Score High Gunsmithing Adjustable Pillar Bedding Installation Guide

From
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Why Pillar Bedding

You need a long lasting rigid foundation to support the tremendous pressure of the guard screws .

Over time most stocks will crush under the pressure of the trigger guard screws. When this occurs that portion of the stock immediately around the screw will compress much more than the area of the stock in the middle of the action.

Why Pillar Bedding

Once this stock compression occurs the stock along with its inletting will take on a new shape. When the trigger guard screws are retightened the action and the stock will each compromise their shape by bending and flexing as the two components are drawn together by the trigger guard screws.

The stock tweaks trying to conform to the action and the action tweaks trying to conform to the stock. This all contributes to stress in the assembly. A stock with a high compressive strength post or pillar in between the action and the trigger guard will eliminate this compression and your stock will give good service for many many years.

Why Pillar Bedding

All things in nature vibrate. Good rifle accuracy depends on the management of those vibration cycles. When the various components of the rifle are under different types of stress the vibration cycles become erratic.

The rifles recoil may cause the barreled action to shift in the stock. This will cause the natural stress to change, thus the vibration cycles of the next shot will be different. The barrel may well have a slightly different point of impact from the previous shot do to this shifting. The barreled action will NOT shift in a properly pillar bedded stock.

Why Pillar Bedding

Without the rigid support of Pillars the torque of the trigger guard screws, measured in inch pounds, becomes extremely critical because each inch pound of torque will change the amount of stress thus changing the relationship between the barreled action and the stock.

Variance in guard screw torque can easily develop into a difficult to manage proposition. The proper torque today may not be tomorrow.

Why Pillar Bedding

A stress free situation will occur when there are non yielding, rock solid pillars in between the action and the trigger guard in such a position that all of the rifles components are at rest at the exact point in which they come into contact with each other.

Why Pillar Bedding Summarized

- Eliminate variable stock compression.
- Create a stress free stock to metal fit regardless of the pressure created by the torque of the trigger guard screws.
- Achieve shot to shot consistency under any recoil.

How to Recognize the Properly Bedded Stock

- A properly bedded stock will be completely stress free regardless of the torque of the trigger guard screws.
- A properly bedded stock will not negatively influence the barreled action during firing.

How to Recognize the Properly Bedded Stock

There are several methods of determining if there is any stress in a rifles bedding.

The Free Floated Barrel

If a barrel is to be free floated and the general consensus among accuracy gunsmiths is that it should. It must be adequately floated. At least a 3 to 4 thickness of note book paper should be able to pass between the barrel and forend with out interference.

The Free Floated Barrel

At the time a rifle is being fired the forend will flex as it tracks on the front rest. Depending on stock design, shooting technique and forend stiffness this flex may be a little or a lot. If the forend comes into contact with the barrel during the firing process, accuracy will be greatly compromised.

This can be easily tested by gently rapping on the bottom of the forend and listening for the sound of the forend striking the barrel. Hopefully it won't.

The bore sight Collimator Test

With a bore sight collimator inserted in the muzzle of the barrel loosen and tighten each of the trigger guard screws while Looking through the scope.

You should not be able to detect any change whatsoever in the collimator's view. Any change in that view illustrates how stresses are changing under the changing load of the guard screws.

If there are no stresses there are no changes.

T.O.C.

The Dial Indicator Test

This is the most definitive test. With a dial indicator mounted to the barrel loosen and tighten the trigger guard screws.

Any change in the indicator's value is an indication of unwelcome stress.

T.O.C.

Stress Test Using Sight and Feel

This test can be very enlightening and calls for no special tools. While observing certain areas loosen and tighten the guard screws.

NOTE: Loosening and tightening trigger guard screws with out running the risk of having a screw driver slip and mar the screw slot or even worse the stock, can require ones full attention, you may want to recruit a friend to help.

Stress Test Using Sight and Feel

Placing one or more of your finger tips on both the stock and metal at the rear tang and then the ejection port while loosening and tightening the screws you can detect any stress by feeling for a change in the relationship of stock and metal.

