

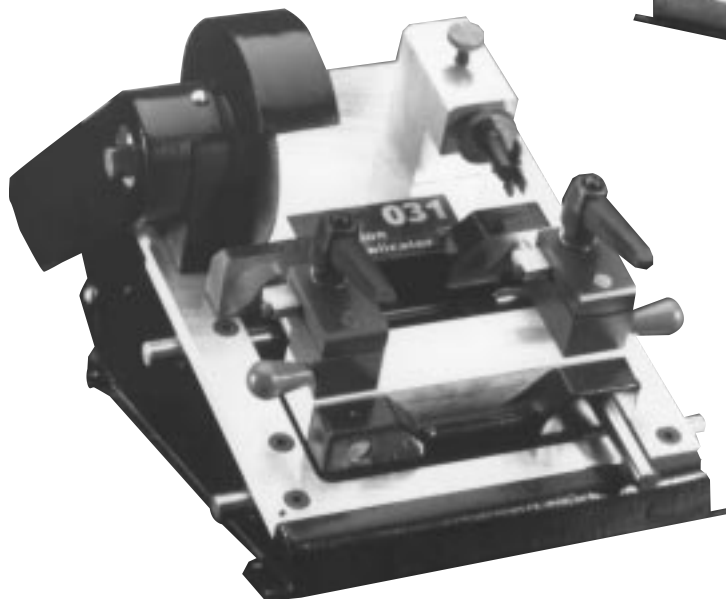
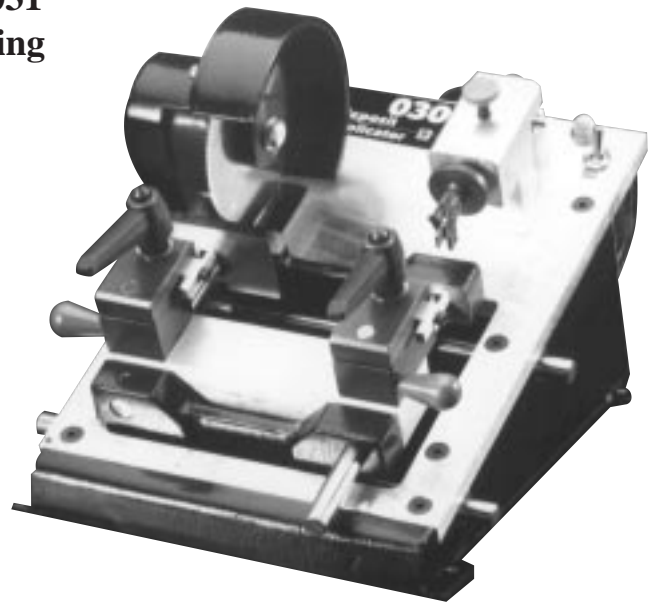
# 030 and 031

## INSTRUCTION MANUAL

**IMPORTANT!** Read these instructions before you use your new 030 or 031 Key Machine.

**Model No. 030  
for duplicating  
Safe Deposit Keys  
Model No. 031  
for duplicating**

*The Half-Time  
Key Machines*



**Detention Keys**

**ILCO UNICAN**

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This manual is registered and applies specifically to the machine which carries this serial number. It properly identifies your model and assures you will receive correct parts, if and when you require replacement parts. Retain this manual in a safe place. It's the only one of its kind. If ownership of this machine is transferred, this service manual

should accompany the machine.

When seeking service information about this machine, refer to the Model No. (which is 030 or 031), your registration number (see below) and the part number desired (see pages 6 to 8). Note that many parts used on these two key machines are interchangeable.

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## ONE YEAR LIMITED WARRANTY

ILCO UNICAN warrants to the original buyer of any new model 030 or 031 machine that it will repair or replace, at its option, any part of any machine which proves, to the reasonable satisfaction of ILCO UNICAN, to have defects arising from the faulty manufacture of the machine or from defective material or components, during a period of one (1) year from the date of shipment of the machine by ILCO UNICAN, provided that the machine is returned by prepaid transport to ILCO UNICAN or to its authorized representative before the expiry of the warranty period together with a detailed description of the alleged defect(s). ILCO UNICAN may, at its discretion, elect to refund the purchase price allowable to the part affected, or to issue a credit if the price therefore remains unpaid.

ILCO UNICAN sells precision-made machines. The buyer assumes all risks, and ILCO UNICAN shall not be liable for any reason, if the machine has been subjected to improper installation, improper use, improper or inadequate maintenance, negligence, if any unauthorized modification or alteration is made to the machine, or in case of accident. For greater certainty, any machine not operated in accordance with ILCO UNICAN's printed instructions or operated beyond its rated capacity shall not be covered by this or any other warranty.

Any and all warranties made by ILCO UNICAN on any machine, product, or component thereof shall be effective only if and for so long as the buyer complies with all payment obligations pursuant to the buyer's accepted and acknowledged order. Failure to meet such payment obligations shall void all warranties and not extend the period of time for which such machine, product or component thereof is warranted irrespective of whether or not payment is eventually made.

These warranties are in lieu of and not in addition to any other warranty of condition, expressed or implied, including without limitation merchantability, fitness for a particular purpose or latent defects. The buyer releases ILCO UNICAN from any liability for any reason other than a breach of its warranties hereunder.

The liability of ILCO UNICAN shall in no case, including negligence, exceed the purchase price of the defective machine, nor shall ILCO UNICAN be liable for any personal injuries, property damage or consequential damages.

Use only genuine ILCO UNICAN replacement parts on this machine!

