

# Bedrock

## Introduction

Congratulations on your purchase of Miles Gilbert™ Bedrock™ Glass-Bedding Kit. Bedrock™ is a two-part epoxy product, specially formulated for optimum curing time and shock resistance. It is prepared by mixing the Resin and the Hardener in equal amounts. Bedrock™ is a unique glass-bedding product, as it can be used as a liquid or converted to a gel, by adding a small quantity of Microballoons, (see Glossary, Appendix B) that are included in the kit. Bedrock™ was designed to make glass-bedding of solid wood, laminated wood or synthetic (fiberglass and plastic) stocks quick, clean, and simple. Because of Bedrock™'s tremendous adhesive qualities, you will find it extremely useful for projects other than bedding. It can be used for all kinds of stock work, such as gluing on recoil pads and forend tips, repairing cracks and filling deep dents. It can also be used for the assembly and repair of all kinds of wood products such as furniture, picture frames, construction projects, and the like. Bedrock™ will bond to fiberglass and many other synthetic products, making it effective for repair of watercraft, motor homes, and similar applications. Bedrock™ also bonds to aluminum and steel, and can be used to create temporary fixtures.

The fit of a rifle's barreled action to its stock is critical to obtaining optimum, consistent accuracy. It has long been established that glass bedding can improve the accuracy of most rifles, by providing an improved fit between the stock and the barreled action. A properly bedded stock is also essential to its own longevity, as a loosely fitting stock can easily split from the shock of recoil.

In a typical bolt-action rifle, there are six distinct areas that can be glass bedded. They are listed below in what we believe are the order of popularity. Most people will bed one or two areas at a time. It is not necessary that the entire barreled action be glass-bedded. Very few glass-bedding jobs include all six areas.

1. Front Receiver Ring and Recoil lug — This is easily the most important opportunity to improve the bedding, as the front receiver ring and recoil lug need to stay in the same location from shot to shot. (See Figure 1A).
2. Rear Receiver Tang — Most bedding jobs (though not all) include bedding this area along with the area 1 above. Bedding these two areas effectively establishes the permanent axis of the receiver, as it is bedded on both ends. (See Figure 1B).
3. Chamber area of barrel (1st two inches) — This area is simply a slight enlargement of the bedding areas in 1 and 2 above, and is normally performed as the next operation after Step 2. It creates a larger support area for the front portion of the barreled action. (See Figure 1C).
4. Sides of Receiver — Normally only done as part of a complete upper receiver bedding (Front Receiver Ring and Recoil Lug and the Rear Upper Tang Area), the primary purposes are to provide additional strength and stiffness to the stock, prevent side-to-side movement of the receiver, and to seal the receiver area of the stock from moisture. (See Figure 1D).
5. Entire length of barrel channel — Bedding this area increases the stiffness of the forend and helps seal it from moisture. (See Figure 1E).
6. Trigger guard — Used in conjunction with #1 and #2 above, this allows the guard screws to hold a more consistent torque, and aids in sealing the stock from moisture. (See Figure 1F).

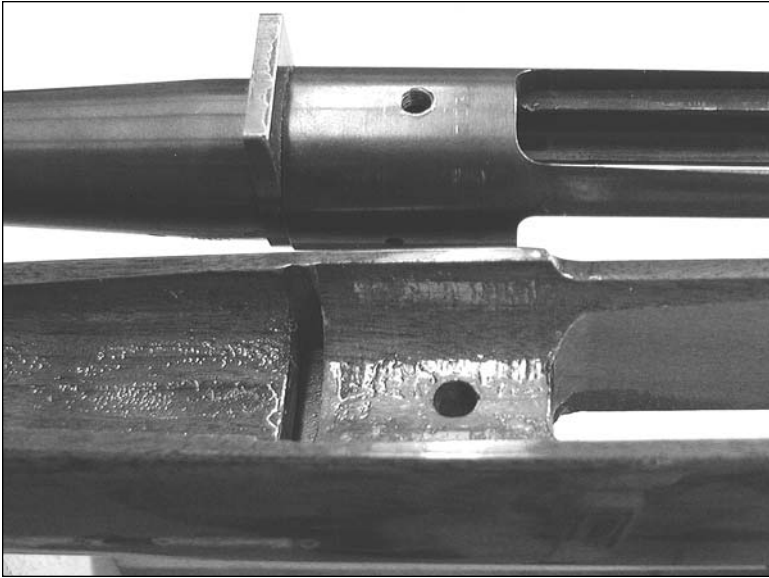


Figure 1A: A Remington 700 barreled action (top) turned upside down and its corresponding stock. Note the inletted area in the stock that accommodates the recoil lug of the barreled action.

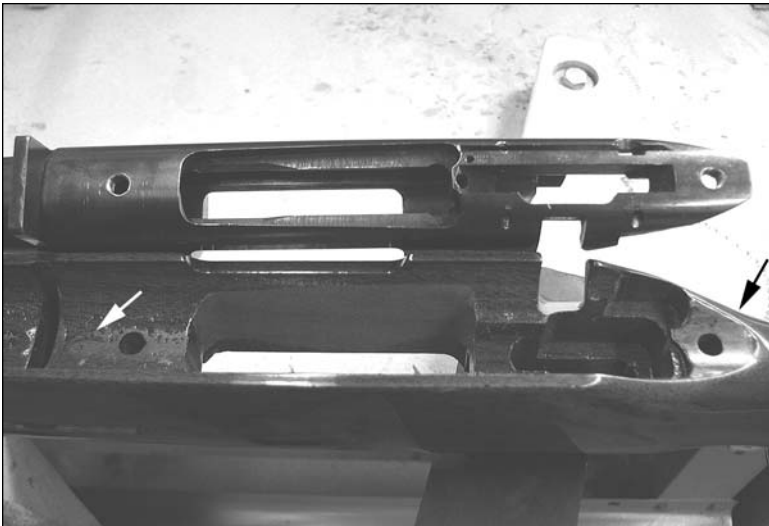


Figure 1B: The front receiver ring and recoil lug area (white arrow) and the rear receiver tang mating surface (black arrow) represent the basic areas of bedding.

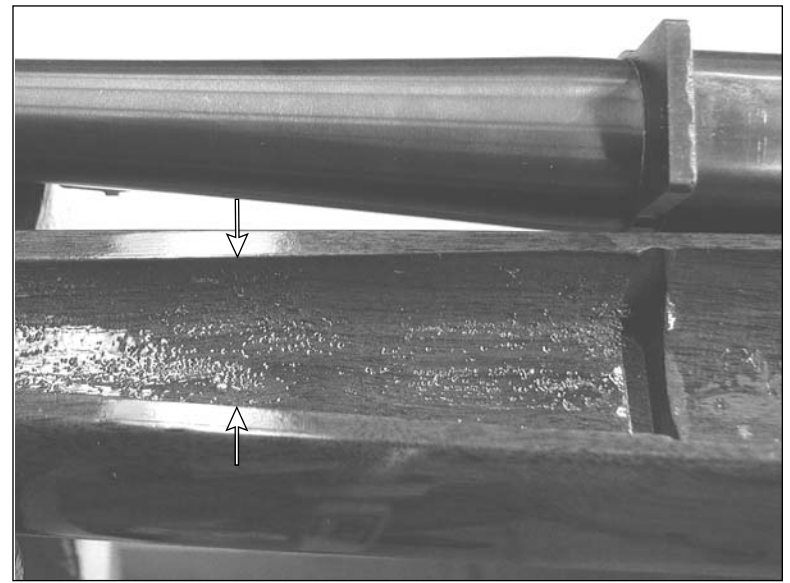


Figure 1C: Bedding the chamber area can help to support the barrel. The chamber area on this stock begins at the front of the recoil lug and extends about 2" down the barrel channel to the white

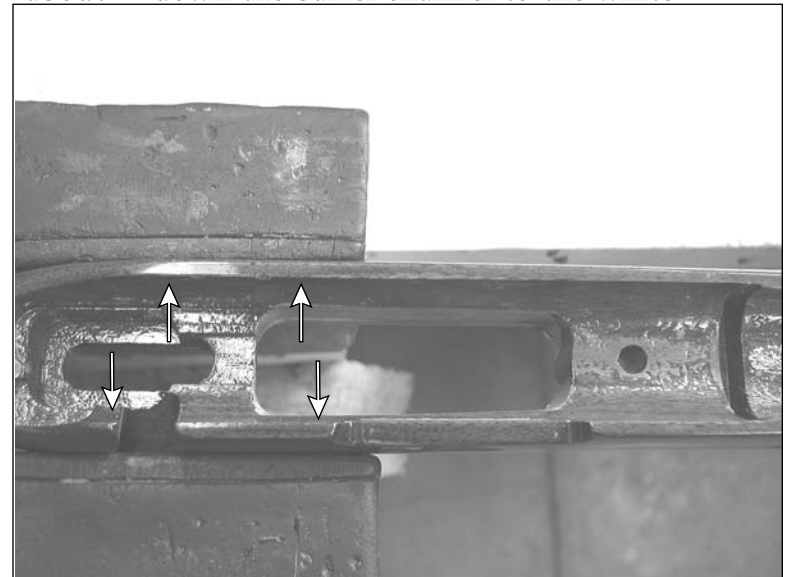


Figure 1D: Bedding the sides of the receiver can add rigidity to the stock, prevent side-to-side movement of the barreled action and help keep out raindrops and melted snow on a hunting rifle.

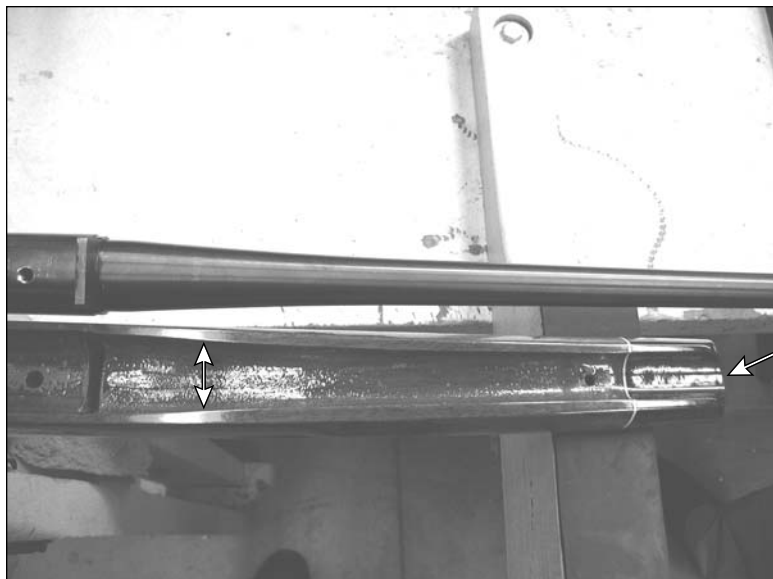


Figure 1E: Bedding the barrel channel can reduce effects of temperature and humidity.



Figure 1F: Bedding the bottom metal can help to support those components in the stock.

## Dealing with Different Variations of Bolt-Action Rifles: (See Appendix A)

While most bolt-action rifles follow the basic pattern established by the Mauser design, specifically the M98, enough differences in external configuration exist that no one set of instructions can cover all applications. For the purposes of continuity, the instructions that follow, and the accompanying photographs, will feature the Remington® M700 BDL. The Remington® is a popular commercial rifle, and most of the areas of potential “application” of bedding apply to it.

There are, of course, many other bolt-action rifles available to the sportsman today, including commercial and military models. We will attempt to show some of the differences in these models and how that can affect the application of glass-bedding techniques.

## Glossary of Terms: (See Appendix B)

Many terms used in the firearms industry may not be established in every-day usage. The Glossary offers easy-to-understand explanations of many unfamiliar terms.

## Hints from recognized authorities: (See Appendix C)

Before you begin, you may find it useful to review some comments on glass-bedding from long-standing experts in the field. Some of their observations may apply to your specific project, and may offer options you have not considered.

### Steps to Glass-bedding a Bolt Action Rifle

(Detailed instructions for each Step are on following pages)

1. Disassemble the rifle
2. Prepare the stock (mostly removal of wood)
3. Prepare the metal (primarily applying release agent)
4. Mix the Bedrock™
5. Add Microballoons (optional, to turn Bedrock™ liquid to Bedrock™ gel)
6. Add dye (optional)
7. Apply the Bedrock™ to the stock
8. Assemble the barreled action and stock
9. Allow the Bedrock™ to cure

10. Separate the barreled action from the stock
11. Inspect
12. Clean-up
13. Reassemble
14. Test-fire

### Before you begin:

Make Sure you have all the Components of Your Bedrock™ Kit:  
(See Figure 2).

- 2 oz. Bedrock™ Resin
- 2 oz. Bedrock™ Hardener
- Brown and Black dye for wood or synthetic stocks
- 4 oz. Microballoons
- 3 Mixing Cups
- 3 Mixing/Applicator Sticks
- 3 Plastic Measuring Spoons (1/4 teaspoon, 1 teaspoon, 1 tablespoon)
- Release Agent
- 2 Ring Daubers (for application of Release Agent)



Figure 2: Components of the Bedrock™ Kit.

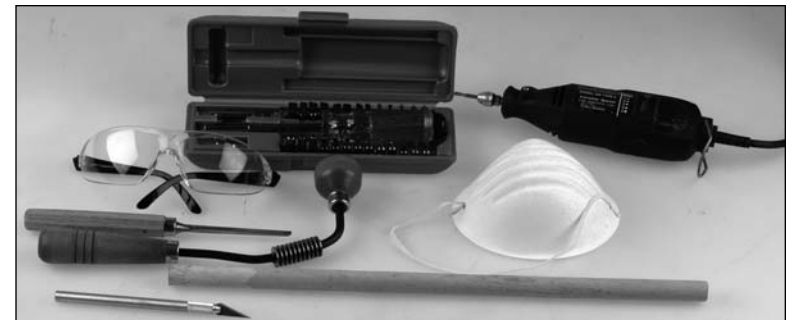


Figure 3A: Tools essential for glass-bedding.

## Tools and supplies needed in addition to Bedrock™:

Tools: (Not Included. See Figure 3A).

