



Pillar bedding creates a uniform bedding surface and helps eliminate changes in guard screw tension, thus enhancing accuracy in many bolt action rifles. Brownells Adjustable Pillar Bedding Sleeves are aluminum with steel sleeves threaded together to allow precise adjustment to fit individual rifles. Adjustable Pillar Bedding Sleeves eliminate the need to machine pillars to fit individual rifles. Rifles of the same make and model may have variations of over $\frac{1}{16}$ " in distance from the underside of the action to the top of the triggerguard/floorplate unit. The main aluminum adjustment piece is reversible to easily adapt to either flat- or round-bottomed receivers.

NOTE: Brownells Pillar Bedding Sleeves are not suitable for use on Mauser, Springfield, Ruger, or other rifles with the front guard screw directly threaded into the recoil lug or with very narrow rear tangs.



WARNING



Never attempt to disassemble or reassemble 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 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 Brownells 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.

HOW TO USE

We recommend that pillar bedding be done as a multiple step process, first installing and bedding the pillars and the area surrounding them, then the recoil lug area, and lastly, the triggerguard. Areas to be bedded normally are the rear $\frac{1}{4}$ to $\frac{1}{2}$ of the action including the rear tang; the front area of the action from the front of the magazine box opening up to the barrel; and the breech end of the barrel to about the front of the chamber area (roughly $1\frac{1}{2}$ " to $2\frac{1}{2}$ " in front of the action).

BEDDING COMPOUNDS

Brownells Adjustable Pillar Bedding Kits come with ACRA-BED™, a brown, pre-colored bedding compound packed in squeeze tubes for easy measuring of its one-to-one proportions. When very heavy recoiling rifles are pillar bedded, we recommend the use of Brownells STEEL BED™ in the recoil lug areas, with ACRA-BED or ACRAGLAS GEL® used on the remainder of the job.

DRILLING THE STOCK

The triggerguard screw holes in the stock must be opened up to allow use of the Pillar Bedding Sleeves. We recommend using a $\frac{3}{16}$ " Forstner-type drill bit to cut the recesses in the stock for the Adjustable Pillar Bedding sleeves. This type of drill bit is guided by its outer edge, and has little or no tendency to drift or to chip out wood from the hole being drilled. If a conventional wood drill is used, always drill from the triggerguard (bottom) side of the stock toward the action side. Any chipping where the drill comes through will be covered by bedding compound. Use of the drill press or vertical milling machine for drilling the pillar sleeve holes will minimize problems with drilling and is highly recommended. If the original guard screw holes are not located correctly or are not at right angles to the bore line, now is the time to "adjust" the fit by setting up the stock so the sleeve holes will be "square" to the action. Re-inlet the action and triggerguard/floorplate unit if needed. Remember, the widest points of the barrel and action (the horizontal centerline) should be at or very slightly above the top level of the stock.

FITTING AND ADJUSTING THE SLEEVES & FOREND

Clamp the stock in a padded vise and place the barreled action and triggerguard/floorplate unit in it. Push the action back so the back face of the recoil lug is tight against its recess in the stock. Insert and tighten the guard screws to their normal tension. Inspect the forend area to be sure the barrel is free floated; there should be about .010" to .030" clearance (about one to two times the thickness of an average business card) for the full length of the barrel channel. Remove the barreled action and adjust the barrel channel with scrapers and sandpaper as needed. (Note: A stock with forend tip pressure against the barrel can be a source of point-of-impact changes from either humidity on a wooden stock or sling pressure movement of the forend

