

# Framon Sidewinder Instruction Manual

Framon Part #SD1



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## **Introduction**

Thank you for purchasing a Framon Sidewinder! Your new machine will give you years of trouble-free service by following the instructions in this manual & using common sense with the machine. Please read this manual thoroughly and understand how to use the machine & maintain it to ensure a long service life. We would appreciate your taking a moment to fill out & mail your warranty registration card.

The Sidewinder is designed to accurately duplicate high security side milled keys. These keys are currently being used by Mercedes Benz, Opel, BMW, Volvo, Saab, Infiniti, Lexus, VW, Audi, and Honda. All of the above keys can be cut using the Framon Sidewinder without the need for adapters or special cutters. Four rubber bumpers are included in the drawer which should be attached to the bottom legs of the machine to reduce vibration & movement of the machine.

## **Connecting The Machine To A Power Supply**

The Framon Sidewinder can be equipped with a 110V AC, 220V AC, or 12V DC Motor. If your machine is equipped with the 110V motor, plug the machine into a properly grounded outlet. If you are planning on using an inverter, we recommend a minimum of 2000-Watt continuous, 4000-Watt peak.

If you had your machine equipped with the 220V AC motor, you will need to attach a plug to the end of the cord.

For 12 V DC users, you can attach a cigarette lighter plug on the end of the cord (the motor draws 9 amps) or wire the machine directly into your vehicle's circuits.

## **Warranty**

The warranty on the Framon Sidewinder machine is in effect for a period of one year from the date of purchase. Framon Manufacturing Company will repair or replace, at our option, any part of the machine proven to be defective in quality or workmanship. Within the first year, Framon will absorb all costs for repair or replacement including shipping to and from our facility. Repairs are normally received & repaired in one day, and reshipped the next. After the first year, we will charge a flat repair fee, the cost of any parts, and shipping. Cutters are not covered by this warranty.

If you need to return a machine for repair, regardless of warranty condition, you must first contact us by phone to receive a repair order. We will fax or e-mail a repair order which must accompany any machine returned. Machines returned for repair must also be packed properly. Styrofoam popcorn is not an acceptable packing material, as it breaks down in shipping and enters the motor housing, which must be then torn down. An extra repair charge will be applied to any machine arriving in popcorn packaging.

## **Operating Rules**

*CAUTION: Do not attempt to operate the Framon Sidewinder until you have read the owners' manual carefully. Learn the machine's applications & limitations.*

- Do not force the cutting procedure. The machine will do a better job when operated at the rate for which it was designed.
- Keep the work area clean. Wear proper apparel. Loose clothing, hair or jewelry can get caught in the rotating cutter.
- Secure the pattern key and blank correctly.
- Be sure the machine is unplugged when using the allen wrench to secure cutters.
- Keep the machine clean of dust & chips.
- Remove the allen wrench/hex key immediately after making adjustments.
- Keep the cutter sharp and replace as often as necessary for optimal cutting.
- Use the machine only for the purpose for which it was designed.
- Always wear safety glasses. The operation of this machine can result in key shavings being thrown from the work area.
- Make sure the work area is well lighted.

### **Machine Basics**

Moving the lever on the left side of the machine controls the carriage of the Sidewinder. The carriage should easily slide forward & back as well as left and right. The key vises are mounted to the carriage, or “table”. Cutter depth adjustments will be made with the lever on the right side of the machine in combination with the cutter head clamp nut in the front of the machine.

You should have also received a video with the machine which will cover most of the information in this manual. The video can be played on most DVD players or on CD-ROM drives of most computers.