Stress Test Using Sight and Feel

While loosening and tightening watch for a change in the gap along the sides of the free floated barrel also watch for a change in the gap directly under the barrel at the tip of the forend

What Makes the Score High Adjustable Pillar Bedding System Special

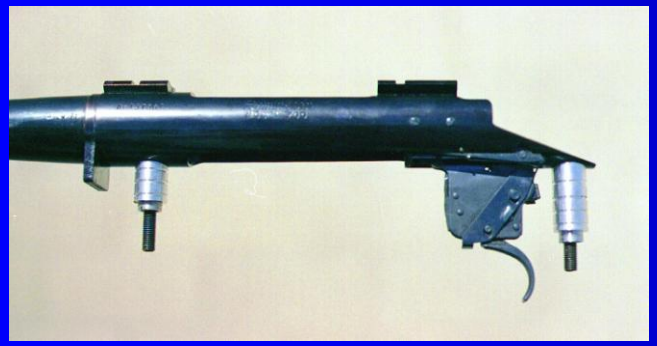
There are two distinctive features that separate the ***Score High Adjustable Bedding Pillars*** from the others.

1. Pillars can be preadjusted to the correct length prior to the epoxy process.
2. Pillars remain attached to the action during the epoxy process guaranteeing proper alignment.

1. Pillars Can Be Pre-adjusted to the Correct Length.

By pre-adjusting the pillars it is easy to ensure that during the bedding process the trigger guard is draw down against the bedding pillar NOT THE STOCK. This eliminates the possibility of bedding stress into the assembled rifle.

2. Pillars Remain Attached to the Action During the Bedding Process.



In having the pillars attached to the action, two very important things happen. First the pillars cannot get out of position during the epoxy bedding process. Second and most important of all, the pre-contoured pillars are allowed to seek their own path off the action to absolutely guarantee 100% contact with action after the epoxy cures. All this equals "ZERO" stress.

T.O.C.

Future Pillar Bedding Work

The ***Score High Adjustable Pillar Bedding Kit*** makes it economical to do more work in the future. The hardware that attaches the pillars to the action and the “T” handles that hold every thing together while the epoxy cures are all reusable . This means that next time you only need to purchase the ***Refill Kit*** with pillars only.

This Begins a Step by Step Guide to Installing the ***Score High Adjustable Pillars.***

Introduction

Now that we have reviewed and considered the properties of a well bedded stock it is time to get started. First, lets look at the kit contents. We will for this presentation assume that you have a ***Deluxe Kit*** that contains every thing you need ranging from the installation hardware the adjustable pillars, bedding epoxy with release agent And an instruction pamphlet.

The Pillars

Each pillar is pre-contoured to match the radius of a Remington 700 action and has a threaded post with a screw driver slot used for adjusting the pillars length. There is one short pillar used for the front guard screw and one long pillar used at the rear. The threaded post used on the rear pillar is cut at 2.5 degrees to match the angle of the trigger guard. You will find a black mark on one of the screw driver slots. This black mark should always be toward the muzzle.

Installation Hardware

There are two threaded post with a snap ring. These post are used to attach the pillars to the action

Each kit also contains two “T” handles that hold the assembly together during the epoxy process

Pro-Bed 2000 Bedding Epoxy

Each ***Deluxe Kit*** comes with either a black or brown 2 fl oz kit of Pro-Bed 2000 bedding epoxy with release agent. This is a extremely high quality bedding epoxy with a non-critical 1:1 mix ratio by volume. Epoxy mixing instructions are included with the kit.

T.O.C.

Step One

1. Make sure the gun isn't loaded by use of a **visual inspection**
2. Carefully read all installation instructions thoroughly before doing any work.
3. Check the function of the rifle. The safety should work properly and have a positive snap from the On to the Off position. The trigger should move freely and not make any contact with the trigger guard. Check the bolt handle to make sure it doesn't touch the stock.

Step One Continued:

4. Check the stock to metal fit. Make a notation as to any gaps you want to fill. If your stock has a barrel channel much larger than your barrel, you may want to fill it in for cosmetic reasons or to stiffen the forend.

Step Two

1. Make sure the barrel is free floated. There should be enough room between the barrel and forend to slide a thickness of four sheets of note book paper all the way back to the recoil lug. If it is not free floated, free float it now.

