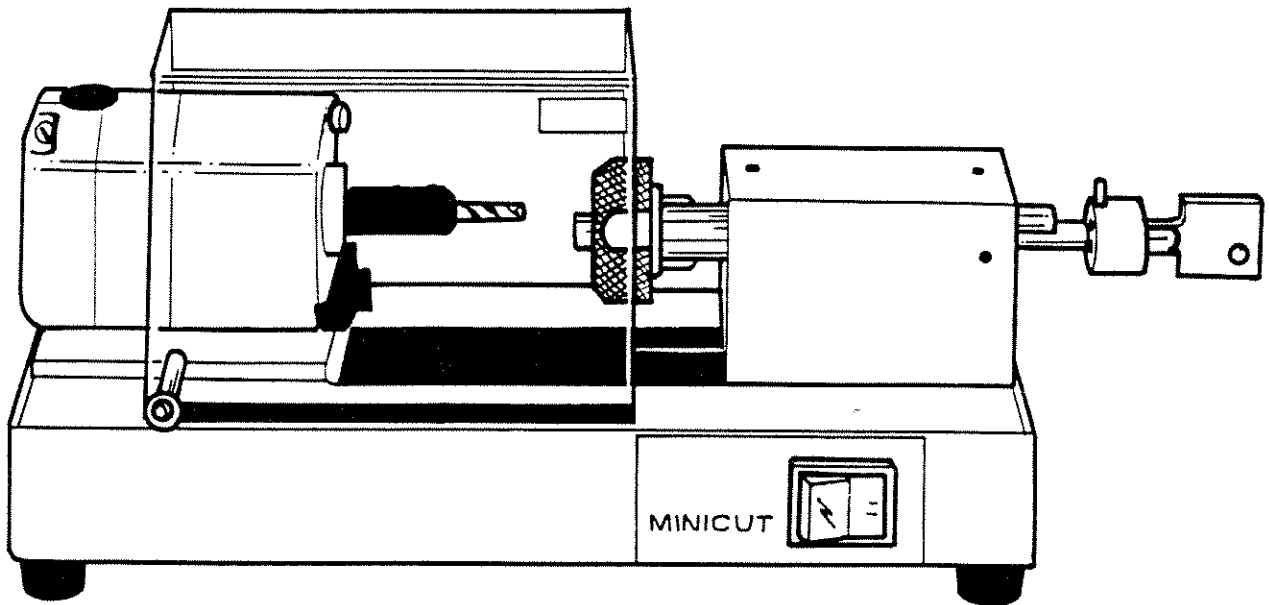


KD94

INSTRUCTION MANUAL

IMPORTANT! Read these instructions before you use your new KD94 Key Machine.



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 KD94), your registration number (see below) and the part number desired (see pages 6-7). Note that these parts are not interchangeable with the Model 009 machine.

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ONE YEAR LIMITED WARRANTY

ILCO UNICAN warrants to the original buyer of any new model KD94 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 allocable 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.

Your purchase of an ILCO ORION professional key machine for cutting tubular keys is a wise one. Design features and durable materials have been combined to produce a machine that has a high level of accuracy and is easy to operate. It will give you years of dependable service, in cutting brass and/or steel tubular keys.

The real value of the KD94 key duplicator comes from the precision of its parts. Since the keys it will cut are

intended for high security tubular cylinders, this machine must match the precision built into these cylinders and locks. It does! High quality materials and stringent machining standards produced the precision parts which then were assembled by skilled craftsmen. The result is the KD94 — a machine that actually delivers the value you deserve for your money!

UNPACKING

When unpacking the KD94, you'll notice the protective cushioning material and the abundance of oil that has been applied to prevent rust and corrosion. Before using the machine, wipe off the excess oil and grease. Only the moving parts have to be lubricated.

It's a good idea to save the original carton and packing for a short period of time.

Place the machine on a sturdy workbench or counter.

Make sure the machine power switch is in the off position (depressed so its O side is in the housing). Then, plug the power cord into a 110 Volt AC receptacle, preferably one with a surge protector. Because of the heavy duty construction, it is not necessary to bolt down the KD94.