**Registration and Serial number is** \_\_\_\_\_

## Congratulations! You've purchased a superior key cutting machine.

The Half-Time key machine you've just received will give you remarkably fast and accurate keys for many years to come... and a profitable return on your investment. It will save you time and money.

Specifically engineered to cut safe deposit keys, the Half-Time is crafted with uncompromising quality for the professional who is serious about speed, accuracy and profitability. It will let you duplicate keys faster because it's designed to cut TWO keys at a time; hence, the name Half-Time. This capability of cutting two accurate keys at the same time is unique in the industry. No other flat key duplicator accomplishes this feat.

To cut two keys at the same time, the Half-Time uses a 4

inch cutting wheel, made out of solid carbide. The cutter is a slotter type and is intended to make plunge cuts only. It is NOT a side milling slotter. Standard on the Half-Time Model 030 is a cutter that is .055" thick, capable of making a plunge cut which is .055" wide. Since there are safe deposit locks on the market with wider key cuts, optional cutters are available in thicknesses of .062", .072", and .088".

There are two Half-Time models available: the 030 which is designed for safe deposit keys, and the 031, which is designed for cutting large detention (jail) keys. In addition, the 030 or the 031 can be modified to cut the large paracentric Mogul key. The parts necessary for these modifications are available in optional kits.

## UNPACKING INSTRUCTIONS

Your Half-Time key machine has been shipped to you in a sturdy, specially cushioned container to prevent the possibility of damage during handling and shipment. Once the machine is removed from the carton, it should be set up on a level workbench and wiped free of all rustproofing oil.

The machine is adjusted at the factory and test keys have been cut on it, but it is recommended that you check the adjustments to make sure they have not slipped or shifted during transit (See Page 12 "ADJUSTMENT FOR CUT

## SAFETY

The Half-Time has been engineered to originate and to duplicate flat keys. It is not intended or designed for any other purpose. The machine operator assumes all liability when using this machine in a manner inconsistent with its stated design purpose.

ILCO UNICAN strongly recommends the use of protective eye glasses or goggles when operating this machine, or

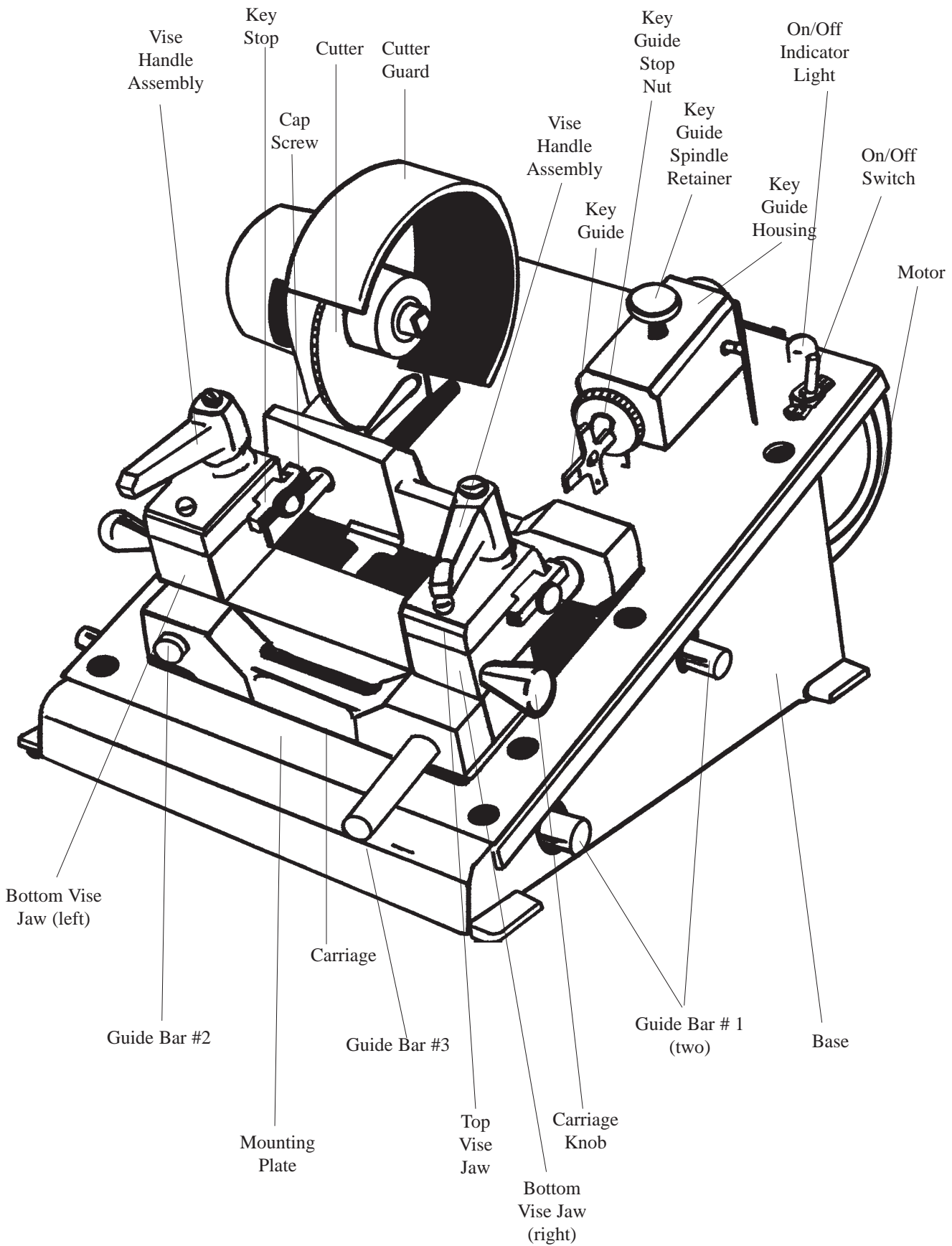
when in the vicinity of the machine while it is being operated. Protective eye wear prevents injuries!