- Disassembly Tools (screw drivers, Allen wrenches)
- 1/4" wood chisel
- Dremel® Tool, or similar product
- Safety glasses
- 12" long wooden dowel, 1/2" diameter
- Dust Mask
- Barrel channel tool or scraper
- Padded vise
- Exacto® or other sharp trimming knife

Supplies: (Not Included. See Figure 3B).

- Modeling Clay
- Masking Tape
- Scotch Tape®
- Paper Towels
- Plastic electrician's or duct tape
- Plastic, vinyl or rubber gloves
- Felt marking pen
- Pencil
- Inletting Black
- Action Proving Dummies
- Surgical tubing

## Safety Tips:

1. Make sure the rifle is unloaded before disassembly.
2. Use care in relieving inletting. Chisels and power tools can cause severe injury.
3. Use plastic, vinyl or rubber gloves to protect skin from possible irritation or allergic reaction to any chemical.
4. Avoid inhalation of Microballoons; always wear a dust mask.
5. Wear safety glasses.



Figure 3B: Supplies needed for glass-bedding.

# Glass Bedding a Bolt Action Rifle Stock

## Step 1. Disassemble the Rifle

1. If the rifle is scoped, remove the scope and rings. Bases can stay in place.
2. If the rifle has a sling, remove it.
3. Separate barreled action from stock
4. Remove the trigger
5. Remove the magazine box, if possible, if it is attached to the receiver.
6. If you need help with the disassembly, the NRA Firearms Assembly/Disassembly Guide may be a good source of information.

## Step 2. Prepare the Stock

The following instructions cover all six possible areas to glass bed as identified in the introduction. Remember that you can choose one or all of them. It is suggested that beginners do one area at a time. Keep in mind that glass-bedding is a two-step process. First, stock material is removed to provide space for the Bedrock™ to occupy, and second, the Bedrock™ is applied to replace the stock material removed. Simply adding Bedrock™ to the inletted areas of a stock and then forcing the barreled action into place is not appropriate, as the barreled action will sit higher in the stock than before.

Note: The top edge of most properly inletted stocks will almost always align with the center-line of the receiver and the barrel. An exception would include the post-1964 Winchester® M70 which is designed to sit .070" high in the stock. It is for this reason that it is essential that a portion of the original seating contact area between the metal and the wood be preserved (untouched), so the barreled action can return to its original depth and location after the Bedrock™ is applied, and the rifle is reassembled.

The area of the stock between the recoil lug and the magazine box should never be relieved in its entirety. The same warning applies to the portion of the stock that supports the rear tang. The bottom of the receiver bears against these points and the vertical position of the barreled action is thus determined by them. To illustrate, the stock of the rifle pictured in 4A and 4Aa, was inletted

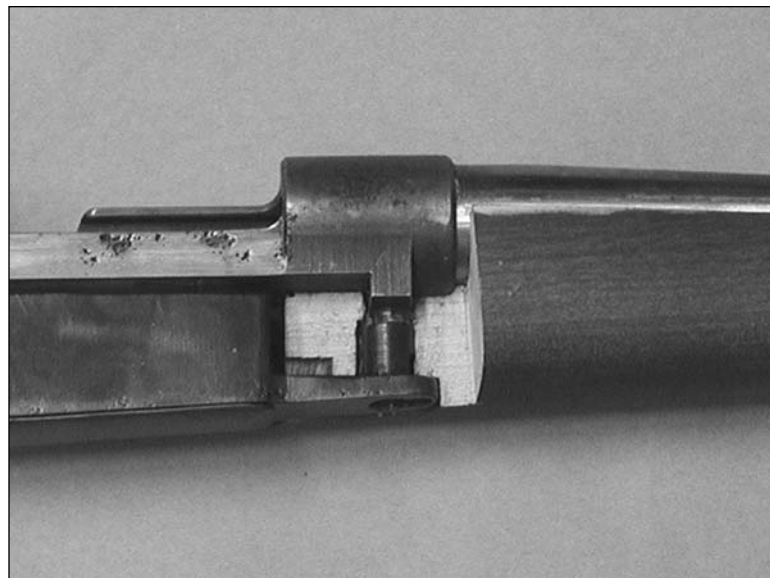


Figure 4A: When the receiver's position is shifted independently of the bottom metal, the guard screws can become misaligned and the magazine box will not be in the correct relationship with the receiver.



Figure 4Aa: When the rear tang is inletted too deeply, the barrel tends to angle upwards.

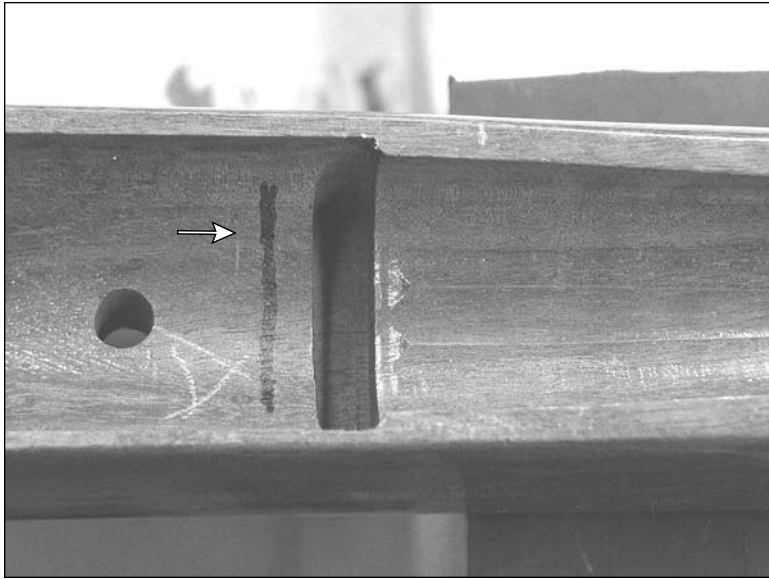


Figure 4B: The black line (white arrow) is approximately 1/4" behind the recoil lug recess. We will remove most of the wood in front of the black line, all the way to the bottom of the recoil lug cut.

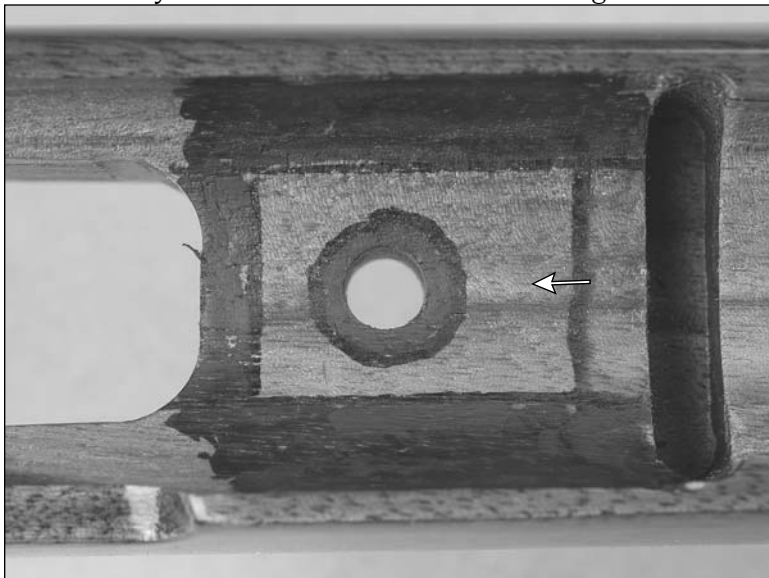


Figure 4C: The wood to be removed is that portion that hasn't been colored over with a marking pen, as indicated by the white arrow.

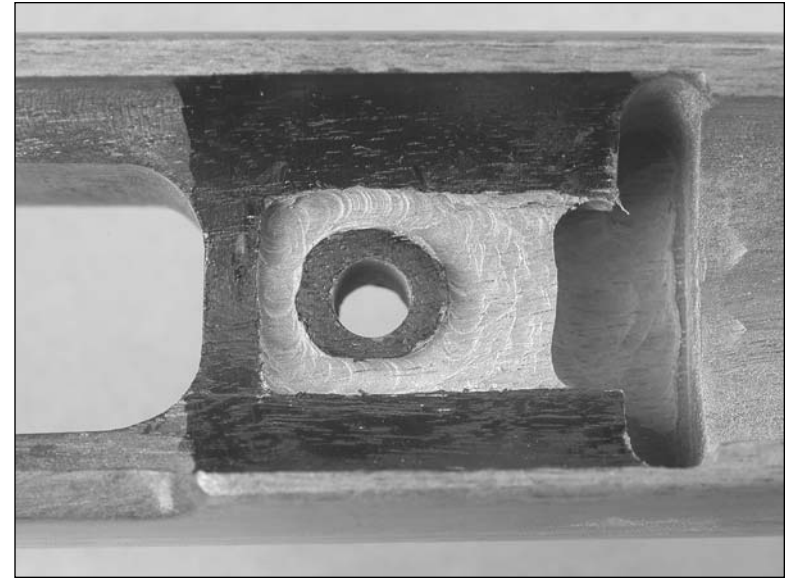


Figure 4D: Properly relieved lug recesses. It does not extend to the edges of the receiver, but does go all the way to the bottom of the receiver lug cut.

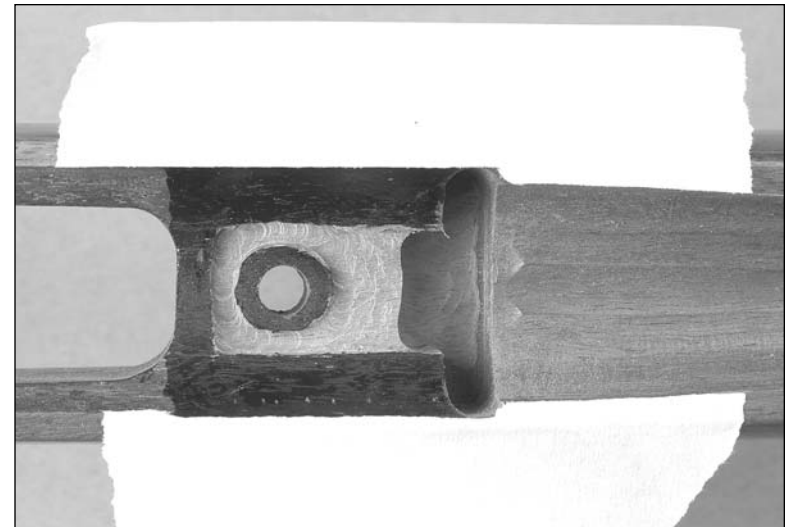


Figure 4E: Masking tape will keep Bedrock™ off the surface of the stock. Carefully align the edges of the tape with the inside edge of the stock. Be sure to extend the tape quite a ways in each direction.

too deeply at the rear tang and the area between the guard screws. The rear of the receiver sits too deeply in the stock, causing the barrel to angle upward, and the front guard screw hole no longer aligns with the bottom metal.

Synthetic stocks can also take advantage of the benefits of Bedrock™. In general, whatever applies to the use of Bedrock™ with wood and laminated stocks will also apply to synthetic stocks. The primary differences are the tools required to relieve the areas to be bedded, and the occasional poor adhesion experienced with certain synthetic stock materials. Stocks made of synthetic materials often resist the use of a chisel, so rotary type power tools, such as those offered by Dremel®, can be used with good effect. Some synthetic stocks are molded of materials, such as polypropylene, that frequently do not bond well with any commercial bedding compound. These stocks can be successfully bedded by relieving the inletting in such a way as to provide a mechanical lock rather than depending on an adhesive chemical bond. A mechanical lock is accomplished by adding undercuts to the relieved areas so that the bedding compound flows into those areas, and once cured, cannot be pulled free. Many synthetic stocks feature barrel channels, and other areas, molded in an “egg crate” pattern, with significant empty space. While these areas can be “filled” with bedding compound to increase strength and rigidity, doing so may add significant weight with little extra benefit.

### Front Receiver Ring and Recoil Lug

1. Note: Bedding this area generally requires 1 teaspoon (tsp.) of resin, with an equal amount of hardener.
2. Allow 30 minutes to one hour to complete this area.
3. Use a felt marking pen to mark a line between 1/8” (.125”) and 1/4” (.250”) behind the recoil lug recess. (See Figure 4B). Dimensions for relief cuts are suggested as “approximate.” A certain amount of tolerance is acceptable.
4. It is necessary that the newly cut recess not extend across the entire width of the original inletted surface, but only about the center three-quarters. The remaining stock material will keep the barreled action from shifting out of position, rearward. At this time, to ensure maximum contact of the area between the recoil lug and the magazine box and the corresponding portion of the bottom of the receiver, the stock can be relieved to a depth of approximately 1/8”. Use the marker to cover the areas of contact that you want to preserve. (See Figure 4C).
5. Use a 1/4” wood chisel, or a Dremel™ type tool with a 1/8” to 3/16” bit to remove stock material from the desired area, all the way to the bottom of the lug recess. (See Figure 4D).
6. The recoil lug must not “bottom-out” in its recess, but should have 1/16” (.062) to 1/8” (.125) of “free space” between the bottom of the lug and the stock. Use a caliper or toothpick to compare the depth of the recess to the height of the recoil lug. If necessary, remove stock material to achieve this amount of free space.
7. Attach masking tape to the top edge of the stock, adjacent to the receiver, in the area to be bedded. This tape will prevent Bedrock™ squeezed out in the bedding process from making contact with the exterior of the stock, and will make cleanup easier. (See Figure 4E).
8. If this is the only area you are bedding at this time, then proceed directly to Step 3-Preparing the Metal.



