up" that may alter VSWR readings or affect the vehicle's electronics. To prevent RF feed back on the motor lines you can add a pair of 100 µH, 2 amp chokes CLOSE to the base of the antenna. A .01 ceramic cap to from the terminals to ground reduce the motor noise. The NEW MFJ-910 or 909 HF Mobile Antenna Matcher does a good job on matching the antenna to the radios 52 ohm.*

10. *HI-Q Antennas make use of high-quality, aircraft-type 12 vdc PLANATARY gear head motors, No resistor is needed to drop the line voltage. The RXE-040 or 50 Self-Resetting circuit breaker has been installed at the 12vdc line at the motor. This breaker will "trip" out if your antenna contactor tops/bottoms out, causing the breakers to heat. They will reset themselves within just a few moments once current is removed. Be sure to reverse the motor immediately and move the contactor off of bottom or top. Beginning July 1, 2002, the circuit breakers are factory installed. Earlier models may require user to install the RXE-050. Please request them from Hi-Q Antennas.*

11. *The factory installed breakers or the circuit in the controller will protect your antenna.*

Refer to the illustration on page 8 of this guide. Use a momentary, DPDT, center off switch to reverse the polarity of the motor. This switch is available at Radio Shack and other electronics dealers. To make the switch work in both directions "X" wires the contacts 1&2 to 5&6. (Drawing shows the RXe-at the SW, NOT NEEDED.) Prior to soldering the wires, insulate both leads with shrink tubing or the insulation from some #20 wire to prevent a possible short circuit. Attach the 12vdc leads to the center two contacts on the switch. Now, attach the each motor lead to either the top or bottom set of contacts.

12. ***Toggle the switch in either direction and note which way the contactor moves. Solder all connections cleanly. Use your VOM to check all continuities. Orient your switch to reflect up/down when you mount it. You may also add a variable voltage control and speed-up the contactor motion when going from 20 meters to 80 meters for example.***

13. ***The recommended whip length is 9 feet for optimum performance on 40& 80 M. However, 7'6" seems to work very well also, as safe clearance issues should ALWAYS take precedence. For operation on 6 to 40 meters, a 2-foot or shorter whip seems to work best. It is possible to find a resonant point for 6 & 10 meter bands at 5/8, ¾, or even multiple wavelength positions on the coil with the longer whip. Feel free to experiment with various whip lengths, capacity hats and contactor positions. For MAX Radiation Efficiency on 40/80 and 160 M be sure to use a CapHat with and extension rod.***

14. ***WARNING: DO NOT RUN THE CONTACTOR TO THE EXTREME TOP OR TO THE EXTREME BOTTOM of the coil OVER 170 lb pressure is developed at the HARD contacting! The Rxe-050 will protect but why push it!***

    NOW a STANDARD installation: a MAGNET to give a signal at every rotation for your MFJ-1922, SDC-100, SAM unit, or other controller what may need an analog signal. You add the REED switch externally.

15. ***HI-Q ANTENNA GUARANTEE. The Hi-Q™ Series of antennas are unconditionally guaranteed for QUALITY and WORKMANSHIP for ONE YEAR! If for any reason (other than damage due to negligence, improper usage or unauthorized disassembly) your Hi-Q antenna fails to perform due to quality or workmanship, HI-Q Antennas will, at our discretion, either repair or replace it at no charge, WITHIN 14 days of the purchase date, (shipping and handling in both directions will be at your expense, however). Please call us before sending an antenna back to the factory. A returned material authorization (RMA) is necessary before warranty work will be performed.***

16. ***If you find that the antenna does not meet the advertised specifications or for any other reason you are dissatisfied with the antenna, and within the first FOURTIN (14) days after your initial purchase, HI-Q Antennas will refund your purchase price, Shipping costs are at your expense. You must inform HI-Q of your intention to return the antenna under this guarantee provision before shipping. Refunds will be processed only after it has been determined that the antenna has not been altered, disassembled or damaged in any way.***

    Subsequent owners may, with our pre-approval, return an antenna for repair. AT OUR SOLE DISCRETION, we will either repair or replace the antenna.

    Please contact HI-Q before doing anything to your antenna. We can be reached by telephone Mo-Fr- 8-5 PST.. If we feel that field repair is appropriate or possible, we can help trouble-shoot the problem and suggest appropriate action. Any unauthorized disassembly or negligent damage will void all guarantees written or implied.

