

EQUIPMENT NEEDED

- Graphite Shaft Extractor Bar (#GSRT)
- A well anchored vise
- Micro Torch (#LPT200) or Heat Gun (#EHGK)
- Super Knife (#H404) or similar
- Rubber Shaft Clamp (#RSC) or Metal Vise Clamp #EMSC)
- Wood slat 1/4" x 1/2" thick

INTRODUCTION

Basic shaft removal of a steel or graphite shaft from an iron or metal wood is a relatively easy procedure. There are details to performing this service that every technician should know in order to insure safety and provide the best possible quality and service to customers.

Removing graphite shafts from irons or metal woods – Using the Graphite Shaft Extractor Bar. This tool enables you to remove most graphite shafts from metal woods and irons. It is best to practice on old clubs and shafts in order to perfect the technique. It is important to follow these instructions exactly.

Note: Be sure wear safety glasses and a shop apron, and to use heat resistant gloves when removing the club head from the shaft after heating. Follow all appropriate safety procedures when performing shaft removal.

STEP 1.

If the iron or metal wood has a ferrule, the ferrule must be removed. To remove the ferrule, place the iron or metal wood securely in a sturdy vise using a rubber shaft clamp to protect the shaft. Position the club with the toe down, and the ferrule approximately 4 to 6 inches from the vise.

STEP 2.

It is recommended to heat the ferrule for a few seconds with a heat gun before removing. This softens the ferrule material and makes it much easier to remove. After warming the ferrule, remove the ferrule using the Super Knife (#H404). With the leading edge of the knife positioned at top of the ferrule and at a slight angle, push the blade towards the top of the hosel. The softened ferrule should cut easily. After cutting, remove the remaining portion of the ferrule by hand.

STEP 3.

After the ferrule is removed, re-position the club in the vise, using the rubber shaft protector, as shown in Figure 1, so that the force placed on the club head with the extractor when the levered against the vise is directly down the long axis of the shaft. the extractor against the club head and place firm pressure against it to ensure that you have mounted the club securely and properly (see Figure 2 and Figure 3).

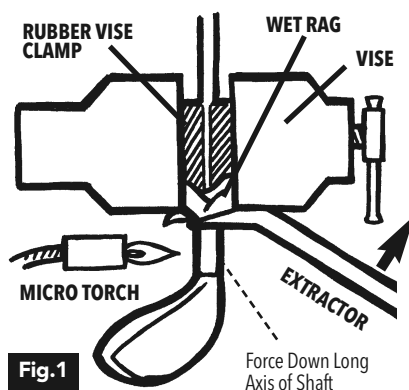


Fig.1

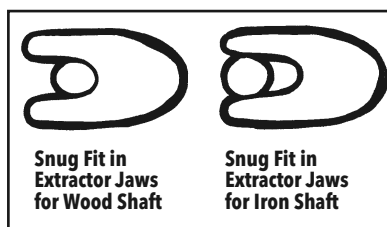


Fig.2

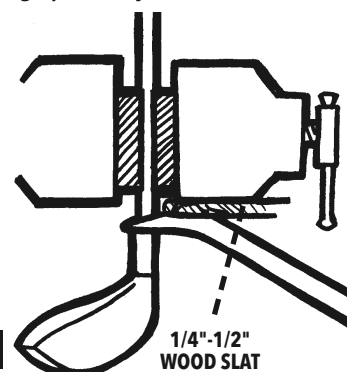


Fig.3

STEP 4.

It is recommended that you protect the exposed shaft and shaft clamp with a wet rag. Position so movement of the clubhead can be seen when it loosens from the shaft.

STEP 5.

There are two methods used for heating the hosel – using a micro torch or a heat gun (recommended). If using a micro torch, light the torch and heat one side of the hosel for 10 seconds, moving the flame quickly up and down the hosel. Repeat on the other side of the hosel for an additional 10 seconds. Quickly position the extractor and apply firm pressure against the club head. If the head does not loosen, repeat the procedure. You will probably need to repeat the procedure several times before the head loosens, so be patient. Rushing can ruin the shaft. When it is apparent the epoxy bond is broken the head is loose, go to Step 6.

Using a heat gun (#EHGK) on a high setting, heat the hosel area. It is recommended that the heat be applied to the back of the hosel, with the heat gun approximately 3 to 4 inches away from the hosel (show picture of heat gun in the proper position for heating). Heat the back of the hosel for 60 to 90 seconds. After the first application of heat is applied, quickly position the extractor and apply firm pressure against the club head. If the epoxy bond is broken and it is apparent the head is loose, go to Step 6. If the head is not loose, heat the hosel again for 30 seconds. After the second application of heat, repeat the process of applying firm pressure against the club head. If the head does not come loose after another 90 seconds (heated in three 30 second intervals), stop heating. Wait for 1 minute, then start the heating process again. This process will minimize the possibility of damaging the finish. **Heating Notes: Heating the hosel is the most important part of the extraction process. No shaft extractor will remove the shaft without first breaking the epoxy bond with heat. There are many types of epoxies used in the assembly of golf clubs, all of which can have different break down temperatures.**

STEP 6.

When the head loosens, move it only 1/4" to 1/2" down the shaft before inserting the wood slat between the vise and the extractor, as shown in Figure 3. Continue to move the club head down the long axis of the shaft. With the head now loose, hold the head with your gloved hand (Leather Gloves #LGLO) and continue to apply pressure against the club head. Pull the club head off only when it has moved well down the shaft. **Caution: DO NOT twist and pull the head off of a graphite shaft. This will cause damage to the shaft.**