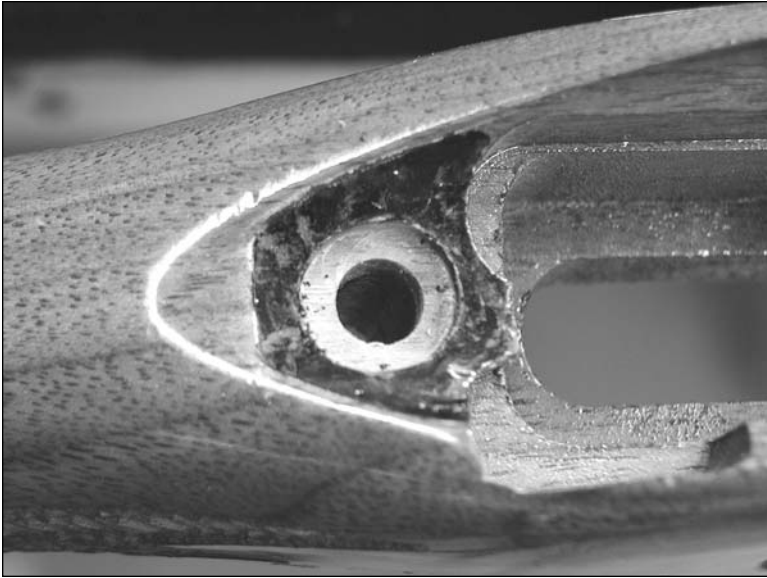


Figure 5A: Relieve area immediately around screw hole, to a depth of about 1/8" (.125). If you want to be really neat, you can use a drill, flat milling cutter, step drill or counterbore.

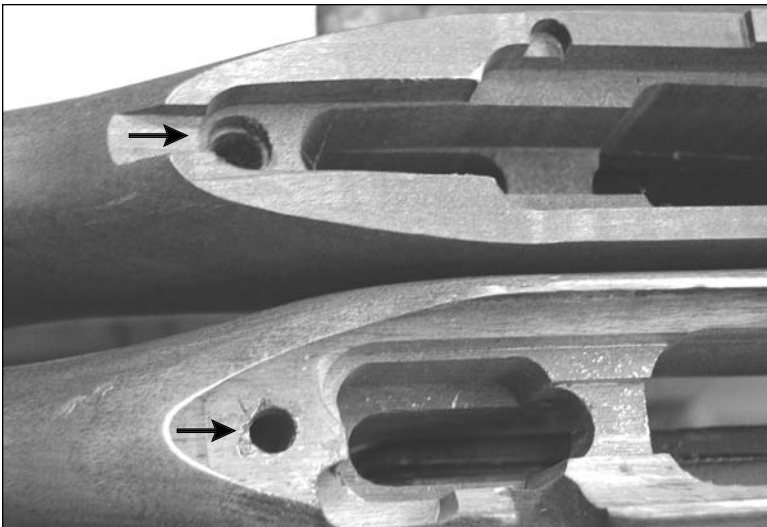


Figure 5B: The Remington M700 (bottom) offers a wider tang area than the M98 Mauser (top).

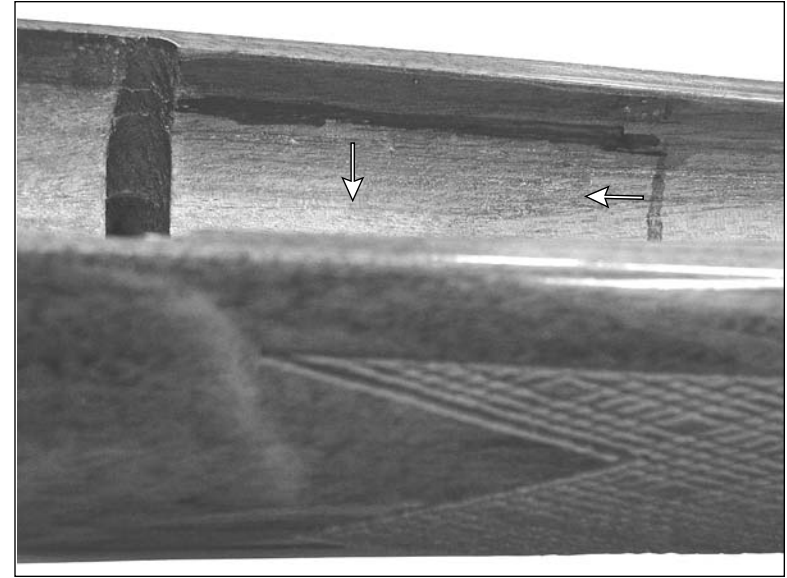


Figure 6A: Lines show borders of relief area. Only the stock material below and behind the black lines should be removed.

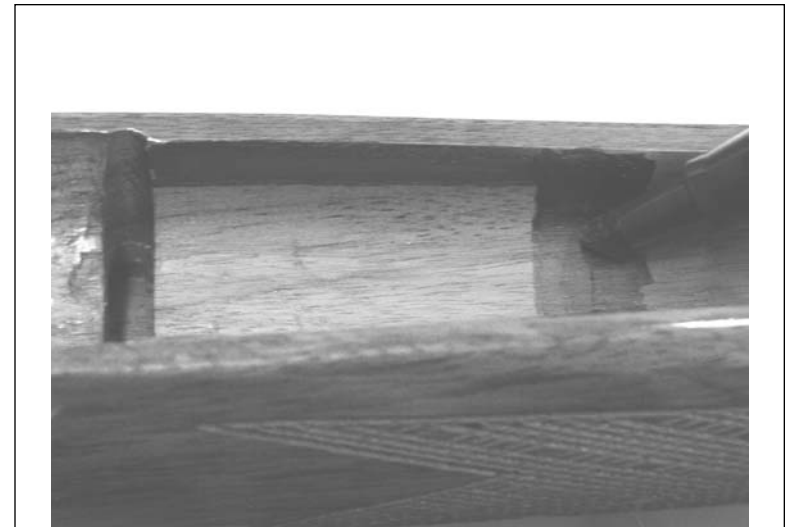


Figure 6B: Color the areas you don't want to remove material from.

## Rear Receiver Tang

1. Note: Bedding this area requires 1/2 teaspoon (tsp.) of Resin, with an equal amount of Hardener.
2. Allow 15 to 20 minutes to complete this area.
3. Using the same chisel, or rotary tool, relieve the area immediately surrounding the rear tang screw hole to a diameter of 1/2" and a depth of 1/8" (.125"). (See Figure 5A). The diameter of the area to relieve is determined by the design and width of the tang. For example, the tang of a M98 Mauser is significantly narrower than a Remington M700. Bedding should not extend beyond the width of the tang contact area. (See Figure 5B).
4. If this is the only area you are bedding at this time, then proceed directly to Step 3-Preparing the Metal.

## Chamber Area of Barrel

1. Note: Bedding this area usually requires 1 teaspoon (tsp.) of Resin, and an equal amount of Hardener.
2. Allow 30 minutes to one hour to complete this area.
3. Note: If you plan to glass-bed the entire barrel channel, bed this area first, anyway. The support gained by bedding this portion will aid in the relief of the rest of the barrel channel.
4. The barrel channel is round-bottomed, so a Dremel® Tool works well to perform this relief.
5. Because the support provided by glass-bedding this area is of most importance immediately under the barrel, it is not necessary to relieve the channel from edge to edge. Two-thirds to three-quarters is usually sufficient. Note: Many factory-stocked rifles are already inletted rather generously in this area, and relief cuts may not be necessary. If so, skip Steps 6 through 8. To determine the extent of this clearance, place some strips of modeling clay (about 1/2" thick) in the chamber area of the inletting and press the barreled action into place. When the barreled action is again removed, the clay will indicate the clearance present. The temptation is to just fill this area with bedding compound without making any preparations. Because Bedrock™ may not adequately adhere to many modern finishes, you

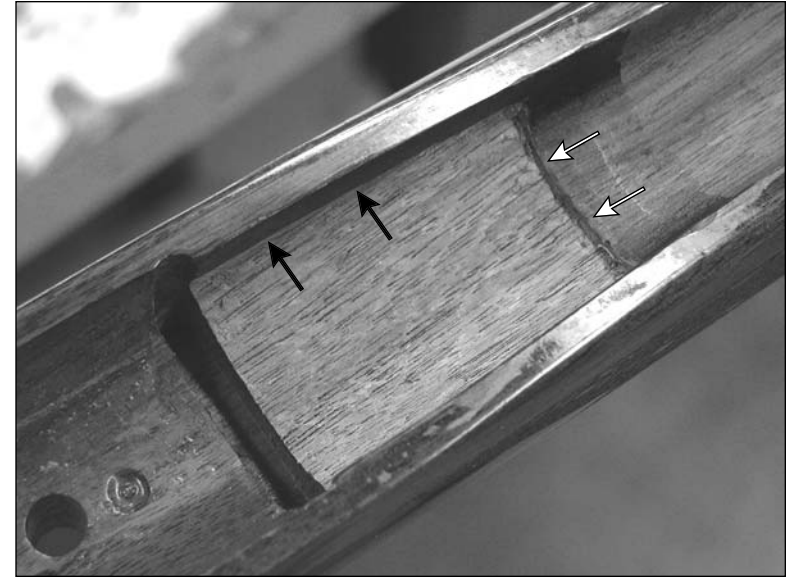


Figure 6C: Properly relieved chamber area. The designated area has been relieved approximately 1/8" to allow for bedding material.

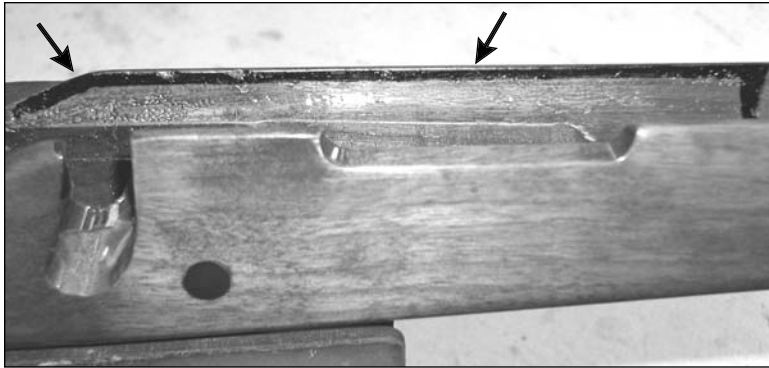


Figure 7A: Lines show limit of relief.

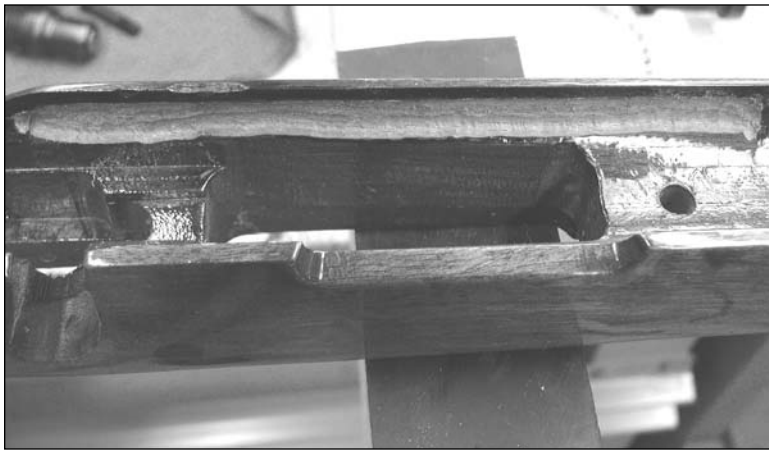


Figure 7B: Properly relieved side.



Figure 8: Crossection of stock with hidden bedding.

must, at the minimum, remove all traces of the factory finish, so that the Bedrock™ is applied to bare wood.

6. Use a felt marking pen and draw a line on each side of the channel parallel to the top of the stock line, approximately 1/4" down. Extend these lines approximately 2" forward of the receiver ring. (See Figure 6A).
7. Color the areas from the top of the stock to the lines with the marker. (See Figure 6B).
8. Relieve the area between these colored areas to a depth of about 1/18" (.125"). (See Figure 6C).
9. Attach masking tape on each side, along the top of the stock adjacent to the relieved area. (See Figure 4E).
10. If this is the only area you are bedding at this time, then proceed directly to Step 3-Preparing the Metal.

### Sides of the Receiver

1. Note: Bedding this area requires 1 teaspoon (tsp.) of Resin, with an equal amount of Hardener.
2. Allow 45 minutes to one half hour to complete this Step.
3. While bedding the sides of the receiver can help in strengthening the corresponding area of the stock, many actions, such as the Mauser M98 and the Ruger M77 are flat-sided, which makes it difficult to achieve any gain. However, if the Bedrock™ is properly dyed, bedding the sides of the receiver can sometimes be used cosmetically to cover gaps or improper inletting. (See Appendix A).
4. For round-bottomed receivers, such as the Remington M700, use a pen or pencil to draw a line in the left side of the receiver inletting, 1/16" (.0625") down from the top edge of the stock. Extend the lines forward to the barrel channel, and rearward to within 1/4" (.250") of where the tang area begins (where the stock begins to slope down and to the rear). (See Figure 7A). Use the marker to cover the area between the top of the stock and the line. Because the stock line is lowered on the right side to clear the ejection port, drawing the lines on this side is limited to the areas adjacent to the front and rear receiver rings.

- Using a 1/4" chisel or Dremel® Tool, relieve the area below the colored area to a depth of 1/8" (.0625") approximately 1/4" (.250") wide. (See Figure 7B). **Do not cut into the edge of the magazine well or out the rear of the inletting where the glass-bedding would show.**
- If this is the only area you are bedding at this time, then proceed directly to Step 3-Preparing the Metal.

## Complete Barrel Channel

- Note: Bedding this area typically requires 1 tablespoon Resin, with an equal amount of Hardener, however, depending on the extent of relief, it may require more.
- Allow at least one hour to complete this area. The time frame is variable, depending on the amount of clearance desired. Stock preparation for bedding the complete barrel channel offers several options. It is possible to bed the barrel channel without having the bedding compound be visible. This is achieved by carefully maintaining the integrity of the stock material along the edge of the barrel channel, immediately adjacent to the barrel. It is achieved by drawing a narrow line with the felt marking pen along the top edge of the barrel channel inletting and being careful not to cut into it. All relief of the barrel channel will, in effect, be "undercut" and invisible when completed and the barreled action is in place. (See Figure 8). Some people prefer to have the bedding show along the barrel, as a border, perhaps dyed to contrast with the stock material. This can actually look attractive, if properly done. It is achieved by fabricating a scribing tool from a piece of round steel stock. The width of the border is optional, but 1/32" is common. Simply take a piece of 1/16" round stock (a nail of the correct diameter works fine) about 3 to 4" long and grind one end to resemble a center-punch. With the barreled action in place in the stock, trace the contour of the barrel with the tool, scribing a line in the wood on the top flat of the stock. (See Figure 8a). The scribe must be held perpendicularly to the stock in order to maintain a constant "stand off" from the barrel. The scribed line represents the stop point, or border, when enlarging the barrel channel.

