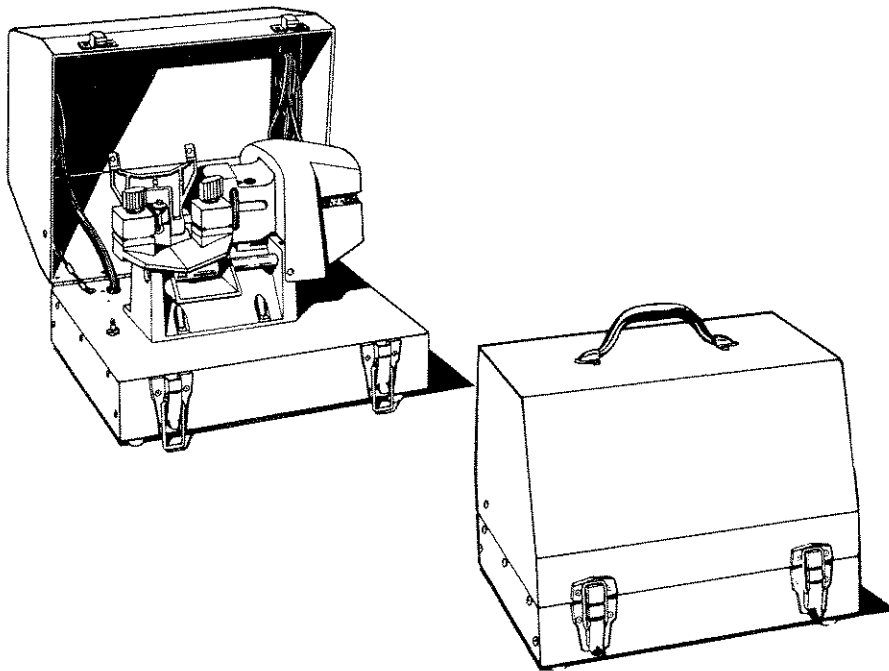




OPERATING INSTRUCTIONS

Model no.023

MANUAL (DUAL VOTAGE) KEY DUPLICATOR



THIS INSTRUCTION MANUAL IS TO ACQUAINT YOU WITH THE OPERATION AND MAINTENANCE OF YOUR KEY DUPLICATING MACHINE.

PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE OPERATING THE MACHINE. TIME SPENT READING THESE INSTRUCTIONS WILL ASSURE YOU ACCURACY IN DUPLICATING KEYS.

THE 023 DUPLICATING MACHINE HAS BEEN ENGINEERED AND DESIGNED TO UNCOMPROMISING STANDARDS OF QUALITY AND PRECISION FOR LONG AND DEPENDABLE SERVICE.

WE WOULD LIKE TO TAKE THIS OPPORTUNITY TO THANK YOU FOR HAVING CHOSEN OUR MACHINE. WITH PROPER CARE IT WILL SERVE YOU WELL FOR MANY YEARS.

TABLE OF CONTENTS

SET UP PROCEDURES.....	1
POWER SUPPLY.....	1
TRANSPORTATION PROCEDURE.....	1
GENERAL INSTRUCTIONS.....	2-3
SELECTION OF JAW POSITIONS.....	3
TO CHANGE JAW POSITIONS.....	4
DUPLICATION OF REGULAR KEYS.....	4
DUPLICATION OF IRREGULAR KEYS.....	4
DUPLICATION OF DOUBLE SIDED KEYS.....	5-6
MAINTENANCE.....	7
PARTS, DIAGRAMS.....	8-9

LIMITED WARRANTY

Ilco Unican warrants to the original buyer of any new model 023 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 materials 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 OR 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.

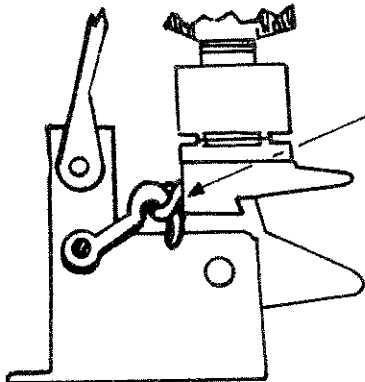
The liability of Ilco Unican shall in no case, including negligence, exceed the purchase price of the defective machine, nor shall Ilco Unican be liable for any personal injuries, property damage or consequential damages.

