How Important is the Shaft in the Performance of Golf Clubs?

Ever heard this phrase?

“The Shaft is the Engine of the Golf Club”

Actually, those who believe this statement have their auto parts mixed up. In reality, the shaft is more like the TRANSMISSION of the golf club because it connects the golfer’s hands to the clubhead and allows the golfer to transfer his or her power to the clubhead, and in turn, to the golf ball.

Those who like to say the shaft is the engine of the golf club are in essence trying to say the shaft is the most important part of the club. I’ve found in my career that most golfers who believe the shaft is the engine of the golf club have come to this conclusion because of shot making success they have achieved from making a change to a different shaft. Upon experiencing this improvement after making a shaft change, these golfers tend to think “if the shaft made this much of a difference for me, the shaft has to be the most important part of the club for every golfer.”

Wrong.

Back in the early 2000s, with some very capable assistance, I had the chance from a true engineering standpoint to analyze how the shaft actually contributes to the shot and from that, what movements in the golf swing cause the shaft to do what it does to the shot. While all this could fill a book, here's a few of the key basics of what we learned about the importance of the shaft to the performance of golf clubs for different golfers.

- The WEIGHT of the shaft is important to ALL golfers, regardless of handicap, score or ability. As experienced clubmakers know, the weight of the shaft is the NUMBER ONE factor that controls the TOTAL WEIGHT of the club. The weight of the shaft also has a strong influence on how much headweight is required to achieve any particular sense of the clubhead feel during the swing.

It is true that most golfers can increase their clubhead speed when using clubs with a lighter total weight, but in no way does this mean that all golfers who use a lighter total weight will experience an increase in distance from that increase in clubhead speed. To achieve that requires the lighter total weight must be well matched to the golfer's sense of swing timing and tempo so that they can hit the ball ON CENTER the highest percentage of time. If you hit the ball off center

with a faster clubhead speed you will lose distance over what you can achieve with a slightly slower clubhead speed coupled with a high percentage of on center hits. Remember, for each ½" you hit the ball off center with a driver you lose 5% of your potential distance. 1" off center and you're talking a potential 10% distance loss.

The weight of the shaft is the most important factor for matching the total weight of the clubs to the golfer's sense of swing timing and swing tempo. Total weight is an important clubfitting feature for helping us to achieve a more consistent, repeating swing tempo and swing timing. If the total weight is too light the golfer will fight swinging the club too quick and experience problems in staying steady over the ball during the swing.

Too heavy of a total weight and the extra effort required to swing the club also can mess up our swing tempo and balance during the swing. Get the total weight right for the golfer's strength and natural sense of swing timing and tempo and we can experience as high of a level of swing consistency as our natural ability and golf athletic ability will allow.

- The FLEX and the BEND PROFILE of the shaft can contribute to the launch angle and spin rate of the shot. But it does this only for golfers who possess a later to very late release of their wrist-cock angle on the

downswing. For the majority of golfers who unhinge their wrist-cock angle early or in the first half of the downswing the shaft's stiffness design won't display any real difference in the launch angle or spin rate of the shot.

The explanation results from how a later release causes the shaft to bend as the clubhead impacts the ball. When the golfer unhinges the wrist-cock angle and begins to release the club, the golfer's arms slow down while the club speeds up. From this action the clubhead pushes the shaft to bend forward. As the shaft bends forward, the clubhead starts to tilt more upward, which increases its loft angle. If the golfer does not unhinge the wrist cock angle until later to very late in the downswing, the shaft is bent forward when the clubhead meets the ball and the dynamic loft increase of the clubhead causes the shot to take off higher with a little more backspin. On the other hand if the golfer releases the club in the first half of the downswing, the shaft then has the time to rebound back to straight by the time the clubhead reaches the ball. This is why for early to early-midway release players, the shaft cannot then bring about any change to the dynamic loft of the clubhead at impact, and the shaft won't contribute anything more to the launch angle or spin rate of the shot.

- The FLEX and the BEND PROFILE of the shaft (the full

length stiffness design) can have a measurable effect on clubhead speed and on center hit consistency for golfers who have a very refined and specific sense of FEEL for the bending action of the shaft during the swing. Interestingly, this can happen both for very skilled golfers with a late release as well as some golfers who may have an early to midway release.

Call it a blessing or a curse, some golfers more than others have the ability to feel when and how much the shaft bends during the swing. This may happen because of an inherent heightened sense of feel the golfer may either be born with or acquires from hitting lots and lots of shots with different clubs. When such golfers hit shots with a club that has a shaft which delivers their exact preferred amount of shaft bending feel at exactly their preferred time in the downswing to feel this bending action, the golfer tends to react by swinging with much better athletic coordination, with absolutely no restrictions and with a completely free, unrestricted release which results in a higher clubhead speed.

On the other hand, give this golfer with a specific sense of feel a club in which the shaft does not display their preferred bending feel and the results can be a disaster because the golfer is simply unable to achieve the right swing timing to result in a full, free, unrestricted swing through the ball. For

such FEEL sensitive golfers, when they detect the shaft is too stiff, they tend to swing harder as if to make the shaft feel as they prefer – and when the shaft is too flexible, they tend to try to ease up to get the shaft to again feel as they prefer it to feel. Either way, the shot making results from such manipulations in the golf swing are typically not very good.

Tom