

INSTALLATION INSTRUCTIONS:

AMB-BKT-3T[®] Heavy Duty "L" Antenna Bracket

Thank you for your purchase; we appreciate your business and interest in our products.

These instructions describe how to install the **AMB-BKT-3-T[®] ("BKT") heavy-duty "L" bracket** for mobile HF/V/UHF antennas, for mobile, fixed-base, temporary/QRP or ECOMM purposes. It can support essentially any V/UHF mobile antenna and small to medium-large mobile HF antennas (see list below). The BKT comes *without any antenna base* – you can install any antenna base that meets the following specifications and our compatible bases are shown below.

The "3-T" replaces the earlier version, AMB-BKT-1-T, and has the same specifications except the "3-T" is ½ inch wider to accommodate a wider range of antennas with a base diameter up to 3 inches.

Specifications

- 6061 aluminum "L" bracket, 1/2 inches thick x 6 x 6 x 3 inches wide.
- 18-8 stainless steel hardware: 3/8x16, 2 inch long, mounting bolts, 1/4x20 ground point with wing nut, solder lug .
- Mounting hole for antenna bases: 3/4 inch diameter, panel thickness 1/2 inch.

The following photo shows **WHAT YOU GET** with the BKT in buffed aluminum (several powder coat finishes also available) with our five optional antenna bases that fit the BKT. Other photos are included below. NOTE: this is a photo



Compatible Types of Antennas

The following are examples of antennas that can be used with the BKT, for mobile and fixed-base applications. The user of course must ensure that it is bolted to their location in a way that will support their antenna.

- Any size V/UHF mobile antenna
- Small HF to large mobile HF motorized / screwdriver antennas that do NOT require a second point of attachment:
 - Hi Q HF motorized antennas – standard and ruggedized.
 - Scorpion screwdriver antennas.
 - High Sierra "Sidekick" and the larger HS1500, HS1800 models (if fixed base use)
 - Tarheel "Little Tarheel" and the larger models (if fixed base use) such as the Tarheel Model 100.
 - Buddipole™ "Buddistick" and dipoles with our custom-made "VersaBase"
 - others with a *base diameter up to 3 inches*.

Our Compatible Antenna Bases

We offer the following optional compatible antenna bases, all of which are interchangeable on the BKT:



Other Options

The following options are available for the BKT. Photos of these are provided on the next page.

- **AMB-Arm2:** second antenna arm bracket, 13 inches long, with NMO antenna base with four removable ground plane radials (135-512 MHz) – see below.
- **AMB-GND-1 & 8:** ground counterpoise "rings" for up to eight (8) telescoping or "tuned" (e.g. "hamstick" & "wonder lead" antennas) whips with a 3/8x24 threaded base, to form a horizontal counterpoise for HF bands. You can also use one of the Buddipole™ dipole elements. See photo below. (*see special mounting note in Step 2-a*).
- **SHUNT-100 :** weatherproof adjustable HF load inductor for 160-10m, which bolts directly to the BKT.

Safety First!

*Use caution if you are installing your antenna on a ladder, balcony or other location where the antenna could fall on someone or cause damage if it were to fall. If so, you might want to install a "safety line" in case your antenna/mount comes loose. As with any antenna installation, be careful around thunderstorms and lightning, and you may want to remove your antenna or disconnect the coax BEFORE a storm appears - remember that if you can hear thunder you can be struck by lightning! These instructions are meant to provide general guidelines but can not provide all of the details on how to safely install your mount and antenna, as each installation is unique. If you feel that you cannot safely install your antenna on the BKT, or it does not meet your needs, you may return it for a refund within two weeks (see Warranty for details). **SAFETY FIRST!***

Tools Needed to Install BKT and Options

No special tools are required. A wrench is needed to tighten the mounting bolts and antenna bases.

Installation Suggestions

- 1) The BKT bolts to your VERTICAL mounting surface (or some of our other mounting brackets) using the two provided 3/8 inch bolts. Place flat washers on either side and a lock washer under each nut. You can use longer bolts or wood screws that you provide in place of the bolts that come with the BKT. **BE SURE that the BKT IS BOLTED SECURELY** to support your type of antenna.
- 2) Options installation (SKIP if none used) – also refer to any instructions that came with these options.
 - a) The **AMB-GND-1 & 8** counterpoise rings mount into the upper of the two 3/8 holes. Model "1" has four couplers and Model "8" has eight couplers. They are designed **ONLY** for fixed base but ***NOT for mobile use while moving.*** The photo below shows the AMB-Gnd-1 installed on the BKT. The AMB-Gnd-8 installs the same way.
 - **SPECIAL MOUNTING NOTE:** If you need both bolts to mount the BKT use the upper bolt to hold the "ring" – in this case one of the couplers cannot be used. However, if your mounting surface is thin you may be able to use one bolt and coupler that come with the "ring" as the upper bolt to support the BKT, therefore all of the couplers can be used. Alternatively, if you can mount the BKT with only the **BOTTOM** bolt, then you can likely use all couplers and whips with the "ring".



- b) The **AMB-Arm2** second antenna bracket mounts to the 1/4 inch ground bolt on the BKT. It is designed **ONLY** for fixed base but is ***NOT designed for mobile use while moving.*** The photo below shows what you get. The bracket is 13 inches long with a 1/4 inch hole for mounting. [→ see photo next page]



- c) The **SHUNT-100** bolts to the provided 1/4" ground bolt on the BKT. A single conductor, 14 gauge, insulated wire is connected from the 1/4" ground bolt on the SHUNT to the center conductor of your coax and the antenna "hot" connection. This is NOT included but we offer a jumper cable for this purpose, or you can easily make your own.



