



Rifle Stocks – Pick the right one

The stock of a bolt action rifle may not be as critical in its application as a shotgun stock but it certainly has two major areas of interest so to speak, these are aesthetics and function. The fit, look and feel of the stock is definitely a decision maker when it comes to forking out cash from your account that your partner “may” know about. The function or design purpose of the stock may in a lot of cases, come a distant second in the decision to buy. However, if the wrong choice is made in this area, or no choice at all, things in the accuracy department later down the track may not be the as good as it could have been.

This article is not about categorising shapes and grades of wood in “European” Style or the American “Modern Classic” stocks, nor is it about the assessment of role over combs and the art of checking fine walnut. This article looks at the shape of rifle stocks when it comes to their function or purpose. A stock surrounding an action and barrel designed to utilise a hunting cartridge for deer encountered in mountainous areas will come in a certain shape. This shape can be broken down into three areas, the fore end, the pistol grip and the butt.

Bipods will not be mentioned in this article other than this paragraph. Bipods are a tool in the tool box, which in my opinion, are over-used from a lack of training which more often than not, is the cause for inaccuracy. Bipods can be put onto almost any stock and are useful in certain situations. They can also take away the purpose of the design of the rifle stock, particularly the fore end.

There are many uses of bolt action rifles that require the use of certain stocks. They can put into two main categories, hunting and target shooting.

Target / Prone Shooting

1. Benchrest
2. F Class
3. Full Bore
4. Biathlon
5. Service Rifle
6. Small Bore
7. Non-Competition
8. Long Range Hunting
9. Sniping

Hunting General

1. Mountains
2. Plains
3. From vehicle
4. Dangerous Game
5. From hides

The Butt Stock and Pistol Grip

When firing the rifle in any of these sub categories, the head is obvious looking down the rifle either through the telescopic sight or down the iron sights. This means the face is perpendicular with the length of the rifle. The body, however, is either at right angles to the length of the rifle or it is in line with the rifle. Meaning you are in the upright position or lying down in the prone position. Being upright can be either, standing, kneeling or sitting.

Let's look at the position of the head and butt of the rifle when firing rifles in these categories. Figure 1 illustrates the position of the head behind a precision or tactical stock. Shooting with this stock is mostly done in the prone or lying down position. The shoulder, in this position is higher up towards the head and therefore the distance between the centre of the rifle butt stock and the centre of the bore axis is quite small. This small distance aids in the reduction of muzzle lift or jump which aids accuracy down range. The rifle essentially recoils more in the rearward direction.

Figure 2 illustrates a greater distance between the centre of the butt stock and the bore axis. This rifle stock has more hunting features built into the stock with a raised cheek piece and a pistol grip more swept back. This increased distance between the bore and centre of the bore can cause greater muzzle lift. This may not be so much of a problem when shooting this rifle in the sitting, kneeling or standing position as this is what it is really designed for anyway.

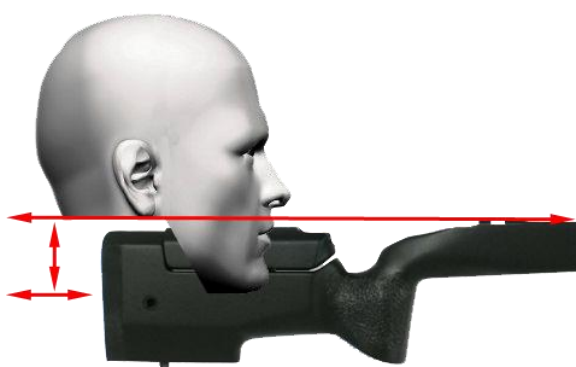


Fig 1.

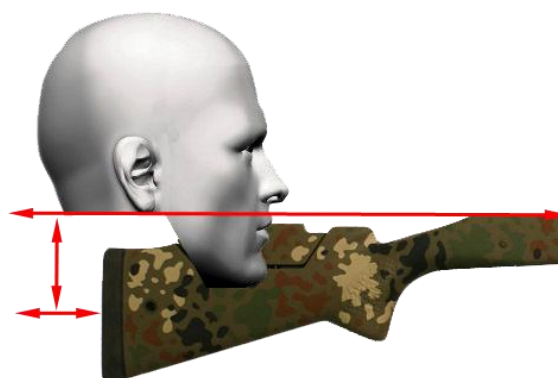


Fig 2.

Figure 3 shows the shape of a rifle butt when it has been designed solely for use with open sights. The comb drops away from the pistol grip allowing the head to be positioned lower in line with the open sights which of course sit lower than a telescopic sight.

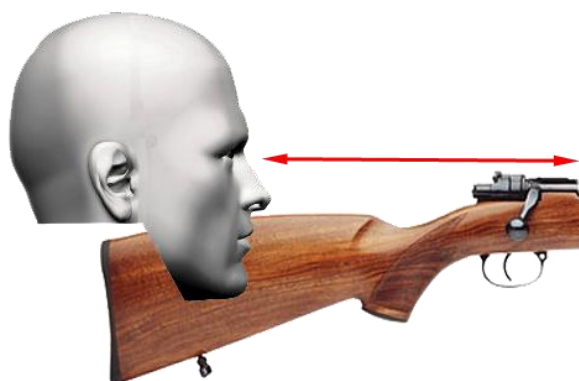


Fig 3.

