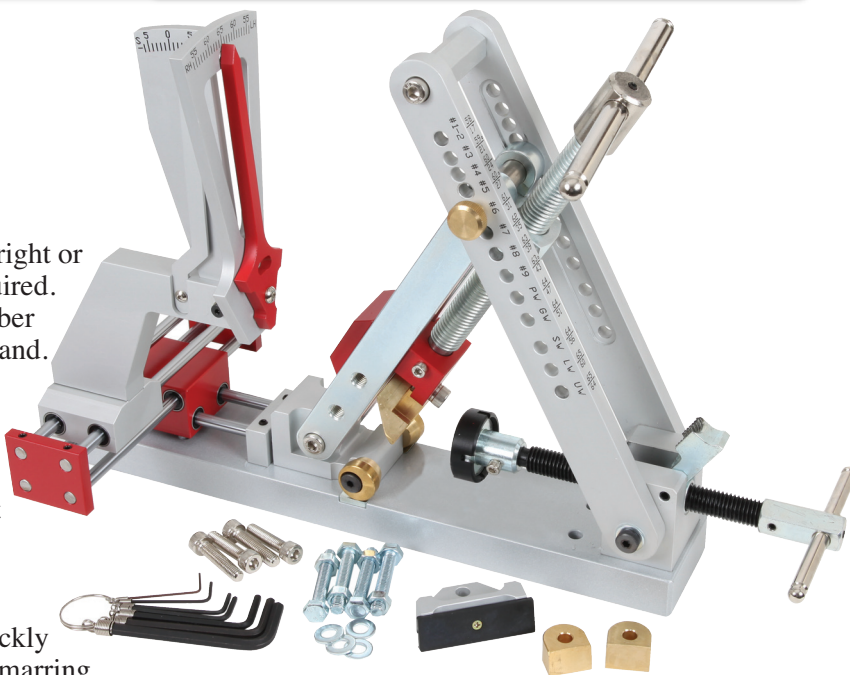


THE GOLFWORKS®

INSTRUCTIONS & ASSEMBLY FOR: **Iron/Hybrid Bending Machine** Code: **MA2017**

Features:

- Consistent to within + - .5 degrees.
- Heavy Duty construction.
- Smooth sliding Protractor Assembly measures right or left handed clubs without any disassembly required.
- Securely clamps, measures and bends any number and type of iron head and hybrid, right or left hand.
- Unique Shaft Guide assures the shaft is in the proper position when recording loft and lie readings.
- Brass Soling Discs feature a radius flat top that securely clamps any iron and most hybrids, flat sole or radius sole, right or left handed.
- Brass Clamping Top Jaw secures iron heads without marring the finish.
- Hybrid Rubber Top Jaw attachment installs quickly to allow easy bending of most hybrids without marring the finish.
- Clamping mechanism is designed to prevent slippage when pressure is applied during the bending operation.
- Brass Toe Stop helps prevent slippage.
- Heavy duty T-Bar bolt moves smoothly for quick and secure tightening of heads.
- Short Hosel Bending Bar (GW1036) and Adjustable, Non-Marring Brass Bending Bar (BNMB) included.
- Professional Bending Bar for Hybrids
- Protractor assembly easily adjusts in height to measure wedges and long hosels.
- Can be bench mounted or floor mounted with the use of The Golfworks Heavy Duty Machine Stand (MA2003)(recommended).
- Complete instructions included.



Instructions for the The GolfWorks Iron/Hybrid Bending Machine

The GolfWorks Iron/Hybrid Bending (MA2017) Machine can be bench mounted or mounted on a separate heavy duty stand (MA2003). It is recommended that the unit be mounted on the stand to allow 360 degree access while using. If bench mounted, the bench should be mounted to a wall or floor and the unit should be mounted on the edge of the workbench over one of the load bearing legs. If the stand mount is used, the stand should be mounted to a solid floor to provide a sturdy base.

