

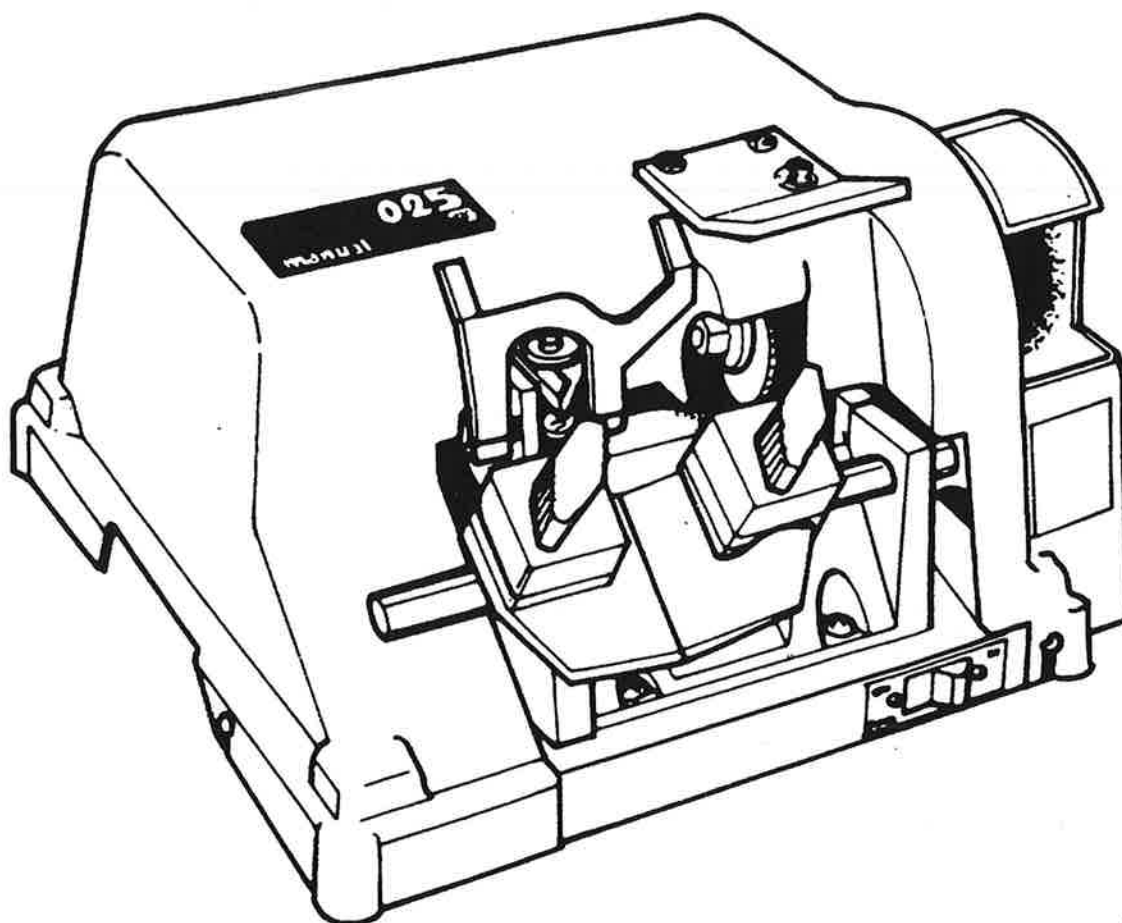
English

INSTRUCTION MANUAL

IMPORTANT! Read these instructions before you use your new 025 Key Machine.

Ensure that all safety recommendations are followed!

See page 2 for instructions.

**ILCO UNICAN**

ENGLISH

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 Model No. 025 and the part number desired (see pages 6 to 8). Note that many parts are not interchangeable with other ILCO UNICAN machines.

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ONE YEAR LIMITED WARRANTY

ILCO UNICAN warrants to the original buyer of any new model 025 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!

Serial number : _____

WARNING – SAFETY NOTICE

IMPORTANT - Please read carefully before operating machine.

Safety begins with education, and continues with proper application. All personnel who operate your machine should read the supplied Operator's Manual for information on how to properly operate it. The likelihood of accidents and miscuts will be greatly reduced.

General safety

- Safety glasses must be worn to reduce the possibility of eye injury while operating or in the immediate vicinity of key cutting equipment.
- Always turn machine off before making adjustments or inserting or removing keys.
- Machine should be located in an area accessible only by authorized operators. Location must be such that customers and other personnel are not subject to potential injury from "flying chips".
- Do not defeat safety features built into your machine. Removal or modification of safety shields, cutter guards, and other safety devices should be strictly forbidden.
- At no time should the mechanically-driven parts of the machine be touched while it is in operation. The operator should take care to ensure that loose-fitting clothing, long hair, etc. are kept from the area of machine operation.
- Your machine has been specially designed and built for key cutting purposes only and should be operated according to the Operator's Manual. All other uses are strongly discouraged as potentially dangerous, and should not be attempted! Such use will immediately void the machine's warranty.
- Some states have specific age restriction concerning the operation of certain types of equipment. Check local and state ordinances for compliance.

