
ILCO EZ[®]-Code



OPERATION MANUAL

This manual has been produced to serve as a guide for users of the Ilco EZ-Code electronic key-cutting machine. **Read it carefully.... This is essential for safe effective operation of your machine!** If necessary, you can contact Kaba Ilco Technical Assistance for further information at 1-800-334-1381 (option 8).

CONTENTS

This manual is divided into sections relating to

- Machine Description Section 1
- Transport and Installation Sections 2-3
- Touch pad, Vise Jaw Use, Positioning Keys Section 4
- Operation: Cutting by Duplication, Card, and Code Section 5
- Calibration Section 5
- Error Messages/Machine Reset Section 6
- Cleaning Section 7
- Maintenance and Updating Section 8
- Cutter Replacement. Section 9
- Assistance Section 10

TECHNICAL TERMS Certain technical terms are used in this manual. To assist those with little experience of keys and key-cutting, below is a brief list of the terms most frequently used.

Shoulder Stop- Feature found on many keys used to limit how far the key enters a lock; normally located on the blade area of the key somewhat near its bow (head).

Tip Stop- Some keys do not have a Shoulder Stop as described above; these keys rely upon their tip surface to limit how far they will enter a lock.

Key Stop- Term used for the machine feature required to properly position Shoulder Stop and Tip Stop keys within the machine's Vise Jaw. There are two types of Key Stops used on this machine (Key Stop Tools 1&2 and the Key Gage)

Card Number- The numeric identification of specific electronic files stored within the machine's database, used by the machine to determine the details associated with cutting various keys

Indirect Code Number- The number sometimes associated with a specific lock that is used to "look up" the key cut numbers required to create a functional key for the lock. An example of an Indirect Code can be found on the "key tag" often accompanying keys supplied with a new motor vehicle.

Direct Code or Bitting Number- Key cut numbers; example: a Direct Code for a key having six cuts along its blade will consist of six digits, each of which corresponds to one of the six cuts.

GENERAL

USE: The Ilco EZ-Code is designed for cutting keys of non-ferrous material: brass, nickel-silver, zinc, etc. It must be installed and used according to the instructions provided in this manual. If used for purposes other than those described, the customer forgoes any rights they may have over Kaba Ilco Corp.



INCORRECT USE: Improper use of this machine or failure of the operator to observe the instructions written in this manual will void all guarantees and responsibilities of the manufacturer. Furthermore, unforeseen danger to the operator or third parties may arise from incorrect use of the machine!

It is therefore essential to carefully read and understand this operation manual.

VERY IMPORTANT!

SPECIAL CAUTION CONCERNING THE ELECTRICAL CONTACT FEATURE:

With many keys, the Ilco EZ-Code uses a low voltage circuit to detect key blank position; certain rules apply regarding proper use:

- **NEVER** attempt to use the Ilco EZ-Code to duplicate from a painted or plastic pattern key! The pattern key could become damaged, and no longer function in its intended lock.
- It is recommended that anodized (colored) aluminum keys should not be cut.
- **DO NOT** cut *plastic* or *painted* keys on the Ilco EZ-Code by any method; such keys lack electrical conductivity, and will not be cut properly!

MACHINE IDENTIFICATION

- The machine is provided with an identification label on its back panel which shows the machine's unique serial number.



Model #/Serial Tag

1. MACHINE DESCRIPTION

The Ilco EZ-Code is a two-axis electronic machine with microprocessor controlled carriage movement. The machine is designed to combine a high degree of cutting precision with efficient operation and ease of use. The Ilco EZ-Code can be used to cut keys in several different ways:

- Making duplicate keys from a functional original
- Originating automotive keys based on a key code number (indirect code). Key codes are typically found on a tag accompanying a vehicle's original keys and usually available to auto dealers based on vehicle VIN number.
- Originating an automotive or commercial/residential key based on biting number (direct code)
- Interfacing with a PC equipped with Kreate-A-Key code software; this allows for cutting keys by key code for older automotive applications, as well as for padlocks, desk locks, etc.

1.1 MAIN CHARACTERISTICS

- Carriage Transport Movement
Movement of the two axes (X-Y) by means of precision lead screws activated by microprocessor controlled stepper motors.
- Vise Jaw
"Sure Grip" two-position vise jaw, specially designed to grip most commercial, automotive and residential keys without the need for adapters.
- Cutter
Ti coated HSS (high speed steel), that is easy to replace. An optional carbide cutter is available for cutting harder key materials and longer service life
- Display
Rear-illuminated LCD display screen; positioned on the machine for easy viewing. Display field is 4 rows of 20 characters each.

1.2 SAFETY

- General Safety
 - ◆ Do not use your Ilco EZ-Code key machine for purposes not specifically covered in this manual
 - ◆ Do not operate the machine in a damp environment
 - ◆ Do not operate the machine with any safety enclosure or shield removed
 - ◆ Do not attempt to bypass or defeat the safety shield switches or other safety features built into the Ilco EZ-Code
 - ◆ Do not open the main circuit box (located beneath the Touch pad and LCD display screen). There are no user serviceable parts inside, and unfastening the lid assembly will expose the operator to hazardous voltages and sensitive electronic circuitry. Opening the circuit box assembly will void the machine warranty!

- Emergency Stop Switch

The red emergency shut off switch, located on the left-hand side of the machine, is used to stop the Ilco EZ-Code immediately in the event of faulty operation or danger to the operator (press in to activate). When the cause of the emergency has been eliminated, turn the button 45° clockwise to deactivate it. The button will extend further out from the machine when deactivated.

NOTE: the operator is responsible for keeping the area around the button clear so that it can be reached and activated quickly in the event of an emergency.



Press in on Emergency Stop Switch to activate emergency stop.

- Circuit Breaker

A Circuit Breaker is located adjacent to the Emergency Stop Switch, providing protection against most major overload scenarios. If the Circuit Breaker activates, its center button will protrude out from the edge of the machine circuit box. To re-set, turn the machine Power Switch to the *off position*, and press in on the breaker's center button. If it again activates with the machine switched on, contact the Ilco Technical Service Dept.



