

PATENT PEND.

BASEBED[®]

ALIGNMENT BAR

The BASEBED Alignment Bar allows gunsmiths and novices alike to quickly and accurately align both front and rear "Weaver-type" scope ring bases to one another and then properly mount to your rifle.

Using the BASEBED Alignment Bar is a very simple, yet unique concept upon properly mounting your scope rings and bases on your rifle or handgun. With the use of epoxy and the BASEBED Alignment Bar, you can now achieve perfect alignment between your scope rings. The common process of "Lapping" your scope rings, is no longer necessary.

← READ & FOLLOW THESE INSTRUCTIONS



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BASE ALIGNMENT - CONTINUED

STEP 1B: - CONTINUED

Be sure to loosen the two (2) screws that are on the clamps to allow them to be easily slid onto the bar. Position the clamps so that they are centered between the two (2) screws that attach the bases onto the receiver, as is illustrated in FIG 2. Once you have the clamps centered between the screws and roughly the center of each base as shown, tighten the screw on each clamp finger tight. You want to make sure the screw is tight, however do not use any additional force on the screws, it is not necessary to over tighten them.



FIG. 2

STEP 2B:

Now you have just accomplished something, which has never been done before. You now have perfectly aligned both your front and rear bases in all three planes. If you examine FIG.3, FIG.4, and FIG.5 closely, you will notice how your bases would normally be positioned if you weren't using the Basebed™ Alignment Bar to align them together.

FIG. 3

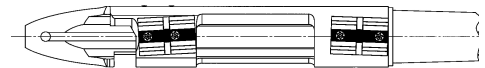


FIG. 4

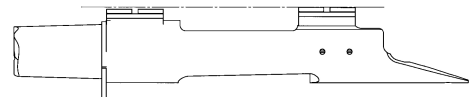
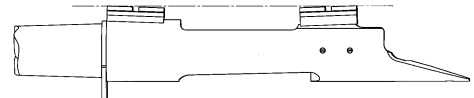


FIG. 5

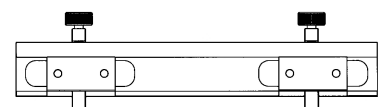


Your next step is to carefully remove the screws, which attaches your bases on your receiver. Since the screws are already loose, not much effort is required there. *Note: The reason that you placed your bases on the receiver and then loosened the screws was to position the bases accurately to each other, so that when we re-attach the bases, the bases properly align with the screw holes in your receiver, as you will discover in the following step.* Be careful when completely removing all of the screws, so that the Basebed™ Alignment Bar and the attached bases do not fall off of the receiver. You don't want to disturb the bases that are clamped on the alignment bar.

STEP 3B:

With the bases now firmly clamped onto the Basebed™ Alignment Bar, carefully set the alignment bar to one side, preferably with the bases facing up as to eliminate any contaminants or movement of the bases while you prepare the rest of the components for assembly, as shown in FIG. 6.

FIG. 6



WARNING



Never attempt to install or uninstall scope ring bases or any other repair on a firearm unless you are absolutely certain that it is empty and unloaded. Visually inspect the chamber, the magazine and firing mechanism to be absolutely certain that no ammunition remains in the firearm. Disassembly and reassembly should follow the appropriate manufacturer's instructions. If such instructions are not immediately available, contact the manufacturer to see if they are available. If they are not available at all, then you should consult other reference sources such as reference books or persons with sufficient knowledge. If such alternative sources are not available and you have a need to disassemble or reassemble the firearm, you should proceed basing your procedures on common sense and experience with similarly constructed firearms. With regard to the use of these tools, the advice of Tactical Precision Systems Incorporated is general. If there is any question as to a specific application it would be best to seek out specific advice from other sources and not solely rely on the general advice and warnings given.

REGARDING THE DETAILED INSTRUCTION PROCEDURES

These instructions are written with the assumption that you have never attempted or contemplated the alignment of two-piece bases. As well, the instructions regarding the use of epoxy is in detail, to provide the novice users adequate instructions. We will take you through the steps and explain along the way, with graphical illustrations as to how and why the front and rear bases on your rifle or handgun must be properly aligned and the best way to correct them to insure lifetime accuracy and reliability in your optics.