Electrical safety

- (120 Volt models) Your machine is designed to operate using 120 Volt A. C. 60 Hz. electrical current. It is supplied with a three-prong power plug which should be used with a properly grounded three-prong outlet only. Do not defeat the safety purpose of the plug by modifying or using with non-grounded outlets!
- To reduce risk of fire or electrical shock, do not expose or operate machine in damp or wet locations.
- Electrical problems should be referred to qualified repair technicians. If the machine is under warranty, contact ILCO UNICAN at the address printed on the cover. (ILCO UNICAN also offers repair service for out-of-warranty machines. Contact ILCO UNICAN for details.)
- Always unplug the machine before removing the hood or changing the cutter wheel.

Grounding instructions

- In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This machine is equipped with an electric cord that has an equipment-grounding conductor and a grounding plug. The plug must be plugged into a machine outlet that is properly installed and grounded in accordance with all local codes and ordinances.
- Do not modify the plug provided - if it will not fit the outlet, have the proper outlet installed by a qualified electrician.
- Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation that has a green outer surface (with or without yellow stripes) is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.
- Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the machine is properly grounded.
- Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the machine's plug.
- Repair or replace damaged or worn cords immediately.

INTRODUCTION / UNPACKING

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

The Model 025 semiautomatic key machine you've just purchased incorporates the latest improvements in design for key duplicating machines of its type.

This machine features exclusive four-way vise jaws designed to accommodate virtually any standard cylinder key without the need for adaptors.

Even double-sided automotive keys can be duplicated with ease; the four-way jaws include stations ideally suited to gripping these keys and is capable of gripping them in the groove or milling for enhanced clamping performance when necessary.

Accurate, easy to operate and maintain, the model 025 delivers excellent performance at an economical price!

Unpacking instructions

Your 025 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 rustproof-

ing 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 "Adjusting for depth of cut").

Safety

The 025 has been engineered to duplicate cylinder (paracentric) 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. Refer to page 3 for complete safety information before operating the machine.

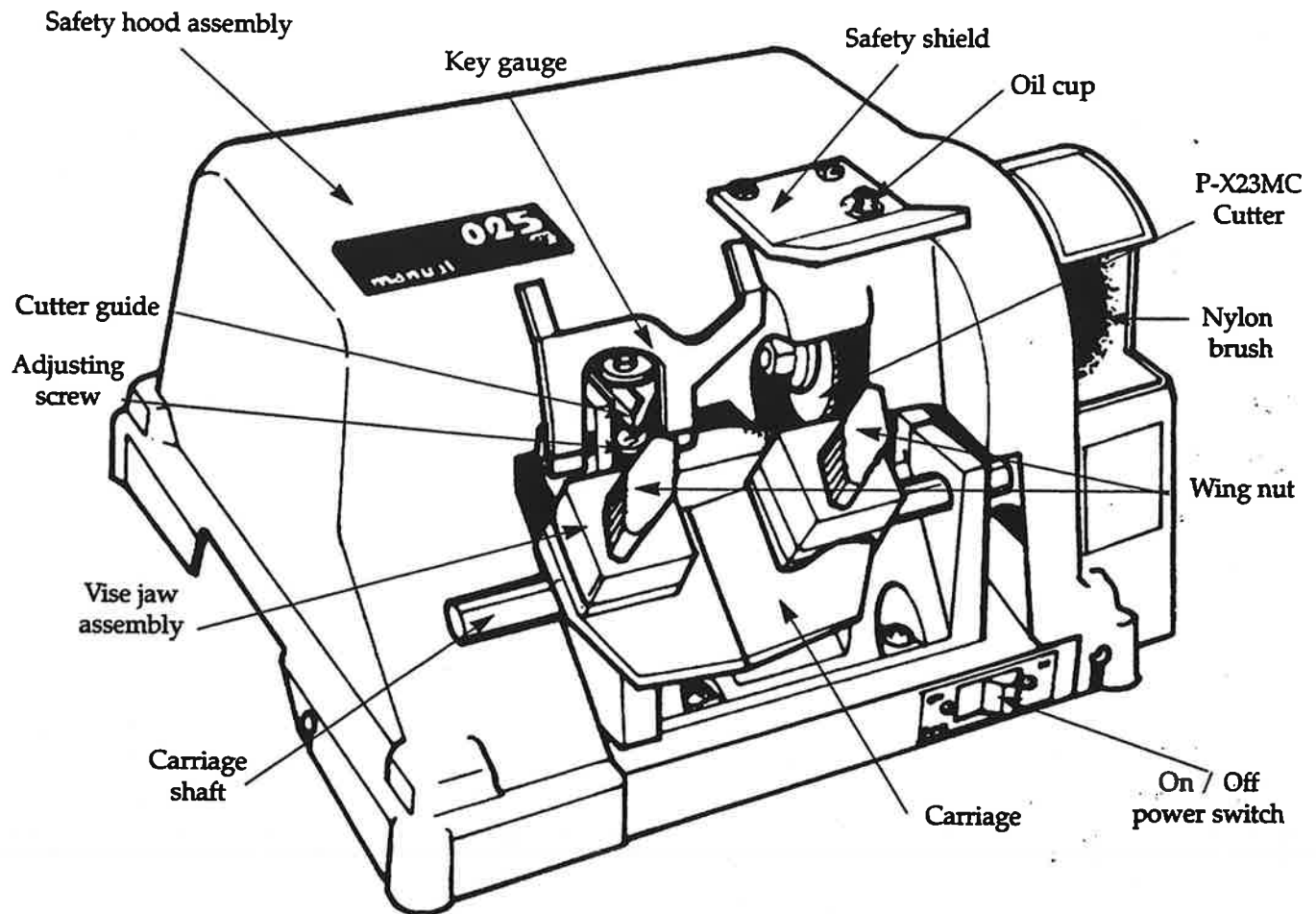
ILCO UNICAN strongly recommends the use of protective eye glasses or goggles when operating this machine,