Use only genuine Ilco Unican replacement parts on this machine!

Please note, however, that this warranty does not extend to key machine cutter, motor or deburring brush.

SET UP PROCEDURE

1. The Machine should always be placed on a level sturdy surface before cutting keys. This will assure accuracy in duplication and safety to the operator.
2. Unlatch cover and lift to a completely open position, the cover will remain in this position during duplication of keys.



3. Remove the hook from the eye on left and side of the carriage. (see figure 1)

POWER SUPPLY

1. Machine operates on 110 A.C. (220V optional) or 12 volts D.C. with no other attachments or converter required. Machine is equipped with both electrical cords for A.C. or D.C. application. The machine will work equally as well from either power source and automatically converts from one to the other without touching any switches.
2. Insert appropriate plug into available power supply.
3. If both plugs should be installed in separate receptacles at the same time, the power pack will draw current from the strongest source only, and will not cause any damage to the machine.
4. The motor is protected against overload by a circuit breaker type starting switch. To reset this switch simply depress the start button after a few seconds delay.

TRANSPORTATION PROCEDURE

1. Disengage electrical cord from power source and wrap cord on metal angles provided in cover.
2. Slide carriage to extreme left hand position and engage hook and eye. (see figure 1)

NOTE

For transportation hook and eye must be secure to prevent possible damage to the machine.

3. Close cover and engage both latches.

GENERAL INSTRUCTIONS

DO NOT make any adjustments on this machine. It has been adjusted and thoroughly tested at the factory.

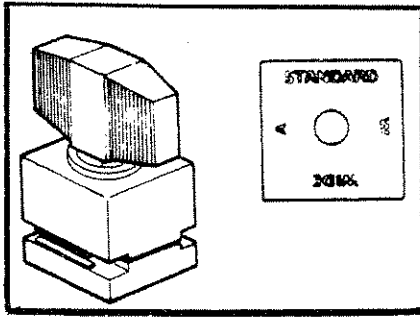
NEVER make adjustments to machine without disconnecting power cord.

DO NOT attempt to cut keys until you have read the operating instructions and are sure that you understand the mechanism and its operation.

DO wear eye protection when operating this machine.

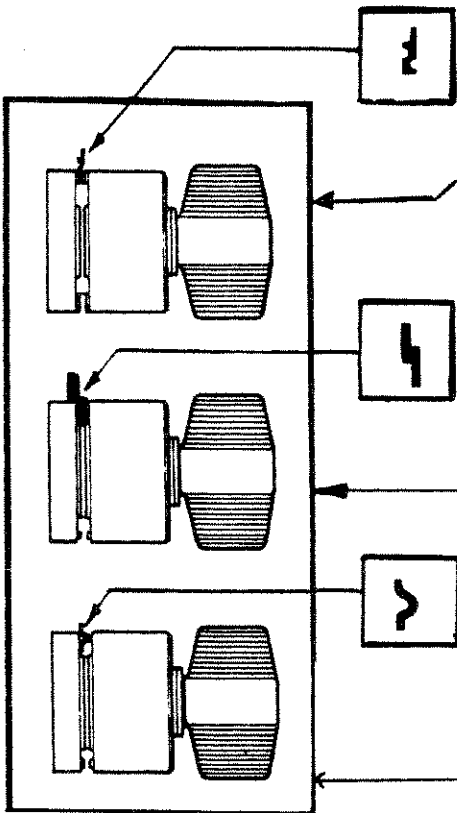
- 1) Read these instructions carefully and keep for reference.
- 2) The carriage spindle should be kept clean of chips and lightly lubricated with a thin film of oil. This can be done by wiping the spindle with a clean cloth lightly oiled (3 in 1 or light machine oil). Cutter shaft bearings should be kept well lubricated by means of the oil cup.
- 3) DO NOT USE PLIERS to tighten wing nuts. They are designed to give adequate pressure when tightened by hand.
- 4) Take proper care of the cylinder key duplicating cutter, Part No. X23MC. Cutters can be dulled or broken by improper handling. X23MC cutters are manufactured with utmost care and precision, and are fully tested before leaving our factory. They are shipped in perfect condition and will last a long while if handled with reasonable care. Accurate duplication requires proper seating of key and key blanks in 4-way jaws. Keep jaws and machines free from chips. Brush off regularly. The accumulation of dirt and chips shortens the life of the machine and reduces its accuracy.
- 5) The top jaws of each vise should be periodically removed to check the springs and to clean the jaw out thoroughly. After doing so, a few drops of light machine oil or a touch of grease should be applied on the four vertical surfaces that guide the top jaw.
- 6) When duplicating a key, avoid an irregular jerk in the movement of the carriage. Acquire a smooth steady motion, using both hands on the carriage holding it behind the key clamps. Apply the same degree of pressure each time a key is duplicated. Excessive pressure may cause over-cutting. Too light pressure will result in under-cutting. It is sometimes best to practice on a few keys until the operator learns to apply a steady uniform pressure to the carriage.
- 7) The motor speed varies with the force on the cutter. This is normal for any battery operated motor. Too much pressure on the cutter will cause the motor to draw excessive current and trip the circuit breaker.