Side view of Main Circuit Box

- Cutter drive motor protection

The cutter drive motor is protected against overheating by an internal cut-out switch. Should the switch activate:

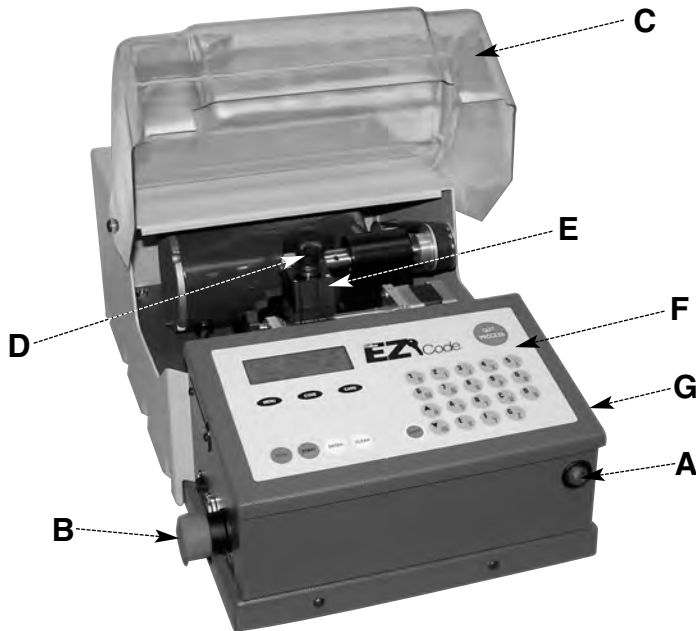
- 1) Turn the machine off and disconnect the power supply cable. Machine will reset after motor has cooled sufficiently.
- 2) If machine does not reset: contact Ilco Technical Assistance at 1-800-334-1381 (option 8)

- Protective Shield

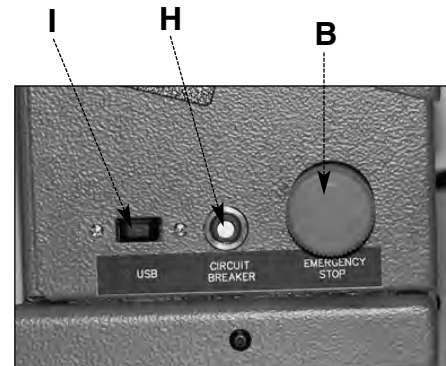
The transparent protective shield is designed to cover the working parts of the Ilco EZ-Code as completely as possible, helping ensure operator safety. Do not attempt to bypass the shield's safety interlock switch or attempt to operate the machine with the shield removed.



1.3 MAIN WORKING PARTS



- A: Main Power Switch
- B: Emergency Stop Switch
- C: Safety Shield
- D: Clamping Knob
- E: Two-Position Vise Jaw
- F: Touch pad Keyboard
- G: Main Circuit Box
- H: Circuit Breaker
- I: USB Port (for future applications)



1.4 TECHNICAL DATA

Power Requirement: 2.6 Amp. 300 Watts

Cutter drive motor: single speed, single phase

Cutter: Standard:T-U01 (Ti coated high speed steel)
Optional: D405933ZZ (carbide cutter)

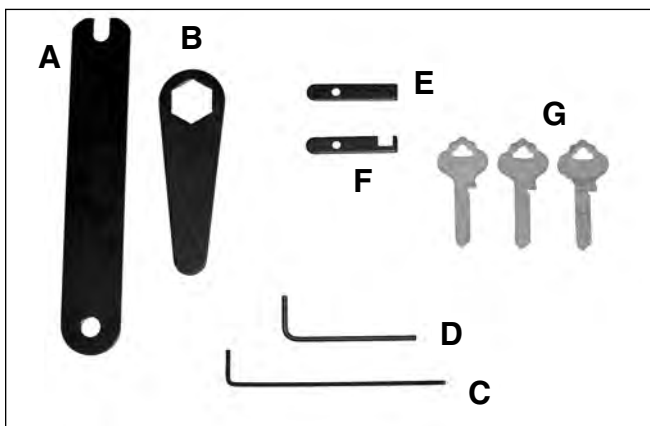
Jaw: "Secure Grip" 2- position vise jaw; accommodates most commercial/residential, automotive, and flat keys

Dimensions: 10.5" W X 19.5" D X 9" H (14" with shield raised)

Weight:: 52 lbs (23.6 kg)

1.5 ACCESSORIES PROVIDED

The Ilco EZ-Code comes with various accessories needed for its operation and maintenance (tools, hex wrenches, calibration keys) comprising:



- A: Cutter Spindle Wrench
- B: Cutter Nut Wrench
- C: Allen Wrench (large)
- D: Allen Wrench (small)
- E: Key Stop Tool 1 used to position keys that don't have shoulders)
- F: Key Stop Tool 2 used to position most IC core keys
- G: EZ3 Calibration Gage Keys

2 TRANSPORT

The Ilco EZ-Code is not excessively heavy, but when boxed, we recommend that it be moved using at least two people.

2.1 PACKAGING

The special pre-formed foam packaging and carton used to ship your Ilco EZ-Code is designed to protect the machine and its various components during shipment.

2.2 UNPACKING

After removing the machine and accessories from the carton, check for the following contents:

- 1 Ilco EZ-Code key-cutting machine
- 1 set of documents, including: an Operation Manual, a spare parts list, Quick Start Guide, Card Reference /Application Guide, 1 tool set and a warranty card. **Important: The Warranty Card must be filled out and returned to Ilco in order to receive direct notification concerning new software updates!**

NOTE: For maximum protection, we strongly recommend that you retain the packaging (foam and carton) to use for any future transporting of the machine.

2.3 CHECKING FOR DAMAGE

The Ilco EZ-Code is solidly constructed, and should not become damaged if reasonable care is exercised during transit, and the unpacking and installation have all been carried out according to the instructions in this manual. However, it is always advisable to visibly check for damage prior to placing any machine product in operation. **Concealed damage resulting from rough handling during shipment must be reported to the appropriate delivery service immediately to preserve your rights of recovery!** Kaba-Ilco will not be held responsible for damage incurred during shipment.

2.4 MACHINE HANDLING

When the Ilco EZ-Code has been unpacked, carefully place it in its intended work space. Carefully lift the machine, firmly holding the base, and no other part. Do not drag the machine, the rubberized feet could potentially become damaged.

3. MACHINE INSTALLATION AND PREPARATION

The Ilco EZ-Code can be installed by the machine owner, and does not require any special skills. It is supplied ready for use and should not need any special set up. (extremely rough handling during shipment may however require that the machine be recalibrated for proper performance)

3.1 ENVIRONMENTAL CONDITIONS

To ensure proper performance of the Ilco EZ-Code, it is important to place it in a well ventilated area which is not too damp. The ideal conditions for the machine are:

- Temperature between 50°F (10°C) to 104°F (40°C)
- Relative humidity: 60% or lower

3.2 POSITIONING AND INSTALLATION

Place the machine on a horizontal surface, solid enough to support a weight of 52 lbs. or greater.