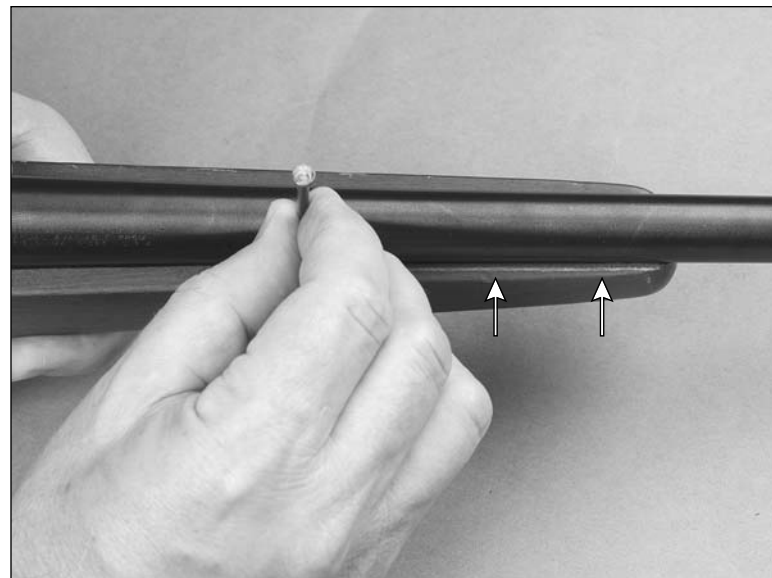


Figure 8a: Scribing line next to barrel.



Figure 8A: Applying inletting black



Figure 8B: Inletting black transfers to contact points.

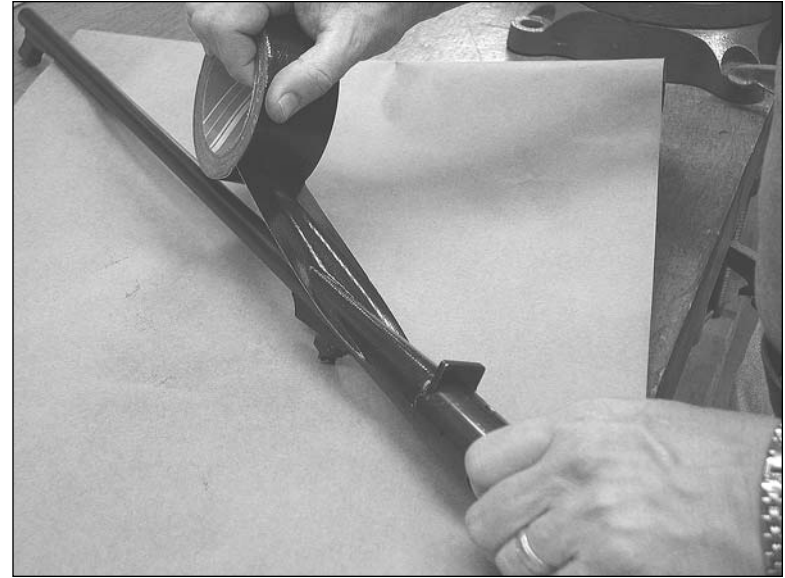


Figure 8D: Adding tape in order to free float barrel.



Figure 8C: Removing high spots.

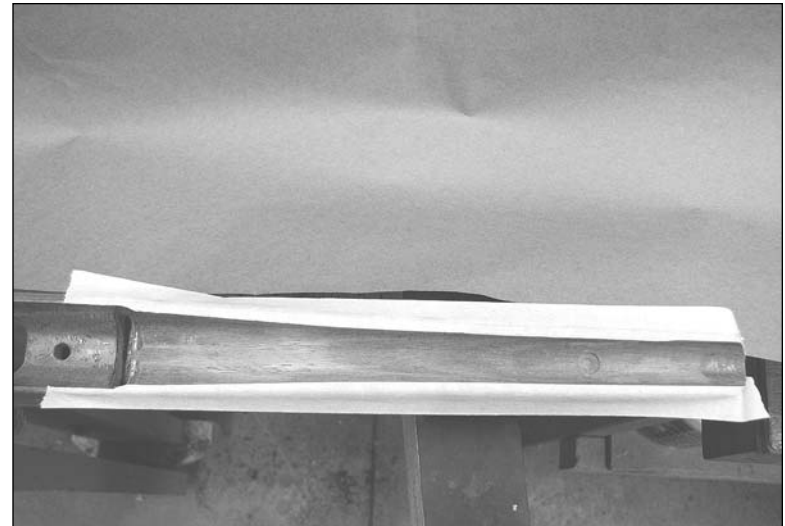


Figure 8E: Top edges of stock taped to protect finish

3. It is impossible to determine beforehand whether a particular barrel will shoot better with contact points (a.k.a. pressure points) between it and the stock, or if it is better left free-floating. One advantage in using glass-bedding compound is that if testing is initiated with a free-floating barrel, then pressure points, or even full-length contact, can be added later. The stock-strengthening, and sealing benefits of full-length barrel channel bedding can also be obtained, while retaining a free-floating barrel, by adding a layer of plastic electrical tape to the underside of the barrel, relieving the channel to accommodate the tape, and then removing the tape after bedding. (See Step 10 below).
4. In order to properly glass-bed the entire barrel channel it is first necessary to bed the recoil lug, and the rear tang. (See procedures described previously). If the chamber area of the barrel channel has been bedded previously, do not attempt to remove that bedded portion. It will serve as an aid to depth and alignment of the barrel in the channel. The bedding should be done in sequence with the barrel channel being the last step.
5. To glass-bed the entire barrel channel, the barrel must first be “free-floating.” In other words, there can be no contact between the stock and the entire length of the barrel forward of the chamber area. The relief of the channel is best accomplished using a barrel channel tool or a scraper, and inletting black. (See Glossary, Appendix B).
6. With the stock held in a padded vise, apply inletting black to the underside of the barrel, thoroughly coating the area that will fit into the existing barrel channel. (See Figure 8A).
7. Carefully place the barreled action into the stock, seat it firmly and then remove it. The inletting black will have transferred to the stock at points of contact. (See Figure 8B).
8. Using the barrel-inletting tool, cut away only the blackened contact points. (See Figure 8C).
9. Repeat this process until no black is transferred to the stock. At this point, the barrel is free-floating.
10. If you wish to glass-bed the barrel channel, but maintain a free-floating barrel, apply three layers of plastic electrical or duct tape to the underside of the barrel. (See Figure 8D). Make sure the tape extends above the center-line of the barrel.



Figure 9A: Outline relieved under trigger guard.



Figure 9B: Guard screw holes enlarged.





Figure 10A: Plugging or covering holes will keep Bedrock™ from entering the receiver.

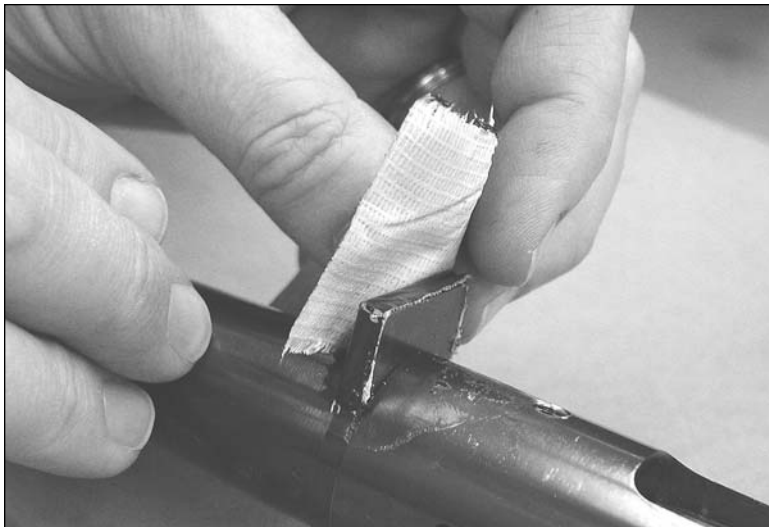


Figure 10B: Tape all sides of recoil lug except for the rear.

11. Apply inletting black to the taped portion, and continue the process described in Steps 6-9, until no black is transferred to the stock. Remove two layers of the tape prior to performing the bedding operation.
12. Apply masking tape to the top edge of the forend, adjacent to the barrel channel. (See Figure 8E).
13. If this is the only area you are bedding at this time, then proceed directly to Step 3-Preparing the Metal.

### Trigger Guard

1. Note: Bedding this area generally requires 1/2 teaspoon (tsp.) of Resin, with an equal amount of Hardener.
2. Allow 15 – 20 minutes to complete this step.
3. Glass-bedding the trigger guard aids in maintaining the position of the bottom metal and allows the guard screws to hold a more consistent torque.
4. The differing styles of fabrication designs of trigger guards and bottom metal will affect the technique of relieving the corresponding inletting. One method that works well is to “outline” the bottom of the inletting around the front and rear guard screws by cutting a groove with the Dremel® Tool and a 1/8” bit to a depth of 3/16” (.1875”). (See Figure 9A). Another method is to use the same technique as the rear tang screw, by enlarging the stock guard screw holes using a Dremel® Tool, to about 1/2” (.500”) diameter , and a depth of approximately 3/16” (.1875”). (See Figure 9B).

### Step 3. Prepare the Metal

Note: It is important that Bedrock™ not be allowed to migrate into holes and recesses in the action or barrel. Should this happen, the barreled action will become mechanically locked (bonded) to the stock. Separating the stock from the barreled action then becomes extremely difficult, and may result in damage to the stock. Areas of concern are those around the trigger, cross-pin holes, where the sear passes through the bottom of the receiver, bolt release, and magazine box attachment points.

1. Allow 30 minutes for this step.
2. Fill holes and openings on the underside of action with modeling clay or cover with ordinary Scotch Tape® tape to keep Bedrock™ compound out of the receiver. (See Figure 10A).
3. Apply two layers of plastic electrician's or duct tape to the front, sides, and bottom of the recoil lug. Use the Exacto ® Knife to trim the tape to fit the lug. Once the bedding is cured and this tape is removed, the clearance provided will aid in future assembly and disassembly of the rifle. Note: Do not apply tape to the rear side of the recoil lug, as you want to maintain firm contact between it and its recess in the stock. (See Figure 10B).
4. Once the holes are blocked off and the recoil lug taped, the Release Agent must be applied. This is a critical step. Since Bedrock™ provides an extremely strong adhesive bond, Release Agent must be applied to all areas where Bedrock™ will contact the metal components. Apply the Release Agent well above the stock line. (See Figure 10C). By the same token, you want Bedrock™ to bond to the stock, so do not, under any circumstances, apply Release Agent to any portion of the stock.
5. Open the jar of Release Agent and, with the ring dauber, coat all areas of the barreled action that will make contact with the stock. In areas adjacent to where Bedrock™ will be applied, extend the coating well above the stock line, so any Bedrock™ squeezed out does not bond to the metal.
6. Make sure all surfaces are coated, including those areas where you applied modeling clay or tape. (See Figure 10D).
7. Apply a second thin coat.
8. Coat the threads and shank of the guard screws and the underside of the guard screw heads. (See Figure 10E).
9. Inspect the Release Agent application carefully. Do not attempt to "build up" a thick coating of Release Agent, but make sure that all areas are coated. Carefully set aside to await the bedding step.

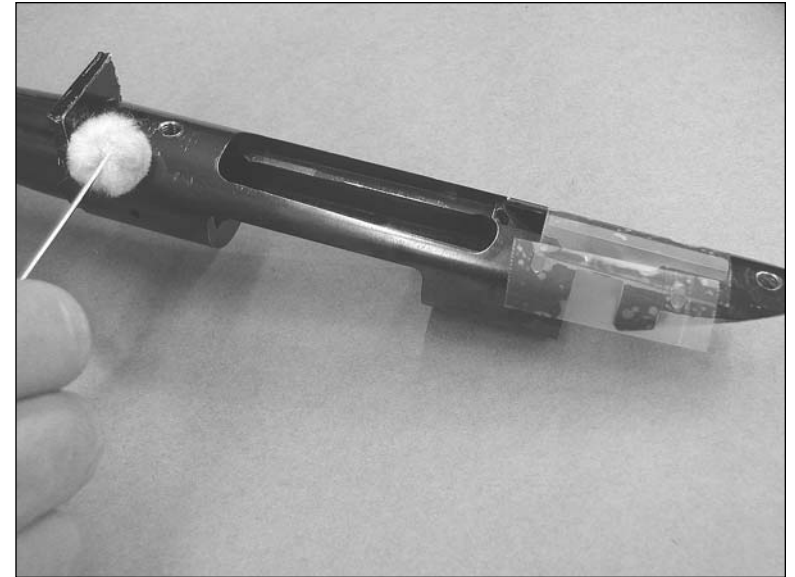


Figure 10C: Apply Release Agent liberally to all surfaces of the barreled action, below the stock line and

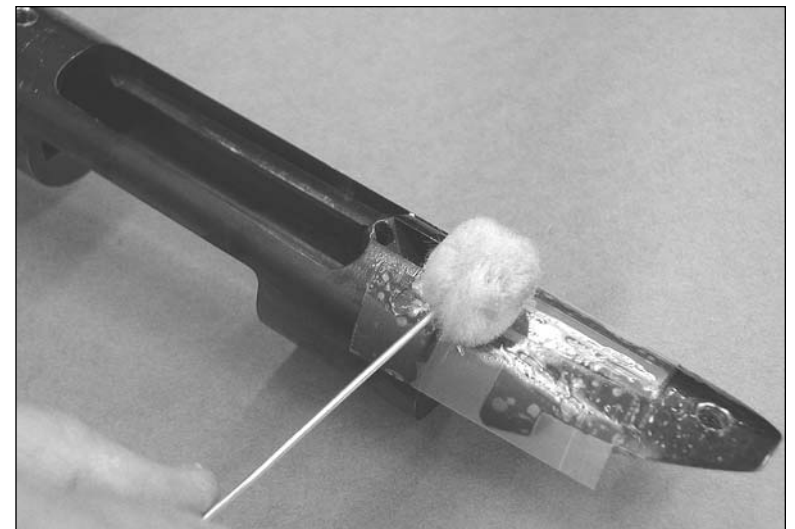


Figure 10D: Apply Release to the taped and plugged holes.