Note that this machine does not turn off automatically when the carriage is lowered.

When the key machine is operating, be careful not to butt the vise jaw or carriage against the cutting wheel as this will cause damage to the cutter, jaw, or carriage.

DEPTH"). **DO NOT DESTROY OR DISCARD THIS VALUABLE SHIPPING CARTON. CAUTION! STORE IT CAREFULLY IN A SAFE PLACE. IN THE EVENT OF A PROBLEM WITH YOUR MACHINE, IT MUST BE RETURNED TO OUR SERVICE FACILITY IN ITS ORIGINAL PROTECTIVE CARTON.**

# OPERATING PARTS

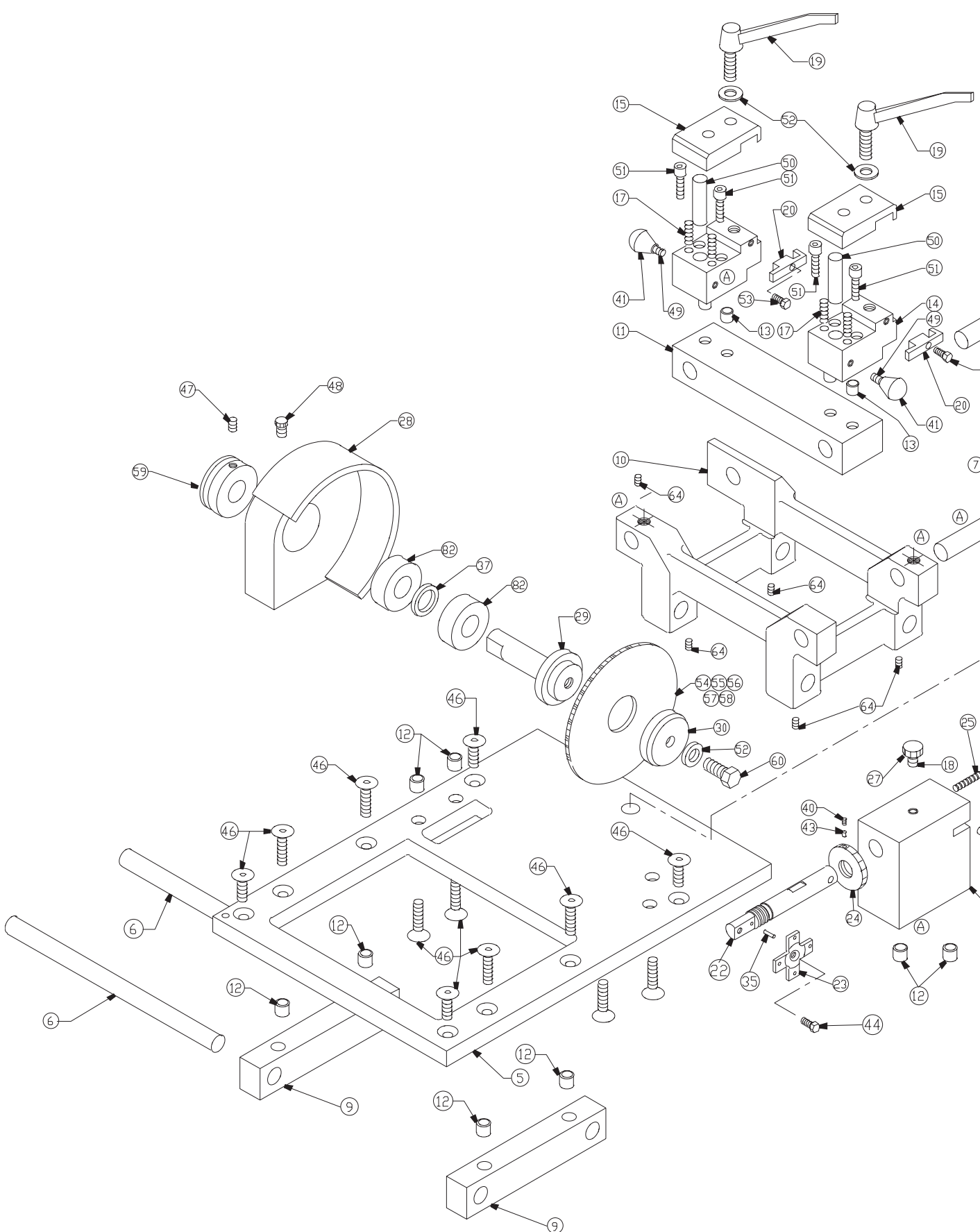


## OPERATING PARTS IDENTIFICATION

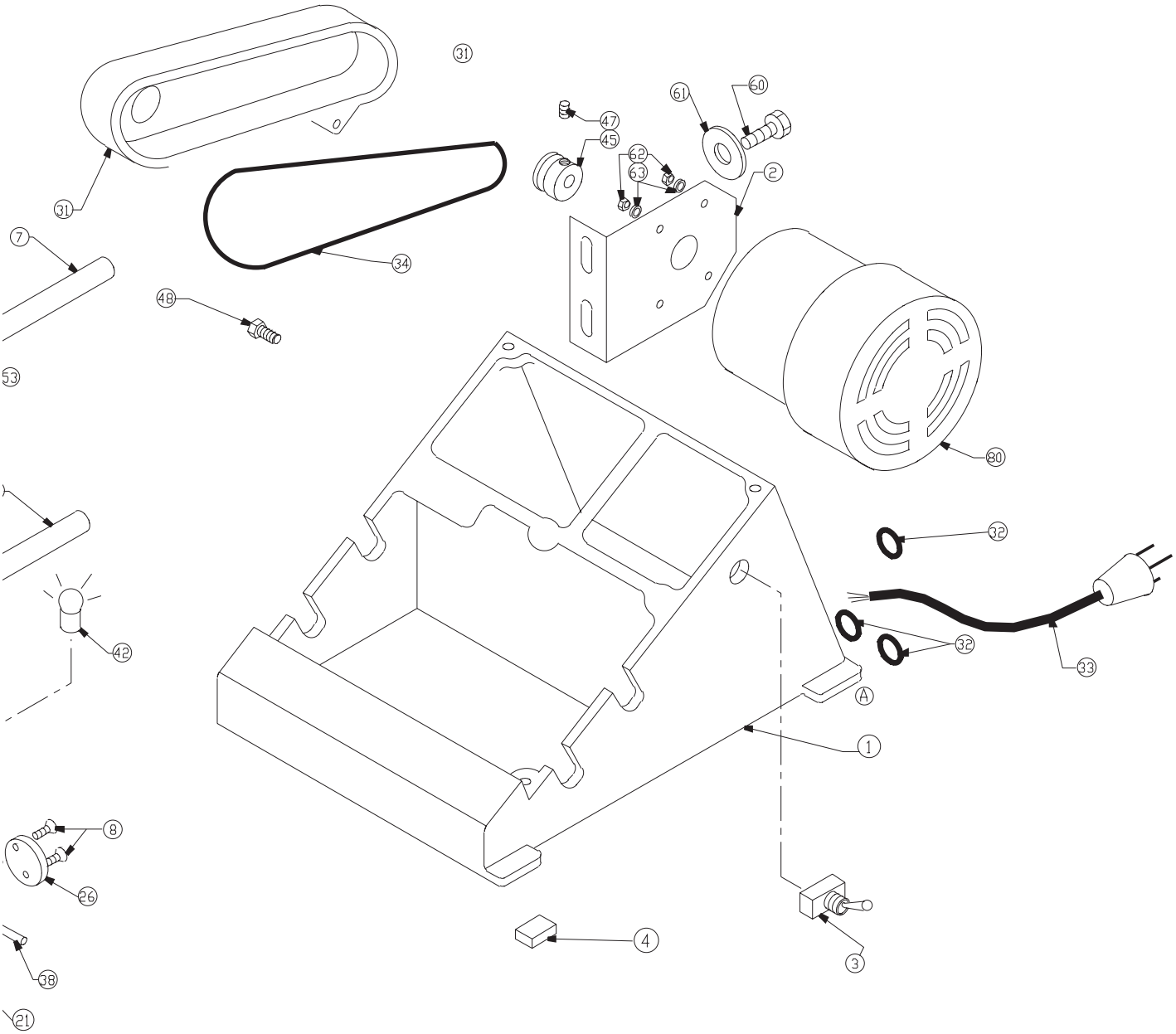
Refer to page 4

<b>Part No.</b>	<b>Identification</b>
030-1	Base
030-3	On/Off switch
030-6	Carriage guide bar #1 (two)
030-7	Carriage guide bar #2
030-8	Carriage guide bar #3
030-10	Carriage
030-14R	Bottom vise jaw (right)
030-14L	Bottom vise jaw (left)
030-15	Top vise jaw (two)
030-19	Vise handle assembly (two)
030-20	Key stop (two)
030-21	Key guide housing
030-22	Key guide spindle
030-23	Key guide
030-24	Key guide stop nut
030-27	Key guide spindle retainer
030-28	Cutter guard and support
030-41	Carriage knob (two)
030-42	On/Off indicator light
CU30-55	Carbide cutter, .055" thick

# EXPLODED VIEW



# EXPLODED VIEW



# EXPLODED VIEW PARTS LIST

Refer to pages 6 and 7 for illustrations.

Part No.	Description	Part No.	Description	Part No.	Description
030-1	Base	030-25	Key guide spindle spring	030-50	Dowel Pin (two)
030-2	Motor Bracket	030-26	Key guide spindle cap	030-51	Socket head set screws (four)
030-3	On/Off Switch	030-27	Key guide spindle retainer	030-52	Vise jaw washer (three)