### **Milling Instructions**

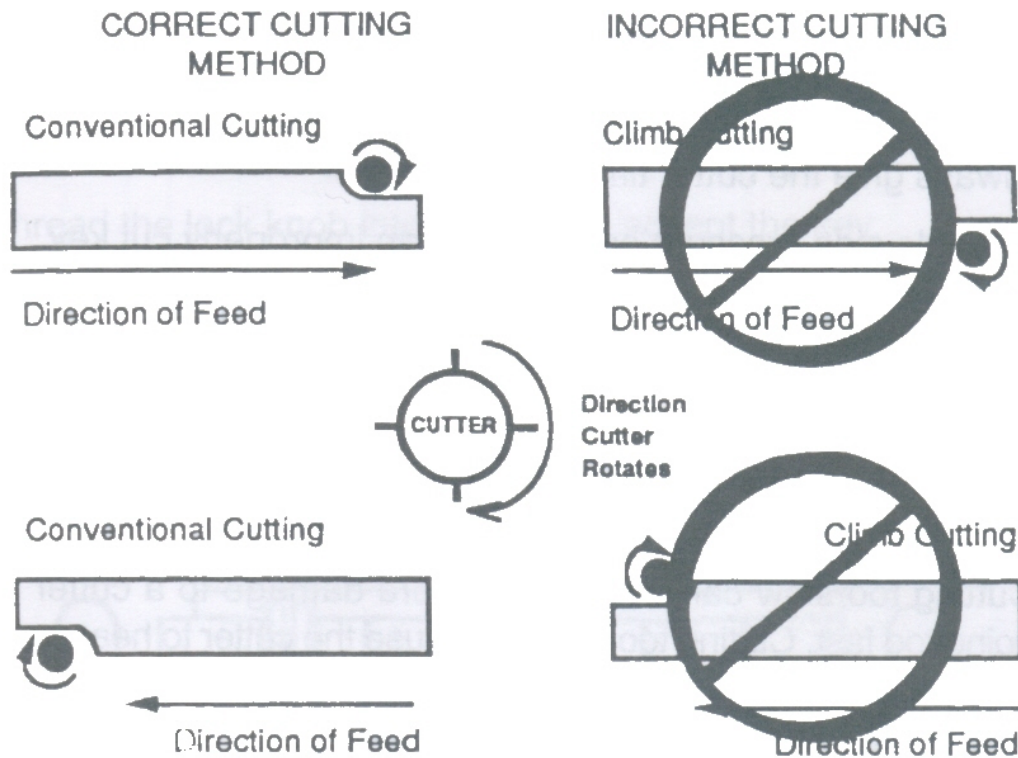
The process of cutting a key using the Sidewinder involves removal of material from the surface of the key blade. An end mill is used to cut the key. The end mill rotates clockwise. There are two ways to cut with an end mill; “conventional cutting” and “climb cutting”. See the illustration on page 4.

Keys cut on the Sidewinder must be cut using the “conventional cutting” method only. This method can be thought of as feeding the material against the rotation of the end mill. If you examine the “climb cutting” illustration you can see that the cutter’s rotation would basically draw the key into it. Again, use only the “conventional cutting” method with the Sidewinder.

### **Cutting Tips**

- Keys cut on the machine must be cut using the “conventional” cutting method.
- Always give the cutter time to cut
- Too little side pressure can result in an improperly cut key
- Too much side pressure can damage the cutter
- De-burr the first side of the key before flipping it over to cut the second side. This will assure that the blank is laying flat in the vise.

- Cutting too slow can heat the cutter up from rubbing on the side of the key. This will destroy the heat-treatment on the cutter. The actual cutting of one side of a four-track key should take only one pass and take about ten seconds.



**Figure 1: Cutting Methods**

**Key Vises**

The vises of the Sidewinder are reversible to provide the best clamping pressure for different shapes of side-milled keys. You should find two sets of vises with the machine (VW/Audi dealers will find ONLY the VW Vises).

Side “A” jaws have even steps to accommodate most side milled keys. Use the “A” vises except for the following cases:

Use side “B” to hold Mercedes two-track keys. There is a slight step on one side of the vise that should go over the top of the key as it sits in the vise.