Stand Options: MA2003, GW0102, GM1019, GW1078, GM1045, MAS008S, GM1066

PREPARING THE MACHINE TO BEND AN IRON

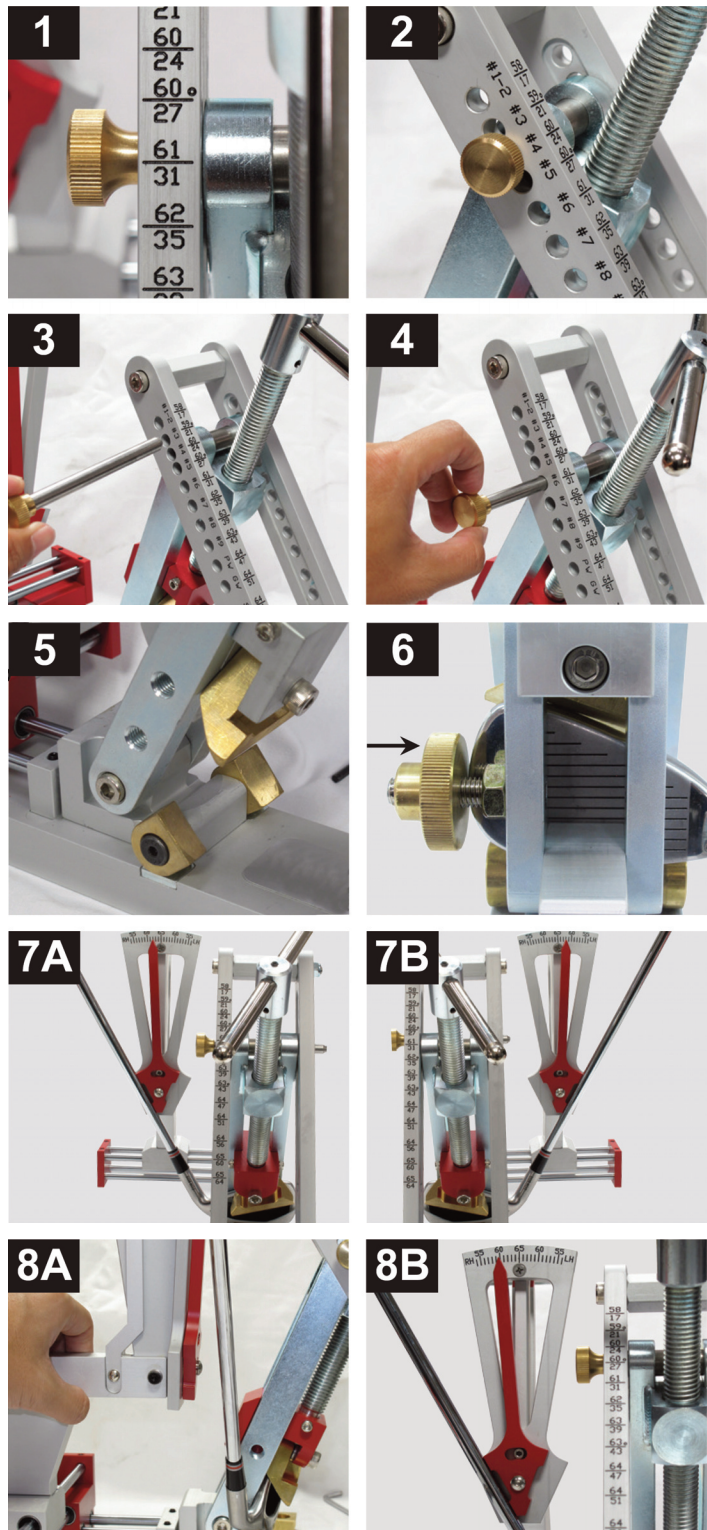
The GolfWorks Iron/Hybrid Bending (MA2017) Machine is designed with set loft and lie degree readings CNC milled into the top of the main bracket (photo 1). The club number (1-9, PW, GW, SW, LW, UW) is CNC milled on the side of the main bracket (photo 2). To set the unit to bend an iron, simply remove the pin (photo 3), slide the T bar housing that is attached to the inner bracket to the proper position. The inner bracket has a hole that lines up with the outer bracket holes. Simply position the inner bracket on the club number that you want to bend or measure and insert the pin (photo 4).