ATTENTION: THOROUGHLY READ ALL INSTRUCTIONS BEFORE BEGINNING!!

BASE INSTALLATION - WEAVER-TYPE

PREPARATION

STEP 1A:

Secure the firearm in a padded bench vise. Position the firearm to give you unrestricted access to the receiver and the mounts. Both hands must be free to work with the bases and the tools used during the alignment and mounting process.

If the firearm currently has rings and bases already installed, you will need to first remove the scope, rings and bases off of the firearm. Follow the manufactures instructions regarding the removal of the scope and/or rings. Once you have the bases removed from the firearm receiver, proceed to step 2A.

STEP 2A:

Inspect the receiver and the bases for any signs of burrs, nicks or dings that may be present. Pay special attention to areas around the screw holes of both the receiver and the bases. If you find any burrs, carefully remove them with a small file or stone. If your bases have been installed previously or if your firearm receiver has had bases installed previously, pay careful attention to any signs of adhesives, such as Loctite® that may be present on the surface. Remove any signs of adhesives on both the receiver and the bases, being careful not to damage the finish on either component. You may find using a fine sandpaper, such as 220 grit wet/dry may aid in removing any adhesive on the bottom of the bases, however not recommend on the receiver for the reason of scratching and possibly damaging the finish of your firearm. In a properly ventilated area, use a degreaser such as acetone or similar degreasing solvent to clean the bottom side of the bases. *NOTE: Be very careful as to not get any of the acetone or degreasing solvent on the rest of the firearm. The acetone and most degreasers will severely damage the finish on most wood finishes.*

STEP 3A:

The next step is to temporarily install your bases on your firearm receiver. Install the front and rear bases (DO NOT FULLY TIGHTEN SCREWS), keeping in mind which base is front and which is the rear base, to prevent them from being reversed. Most bases on firearms have different spacing between the front and rear as well as a height difference, so it makes it easier to identify, which is which. With the use of screwdriver or hex wrench, whichever is appropriate for the type of screws that your bases use, tighten the screws just until they come snug, then loosen the screws between (1 to 1-1/2 turns). After you have loosened the screws on the bases, grab each base with your fingers and wiggle the base back and fourth. The bases should freely move within the confines of the screws. If the bases do not move with above method, loosen the screws another 1/2 turn and repeat. It is critical in the next step that the bases are allowed to "Float", so as not to be overly restricted by the screws.

BASE ALIGNMENT

STEP 1B:

Next, remove the clamps, if they are attached on your Basebed™ Alignment Bar by sliding them down the length of the bar. Carefully place the Basebed™ Alignment Bar on top of the bases as shown in FIG 1, keeping the word "FRONT" facing the muzzle of firearm. Now, carefully slid the clamps onto the alignment bar.

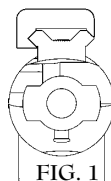


FIG. 1

Next, using carnauba wax or release agent, apply a THIN coat on the entire top surface of the receiver, specifically where the front and rear bases are going to be mounted. *Note: The epoxy that is used for bedding your bases onto the receiver is not only good for bedding, is also a great glue for attaching to metal, wood and most anything that it touches. The carnauba or past wax or release agent prevents the epoxy from adhering to a surface, which you don't wish to have epoxy bonded to.* It is recommend that you apply two (2) THIN coats of carnauba paste wax or release agent to insure you haven't missed any spot. Now, take the screws which attach your bases onto your receiver and thoroughly coat them with past wax. You want the screws to be completely coated, but not leaving excessive wax on them. Allow the wax to dry on the receiver for a period of 5 minutes or more, allowing a haze looking finish. If after 5 minutes, the wax or release agent still appears to be wet, allow an additional 5 minutes or until it appears dry.