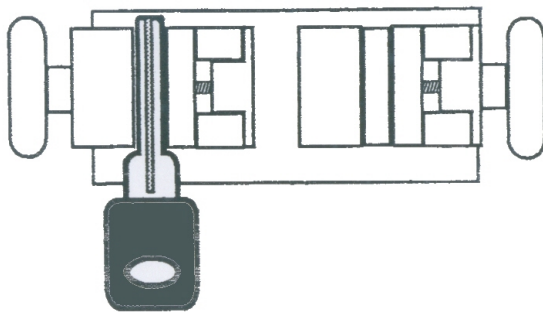
Use the VW/Audi vises for Porsche, VW, and Audi center-cut keys. The vises have “V” stamped on one side. This is for the standard VW key. If you need to cut a valet key, use the side without a stamp.

**NOTE:** When cutting VW/Audi keys, you can only copy from primary to primary or valet to valet. The machine will not duplicate a valet key from a primary key of vice-versa.

To remove the vises from the machine:

- Slide the carriage out from beneath the cutter area. This will provide sufficient room to reverse the vise jaws. Be sure to clean all chips from the vises & table before replacement.
- Back the vise clamp nut (plastic nut that tightens & loosens the vise) out until spring pressure is relieved.
- Using two hands, separate the vise bottom and t-stop away from the aluminum posts connected to the table. Lift the entire vise straight up. Do not unscrew the clamp nut completely; the vise does not need to be taken completely apart to remove it from the machine.
- Reinstall the new vise by reversing the above steps. The vise and t-stop should hug the aluminum posts and snap into place.

### Aligning Keys In Visers

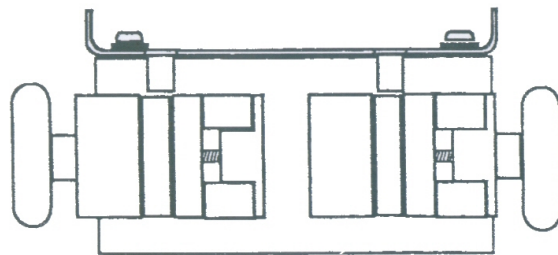


**Figure 2: Aligning Keys Using Shoulder Stop**

#### Shoulder-Stopped Keys

Most side milled keys have one or two shoulders from which alignment can be obtained. Insert the keys into the vises, and make certain that the same shoulder for both keys is used to attain alignment.

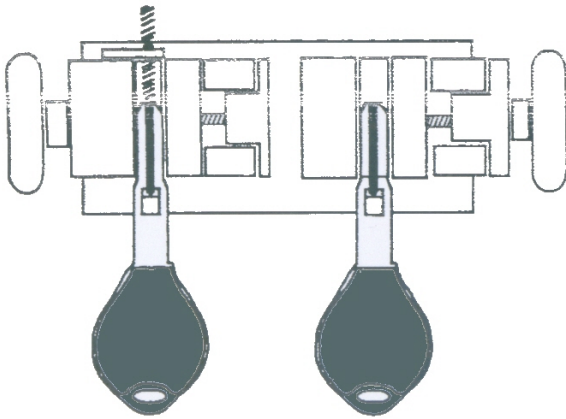
#### Tip-Stopped Keys



**Figure 3: Using Built-In Tip Stops**

For long keys such as Lexus or those without shoulders, the tip stop plate must be used. The tip stop is built into the carriage at the base of the vises and slides up into place for alignment. Slide the tip of the key against the tip stop and tighten the vise jaw. The tip stop must be lowered before cutting the key.

### Aligning Keys Using The Adjustable Tip Stop



**Figure 4: Using The Hand-Held Tip Stop**

The adjustable stop is designed for non-shouldered keys whose blades are too short to reach the built-in stop. This stop is included to operate as a varying length tip stop. It is first positioned for the tip of the pattern key at the far edge of the vise jaws. The threaded screw is then rotated until it contacts the tip of the key. The adjustable stop is then positioned in front of the key blank tip to determine the proper position.