030-4	Foot pad (four)	030-28	Cutter guard and support	030-53	Socket head cap screws (two)
030-5	Mounting plate	030-29	Cutter spindle	030-54	Cutters, see below to 58
030-6	Carriage guide bar #1 (two)	030-30	Spindle washer	030-59	Cutter pulley
030-7	Carriage guide bar #2	030-31	Belt guard	030-60	Hex head screw (three)
030-8	Carriage guide bar #3	030-32	Grommet (three)	030-61	Flat washer
030-9	Lower support (two)	030-33	Power cord and plug	030-62	Hex nut, #8 (four)
030-10	Carriage	030-34	V belt	030-63	Lock washers, #8 (four)
030-11	Vise table	030-35	Key guide dowel pin	030-64	Socket head set screws (five)
030-12	Dowel sleeve, 1/4" (twelve)	030-36	Hood label for 030	030-80	Motor
030-13	Dowel sleeve, #10 (four)	030-37	Spacer Bearing	030-82	Spacer washer
030-14R	Bottom vise jaw (right)	030-38	Key guide spindle travel pin	CU30-M	Cylinder cutter for Mogul keys
030-14L	Bottom vise jaw (left)	030-39	Flat head screw (two)	CU30-55	Carbide cutter, .055" thick
030-15	Top vise jaw (two)	030-40	Socket head set screw (two)	CU30-62	Carbide cutter, .062" thick
030-16	Shim	030-41	Carriage knob (two)	CU30-72	Carbide cutter, .072" thick
030-17	Vise jaw springs (four)	030-42	On/Off indicator light	CU30-88	Carbide cutter, .088" thick
030-18	Socket head cap screw	030-43	Plunger (two)		
030-19	Vise handle assembly (two)	030-44	Flat head screw		
030-20	Key Stop (two)	030-45	Motor pulley		
030-21	Key guide housing	030-46	Flat head screws (twelve)		
030-22	Key guide spindle	030-47	Socket head set screw (two)		
030-23	Key guide	030-48	Round head screws (three)		
030-24	Key guide adjusting collar	030-49	Socket head set screws (four)		