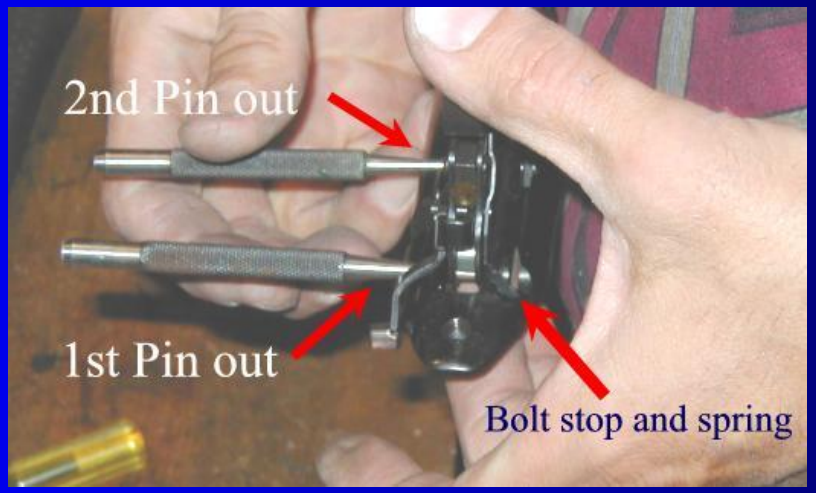
Step Two Continued: Free Floating a the Barrel

On a factory wood stock
there is a raised area
towards the end of the forend.
This needs to be removed.

There are many tools available to remove the necessary wood and finish to get adequate clearance. A metal scraper is fast and gives the best control. They can be made by grinding a radius on the end of an old hack saw blade. With care 60 grit sand paper can also be used although it is a slow process that can easily round corners,. There are a great number of methods and tools available use what you are the most comfortable with.

Step Two Continued:

1. Remove all of the accessories, sling, scope, bipod etc.
2. Remove the trigger assembly by first driving out the rear mounting pin being very careful not to loose the bolt stop and spring. Next remove the front pin. After both pins have been removed the trigger group will be free of the action and the sear bar and it's coil spring will be free of the trigger housing. They can easily become lost, so be careful.



Step Three

Bore a 5/8 inch diameter hole for both the front and rear trigger guard screw. These holes must be as close to a right angle to the bore as you can get. A drill press and a 5/8 inch diameter piloted counterbore works the best but with a little extra care a hand drill and 5/8 spade bit can be used. Piloted counterbores are available from machine tool supply companies or can be ordered from Score High Gunsmithing.

Spade Drill


Piloted Counterbore

Step Three Continued:

Before you bore the 5/8 diameter holes, there are some special precautions that can be taken that will ensure nothing goes wrong. Each hole should be bored from the top of the stock down. As the cutter breaks through it will damage the inletting around the trigger guard. This can be stopped by placing a common washer between the stock and the trigger guard. Hold the trigger guard in place with several pieces of masking tape.

Step Three Continued

As the cutter breaks through the stock it will come in contact with the washer supported by the trigger guard. The cutter will then ride on the washer. In turn the washer will spin and hold the cutter off of the trigger guard, preventing any damage to the aluminum trigger guard. This procedure will not allow the cutter to break through the inletting and cause damage to the stock.

Step Three Continued: Spade Drill Method

To use a spade drill you need to first plug the original holes with a wooden dowel. Drill a hole .003 to .005 inches smaller than a 5/16 to 3/8 inch diameter wooden dowel so that the dowel has a compressed fit. Glue can be used in case the hole gets oversize and won't hold the wooden dowel. Once plugged, you can use the 5/8 inch diameter spade drill.

Step Three Continued: Spade Drill Method

With a bit of care, this method can be very fast and accurate.

Step Three Continued Counter Bore Method

Using a piloted counter bore is the most precise method, however shortly before the cutter breaks all the way through the pilot will strike the washer or the trigger guard. Once that happens the pilot will need to be removed in order to continue to the bottom of the hole.

T.O.C.

Step Three Concluded:

The stock is now ready for the final fitting.

Step Four

The Deluxe Pillar Kit set comes with two pillars, one short and one long. Use the 1/4 x 28 socket head retaining screws to attach the short pillar to the front guard screw hole and the long pillar to the rear.

As you tighten the pillars to the action rotate them side to side until they are firmly seated. DO NOT OVER TIGHTEN.