Refer to the drawing on page 4 to identify the operating parts. Once familiar with these parts, you can begin cutting keys, as described in "The Cutting Operation."

SAFETY

The KD94 has been engineered to duplicate 7 and 8 pin tubular keys. It is not intended or designed for any other usage. 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.

When the KD94 is used according to its instructions, the operator's hands or fingers will not be placed near the rotating cutter because of the plastic shield covering the cutter area. The shield is provided with a safety interlock, which prevents the motor from operating when the shield is in the raised (loading the key) position. When the shield is lowered to cover the cutter, the motor will operate. Do not attempt to bypass the interlock switch; it's there for your protection.

OPERATING PARTS

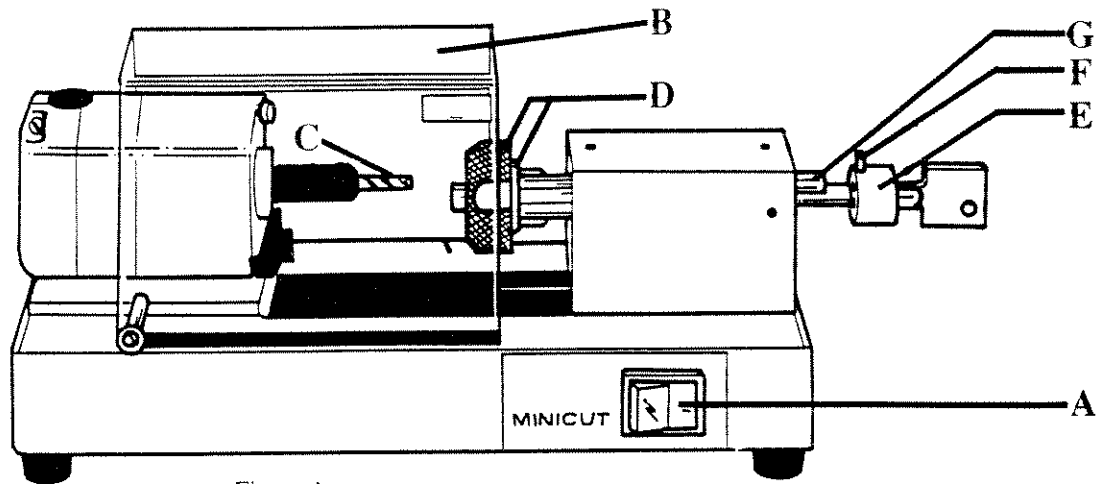


Figure 1

KD94 OPERATING PARTS

- A On/Off Switch, Rocker Type (KD94-15)
- B Safety Shield (KD94-104)
- C Cutter, cobalt steel (CU94)
- D Outer key clamp (KD94-53 vise jaw), installed on key clamp (KD94-25)
- E Indexing Collar (KD94-175)
- F Indexing Collar Retaining Pin (KD94-176)
- G Key Guide (KD94-89)

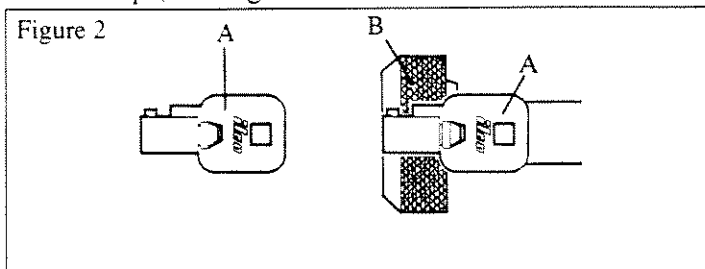
GENERAL OPERATING SEQUENCE

Normally, the indexing collar is installed on the machine to make the seven cuts in a standard tubular key. A key blank must be inserted into the outer key clamp (vise jaw) and aligned with the key guide. Aligning with the key guide requires that a second key blank be inserted into the indexing collar and then pushed in. While pushing in on the second key blank, the key clamp is loosened, allowing it's key blank to spring forward, contacting the cutter. Then, the key clamp is firmly tightened.

