

IT WON'T HIT

IF IT DOESN'T FIT

By Peter F. Blakeley

Understanding how buttstock dimensions affect where your shotgun impacts—with the help of a shooting session at a pattern plate—pays big dividends for all shotgunners.

The science of fitting shotguns can be traced back in the UK as far as the 1830s. In those days, proficient shotgunning was a critical factor in the social standing of late Victorian and Edwardian sportsmen. Raised birds, which were released in the hundreds earlier in the century, were now released by the thousands. It is worth noting that between 1802 and 1853, Colonel Peter Hawker bagged only 575 pheasants, but Lord Ripon, renowned as one of the greatest game shots of all time, shot an incredible 111,190 between 1867 and 1895.

In Britain, many previously remote areas were now readily accessible largely due to the spread of the railway system. It became fashionable for owners of the great sporting estates to invite the “crack” shots (providing they were of suitable pedigree) of the era to compete with each other for the largest bags. If Lord La Dee Da’s team of guns could “wipe the eye” of Lord Bees Knees’ men by having the advantage of properly fitted



If a gun mount is inconsistent, patterns don't strike in the same place, and point of impact can't be precisely determined—or adjusted by manipulating stock dimensions. It is still evident, however, that this gun is generally impacting high and left.



After several weeks of gun-mounting practice to enhance consistency, this new shooter is now able to place a half-dozen shots in the same place on the pattern plate, thanks to both a stock adjustment and fine-tuning the mount.

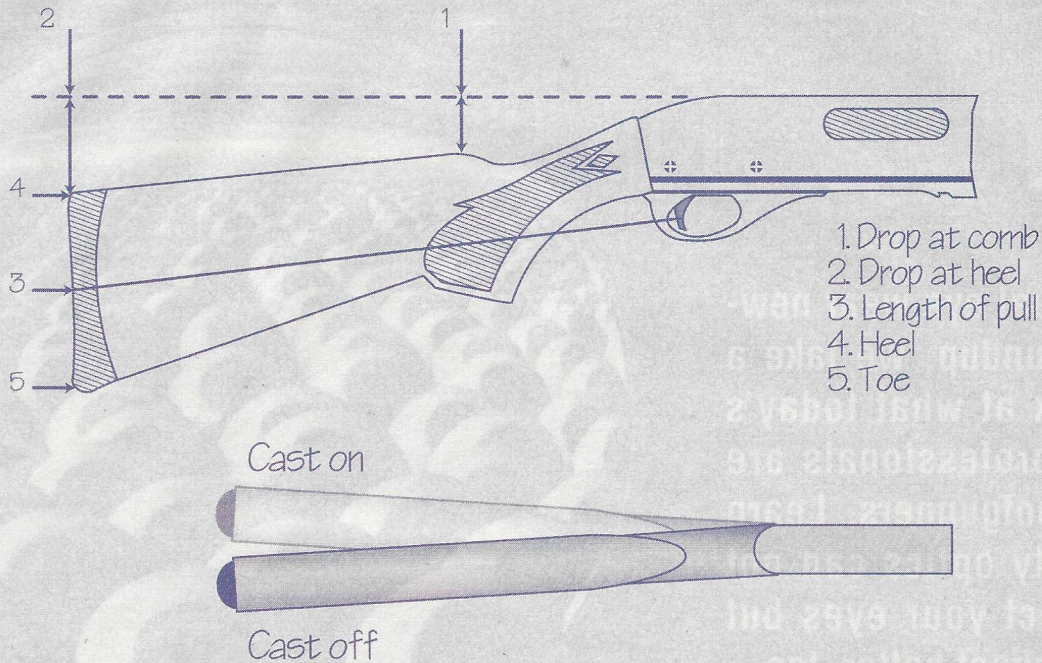
shotguns and regular visits to the shooting school, so be it.