Step Four Continued

The barreled action with the pillars installed should slide smoothly into the stock. It is absolutely imperative that the pillars are free from any pressure from the stock. This almost never happens without final fitting. With a rat tail file, gouge or sand paper wrapped around a wooden dowel, remove the stock material hanging up on the pillars.

Step Four Continued:

After the holes have been properly inletted, insert the barreled action into the stock. Turn it upside down so that you can now see the bottoms of the pillars.

Holding the barrel and action firmly in the stock, use a small screw driver to rotate the adjustment post of the front pillar so that it is flush or slightly higher than the level of the stock.

Step Four Continued:

Now move to the rear pillar. The bottom of the adjusting post is at a 2 1/2 degree angle to match the angle of the trigger guard. Adjust the post by rotating it full revolutions so that the slot is length wise to the barrel with the black mark towards the muzzle and it is flush or slightly higher than the stock

Step Four Continued:

Check to see that the trigger guard can easily slip over the pillar retaining screws. If not make adjustments as necessary. It is important to make sure that your adjustments do not interfere with how the pillars fit into the stock.

With the magazine box in place, slide the trigger guard over the retaining screws and tighten it down with the "T" handles. The "T" handles should tighten firmly, there should not be any mushy feeling to them at all.

Step Four Continued:

Getting the proper adjustment on the pillars can be a bit tricky. The trigger guard should fit the over the magazine box so that the box fits into the cut out provided on the trigger guard. The trigger guard should tighten down on the pillars not on the stock. If the trigger guard tightens down on the stock at all the pillars should be adjusted a bit longer. It is OK if there is a very slight amount of play between the stock and the barreled action. With the mag box and trigger guard installed and the “T” handles Snug, loosen the "T" handles one at a time. There should not be any movement of the barreled action in the stock. If there is movement then the, pillars are not properly adjusted.

Step Four Continued;

Remove the "T" handles and disassemble the barreled action from the stock. You should reassemble the barreled action without the stock to further check the pillar adjustment and magazine clearance.

Step Four Continued: THE 700 ADL

Because of the blind magazine box, the 700 ADL has to be approached a bit differently.

Step Four Continued, 700 ADL

The rear guard screw is handled the same as the BDL out lined earlier but the front screw is very different.

Drill down the front guard screw hole until the drill bit hits the steel stock screw escutcheon.

Step Four Continued: 700 ADL

Turn the stock upside down in the vise and with a large punch drive the escutcheon through the hole and out the top of the stock.

By driving it out in this manner you reduce the chance of breaking the stock.

Step Four Continued: 700 ADL

After epoxy bedding the escutcheon must be removed. This makes it necessary to relieve the stock so that the escutcheon can be easily reinstalled from the bottom. Don't relieve it too much it still needs a small amount of friction to stay in place while bedding.

From this point forward it is similar to the 700 BDL. The barreled action with the pillars installed must go in and out of the stock with absolutely no interference.

Step Four Continued, 700 ADL

When doing the actual epoxy bedding the steel escutcheon will be installed from the bottom and retained by the "T" handle. In order to remove the retaining screw after the epoxy has cured the steel stock screw escutcheon

MUST BE ABLE TO BE REMOVED

or the pillar retaining screw will not be able to be removed. **Remember to apply mold release to the** escutcheon **to facilitate its removal**

Step Five:

Now we need to remove stock material to accommodate the bedding compound. This can be done a number of different ways. I like to remove a lot of stock material from around the lug area so that the recoil lug will bear on something solid. I also remove material from under the front receiver ring. When removing material from here be sure to leave a small amount of the original inletting on each side of the pillar. This helps keep the barreled action aligned during bedding.

Step Five Continued:

Around the rear pillar you only need to scrape off the stock finish so that the stock bedding compound has something to bond to. The epoxy compound will stick well to the stock finish but the stock finish does not stick that well to the stock, for this reason I like to scrape off all of the stock finish where ever I expect to have epoxy bedding.

Step Five Continued:

There are many methods used by many different top name gunsmiths. Some only bed the area around the lug and the two pillars while some bed the entire action area. Typically I bed the entire action area. In this case I also remove stock material from along the sides of the inletting as well.

