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Dear Shooter,

Thanks for buying a Green Mountain® custom barrel for your Ruger® rim fire rifle. The folks here at Green Mountain are dedicated to a quality barrel and happy customers. When it comes to guns, we feel that safety is a big part of being happy. We know that shooters experienced enough to want the level of performance a Green Mountain® barrel can supply are professional in their approach to the sport. We supply these instructions as a reminder to experienced shooters and as a guide to those becoming experienced. Please have your Ruger® owner's manual to use as a reference for the barrel replacement procedure. These instructions apply to Models 10-22®, 77-22® & 96-22®, in all rim fire calibers. We recommend the barrel replacement on the 77-22® and 96-22® models be conducted only by a qualified gunsmith as headspace requirements are critical to safety and accuracy.

**Prep:** Before getting your rifle, ensure an unobstructed and safe working area, free from distractions or hazards. The area should be secure, well lit and have ample workspace for you and your rifle. Small parts have a tendency to get lost and while usually not expensive, they can take a while to replace. The barrel changing operation is an excellent time for a thorough cleaning of your rifle. You'll need a flat tip screwdriver of the appropriate size, depending on your rifle, to remove the stock. A ball end 5/32" Allen® wrench is much easier to use when tightening the retaining screws if you are installing a bull style barrel. Safety glasses are an obvious necessity but I'll mention them anyway. Target shooting really isn't the same if you've lost in eye while working on your rifle. Now it's time to clear the area of kids, dogs or any other distraction and get down to the business at hand.

**First Step:** An Unloaded rifle: Safety "on" and point the rifle in a safe direction. Remove the magazine, ensure an empty chamber and leave the bolt open. If it's an autoloader, leave it locked open.

**Second Step:** Disassemble the rifle and remove original barrel using the Ruger® factory manual. Clean your new Green Mountain® barrel thoroughly inside and out. Re-assemble the cleaned and lubricated receiver without the barrel. Do not insert the magazine.

**Third Step:** Install the barrel into the receiver aligning the retaining lug cut out in barrel with retaining lug mount on the receiver. Install the retaining lug with the two socket head screws that were removed at disassembly. Run down but do not tighten the screws all the way yet. The barrel should now be up snug to the receiver but not tight, allowing it to twist a little. Align the extractor cutout on the chamber end of the barrel so when the bolt is closed, the extractor will engage the cutout. Carefully close the bolt. Gently twist the barrel left and right using the slack provided by the loose retaining lug screws. Align the bolt's extractor to be about in the center of the barrel's extractor cutout using the twisting motion. Once the barrel is centered, open the bolt and snug down the retaining lug screws as directed by the factory manual.

**Note:** Due to tolerance differences beyond our control, certain inspection and adjustment steps may be needed for bolt or lever action rifles. Only qualified gunsmiths should change barrels on these models. On the Model 77® and 96® with the barrel installed and screws tight, slowly close the bolt. If any binding of the bolt occurs, do not force the bolt. The barrel to bolt face dimension is too tight and you'll need to add one of the supplied round shims. The shims are .002" thick and are designed to set the proper headspace for your rifle. With the barrel removed place one shim over the chamber "stub" area of the barrel and reinstall barrel on the rifle's receiver. With the bolt open tighten the barrel as stated in this paragraph. Check bolt function again. Repeat this process with adding shims if necessary based on your rifle's individual characteristics. We strongly encourage you to have a gunsmith check the installation for proper headspace. Additional shims are available free from us in case you need more. Replacement shims for damaged or lost originals are free as well. Now that you have the barrel to bolt lock-up set, check the barrel for tightness ensuring it will not twist in the receiver with the screws in place and snug. If the barrel still twists with the screws tight remove the retaining lug and apply a single self-adhesive backed rectangular shim to the surface of the retaining wedge that presses the barrel into the receiver. Reinstall the retaining lug with the two screws. This should cure any looseness in the assembly. Recheck the bolt to barrel lock-up. If the barrel is tight and the action dry-cycles correctly, continue to completely reassemble the rifle. If not, contact us if you have questions or need some advice.

**Fourth Step:** If you are using an after-market stock, please refer to their instructions at this point. It's always a good idea to preserve and store your factory original parts for later needs. As far as the barrel is concerned, your installation is complete and when you take the rifle to a shooting range, a few rules apply. If you have an existing receiver mounted scope, the chances of the replacement barrel placing bullets in the same point as the original barrel is minimal. A break-in procedure for your new barrel is advised. The procedure is simple, clean the bore and fire a magazine (ten rounds). Clean and repeat for a total of ten magazines. Enjoy a safe and satisfying shooting experience with your Ruger® rifle and Green Mountain® barrel.



## **Breaking in your new Green Mountain Rifle Barrel: At the Range:**

### **Safety First.**

With the barrel clean and dry, targets clear and set, with 200 rounds of proper ammunition available. The sequence of firing for break in purposes is: fire 5 rounds then clean the barrel. Repeat for a total of 30 shots. Move to 10 rounds per string. Fire 10 rounds, clean and repeat for 70 shots, a total of 100 rounds. At this point fire another 100 shots, cleaning between each 20-30 rounds. The barrel will continue to break-in at this point but it is past the critical stage. You can now begin testing ammunition types to find out what shoots best in your rifle. When you test ammo, it is best if you fire 10 rounds of new ammo through a clean barrel prior to starting an accuracy comparison. This allows the barrel to be seasoned a bit with lube used in the ammo you are testing at the time. Remember, when you clean and oil your barrel at the end of the day, do not use a Teflon-based oil in the bore. This type of oil is great for moving parts, but is troublesome in rifle barrels. The Teflon will shoot out causing a shift in impact point from first to last round. Any other light gun oil is fine for protecting the bore in the short term. There is some excellent long-term grease available.

Thank you for your purchase – and Safe Shooting!

Green Mountain Rifle Barrel Co.