17. ***Notes:***
    - ***a.*** ***Unless otherwise noted, the motor wires are black and red.***
    - ***b.*** ***Tighten the screws on the antenna occasionally.***
    - ***c.*** ***Use the clip-on ferrites or the toroid cores if ordered on the motor leads to keep RF off the motor and cut noise from the motor in your receiver.***
    - ***d.*** ***Please read announcements on the HI-Q website's SUPPORToften. For heavy truck or other special vehicle installation situations please contact us. We have installed our antennas on many specialized vehicles, and may have just the answer for you!***
    - ***e.*** ***Reasonable care must be given to impedance mismatch. Always observe your VSWR and/or power level. At any indication of a drastic change in either, STOP transmitting immediately. Although modern transceivers are designed to sense high VSWR, it is still prudent to monitor it while operating in any mode.***
    - ***f.*** ***Do NOT PLUG up the hole where the motor wires exit from the antenna base! Do NOT use RTV (silicone) or tape to seal this hole. Condensation moisture, if present, drains out at this hole.***

Special Note: ***Protect your investment keep your antenna clean. Avoid excessively dirty, grimy or salty environments. Use a good quality auto wax or RAIN-X on the coil housing and on the nickel-plated and powder coated parts. This will insure years of trouble free service.***
We will NO LONGER replace the coil for free. Cost is $250.00
Protect your investment: KEEP IT CLEAN!, run lower power when dirty.

Note for the Hi-Q-5/160 Antenna users:

The Hi-Q- 5/160 antennas are designed to be used with the large 30" capacity hat. (Versions manufactured after 10/04 will resonate down to 1830 Kc, without a caphat using a 102" long whip) Capacity hats installed at least one foot above the coil by means of an extension rod. Use a Radio Shack or similar 102" stainless steel whip on top of the Cap Hat. This may extend the tip of your antenna above the recommended 13'6" height limit. However, as the US Navy Antenna Test Site in Colorado suggests, you may BEND the whip in an arc, or at a 45-degree angle, for an even better radiation take off angle. This method may also be used on the standard Hi-Q antennas for additional radiation efficiency.

Due to the large coil and additional stress on the mounting assemblies, Hi-Q-5/160 and –5/80 users may be well advised to use additional support to the antenna. This can be in the form of a NON CONDUCTIVE bracket or guying line attached just below the loading coil and will stabilize the antenna and enhance performance.

OPTIONAL ACCESSORIES FOR YOUR Hi-Q Antenna:

2" diameter "GQD" (Giant Quick Disconnect), a double bayonet QD to remove the WHOLE antenna in just seconds and stores it in the vehicle. Machined out of a single piece of stainless steel, we highly recommend this accessory. GQD : $75.00
GQD light, nickel plated alum. $65.00
If you order an EXTRA GQD base ask for the installation kit, $15.00

Standard Whip Quick Disconnect (WQD) for the whip, new design, all brass, silver-plated whip quick disconnect. This two-piece unit speeds whip changes. $25.00,
TOP only $15.00, NEW WQD with FOLD-OVER $35.00

Whip BASE Connector. Use this silver plated brass connector after cutting a stainless steel whip to the right length for your installation. Securely holds your whip in place. $10.00

Extra Polycarbonate or Delrin base insulation wafers with bolt $15.00

NEW: we have installed the magnet for MFJ/Ameritron SDC-100 or SAM unit controller that may need analog signal input.
REED SW for sensing the pulse, is $10.00

Second antenna purchase: $50 discount or FREE GQD, a $65 value.

Mounting bracket, MB-8 1/2X2X8" long with hole drilled for the insulating washers, $25.00

Special Mercedes or other SUV mounting unit $250.00

Insulating sleeve for mast used for base station mounting, please specify the mast inside diameter. $20.00

A CAPACITANCE HAT to increase the radiation efficiency of your Hi-Q Antenna. Cap Hat goes between the top of the coil, 1' extension and the whip…fewer turns…L-o-u-d-e-r signal! $35.00 Replaceable lobes. Use 1 or 2" long extension rods with it.

All prices FOB at the HI-Q factory. Shipping and handling charges apply. See our Web site for details, photos and ordering/shipping instructions. Feel free to contact HI-Q at:

w6hiq@hiqantennas.com , or
sales@hiqantennas.com
When ordering and wish to use PayPal, use the Sales@hiqantennas.com email.
Thru PayPal you can use your credit cards.
WE DO NOT TAKE ANY CC.

By phone at 951-674-4862 Our Fax number is 951-245-2031.

OPEN from 8-5 Mo-Fr, or email your questions. DO NOT CALL after HRS!