Step Five Continued:

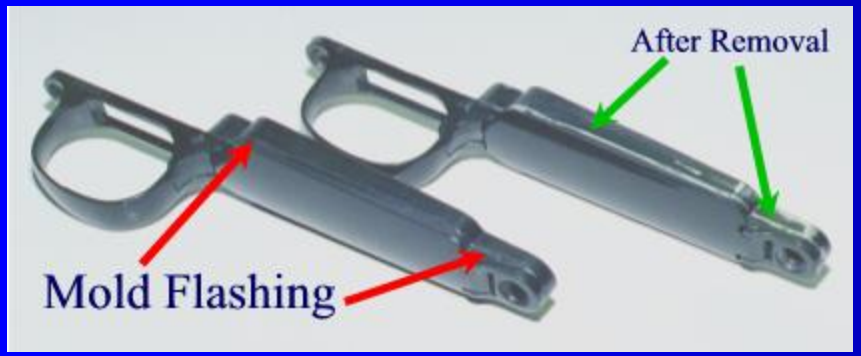
After relieving the stock, reassemble the barreled action and stock. It should fit just as it did before. If your stock has a wide gap between the barrel and forend , and you want to fill it with epoxy, use two inch wide heavy duty electrical tape and apply it to your barrel length wise. Use two or three thicknesses. Check again with note book paper to see that your barrel is still free floated with the tape installed and make any necessary alterations.

Step Six

THE EPOXY APPLICATION PROCESS

Step Six Continued:

Remove the pillars being careful not to change their adjustment.



Quite often, especially on the BDL trigger guards, the mold flashing on the sides is excessive. This flashing makes it difficult to remove after bedding and can even cause damage to the stock. With a file remove the flashing so that the sides are smooth.

Step Six Continued

When handling any chemicals it is a good idea to ware protective clothing. I like to wear Nitril or latex gloves. Not only for protection from the epoxy and mold release but it will also make it easy to clean up the stock after bedding. Immediately after I'm done with the epoxy work I can take off the gloves with out fear of leaving epoxy finger prints on the stock that show up after the epoxy has cured and cannot be removed without damaging the stocks finish.

Step Six Continued:

From this point on we will proceed as if you were using Pro-Bed 2000 bedding epoxy and release agent contained in the Deluxe pillar kit. If using another Brand of bedding epoxy be sure to follow the instructions from their manufacture.

Step Six Continued:

After carefully removing the pillars using the brush supplied in the kit apply mold release to over the entire barreled action and all parts EXCEPT THE PILLARS.

Step Six Continued

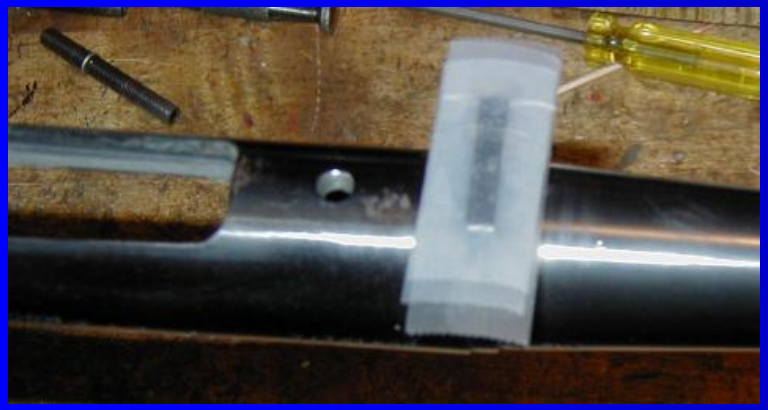
After the mold release wax is applied, it should be buffed to a shine everywhere there is a bedded surface. After buffing you will be able to feel the slick and shiny surface left behind by the mold release. The mold release provided in the Deluxe Kit is an industrial grade release agent used by the manufacturing industry for departing molds on a large scale where fit and finish cannot be compromised.

Step Six Continued:

After buffing the barreled action to a shine place modeling clay in the pin holes used to hold the trigger assembly.