## OPTIONAL KITS

**030-CK** This kit is intended for the person who has an 031 (detention) key machine and the person wants to convert it to cut safe deposit keys. The 030-CK kit includes:

- 1 only CU30-55 cutter
- 2 only key stops, Part No. 030-20
- 2 only screws, Part No. 030-53

**031-CKM** This kit is intended for the person who has an 030 (safe deposit) or and 031 (detention) key machine. The person wants to cut the large paracentric cylinder key (Mogul). The 031-CKM kit includes:

- 1 only CU30-M cutter
- 1 only key guide (131480)
- 2 only key stops (131477)
- 2 screws (174080)

**031-CK** This kit is intended for the person who has an 030 (safe deposit) key machine and the person wants to cut the detention key (lever key with plunge cuts). The 031-CK kit includes:

- 1 only CU30-88 cutter
- 2 only key stops (131477)
- 2 only screws (174080)



# THE CUTTING OPERATION

## SETTING UP YOUR KEY MACHINE

The 030 and 031 key machines are shipped completely assembled. Each one is ready for use upon unpacking. When placing either machine on a table or work bench, it is essential that the surface be level; if not level, the X - Y action of the carriage may bind during operation. Also, the machine can be bolted to the work bench for stability. If you decide to bolt it down, make sure the surface is level and all four bolts or screws are tightened equally. A torque wrench is ideal, but not necessary.

The X - Y action is the term given to the engineer's description of the carriage movement, X referring to the horizontal axis and Y to the vertical axis. This means that the carriage can move horizontally (left to right) as well as vertically (up and down). In order to accomplish this action, the carriage, and the guide bars along which the carriage slides, are machined to extremely close tolerances. When the machine

is set on a level surface, the sliding action is smooth and easy; a non-level surface may cause binding in the slide action.

In the event the machine is bolted down, and binding occurs in the slide action, loose the bolt at one corner and check the slide action until it is smooth. Then, loosen and retighten the other bolts to a point where the machine is secure while the X - Y action remains smooth.

If you decide not to bolt down the machine, we have provided rubber feet which can be applied to the bottom of the machine base. This will ensure a non-skid, non-scratch surface for the machine. To install the rubber feet, peel the backing from each foot and apply the adhesive side to the bottom of each corner of the machine base. Additional adhesive is not needed.

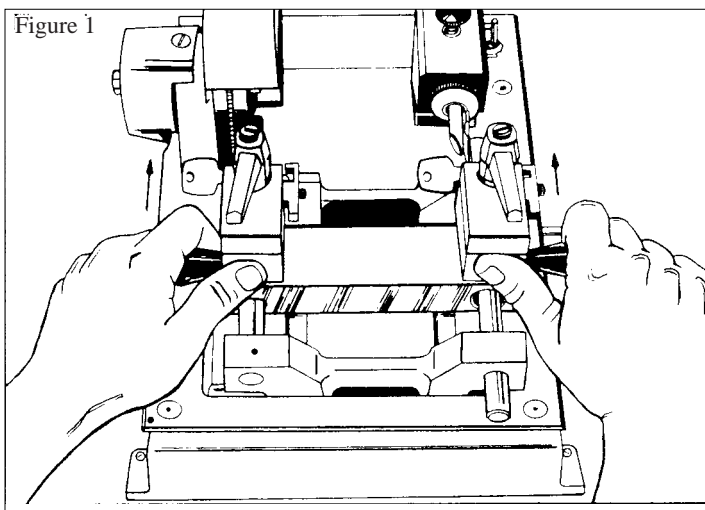
## GENERAL OPERATING SEQUENCE

Two hands must be used to cut a key on the 030 and 031. The left hand grasps the left carriage knob and the right hand grasps the right knob. Both hands then are moved sideways or up and down to make the cuts in the key blank (See Figure 1).

mits the operator to pre-position the key guide into a specific cut of the pattern key before the blank touches the cutter. This is very helpful when making adjacent cuts where the depths are only one or two apart.

Aligning the key blank to the pattern key is done by placing the shoulders of both keys (not the tips) against the key stops. In this position, the sideways travel of the carriage is far enough to enable cutting of a throat cut, if one is present in the key.

The 030 machine is capable of cutting TWO key blanks at the same time. This capability is possible because of the X - Y action of the carriage and the large diameter of the cutting wheel. The wheel is 4" in diameter and its' arc at the point of cutting is flat enough to make cuts that are perpendicular and accurate in both keys. Being able to cut two keys at the same time will reduce your cutting time in half. In addition, the cutter is made of solid carbide and will last much longer than cutters made of conventional steel.