or when in the vicinity of the machine while it is being operated. Protective eye wear prevents injuries! The machine should be turned off before loading or unloading keys.

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

CAUTION!	DO NOT DESTROY OR DISCARD THIS VALUABLE SHIPPING CARTON. STORE IT CAREFULLY IN A SAFE PLACE. THIS CARTON SHOULD BE USED WHENEVER THE MACHINE IS MOVED OR SHIPPED.
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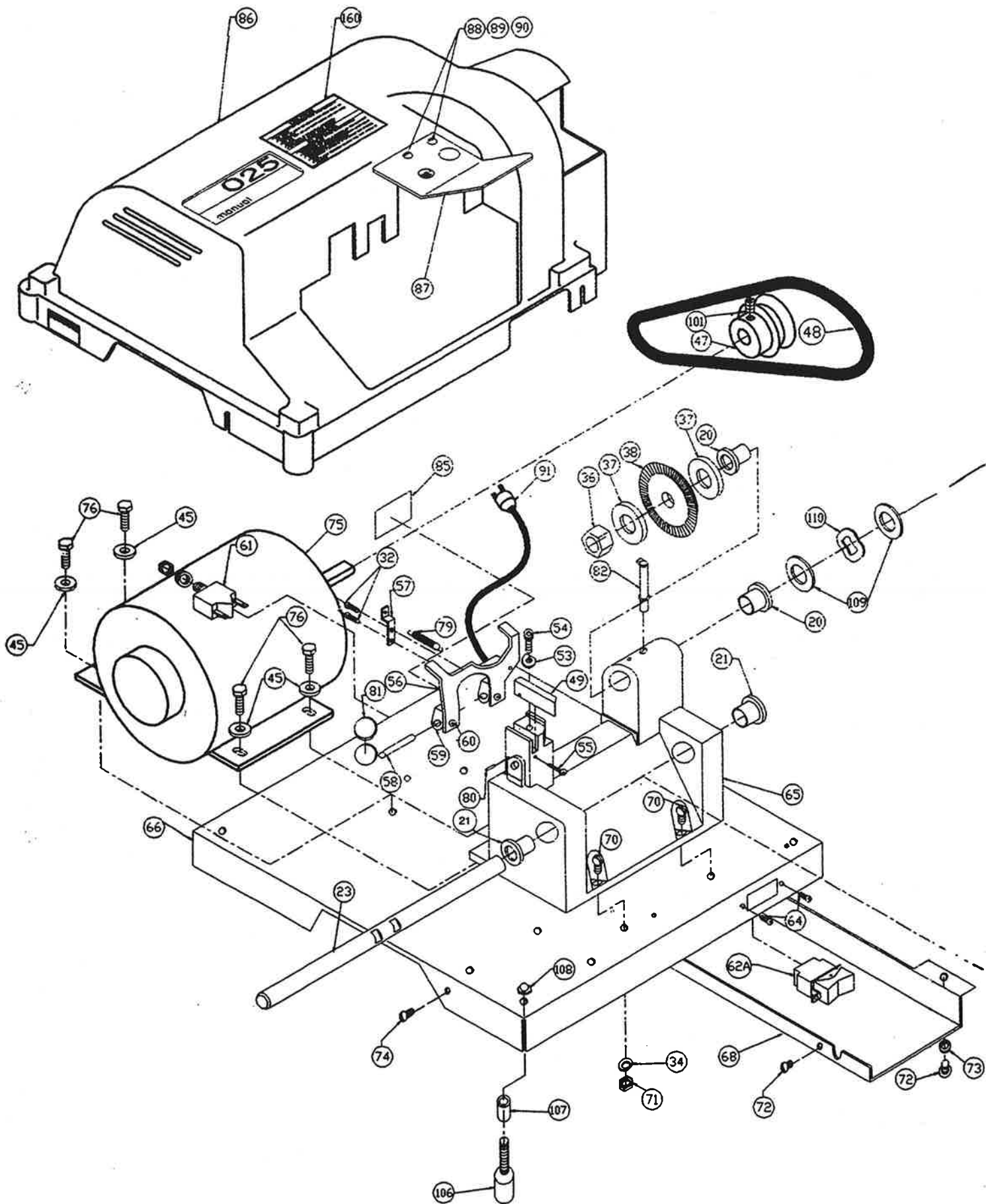
OPERATING PARTS



