

The aluminum shaft dilemma

Will golfers go with Arnie and aluminum or stay with steel or fiberglass? The club manufacturers are prepared for any eventuality.

by Roger Ganem

t is known throughout the golfing fraternity that the aluminum shaft golf clubs are lighter in over-all weight, can be swung faster with less effort and, because of the additional clubhead speed all this provides, the ball will travel farther. And don't forget this free extra feature: the aluminum shafts, according to tests, do not twist as much as the steel shafts, reducing the tendency to hook or slice because of clubhead torque.

In the 42-year span the steel shafts have been ruled to be legal (in the United States), scores have steadily become more spectacular, sub-par rounds more common-place, and pin-point precision more routine, by professionals and amateurs alike.

Still, the demands for the aluminum shafts are exceeding the ability to supply and who knows why? Is it because they are new and therefore desirable? Or because they came through for Arnold Palmer, and others on the tour?

What are some of the known facts about this new shaft?

Presently, there are two major manufacturers of aluminum shafts: True Temper Corporation, Geneva, Ohio, long a leading supplier of golf shafts for the golf equipment industry, and the LeFiell Sport Products, Inc., of Santa Fe Springs, California, manufacturers of golf shafts, billiard cues, ski poles and sports accessories.

True Temper's aluminum shaft is identifiable by the familiar ''steps''; LeFiell's shaft, by the straight taper.

The present-day aluminum shaft is an offspring of the aerospace alloys. Previous attempts to use aluminum in golf shafts met with failure because the flex points and head torsion could not be controlled. The new alloys developed have provided the necessary strength, stiffness, performance and life of the aluminum shafts so that they compare favorably with steel shafts in these important respects.

The aluminum shaft is lighter by half an ounce. This means it will be easier to manipulate on the back nine, when many golfers start to tire and begin to slug at the ball.

The flex is controlled by a combination of wall thickness and outside diameter. You can order the exact "feel" you want. Although the aluminum shafts are generally thicker than the steel shafts, and therefore are not interchangeable, this doesn't influence the results.

There was concern that the larger diameter of the aluminum shaft would be a drawback to sales, since the ultimate success of this innovation rests in the hands (and eyes) of the buyer; but all records show that the present trend is definitely toward aluminum.

The one man most responsible for the excitement of the new shaft is, of course, Arnold Palmer. With shafts from LeFiell, he whipped the pack at the 1967 Los Angeles and Tucson Opens and finished high in the money in so many of the others that, up to the USGA Open in June, he had won over \$90,000 for one of his fastest starts on record.

It was quite natural that the Arnold Palmer Company would break just as fast in introducing this shaft to the general public. A \$30,000 sales pitch was carried nation-wide and the result was a preponderance of new customers, most of them asking for the aluminum shaft.

What does Robbie Robinson, vice president of the Arnold Palmer Company, say about all this? Simply that, "this shaft could become the greatest contribution to the golf industry since the introduction of the steel shaft, and it could be a tremendous boon to golfers."

And so the aluminum shaft received its initial push toward widespread acceptance. Little did it matter that Arnie could probably bring any course to its knees using garden tools. The truth was that he did use aluminum, and, if it was good enough for him, it was good enough

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for the army of golfers who are always looking for that extra edge.

Speaking of garden tools, the aluminum used in golf shafts is not even remotely similar to the aluminum found in tools, toys, furniture, even structural buildings. Initially, the aluminum golf shaft was weak and soft with too much torque. Its modules being one-third that of steel, its ability to resist taking a set was one-third less than that of the steel. Also, the aluminum shafts were originally made to the same specifications (outside diameter) as steel. These lacked the strength and stability of steel, and soon a permanent set took away all control and most of the feel. Not anymore.

Spalding executive, Jim Long, who guided his company's venture into aluminum, explains that a new alloy, never before used and coupled with their step-down shaft and a slightly larger wall thickness, provided a shaft that plays like steel, deflects like steel, and is steptapered for the same response as steel, but with less torque.

How are Spalding's sales? "Tremendous," says John St. Clair. "The volume of orders in our Custom Built Department has shown an amazing surge, all because of the acceptance of the aluminum shaft."

Incidentally, Spalding guarantees that their aluminum shaft clubs will make you hit the ball farther, whether you like it or not, by a



mathematical formula: Energy equals Mass times Velocity squared divided by two, which they translate into Distance equals Clubhead weight times clubhead speed squared.