- 3) Attach the antenna base of your choice; your antenna screws onto the base. You can use more than one base (one at a time) as they are easily interchangeable if you have antennas with different types of bases. Use your own base or one of our bases listed below:

- a) The "AntMtgKit" includes two, 2.0 inch diameter, insulating wafers, a 3/8x24 bolt that screws into the base of your antenna, a large and small flat washer, and lock washer. This is compatible for antennas UP TO 2.0 inches in diameter at the base. Hi Q antennas provides a 2.5 inch wafer kit for their ruggedized HF motorized antennas, and this WILL FIT the BKT's 3/4 inch diameter hole. The photo below shows the AntMtgKit on the BKT.



- b) The NMO and SO239 bases include large stainless steel washers and *nicely machined* nickel plated brass heavy-duty nut(s) so that they will fit any hole from 5/8 to 3/4 inches in diameter.
- c) The NMO radial base has the same features as the other NMO base (see 3-b) plus it has four removable stainless steel groundplane radials that are installed with the provided Allen wrench. Note that the hole to mount the NMO radial base is drilled offset from the center, so you can access the Allen screws without having to remove the base – simply loosen the base to rotate the base to install or remove each radial.
- d) The "VersaBase" attaches to the BKT with the 3/8 inch stainless steel hardware and wing nut, for quick installation and removal. It will fit the Buddipole™ Versabase for their dipole HF antennas (*Versatee not included*). It is designed for fixed base but **NOT for mobile use while driving.**
- 4) Connect a ground counterpoise, if needed, such as if the mounting surface does not provide a sufficient counterpoise.
- a) For HF, you can use a simple wire counterpoise connected to the provided heavy-duty solder lug on the 1/4 inch bolt with wing nut (use 14 gauge or smaller, even small gauge flat cable works). Use at least four or more wires that can be cut to the desired band(s) or simply use at least four 10 foot long radials which can typically work on 20m and above. Use longer radials for the lower bands. Our optional AMB-BKT-1 & 8 counterpoise rings can fit up to four or eight 3/8x24 stud telescoping whips to form a horizontal counterpoise; whips are available (and will work) up to 12 feet long. The counterpoise, whichever you use, will work best if elevated ABOVE GROUND and not laid on the ground unless you can install MANY radials. A counterpoise even 5 or more feet above the ground works fine, but the higher the better. The counterpoise should be somewhat horizontal but can slope away from the antenna. A counterpoise that is mostly vertical may not work well.

b) For V/UHF (6m and above), the counterpoise (groundplane radials) are connected to the ground point bolt near the antenna base and works best if slightly shorter than a 1/4 wavelength. For single band antennas, the length should be "cut" for the band; for multi band antennas cut the radials for the lowest band. These can be made from stiff wire or whip antennas or other radials sticking out from the base of the antenna. Four are recommended, and can be approximately horizontal or sloping away from the antenna at up to a 45 degree angle. Our "NMO radial base" includes removable groundplane radials for 135-512 MHz.

5) Some antenna and coax suggestions.

- Coax connection. Generally, RG-58 size coax works fine for portable or fixed-base installations where the length of the coax is typically less than 25 feet, especially if you run under 500 watts. You can use any coax you desire.
- SWR adjusting device (if needed) for HF antennas, especially those mounted near the ground, to reduce the SWR to an acceptable level at the antenna resonance point on 160m and 80m, and maybe also on 40m. You may need a shunt load inductor, UNUN, or additional capacitance to reduce the SWR. Some of these devices need to be installed at the antenna and if so should be weather resistant (like our **SHUNT-100**).
- Ferrite bead filters to reduce HF antenna tuning problems and to help prevent RFI in devices connected to your radio. For the HF bands, use Mix 31 or other types that are designed to filter the entire HF band. Do NOT use unknown ferrites as they may not work at HF frequencies! You may want to install at least 3 ferrites, closely spaced, over your coax / antenna motor cable as close to your antenna as possible. One of these should have the coax wound 2-3 times around one of the ferrites (improves filtering at the lower frequencies). Also install ferrites in a similar fashion on your motor/turns counter cable, and install one ferrite on the coax near your transceiver. Some installations may require 10 or more ferrites on EACH cable, at the antenna end of the cables. A white paper on this topic can be downloaded for free from our web page: <http://www.repdesign.us/Download.html>
- Tuning an HF screwdriver / motorized antenna. You can tune your antenna using a DPDT, center off, manual switch or one of the automatic tuning devices that powers your antenna motor and stops at the resonance point. Do not confuse these with "antenna tuners", which add capacitance / inductance to match the antenna to the radio - generally speaking these should NOT be used with "resonant" antennas except to fine tune an SWR that is slightly too high and can not be reduced by improved grounding, improving the ground counterpoise, installing ferrite beads or using a load inductor or other device.
- Using untuned "whip" antennas as the vertical antenna radiator. You can use a "CB" whip which would only be resonant on 11-10 meters. To operate other bands you will need some type of antenna tuner mounted directly below the whip.

Spare parts, accessories, downloads and related products.

Let us know if you need spare parts or are looking for something that we do not yet provide – your idea could become a new product! As a specialty company, we are looking for unique ideas to serve the amateur and two-way radio community.

Warranty Summary

All products include a two (2) week "return for any reason" and six (6) month manufacturing defects limited warranty. If you should need to return your product please contact us **IN ADVANCE to obtain a return authorization number. Please refer to the complete warranty terms that are enclosed with your order; this is also included on our web site.**