### **Cutters And Guides**

The Sidewinder includes two guides and four cutters at time of purchase. Two 3/32" cutters, two 5/32" cutters, one 3/32" guide, and one 5/32" guide are included. Usage of the cutters and guides are as follows:

External cut keys, such as BMW, Mercedes, Opel, Saab, Volvo: 5/32" cutter & guide  
Internal cut keys, such as Lexus, Mazda Mellenia, VW & Audi: 3/32" cutter & guide

A 3mm cutter & guide is available exclusively for use with VW & Audi keys; you can use the 3/32" cutter & guide without any problems. If you cut a high volume of the VW/Audi key, you may want to consider purchasing the extra components.

NOTE: VW & Audi dealers will receive only the 3mm cutter & guide.

### **Preparing To Cut A Key**

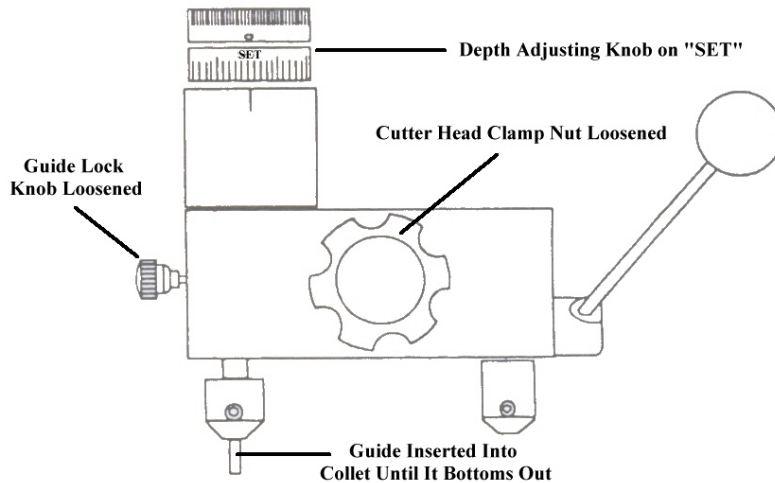
Before cutting a key on the Sidewinder, there are four basic steps that must be taken:

1. Align the cutter & guide to each other (set depth)
2. Align cutter & guide to pattern key
3. Align keys properly (tip stop / shoulder stop)
4. Use proper cutting procedure (conventional cut)

#### *1. Aligning the cutter & guide to each other*

This step must be done any time a cutter or guide is changed in the machine, or if you change vises (turning the vises over from side A to B or installing a different set). **Once this step is complete, you do not have to repeat it for each key you make.**

Insert two identical keys into the vises (flat steel keys are ideal). Be sure the vises are on the same side. With the vise table all the way towards the user, insert the guide into the left collet until it bottoms out. Tighten the allen screw to secure the guide in place. Be sure that the depth adjusting knob is on “SET”, the cutter head clamp nut is loosened, and the guide lock knob is loosened. See Figure 5.



**Figure 5: Preparing To Align Cutter & Guide**

Insert the cutter into the right collet but *do not* tighten it. Slide the vise table under the cutter & guide so that the blank keys are positioned directly below the cutter and guide. Allow the cutter to drop down onto the surface of the key blank. Next, pull down on the spindle lever until the guide is completely compressed (there should be no up-down movement to the guide if it is fully compressed). While the guide is being compressed, you should be able to see the cutter being pushed up into its' collet. With the spindle lever pulled down completely, tighten the cutter head clamp nut. This will hold the cutter head assembly in the lowered position & you can remove your hand from the spindle lever.

Check the guide once again to make sure there is no up-down travel. Next, tighten the cutter with the 1/8" allen wrench supplied in the drawer. The cutter & guide are now calibrated properly to each other.

**NOTE: When pulling down on the spindle lever, do not use excessive pressure.**

## *2. Align cutter & guide to pattern key*

Before actually cutting the key, you must set the proper depth of cut for the particular key you are about to cut. This must be done without a key in the right side vise. Also, if you are cutting several copies of the same kind of key (all Mercedes four track for instance) you do not have to repeat this step for each key.