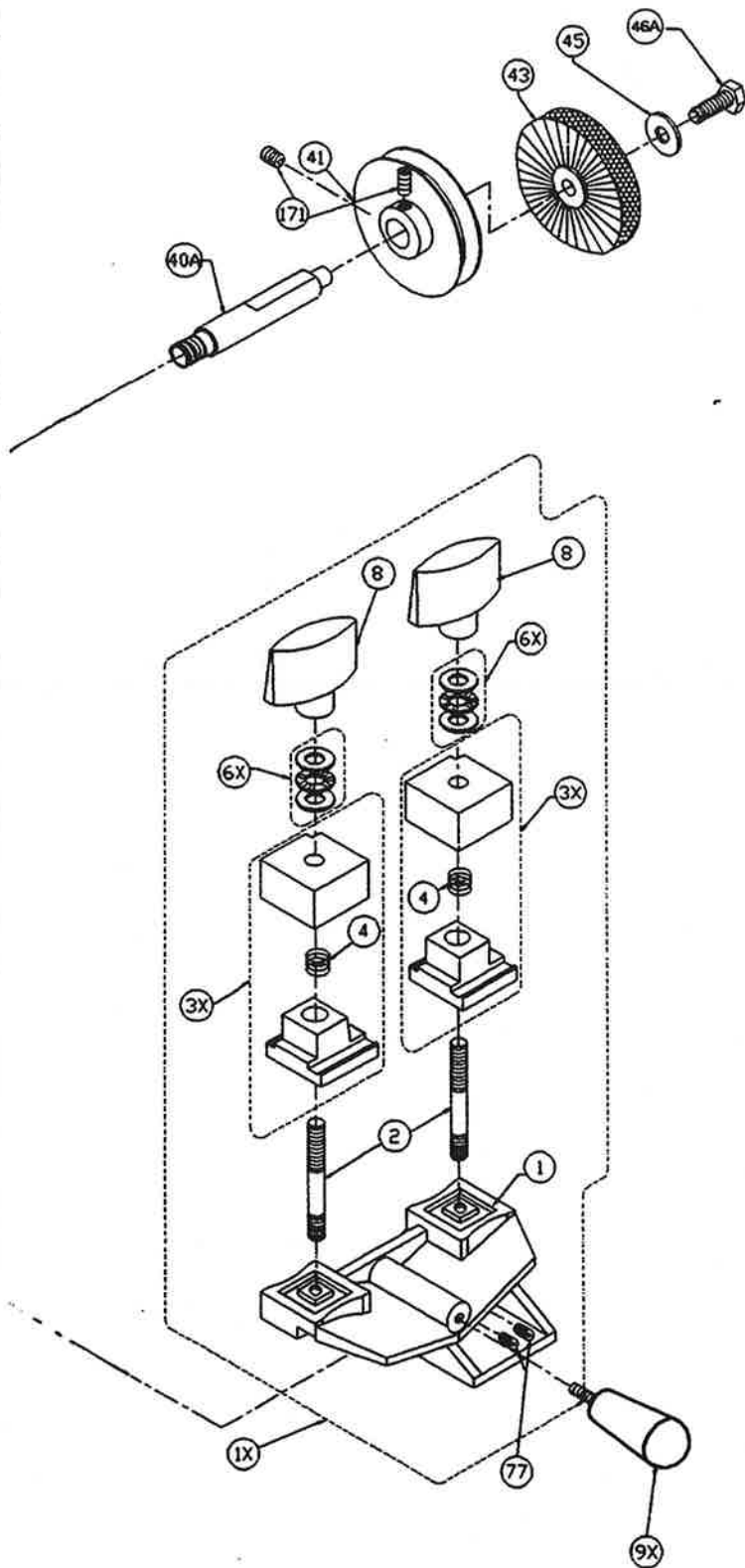
Operating parts identification

Part no.	Identification
025-1	Carriage
025-3X	Vise jaw assembly
025-8	Wing nut
025-23	Carriage shaft
025-38	P-X23MC cutter
025-43	Nylon brush
025-49A	Cutter guide (stylus)
025-55	Adjusting screw
025-56	Key gauge
025-62A	On/Off switch
025-82	Oil cup
025-86X	Safety hood assembly
025-87	Safety shield