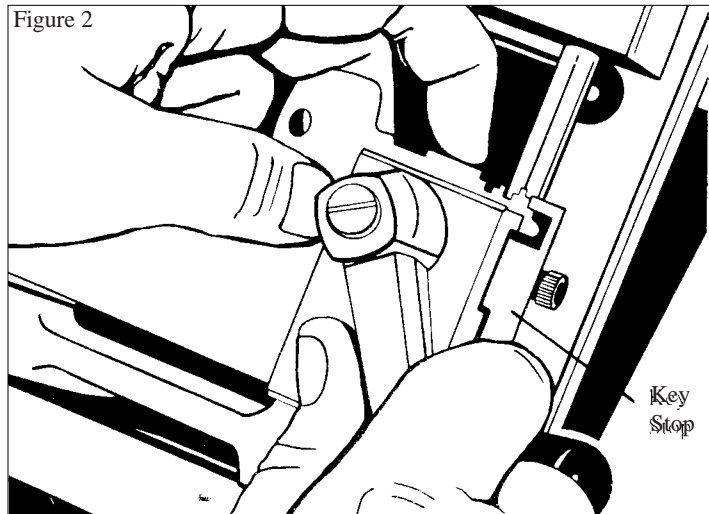
The key guide is spring loaded and this provides a pre-positioning action. In its normal position, the key guide protrudes further forward than the cutter. This extra length per-

# HOW TO DUPLICATE KEYS

## SAFE DEPOSIT KEYS

The key cutting procedure for safe deposit keys is as follows:

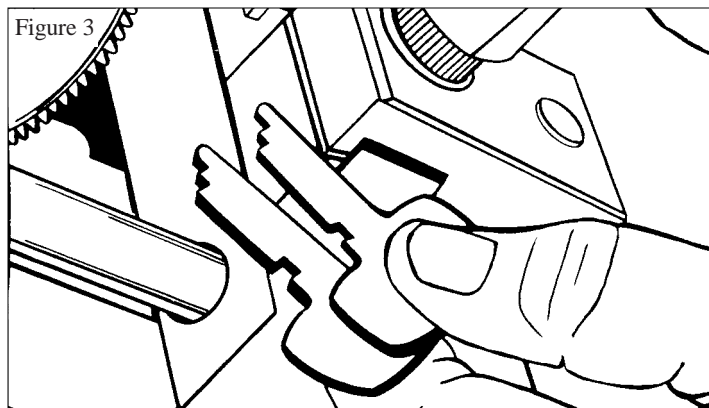
1. Clamp the pattern key (original) in the right vise jaw. Push this key into the vise jaw until its shoulder contacts the key stop (See Figure 2).
2. Tighten the right vise jaw. Note that the vise jaw is



designed so only light pressure is needed to clamp the key securely. Do not overtighten. Only a 1/4 turn of the handle is all that should be needed to release the vise jaw.

**NOTE!** If excessive pressure is used to tighten the vise jaw, the threads in the bottom vise jaw will be strained and will eventually strip out, requiring replacement of the bottom jaw. The handle itself is placed on a ratchet type bolt and can be repositioned easily by lifting and turning to the most comfortable position.

3. Select the proper key blank for duplication. Then, insert one or two of these blanks into the left vise, butting the shoulder(s) against the key stop (See Figure 3). Tighten the left vise jaw.
4. Activate the on/off toggle switch to turn on the machine.



The yellow light near the switch will go on, indicating the

motor is running. The light is needed since the machine operates quietly and is vibration free.

5. Grasp the carriage as shown in Figure 1 and move the carriage up to the key guide. Move the carriage to line up the key guide with the first cut in the pattern key.
6. Push the carriage upward so the key guide drops into the first cut. When it does, continue pushing upward; the cutter will make the first cut.
7. When the cutter completes the cut, lower the carriage and shift it to the next cut. Repeat the previous steps for all remaining cuts in the pattern key.
8. Move the on/off switch to turn off the machine. The indicator light should go off.
9. Remove the key(s) and brush off any burrs by running the key under a brush or a small file.

## ABOUT CUTTING KEYS

It makes no difference whether one or two key blanks are clamped in the left vise jaw; the machine will duplicate one or two with equal accuracy. When two keys are cut, only the bottom key will have burrs and require deburring (brushing). The top key has no burrs.

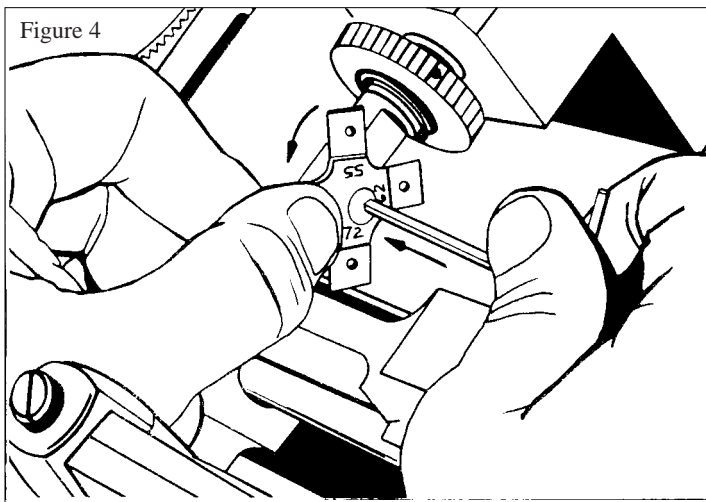
## ABOUT THE CUTTER - KEY GUIDE

The cutter used on the 030-031 is 4" in diameter and is made out of solid carbide. It is a slotter type cutter, having no millings or cutting edges on the sides. Therefore, the cutter makes plunge cuts only, that is, it will cut straight into the key blank and cannot be moved side to side to widen the cuts. Do not attempt sideward movement to force the key against the sides of the cutter, as if to widen the cuts or to skip to the adjacent cut. The sideward pressure will put undue strain on the cutter and could cause a tooth to chip or break off. When the key guide is bottomed into a cut, push the carriage up only and then back down when the cut is complete.

