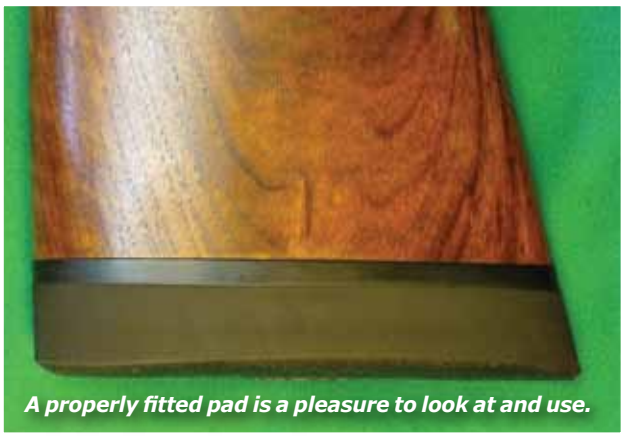
By Dean Maisey

# FROM THE GUNSMITH'S BENCH
# Fitting Recoil Pads

**As far as colour goes, I'm with Henry Ford: 'Any colour you like, as long as it's black!' I find that most of the black pads generally finish well and look the nicest**



*A properly fitted pad is a pleasure to look at and use.*

**Often taken for granted by hunters as chunks of rubber to cap off the wooden butt stocks of their guns, recoil pads can actually improve success while also making shooting more comfortable.**

For the professional gunsmith, fitting recoil pads is a fairly common job, but sometimes guys will want to have a go at fitting a pad themselves. While the job requires some specialist knowledge and equipment it is not an impossible task for a skilled craftsman, but there are a few pitfalls for the uninitiated.

## PAD SELECTION

There are different pad designs for different applications. Curved pads are used for trap shooting, flat-faced pads for skeet and sporting clays, and slightly contoured 'field-style' pads are a more universal design for hunting or target use.

The composition of the rubber used is also a factor to consider. Some people like the ultra-soft sorbathane-type pads, but they do have some drawbacks. As well as being a bit like bubble gum to grind to final shape, I have found that on hunting guns the sorbathane material can become damaged more easily than other pads. I have also found that the rubbery material on some new-age pads starts perishing after only six or seven years. Remington had this problem with their original R3 pads and has since changed to another pad supplier.

I use Pachmayr pads predominantly as they are a great product and a long-time industry standard. They are ably represented in New Zealand by James Pain from C. R. Pain Ltd, who is also the agent for Lyman Products. Over the years I have fitted many different brands of pads but Pachmayr is my favourite. They are what I stock and recommend.

Other things to consider are the colour and the sort of use the gun is going to get, such as hard hunting/field use or just target use on the range or sporting clays circuit. You need to be assured that the pad will be durable enough and suitable for the

*Some of the excellent recoil pads in the Pachmayr range.*

*Make sure the butt-end is square.*

*Install the (oversized) pad to the butt-end of the stock, and recheck that the pitch angle will be correct when finished.*

*Mark outline with a scriber, taking care not to mark the stock finish.*

gun's main method of use. As far as colour goes, I'm with Henry Ford: 'Any colour you like, as long as it's black!' I find that most of the black pads generally finish well and look the nicest, but I will fit pads of other colours for customers if they want that. In my opinion, any sort of rubber pad is superior to a hard plastic or metal butt-plate. Have you ever leaned a shotgun up against a wall expecting it to stay there and instead had the butt of the gun slide out on the hard concrete or wooden floor, crashing the gun to the ground? In most cases a rubber butt-pad would prevent this – just one of the reasons to fit a rubber pad.

## TECHNIQUE

The workshop equipment you will need to perform a good quality pad installation may be found in most wood-working workshops. A ø300mm disc sander or 100mm-wide continuous belt sander (with a suitable dust-extraction system) is the major component. Various hand tools such as a scriber, drills, screwdrivers and a bandsaw can also come in handy.

The grit size I use on the disc sander is 120, which produces a nice finish. For mass production, most companies would rough-shape the pad with 80 grit first, for quicker material removal, then switch to 120 or 150 grit to finish. The main trick with the grinding operation is to keep the pad moving across the face of the disc sander as you remove the material. Stopping even momentarily will produce flat spots on the surface of the rubber pad, which are unacceptable. While these can be fairly easily blended out and sanded smooth on the plastic base material, it is just about impossible to hand-sand out flat spots on the rubber material on most pads. Some of the old-style or more 'natural rubber' pads can be a bit more forgiving in this regard. Basically though, the goal is to get the nicest possible finish straight off the grinder to minimise the hand-sanding required.