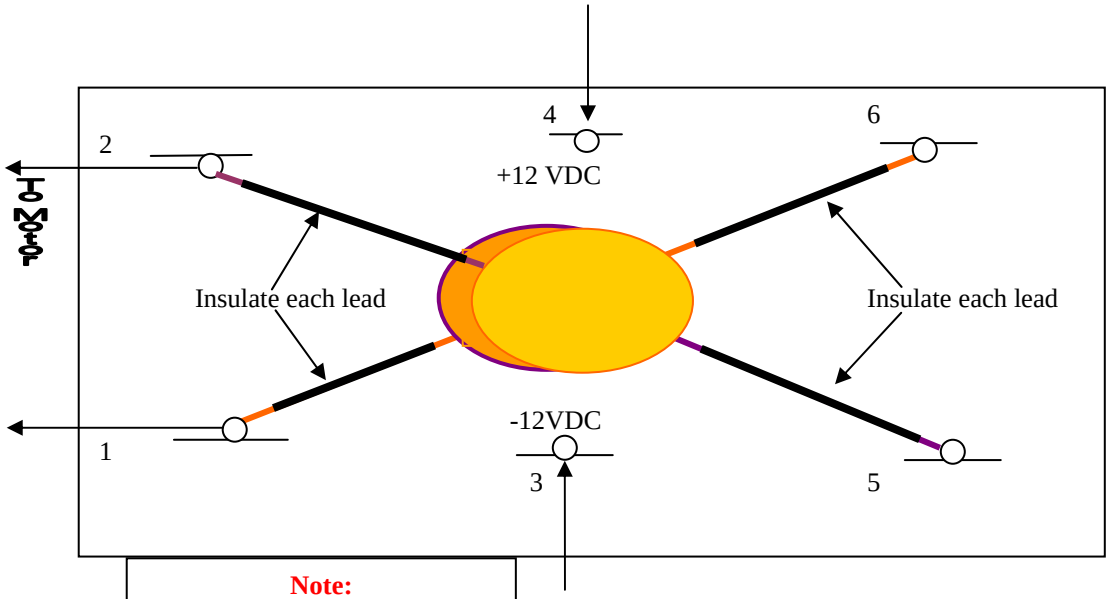
Installation guide and illustrations courtesy of N0XB, Northfield, MN.

Do not hesitate to call us if you have any questions. 73, Charlie, W6HIQ

DPDT SWITCH WIRING DETAIL

Note: ONLY one RX- is needed.
Two wont make it better.

DPDT, center-off, momentary switch is a Radio Shack item. As described above, wire the DPDT SW in "X" form.



Note:

Rxe-065 is shown at the "X" wireing of the DPDT SW.

NOT NEEDED on antennas mfg. After 01-03
Just use plain wires. To "X" wire.

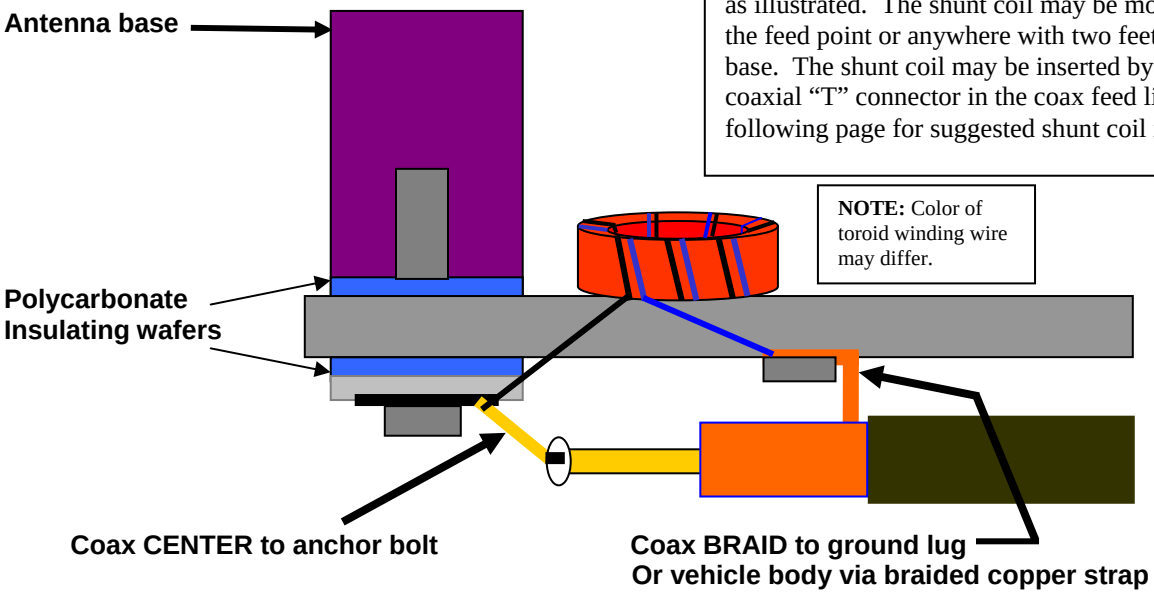
Attach poles 1 & 2 to the antenna motor. Apply 12VDC to 3 & 4 to supply Voltage for the motor.