on a wood or synthetic stock). Remember when checking and adjusting your inletting that the widest points on the barrel and receiver should be at or above the top line of the stock. This will help prevent "mechanical locking" of the barreled action into the stock when using bedding compound. After the forend and inletting have been checked and adjusted, clamp the barrel in your padded bench vise ahead of the forend top area, with the underside of the action facing upward. If your action uses a separate magazine box (like a Remington 700), set it into the action. Set the stock onto the barreled action. Place the Adjustable Sleeves into their holes in the stock. If your action is round-bottomed, like the Remington 700, set the radiused end of the thick outer Sleeves against the action. If it is flat-bottomed, like the Winchester M-70, set the flat sides against the action. Turn the slotted steel inner Sleeves in or out until they are just below flush with the bottom of the inletting for the triggerguard. Adjust the narrow aluminum outer sleeves in or out until they are flush with the bottom of the inletting. Set the triggerguard/floorplate unit into its inletting and inspect to see if its outer surface is flush with the underside of the stock. Remove the guard and turn the narrow aluminum outer sections of the sleeves in or out until the fit is proper. The magazine box should have about $\frac{1}{64}$ " to $\frac{1}{32}$ " vertical clearance between the triggerguard/floorplate unit and the inside of the action. After adjusting the sleeves, carefully remove them from the stock and set them aside. KINK® - drop of epoxy, Loctite®, fingernail polish, or Super Glue on the inside section where the aluminum outer sleeve portions join the steel inside sleeve, will hold the sleeve assembly at its proper length while handling.

METAL PREPARATION FOR BEDDING

Make certain the barreled action and triggerguard are clean and free from dirt, oil and any debris from stock work. Either remove the trigger assembly from the receiver or use Brownells Bedding Tape to completely cover it so no bedding compound can get into the mechanism. (Make sure it will still fit into its inletting in the stock if it is masked off rather than removed.) Use modeling clay and tape to fill or cover any grooves, slots, or rough areas that bedding compound could flow into and "lock" the action to the stock. Check the recoil lug to ensure that it is narrower at the bottom than where it meets the

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INSTRUCTIONS

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action and that there are no machining marks on its rear face that could cause a mechanical lock of the barrel to the stock. To provide proper clearance for future disassembly and reassembly, we recommend putting two layers of Brownells Vinyl Bedding Tape on the *sides, front, and bottom* of the recoil lug. **DO NOT** put any tape on the rear vertical face of the recoil lug! Thoroughly coat all parts with a high quality release agent, such as BROWNELLS ACRA-RELEASE™ or BROWNELLS RELEASE AGENT, carefully, following the instructions supplied with the release agent for application. Note: The exterior portions of the sleeves **should not** be coated with release agent, as they will be permanently bedded into the stock. Be absolutely certain that any portion of the barreled action, magazine box, guard screws or trigger-guard assembly that **may** come in contact with the bedding compound is well covered with release agent. This will help avoid the possibility of damage during the initial disassembly following bedding. Be sure to use release agent on the guard screws (or Stockmaker's Hand Screws, if they are to be used for the bedding process). Coat **all** surfaces with the release agent. Use a cotton swab to coat the **inside** of the sleeves with release agent.

FINAL WOOD PREPARATION AND BEDDING OF THE PILLARS

If Pillar Bedding is being done on a finished stock, make sure the stock finish is thoroughly cured before bedding. We strongly urge you to "mask off" the exterior of the stock with fresh, high quality masking tape to protect the exterior from any accidental contact with the bedding compound. Note: incompletely cured stock finish may "pull off" from the stock when masking tape is removed. Old, or poor quality, masking tape can leave residues on the surface which may harm the finish. The wood surrounding the front Pillar Bedding Sleeve should be removed on the action side of the inletting to a depth of about $\frac{1}{8}$ ". For round-bottom receivers such as the Remington 700, this should extend up about $\frac{1}{2}$ " to $\frac{5}{8}$ " on either side of the stock centerline. For flat-bottomed actions such as the Winchester Model 70, cut wood away to within $\frac{1}{16}$ " of each side of the action's side walls. This "cutaway" area should extend from the front of the magazine box opening in the stock to the rear of the recoil lug inletting in the stock. **DO NOT** remove any wood from the vertical face behind the recoil lug beyond this $\frac{1}{8}$ " deep area at this time - it will be done later. Wood must also be removed surrounding the rear pillar location. With actions that sit above the wood line at the rear, such as the Remington 700, set the action into the stock and lightly mark around the rear tang using a pencil. Remove the action, and scribe a line about $\frac{1}{16}$ " *inside* the penciled line. This is your outer limit around the rear pillar when deepening the inletting by the recommended $\frac{1}{8}$ ". On actions where the rear tang is inletted into the stock, mark the stock about $\frac{1}{32}$ " inside of the inletting, and remove wood around the pillar's hole to about $\frac{1}{8}$ " depth to the marked line. You may have to make "dams" of modeling clay in the stock to prevent bedding compound from running out of the pillar cuts. Be sure to "dam" or mask off areas where bolt release or safety components are located to allow free movement. Mix up enough ACRAGLAS®, ACRAGLAS GEL®, or STEEL BED™ bedding compound to completely fill the areas in the stock surrounding the pillars where you have removed wood, plus about 25% extra as a "fudge factor". Follow our directions for proper mixing. Double check that all of the metal parts are properly coated with release agent. Clamp the stock in a padded bench vise with the vise jaws clamped lightly but firmly on the forend, and the toe of the stock supported by your workbench. Coat the outside of the Pillar Bedding Sleeves with bedding compound and place them in their proper holes in the stock. Place the triggerguard into its inletting and hold it in place with masking tape. Put the bedding compound into the stock, working out any bubbles that may form. Try to avoid getting any bedding compound into the guard screw holes in the sleeves. If your action is round-bottomed, double check that the radiused ends of the thick aluminum portions of the sleeves are properly aligned. Place the action into the stock with the recoil lug held firmly against its recess. Install and tighten the guard screws or stockmaker's hand screws. Note: there is no need to over-tighten these screws. Tighten them just enough to hold the parts in position with the centerline of the barrel at, or slightly above, the top of the forend. If a very heavy barrel is on the rifle being bedded, a small amount of modeling clay in the barrel channel or even one or two business cards under the barrel near the forend tip will help to support the barrel during this process. Following our instructions, allow the bedding compound to cure to "handling strength". When the bedding compound has cured to this "handling strength" point, remove the barreled action from the stock. Clean off all release agent for the barreled action **AND** from the bedding in the stock. If bedding compound has migrated into any areas where it is not needed, remove it along with the modeling clay used as dams when bedding the pillars.