Determining the final 'length of pull' (LOP) is the first thing the gunsmith must do before performing the pad installation. It is a waste of time and money fitting a pad for a customer to later find out that the stock is now too long or too short for them to use correctly. Usually this involves a one-on-one visit with the gunsmith so that he can check you for basic gun-fit. Where this is not possible, giving the gunsmith some measurements such as your height, forearm to finger pad length or the stock length of other guns that you use successfully is another way of determining that you are going to get the stock length about right. While this article is not about gun-fit, regardless, these are some basic things that must be determined before fitting a new recoil pad. Often you only get one chance to get it right, and an expensive pad can be ruined or become useless if you grind off too much, make a hash of it, or find out later that the required LOP is actually too short to suit the intended user.

*Set-up on special grinding jig.*

*For hand-sanding to finish I use kerosene and 400-grit wet/dry paper to perform this task, with the pad set-up on an old dummy-stock.*

**After the final LOP has been determined the procedure is as follows:**

1. Cut excess wood off the stock or add a spacer if required.
2. True up the butt-end on the disc sander so that it is square with the central line of the butt stock and ensure the pitch angle of the pad will be correct when fitted. Usually this is about 2–3 degrees from the center-line central axis of the barrel/bore.
3. True up the base of the new pad. Often the plastic pad bases are not perfectly flat and can leave unsightly gaps if not properly prepped.
4. Install the (oversized) pad to the butt-end of the stock, and recheck that the pitch angle will be correct when finished. In some cases new holes for the pad screws must be drilled first and old holes plugged with wooden dowel, or similar.
5. Carefully mark the outline with a scriber, taking care not to mark the stock finish.
6. Remove the pad and set-it up on the special grinding jig. Set the angle of the pad on the jig to match the corporal line and comb line of the stock. When the pad is fitted to the stock, these lines should flow continuously along the pad for a custom fit.
7. Carefully grind the material off just down to the scribed line, taking care to move the pad across the face of the disc sander in gradual sweeps – not by plunging it in or force-feeding it as the rubber will not grind nicely if you do this. I usually try to leave at least 0.010" of material proud of the stock surface to allow for hand-sanding to final finish later.
8. On some installations it is a good idea to radius the heel and toe of the pad slightly to minimise the chances of the pad catching or hanging up on clothing.
9. Hand-sanding to finish is often overlooked or short-cut out of the process by some. In my opinion, it produces a higher quality installation and a pad surface that has less of a tendency to pick up dirt or look messy, especially in the brown or red pads. The trick is to keep the pad lubricated or 'wet' as you sand it. I use kerosene and 400-grit wet/dry paper to perform this task, with the pad set-up on an old dummy-stock, not the customer's nice one! After carefully sanding, wiping clean and inspecting until it is clear that all the sanding disc marks have been removed the pad can be finally cleaned down.
10. Apply coats of stock oil or stock wax to the exposed wood on the butt-end, and wipe down the pad with a liberal coating of Armor All®. Leave both to stand overnight.
11. Wipe off excess Armor All® and carefully install the pad to the butt stock, aligning it correctly. I usually try to have a pad overlap to stock of about 0.005" to 0.010", especially on newer wooden stock, to allow for possible stock wood swelling that is a common thing with a lot of guns coming into New Zealand from drier climates. A wooden stock that has swollen over the outer edges of its pad is a bit of a cosmetic blight.

Hopefully this gives you an insight at least into some of the complexities of fitting recoil pads to a custom fit and finish. Most gunsmiths' charges vary depending on the time taken to do the job and how diligent they are in getting as good a fit and finish possible. I should mention that many gunsmiths or stock makers actually grind the oversize pads down to size 'on the stock'. That is, they actually screw the pad onto the customers stock, and in a free-hand motion they will turn the stock and grind the pad down just short of flush with the stock surface. I have experimented with this method a few times with dummy stocks but consider the risks of marking a customer's stock with just one little slip to be far too great for my liking. Hence, for liability reasons and peace of mind, I prefer to stick with the tried-and-true 'jig' method.