EXPLODED VIEW / VISTA EN DETALLE / SCHÉMA ÉCLATÉ



EXPLODED VIEW / VISTA EN DETALLE / SCHÉMA ÉCLATÉ



EXPLODED VIEW PARTS LIST

Refer to pages 6-7 for illustration

Ref.	Part no.	Description	Ref.	Part no.	Description
1	025-1	Carriage	65	025-65	Main Base, machined
1X	025-1X	Carriage assembly	66	025-66	Sub-base
2	025-2	Carriage stud	68	025-68	Electrical cover
3X	025-3X	Vise jaw assembly	70	025-70	Base screws, ¼-20 x 1"
4	025-4	Vise jaw spring	71	025-71	Base screw nut, ¼-20
6X	025-6X	Thrust bearing set	72	025-72	RHMS screw, 8-32 x ¾"
8	025-8	Wing nut	73	025-73	Lockwasher, #8
9X	025-9X	Carriage handle	74	025-74	Truss head screw, 8-32
20	025-20	Cutter shaft bushing	75	025-75	Motor, ¼hp, 115V
21	025-21	Carriage shaft bushing	76	025-76	Motor bolt
23	025-23	Carriage shaft	77	025-77	Set screw, ¼-20 x ½"
32	025-32	Button head. screw, 10-24 x ¾"	79	025-79	Key gauge spring
34	025-34	¼" lockwasher	80	025-80	Roll pin
36	025-36	Cutter nut, N-4	81	025-81	Snap plug, ¾"
37	025-37	Cutter spacer	82	025-82	Oil cup
38	025-38	P-X23MC cutter	86	025-86	Safety hood with 025 decal
40A	025-40A	Cutter shaft	86X	025-86X	Safety hood assembly
41	025-41	Cutter shaft pulley	87	025-87	Safety shield
43	025-43	Nylon brush	88	025-88	Shield screws, 10-32 x ½"
45	025-45	Brush bolt washer, ¾"	89	025-89	Flat washer, #10
46A	025-46A	Hex head screw, ¼-18 x ¾"	90	025-90	Nut, #10-32
47	025-47	Motor pulley 2" - 3L	91	025-91	Power cord
48	025-48	V-Belt, 3L-180	92	025-92	3 wire motor cable
49A	025-49A	Cutter guide (stylus)	101	025-101	Motor pulley set screw
53	025-53	Cutter guide binding washer	106	025-106	Rubber mount
54	025-54	Cutter guide binding screw	107	025-107	Spacer
55	025-55	Adjusting screw	108	025-108	Acorn nut, ¼-20
56	025-56	Key gauge	109	025-109	Bearing washer
57	025-57	Key gauge bracket	110	025-110	Wave washer
58	025-58	Key gauge dowel pin	160	025-160	Caution label
59	025-59	Key gauge housing	171	025-171	Cutter pulley set screw, ¼" -18
60	025-60	Cap screw, 8-32 x ½"	IM	025-IM	Instruction manual
61	025-61	Circuit Breaker, ETA 1658	NS	025-240	220V ¼HP motor
62A	025-62A	On/Off switch			

Unpacking

The 025 key machine is shipped completely assembled and pre-adjusted. Upon unpacking the machine, locate the nylon band securing the carriage assembly and cut it to allow the carriage to drop to its normal "down" position. At this point, you should be able to slide the carriage sideways.

Test keys

A series of cut keys are supplied with your machine. These keys were cut on your machine and represent the result of our quality inspectors' work before approving your machine for shipment. The keys are reproductions of factory-dimensioned pattern keys and are accurate to .002" or less. Save these keys and use them as standards to check the accuracy of cuts in the keys you make. Duplicating a key and then using a key micrometer or caliper to compare the actual depth of the cuts on both the duplicate and the pattern key will allow you to see if your machine is cutting too deep or too shallow, thus indicating that an adjustment of the cutter guide is necessary.

Proper key cutting techniques

Even though your 025 key machine is designed to make key cutting fast, efficient and accurate, operator skill is important. The actual mechanics of placing keys within the vise jaws is simple to learn, but there are some basics that must be followed. A properly adjusted key machine used by someone who ignores good key cutting techniques will NOT produce a good key. The way a person clamps a key into the vise jaws is critical to the accuracy of the duplicated key.

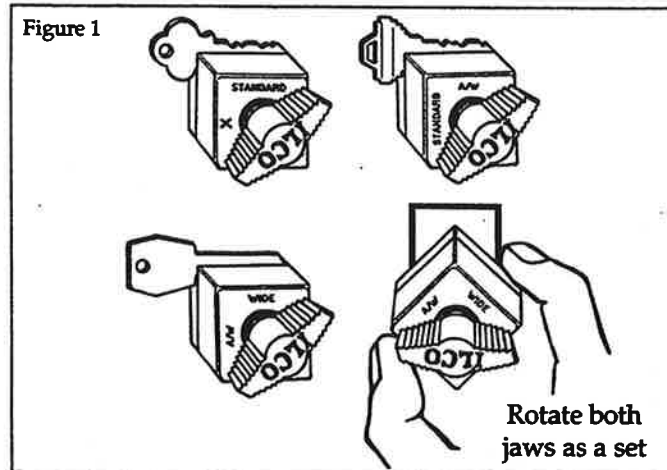
Remember - the real purpose of a duplicate key is to operate the lock for which it was intended. If customers return keys; you should reexamine your cutting techniques and adjustment of the machine.