- Loosen the cutter head clamp nut, guide lock knob, and be sure the depth adjusting knob is indicating “SET”.

- Insert the pattern key into the left vise and lock it into place. The key must be positioned flat in the vise.
- Position the **cut out** portion of the pattern key under the guide and pull down on the spindle lever until the guide contacts the key. Continue downward pressure until the guide shaft bottoms out and the downward movement of the spindle lever stops. Do not use excessive pressure. This step is critical – you must set the proper cut depth for this particular style of key.
- While maintaining pressure on the spindle lever, tighten the cutter head clamp nut to fix the cutting head of the machine in place. You can now relax pressure on the spindle lever; it should remain in the lower position.
- As a check, the cutter & guide should visually be at the same depth, and the guide should have no up-down travel to it. Also, the guide is pressing down on the pattern key and smooth movement of the table would be difficult (do not move the table yet). This will be taken care of in the next two steps.
- Turn the depth adjusting knob to the “10” position. You should feel a detent at this position. This adds ten thousandths of clearance between the guide collet and depth screw. You will not see any movement of the guide in this step, however.
- Lift up on the guide until it stops. You should notice a very slight upward movement of the guide (ten thousandths of travel). Hold the guide in this position with your right hand and tighten the guide lock knob. This will hold the guide in the upper position. You should now be able to move the table back and forth without any resistance.
- Insert the key blank to be cut into the right vise and tighten it into place. You are now ready to cut the key.

### *3. Align keys properly*

Be sure that both keys you have inserted into the vise are inserted the same way, according to the loading instructions on pages 4-6.

### *4. Use proper cutting procedure*

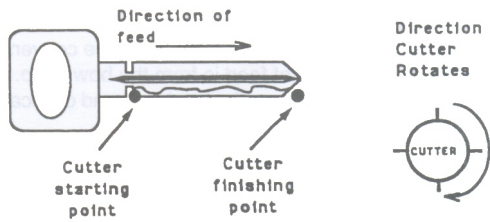
Using proper cutting procedure will assure smooth cuts and cutter longevity. Determine what type of key you are cutting from the illustrations below and follow the cut direction as shown.

### **Four Track Type**

The four-track type key is used on some Mercedes Benz and BMW models, as well as the new Honda key. This type of key has cuts on the left and right side (as the key is laying flat) as well as both the top and bottom side of the key. All keys in use today are the “convenience” type, which means the cuts on the top and bottom side of the key are the same. Cuts on the left and right side of the key, however, are different.

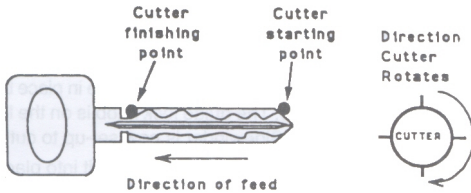
When cutting this type of key on the Sidewinder, begin your cut at the head of the key, on the right side (as you are facing the machine, see Figure 6). Slowly allow the cutter and guide to enter the cut area, hold pressure to the side, and move the table slowly down the side of the key towards the tip. One pass is all that is required when using the 5/32” cutter and guide.





**Figure 6: Four Track First Side**

Continue around the tip of the key and move back up the left side of the key (Figure 7). Simply put, cut around the key in a “U” or horseshoe shaped pattern. Once you establish cutting the key on the right side, the cutter and guide should stay in contact with the key all the way around to the shoulder on the left.

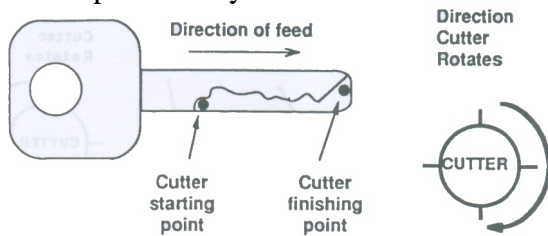


**Figure 7: Four Track Second Side**

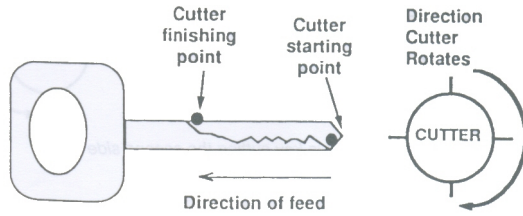
Once this side has been cut, back out the table, turn over the key blank (there is no need to turn over the pattern key) and cut the same way on the opposite side of the key.