- 8) After removing key from clamp, remove any burrs which may remain on the edge of the cut surface by drawing lightly through the deburring brush.



SELECTION OF JAW POSITION

Your machine is equipped with FOUR WAY JAWS THAT DO NOT REQUIRE THE USE OF ADAPTERS. (see figure 2) The following jaw positions are labelled as follows and will be referred to throughout this booklet.



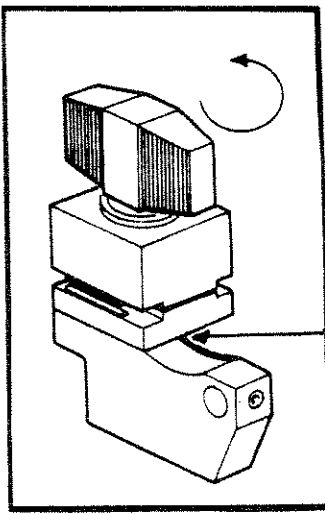
For "STANDARD" width keys. Used on most commercial keys or house keys. (see figure 3) Examples: Dominion, Schlage, Weiser etc.

For "WIDE" blade large commercial key blanks, for some European locks which are cut on both sides, where the center milling of the key can rest on the top of the jaw as illustrated. (see figure 4) Example: Ford Chicago etc.

Use "A" in duplicating of Schlage "A" double sided keys, some foreign automobile keys as well as other applications where a firmer grip is needed (see figure 5)

Use "W" in duplicating of Schlage "W" double sided keys. Center of key is held on ridge in jaw as shown for position "A".

From experience, many other uses for the different positions of the jaw will be found.



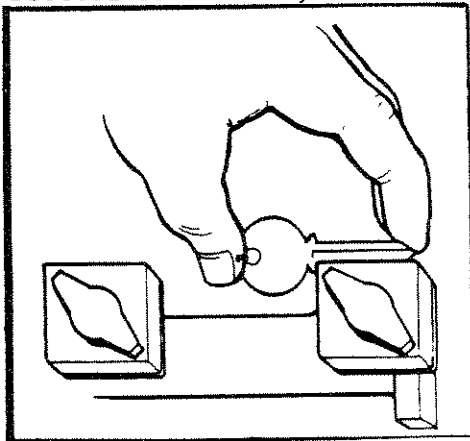
TO CHANGE JAW POSITIONS

1. Turn the wing nut at least 7 complete turns counterclockwise (see figure 6).
2. Place fingers in the recessed roles provided, lift upward and rotate until desired position is reached. In doing so, be sure to raise lower jaw enough to clear its seat.