EPOXY MIXING AND APPLICATION

STEP 1C:

The next step is to apply the epoxy onto the bases while they are firmly attached in their proper positions on the Basebed™ Alignment Bar. Before you begin mixing the epoxy, you want to make sure you have everything that you need before starting. Such as, your screwdriver or Allen key used to tighten the screws onto your bases. You will also need clean-up items, such as tissue paper, Q-Tip or a small scraper made of wood or plastic. In addition, you will need a cleanup solvent, such as acetone. Again, be very careful with the acetone, due to the fact it can damage your stock finish. And of course, the screws that attach the bases on the receiver are a must, so keep them close by. Once you mix the epoxy, you have between 3-5 minutes to assemble the bases onto the receiver or the epoxy will begin to harden. **DON'T WORRY THOUGH, BEING CAREFUL AND PRECISE IS MORE IMPORTANT THAN BEING SPEEDY AND SLOPPY.**

STEP 2C:

Carefully knead the epoxy contained in the package for about 30 seconds. Make sure before you begin, that the epoxy is room temperature or above. It is recommend that the epoxy be at 75 degrees before starting. If it is cooler than that, simply hold the package between your two hands for about 5 minutes, which should be sufficient. Next, fold the package in half and cut one end as directed on the back of the package of epoxy. Squeeze the epoxy out onto a coffee can lid or something similar. Next, squeeze about half the size of an english pea of the coloring agent with the epoxy and mix thoroughly for about 20-30 seconds. Using a Popsicle stick or something similar, carefully apply a layer of epoxy on the bottom of both the bases, which are clamped in the Basebed™ Alignment Bar. It is not necessary to over-apply the epoxy on the bases, but should have between a 1/16 -3/32 of an inch coating on both bases. Do not be overly concerned about having a perfectly even coating on the entire surface of the base. When the bases are installed upon the receiver, the epoxy will flow out from under the base, and evenly distribute the epoxy on it's own.

INSTALLING THE BASES ON YOUR RECEIVER

STEP 1D:

Now you are ready to mount your bases onto your receiver. With the epoxy applied onto the bottom of the bases and clamped in the Basebed™ Alignment Bar, carefully turn the alignment bar right-side up. Carefully place all the respective base screws into the base holes (Typically there two (2) screws per base and two (2) bases per receiver). Your bases should be in the Basebed™ Alignment Bar as illustrated in the previous FIG.2, with the word "FRONT" facing up and toward the muzzle of the firearm.

STEP 2D:

Carefully, while holding the Basebed™ Alignment Bar above your receiver, visually align the base screws with the corresponding base screw holes in the receiver, while holding the alignment bar about 1/2 inch above the receiver. Once you have aligned the screws in the front and rear bases visually, gently lower the bases down onto the receiver. **NOTE: Do not apply downward pressure onto the alignment bar. Only allow the weight of the alignment bar to rest on the receiver.** Using your screwdriver or Hex key, which ever is appropriate for the fasteners on your bases, carefully screw-in each screw about 2-3 turns. Do not tighten any screws at this point. Once you have all the screws in place on both bases, begin turning the screw closest to the muzzle until you just barely feel pressure. Next do the same thing with the screw closest to the rear of the receiver. Then turn the remainder of the screws with same amount of pressure, but do not tighten. Now that you have all the screws installed into the base, very gently tighten the screws in the same order as before, starting with the one closest to the muzzle. Tighten the screws only enough to feel resistance on the screws, (Approximately 1/2 - 1 in/lbs.). **DO NOT OVER-TIGHTEN.** *Note: The purpose of the epoxy bedding is to provide an accurate platform for the bases to rest upon, while they are contained in an accurate state of position. If you over-tighten the base screws, it will cause Basebed™ Alignment Bar to deflect and bend, defeating the alignment process.*

STEP 3D:

At this point, you should have the bases mounted to your firearm receiver with the Basebed™ Alignment Bar still attached. You should now have epoxy showing that was squeezed out from around the bases when you tightened the base screws. Using a tissue, Q-tip or scrapers prepared previously, carefully remove any excess from around the bases. Be especially careful not to put any pressure on the bases while cleaning up any excess epoxy. Using a damp Q-tip with acetone, you can safely and effectively cleanup the firearm receiver and the outside of the bases. Just make sure that you don't allow any acetone to contact the wood finish of the firearm.