- As a practical matter, we suggest that the workbench be approximately the height of the operator's hip.
- It is important to leave clearance of at least 8" behind the machine and on each side to ensure proper ventilation. Be certain to maintain sufficient clearance to assure easy access to the *Emergency Stop Switch* on the left side of the Ilco EZ-Code
- Ensure that the machine's voltage requirement matches that of the main power supply (which must also be properly grounded). **As with all electronic equipment, a quality surge suppression device is highly recommended...** especially important when using an inverter or generator as the machine power source.
- Mobile installation involves additional considerations... all equipment installed in a mobile service vehicle must be securely fastened down to help minimize the possibility of personal injury or product damage in case of traffic accident or other mishap.

3.3 DESCRIPTION OF WORK STATION

The machine requires only one operator, having easy access to the following machine controls

- Power switch; located on the **front** of the machine
- Vise jaw
- Keyboard
- Display
- Emergency shut off switch

4 SET UP AND USE OF THE MACHINE

4.1 KEYBOARD AND FUNCTIONS

The machine's keyboard has 19 alphanumeric and 9 function keys. The alphanumeric keys are used for entering the data card number and the cutting data (numbers and/or letters) according to the code on the card in use. Each of the 19 alphanumeric keys contains two characters: the main character (black) which is directly active, and an alternate character (red), which can be activated by simultaneously pressing the SHIFT key.



Touch pad Keyboard and
LCD Display Screen

FUNCTION KEYS:

STOP key: Stops the function in progress at any time during the operation; also used to access the prior screen displayed on the LCD display. **Please note that the STOP button is not an alternative to using the Emergency Shut Off Switch! Use the Emergency Shut Off Switch** any-time there appears to be a risk of personal injury or machine damage with continued machine operation!

QUIT PROCESS key: Stops machine function only.

START key: Initiates the machine's cutting operation.

UP/DOWN keys: Scrolls cursor thru screen options.

SHIFT key: Provides access to RED letters on the keyboard; Press it in combination with the desired letter key to enter the red letter

ALPHA/NUMERIC keys: For providing numeric and alphabetical input

ENTER key: Activation of various functions in the menu, especially to confirm input and menu screen selections.

CLEAR key: deletes numerical characters.

MENU / CODE / CARD keys: Convenience "hot keys" that will immediately take user to the indicated menu screens

4.2 CLAMPING KEYS USING THE ILCO EZ-Code VISE JAW

The process of clamping a key in a key machine vise jaw requires that the operator both utilize a Vise Jaw setting appropriate for gripping the key, **and** to position the key laterally within the jaw using an appropriate **Key Stop** method (discussed in 4.3).

The Ilco EZ-Code Vise Jaw features two clamping positions (**A** and **B**), and is uniquely designed to accommodate the vast majority of keys without the need for adapters.

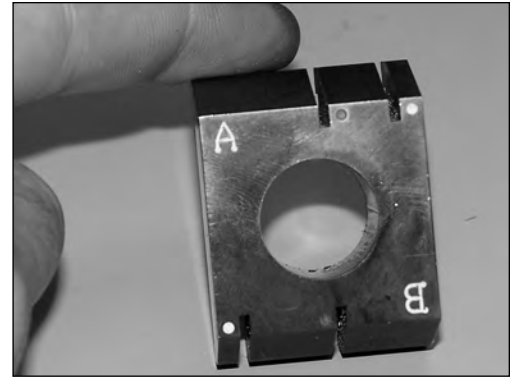
- To change the vise position, first loosen the Clamping Knob several turns and then lift up on the vise jaw assembly as a unit to rotate it to the desired setting.
- In most circumstances, the machine display screen provides guidance as to which clamping position (**A** or **B**) is most suitable for the key you've selected to cut.
- **Side A** is generally used for clamping single



Rotation of the Vise Jaw

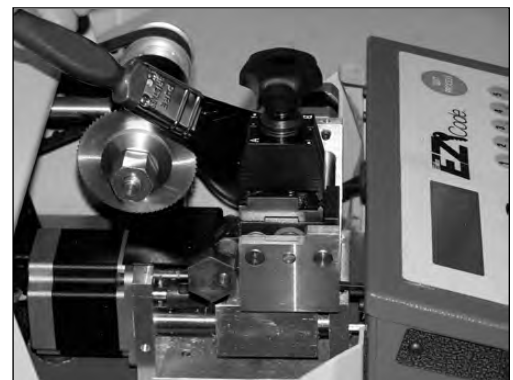
- sided keys, and certain double-sided types that don't have a "center groove".
- **Side B** is used to clamp the majority of double-sided keys. It features a special "V-shaped" gripping surface which is intended to grip a key by clamping into its center groove.
 - After correctly positioning a key within the Vise Jaw, re-tighten the Clamping Knob to secure it. Only moderate tightening is required... do not "over tighten" the Clamping Knob.

The Ilico EZ-Code Vise Jaw also features two slots on each side (identified by either a *Red* or *White* dot). These slots are used in conjunction with a removable "Key Stop" accessory to position keys that don't feature a shoulder stop. The use of the slots is discussed in more detail in section 4.3.

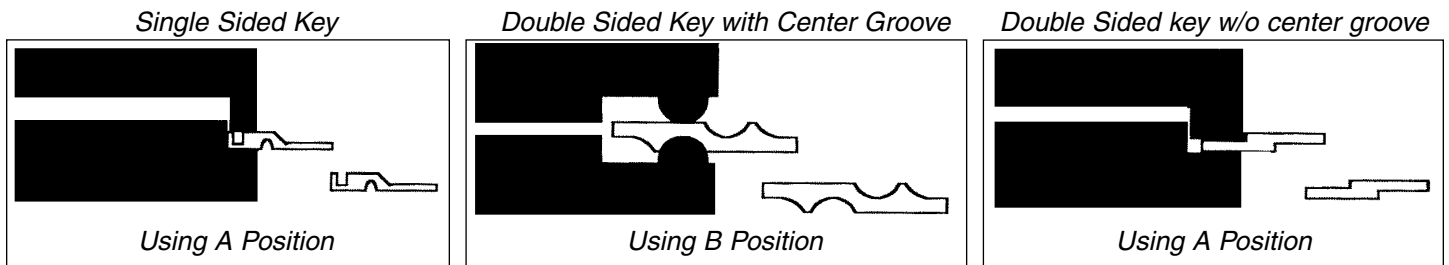


Close up of vise jaw (removed for clarity)

IMPORTANT!!! Use the supplied chip removal brush to keep the Vise Jaw surfaces free of key shavings (chips). It is a good practice to brush off the gripping surfaces after each key to assure that chip buildup doesn't impact performance or accuracy.