Here are some important operating tips:

1. Vise jaws - clean them regularly so that no metal chips lie under the keys. It is essential that both keys lie flat across the entire width of each vise jaw. Neither key should be tilted.
2. Do NOT use pliers or other tools to tighten the vise jaws. Firm hand pressure is sufficient.
3. Keep the carriage shaft free of metal chips. A thin film of oil can be applied to it. The carriage should be free to move without binding.
4. NEVER touch the shoulder of a key to the side of the cutter guide. This will cause the shoulder of the key blank to touch the side of the cutting wheel. When this happens, some of the metal will be cut away from the shoulder of the key blank. If the resulting duplicated key is duplicated two, three, four times over, an error will accumulate and cause a non-operating key. Do not grind away the shoulder.
5. Don't run the cutter into the vise jaw; this will dull the cutter, and reduce cutter efficiency.
6. Keep the cutter clean. Don't let any foreign objects or instruments blunt it. This cutter is a precise cutting tool and should be handled with care.
7. Lubricating of moving parts is important. An oil cup is provided to keep the cutter shaft bearings well lubricated. The carriage spindle should be lubricated with a thin film of oil and wiped free of chip build up. The lubrication procedures should be performed every 2-3 weeks depending on usage. (5-7 drops of a lightweight machine oil such as "3-in-1" or equivalent is sufficient for the oil cup.)

Using the four-way vise jaws

Your 025 is equipped with the ILCO UNICAN versatile Super Jaw 2 four-way vise jaws. They feature four unique clamping surfaces to securely grip virtually any typical cylinder key (see Fig. 1).

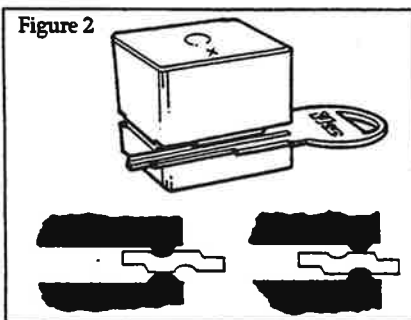


Standard - for holding regular cylinder keys, such as house keys, single sided automotive keys, padlock keys, with one or two shoulders.

W/A - for holding the SC6 and/or the SC22 Schlage wafer keys. Clamp the keys by the center groove rather than by the blade where the cuts are made.

Wide - for holding the Ford double-sided keys and similar types, either primary or secondary. When positioning the keys in the vise jaws, lay the key so that its center ledge is flat against the top surface of the jaw.

X - Ideal for holding most double-sided convenience keys used on most current automobiles. Grip these keys by the grooves rather than the blade edge where the cuts are located (see Fig. 2).



To reposition the vise jaws, as from Standard to Wide, first loosen the wing nuts. Then lift upward on the top and bottom of each vise jaw as a complete unit to raise them above their seat in the carriage. Rotate the jaws until the chosen vise position is facing toward the rear of the machine and lower the jaws back into contact with the carriage. Both left and right vise jaws should be rotated to the same position.

HOW TO DUPLICATE KEYS

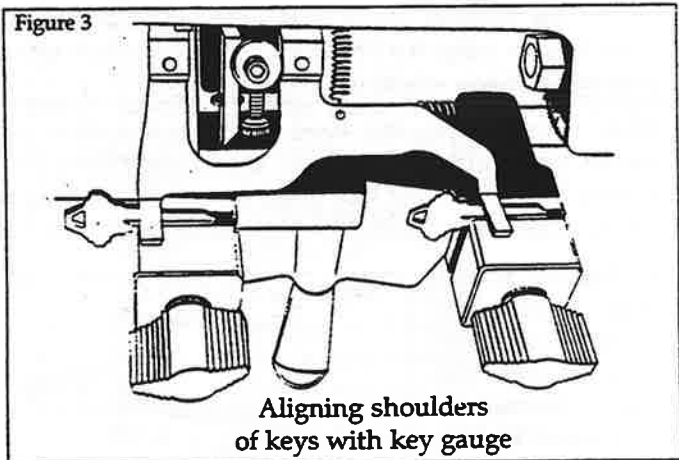
Aligning keys in the vise jaws Keys with shoulders

WARNING: Do not install or remove keys unless the off/on switch is in the off position.

Both the pattern key and the key blank must be properly aligned and securely clamped in the vise jaws. To do this, slide the machine's carriage assembly towards the right and position the appropriate key blank in the carriage's RIGHT vise jaw with the head of the blank pointing to the left.