REMOVING THE BASEBED™ ALIGNMENT BAR

STEP 1E:

Allow the epoxy to harden, which typically takes between 10-20 minutes. If you have the time to wait, allowing the bases to fully harden for an hour is preferable. You can now loosen the clamp screws on the Basebed™ Alignment Bar and slide the clamps off the end of the alignment bar. Once you have removed the clamps, simply lift the alignment bar of the bases.

STEP 2E:

At this point, you have two (2) options available. You can now fully tighten the base screws onto your receiver and begin mounting your scope rings as per your manufactures instructions, or you can remove the bases. By removing the bases, it allows you to carefully trim any excess epoxy that may have escaped cleanup on the outside of the bases using a knife or razorblade. **NOTE: If you decide to remove the bases to trim any access epoxy from the outside, make note prior to removal as to which base is the front and which is the rear, as well as which direction that were positioned on the receiver.** If you don't mount the bases back in the same position as they were bedded, then you have completely defeated the purpose of the base alignment process. When mounting the bases back onto the receiver, pay special attention to any burrs, or debris that may have occurred while you were cleaning the excess epoxy from the bases. The bases must be perfectly clean with no debris to reestablish the perfect alignment achieved prior the bases being removed.

STEP 3:

CONGRATULATIONS. You now have achieved the most accurate aligned scope ring bases possible. Your bases are now more accurate and aligned than any 1-piece base could ever hope to be. Now that your front and rear bases are accurately aligned, you will soon experience the difference in your accuracy and more importantly, the positive and long term effects of not having your expensive optics being abused by a misalign bases.

INSIGHT INTO THE WORLD OF TELESCOPIC SIGHT MOUNTING

The inherent problems of proper scope ring alignment is as old as the first rifle scope. Anyone who has attempted to mount their own scope, using various manufactures ring and bases have all encountered the same thing, whether or not they identified the problem is another topic. The scope rings, which hold the scope onto your rifle or handgun, are not perfectly aligned together. The misalignment of your scope rings is why we are here, taking you through the process to explain why your scope rings are misaligned and how to prevent it from happening ever again. It has become an acceptable procedure in past years to do something called "Lapping" your rings. The individuals who have become aware of the fact that their rings are not aligned correctly are implementing the only way of correction that has become apparent to them. Today, however you are about to become aware of not only a different and unique way, but the only correct and proper way to aligning your rings.

First and foremost, the customer, being yourself, must understand a couple things about the manufacturing of firearms, scopes, rings and scope bases. Virtually, every firearm that is manufactured in the world, past and present has the same inherited problems. They are all unique. Unique in the fact that no two are the same, and the areas that mates with your scope ring bases are the areas that is of concern today. The receivers on rifles and handguns are machined and then polished, typically by hand. By hand polishing along with typical machining tolerances, you have irregular radiuses, surfaces and dimensional heights to which you must align and eventually mount your scope ring bases onto. Because of these differences, is what causes your scope rings to be misaligned, which is why the attempted correction has been to "Lapp" your rings.

All components, such as your firearm receiver, scope rings and bases all have dimensional "manufacturing" tolerances in them. However, you will typically find that most quality oriented manufactures in the scope, scope ring and base market provide an accurate product, since they are typically machined on the critical surfaces, compared to a firearm receiver which as been polished by hand.

If the world were perfect, your firearm receiver would as well. However, we know this not to be true, so we accept the problem and find means to correct it. The Basebed™

Alignment Bar aligns your bases, even if they themselves may not be perfect. The alignment bar aligns your bases together, in three (3) different planes, and then allows you to mount the bases in their aligned state of position perfectly to your firearm receiver. In using the Basebed™ Alignment Bar, you will have eliminated the largest aspect of misalignment in the mounting of your scope. Nothing can take the place of precision and accurate rings and bases, so we highly suggest that when decide to purchase your next set of rings and bases consider the quality and accuracy of both in regards to how they mount on your firearm.