PLACING THE IRON INTO THE MACHINE

The GolfWorks Iron/Hybrid machine is designed to hold any model iron securely without marring the head. This is accomplished by the use of specially designed flat top brass soling discs with slight concave radius and the specially designed brass top jaw (see photo 5). The unit also has a brass toe stop (see photo 6) to prevent slippage when bending the lie of a club.

Photo 6 also shows the proper positioning of the iron head when clamped into the MA2017. A key feature of the MA2017 is the face alignment aid. With the face of the iron flush against the inside bracket and the sole touching both the heel sole disc and the toe sole disc, you can line up the grooves of any iron with the alignment aid. The grooves should be parallel to the edge of the face alignment aid. Once you have the head in this position, hold the head in position with one hand and tighten down the T bar with the other. Watch to see if the head moves and re-adjust as necessary to maintain the proper face position, as shown in photo 6. Be sure the toe stop is adjusted so that it is touching the toe. This will prevent slippage when making lie adjustments. Photos 7A and 7B show the club properly placed into the machine and the position of the sliding protractor for right handed clubs (A) and for left handed clubs (B).

Once the club is secure in the machine, slide the loft and lie protractor into position. The shaft alignment socket slides forward from the protractor (photo 8A) and should be positioned flush up against the shaft (photo 8B). The socket is designed to easily slide up against the shaft and into position. With the socket and protractor in position, accurate reading of the loft and lie can be taken.



READING THE LIE AND LOFT MEASUREMENT

The MA2017 has two scales on the protractor assembly. Photo 9 shows the lie reading protractor scale and the photo 10 shows the loft reading protractor scale. The lie reading is an actual reading. Once the club is in position, the pointer on the lie scale will indicate what the lie angle of the club being measured is. In photo 9, the pointer is pointing at “63”, which translates into a lie reading of 63 degrees. Lie readings can be taken from 53 degrees to 77 degrees for right and left handed clubs. The scale indicates “RH” for the right handed club readings and “LH” for the left handed club readings.

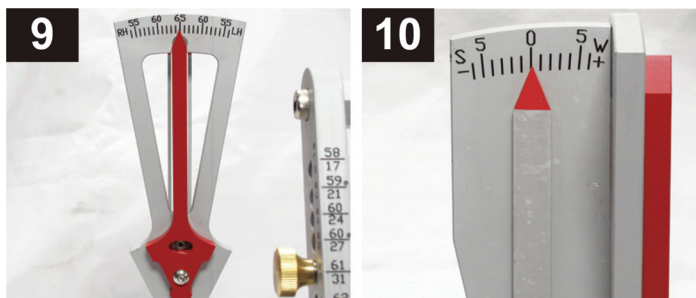
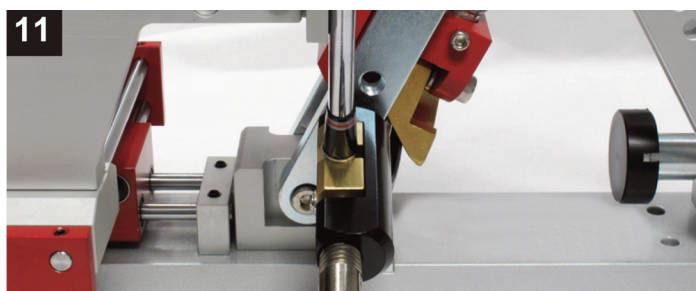


Photo 10 shows the loft reading scale. The readings are not in actual degrees, like the lie, but are presented in “S” for strong or “W” for weak. The scale is designed to measure from 5 degrees strong to 5 degrees weak. The base number for the club you are measuring is the lower number (loft number) on the scale engraved on the top bracket as shown in photo 1. These numbers are the industry average lofts. When measuring any particular club, the loft reading will be registered as either weak or strong or “0”. If the pointer points at “0”, the clubs loft is the same as the scale on the top bracket. If the pointer points toward the S side of the 0, the loft is strong by the number of degrees indicated by the pointer (between 1 and 5 degrees). If the pointer points toward the W side of the 0, the loft of the club is weak by the number of degrees indicated by the pointer (between 1 and 5 degrees).