### Two Track Type

The two-track key is the most common of the side milled keys. The bitting is along only one edge of the blade; either the left or the right when looking from bow to tip. The key is a convenience type, having the same cuts on both side of the key. Although spacing and depths vary from one manufacturer to the next, the duplicating procedure is the same. If the bitting is on the right side (again, looking from bow to tip) begin at the shoulder or just before the first cut nearest the bow (Figure 8). If the bitting is on the left side, begin at the tip of the key and work toward the head of the key (Figure 9).



**Figure 8: Two-Track Key With Cuts On Right Side**



**Figure 9: Two-Track Key With Cuts On Left Side**

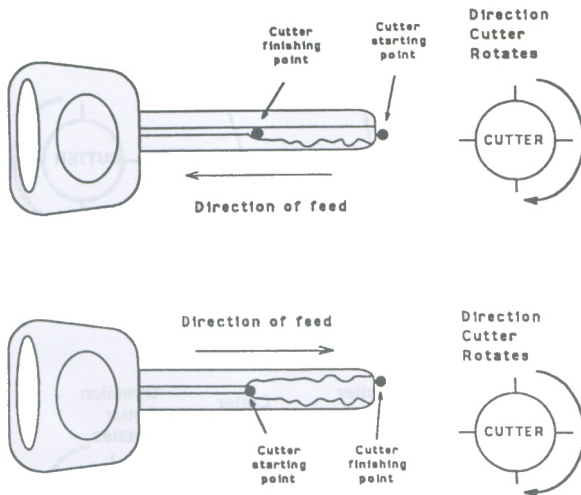
Once the first side has been cut, turn over the key blank (no need to turn over the pattern key) and cut the second side.

### Internal Cut Type

This type of key has cuts up the center of the key. Due to the smaller cutter size required, it is important to minimize cutter chatter/vibration, as it will easily chip the teeth of the cutter. Use a firm hand when beginning the cuts on this type of key, and try to begin your cutting from an edge of the key that has no cuts, as opposed to running the cutter into a cut portion with nothing to hold pressure against.

When cutting this type of key, begin from the tip on the right side of the key. Feed along the right side from tip to bow, then reverse for the left side (See Figure 10).

Once this side has been cut, turn over the key blank and cut the second side.



**Figure 10: Center Cut Type**

### After Cutting A Key

Once you have finished cutting the key, you should reset the machine so it is ready for the next key. Remove both keys from the vises. Loosen the Cutter Head Clamp Nut, Guide Lock Knob, and turn the depth adjusting knob back to "SET". The machine is now ready for the next key. If you have several of the same types of keys to be cut (even if the cuts themselves are different) you do not need to reset the machine for each key.

### **Adjustments & Lubrication**

The Sidewinder machine has no user adjustments for side-to-side spacing. The machine is set at the factory and should not require adjustment. The only other adjustment to the machine is the depth of cut, which is detailed on pages 7-8.

The carriage tension screw (see Figure 11) on the right side of the machine adjusts the side-to-side tension on the vise table. Adjust the screw so there is some pressure but not so much as to cause problems moving the table.

The vise table of the machine rides on hardened steel pins and roller bearings and should never need lubrication.

Cutters should be changed if they do not easily cut a key or if excessive vibration is felt. You can also visually check a cutter to assure there are no nicks in the cutter. Some customers prefer to add a small drop of cutting oil to the cutter or the surface of the key before cutting for longer cutter life.