Gun fitting means exactly that, tailoring the dimensions of a gun stock so that it fits our personal physical requirements. An adjustable “try” gun, where the dimensions of length, cast, and drop are changed to fit the client’s personal requirements, was often used to determine the needed measurements, but the client’s own gun can also be tailored to fit by diagnosing pellet impacts on a pattern board.

With a perfect fit, the gun shoots where its user looks. The shooter also experiences subconscious tactile assurance that tells him that his master eye is where he expects it to be, in correct alignment above the rib. With sporting clays and wingshooting, this is important. The head must remain level, moving smoothly in the direction of the target as the mount is completed, allowing the user to lock on to the target visually to develop the line.

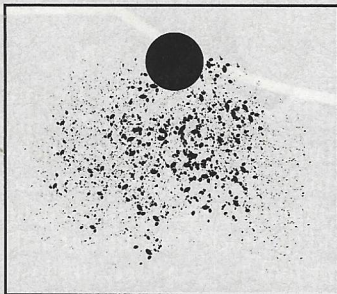
Once this perfect fit is achieved, there is no mistaking it. The result is a shotgun that is tailored so perfectly to our personal physical requirements that it can be lifted smoothly into place instinctively and comfortably with a perfectly controlled mount—without conscious thought. The pattern board will confirm where it shoots.

Common Buttstock Nomenclature

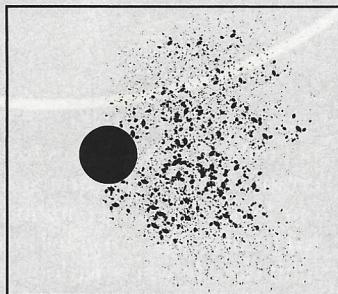


Illustrations by Keith Betterley

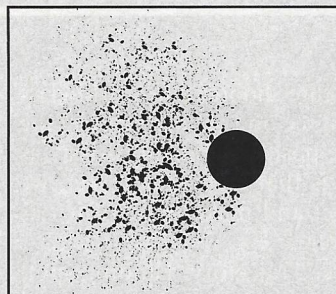
What The Pattern Plate Tells You



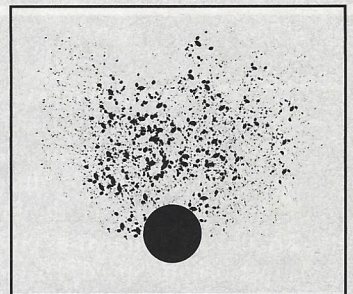
Comb low or excessive pitch.



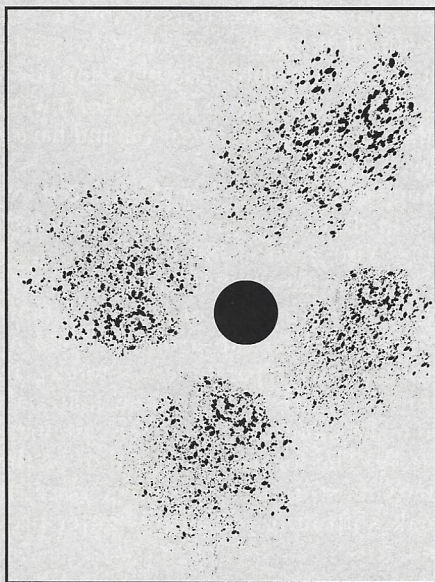
Too much cast.



Insufficient cast, comb too low (left eye taking over), left master eye, or shooter not staying "in" the gun.



Comb high or stock too short (shooter's eye elevated above the rib).



Poor gun-mounting technique.

Many shooters, some of them with many years of experience, have absolutely no idea where their gun is pointing as they fire it. Usually, the cause is erratic eye alignment due to bad gun fit or a sloppy mount. Some shooters will buy, sell, and trade guns in an effort to find the one that "feels just right," but without taking the time to have it fitted properly.