BEDDING THE RECOIL LUG AND BARREL BREECH

Proper bedding of the recoil lug is absolutely essential in a large caliber rifle to prevent recoil from splitting the stock. In any rifle, improper bedding of the recoil lug can cause inaccuracy. Before bedding the recoil lug, remove about $\frac{1}{8}$ " of wood from the area behind the lug, and about $\frac{1}{16}$ " on either side of it. Bedding the breech end of the barrel to the front of the chamber area (roughly $1\frac{1}{2}$ " to $2\frac{1}{2}$ " in front of the receiver) will help to support the barrel, and will usually aid in increasing accuracy. If the barrel is a heavy contour, a small amount of modeling clay in the barrel channel near the forend tip while the bedding compound is curing will help to support the weight. If any voids are visible in the portion of the bedding completed so far, now is the time to fill them. First, clean out and slightly roughen the voids with a small scraper or wood chisel. Using a cotton swab, clean out the voids with TCE or lacquer thinner. Allow to air dry until no trace of solvent or thinner odor is present in the void area. **CAUTION:** Both TCE and lacquer thinner can damage fresh bedding as well as stock finish if allowed to "pool" on it. Check the solvent or thinner maker's instructions for specific warnings relating to their use. Check the tape on the sides, front and bottom of the recoil lug to be sure

that it is still intact, and replace if necessary. Following our instructions, re-coat the barreled action, including the taped areas on the recoil lug, with release agent. Recoat the front guard screw with release agent. Mix enough bedding compound to replace the wood removed from the recoil lug areas, the barrel breech, and any voids to be filled, plus about 25% extra. Secure the stock horizontally in a padded bench vise with the action area facing upward. Put the bedding compound in the stock. It may be helpful to use a 10cc polypropylene syringe with bedding compound in it to fill any voids. Do not overfill the voids, as any excess bedding compound will cause high spots in the bedding job. **KINK®** - If you fill the corner between the front of the recoil lug and the barrel with bedding compound (placed directly onto the steel) you will eliminate most instances of bubbles or voids in the bedding at that area. Place the barreled action into the stock. Tighten the guard screws or stockmaker's hand screws just firmly enough to hold the barreled action in place. Be sure the action is fully down in its inletting and the horizontal centerline of the barrel is at, or very slightly above, the top of the forend.

Allow the bedding compound to cure to "handling strength" and remove the barreled action from the stock. Clean up any excess bedding compound. Use a good quality stock finish to seal the barrel channel and any areas in inletting where raw wood is exposed. This will help to minimize moisture transfer and possible stock warping through the forend.