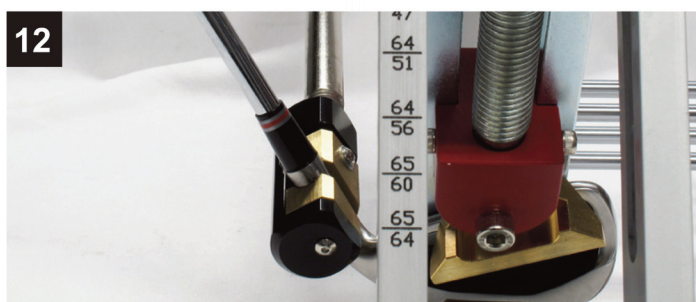
EXAMPLE: 5 iron is placed into the MA2017. The industry standard measurements engraved on the top bracket indicate a lie of 60 degrees and a loft of 27 degrees. Once the club is positioned properly and the readings are taken, the lie pointer indicates 60 degrees. The loft pointer is 2 marks toward the S side of the 0 on the loft scale. This indicates the loft is 2 degrees stronger than the machine standard of 27 degrees. So, the actual loft is 25 degrees. Remember, strong means less loft and weak means more loft.

BENDING

The MA2017 comes with the Professional Bending Bar with Brass Jaws. To adjust the lie of an iron, select the bending bar best suited for the iron design and place the bending bar on the hosel of the iron as shown in photo 11. The bar should be positioned parallel to the face. The bending bar jaws must be below the ferrule to prevent damage to the ferrule. Tighten the brass jaws securely around the hosel of the club. A short, quick application of pressure or a constant pressure are the two techniques that are used. The material of the club head and the experience and preference of the user will dictate which technique is used. To flatten the lie, pressure downward on the bar will bend the hosel to a flatter lie. Pressure upward will bend the hosel to make the iron more upright. It is recommended that the lie is re-checked at regular intervals during the bending process.



Once you have finished applying pressure to bend the club, re-check the position of the head to be sure the head did not slip. The grooves should still be parallel to the face alignment guide. If the head has moved, re-position the head, re-measure, and determine if the head was bent. Continue the procedure as needed to achieve the desired result.



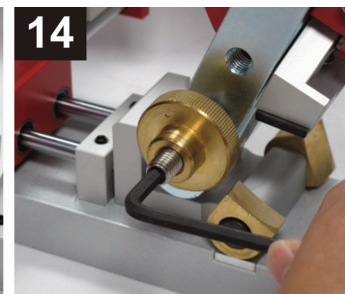
To adjust the loft of an iron place the bending bar on the hosel of an iron as shown in photo 12. The bar should be positioned perpendicular to the face. By applying pressure downward on the hosel, you will increase the loft. By applying pressure towards the back of the iron or upward, the loft will be decreased.

****SPECIAL NOTES:** Not all irons are made of the same materials. Some materials are more easily bent than others. The only sure way to determine whether an iron can be bent is to try it. Generally, 17-4 stainless and 431 stainless heads can be bent up to 2 degrees. Depending on the heat treatment of the material, some may be bent more than 2 degrees and some may not be bendable at all. Most Carbon Steel heads can be bent more than 2 degrees. Again, the only sure way to tell is to put the club in the machine and apply a constant pressure. You should be able to tell right away if the club is bendable or not. Using old clubs and practicing is a great way to develop the feel required to accurately and properly bend irons.

The length of the hosel on an iron is also a determining factor in the amount an iron can be bent. Generally, the shorter the hosel, the less the hosel can be bent. Some short hosel designs may require a special or customized bending bar for adjustments to be possible. If the bending bar you are using will not fit entirely on the hosel, do not use it and do not attempt to bend the iron.