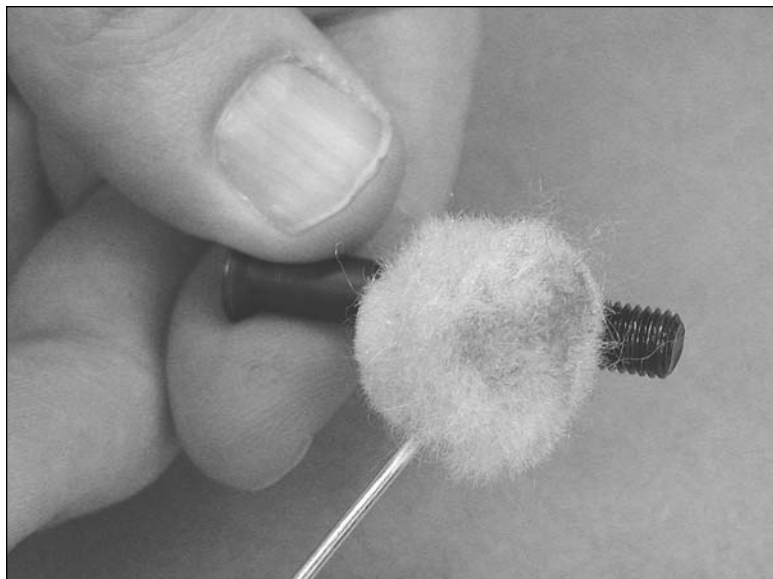


Figure 10E: Apply Release Agent to screw threads.

## Step 4. Mix the Bedrock™

Note: Do not make an effort to alter the mixing ratio of Bedrock™ in an attempt to speed up or slow down its curing properties. Deviations from the one-to-one ratio may result in the mixture failing to properly cure.

1. Allow 10-20 minutes for this step.
2. Determine the amount of Bedrock™ to be mixed, as indicated previously for each area to be bedded.
3. For most applications within the context of these instructions, one teaspoonful of each component will be sufficient to bed the area in question, however, for larger applications or when it is determined that several areas may be bedded at one time, and additional spoonfuls of Resin and Hardener will be required, we suggest that you write this number down on a piece of paper in order to keep track of your mixing ratio.
4. Open the jar of Hardener, then fill and transfer the desired number of spoons of Hardener to a mixing dish, making a mark on the piece of paper for each spoon filled and transferred. Note: Use one of the applicator sticks to scrape the remaining Hardener out of the spoon and into the dish each time.
5. When finished, wipe off the stick and the measuring spoon and save for future use. Vinegar works well as a solvent for uncured Bedrock™. Be careful, however, as it can also degrade or remove bluing. Replace the lid on the jar of Hardener.
6. Open the jar of Resin and, using a different applicator stick and the cleaned-off spoon, fill an equal number of spoons with Resin and transfer to the Mixing Dish, making a mark on the piece of paper for each spoon filled and transferred. Note: Use one of the applicator sticks to scrape the remaining Resin out of the spoon and into the dish each time.
7. When finished, wipe off the measuring spoon with a paper towel, and save for future use.
8. Replace the lid on the jar of Resin. Using the same stick with which you just finished, stir the Resin and Hardener together for two minutes, until thoroughly blended. Check your watch! The Bedrock™ is now ready to use. You have approximately 20 minutes before it



Figure 11A: Transfer Bedrock™ carefully to the relieved areas.

begins to set up.

9. If a thicker consistency is desired, add Microballoons (See Step 5 below).
10. If you want to color the Bedrock™ either brown or black (See Step 6 below).
11. If you do not wish to add either product, skip to Step 7.

## Step 5. Add Microballoons (optional)

Microballoons are used to thicken up the Bedrock™ so it will not run. For many glass-bedding applications, it is advantageous that the consistency of the Bedrock™ be thicker than the mixture of only Resin and Hardener. Adding Microballoons allows the user to customize the consistency. A consistency similar to warm peanut butter works well, and will not run. The MAXIMUM amount of Microballoons that can be added is equal to the mixed volume of the Resin and Hardener. For example, if you combined one teaspoon each of Resin and Hardener, you can safely add two teaspoons of Microballoons. Adding Microballoons up to this maximum will not compromise the strength of Bedrock™.

1. After mixing Bedrock™ Resin and Hardener, add a quantity of Microballoons equal to about one-fourth the volume of the mix.
2. Stir the Microballoons thoroughly into the mix (approximately 30 seconds) and determine if the consistency is appropriate. Continue to add Microballoons until the desired consistency is reached, up to a 1:1 ratio of mixed Bedrock™ and Microballoons.

## Step 6. Add Dye (optional)

Whether or not you add Microballoons to the Bedrock™, now is the time to add the brown or black dyes, if desired. Tear open one end of the plastic pack containing the color dye you wish to add. Squeeze out a very small amount of the desired color into the mixed Bedrock™ and stir for one minute or until the color is uniform throughout the mixture.

**Note: For purposes of contrast and visual clarity in our accompanying photos, we have added no stain to the Bedrock™.**



Figure 11B: Carefully lower barreled action into stock.



Figure 12A: Lift the barreled action straight up and out of the stock.

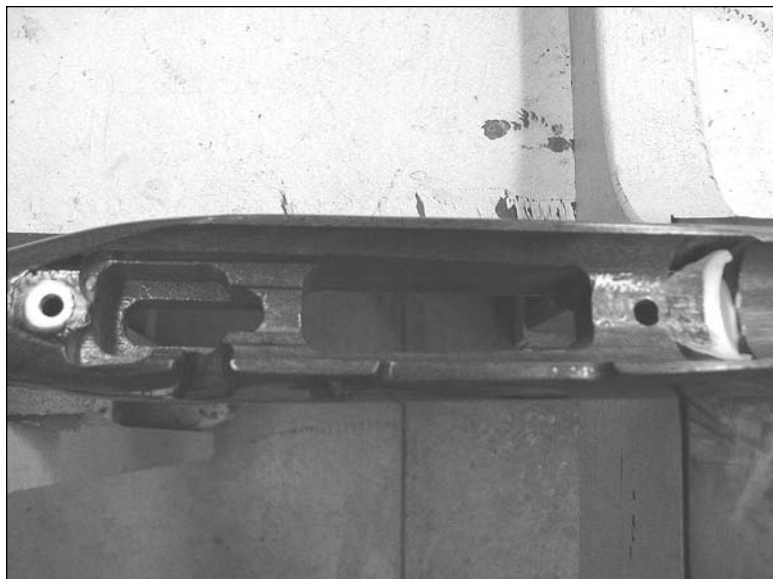


Figure 12B: Recoil lug and rear tang bedded.

## Step 7. Apply Bedrock™ to the Stock

Allow 5 minutes to complete this step. Using a mixing stick, transfer the mixed Bedrock™ to the relieved areas of the stock. (See Figure 11A). Remember, you are only replacing the stock material you removed. A small excess of material is not undesirable, as the excess will be squeezed out between the stock and the metal components. A greater amount may make it difficult to seat the barreled action completely into the stock. This can result in the barreled action “riding high” in the stock and causing problems with magazine box or trigger alignment.

## Step 8. Assemble the Barreled Action to the Stock

1. Allow 5 minutes to complete this step.
2. With the prepared stock secured in a padded vise, carefully set the barreled action into the stock. (See Figure 11B). Press the barreled action fully into position, making sure the barreled action is seated fully rearward, and the recoil lug is bearing against the corresponding portion of the stock.
3. Turn the rifle over and, with the bottom metal in place, turn in the guard screws. When bedding the areas within the receiver, tighten the screws fully and then unscrew 1/2 turn. The screws serve primarily to align the barreled action within the stock, and you want to avoid stressing the stock to “conform” to the barreled action. An ideal method of assembling the stock to the barreled action, without inducing stress, is to turn the guard screws in sufficiently to align the components, and then wrap the stock and action area with surgical tubing. Properly wrapped, the action cannot shift in the stock. If the entire barrel channel is being glass-bedded, after the recoil lug and rear tang have been bedded, tighten the guard screws completely, so that the barrel is drawn fully into position.
4. Remove any masking tape applied to the outside of the stock.
5. Wipe off any Bedrock™ that has found its way onto the stock
6. Set the rifle aside for the Bedrock™ to cure.
7. After 8 hours, back-out the guard screws approximately one turn, then back in one turn, just to ensure they aren’t glued in.

## Step 9. Allow Bedrock™ 24 hours to Cure

## Step 10. Separate the Barreled Action from the Stock

1. Allow 5 minutes to complete this step.
2. Carefully remove the guard screws and the bottom metal.
3. Because of the close fit Bedrock™ now provides, the barreled action may resist removal. Place rifle in a padded vise. Remove the barreled action from the stock by lifting straight up. You can place an appropriate size wooden dowel, about 12 inches long, into the rear of the receiver, and use it as a handle to lift the barreled action out of the stock while simultaneously lifting up on the barrel. (Figure 12A).

## Step 11. Inspection

1. Inspection time is variable. Expect to spend from 5 to 60 minutes.
2. Inspect the bedded areas. Except for color and texture variations, Bedrock™ will blend in dimensionally with the rest of the inletting. (See Figure 12B).
3. Small voids are generally of no consequence, however, if large pockets of air were trapped, compromising the strength of the application, it will be necessary to mix up a small quantity of Bedrock™ to fill these areas. Repeat the mixing, (1/2 teaspoon each of Resin and Hardener are recommended), release agent, and application process.
4. It is extremely important not to add an excessive amount of Bedrock™ to any voids that you are filling, because there is no place for the excess material to go. An excess of Bedrock™ will keep the barreled action from seating completely. Always stop short of completely filling voids.
5. Carefully examine the trigger and magazine box areas for an excess of material that may cause difficulty in assembly or function.

## Step 12. Clean Up

1. Allow 5 to 10 minutes.
2. Wipe off the Release Agent remaining on the barreled action, using any gun cleaning solvents.
3. Remove any modeling clay or tape you used to keep the Bedrock™ from entering the receiver.

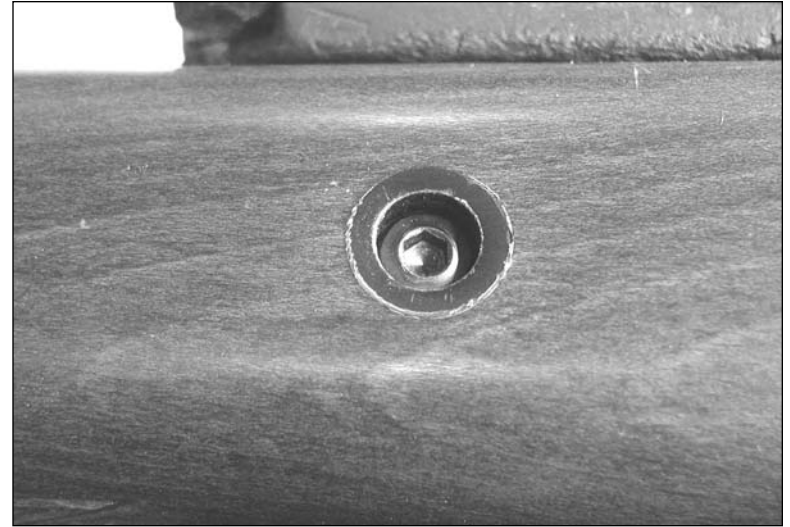


Figure 13A: Front guard screw and escutcheon of blind magazine rifles.

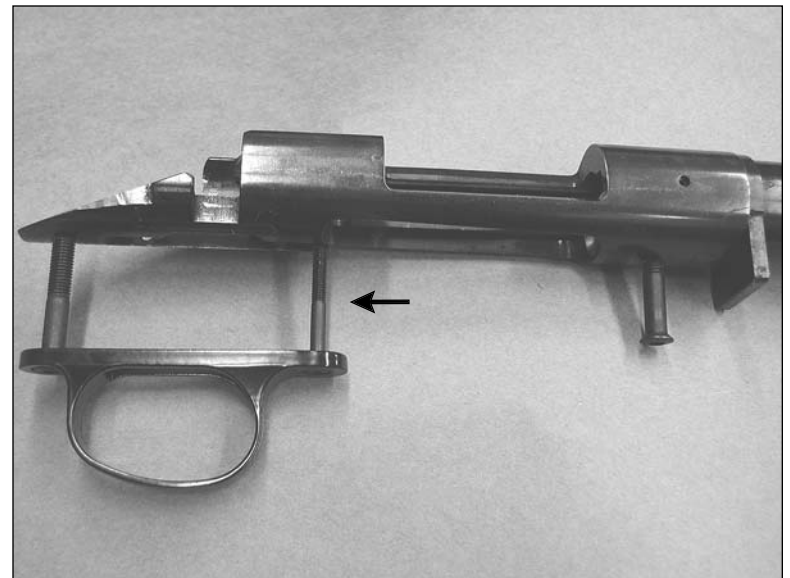


Figure 13B: Center screw of Remington® 700 ADL (black arrow) serves only to hold the trigger guard in

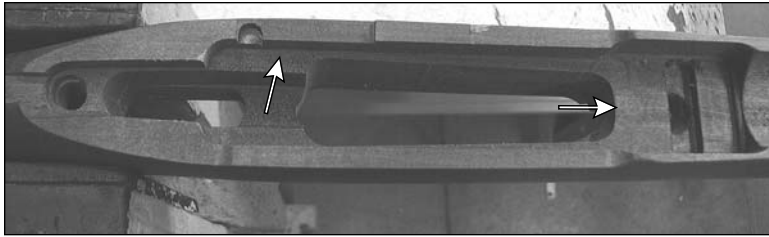


Figure 14A: Mauser receiver inletting is flat on bottom and sides.