DUPLICATION OF REGULAR TYPE KEYS

- 1) Select the proper key blank. Compare the head, length and key's cross section with the key to be duplicated.
- 2) Make sure the jaws are in the required position. See "Selection of Jaw Positions".
- 3) We are ready to duplicate the first key.

Proceed as follows;



- a) Place the key blank in the right hand jaw (see figure 7). Using the wing nut, lightly clamp the blank in place. Swing the shoulder guide over the rest on the blank. With the wing nut loose enough, slide the blank using your thumb to push on the head of the blank until the shoulder butts against the guide. Use index finger to press down tip of blank making sure the blank is seated in the jaw. Tighten the wing nut securely. Swing the shoulder back out of the way.

- b) Take the sample cut key and insert it in the left hand jaw in the same manner.

DUPLICATION OF IRREGULAR KEYS

The majority of the keys presented for duplication are easily cut. The four way jaws simplify the job of holding keys of unusual irregular shape such as Ford, Schlage double sided, etc...

The following instructions will help with the duplication of the keys.

FOR FORD DOUBLE SIDED, BEST, FALCON AND OTHER KEYS WITHOUT SHOULDERS

- 1) Rotate jaws to "Standard" or "Wide" as may be required by the size of key.
- 2) Place key blank in right hand jaw. The blank should be located in the jaw so the tip of the blank is parallel with back portion of the jaw. (see figure 8).
- 3) Move carriage to extreme left until the tip of the key butts up against the key gauge. Maintaining this position, place sample key in left hand vise and slide key until it butts up against the opposite end of key gauge.

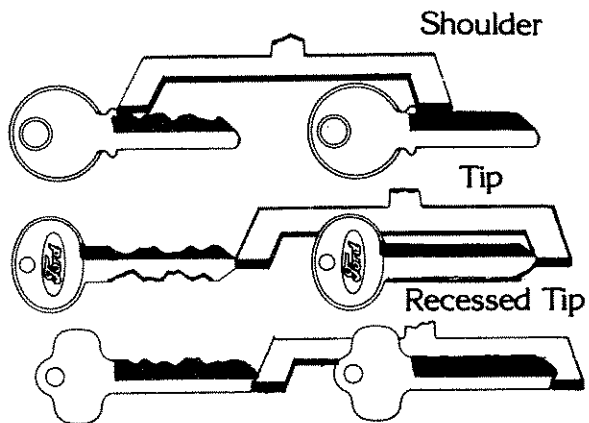


FIGURE 8

- 4) Tighten keys securely and return key gauge to upright position.
- 5) Turn machine "ON" and proceed as outlined in duplication of regular keys.
- 6) If key is cut on two sides, turn over and duplicate reverse side. In the case of Ford keys and most foreign double sided keys, only the blank key needs to be turned over as the cuts are the same on both sides.

Note: The forementioned procedures can also be used in duplicating broken keys that do not have shoulder to gauge from.

DUPLICATING CHICAGO DOUBLE SIDED KEYS

- 1) Set jaws to "Wide" or other position that would provide a secure grip. Some of the less popular Chicago keys (41N, 41FD etc.) can be secured firmly in the "A" or "W" jaw position.
- 2) Proceed as for regular keys by using shoulder guide to gauge shoulders, although the jaws provide a serure grip.

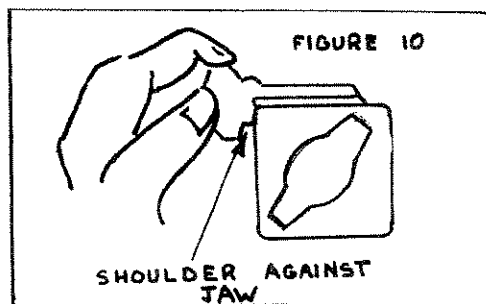
FOR CHICAGO DOUBLE SIDED KEYS (WIDE)

- 1) Set jaws to "WIDE" or other position as would provide a secure grip.
- 2) Proceed as for regular keys by using shoulder guide to gauge shoulders.
- 3) Duplicate as for regular keys. Turn over to duplicate reverse side.
- 4) Remove finished key and deburr.