Use of the UNUN For
Antenna Base Impedance Matching

You NEED to know HOW to wind an UNUN before you set your hart on it to use it.

I recommend the SHUNT coil OR the MFJ-910 Antenna Matcher.

One lead of the matching device goes to the coax center and the other to the coax shield/ground. Matching device can be the supplied shunt coil or the optional toroid UNUN. UNUN should be installed at the antenna base, as illustrated. The shunt coil may be mounted either at the feed point or anywhere with two feet of the antenna base. The shunt coil may be inserted by means of a coaxial "T" connector in the coax feed line. See following page for suggested shunt coil installation.



It is a PAIN to get an UNUN work, ge the MFJ-910 or 909!!!!

If needed, for motor noise reduction a pair of 100uH, 2 amp chokes may be installed as the closest possible point to the motor at the base of the antenna.
Enjoy the use of your new Hi-Q antenna.
For a lot more information and photos be sure to browse my entire website.
Best 73,

Charles M. Gyenes W6HIQ, (VE7BOC/W6, HA5CMG)
21085 Cielo Vista Way

Wildomar, Ca. 92595, Phone 951-674-4862, sales@hiqantennas.com

Antenna Base Impedance Matching

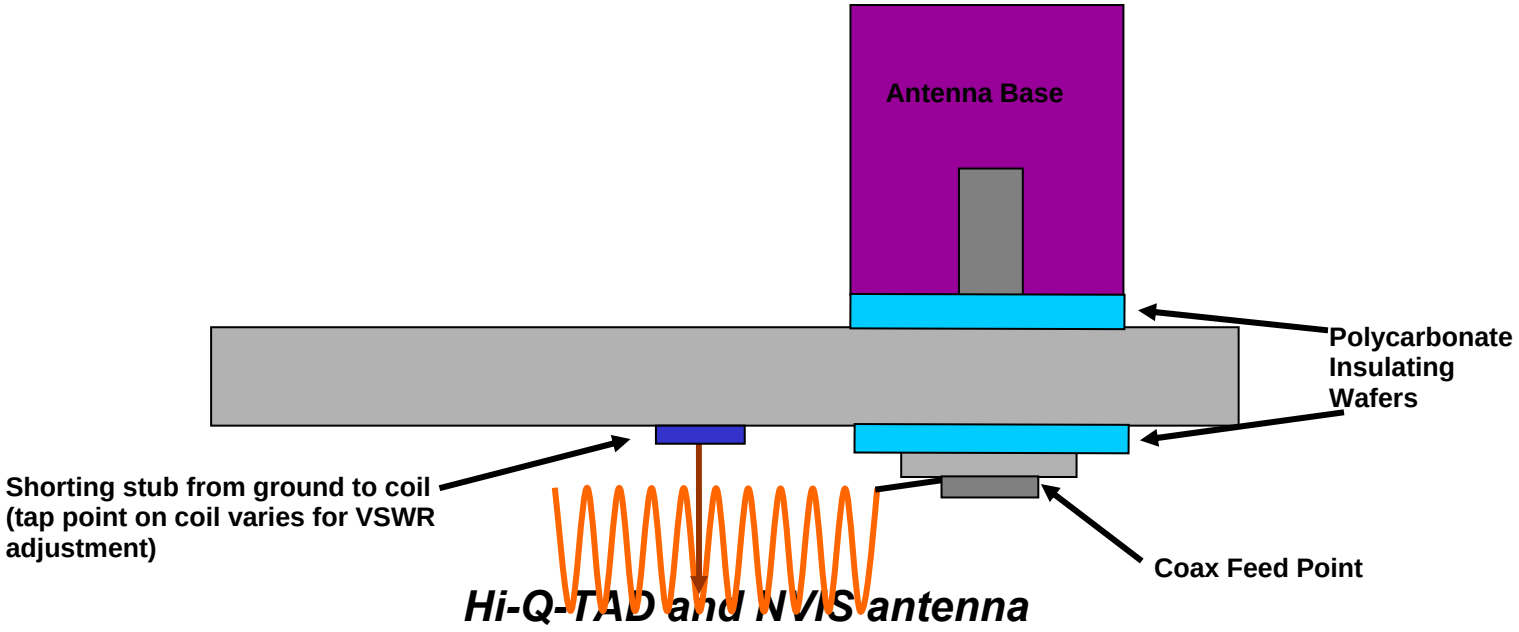
Use the MFJ-90 or 910 instead of fooling with the SHUNT coil, your choice!