In some cases, these shotgunners proudly proclaim that for the first time in their shooting careers, they have found the perfect gun, and it has so miraculously improved their shooting ability that they are now connecting with birds that had otherwise proved impossible. Usually, this is nothing more than "new gun" syndrome and is short lived. You know the feeling; a new gun is often like a new friend—exciting and exhilarating at first, then boring and mundane as the novelty wears off. When we buy a new gun, our mental focus is better, and we hit more targets initially because of this—and nothing else. Then, after a few months, the new gun becomes old hat, and we start missing again.

How do I know this? Well, for many years, I owned a gun shop. Unfortunately, owning a gun shop can have its downside for a keen hunter and competition shooter. If I won a tournament or managed to pull down a cloud-scraping, stratospheric cock pheasant with a certain gun, it instantly became the best gun in the world, and I had complete confidence in it. I would vow never to part with it, ever. But have a bad day,

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and the gun was unceremoniously abandoned in favor of the next one. Believe me, I speak from experience.

Over the last 25 years or so, I have fitted lots of shotguns to lots of shooters, and when someone calls to make an appointment for a gun fit, I always make a point of insisting that they practice their gun mounting technique every night for at least a week. Despite this, some people don't always bother, and when they arrive, it is very obvious to me that the gun and its user are unfamiliar with one another.

It is a complete waste of time fitting a shotgun (apart from length of pull) to a new shooter until he has acquired a few months of efficient shotgun shooting technique. If the basic fundamentals of mount and swing are lacking, a perfectly fitted shotgun will not compensate for gun mounting errors or miscalculations of lead.

The four variables of gun fit are length, drop, cast, and pitch. So that you understand what each dimension is, as well as how they relate to each other and combine to create a perfectly fitted shotgun, let's take a look at these buttstock characteristics.

Length

Also known as length of pull, a buttstock's length is measured from the center of the trigger (front trigger of a double-trigger model) to the center of the buttplate. The widely believed method of holding the gun at the grip, finger on the trigger, and seeing if the butt makes contact with the bicep is *not* a conclusive way to determine stock length. The stock should be as long as the user can comfortably mount and swing. A longer stock points and con-

trols recoil well. A stock that is too short will result in bruising the nose and front face as the gun recoils.

Drop Or Comb Height

If a straight edge is placed along the top of the barrels and extended rearward above the buttstock, the measurement from the bottom edge of this to the top of the comb is known as drop. The place where the face actually comes into contact with the stock's comb, or upper portion of the buttstock, should be marked when the stock is measured. On a standard field stock, there is a big variation between the measurement at the front of the comb and the rear of this top portion, the heel.

Most field stocks have a standard drop at (front of) comb of 1 1/2" and drop at heel of 2 1/4". This makes the angle of the comb in relation to where the cheek touches it quite steep. Where bruising to the top of the cheek bone is a problem, this is usually why. Because of this relatively steep angle, the placement of the eye above the rib will vary according to where on the stock's rearward-sloping comb the cheek is placed. Although the gun may be perfectly acceptable to a shooter of average proportions, it will shoot high for someone who needs a longer length of pull and low for someone needing a shorter buttstock.

Any alteration to comb height will influence the position of the shooter's eye above the rib. If his eye is too high, the shot will go high; too low, the shot will be low. If the shooter's eye is so low that it is hidden behind the breech, this will persuade the wrong eye to take over as the gun is brought to point of aim.

Many competition shooters favor a buttstock with a level comb that is parallel to the line of the top rib. Regard-

less of the length of pull, the eye remains in the correct position. Many competition shotguns now have the luxury of an adjustable comb.

Cast

Cast is the amount of deviation of the butt laterally (left or right) from the line extended along the rib to provide proper eye placement above the rib. Cast is measured at the comb's heel, and, in the case of large-chested men or buxom ladies, also at the toe, or bottom portion of the buttplate. A stock that is angled to the right is known as cast-off, while one angled to the left is said to have cast-on. As a general rule, broad-shouldered people will need more cast than slightly built shooters.

The shotgun should be brought smoothly to the face with the head erect, not canted over. This sideways cant is often to make up for lack of cast and is often the reason why we experience bruising to the side of the face.