FOR SCHLAGE DOUBLE SIDED KEYS

Use jaw positions "A" or "W" for duplication of Schlage double sided keys.

- 1) Rotate jaw to position "A" or "W" as required.
- 2) For proper insertation of these keys see "Selection of Jaw Positions".
- 3) When inserting key in jaws the shoulder of the key should butt up against the jaw (see figure 10) as the shoulder guide cannot be used in this case.
- 4) After cutting one side turn the original key and key blank over to cut the other side.



MAINTENANCE

Vise

Clean out vises continually. They must be kept free of cuttings, dirt, or any foreign matter at all times. A small paint brush should be kept handy for this purpose. Occasionally, lubricate lightly with grease, the wing nut studs and the four inner surfaces of the vise clamps that align the top and bottom portions. Wipe carriage spindle with 3 in 1 or light oil to clean and lubricate.

Oiling

A few drops of medium lubricating oil once a month is sufficient for the oil cup in the cutter shaft. One or two drops of 3 in 1 or light machine oil once a month is sufficient for the oil cups on the motor.

Belt Care

Belt tension is automatically maintained by the freely suspended motor. Under normal conditions it needs no attention. To replace belt, simply lift up motor and the belt will be free to remove from the pulleys. After replacing belt, make sure that the motor mounting bracket is free to move on its pivot.