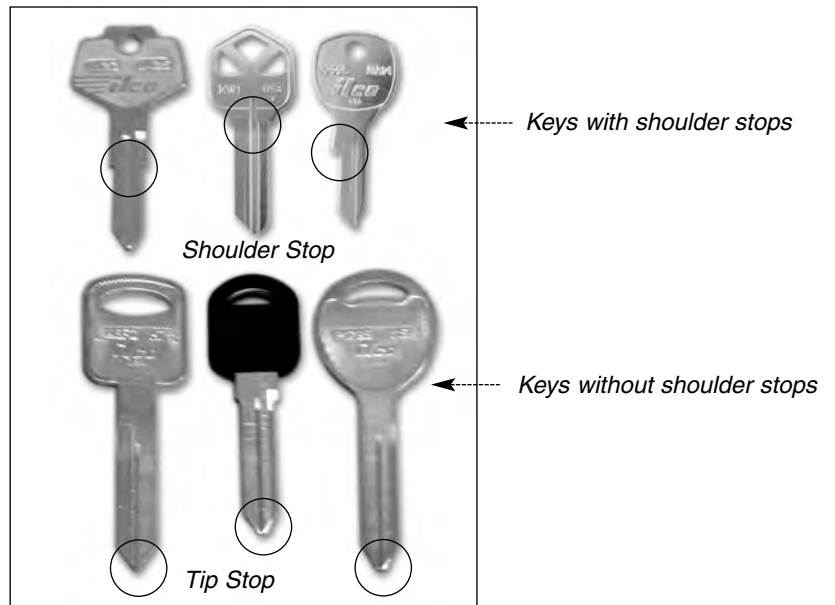


Brushing chips from Vise Jaw surfaces

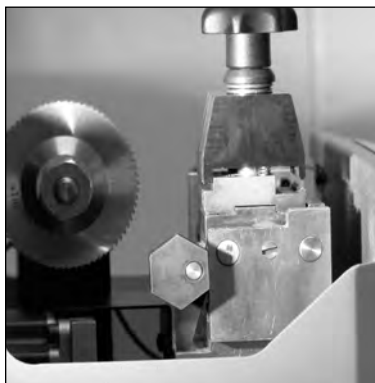


4.3 POSITIONING KEYS (Use of Key Stops)

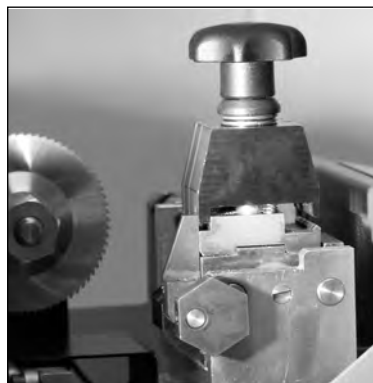
Once the proper jaw setting and gripping manner has been determined, the next step is clamping a key into a key machine Vise Jaw involves selecting the proper **Key Stop** method (to appropriately position the key laterally within the jaw). **The correct choice for a given key will appear on the LCD display screen** and is also listed in the accompanying Card Reference /Application Guide. The choices available are **0**, **Red**, and **White**.



- Key Stop 0:** Used only for positioning keys that have *shoulder stops*. Rotate the machine's *Key Gage* upward so that the shoulder of the key being clamped can be positioned against its left edge. While maintaining this contact, tighten the Clamping Knob to secure the key, **then rotate the Key Gage down to its original position.**



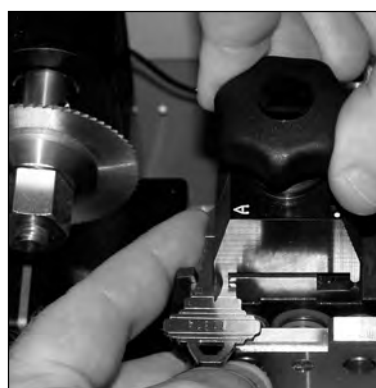
Key Gage in Down position



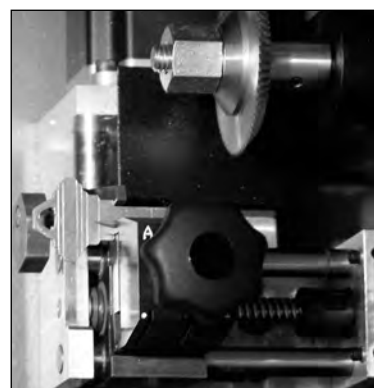
Key Gage in Up position



Rotating Key Gage

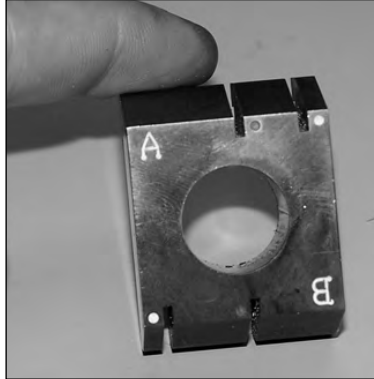


Position Key using Key Gage



Correctly positioned. Note: Key's shoulder must be in contact with Key Gage

- **Key Stop R and Key Stop W:** Used only for positioning keys **without** shoulder stops. Place the accessory *Key Stop Tool* in the appropriate vise jaw slot (refer to display screen). Position the key within the Vise Jaw so that its **TIP** is in contact with left edge of the *Key Stop Tool* (see illustration). While maintaining this contact, tighten the Clamping Knob to secure the key, **then remove the *Key Stop Tool* from the vise jaw** and it set aside.



Key Stop slots on Vise Jaw



Using Key Stop Tool to position "shoulderless" Key

4.4 ELECTRICAL CONTACT and TAPER COMPENSATION FEATURE

The Ilco EZ-Code key-cutting machine is equipped with a low voltage electrical contact circuit which permits the cutter to detect the edge of a double-sided key blank and compute its width, upon initial contact with the cutter during the cutting phase.

This exclusive feature permits the operator more discretion in selecting which side of the 2-position vise jaw (A or B) to use, and minimizes certain variables associated with clamping a key, thereby providing enhanced accuracy potential. You should find however, that the vise jaw position shown on the machine's display screen and printed in the Card Reference/Application Booklet for each application is determined by ILCO to be the "most suitable" for a given key.