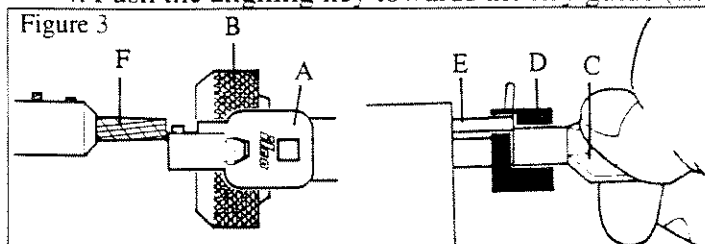
The second key blank is removed from the indexing collar and replaced with the pattern (original) key. The pattern key is rotated and pushed in until the key guide drops into one of the holes in the indexing collar. Continued pressure on the pattern key will force the key guide to the bottom of the pattern cut, causing a corresponding cut in the key blank. The pattern key then is backed out, rotated to another position and the push-in action is repeated.

The actual procedure is as follows:

1. Insert a key blank (A) into the key clamp (B), until the front of the blank is flush with the face of the key clamp (See Figure 2).

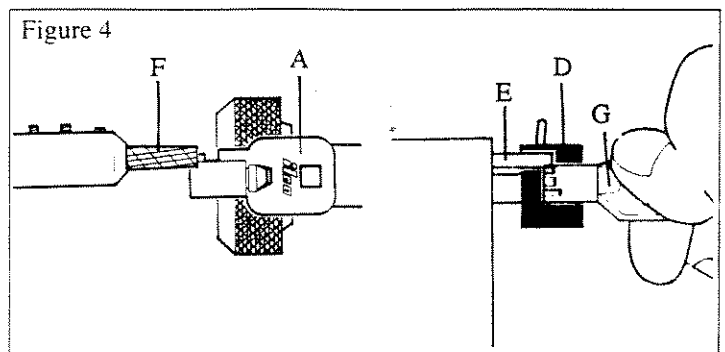


2. While holding the key blank in position, tighten the key clamp.
3. Be sure the indexing collar is installed on the actuating shaft. Then, insert a second key blank (C) into the indexing collar (D), as shown in Figure 3. This second key blank serves as the aligning key.
4. Push the aligning key towards the key guide (E).