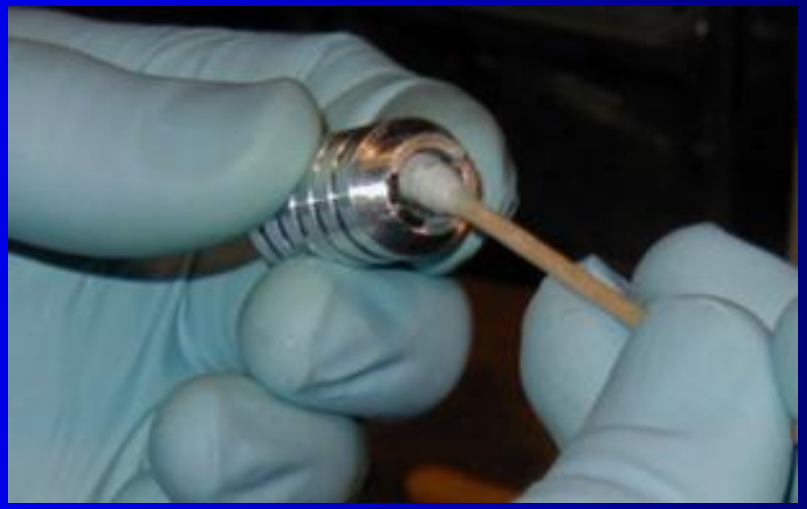
Step Six Continued:

Place 3 or 4 layers of cellophane tape on the bottom of the recoil lug and trim off the excess with a sharp knife or razor blade.



Step Six Continued:

It is impossible to keep the epoxy out of the center of the pillar but if using a cotton swab a little bit of mold release wax is applied to the center of the pillar the cured epoxy will be very easy to remove.



Step Six Continued:

The clean up job will be much easier with release agent or wax applied to certain parts of the stock's inletting. Apply to the sides of the magazine well and to the sides of the trigger inletting. Be very careful not to get any release agent or wax on any part of the stock area that will come into contact with the receiver.

Step Six Continued:

To prevent the bedding epoxy from running out the bottom of the pillar holes use masking tape to block the bottoms of the holes.

Step Six Continued:

Reattach the pillars to the action and retest the assembly to ensure that everything will go together without any hang ups. Then disassemble leaving the pillars and magazine box in place to get ready for the actual epoxy bedding process.

Step Seven: The Epoxy Process Using Pro-Bed 2000

The contents of Pro-Bed 2000 will separate in the jars after a short period of time. Before mixing it is imperative that you stir the contents of each jar completely until homogeneous. **It is very important to remember not to use the same mixing stick in both the resin and curing agent.**

Step Seven Continued:

The mix ratio of Pro-Bed 2000 is 1:1 by volume. One of the unique qualities of Pro-Bed 2000 is that the mix ratio is not extremely critical. A slight error one way or the other will not effect the cure rate or the quality of the cured epoxy. Here at the shop we have found visual measuring to be more than adequate.

We have found that a piece of cardboard makes an excellent mixing surface.

Step Seven Continued:

The mix ratio of Pro-Bed 2000 is 1:1 by volume. The volume method is perfectly acceptable and is what I use. If you have good scales and would rather mix by weight the ratio is 69 PHR (69 parts hardener to 100 parts resin by weight). An easy way to calculate this would be to measure out any amount of resin, divide that number by 100 and multiply the result by 69.

Example: (75 grains of resin divided by 100 equals 0.75).
0.75 times .69 equals 51.75 grains of curing agent.

So 75 grains of resin would require 51.75 grains of curing agent.

Step Seven Continued:

Because both the resin and the curing agent are heavily loaded with microspheres and fibers it takes a great deal of mixing to guarantee that the resin and curing agent are adequately mixed together. There is a very powerful pigment in the resin that will almost instantly change the epoxy to one solid color long before the two are adequately mixed together, don't be fooled by appearance. Mix, mix and then mix some more.

Step Seven Continued:

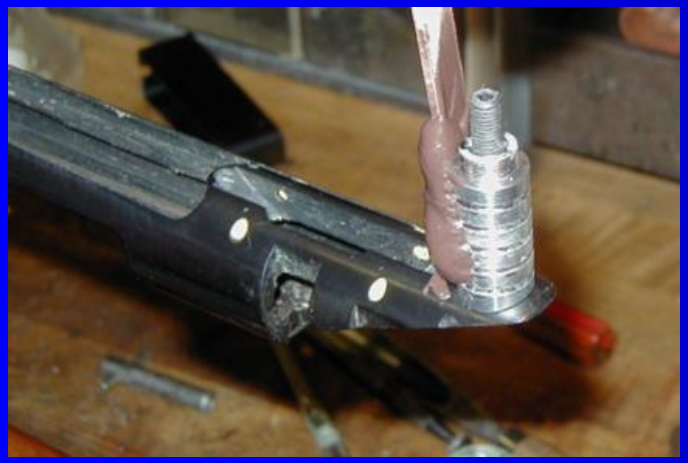
First apply the epoxy compound into the front pillar hole and then completely fill the lug area. The majority of the epoxy should lay flat on the bottom so that when the barreled action is inserted into the stock, the very bottom of the action will come into contact with the epoxy first and the epoxy will then flow up around the receiver eliminating any air bubbles.