Pitch

Pitch is the angle of the rear of the buttstock, often referred to as the buttplate, relative to the axis of the bore. Most guns have some down pitch, and it is easy to measure this by placing the butt of the gun squarely on the floor next to a wall, then sliding the gun toward the wall until the receiver touches it. The measurement from the rib to the wall is the pitch dimension. Small pitch adjustments can dramatically influence the way recoil is transmitted to the shoulder.

So just what is the best way to check gun fit? I believe the most conclusive way to find out where your gun shoots is to shoot it. You can peer down the barrel in front of the mirror as much as you like, but the final evaluation of the

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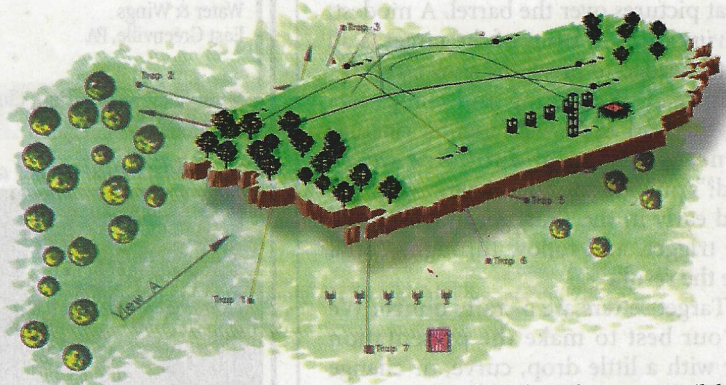
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gun in the hands of its owner is an individual thing and can only be positively identified by shooting a pattern board.

The typical pattern board is a thick steel plate about four feet square, the center of which is about four feet above the ground. There is a central mark, which is the target. To use the board, stand 16 yards away and focus on the target area in the center. Mount and lower the gun twice, and on the third time, as the gun hits the shoulder, fire. Do not aim the shotgun like a rifle, but rather fire as the mount is completed, always focusing on the target, never the barrel to check and adjust for proper barrel alignment, which would defeat the whole purpose of the session.

After five or six shots, an area should emerge where the bulk of the shot is concentrated. For every inch that the pattern is "off" target, the stock will need to be adjusted by 1/16". For example, if the main shot concentration is 4" high and 4" left, the stock needs to be given 1/4" of cast off (to the right), and 1/4" should be removed from the comb height (to lower it). Ideal shot distribution is 60 percent above the target and 40 percent below, unless a higher-shooting gun is favored.

Do-it-yourselfers without access to a pattern board at their local club can accomplish the same thing by shooting an old bed sheet erected between two wooden stakes, though it may take about 10 shots before a central pattern location becomes evident as a gray "smudge."

A few shots at the pattern board can reveal a multitude of sins to the trained eye. If it's done right, a pattern board evaluation will make a big difference; in some cases a very big difference. With necessary stock modifications, the gun will shoot to point of aim, and those frustrating whiffs should be transformed into confident hits. 

The author is the resident shooting coach at the Dallas Gun Club. He has been a coach for over 25 years, and his shooting qualifications include Clay Pigeon Shooting Association instructor, British Field Sports Society instructor, associate member of the Institute of Shooting Instructors, senior member of the National Association of Sports Coaches, National Skeet Shooting Association certified coach, and author of Easy Skeet, a new perspective for the beginner. His instructional video, Sporting Clays, Read The Line, Feel The Lead, is available from Sunrise Productions. You may reach him at the Dallas Gun Club by calling (972) 462-0043.

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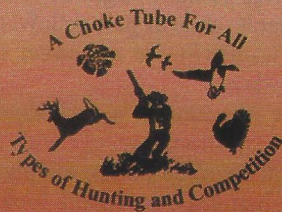
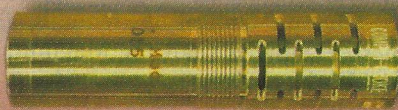


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