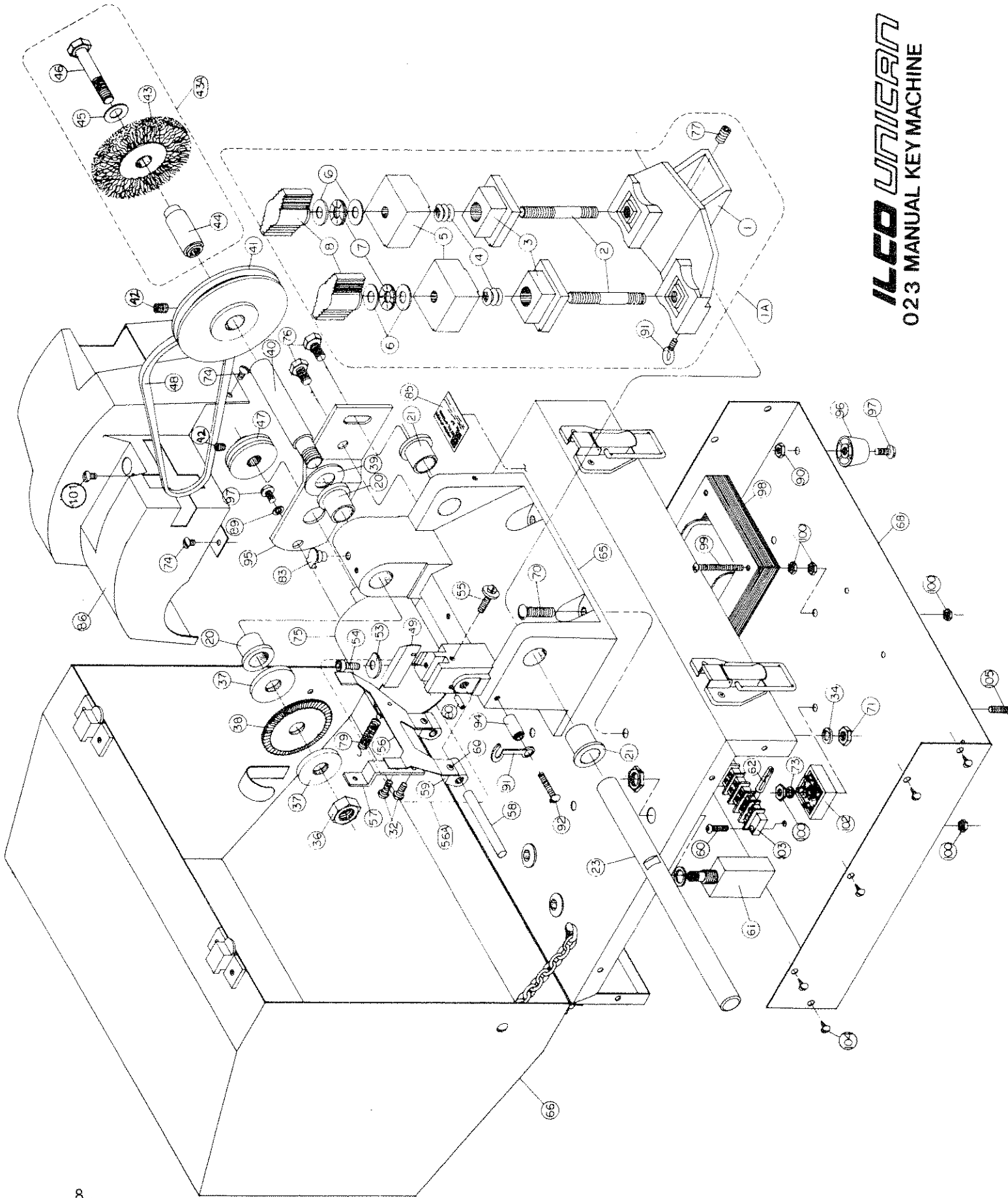
Cutter

Cutter replacement is necessary when the blank is being worn rather than cut away, copying dog requires frequent adjustment when unaccurate cutting occurs. New cutters are available for prompt supply. It is a wise precaution to keep one or two extra cutters on hand at all times. When the last is put on the machine, an additional cutter should be ordered.

TO ADJUST COPYING DOG

The copying dog is set and adjusted perfectly before the machine leaves the factory and no further adjustments should be necessary. However, as a cutter becomes worn or is replaced by a new cutter, it will be necessary to reset the copying dog.

ILCO UNICORN
023 MANUAL KEY MACHINE



023 KEY MACHINE PART LIST

Ref. No.	Part No.	Description	Qty*
1A	1104026S	Carriage Assy (consists of Nos. 1-8, 77 & 91)	1
1	1106024A	Carriage Base	1
2	1103536A	Carriage Studs	2
3A	1103193S	4 Way Vise Jaw Assy includes: Lower Vise Jaws (2) Carriage Clamp Springs (2) Upper Vise Jaws (2) Thrust Washers (4) Thrust Bearings (2)	1
3	1103196A	Lower Vise Jaws	2
4	1103495P	Carriage Clamp Springs	2
5	1103199A	Upper Vise Jaws	2
6	1103572P	Thrust Washers	4
7	1103054P	Thrust Bearings	2
8	1103264A	Wing Nut	2
20	1103095P	Oilite Bushing 3/4 x 5/8 x 1" Flanged	2
21	1105032P	Oilite Bushing 13/16 x 5/8 x 5/8" Flanged	2
23	1106187P	Carriage Shaft Spindle	1
32	1105115P	No. 10-24 x 3/8" Button Hd Cap Screw	2
34	1103595P	1/4" Lock Washer	6
36	1106128A	1/2-20 L.H. Cutter Shaft Hex Nut	1
37	1106180P	Cutter Shaft Spacer	2
38	X23MC	Cutter	1
39	1106220A	Fiber Washer	1
40	1106190P	Cutter Shaft (Spindle)	1
41	1104181A	3-1/2 2L Drive Pulley	1
42	1102053P	1/4-20 x 1/4 Set Screw	2
43A	BF000211XX	Brush Kit (Consists of Nos. 43-46)	1
43	814-00-21	814 Nylon Brush	1
44	1103103A	Brush Adaptor	1
45	1103640P	5/16 Plain Washer	1
46	1103080P	5/16-18 x 2-1/4 Lg. Hex Hd Bolt	1
47	1104091P	1-1/2" 2L Pulley	1
48	1104012P	V-Belt	1
49	1106110A	Cutter Guide	1
53	1106216A	Guide Washer	1
54	1106160P	10-24 x 1/2" Lg. Socket Hd. Cap Screw	1
55	1105166A	Guide Adjustment Screw	1
56A	1105070S	Key Guide Assy.	1
56	1105070A	Key Guide	1
57	1105025P	Key Guide Bracket	1
58	1106100P	Dowell Pin 1/4 x 2-1/2	1
59	1106113A	Key Guide Housing	2

* Quantity per machine

TO ORDER: Specify Ref. No., Part No., Description,
Serial Number, Model and Quantity.