By decreasing the total weight and at the same time increasing clubhead weight, Spalding has increased both the Mass and the Velocity in the above formula. Extra distance is mathematically assured, says the company.

Golfers will like the lighter overall weight, the extra weight in the clubhead and the control and distance this combination carries.

Tom Walsh, assistant to Ioe Wolfe of Wilson, relates that "the step placement in the Wilson aluminum shaft is about the same as with steel, because we are now able to control the flex. The lighter weight to the shaft permits us to add more weight to the head and to keep the flex point much lower, where it'll do the majority of golfers the most good. The trend? It appears that aluminum is more popular at this time. The feature of less torque? Yes, we've long been concerned with this problem. In fact, we introduced the "flutes" on the steel shafts in our X-31 models for the purpose of helping to eliminate torsion or toe flutter. This predated our entering the aluminum golf shaft field."

But this optimism is not shared by the entire industry at present. One executive said, ''It is doubted at this time whether aluminum will supply the answer to those who are looking for a panacea to their problems. It may help the elderly and the ladies, but we're not sure it is going to help too many others. Nor will it improve the play of the tournament golfer. At least they are not clamoring for it yet.

"The aluminum shaft has forced us into designing new iron and wood heads and at this point we don't know enough about it. The steel shaft has been engineered into the finest shaft possible. It has helped set an awful lot of scoring records all over the world. The



aluminum shaft has a tough act to follow, in my opinion.

"To me, it's like the rookie touring professional. His credentials are excellent, but he still has to prove himself under the fire of tournament competition."

Still, the demands keep pouring in and the suppliers are hardpressed to keep up. The LeFiell Company is no longer making clubs but now are concentrating on manufacturing their tapered aluminum shafts for the industry. And True Temper is ready ''to provide whatever facilities are necessary to supply our customers with as many golf shafts of any material they may want and that will meet our standards.''

The companies that have yet to introduce aluminum shafts are busy experimenting. Their engineers are hard at work at the plants and their golf consultants are testing sample clubs on the nation's courses.

Bill Kaiser of Hillerich & Bradsby says, "We are spending a lot of time, money and effort to engineer and produce a golf shaft of aluminum that will give the golfer the best results possible."

Paul MacDonald and Vaughn Clay of Dunlop have been on top of this new approach to golf for many years, as has Gene Sheeley of the Ben Hogan Company. The Pedersen Company has aluminum shafts in its line and MacGregor, which feature a steel shaft of straight taper, offers both the straight taper Le-Fiell shaft and the step-down taper True Temper aluminum to their Continued on page 40

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customers on special order only. "We have a policy of making whatever the customer wants," says Leon Nelson, MacGregor's promotional manager.

Thus, the golfer has two styles of aluminum shafts to select from the straight taper of LeFiell or the step-down shaft that True Temper makes to the specifications of various companies.

Craig Walsh of LeFiell claims superiority of their shaft's physical properties, materials used, hitting benefits and the lighter weight. "Our shafts weigh 31/2 ounces, the lightest now being offered. And our know-how in using alloys in the aerospace program gives our craftsmen the experience needed in handling the slim tolerance required by this product. The machines used to make the LeFiell shaft are patented and the straight taper is produced under a special formula. Our aluminum is furnished by Alcoa. We offer shafts in all flexes."

George Manning, of True Temper states, "We feel we have engineered and developed the True Temper step-down aluminum golf shaft to meet our quality requirements and our customers' desires for a halfounce lighter golf shaft. The only people we are willing to share credit with in this development are some technical assistance related to selection and fabrication of aluminum alloys from Reynolds Mutals Company and establishment of specifications in conjunction with our customers, the golf club manufacturers.

"No one manufacturer caused us to make aluminum shafts. It didn't just happen this year. It has been a continuous development over the past 20 years; but up until the new aerospace alloys came along, we couldn't satisfy our quality standards. Some of the processing is done on machines similar to those used on steel shafts and some on equipment completely different.

"Flexibility is controlled by the proper combination of wall thickness and outside diameter. At a



given weight distribution and overall weight, there is only one combination of wall and diameter that can result in a given flexibility.

"We have over the years developed a process that gives precise control of both factors so that we can make shaft after shaft with the deflection characteristics and overall weight desired within very small tolerances. For instance, a tolerance of only .001 inch in the wall thickness of a steel golf shaft would mean the deflection characteristics and weight would vary about 15 per cent. To stay within our production tolerances, we must control the wall thickness close to .0001 inch."