### **Support Information For Your Sidewinder Key Machine**

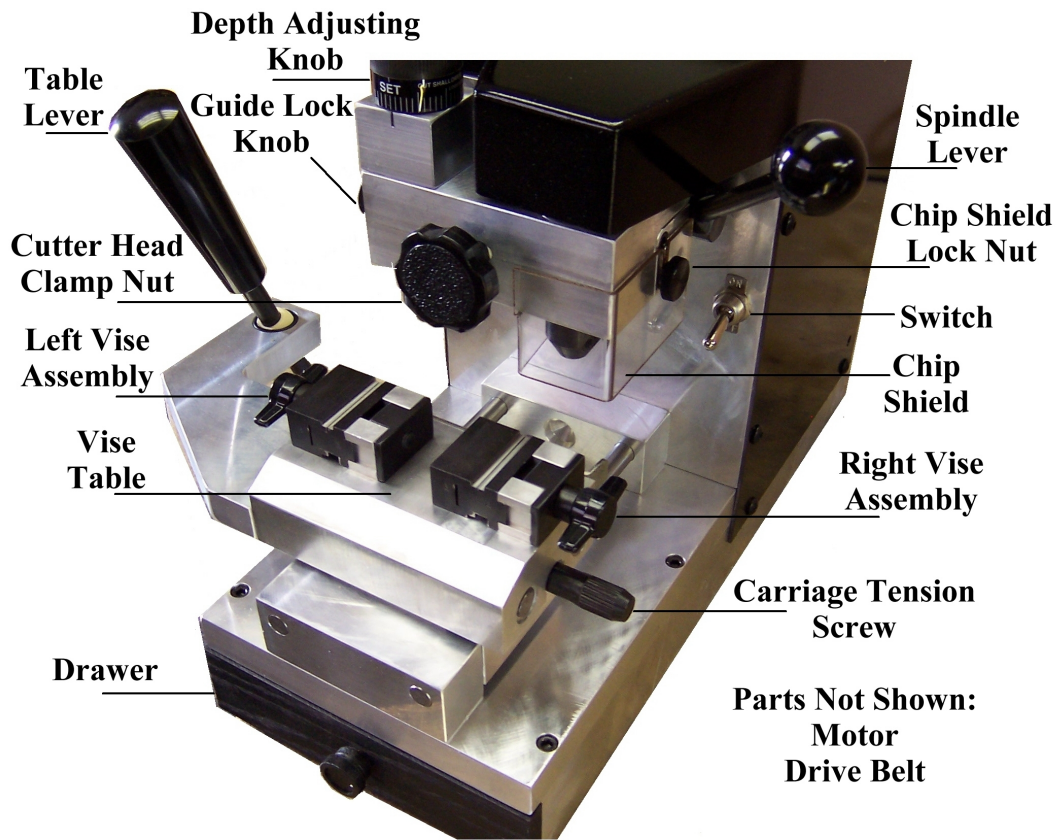
You can reach us in a variety of ways. If you have general questions about your machine, you can call or e-mail us. If you need help adjusting the machine, you will need to contact us by phone, as adjustment information is not easily relayed via e-mail. Always feel free to contact us with any questions or concerns you may have regarding your machine, we pride ourselves on excellent customer service!

Our contact information is as follows:

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Our office is open from 8:00 am until 4:30 pm Monday through Friday, Eastern Time.

## Operating Parts List



### Replacement Part Numbers

Chip Guard	GHMS461	3/32" Cutter	GHCB093
Cutter Head Clamp Nut	GHMS060	3/32" Guide	GHMS093
Drive Belt	F2MS601	3mm Cutter	GHCB3M
Hand-Held Key Stop	GESH029	3mm Guide	GHMS3M
Motor	DCMT002	5/32" Cutter	GHCC156
Plastic Ball(On Top Of Feed Handle)	GHMS051	5/32" Guide	GHMS156
Spindle Lever (Feed Handle)	GESH014		
Standard Vise Set	GSHS0601		
Toggle Switch	F2MT008		
Vise Clamp Nut	GHMS061		
VW/Audi Vise Set	GSHSAUD		