Since there are safe deposit locks with varying cut widths, four cutters are available in thicknesses of .055", .062", .072", and .088". The cutter provided with the 030 machine is .055" thick, identified as CU30-55. The cutter on the 031 machine is .088" thick, identified as CU30-88.

Because each cutter requires a matching key guide to the same thickness, the 030 and 031 are provided with a key guide that has all four thicknesses on it. The guide just has to be rotated to the thickness desired. To rotate the key guide, loosen its retaining screw and pull it off its positioning lug. (See Figure 4).

# HOW TO DUPLICATE KEYS



## CUTTING MOGUL TYPE KEYS

Large paracentric cylinder keys, such as the Mogul or Adams, can be cut on the 030 and 031 machines if the cutter and key guide are changed. The cutter and key guide are packaged in a separate kit, identified as 031-CKM. Also included are two key stops and screws. Identification of the parts is as follows: Cutter (CU30-M), Key Guide (131480). Key Stops (131477), Screws (174080).

To install these parts on either machine, first remove the key guide. Then, set the Mogul key guide (Part No. 131480) on the key guide spindle, with the V-shape tip pointing toward the vise jaw. Next, using a suitable wrench, remove the cutter nut, washer and cutter. Install the CU30-M cutter, replacing the spacer washer and cutter nut. Note the CU30-M is a milling cutter and should be installed with the teeth rotating down.

Since these large paracentric keys gauge like conventional size cylinder keys, different key stops are required on the

right side of each vise. Note the new key stops (131477) are thick and require longer screws.

Figure 5 shows the large paracentric key (Mogul) installed in the vise jaws, ready for cutting. For cutting the duplicate key, the carriage is shifted sideways to the left, with the key blank passing across the cutter, just as with conventional duplicating.

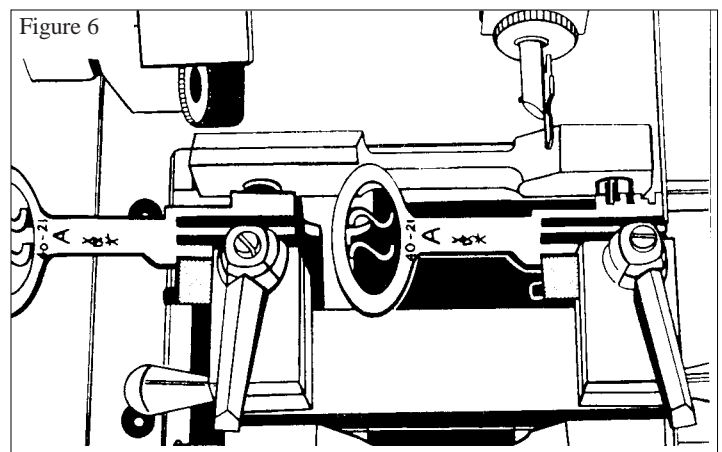
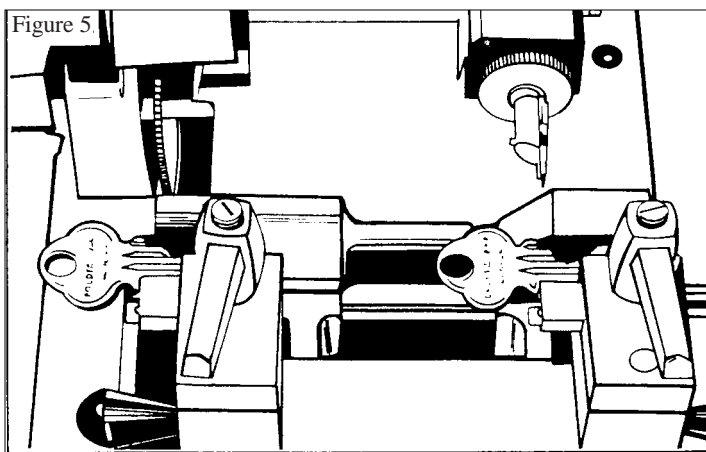
## CUTTING DETENTION KEYS

The large lever type keys used in detention locks are cut on the 031 machine. The cuts are made in the bit portion of the blank and could be from .088" to .104" wide. As a result, the cutter provided on the 031 is .088" thick, identified as CU30-88. It requires the .088" key guide.

Figure 6 shows the detention keys installed in the vise jaws, ready for duplicating. Note the keys gauge from the bottom shoulder, using the same key stops required for Mogul keys. Once the pattern key and the key blank are clamped in the vise jaws, the actual cutting procedure is the same as that for the safe deposit keys.

The only differences between the 030 machine and the 031 machine are the cutters and key stops. A person who already has an 030 machine (for cutting safe deposit keys) can convert to an 031 by installing the kit 031-CK. Identification of parts in 031-CK is as follows: Cutter (CU30-88), Key Stops (131477), Screws (174080).

Likewise, a person who already has an 031 machine can convert to an 030 machine (for cutting safe deposit keys) by installing the kit 030-CK. Identification of the parts in 030-CK is as follows: Cutter (CU30-55), Key Stops (030-20), Screws (030-53).