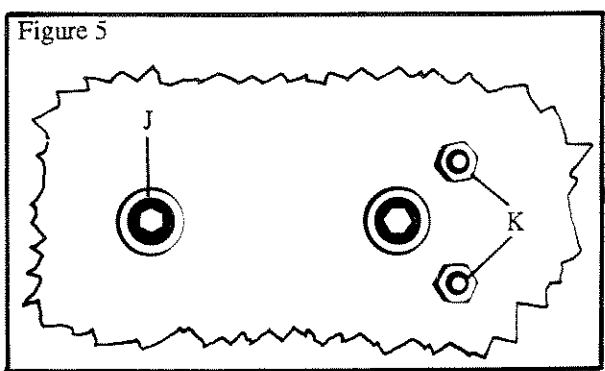
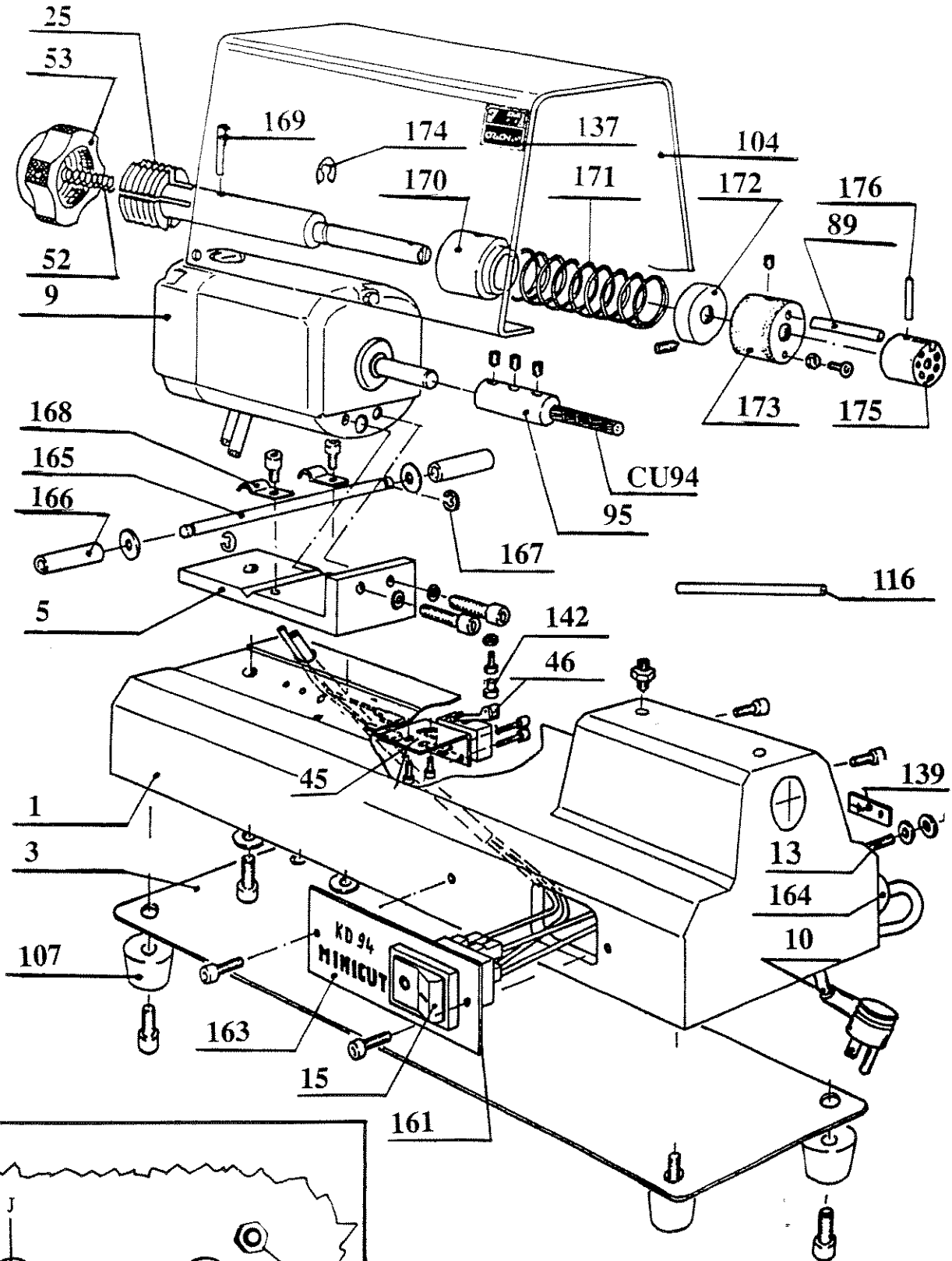


Rotate the aligning key slightly to allow the key guide to line up with any of the round holes machined into the collar. Continued pressure on the aligning key will cause the key guide to enter the indexing collar. When the key guide contacts the aligning key, the push-in motion will stop.

5. While holding pressure against the aligning key, loosen the key clamp (B). This will allow the key blank (A) to spring forward and contact the cutter (F). When this occurs, tighten the key clamp firmly.
6. Remove the aligning key from the indexing collar.
7. Insert the pattern key (the original key you wish to duplicate) into the indexing collar.
8. Lower the safety shield and push the on/off switch to the "on" position.
9. Push the pattern key (G) towards the key guide (E), rotating it slightly to allow the key guide to line up with the first hole in the indexing collar. Continue to push on the pattern key until the key guide enters the indexing collar and hits the bottom of the cut in the pattern key (See Figure 4). This will cause a corresponding cut to be made in the key blank (A).
10. Relax the pressure on the pattern key, to let the key blank back away from the cutter.
11. Rotate the pattern key so the next hole in the indexing collar is lined up with the key guide. When aligned, push in and make the cuts. Repeat this procedure until all seven cuts are made. **NOTE:** For best results and longer cutter life, apply firm, steady pressure against the pattern key to give the cutter time to make the cuts. Fast, forceful pressure will cause uneven cuts and could damage the cutter.
12. When all cuts are complete, turn off the machine, lift the safety shield and loosen the key clamp to remove the duplicate key.