BEDDING THE TRIGGERGUARD/FLOORPLATE

Many factory inletted rifles and some pre-finished synthetic stocks allow the triggerguard's exterior surface to be below flush with the exterior of the stock. When the Adjustable Pillar Bedding Sleeves were adjusted to the stock and barreled action, this situation was corrected by setting the pillar's overall lengths. To "finish" this part of the job, and give proper support to the underside of the triggerguard/floorplate unit, it must be bedded. Carefully scrape away any stock finish in the inletting where you will be adding bedding compound. Coat the triggerguard/floorplate unit, the guard screws and their holes in the receiver, and the inside of the pillar bedding sleeves with release agent. Mix an appropriate amount of bedding compound and put enough into the inletting to allow the triggerguard/floorplate unit to be properly supported when it is cured. Hold the barreled action in a padded bench vise by the barrel, ahead of the forend tip. Place the stock on the barreled action, and put the triggerguard/floorplate unit into the stock. Install and lightly tighten the guard screws, and allow the bedding compound to cure. When cured, remove the guard screws and the triggerguard/floorplate unit and clean up any excess bedding compound. Reassemble the rifle and make certain the floorplate (if it is hinged) is able to function easily through its normal range of movement, and that its latch is also free.

PILLAR BEDDING BLIND MAGAZINE RIFLES

Rifles with blind magazines (no floorplate assembly) such as the Remington 700 ADL, can be successfully pillar bedded using Brownells Adjustable Pillar Bedding Sleeves. If the diameter of the escutcheon surrounding the head of the front guard screw is smaller than $\frac{9}{16}$ ", you will not be able to use both aluminum adjusting rings. Carefully remove the escutcheon from the stock, and drill a $\frac{1}{2}$ " hole through the stock for the steel inner sleeve, drilling from the bottom of the stock toward the action side. Drilling from the inside of the stock, next drill a $\frac{9}{16}$ " diameter hole about $\frac{1}{2}$ " deep for the thick adjustment ring. (This method can be used on a stock with a triggerguard/floorplate unit that is narrower than $\frac{9}{16}$ " at each end for the guard screws.)

PILLAR BEDDING SYNTHETIC STOCKS

Pillar bedding can benefit synthetic stocks by preventing distortion of the action area from over-tightening of the guard screws. Bedding compounds will bond to most laid-up synthetic stocks, once any paint or release agents are removed from those areas to be bedded. Many injection-molded stocks are made of materials that will not chemically bond to bedding compounds. These stocks can still be bedded if a series of small ($\frac{1}{8}$ " diameter), shallow "anchor" holes are drilled or ground into the surfaces to receive the bedding compound, with the holes going at different angles to each other. A Dremel or Forend hand grinder using a $\frac{1}{8}$ " diameter ball end carbide cutter is ideal for this job. **CAUTION:** Do not drill these anchor holes through to the exterior of the stock! If your synthetic stock is hollow under the breech end of the barrel, a small wood block (one to two inches long) can be fitted to the recess at that point, as long as it is coated with bedding compound on *all* surfaces. This will help to support the weight of a heavy barrel and will usually aid in increasing accuracy.

FINISH NOTES

With *any* bedding compound, let the finished bedding job "cure" for three to ten days before shooting the rifle. Remember, the cooler your shop area is, the longer the bedding compound will need to cure. Make certain all excess bedding compound is removed from the inside of the stock inletting. Be **ABSOLUTELY SURE** that no bedding compound has "migrated" into the inside of the receiver through the guard screw holes or the cartridge feed ramp. Clean up all traces of release agent from both metal parts and the bedding compound, following the instructions for the release agent. Be sure to put a *light* coat of a good grade of gun oil on the steel parts to prevent rust.

Reassemble the firearm according to the manufacturer's instructions. Check for proper functioning using **ACTION PROVING DUMMIES**. Make sure **ALL SAFETY MECHANISMS** are fully functional as designed and approved by the manufacturer. If these tests prove satisfactory, test-fire the firearm with live ammunition in a **SAFE** and **APPROPRIATE** manner. **IMPORTANT!** Start the live ammunition tests by first loading an **ACTION PROVING DUMMY**, then a live round, into the magazine. Only after several tests have been conducted in this manner should additional rounds be placed in the magazine and fired.