BENDING LEFT HANDED CLUBS

The only part of the MA2017 that requires disassembly for use with left hand clubs is the Brass Toe Stop. Using an Allen wrench, simply loosen and remove the toe stop bolt with the brass toe stop disc attached (photo 13). Move to the opposite side of the machine and re-insert as shown in photo 14. Approximately 8 turns for the bolt should be sufficient to position the bolt securely into the bracket. Adjust the toe stop disc as needed. The Sliding Protractor Assembly will simply slide to the Left Hand measuring side of the machine.



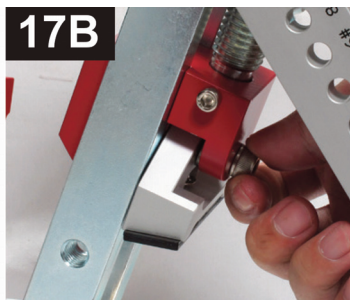
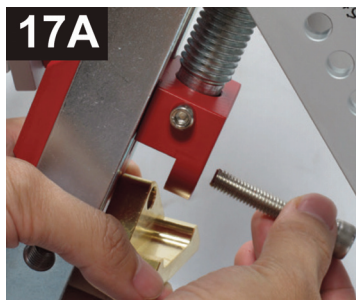
ADAPTING THE UNIT FOR MOUNTING & BENDING HYBRIDS

The GolfWorks Iron/Hybrid machine is designed to hold most models of hybrids securely without marring the head. This is accomplished by the use of specially designed flat top brass soling discs with slight concave radius and the specially designed hybrid rubber face top jaw adaptor (see photo 15). The unit also has a brass toe stop (see photo 16) to prevent slippage when bending the lie of a club. Special Caution: If the hybrids finish is painted (most models have a painted finish), damage to the finish can occur during the bending process if the brass toe stop is allowed to contact the toe of the head. It is recommended that on hybrid heads only, the toe stop be positioned away from the toe of the club to prevent any marring or scratching of the finish during the bending process. The back slide bolt clamp and the top clamp should hold the head securely during the bending process, without the need for the toe stop.



Before placing a hybrid club into the machine, the hybrid top jaw adaptor must be installed. To install, first remove the brass top jaw by unscrewing the bolt in the center of the top jaw (see photo 17A). You should be able to do this by hand. The design is meant to hold the jaws in place, but allow them to swivel, so it should not be too tight. If needed, the Allen wrench tool provided can be used. The jaw bolt requires the 6 mm wrench. Once the brass top jaw is removed, simply replace it with the hybrid top jaw adaptor (see photo 17B). Position the hybrid adaptor in the same position as the brass jaw, insert the 6 mm bolt and hand tighten.

To install the Flat Top Brass Soling Discs, use the wrench included to remove the default soling pads (see photo 18). Attach the Flat top Soling pads where the old soling pads used to be and tighten them in using the original screws (photo 19).



MEASURING AND BENDING HYBRIDS

The MA2017 was designed so that most hybrid club head designs can be secured, measured and adjusted using the same procedures used when bending iron clubs. Since there are a wide variety of loft options, when placing a hybrid club in the clamp, choose the loft position of the machine that is the closest to that designated on the clubhead, or closest to the loft measured on a golf club gauge.

Example: The loft of the hybrid is designated as 20°. Position the pin in the #3 slot where the loft designation of the machine is 21°. Once the head is secured in the machine and the loft and lie protractor are placed in the correct position on the shaft, you would get the actual lie reading of the head, and the loft would read 1° “S”, or 1° “Strong”. This assumes the head is actually the 20° loft that is marked on the head.

Since the face height of most hybrids is much shallower than irons, the top face alignment aid may not be of use on hybrids. In this case, the operator can use the bottom face alignment aid or simply position the head by sight, with the sole centered on the brass sole pads and the grooves on the face as parallel to the ground line as possible (see photo 20). The face of the hybrid should be flush against the inside bracket and the sole should be touching both the heel brass sole pad and the toe brass sole pad.