EXPLODED VIEW



EXPLODED VIEW PARTS LIST

Part No.	Description	Part No.	Description
KD94-1	Housing	KD94-161	On/Off Switch Plate
KD94-3	Housing Bottom Plate	KD94-163	Metal Name Plate
KD94-5	Motor Shelf Support	KD94-164	Retaining Wire Ring o8
KD94-9	Motor, 110V, 5000 RPM	KD94-165	Shaft for Plastic Shield
KD94-10	Plug and Power Cord	KD94-166	Spacer for Plastic Shield Shaft
KD94-13	Grounding Stud	KD94-167	Retaining "E" Ring - 6mm
KD94-15	On/Off Switch, Rocker Type	KD94-168	Retaining Plate for Shaft
KD94-25	Actuating Shaft, with key clamp	KD94-169	Actuating Shaft Locking Pin
KD94-45	Mounting Plate for Switch	KD94-170	Actuating Shaft Front bushing
KD94-46	Cutter Starting Switch	KD94-171	Actuating Shaft Compression spring
KD94-52	Spring for Key Clamp (vise jaw)	KD94-172	Actuating Shaft Spring Retainer
KD94-53	Outer Key Clamp (vise jaw)	KD94-173	Actuating Shaft Rear bushing
KD94-89	Key Guide	KD94-174	Retaining "E" Ring, 8mm
KD94-95	Spindle Adaptor, Cutter	KD94-175	Indexing Collar
KD94-104	Plastic Shield	KD94-176	Indexing Collar retaining pin
KD94-107	Foot	CU94	Cutter, 6 x 40mm
KD94-116	Bar (to secure key clamp nut)	KD94-IM	Instruction Manual
KD94-137	ILCO ORION Label		
KD94-139	Grounding Label		
KD94-142	Switch Actuating Stud		

ADJUSTMENTS

On the KD94, the depth of cut is controlled by positioning the key blank in relation to the pattern key; therefore, no depth adjustment is necessary. Likewise, spacing of the cuts around the barrel of the blank is controlled by following the cuts already present in the pattern key; again, spacing adjustments are not necessary.

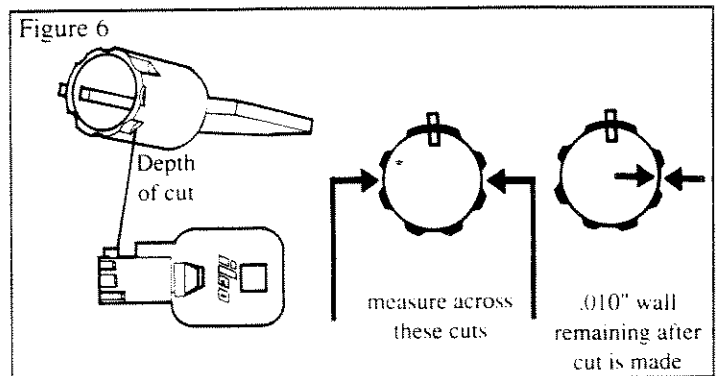
The one adjustment that must be made concerns how much of an arc (or contour cut) the cutter will make in the circumference of the barrel. This adjustment is called the cutter height adjustment. The cutter height should be inspected regularly and readjusted as necessary.

To check the cutter height, cut a sample key and measure the distance across the cuts with dial calipers. The distance should be from .323" to .328" (See Figure 6). If the distance is higher or lower, readjust as follows:

1. Turn the machine over and remove the four rubber feet.
2. Remove the bottom cover.
3. Locate screw (J) and loosen it (See Figure 5).

4. Turn the screws (K) in equal amounts as follows:
 - a) to the left, to decrease all thicknesses.
 - b) to the right, to increase all thicknesses.
5. Tighten screw (J).
6. Cut a sample key to verify the adjustment has produced the desired measurement (between .323" to .328").
7. Replace the bottom cover and feet.