Ref. No.	Part No.	Description	Qty*
60	1106155P	No. 6-32 x 1/2 Button Hd Cap Screw	2
61	1104045P	10AMPS ETA Circuit Breaker	1
62	1104155P	MB315 Mite-T-Breaker	1
65	1105020A	Body, machined and painted	1
66	1104034S	Carrying Case Assy	1
68	1104200P	Base Plate	1
70	1101195P	1/4-20 x 3/4" Lg. RHMS	4
71	1103253P	1/4-20 Hex Nut	6
73	1103585P	No. 8 Lock Washer	3
74	1103379P	8-32 x 1/4" RHMS Screw	2
75	1104080P	12 Volt Motor D.C.	1
76	1103078P	1/4-20 x 1/2 Hex Hd Bolt	2
77	1106173P	1/4-20 x 1/2 Dog Point Set Screw	2
78	1103615P	1/4" Plain Washer	2
79	1105171P	Key Guide Spring	1
80	1103362P	Roll Pin	1
83	1103268P	Oil Cup	1
85	1104076P	110/12V Name Plate	1
85A	1104077P	220/12V Name Plate	1
86	1104056A	Cover	1
89	1103575P	No. 10 Lock Washer	4
90	7100490P	No. 10-32 Hex Nut	4
91	1104070P	Hook & Eye 1-1/2"	1
92	1104170P	No. 8-32 x 1RHMS Machine Screw	1
94	1104140P	Hook Spacer	1
95	1104020P	Bracket Motor	1
96	1104055P	Feet & Case Bumper	4
97	1103378P	No. 10-32 x 1/2 Binding HM Screw	6
98	1104093P	110V/12V Transformer	1
98A	1104094P	220V/12V Transformer	1
99	1104165P	No. 6-32 x 1-3/4 RHMS Screw	4
100	1104081P	No. 6-32 Hex Nut	20
101	1104118P	No. 10-24 x 1/4 Truss HMS Screw	1
102	1104150P	Bridge Rectifier	1
103	1104145P	Terminal Board	1
104	1104125P	No. 6 x 3/8 Pan Head Screw	10
105	1104117P	No. 8-32 x 3/4 Truss Hd Machine Screw	1
106NS	1103290P	3 Pronged Plug	1
107NS	1104028S	12 Volt Cable Assy	1
108NS	1106004P	K1 Hex Key (3/32")	1
109NS	1106006P	K2 Hex Key (5/32")	1
110NS	1103005P	K3 Hex Key (1/8")	1

To do so, loosen top screw, place a blank key (use two identical keys) into each of the jaws. Turn cutter by hand in cutting direction. If the rotary cutter bites into the key blank, turn the adjusting screw in front to advance the copying dog and move the carriage away from the cutter. If the milling cutter does not touch the key blank, turn the adjusting screw in the opposite direction. When properly adjusted, the milling cutter should just graze the key blank. When through adjusting, tighten the set screws.

The spacing adjustment is fixed and requires no attention.

POWER SUPPLY

The solid state power supply, located within the machine base, normally doesn't need servicing. If, however, an electrical failure should occur, or the machine power supply is greater than what is required, a self-resetting circuit breaker, located in the power supply will trip the AC current to protect the power transformer. This breaker will self reset after a few seconds and start the motor unless the start switch is turned off immediately. Do not touch any rotating parts while the current is tripped. Suspected defects in the power supply should be inspected by only qualified service-people. Machines under warranty should be returned to factory for examination and corrective action.

Owner's Record:

For your convenience and protection, we suggest you fill in the information below to record your purchase of this Model 023 Dual Voltage Manual Key Machine.

SERIAL No. _____

DATE PURCHASED _____

PURCHASED FROM _____

DISTRIBTOR INVOICE No. _____

10.



Kaba Iico Corp.

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