Ensure that the shoulder of the key blank is located approximately $\frac{1}{8}$ " to the left of the vise jaw's left edge. Holding the key blank firmly and level against the jaw, tighten the wing nut. Position the pattern key in the carriage's LEFT vise jaw in a similar manner only this time allowing a $\frac{1}{8}$ " gap between the shoulder of the key and the edge of the vise jaw.

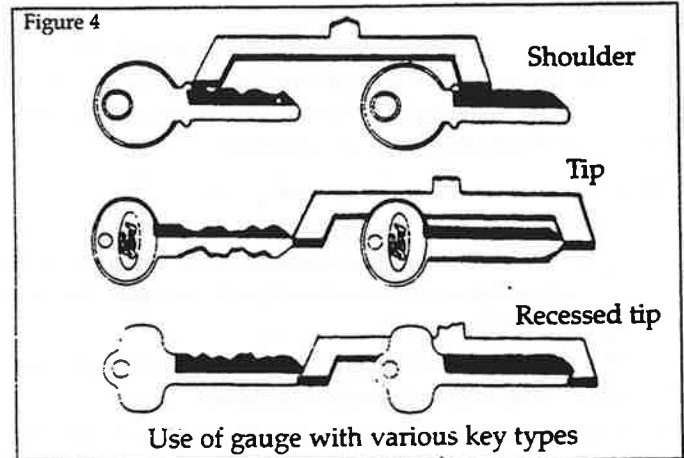
Next lower the key gauge and position the carriage so that the left edge of the gauge's RIGHT prong contacts the edge of the key blank's shoulder (see Figure 3). Loosen the wing nut securing the pattern key and reposition the key so that its shoulder is in contact with the left edge of the LEFT prong of the key gauge.



Check to ensure that the pattern key and blank key's shoulders are snug against the key gauge and both keys are positioned level (not tilted) in the vise jaws. Retighten the wing nut.

Aligning keys in the vise jaws Keys without shoulders

On keys such as the Ford double-sided key, which do not have conventional shoulder, the tip of the key is used as the aligning point (see Fig. 4). Clamp the blank key in first and move the machine carriage to the left. Lower the key gauge and position the carriage so the tip of the Ford key touches the key gauge. Install and align the pattern key in the left vise jaw in the same manner.

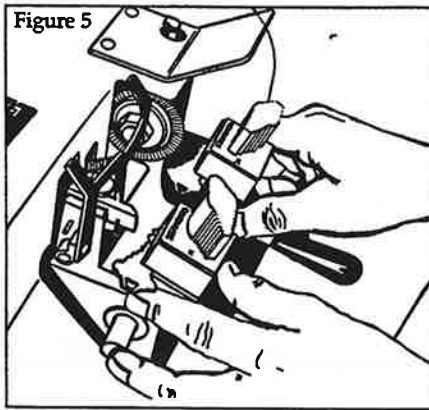


"Best" and "Falcon" type keys do not have a conventional shoulder but have a recessed tip and the key gauge is used to align the recessed tips. After clamping the blank key, the carriage is moved to the left so that the key gauge can be lowered to contact the recessed tip surface. The pattern key is aligned in the left vise jaw and positioned to contact the edge of the key gauge in the same manner.

General Operating Sequence

WARNING: Do not install or remove keys unless the off/on switch is in the off position.

1. Rotate both vise jaws to the station suitable for the key being duplicated.
2. Insert the blank key and pattern key into the vise jaws using the appropriate method described under "Aligning Keys in the Vise Jaws". Be sure that both keys are laying level in the vise jaws and are not tilted.
3. Lower the key gauge to align the keys using an appropriate method as described under "Aligning Keys ..." found in the previous section (see page 10).
4. After the keys are aligned, return the gauge to its "up" position.
5. Press the off/on switch to the "on" position.
6. Lift the carriage with both hands (see Figure 5).
7. Move the carriage to line up the cutter guide with the shoulder of the pattern key, then shift slightly away from the shoulder. Do not permit the cutter to touch the shoulder of the key blank.
8. Press in on the carriage, while guiding it to the left. Carefully trace the cuts of the pattern key with the cutter guide. The cutter will make a corresponding cut in the key blank. When the cut closest to the tip of the pattern key has been traced, retrace the cuts by guiding the carriage to the right. This will clear away any metal not removed during the initial pass over the key blank.
9. Press the off/on switch to the "off" position. Remove the blank key. Press the switch to the "on" position and remove any burrs that remain by contacting the key lightly against the deburring brush. Return the switch to the "off" position.
10. Operating Tips - When duplicating a key, avoid an irregular jerking motion in the movement of the carriage. Acquire a smooth steady motion, using both hands on the carriage to guide it. Apply the same degree of pressure each time a key is duplicated. Excessive pressure may cause "over-cutting". It is sometimes best to practice on a few keys until the operator learns to impart a steady, uniform pressure to the carriage.