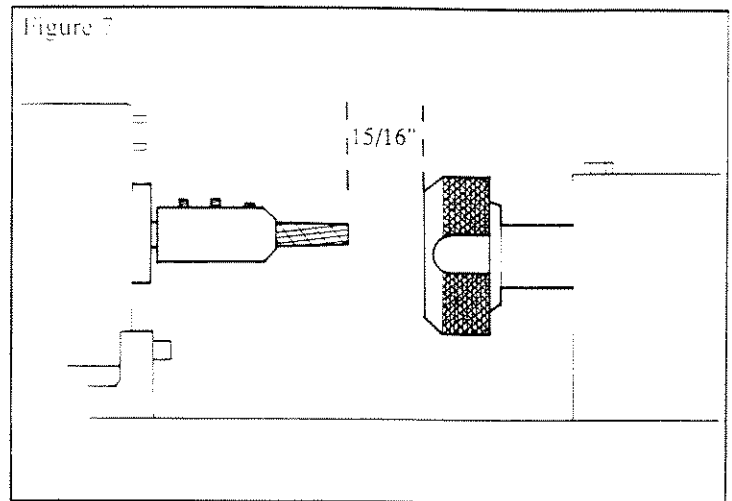
Note that the thickness of the key blank barrel wall is .032"; after a contour cut is made, the wall thickness should be a minimum of .010".



ABOUT THE CUTTER

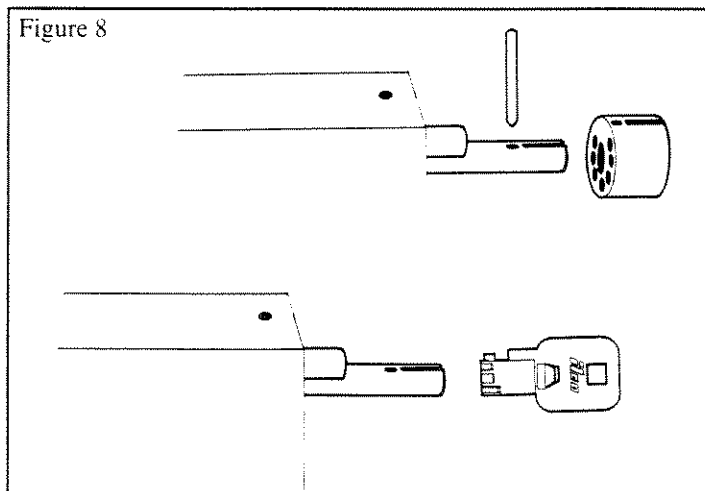
The CU94 cutter used on this machine is made of cobalt steel and is designed to cut steel keys. It has twelve flutes (cutting edges) and will produce the contour cuts quickly and easily, without chatter. It's a precision cutting instrument and should be treated with care.

The cutter mounts into the cutter spindle adaptor, which is attached to the motor shaft by two set screws. To remove the cutter, loosen the set screw closest to the cutter and pull the cutter from the adaptor. When installing the cutter, place it into the adaptor so it rests 15/16" away from the face of the key clamp (See Figure 7). Be sure to tighten the cutter set screw firmly.



DUPLICATING SPECIAL KEYS

Special tubular keys can be duplicated on the ~~KB94~~ ^{KD95}. These keys include those with 8 cuts, with 7 cuts but offset to the left, and with 7 cuts but offset to the right. These keys use spacings which are different from a standard 7 cut tubular key; therefore the indexing collar must be removed. To remove the indexing collar, just lift up on the retaining pin and slide the collar off its shaft (See Figure 8).



With the indexing collar off, aligning of the keys and actual cutting is slightly different. For aligning, the pattern key is used but an UNCUT area of the key must contact the key guide (See Figure 9). Do NOT align the key blank by letting the key guide rest into one of the cuts; the resulting cuts all will be too deep.

It also is possible to use a key blank for the aligning key as recommended for a standard seven pin key. When a key blank is used, the possibility of the key guide dropping into one of the cuts will be eliminated. It also is easier to loosen and tighten the key clamp.

Once the key blank has been aligned to the cutter, the pattern is pushed in toward the key guide and lined up with each cut. Continued pressure on the pattern key will slide the key guide into the cut until it reaches the bottom of the cut. This will cause the cutter to make a corresponding cut in the key blank. The pattern key then is backed away and repositioned for each cut around the key. It is up to the operator to visually line up each cut and make the proper depth in the blank.