With the electrical contact feature, depth calibration is automatically calculated for many of the key types covered in the Ilco EZ-Code database when the cutter touches the key's edge at the beginning of the cutting process. Electrical contact is assured for keys made of brass, nickel silver, or zinc (with or without nickel plating). The electrical contact feature can also enable the machine to detect when a key blank has been accidentally *loaded at a slight angle*, and automatically correct for this condition as the key is being cut (taper compensation).

Improper use of electric contact

- **NEVER attempt to use the Ilco EZ-Code to duplicate from a painted or plastic pattern key! The pattern key could become damaged and no longer function properly in its intended lock.**
- **DO NOT** cut plastic or painted key blanks; they lack electrical conductivity, and will not be cut properly.
- Re-cutting a previously cut key is not possible with the electrical contact feature active, since the missing key blank material will most likely "fool" the edge detection circuitry, resulting in a non-functional key.

4.5 INTERNAL DATABASE

The machine's internal database includes electronic "cards" ... essentially, individual data files that provide the machine with specific information on *how to cut* specific key types. When you select a card number prior to cutting a particular key, the machine references the card's corresponding data file to obtain information necessary for cutting the key.

The internal database also includes key codes (indirect codes) used with popular automotive key applications.

The entire database is stored on an easily replaceable SD type memory card, greatly simplifying the process of updating the machine's software... no computer or special cable required! Updates to the machine's database are periodically offered as new locking systems enter the market. These are sold through your Kaba Ilco distributor. Updating instructions are included with each memory card update.

Once again, you are reminded that you must return the Warranty Registration Card to receive direct notification concerning the release of new software updates for your Ilco EZ-Code.

4.6 CUTTER

The majority of keys require that the Ilco EZ-Code's standard cutter (T-U01) be used. Provisions will exist in a future software release to allow for using optional cutter configurations for specialized applications. **To replace the cutter see Section 4.7 and 4.8.**

For increased service life when cutting harder than normal key blank materials, a carbide cutter is available. (Ilco part# D405933ZZ) This cutter can be substituted for the T-U01.

To assure proper performance and prevent potential machine damage use only ILCO original replacement cutters!

5. OPERATION PROCEDURES

Introduction

The Operation Guide explains below how to use the Ilco EZ-Code in stand-alone mode (without a Personal Computer). All of the steps required to operate the machine are explained in sequence. Refer to section 4 above for guidance pertaining to vise jaw and key blank positioning (vise position and key stop selection).

An optional way to operate the Ilco EZ-Code is to interface the machine with a computer running Ilco Kreate-A-Key code software (sold separately). This allows for cutting not just popular automotive keys by indirect code, but also keys for older vehicle applications and thousands of other types (padlocks, desk locks, commercial keys, etc).

When operating the machine in this manner, the user will see a difference in the Ilco EZ-Code screen information displayed. Some procedures and functions described in this Operation Manual are eliminated, and once the computer's data has been transmitted to the machine, it bypasses some of the normally appearing operation guide screens which the use of the Kreate-A-Key program renders unnecessary.

5.1 INITIAL OPERATIONS

When the key-cutting machine has been placed in the selected work area and connected to an appropriate power source (Ch.3.2), proceed as follows:

- 1) Make sure that the emergency shut off button is not activated (see Ch.1.2).
- 2) Turn the machine on by means of the main power switch located on the front of the unit.
- 3) The LCD display screen will illuminate and display the *Main Menu*. The Up/Down keyboard buttons will navigate the cursor through the menu. Selections are made by pressing the *Enter* button.

VERY IMPORTANT: The balance of Chapter 5 explains how to cut keys by duplication, indirect code, and direct code. Procedures common to each method, such as how to clamp keys using the Ilco EZ-Code's vise jaw, and how to properly position them using the available key stop methods (gauging), are covered in sections 4.2 and 4.3 above.

```
Main menu
0 Duplicate Key
1 Cut by Card
2 Cut by Code
3 Queue from PC
4 Design-A-Key
5 Calibration
6 Options
```

Operational keys:

Use the *arrow keys* to move the main menu cursor (*) to the option required, and press ENTER or directly press the numbered key corresponding to the option number.

5.2 [0] Duplicate a Key

(Refer to 4.2 and 4.3 for Vise Jaw and Key Stop information)

This function enables the user to create a duplicate key when an existing key is available ... **and the appropriate Ilco card number is known**. The Ilco EZ-Code will decode the existing key, and replicate the cut pattern onto a blank key. The Ilco EZ-Code Card Reference/Application Guide provides a listing of all available Ilco card numbers, and the associated lock manufacturers they correspond to. Card numbers are typically very specific to a given manufacturer, and in many cases, also to specific lock products they produce. **The proper card number must be selected prior to the decoding process**; using an incorrect card number for a given key will result in a duplicate that will not function in the intended lock.

```

Main menu
*0 Duplicate Key
 1 Cut by Card
 2 Cut by Code
 3 Queue from PC
 4 Design-A-Key
 5 Calibration
 6 Options

```

Operational keys:

Use the *arrow keys* to move the main menu cursor (*) to the option required, and press ENTER or directly press the numbered key corresponding to the option number.

1. Select the "Duplicate Key" function from the Main Menu.

```

Cut by Duplication

Enter Ilco Card #
For Pattern Key: ____

```

2. Type in the required card number (refer to Ilco EZ-Code Card Reference/Application Guide) and press ENTER

Note: Some card numbers require that you specify how many bittings (cuts) are on the pattern key. In these instances, step 3 applies... as indicated on the screen display

```

Use Up, Dn and ENTER to
Select # of bittings the
Pattern Key has

```

3. Use *Up* or *Down* arrow to indicate the number of bittings (cuts) on the pattern key; then press ENTER.

```

Insert Pattern Key
Jaw: #   Pos: #
Press start to continue

```

4. Clamp the pattern key into the machine using the specified Jaw setting and Stop Position (make sure jaw surfaces are free of key shavings).
(The display screen indicates the correct jaw setting and key stop position appropriate for the Ilco card number you entered in step 1.)

Jaw = The display will instruct you to use jaw side A or B to clamp the pattern key.

Pos. = The display screen will instruct you to use key stop position 0 (for shoulder stop keys), or either **Red** or **White** (for tip stop keys)

Press START to begin the decoding process

Important: You MUST use the Jaw and Key Stop position indicated by the display screen for the card number selected

At this point, the pattern key will be decoded

```
Reading cuts on key
Please wait ...
```

5. Remove the pattern key from the vise jaw. Insert the appropriate key blank using the same jaw and key stop position (as indicated on the display).

```
Remove pattern key
Insert key blank
Jaw #           Pos. #
Press START to cut
```

6. Press START....the cutting process will commence

```
Cutting in progress
Side 1 of 1
Qty. 1
Bitting:
Duplicate
```

Note: If duplicating a double-sided key, you will be prompted to re-insert the blank key to complete side two.