Replacing the Cutter

The P-23XMC cutter used on this machine is $\frac{2}{4}$ " in diameter, .250" thick ($\frac{1}{4}$ ") and has a $\frac{1}{2}$ " hole. It's a milling cutter, made out of high speed steel. It has a flat left side, which is excellent for making deep cuts, when these cuts are next to the shoulder, such as on GM, Chicago, etc. No warranty is placed on the cutter, operators should treat it with care and avoid harsh usage. Do not force the carriage up, causing the key blank to bang into the cutter, and do not apply heavy pressure when cutting. Also, do not let the cutter run into the vise jaw; this will dull the cutter quickly.

As with any metal cutting instrument, the P-23XMC will dull with usage. There are three ways to tell when a cutter is dull and requires replacing:

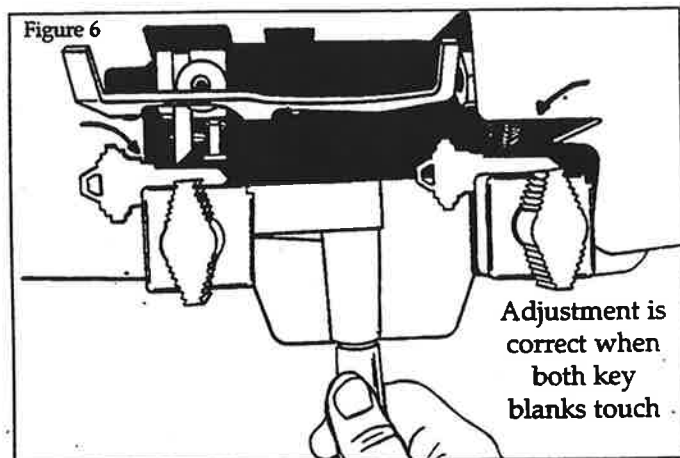
1. Time - a dull cutter takes longer to make the cuts.
2. Sound - a dull cutter will emit a shrilly sound as it runs across the key blank.
3. Burrs - a dull cutter will not cut away the metal but will roll it away. When this occurs, there will be a buildup of metal burrs on the underside of the key. If this buildup is heavy, the cutter is dull. A sharp cutter leaves little or no burrs.

To replace the cutter, use two wrenches, one $\frac{3}{4}$ " wrench for the cutter nut and one $\frac{1}{2}$ " wrench for the cutter shaft. Set the two wrenches in position and loosen the cutter nut. Note that the cutter nut has a reverse thread and turns downward to loosen. Remove the spacer washers and the dull cutter. Install the new cutter, the washers, and the nut.

ADJUSTMENTS

Adjusting for depth of cut

To ensure safety, UNPLUG machine from its power source before adjusting for depth of cut. It's imperative that the key guide and the cutter be in the same plane, that is, aligned to each other. If the cutter guide protrudes further than the cutter, the resulting cuts in a key blank will be too shallow and the duplicate key will not work. Likewise, if the cutter guide is behind the cutter, the cuts in the key will be too deep (see Fig. 6).

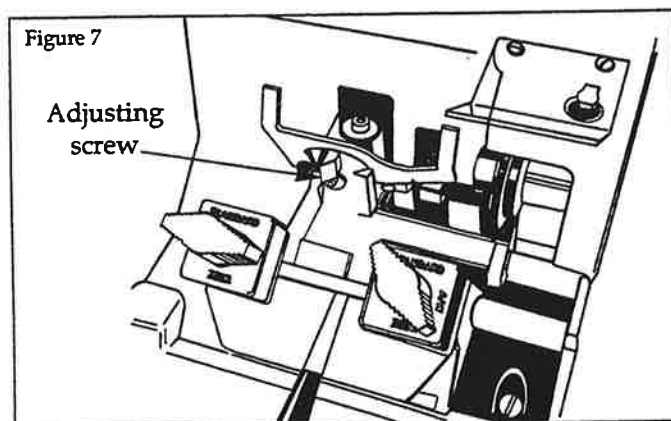


To check the depth adjustment, insert two identical key blanks into the vise jaws, setting them flat in each vise. (It is not necessary to align the blanks.) Then, raise the carriage, positioning the left blank against the cutter guide and the right blank against the cutter. Next, turn the machine pulley by hand and note the right key blank. The cutter should just barely graze the key blank when the adjustment is correct.

No cutter is perfectly round so make one complete rotation of the cutter before changing adjustment. There will be a high point on the cutter; the adjustment should be made to the high point. If the cutter does not touch the key blank after one rotation, proceed to change the adjustment.

Adjusting for depth of cut (continued)

To adjust cutter guide, loosen the screw on top of the guide. With a flat screwdriver, turn adjusting screw in (to increase depth of cut) and/or out (to decrease depth of cut). Again, proper adjustment is achieved when the cutter barely grazes the key blank.



Adjusting for spacing

There is no adjustment for spacing. However, if a key gauge assembly is ever replaced, the key gauge must be fitted to the machine after it has been installed. To do this, first install a pattern key and key blank and align these against the cutter guide and cutter. Then lower the key gauge and file the appropriate prong of the gauge to allow contact with the shoulder of both keys.