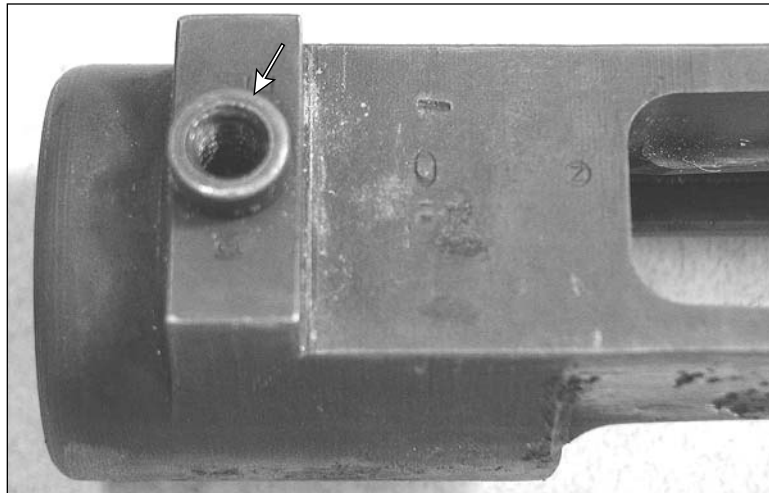


Figure 14B: Mauser front guard screw threads into bottom of recoil lug.

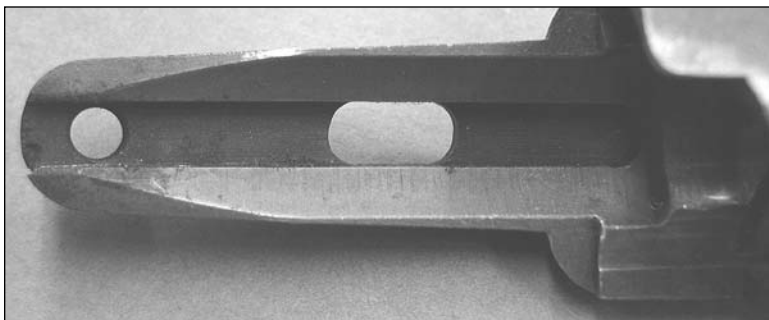


Figure 14C: Narrow tang of Mauser rifles.

## Step 13. Reassembly

1. Reattach trigger, safety, and other fire control and magazine components to the barreled action.
2. Reassemble the barreled action to the stock. Check for any excess Bedrock™ within the stock that may interfere with functioning, especially the trigger or safety assembly. Use a chisel or other tools to remove any excess.
3. Operate the mechanism using action-proving dummies, in order to test feeding, extraction, ejection, and trigger and safety functions.

## Step 14. Test Fire

### Appendix A: Dealing with Different Models of Bolt-Action Rifles

#### Remington® M700 ADL (and other rifles with blind magazines):

The Remington® M700 ADL and other brands of rifles with blind magazines (including the Savage® M10 and M110 series, and some Winchester® M70's) have a few features that must be considered separately. The front guard screw passes through an escutcheon that is pressed semi-permanently into the stock. (See Figure 13A). Any reference to bedding the trigger-guard/bottom metal will not apply to this screw. In addition, a third “guard screw” which serves to secure the front of the trigger guard to the receiver is present. (See Figure 13B). The portion of the stock through which this screw passes must be considered in the bedding planning, but only after the recoil lug and rear tang areas are bedded. Just as with the BDL models, the recoil lug area and the rear tang are the primary bedding points, but if there is not firm contact support between the bottom of the receiver and the stock in the area of the third screw, then over tightening of the screw can cause springing of the receiver. If there is not firm contact, then the solution is to relieve that area of the stock, and replace with Bedrock™ to assure complete support, in the same manner as the rear tang.

#### Mauser Rifles:

Mauser rifles, whether the small ring series, such as the M93 and M96, or the large ring M98, offer significant challenges to glass-bedding.

The sides and bottom of the receiver are flat, (See Figure 14A) and the front guard screw threads directly into the bottom of the recoil lug. Care must be taken to avoid filling the guard screw hole with bedding compound. (See Figure 14B). The rear tang is very narrow and offers little area for bedding support. (See Figure 14C). The military barrel is stepped, and if not replaced,

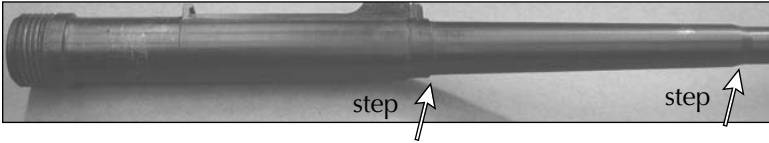


Figure 14D: Military Mauser barrels are stepped, and not tapered.

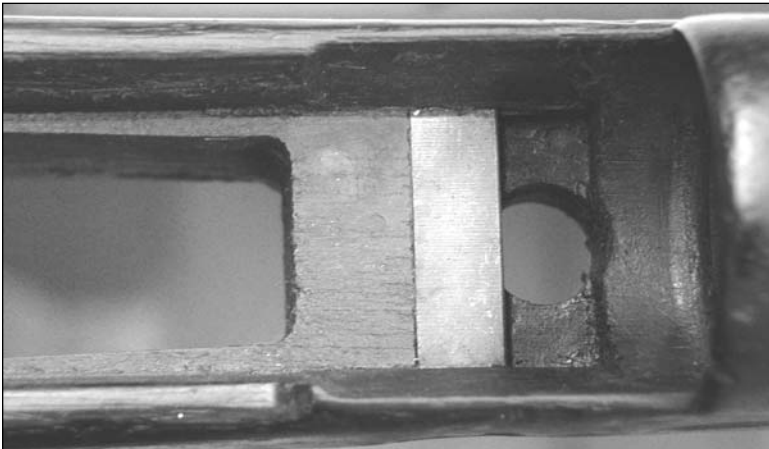


Figure 14E: Military Mauser stock cannot be bedded conventionally in recoil lug area, because of the steel crossbolt.

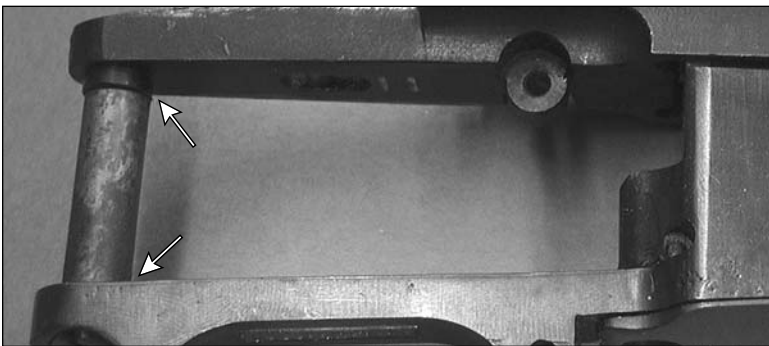


Figure 14F: Military Mausers have metal to metal contact from trigger guard to receiver (see arrows).

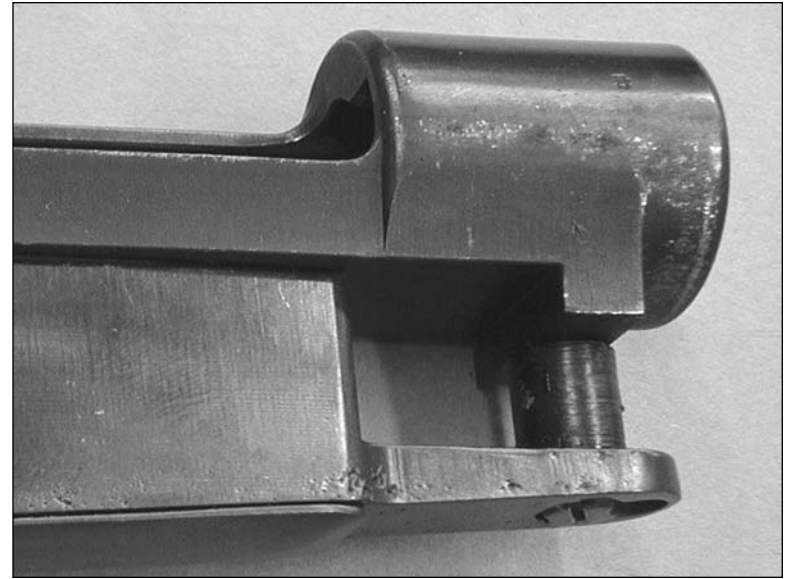


Figure 14Fa: Mauser bottom metal features a "column" which contacts the bottom of the recoil lug and surrounds the front guard screw.

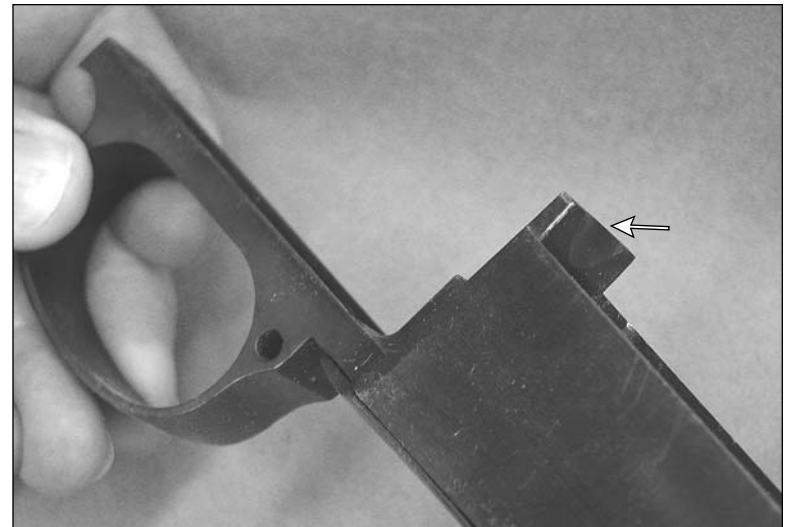


Figure 14G: Magazine box lip fits into recess on underside of receiver.



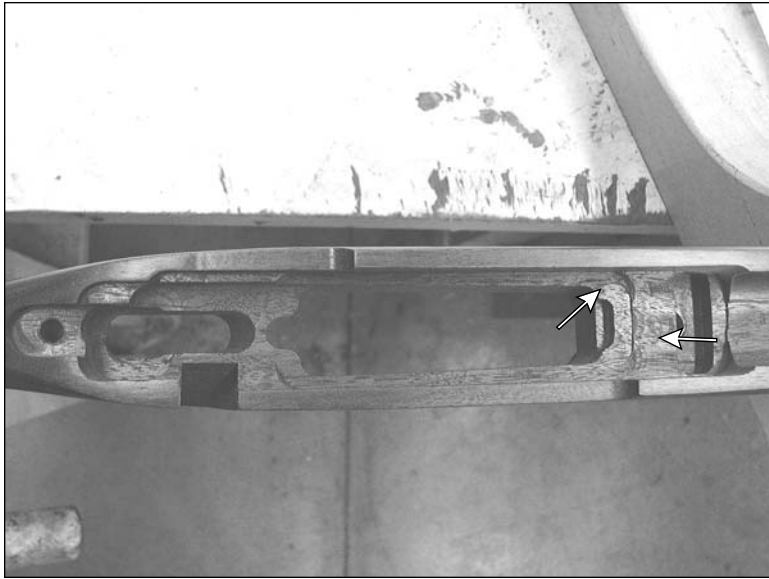


Figure 15A: Ruger® M77 receiver inletting is flat on bottom and sides (white arrows).

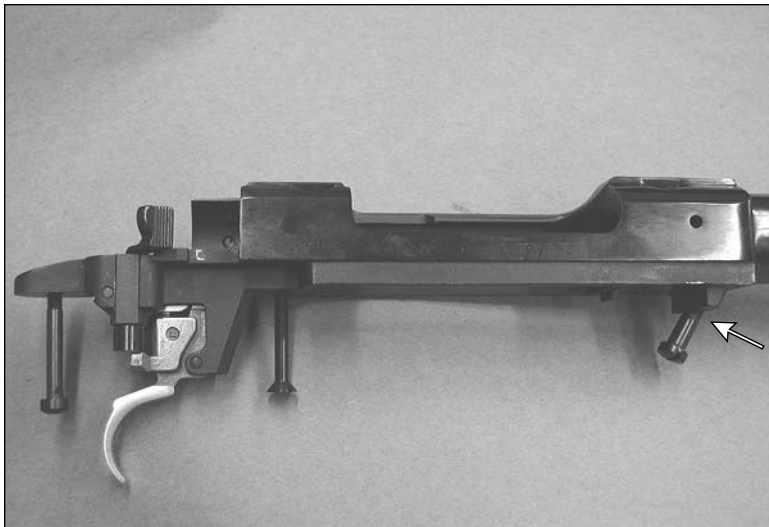


Figure 15B: Ruger® M77 has distinctive angled front guard screw.

it is somewhat difficult to enlarge the barrel channel for full-length bedding. (See Figure 14D). Most military stocks feature a steel cross-bolt supporting the recoil lug. (See Figure 14E). Glassing the cross-bolt requires that stock material be removed both behind and underneath it, so that it is supported on two sides by the bedding compound. A custom, or aftermarket, stock will usually not feature this crossbolt, so all reference to bedding this area in the main instructions, will apply. The original Mauser stocks also utilize a steel, supporting sleeve surrounding the rear guard screw. This sleeve literally connects the bottom of the rear tang with the rear of the trigger guard. Properly installed in either the original or aftermarket stock, it precludes the need for any glass-bedding support. (See Figure 14F). Besides this sleeve, which sets the spacing at the rear of the receiver, the Mauser trigger-guard/bottom-metal utilizes a “column” of steel surrounding the front screw which makes hard contact with the underside of the recoil lug. (See Figure 14Fa). Any bedding done involving the recoil lug must allow for, and not interfere with, this contact. The magazine box is integral with the trigger-guard/bottom-metal. The box features a lip at its upper rear, which fits into a recess at the corresponding point on the underside of the receiver. (See Figure 14G).