Step Seven Continued

Next apply a layer of bedding epoxy to the sides of the stock's inletting.

Step Seven Continued:

To ensure that there are no air bubbles around the aluminum pillars lay a layer of bedding epoxy around both front and rear pillars.



Step Eight

With the two pillars properly attached and coated with a layer of bedding epoxy and the magazine box properly seated into the magazine cut out in the receiver, it is time to bring the barreled action and the epoxy filled stock together.

Step Eight Continued

With the barreled action upside down and with the pillars pointing straight up, turn the stock over and place it onto the barreled action. The two pillar retaining screws will pop up from under the masking tape making the masking tape come loose from the stock. Remove and discard the tape.

Step Eight Continued:

Place the trigger guard over the pillar retaining screws and install the “T” handles. It is very important to check the alignment of the magazine box to make absolutely sure that it is seated inside the cut out provided in the trigger guard.

It is very important that the “T” handles are not over tightened! It is very easy to induce stress in the assembly by over tightening. Once you feel the trigger guard come into contact with the pillars stop and back off the “T” handles just a tiny bit.

Step Eight Continued:

After all epoxy work is completed remove all excess epoxy that has run onto the outside of the stock. It will greatly help out later if you run a toothpick around the trigger guard removing the epoxy from the gap at the immediate surface. This is a trouble spot and can be difficult to deal with after the epoxy has cured.

Step Eight Concluded

After all the epoxy is wiped off the stock and the metal above the stock line is clean it is time to set the rifle aside while the epoxy cures. There are many different ideas as to what works best. For the most part we set the rifle aside upside down on the scope base so that the is absolutely no weight on the stock we have found this to work very well. Another method that works well is to set the rifle up in a benchrest, with the forend on the front rest and the butt stock riding in the rear bag.

Step Nine

After 24 hours it is safe to remove the barreled action from the stock. Prior to remove the metal check all the little corners for cured epoxy that has run over the top of the rear tang or the ejection port. The trigger guard is very prone for this to happen and needs to be inspected very closely. If there is epoxy present there it must be removed or it will break off bringing with it a piece of the stock ruining what would otherwise be a terrific bedding job.

Step Nine Continued:

After verifying there is no epoxy excess to cause any problems, remove the “T” handles. Next remove the set screws. As the set screws are removed they will push the trigger guard out of the inletting. If the trigger guard is not pushed out try pulling on the trigger guard bow and it should come free.

Step Nine Continued:

After completely removing the pillar retaining screws insert the bolt into the action and place the rifle upside down in a padded vice around the mag box area. With a wooden dowel or something soft, gently tap on the bottom of the bolt body by using the magazine well for access from the bottom. The barreled action will easily fall out.

Be ready. Don't let it fall to the floor.

Step Nine Continued:

Having waxed the stocks inletting around the trigger, safety and magazine box area the epoxy that has ran to those places will easily chip out.

Note the high quality of the epoxy finish and this is before any cleanup work.

Step Nine Continued:

The best cleaner for removing the excess mold release wax is paint thinner or mineral spirits. Since Acetone is frequently used as an epoxy thinner it will not work to remove the excess wax.

After all the clean up it is time to reassemble the rifle by installing the trigger and remounting a scope if it had one. Do a safety check by operating the bolt and dry firing. Make sure that the trigger is not touching the trigger guard either on the sides or at the end of the trigger. Check for proper operation of the safety.

Step Nine Concluded

After everything is reassembled go back to "How To Recognize a Properly Bedded Stock" and see how everything measures up. If all went well you should be very impressed with your work.

Pro-Bed 2000 Bedding Epoxy

Available in Black & Brown

Ease of mixing: A non-critical mix ratio of 1:1 by volume, ensures that Pro-Bed 2000 always attains full cure.