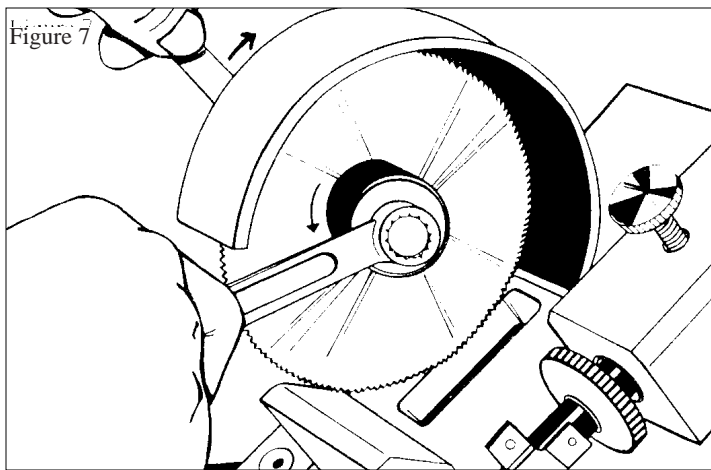


# REPLACEMENTS AND ADJUSTMENTS

When the cutter becomes dull, it should be replaced. There are three ways to determine if the cutter is dull:

1. By sound - a dull cutter will emit a high shrilly sound.
2. By time - a dull cutter will take longer to make the cuts.
3. By the burrs - if the burrs on the back side of the key blank are formed into little mounds, the cutter is not chipping away the metal but actually rolling it over. If there is a lot of burrs, the cutter is dull.

To remove the cutter, use two open end wrenches, as shown in Figure 7. Note that the cutter nut is reverse threaded. After the new cutter is installed, the adjustment of the machine should be checked and corrected, if needed.

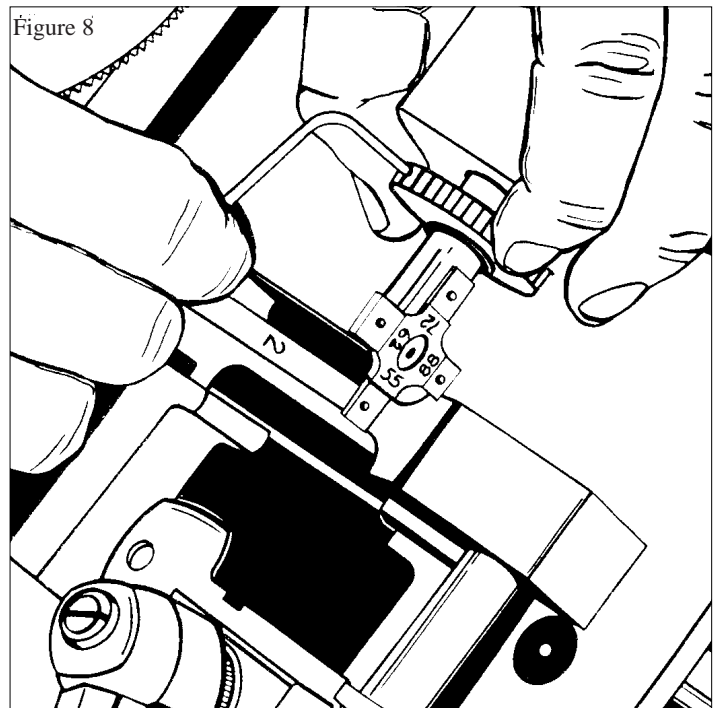


## ADJUSTMENTS FOR CUT DEPTH

As with all key duplicating machines, the key guide must be set in the same plane as the cutter in order to reproduce the correct depths of the pattern key. The depth of cut is regulated by the key guide adjusting collar which is threaded on the key guide spindle. Two set screws secure the collar to the spindle. Also, the collar is notched in increments of .001" so rotations of the collar can be measured.

To perform the adjustments, insert the same type key blank into each vise jaw. Slide the carriage up until the right blank touches the key guide. Note the cutter, it should be touching the left key blank. Slowly rotate the cutter by hand; the cutter should be barely touching the key blank.

If the cutter will not rotate, the key guide will make cuts that are too deep. If the cutter rotates but does not contact the key blank, the key guide will make cuts that are too shallow. For either adjustment, locate and loosen the two small set screws securing the adjusting collar to the key guide spindle. Note the index mark on the key guide housing; then, rotate the collar as follows (See Figure 8):



1. For cuts that are too deep, rotate the adjusting collar clockwise.
2. For cuts that are too shallow, rotate the adjusting collar counterclockwise.

By rotating the collar one increment mark at a time, you'll be able to make fine adjustments. A test key, cut to each of the depths in a given lock and then measured by micrometer, should be used to verify the accuracy of the key guide adjustment. Be sure the collar screws are tightened securely when the adjustment is correct.

## MAINTENANCE

- Keep the machine free of excessive dirt, dust and chips.
- It's a good idea to occasionally lubricate the bearing surfaces with a very light amount of oil and then wipe off the oil with a clean dry cloth.
- Inspect all screws and keep them snug.
- Note that the motor is a sealed bearing type and requires no lubrication.
- If the carriage movements are sluggish and bind, check the guide bars for dirt and chips; wipe these clean. Also check to see that the machine is level. If it's not level, correct the machine mounting as explained in the section "Setting Up Your Key Machine" on page 9.
- If the vise jaws do not open or close smoothly, check under the top jaw for cleanliness. Apply a very light coat of oil and wipe it off with a clean dry cloth.