Most target shooting stocks for prone position shooting, and this includes long range hunting and "Tactical" stocks, have a straight comb, straight heel and a more vertical pistol grip. Hunting and shooting from standing positions for fast snap style shooting with target stocks like these can be heavy, slow and cumbersome. Most hunting stocks have a lower butt plate and a pistol grip that is

more swept back. Prone shooting with hunting stocks can lead to excess muzzle lift, recoil (lighter stocks) and therefore inaccuracy.

The Fore end

The fore end of the rifle stock is critical if the rifle stock is used correctly. The fore end allows the shooter to do one of two things.

1. Support the front of the rifle with the other hand.
2. Support the front of the rifle using any other object such as a shooters rest or bag.

If the shooting position is mostly prone as in target style shooting, sniping or long range hunting, then it makes sense to have a wide and stable (flat) fore end for stability when using a rest or a pack. Not only will the wide fore end aid stability before the shot, it assists the precision of the shot under recoil as well by allowing the rifle to recoil backwards in a straight line. As the projectile is still in the barrel when the rifle first comes under recoil(1), the direction and consistency of the rifle recoil is the key to repetitive accuracy. The width of the fore end is a must anyway to cater for thicker barrels generally used in these rifles.



Fig 4.

The brilliant Manners T4 stocks in Figure 4 above represent a purpose tactical / long range hunting style of stock, displaying the typical wide fore end for stable prone shooting over rests, packs or bags. High cheek pieces, vertical pistol grips and wide, flat fore ends make them a perfect stock for precision long range shooting.



Fig 5.

Figure 5 illustrates a Manners target stock with a wide fore end for F Class shooting. These surfaces are dead flat for sliding on a rest under recoil.

A hunting stock tends to have a narrower fore end for a couple of reasons. It is lighter to carry for hunting. There can be more control of the fore end when needed for quicker shots on static and moving game. When shooting in the standing or kneeling position, the upper body tends to move rearward under recoil therefore lessening the force required to hold the fore end. Shoot in the prone position with a heavy recoiling hunting rifle and controlling the fore end is a whole different ball game. Resting the front of a narrow hunting rifle stock on a rest or a pack is far less stable than using a wide moulded target style fore end. Under recoil, the rifle will tend to roll as well as flip causing shots to stray.



Fig 6.

The McMillan hunting stock in Figure 6 illustrates the typical look of a hunting rifle stock made for a rifle fitted with a telescopic sight. Swept back pistol grip, straight comb with a shadow line cheek piece and slender, narrow fore end. A large portion of mass produced American hunting rifles come with stock in this configuration.

Length of Pull

Length of pull (LOP) is the measurement from the trigger to the rear of the stock or the butt plate. This measurement must match the distance from your trigger finger in the curled position to the start of your bicep. This being correct means the rifle stock fits you correctly. Adding or removing butt spacers can allow the correct LOP if available, otherwise replacing the butt pad with a different thickness can help. Having a stock made will alleviate this potential problem by having the right LOP built from the start.

Figure 7 shows one way of measuring your correct length of pull.

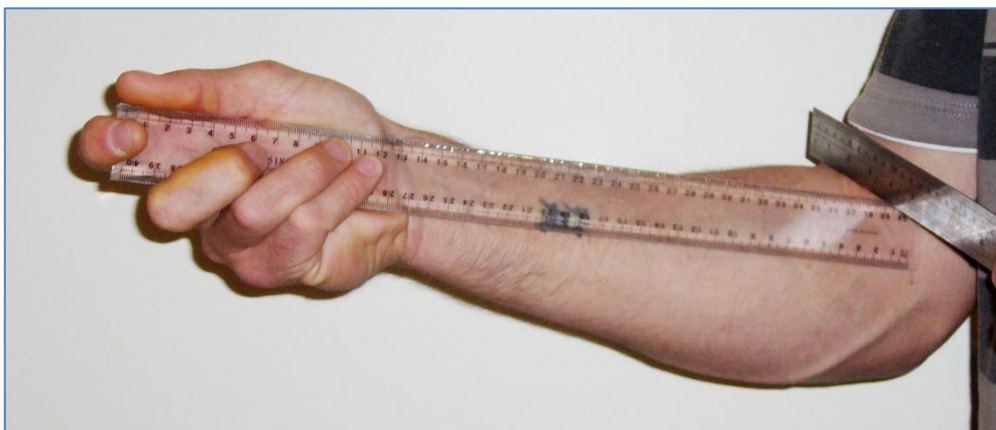


Fig 7.

Summary

Stock selection is very important to get the most out of your shooting, whether it is target shooting of some kind or one of the many different types of hunting. I have not covered the nitty gritty in this article but only the major areas to assist you.

Generally the correct stock for your style of shooting is not as hard a decision as cartridge selection, but it is just as important. Of course aesthetics does come into play because we have to like the look of what we buy (human nature), but if you have the wrong stock shape to begin with, it is only a matter of time before you will end up making the change to the correct one.

Glen Roberts
Chief Instructor
Precision Shooting Australia
www.precisionshooting.com.au

References

1. Vaughn HR. Barrel Vibration. *Rifle Accuracy Facts*. Manchester, Connecticut: Precision Shooting; 1998. p. 45-46.