Overnight cure: Pro-Bed 2000 attains full cure in approximately 16 hours but still gives its user plenty of work time (approximately 60 to 90 minutes, depending on room temperature.)

Flowability: Pro-Bed 2000 has the perfect consistency. It will flow into all voids of the stock but it still stays where you put it.

Strength: Pro-Bed 2000 uses the highest quality components such as carbon fiber and high compressive strength microscopic spheres that give the cured epoxy greater flexural and compressive strength, while completely eliminating the shrinkage problems. There are no cheap fillers or extenders.

Carvability: Pro-Bed 2000 is not brittle. The cured epoxy can easily be carved, ground or machined without softening or chipping even in very thin sections.

Appearance: The unique characteristics of Pro-Bed 2000 will make it easy to produce a finished product to be proud of, free of voids and surface imperfections for both the professional gunsmith and novice alike .

Clean up: All Pro-Bed 2000 kits come with a generous amount of an extremely high quality mold release agent that is both easy to apply and easy to clean off while giving you the best possible surface finish and debonding characteristics.

Pro-Bed 2000 Bedding Epoxy

The world of gunstock bedding is unlike any other epoxy application. We have very special needs. Back in 1998 I started studying epoxy from the standpoint of what a gunsmith requires. I found that no existing epoxy-resin has the necessary characteristics needed for stock bedding. They all shrink as they cure and they lack the compressive strength needed. Epoxy-resin requires an additive to give it good structural properties.

Pro-Bed 2000

I first looked at the metal fillers. The atomized metal particles used for epoxies have coarse irregular shapes not unlike crushed stone, except on a much smaller scale. These rough irregular shapes require large amounts of epoxy-resin to hold them in suspension or the resin and curing agent cannot be well mixed. The mixed epoxy must also be fluid enough to flow into the pores of the stock's bedding surface. Without this flowability, the epoxy will not wet the bedding surface and will not stick to the stock. Even though there may be 72% metal by weight it may only be 27% by volume. This leaves 73% of the bedding compound pure epoxy-resin that will shrink when it cures and it also lacks compressive strength.

Pro-Bed 2000

This is what led me to use high compression strength microspheres. Because microspheres are perfectly round they will roll over each other and are quite easy to mix. It takes very little liquid epoxy-resin to lubricate the microspheres so that they can flow. The microspheres are also surface treated so they can bond well with the epoxy-resin. Because of their size distribution, (our microspheres range from 3 to 25 microns) there are very small spheres in between the larger spheres displacing even more epoxy-resin. It is a fact that the more epoxy-resin that can be displaced, shrinkage be will reduced and compressive strength will be enhanced to more resemble the compressive strength of the microspheres. In this case a crush strength will be from 10,000 to 60,000 PSI.

Pro-Bed 2000

As an example, atomized metal closely resembles crushed stone on a smaller scale. Imagine a five-gallon bucket filled with angular crushed stone. Would it be possible to thrust a mixing stick all the way to the bottom of the bucket? If you were to tamp the bucket on the floor, would the crushed stone become more and more packed as each stone found a better resting place? How much epoxy-resin would it take to lubricate and hold the stones in suspension so that the bucket of stone could be mixed or stirred?

Pro-Bed 2000

Imagine that same five-gallon bucket filled with marbles and tiny ball bearings of varying diameters. It would certainly be possible to thrust a mixing stick all the way to the bottom of the bucket. If you were to tamp the bucket on the floor, would the marbles and bearings become more and more packed as each one found a better resting place or would they just slosh around and occupy the same space? Being able to mix the bucket of spheres even while dry means that it would only take enough epoxy-resin to fill the bucket to the top level of the spheres to have a mixture that would flow. This could be as little as one gallon.

Pro-Bed 2000

These high compression strength microspheres along with carbon and glass fibers held together with the very highest quality resins make **Pro-Bed 2000** the best epoxy available for epoxy bedding stocks. These microspheres however are not cheap, they cost many times more by volume than atomized metal or epoxy-resin, but your quality work, like mine, is worth the extra cost and effort. **Pro-Bed 2000** also simplifies the ease of the mixing issue, using a ratio of 1:1 resin and curing agent, by volume. I have also included the best mold release agent ever offered to our profession. It is both easy to apply and clean off, and it leaves the bedded surface blemish free.

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