#### Ruger ®M77 and M77MKII:

Ruger bolt-action rifle receivers are flat on the sides and bottom. (See Figure 15A). The front guard screw on the M77 models is sharply angled. (See

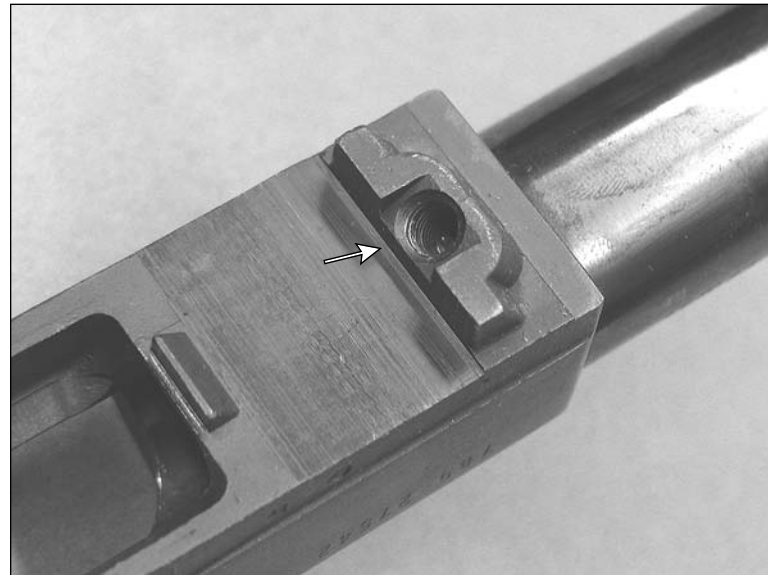


Figure 15C: Front guard screw threads into rear of recoil lug.

Figure 15B). The reasoning for the design is that tightening the screw draws the barreled action both down and rearward, making for a very secure connection to the stock. The screw threads into the rear bottom edge of the recoil lug, and the boss surrounding the hole occupies a lot of area. (See Figure 15C). Any relief of material from the corresponding area of the stock must be done very carefully, and as was mentioned in the main text, a portion of the original contact point must be left intact as a reference point. If the lug is left unsupported from the rear, tightening the screw will cause the barreled action to shift significantly rearward, out of alignment. The original M77 featured the safety mounted on the extended rear tang. Any addition of glass-bedding in this area must not be allowed to interfere with the safety linkage. Traditionally, the barrel channels of Ruger rifles are inletted in such a way as to exert a great deal of upward pressure on the barrel. Free-floating the barrel usually involves the removal of a significant amount of stock material.

#### Winchester® M70:

The M70 receiver is flat-bottomed, and offers only a slight radius on the sides, which does not allow for bedding support along the sides of the inletting. (See Figure 16A). The front guard screw threads into a flat area between the recoil lug and the magazine box which should make bedding the lug a straightforward operation. However, the current US Repeating Arms® rifles feature a “factory synthetic” bedding contact area in the recoil lug recess. Besides the bedding behind the lug, a variable quantity of the compound will be apparent on top of the flat between the lug and the magazine box. This indicates that this area of the stock inletting does not make firm contact with the corresponding area of the receiver. The vertical position of the barreled action is determined by contact between the barrel and the barrel channel. The appropriate approach is to remove the factory bedding compound (it is soft and easily removed), and replace it with Bedrock™. A “dam” of modeling clay or layers of plastic electrician’s tape can be created to keep the Bedrock™ from migrating to the magazine box. (See Figure 16B). The original barrel channel inletting must be maintained during this step to assure proper vertical positioning. Once the recoil lug and the rear tang are bedded, then the barrel channel can be bedded, if desired.

The rear tang is thick and wide and features a “lug” where the rear screw threads in. On post-WWII M70 rifles, the rear of the receiver features a flared “shroud” above and behind the rear lug. The underside of this flare covers a portion of the stock behind the inletting proper. (See Figure 16C). The current factory inletting process uses the contact between the underside of this flared portion and the top of the stock to determine the vertical position of the

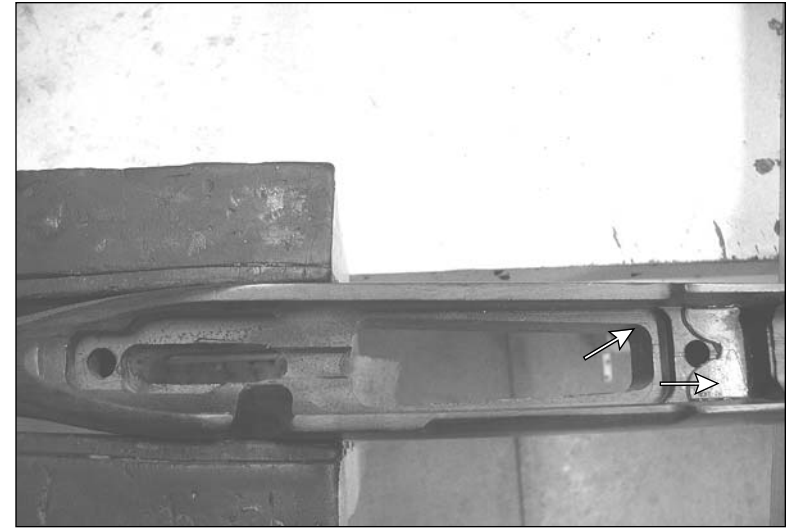


Figure 16A: Winchester® M70 receiver inletting is flat on the bottom and only slightly rounded on the sides (see arrows).

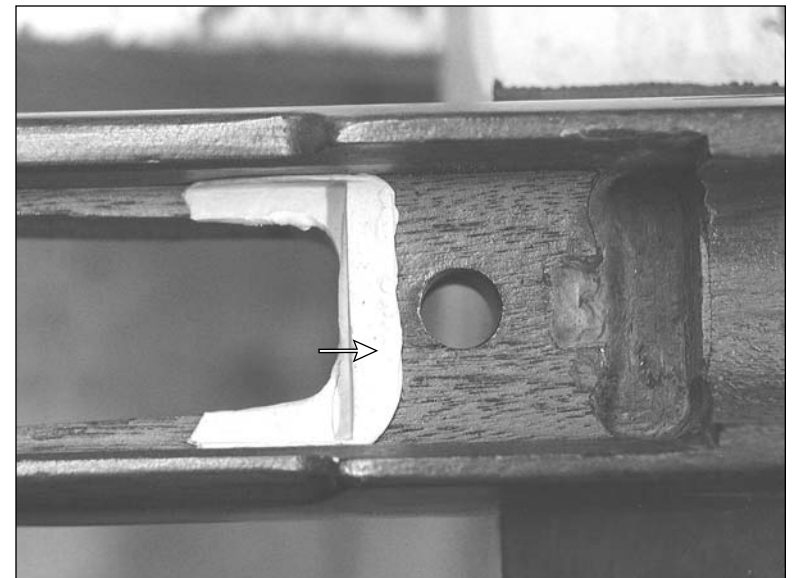


Figure 16B: Dam in place to stop Bedrock™ migration



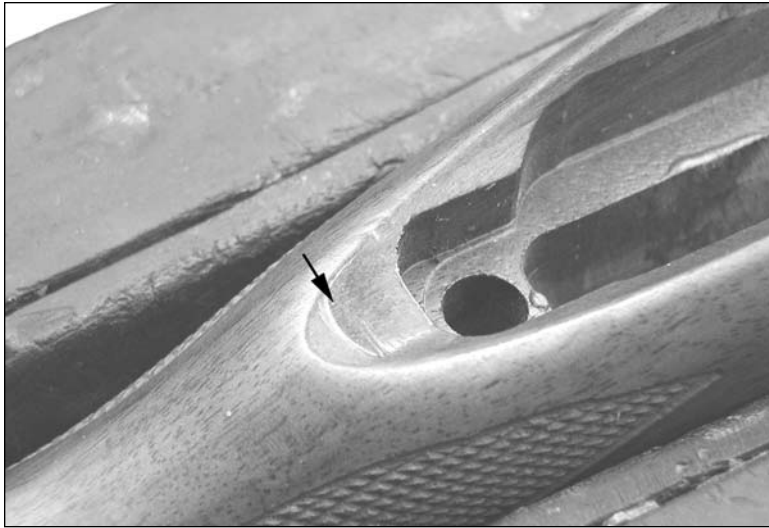


Figure 16C: Underside of M70 receiver makes contact with stock at this point.

receiver. In most cases the lug, where the rear guard screw attaches, actually floats above the inletting. To fill this area between the lug and the stock inletting with bedding compound is difficult because there is little room between it and the trigger assembly. (See Figure 16D). However, if the trigger assembly is removed and a modeling clay dam is formed to fill the slot in the stock, then the space between the rear receiver lug and its corresponding relief in the stock can be bedded, allowing for increased support at the rear of the receiver. This is the preferred method. No additional relief of the stock is necessary at that point, but be sure to remove any factory finish to ensure good adhesion. Be sure to use clay or tape to plug or cover the holes and recesses left after the trigger assembly is removed.

An alternative approach to improve the support is to just relieve the stock in the area covered by the flared shroud and fill it with Bedrock™. This is best done at the same time the area behind the lug is relieved and bedded. (See Figure 16E).

The standard M70 hinged floorplate is a two-piece affair with a “third” guard screw serving to hold the front of the trigger guard. As with the ADL version of the Remington® M700, firm contact between the stock and the corresponding point on the bottom of the receiver where the screw threads in, must be maintained. Again, this is accomplished after the recoil lug and rear tang areas are first bedded. The Winchester® stock inletting at that point features a slot about .400” wide, so the relief must be done on each side of the slot to a depth of approximately 1/8” (.125”).



Figure 16D: Rear guard screw is very close to trigger assembly.

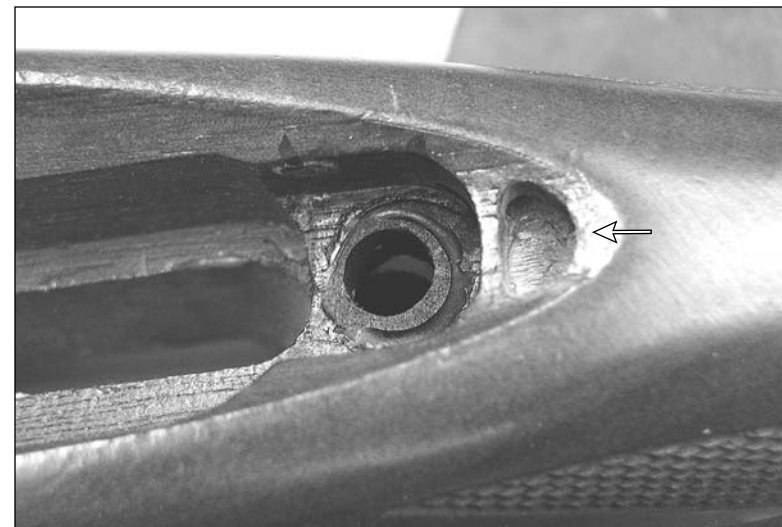


Figure 16E: Relief under rear of tang.

Savage® M10 and M110 series:

These receivers (See Figure 17A) are essentially tubular, like the Remington® M700, and also utilize the same sort of recoil lug, which is sandwiched between the front of the receiver and the barrel. A major difference is the location of the rear guard screw, which is actually the front trigger guard screw, and it threads into the receiver between the rear of the magazine box and the trigger assembly. (See Figure 17A). The rear trigger guard screw is actually a wood screw which serves to secure the trigger guard to the stock. Glassing the rear of the trigger guard generally serves no purpose other than to correct a problem with the position of its depth. (See Figure 17B). The two primary stock screws are relatively close together, which allows for a stiff and sturdy bedding application. At the point in the stock where the rear screw threads into the receiver, there is only minimal surface contacting the receiver. (See Figure 17C). This requires that the relief be made forward of the screw. The Savage® magazine box is “staked” or “crimped” in place and is not readily removable. The rear tang of the Savage® receiver extends rearward and includes the safety button. The factory stock is designed to provide clearance between it and the rear of the tang. The tang “floats” slightly above the stock, and this clearance should not be eliminated.

The Savage is designed with a barrel nut that secures the barrel to the receiver. (See Figure 17D). It is manufactured with a series of slots around its periphery, which are points of purchase for the wrench used in assembly. If the chamber area of the Savage is to be glass-bedded, these slots must be filled with an agent, such as modeling clay, to preclude the bedding compound from entering these slots and mechanically locking the barreled action and the stock together.

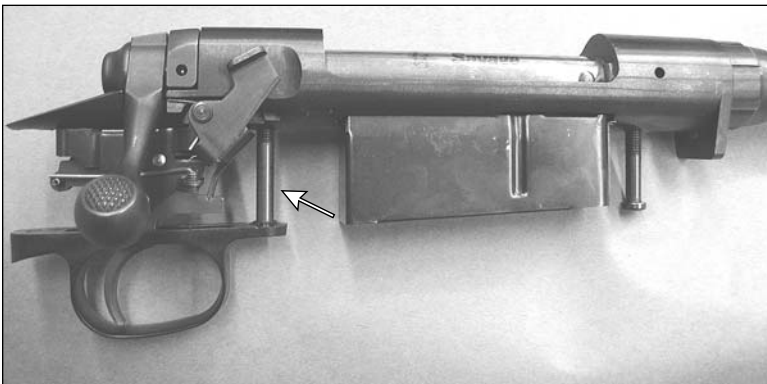


Figure 17A: Rear guard screw of the Savage® M110 is the front trigger guard screw.



Figure 17B: Rear trigger guard screw of the Savage® 110 serves only to hold the trigger guard to the stock.

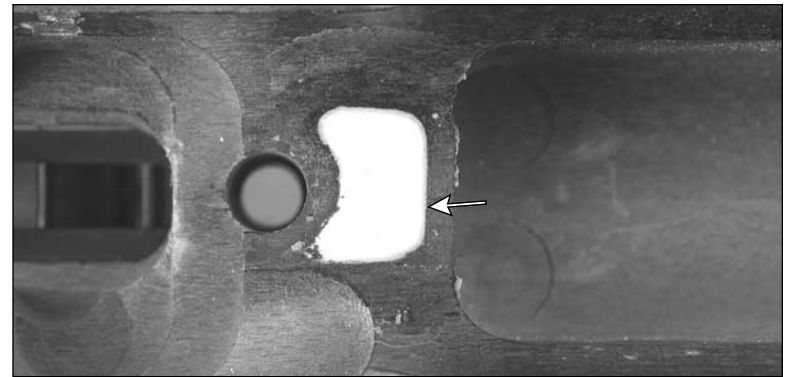


Figure 17C: Bedding is added forward of the rear screw.