7. Machine finishes cutting process

```

Cutting Complete!

More Copies?
No= STOP   Yes= ENTER

```

Note: At this point, if you desire more than one copy of the pattern key press ENTER, if not, press STOP.

5.3 [1] CUT BY CARD

(Refer to 4.2 and 4.3 for Vise Jaw and Key Stop information)

One part of the machine's memory stores data **cards** for hundreds of key types. A data card is an electronic file containing information concerning cut spacing, cut depth, angles, etc. for a given key type (e.g. *data card 410*: Provides the Ilco EZ-Code with specifications for cutting Schlage pin tumbler type keys). The "Cut by Card" function allows the operator to originate a cut key by typing in bitting (cut) numbers, also known as direct code, once the appropriate card number has been selected for the intended key.

The number of data cards in your machine's database will increase over time as new applications are identified, and software updates are released and you update your machine. The updates are contained on easily installed SD memory card media....no computer hook up is required!

There are two types of CARD NUMBERS:

ILCO Data Card (1) :

This option allows you to enter an ***Ilco Card Number***

(Example: **567** GM: used for cutting certain General Motors keys). This data card is part of the 'spaces and depths' database as described in the introduction to Ch.5 "OPERATING GUIDE").

Sources for determining **which** Ilco card number to use for cutting a given key include the Ilco EZ-Code Reference/Application Guide, supporting software such as Kreate-A-Key, or other knowledgeable industry sources.

USER Data Card (2) :

This option references a *user defined* card, created using the Design-A-Key menu option. Most users will never have need of this option. (Design-A-Key usage is covered in an Operation Manual supplement)

```

Main menu

 0 Duplicate Key
*1 Cut by Card
 2 Cut by Code
 3 Queue from PC
 4 Design-A-Key
 5 Calibration
 6 Options

```

Operational keys:

Use the *arrow keys* to move the main menu cursor (*) to the option required, and press ENTER or directly press the numbered key corresponding to the option number.

1. Select the “**Cut by Card**” function from the Main Menu

```

Select Card Type
Ilco = xxxx
User = xxxx

```

2. Type in the desired card # and press ENTER to proceed to the clamping instruction screen

```

Side 1      Ilco: xxxx
-----    (manufacturer)
Possible Depths:
xxxxxxxxxxxx

```

3. Type in the desired bitting (cut) numbers, then press ENTER

```

Side 1      Cutter: U01
Jaw: x      Pos: x
Insert key

```

4. Clamp the appropriate blank key into the machine using the specified Jaw setting and Key Stop Position (make sure jaw surfaces are free of key shavings).

(the display screen indicates the correct jaw setting and key stop position appropriate for the Ilco card number you entered in step 2)

Jaw = The display will instruct you to use jaw side A or B to clamp the pattern key.

Pos. = The display will instruct you to use key stop position 0 (for shoulder stop keys), or either **Red** or **White** (for tip stop keys)

Important: You MUST use the Jaw and Key Stop position indicated by the display screen for the card number selected

Press START....the cutting process will commence

```
Cutting in progress
Side 1 of 1      Qty. 1
Bitting:
xxxxxxxxx
```

Note: If originating a double-sided key, you will be prompted to re-insert the blank key to complete side two

Machine finishes cutting process

```
          Cutting Complete!

More Copies?
No= STOP   Yes= ENTER
```

Note: At this point, if you desire more than one copy of the key press ENTER, if not, press STOP.

5.4 [2] Cut by Code

(Refer to 4.2 and 4.3 for Vise Jaw and Key Stop information)

This function allows the operator to originate an automotive key by typing in the appropriate key code (also called indirect code) associated with a desired key.

The Ilco EZ-Code's database contains thousands of indirect key codes, covering hundreds of different vehicle models sold by major automotive manufacturers. A listing of code series stored in the machine database can be found in the Ilco EZ-Code Card Reference/Application Guide.

Operational keys:

Use the *arrow keys* to move the main menu cursor (*) to the option required, and press ENTER or directly press the numbered key corresponding to the option number.

1. Select the “**Cut by Code**” function from the Main Menu

```

Cut by Code
Code= _____

```

2. Type in the desired code # and press ENTER

```

Code Series Manufacturer
1. xxxx-xxxx      xxxx
2. xxx-xxxx       xxxx
3. xxxxx-xxxxx   xxxx

```

3. A list of code series that conceivably contain the key code number you typed will appear on the display. Use Up/Down arrows to move cursor beside the code series associated with the key you intend to originate. Press ENTER.
4. The machine will now retrieve a match to the key code number specified in step 2 from the code series just selected.

```

Searching For
Code Book ...
Code Entry ...
Card File ...

```

5. Once the code number is retrieved, the screen display will show:

Ilco Card Number
 Bitting (cuts on key) associated with selected key code
 Manufacturer Name
 Possible Depths used in the code series involved

```
Side 1      Ilco: xxxx
xxxxxxxxxxx      xxxxx
Possible Depths: xxxxxx
```

6. Press ENTER to proceed to the clamping instruction screen

```
Side: x
Cutter: U01
Jaw: x
Pos. x
Insert Key
Press START to cut
```

(the display screen indicates the correct jaw setting and key stop position appropriate for the code series selected in step 3)

Cutter = The display verifies the cutter number

Jaw = The display will instruct you to use jaw side A or B to clamp the pattern key.

Pos. = The display will instruct you to use key stop position 0 (for shoulder stop keys), or either **Red** or **White** (for tip stop keys)

Important: You **MUST** use the Jaw and Key Stop position indicated by the display screen for the card number selected

7. Clamp the appropriate key blank into the machine using the specified Jaw setting and Stop Position (make sure jaw surfaces are free of key shavings).
8. Press START ... the cutting process will commence.

```
Cutting in Progress ...
Side x of x      Qty. x
Bitting:
xxxxxxxxxxxxx
```

Note: If originating a double-sided key, upon completion of side 1, you will be prompted to re-insert the blank key to complete side two.

9. Machine finishes cutting process.

```
Cutting Complete!  
  
More Copies?  
No= ST0P   Yes= ENTER
```

Note: At this point, if you desire more than one copy of the key press ENTER, if not, press ST0P.

