

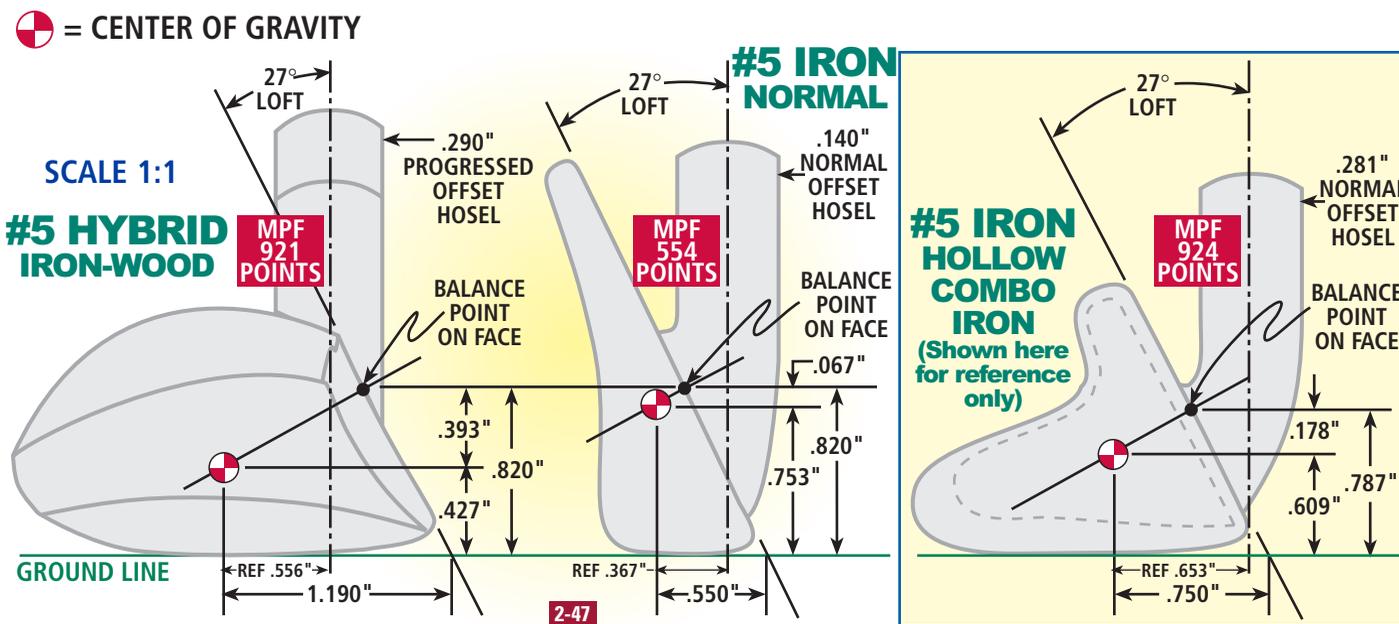
CENTER OF GRAVITY AND MPF COMPARISON FOR A #5 HYBRID IRON-WOOD VS. A NORMAL #5 IRON

Explanation for Drawing

With the advent of the hybrid iron-woods and the similar so-called utility clubs, it asks the question, "why do they work so well in most cases?" Like everything else ever done in the golf business, there are good designs that work very well and there are a few poorer designs where critical specifications have been overlooked.

The two drawings on the left explain in a very basic way why hybrid iron-wood designs actually work for all type of golfers and especially those that have a hard time hitting the longer irons (note that a #5 iron today is actually a long iron classification). For purposes of clarity, a number of specifications used on both of these drawings to calculate Maltby Playability Factor are intentionally made the same. Actually, the only variable dimension is the Rearward Center Of Gravity location. It is worth mentioning that although many of the dimensions are exactly the same to explain Playability differences, they are not hypothetical and could easily exist in actual irons.

The Playability Factor improvement, when comparing the hybrid iron-wood and the normal iron, mainly comes from the lower Actual Vertical Center Of Gravity in the hybrid iron-wood. When the vertical balance point on the face is the same in two different irons, the one with the greater Rearward Center Of Gravity will always have an Actual Vertical Center Of Gravity that is lower, when calculating MPF. Study the drawing and it can be seen that this would be proved by simple trigonometry. In the two examples shown here, the vertical balance point on the face is .820", but the Actual Vertical Center Of



Gravity is .427" in the hybrid and .753" in the normal iron. This means that even with a sweeping type swing (vs. a down and through swing) from a tighter type lie, the hybrid iron-wood will still easily get the ball airborne and almost always with a more solid feeling hit.

The calculated MPF in the hybrid is 921 points, which puts it in the Ultra Game Improvement category, while the MPF for the normal #5 iron is 554 points and in the Game Improvement Playability category. This equates to a huge 40% improvement in Maltby Playability Factor for the hybrid iron-wood over the normal #5 iron shown in this example only.

Also, notice that on this particular hybrid design that the hosel is positioned to have a progressed offset (face is in front of the hosel). The normal #5 iron shown here is the opposite with the leading edge of the face slightly behind the front of the hosel (normal offset). This difference in hosel location is a factor in moving the center of gravity more rearward in the hybrid club. Hybrid clubs usually have their hosels positioned similar to what is shown here with the exception of offset hosel models which are also becoming quite popular.

Another factor in the differences in hybrids vs. normal irons is the shaft may sometimes have quite different bending characteristics and may either more closely approach that of a normal fairway wood shaft or a normal iron shaft or be designed as an in-between shaft (in-between iron and wood shafts). It seems that for better players, a hybrid plays best with an iron shaft design and for most other players, it plays better with an in-between wood and iron shaft design. Only proper fitting or hitting demo clubs will determine which shaft type is best to use in a hybrid iron-wood design.

Finally, a third reference only drawing has been added here to show another variation of #5 irons being designed today. This type iron is a hollow combo iron (also sometimes referred to as a hybrid) and plays similar to the hybrid iron-wood. I didn't do a three way comparison for Playability Factor because hollow combo irons always have at least a minimum 1.450" "C" Dimension. This is an actual hollow combo iron I designed. Its 1092 points put it in the Ultra Game Improvement category. The dotted line in the drawing shows a design method referred to as "hollow shell technology" that is used to specifically determine the desired weight distribution in the head. Basically, this means the shell was thinned to its minimum to allow most of the additional weight to be put low and rearward in the head.

Most hollow combo irons will come with a normal iron shaft. However, special shaft designs may enhance Playability for these type iron designs.

MALTBY PLAYABILITY FACTOR (MPF)											
		ENTER DATA HERE					CALCULATED RESULTS				
Model	Wt.	"C" Dim.	Basic VCOG	Actual MOI	RCOG	Loft	VCOG (Adj.)	Actual VCOG (C.F.)	MOI (C.F.)	Calc Points	MPF Category
Hybrid Iron-Wood	254	1.250	0.820	13.50000	1.190	27	-0.393	.427	0	68 891 921	Ultra GI
Normal Iron	254	1.250	0.820	13.50000	0.550	27	-0.067	.753	0	27 524 554	GI
Hollow Combo	254	1.590	0.787	16.16098	0.750	27	-0.178	.609	0	81 1062 1092	Ultra GI