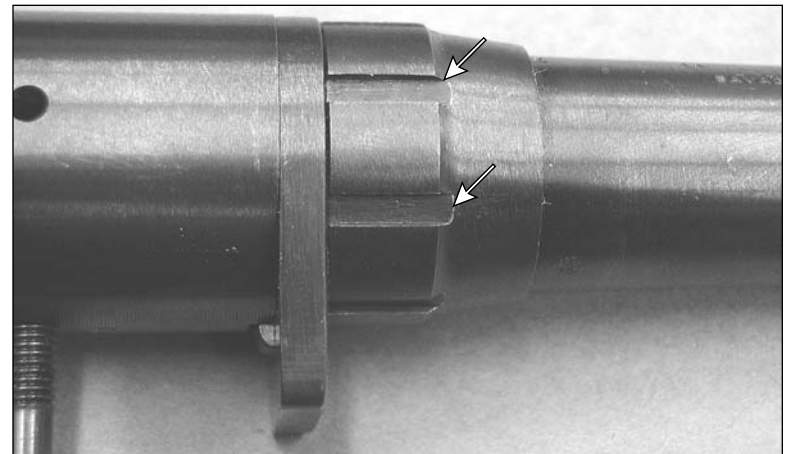


Figure 17D: Slots in Savage® 110 barrel nut must be filled if chamber area of barrel is bedded.

## Appendix B: Glossary of Terms.

1. **Action** – The Action is normally considered to be the heart of a firearm. With the addition of a Stock Assembly and a Barrel Assembly, the Action becomes a complete firearm. The Action consists of the Receiver, the Bolt Assembly, the Trigger Assembly, the Trigger Guard Assembly and the Magazine Assembly. A Recoil Lug is necessary and may be integral or non-integral. (Not on .22 caliber rifles).

2. **Action Proving Dummies** – Inert ammunition manufactured to standard specifications of dimension and weight. Used to function test feeding, extraction, and ejection.

3. **Barrel** – That portion of a firearm that contains the cartridge, or powder and projectile, during firing. In the case of a rifle barrel, it also imparts a stabilizing spin to the projectile.

4. **Barrel Assembly** – The Barrel and any parts that are normally attached to it, such as sights.

5. **Barrel Channel Tool** – Handheld device with circular scrapers in varying diameters, used to enlarge the barrel channel in a rifle stock.

6. **Barrel Recoil Lug** – A protrusion from the bottom of the barrel which fits into a slot in the stock and helps prevent the Action from moving backward under recoil. Normally, Barrel Recoil Lugs are used in addition to the regular Recoil Lug on heavy Magnum rifles. See also Recoil Lug.

7. **Bedding** – The fit between the bedding points of the barreled action and the stock.

8. **Bedding Points** – Those critical areas of the Barreled Action that should make firm, stable contact with the stock.

9. **Blind Magazine** – A Magazine Assembly that is not accessible from the bottom, and cartridges can only be loaded and removed from the top. This is both a cost savings and lightening feature.

10. **Bottom Metal** – A word used by some in place of Trigger Guard Assembly. Bottom metal may also include provision for a detachable magazine, or a hinged or detachable floor-plate

11. **Chamber** – The rear most portion of the Barrel, which contains the cartridge.

12. **Detachable Box Magazine** – A Magazine Assembly that can be readily removed from the firearm.

13. **Floor Plate** – A plate on the bottom of the Trigger Guard Assembly that allows for the cartridges in the Magazine to be removed from the bottom. This plate may be detachable or hinged. See also Blind Magazine and Hinged Floor Plate

14. **Front Receiver Ring** – That portion of the receiver in front of the Magazine area that contains the rearmost portion of the barrel. It may also include the Recoil Lug.

15. **Hinged Floor Plate** – A “hinged” plate on the bottom of the Magazine that allows for the cartridges in the Magazine to be removed from the bottom.

16. **Inletting Black** – Colored transfer agent applied to metal components of firearms to indicate contact points with the stock.

17. **Microballoons** – also known as fume silica; added to

Bedrock™ to thicken consistency, making it less likely to run.

18. Magazine, a.k.a. Magazine Box — A fabricated box traditionally situated just below the center of the Action that holds extra cartridges that can be fed into the Chamber on repeating type firearms.

19. Pillars – Metal spacers about 3/8” in diameter around the Trigger Guard Screws that provide for a stable distance between the Trigger Guard Assembly and the Receiver. In use, the Pillars protrude beyond the surface of the stock so that the Action and Trigger Guard Assembly are seated on the pillars.

20. Pillar Bedded — A gun, Action or stock is said to be Pillar Bedded when Pillars are used to bed the Action in the stock.

21. Rear Receiver Ring — That portion of the receiver that completely encircles the bolt, just behind the Magazine area.

22. Rear Tang – A protrusion on the rear of the action beyond the Rear Receiver Ring. This protrusion normally contains threads for the rear Trigger Guard Screw on bolt-action center-fire rifles.

23. Receiver, a.k.a. Stripped Action – A housing that contains the Bolt and has provisions for attaching the Barrel Assembly, the Trigger Assembly, the Magazine Assembly, the Trigger Guard Assembly, and possibly a Bolt Release Assembly. The Receiver normally has Bolt Locking Lug Recesses that allow the Bolt Locking Lugs to “lock” into position when the gun is ready to fire. There is normally a Cocking Piece Raceway in the rear most portion of the receiver that allows the Cocking Piece to move fore and aft, and prevents it from turning when the bolt is lifted so that the gun is “recocked”

24. Recoil Lug – An integral or non-integral protrusion downward from the Front Receiver Ring that fits into a slot in the stock and prevents the rearward movement of the Action during firing. See also Barrel Recoil Lug.

25. Safety – A device designed to help prevent accidental discharge of the firearm. The Safety might be attached to the Bolt Shroud (Mauser), the Receiver (Ruger 77 MKII), wherein it secures the Cocking Piece; or it may be part of the Trigger Assembly (Remington 700), wherein it secures the trigger.

26. Stock — In the simplest terms, the Stock is the handle that allows the shooter to hold onto the barrel and action while using the firearm.

27. Trigger Assembly –A series of levers and fulcrums designed to allow the user to conveniently release the Firing Pin.

28. Trigger Guard Assembly – In its simplest form, the Trigger Guard Assembly consists of a protective bow, covering the exposed portion of the trigger, and two attaching screws. More complicated Trigger Guard Assemblies might include a Hinged Floor Plate, to provide access to the cartridges in the Magazine Box Assembly, or a frame to accommodate a Detachable Box Magazine

29. Trigger Guard Screws, a.k.a. Guard Screws – Those screws used to attach the Trigger Guard Assembly to the stock or the Action.

## Appendix C: Bedding hints and tips from Published Authorities

“My first trial with a glass bedding compound convinced me that here was a product extremely useful to the gunsmith. True, some professionals skilled in obtaining a perfect fit between wood and metal with conventional inletting tools scoff at its use for bedding purposes. The fact still remains that the amateur or semi-skilled stocker can readily obtain a near-perfect bedding job every time if the compounds are used according to instructions furnished, and the accuracy of the rifle will never suffer on account of it.”

“Glass bedding compound can also be successfully used for repairing the stocks and forearms of pump and automatic shotguns. On many pump shotguns the top section of the grip will crack or break off after considerable shooting. Gluing this piece back on may hold for awhile but it may again come off for the same reason it came off the first time. Routing out or chiseling out the inside surfaces where it comes in contact with the receiver and tang. And then glassing it will cure the trouble once and for all.”

“Glass bedding is often carried to the extreme with the entire action, receiver, and guard, and perhaps the barrel, all embedded in a mass of glass. This need not be, as the crucial point is the recoil shoulder area. I have found that if this portion alone (recoil lug and chamber area – ed.) is glassed all the advantages of an entirely glassed action are obtained without the added labor. This is especially true with factory-stocked rifles. The small amount of wood that must be cut out of the stock is easily and quickly done and glassed as easily, and will give the required close fit between recoil shoulder and stock. This is all that need be done to prevent the action from shifting. Also, the stock is strengthened at this point, and will provide enough action support for even a full-floating barrel.”

“There is literally no end to the applications of glass bedding compounds. It is a wonderful material to use in attaching forearm tips to rifle stocks, whether of plastic, horn, wood, or metal. Use it also for refitting those loose forearms on single-shot rifles and shotguns, or for resetting screws, escutcheons, pins, and plates.”

Frank de Haas – The NRA Gunsmithing Guide-Updated

“Epoxy-glass bedding kits greatly simplify many chores of the hobbyist and gunsmith. Bedding can be so precise that tool marks and stampings will show clearly in the hardened compound, and the stock will be physically strengthened.”

“Epoxy-glass may also be used to repair chips or dents on the stock surface. Chipping to the rear of receiver tang...was repaired by applying epoxy and then shaping it to conform to the stock surface. When hard, epoxy may be worked in the same manner as wood. Epoxy compounds may also be used to fill gaps in the inletting of antique arms.”

“Loose-fitting revolver and auto-pistol grips may also be repaired using epoxy compounds. Coat all areas that epoxy may touch with release agent, and fill any cavities from which epoxy is to be excluded with modeling clay or cover with cellophane tape. Apply more epoxy if needed to fill any bubbles and voids in surface.”

Joe D. Huddleston – The NRA Gunsmithing Guide-Updated

“A properly bedded Mauser receiver actually rests on steel at both mounting screw locations. Receiver mounting screws cannot compress the stock and, in turn, flex and stress the receiver and barrel. The barrel, however, may still be stressed by forearm pressure....

I suggest bedding stocks in stages. This approach minimizes the risk of mechanical locking and actually takes less time, particularly when working with several rifles at once...Additional stock bedding between the receiver mounting screws doesn't

serve a useful mechanical purpose, but is sometimes done to cosmetically repair rough inletting jobs.”

Jerry Kuhnhausen – The Mauser Bolt Actions-A Shop Manual

“The great benefit of fiberglass is in the recoil lug area of the action inletting. The recoil will invariably batter the wood and set back somewhat. When this happens, gaps appear at the shoulder at the front of the action. Also, if the barreled action sets back far enough there may be some cracking and chipping of the wood at the tang area. Fiberglass, properly used, will eliminate this problem. By “properly used,” I mean exactly that.” “Bear in mind that any application of fiberglass must be to clean wood, for if applied over finish the compound will adhere only to the finish, which will eventually crack loose. I’ve seen amateur bedding jobs where the fiber-glass came out in chunks because it was applied over a thick factory finish (the stocks had been hollowed out around the recoil lug and tang, but the finish had been left untouched around the receiver walls and barrel).”

L.S. Hacker, Jr. – Rifle, March/April 1973

“An acquaintance recently showed me his newly epoxy-bedded jewel, and like the artist in the TV wine commercial, proudly asked, “Would you believe I did it in only an hour?” Yes, I believed it. The stock was an excellent example of what not to do with epoxy bedding. The wood had been gouged out, none too neatly, for about an eighth-inch all around the action, with the resulting gap filled with glaringly obvious dyed-epoxy, smears of which faintly glistened on the action and barrel. Since he hadn’t left any of the original bedding in place, or otherwise supported the action during the curing, the tang had been pulled too far into the stock, causing the barrel to angle upward, so only a little over a third of the barrel was within the stock at the fore-end. And the epoxy had cured with the barrel angled off center-line. But that was no problem, for my friend had also filled the barrel channel with epoxy, “to seal it.” He said knowingly; “making certain that it won’t shift point of impact.”

“The common tendency is to overdo the marvelous ability of epoxy to mould to a “perfect” fit, and to assume that if a little is good, a lot is better. A tight fit in all dimensions results in wedging, which doesn’t result in best accuracy. The problem is multiplied if the action screws are also bedded in epoxy, as my young friend’s rifle was, for most screws are bent slightly as a result of being pulled down too tightly with the normal slight misalignment of floorplate holes and action threads. Since the crooked screws are unlikely to be torqued to the same place twice, they exert a lateral force that tries to shift the action in its bed.”

Neal Knox – Rifle, November/December 1983

“In bedding the action there should be firm contact from the magazine cut forward to the end of the receiver ring and again at the tang, but the receiver should not touch between these points with actions having only two guard screws. If the action has the third screw like the Remington 700 ADL or the Winchester 70, be sure there is contact of wood and metal at the bottom of the receiver at this point. If there is none and the screw is tightened down the receiver will be sprung and accuracy may suffer.”

“Receiver inletting should be checked to be sure that the guard screws, magazine box, trigger and safety, and even the bolt handle, do not make contact with the wood. Any of these “minor” items can cause accuracy problems.”

Bob Hagel – Rifle, July/August 1969

“There’s a lot of debate over bedding techniques. One that has always served me well is a four-point system: at the receiver tang, in front of and behind the recoil lug, and at the end of the forearm. In the first bedding I leave the forearm alone because it’s too easy to spring the stock a little, even if you use shims. In addition, I like to see how well the rifle shoots with the barrel floated. After the compound has set up, recheck to make sure there are no high spots between tang and lug. If there are, remove them.”

Gary Sloan – Rifle, July/August 1987

“The finest rifle in the world cannot attain optimum accuracy with a sloppy bedding job; it cannot do this even with a pretty good job. Essentially, a bolt-action rifle is a combination of barrel, receiver, and bolt/firing-pin assembly. All else involved with it – stock, sights, trigger – are there for the user’s convenience in operation. These cannot add to the inherent accuracy of the rifle, but they can detract from it.

“First, consider the stock: pressure against the barrel, either upward or from one side, can play hob with accuracy; the wood may vary with humidity and temperature changes to affect such pressure. Or uneven support of the receiver, or bedding that’s high in the middle or low at the rear tang, or screws bearing against screw-holes, or inletting not squared so that the receiver is twisted a bit when the screws are drawn tight. Any of these conditions can make your barrel and receiver operate under a severe handicap.”

Roy Dunlap – Rifle, March/April 1971