5.5 [3] Queue from PC

This is an upcoming feature that will be automatically activated in conjunction with a future software update!

This feature will allow for coupling the Ilco EZ-Code with a PC loaded with Kreate-A-Key code software. This will provide greatly expanded indirect code capabilities, including the ability to cut keys by indirect code for non-automotive applications.

5.6 [4] Design-A-Key

This is another upcoming feature! Design-A-Key will allow users to create and save “custom data cards” into the machine database. This will require various details about the desired card application (cut depths, spacing location, angle of cut, etc.) to be loaded into the Ilco EZ-Code using its Touch pad keyboard.

5.7 [5] Calibration

As with all key cutting machines, the Ilco EZ-Code should periodically be checked for proper calibration to assure optimal cutting accuracy. Calibration is required whenever the machine’s cutter is replaced, removed and then reinstalled, or when the accuracy of the keys it cuts diminishes. With the Ilco EZ-Code machine, calibration is largely automated other than for clamping the special EZ3 adjustment key, and providing certain Touch pad commands. The calibration menu option (5) is dual purpose; providing for **Auto-Calibration** or for creating a **Temporary Offset**.

Auto-Calibration: Process used to set the Ilco EZ-Code’s *depth of cut* and *spacing of cut* adjustments.

Temporary Offset: Special feature that allows the user to make a **temporary** change (increase or decrease) in cut depth or cut spacing for special circumstances. **The Ilco EZ-Code will automatically cancel out a temporary offset when either of the following occurs....** The machine power switch is placed in the “off” position, or a different card number or code series is selected.

```
Main menu
0 Duplicate Key
1 Cut by Card
2 Cut by Code
3 Queue from PC
4 Design-A-Key
*5 Calibration
6 Options
```

Operational keys:

Use the *arrow keys* to move the main menu cursor (*) to the option required, and press ENTER or directly press the numbered key corresponding to the option number.

1. Select the “**Calibration**” function from the Main Menu

```
Calibration:
1. Auto-Calibration
2. Temporary Offset
```

To **Auto-Calibrate** the Ilco EZ-Code, select option 1
To establish a **Temporary Offset** select option 2

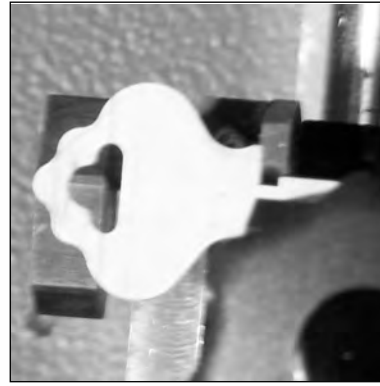
AUTO-CALIBRATION (select option 1)

```
Set Jaw to Side A
Insert EZ3 Gage Key
Use Position: 0
Press START to begin
```

Follow the display screen instructions:

1. Position jaw to side “A”
2. Clamp the EZ3 Calibration Key into side A of vise, with its shoulder against the machine’s Key Gage (position 0).
3. Press START to continue

(note: Each EZ3 Calibration Key can be used for calibration purposes up to three times; discard after three auto-calibrations)



Positioning Calibration Key against Key Gage

“0” Calibration
In Progress ...

The cutter will make very slight contact with the EZ3 key and the carriage will then reposition to “home position”.

Reset EZ3 Gage Key
Use Position: W
Lower Safety Shield
Press START to Begin

Follow the display screen instructions:

4. Position the accessory Key Stop Tool 1 into the “W” slot on side A of the vise
5. Reposition the EZ3 gage key with its tip butted against the Key Stop Tool
6. Tighten the clamping knob to secure the EZ3 key, and **remove the Key Stop Tool**
7. Press START to continue



*Positioning tip of Calibration Key
against Key Stop Tool 1*

The cutter will again make very slight contact with the EZ3 Calibration Key and the carriage will then reposition to “home position”.

```
Calibration Complete!
Save New Settings?
No = Stop Yes = Enter
```

8. Press ENTER to save the new settings or STOP to discard.
The Auto-Calibration process is concluded!

TEMPORARY OFFSET (select option 2)

```
Depth Adjustment
Use up / down arrows
Temporary: x.xxx
Enter = Done
```

Follow the display screen instructions:

- Use up / down arrows to increase / decrease cut depth
- Up arrow increases cut depth – Down arrow decreases cut depth
- Press ENTER when desired offset amount is shown on screen

```
Spacing Adjustment
Use up / down arrows
Temporary: x.xxx
Enter = Done
```

Follow the display screen instructions:

- Use up / down arrows to decrease / increase distance of cuts from tip of key
- Up arrow moves cuts closer to head of key
- Down arrow moves cuts closer to tip of key
- Press ENTER when desired offset amount is shown on screen

5.8 [6] Options

“Options” allows the operator to change certain factory default settings. **These settings should not be changed unless the operator fully understands what the result will be.** There is seldom ANY need to depart from the factory default setting.

```

Main menu

0 Duplicate Key
1 Cut by Card
2 Cut by Code
3 Queue from PC
4 Design-A-Key
5 Calibration
*6 Options

```

Operational keys:

Use the *arrow keys* to move the main menu cursor (*) to the option required, and press ENTER or directly press the numbered key corresponding to the option number.

1. Select the “**Options**” function from the Main Menu

```

Options Menu

0 Units
1 Cut style
2 Edge Detect
3 Taper Detect
4 Macs Protection
5 Preferred Manufacturer
6 Cutter

```

2. Use the *arrow keys* to move the main menu cursor (*) to the option required, and press ENTER or directly press the numbered key corresponding to the option number.
3. A description of each item listed in the Options Menu follows:

[0] Units - This is a future menu item that will automatically become active in conjunction with a future software update. It will allow the operator to input either Metric or SAE values when using the Ilco EZ-Code’s Design-A-Key option.

[1] Cut Style – Allows the operator to change the appearance of the cuts made on keys

```

Cut Style Menu

0 Default
1 Normal
2 Flat
3 Laser
4 Plunge

```

- **(0) Default** - The machine will create keys with either *normal* or *laser* cut characteristics, based upon what the internal programming indicates is preferable for a given key. For most user purposes, *Default* is the recommended setting.
- **(1) Normal** - Cuts will have a traditional “peak and valley” (saw tooth) cut profile
- **(2) Flat** - Adjacent cuts of the same depth value will appear to be a single wider cut
- **(3) Laser** – The machine will “blend” adjacent cuts... meaning that there is a smooth transition from cut-to-cut. This cut style is sometimes used by manufacturers to allow for smoother key insertion, resulting in less wear on keys and tumblers within a lock.
- **(4) Plunge**- Not activated at present! This cut style option will automatically become active in conjunction with a future software update. Plunge cutting means that the cutter makes “straight in-straight out” cutting motions, and will most commonly be used for cutting safe deposit style keys.