The natural impedance values for the Hi-Q Series of HF Mobile Antennas are:

Hi-Q-2.5/40 @ 7.250 MHz is approx. 49 Ohms	**Hi-Q-2.5/80 @ 3.750 MHz is approx. 22 ohms**
Hi-Q-3/80 @3.750 MHz is approx. 18 Ohms	**Hi-Q-4/80 @ 3.750 MHz is approx. 12 Ohms**
Hi-Q-4/160 @ 1.850 MHz is approx. 10 Ohms.	**Hi-Q-5/80 @ 3,750 MHz is appx. 10 Ohms**

For the 40 and 80 Meter bands, you MUST use a matching device to bring the feed point impedance close a nominal 52 ohms. This can be easily achieved with the supplied shunt coil. (A shunt coil may be made using #14 or heavier bare copper wire, close-wound on a 1.25" to 1.5" mandrel, and then stretched slightly to create an air gap of approximately one half of the wire's diameter between the turns--just make sure coils aren't touching each other.)

One end of the coil is attached to the antenna's feed point at the 3/8-24 bolt and the other end to goes to ground. However, before you permanently ground the coil, determine the best VSWR by simply shorting out turns of the shunt coil one-by-one until the VSWR reaches its lowest point. This is usually less than 1.5:1. Solder the ground tap at this point. You may want to test the tap at different points *around* the coil for fine tuning purposes.



Hi-Q-TAD and NVIS antenna

Mounting tips for the Hi-Q TAD (Tune-A-Dipole) and the NEW NVIS antennas.

The Hi-Q-TAD (Tune-A-Dipole) consists of either of the Hi-Q HF Mobile antenna:

Hi-Q-2.5/80
Hi-Q-3/80
Hi-Q-4/80
Hi-Q-5/80 or the Hi-Q-5/160

It is important that you set the antenna on the bench first having 12 VDC @ 3 amps. Available.
Tune the CONTACTOR all the way down to the coil base, if you have BOTTOMED it out then GO UP by reversing the polarity to REMOVE THE STRAIN on the contactor, this is just about a turn on the coil.
Do this procedure on BOTH antennas.

If you are using a controller like the MFJ-1922 that counts the turns on the motor shaft, then you need ONLY ONE REED SW on one of the antenna.
If you going to use TWO MFJ-1922 or similar antenna controller that utilyses MAGNET and REED switch, use the REED sw pulse output to each of the MFJ controller.
With the TWO units INDIVIDUALLY set to ZERO (the contactors are at the bottom) now you can keep the antennas in sync.
Both antennas now need to be connected to the COUPLING bracket and the TWO MOTOR WIRES NOW NEED TO BE connected together.
Run it UP/DOWN and see that the contactors are traveling in parallel.

The 52-ohm coax cable shield connects to the bracket and the center to the other antennas 3/8 bolt with the yellow lug.

Install the antenna on the mast so that the "V" points the whip tips UP, not drooping.
The higher you get it the more efficient it gets.

If you wish to use it in the VERTICAL config.
Then you must use a NON CONDUCTIVE mast!

Note to NVIS Hi-Q antenna users:

The NVIS principle is to use the TAD (Dipole) antenna close to the ground 2 to 15 feet in height. This normally achived using a simple Tripod.

The NEAR VERTICAL INCIDENT SKYWAVE is appx. 70-80 degrees to vertical. The signal bounces back like an HALF open umbrella covering 300-400 mile radius.
With LOW power, 5-25 watts one will have exellent communication from 1.8 to 10 MHz REGARDLES of the mountainous terrain in your vicinity.
In my testing I have noticed 0 (that is ZERO) "S" units vs. the dipole at 80' having noise level of "S" 6, this is one of the reason you want o have an NVIS antenna for rag chewing with your friends in the 3-400 mile radius.
The NVIS use of small dipoles close to the ground has been in use since WWWII.