



by Brian Wilkes
Brian's Custom Clubs

FROM THE Club FITTING BENCH

Club Fitting for the Best Ball Flight

On the surface of it, golf just seems so simple. You tee the ball up, take a swing at it, strike the ball and it goes down the fairway, mostly. Nothing to it right? Unfortunately, that's where the simplicity ends.

The relationship between the club face when it strikes the ball, and what the ball actually does after it is struck, is pretty complicated. The club fitter needs to understand this though, because a big part of the fitting process is fitting customers with clubs such as drivers, that generate the highest launch angle with the lowest amount of backspin and the highest velocity to achieve the best distance for that club head speed. Got all that?

It turns out that ball flight depends on several factors: velocity, backspin and launch angle, but they don't all have equal influence. Ball velocity off the face is primarily a function of the speed of the club at impact. There are two ways to increase your ball speed without significantly changing your swing, or spending the next year pumping iron. The first is to change out the head on older drivers with modern ones with faces having a high coefficient of restitution, or COR. The Rules of Golf now limit this to 0.83. Without getting too technical, basically this number means that club heads – usually driver heads – with a COR of 0.83 will transfer energy to the ball better than one with a COR of 0.80. So you may squeeze another mile per hour (MPH) or two out of your driver speed with a maxed out COR head. By the way, COR benefits golfers with high swing speeds the most.

The other way is to replace the shaft with a lighter one. A lot of drivers, for example, come with shafts weighing 85 grams. Replacing the shaft with a 55 gram shaft makes the club about an ounce lighter, meaning for most golfers that they can swing it a bit faster. Again, this may squeeze another one or two more mph club head speed and ball velocity – but probably not too much more.

Backspin is necessary to get any distance at all with ball flight. That's because backspin creates lift under the ball, which holds the ball in the air longer and allows it to travel farther. Without backspin you've got nothing. And backspin is a function of club head speed and the loft of the club. Using a 10.5 degree lofted driver, every 10

Club Fitting Bench...continued on page 24

Club Fitting Bench...continued from page 12

mph increase in club head speed will increase the spin rate by about 270 rpm's. A 12 or 14 degree driver will cause the ball to spin more. Oddly though, for those of us with swing speeds below about 105 mph (most of us), you need more backspin to achieve longer carry distance, not less. Yet it's an enduring myth about golf clubs that if you reduce spin the ball will go farther. This is only true in limited cases and circumstances, and for those who have high swing speeds.

It turns out that the one factor we can address with club fitting that will achieve the best ball flight is by adjusting the launch angle of the ball off the club face. Changing the launch angle is a relatively simple thing for club fitters to do; simply exchange one head for another with more loft. But there is more! A driver head with the centre of gravity placed farther to the rear will tend to hit the ball higher; and a shaft with a softer tip will also tend to add loft to the club head at the bottom of the swing. So club fitters have a range of effective actions to take to increase launch angle.

But why increase launch angle? For those of us with average swing speeds (men's average is 87 mph), more loft and a higher launch angle, coupled with more spin, will result in the best and farthest ball flight. Think about it this way: forward motion multiplied by hang time in the air equals distance traveled. Something that is also a factor is whether you hit the driver on the down stroke, at the bottom of the swing, or coming up into the ball from

the bottom of the swing. The same lofted driver will give different launch angles and ball flights depending on how the ball is struck. Generally speaking, golfers hitting the ball on the down stroke could likely use a lot more loft. Golfers who strike the ball at the bottom of the swing may benefit from a bit more loft, say increasing from 10.5 degrees to 12 or 13. Golfers who strike the ball with an up angle of attack may not need any more loft and may already have an optimized ball flight.

In summary then, a club fitter wanting to improve the ball flight and distance a golfer hits the ball should concentrate on high COR drivers and other clubs in the set to maximize ball velocity, and on increasing launch angles and backspin by varying the club head loft. For drivers, there are a wide variety of makes and models of club heads to select from. In a previous article (July, 2013 which can be read on my website) we reported on research that showed the adjustable drivers did not change loft very much, despite manufacturers claims. Therefore adjusting these drivers to give you more loft may not achieve the desired change in launch angle and ball flight. Come on in to talk with us if you feel your ball flight is not optimized.

For custom repairs or custom fitting, Brian Wilkes can be reached at brian@briansclubs.com, by telephone at 250-516-3392, or you can visit his website at www.briansclubs.com.