If the hybrid has bulge and roll radius on the face, not all parts of the face will be flush against the inside bracket, however the head can still be secured in the groove parallel position. The grooves should be parallel to the edge of the face alignment aid and/or the ground line. Once you have the head in this position, hold the head in position with one hand and tighten down the top T-Bar with the other hand.

The MA2017 also has a Back T-bar bolt with a quick thread release for easy positioning. Once the head is secured by the top T bar bolt, tighten the back T bar bolt against the back of the hybrid as shown in photo 21. The round nylon pad on the back T bar bolt prevents marring or scratching of the finish. Tighten firmly against the back of the club head as per photo 22. This is key to preventing slippage of the head during the bending process, especially on toe to heel radius designs.

Photos 23A and 23B show the club properly placed into the machine and the position of the sliding protractor for right handed clubs (A) and for left handed clubs (B). Once the club is secure in the machine, the protractor can be slid up against the shaft and the Lie/Loft reading can be taken as described on page 2. (photo 24)

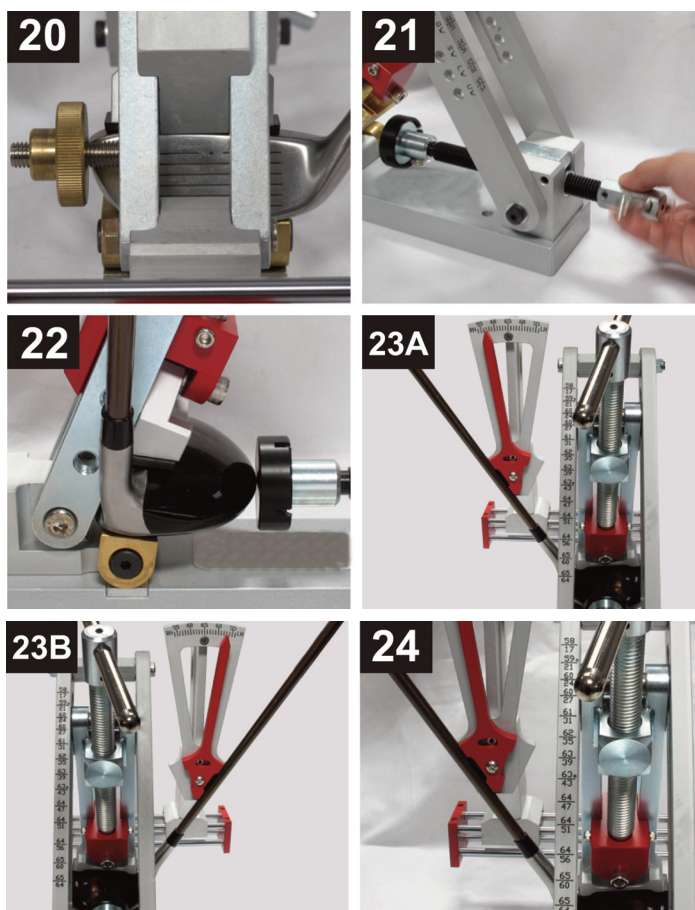
**SPECIAL NOTES:

1. Do not over tighten the top clamp. The crown of many hybrids is thin and too much downward pressure can cause the crown to be damaged. Watch to see if the head moves and re-adjust as necessary to maintain the proper face position, as shown in Photo 20.
2. Be sure the toe stop is adjusted so that it does not touch the toe of the Hybrid. Most Hybrids are painted, and the toe stop can cause marring or scratching during the adjustment process if the brass toe stop is touching the toe of the head.

BENDING HYBRIDS

The MA2017 comes with an Professional Bending Bar with Brass Jaws. This bending bar should be able to adjust the lie and loft of most hybrids. If the design of the included bending bar is not suited for a given head, another bending bar better suited for the design should be used.