With the initial success of the aluminum shaft, it might be feared that the steel shaft is going to go the way of the hickory. Not so.

Since the Bristol Company won the patent on a locked-seam shaft in the early 1920's and the Union Hardware Company in Torrington, Conn., in 1924, drew a seamless shaft of high carbon steel capable of being heat-treated and tempered, and True Temper, in 1927, developed the stepped-down steel shaft, the evolutionary process in steel manufacturing has made continuous improvement in steel shafts possible through the years.

Gurdon Leslie, vice president of True Temper says, ''Today's steel shaft meets the requirements of a fine golf shaft. We've learned how to make it strong so it'll flex but won't bend, and tough so it doesn't shatter under impact. We've got it so it meets the club designer's needs for a club that hits true and far, with the proper swingweight and proper feel. We turn out steel shafts by the hundred thousand to the highest standards of reliability and lasting appearance. The golf equipment industry, in our opinion, is a long way from turning its back on the versatile metal which has helped them create the modern game.''

So now, where do we stand?

There are those who no doubt will stay with steel shafts, while others will at least try aluminum, and a goodly number will continue using the fiberglass shaft.

Speaking of fiberglass, let's review this interesting material. It, too, is a product of the space age. Fowler Blauvelt, vice president of marketing, Owens-Corning Fiberglas Corporation, says, "The construction of a Fiberglas (trade name) golf shaft is unusual in that it permits the designer to locate and orient the glass fibers to provide high tensile and flexural strength for maximum efficiency. High speed stroboscopic photographs of actual golf swings have shown that the heads of Fiberglas shafts apparently have less tendency to flutter."

Dick Pietschmann, an agency spokesman, says that, "Fiberglas offers the advantages of totally inorganic glass; non-corrosive, nonrotting, non-mildewing, non-absorbent, ease of maintenance and strength. Helicopter rotor blades are made of Fiberglas, and they have demanding flex properties." And Bill Laurent, Shakespeare advertising manager, says, ''Our customers like the Shakespeare Wondershaft because it lets them stay with the shot longer, get better control, plus it gives off a cushiony feel. There's never any recoil shock in your hands. Our shafts reduce torque, too."

Golfcraft, another user of Owens-Corning Fiberglas, but with a dif-Continued on page 68

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ferent method of making the golf shaft (Shakespeare bonds millions of glass fibers into a double-built tubular shaft, with the fibers running lengthwise on the shaft round a fiberglass wall; Golfcraft laminates the glass fibers to a thin steel core), also has good reason to stay around.

According to a company spokesman at Golfcraft, "Our patented process helps the golfer retain all the power of his swing. This means that much less power is lost because of excessive vibration and distortion at impact."

Now, do we turn our backs to those shafts we have been using and go over to the newest, one, aluminum? Well, let's check one more incident in the life and times of the golf shaft.

The name of an old friend popped up in print the other day, not for winning a certain tournament, because this former Walker Cup star has been doing that for many years, but because he took a big title using the aluminum shaft. We're talking about Dale Morey, who won the North Carolina Open shooting a 66-67-68-72=273 the first time he used them!

Here are his answers to the questions we posed: "After a limited amount of play with the aluminum shafts, I think I may get a little more distance with the irons— I don't think it has yet been true with the woods; I do hit the ball straighter; I do hit the ball higher with the irons; I get a softer feeling out of this shaft and I think it is easier to swing. The thicker shaft does bother me a little, but only in appearance.

"I'm swinging the same swingweight as before, though the overall weight is lighter; I did find it a little more difficult to control the direction of ''half shots'' or threequarter shots—I left the ball out to the right. But I like aluminum and anticipate having a good year in 1968.''

This almost makes you want to run out and buy a set of aluminum shafts. Well, okay by everyone concerned, but one last word about Dale. He also won the 1967 Carolinas' Amateur with steel shafts!

How about stainless steel? True Temper has been working with the new steel alloys and has discovered possibilities inherent in the new titanium bearing steel alloy, Almar 362. It possesses approximately the same stiffness as carbon steel, but permits the manufacture of a stainless steel shaft with such superior corrosion resistance it can almost be called a ''lifetime'' shaft.

It may be on the market next year! And after that? Try to picture shafts of titanium and beryllium!