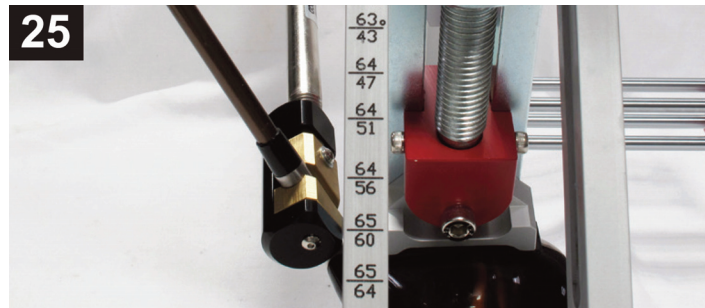
The steps for adjusting the Lie and Loft of a Hybrid is the same for irons, which is detailed on page 3. Below are a few additional keypoints that should be noted in addition to what has already been said:



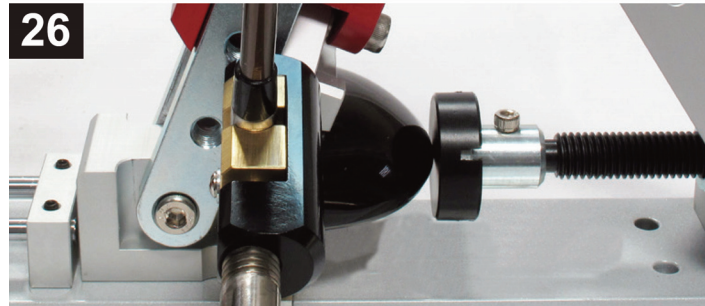
1. Some hybrid designs have a painted finish that extends onto the hosel. If the bending bar is in contact with the painted portion of a hosel, some marring or scratching of the paint may occur during the bending process. It is recommended that the painted portion of the hosel be covered with 3/4" masking tape or lead tape to prevent marring the finish during the bending process.

2. The bending bar jaws must be below the ferrule to prevent damage to the ferrule.

3. As mentioned on page 5, Hybrids should be clamped with less pressure from the top clamp to protect the crown. Hence, it is imperative that the position of the head be re-checked constantly to insure no slippage has happened. If the head has slipped, the grooves will no longer be parallel to the face alignment guides. When this happens, remove the head, reposition it and re-clamp it.



To adjust loft, position bending bar perpendicular to club face



To adjust lie, position bending bar parallel to club face

****SPECIAL NOTES:**

Not all hybrids are made of the same materials. Some materials are more easily bent than others. Some designs may have a different material in the face that is welded to the body. In this instance, bending is not recommended.

The only sure way to determine whether a hybrid can be bent is to try it. Generally, 17-4 stainless heads (the most common material used) can be bent up to 2 degrees. Shorter hosel designs may be less.

Depending on the heat treatment of the material, some may be bent more than 2 degrees and some may not be bendable at all. Again, the only sure way to tell is to put the club in the machine and apply pressure. You should be able to tell right away if the club is bendable or not. Using old clubs and practicing is a great way to develop the feel required to accurately and properly bend hybrids. The length of the hosel on a hybrid is also a determining factor in the amount a hybrid can be bent. Generally, the shorter the hosel, the less the hosel can be bent. Some short hosel designs may require a special or customized bending bar for adjustments to be possible. If the bending bar you are using will not fit entirely on the hosel, do not use it and do not attempt to bend the hybrid.

CONTENTS:

In the box you should receive the following:

- 1 GolfWorks Iron/Hybrid Bending Machine (MA2017)
- 1 Non-Marring, adjustable bending Bar (BNMB)
- 1 Short Hosel bending bar (GW1036)
- 1 Hybrid Top Jaw Adaptor (part of the MA2017)
- 1 Allen wrench tool (part of the MA2017)
- 1 Custom Loft and Lie sheets, pad of 50 (GAA)
- 1 Professional Bending Bar for Hybrids

-REPLACEABLE PARTS:

- Brass top jaw (MA2017BTJ)
- Hybrid adaptor top jaw (MA2017HA)
- Brass soling pads (MA2017SP)

****SPECIAL NOTES:** The brass parts of the MA2017 are designed to prevent the marring of clubheads, while securing the head for adjustment. Due to the soft nature of the brass material, over time the brass parts of MA2017 may need to be replaced. These parts are available directly from Golfmechanix and any of our vendors.