[2] Edge Detect - Allows the operator to change the active status of the Ilco EZ-Code’s electronic key edge detection circuitry. It is strongly recommended that the status be left in its factory *Default* setting, which activates the circuit for certain classes of keys and not others.

[3] Taper Detect - Allows the operator to change the active status of the Ilco EZ-Code’s electronic taper detection circuitry. It is strongly recommended that the status be left in its factory *Default* setting, which activates the circuit for most classes of keys.

[4] MACS Protection - Not activated at present! This option will automatically become active in conjunction with a future software update. The feature will enable the operator to enable / disable MACS Protection. In simple terms...MACS (**M**aximum **A**djacent **C**ut **S**pecification) Protection prevents the Ilco EZ-Code from accepting user input that would result in cutting certain patterns of cuts.

The reason for this is that the key bitting specifications used by some lock manufacturer’s (key cut depths, cut spacing, cut angles) won’t allow for very deep cuts next to very shallow cuts without the deeper cut “wiping out” all or part of the shallow cut. MACS Protection limits the maximum difference in cut depth between two adjacent cuts (user chosen) to those specified by the various lock manufacturers. “Enabled” will be the default setting for this feature.

[5] Preferred Manufacturer – Primarily of importance to automobile dealers, this feature allows a particular vehicle brand to be selected as a default. When thus designated, the various code series associated with that vehicle brand will be displayed **first** on the *code series lookup screen* for convenience. As shipped, the default setting is “NONE”, all brands have equal priority on the display screen.

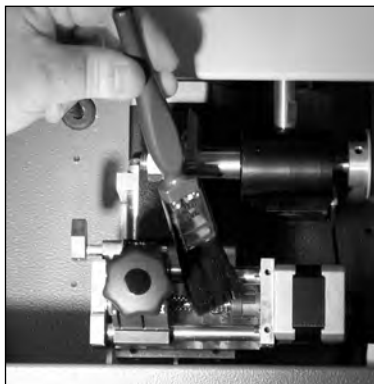
[6] Cutter – This is a future utility that will allow for the use of optional cutters (slotters, profile cutters, etc.). At present, the T-U01 (U01) or its carbide equivalent (D405933ZZ) are the only recommended cutter for use on the Ilco EZ-Code.

6 ERROR MESSAGES/MACHINE RE-SET

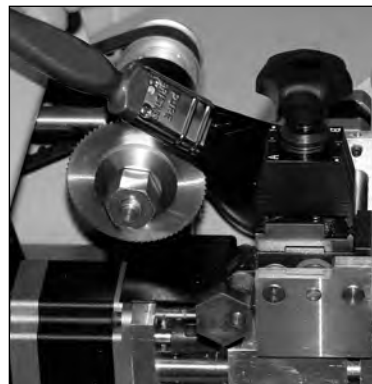
- In certain situations, an error message may appear on the machine's LCD screen (e.g. "Close Safety Shield"). Usually correcting the cause for the message, and then pressing the *enter* button, will permit machine operation to continue.
- Under rare conditions, the machine software may appear to "lock up" (won't accept Touch Pad commands). If this occurs, it may be necessary to press the power switch to the off position and then back on to clear the error.

7 CLEANING

- Keep the operational parts of the machine as clean as possible by brushing away the chips created during cutting operations from areas where they accumulate.
- Vacuum the interior of the machine as necessary (unplug it first!) to prevent excessive chip buildup.
- Under no circumstances should compressed air be used to clear the work zone of chips as this may blow them onto the moving parts.
- Never use oily products or solvents for cleaning painted surfaces, jaws, keypad, or electrical and electronic components.



Removing key chips from mechanism



Removing key chips from vise jaw

8 MAINTENANCE

The Ilco EZ-Code is designed to require minimal maintenance. It features permanently lubricated bearings in its cutter spindle assembly, main motor, and servo motors. Typical machine maintenance will primarily include:

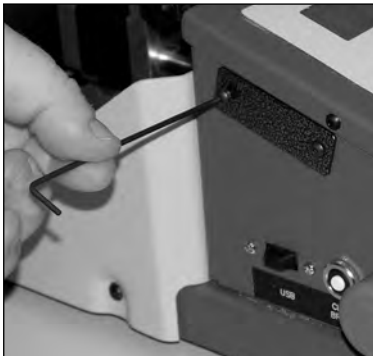
- **Removal of key blank cuttings (chips)** – Daily brush the carriage, vise, and lead screw surfaces to remove accumulated chips. As mentioned above, NEVER USE COMPRESSED AIR for removing chips. Not only is it potentially unsafe (danger to eyes), it can also result in chips being forced past the machine's sealing devices and lead to damage.
- **Cutter replacement** – Replace as required; see Chapter 9 below
- **Periodic Calibration** – Cutters wear down over time; performing the Auto-Calibration procedure monthly will help maintain maximum machine accuracy.

- **Updating Internal Database** – When you obtain Ilco EZ-Code update software install it using the following steps:

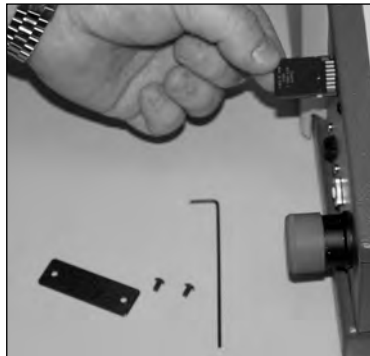
1. Unplug the machine power cord
2. Remove SD Card cover plate on left side of the control box.
3. Replace existing SD card with the newer software version and reinstall cover plate.
4. Plug in the power cord.
5. Hold in the “**SHIFT**” key and turn the power switch to the on position
6. When text appears on the LCD display screen, release the shift key
7. The new program will begin loading to the machine
8. At the conclusion of the update process, the carriage will move slightly, and the Main Menu will appear on the display screen.

9. The machine is at this point fully updated.

- **Lubrication** – It is not necessary or advisable to lubricate the machine mechanism! Doing so may in fact **create** problems if excessive chip accumulation on the lubricated parts results.



Removing SD Card access cover



Removing SD Card (note card contacts face upward)



Inserting new SD Card

9 CUTTER REPLACEMENT

9.1 When to Replace the Cutter

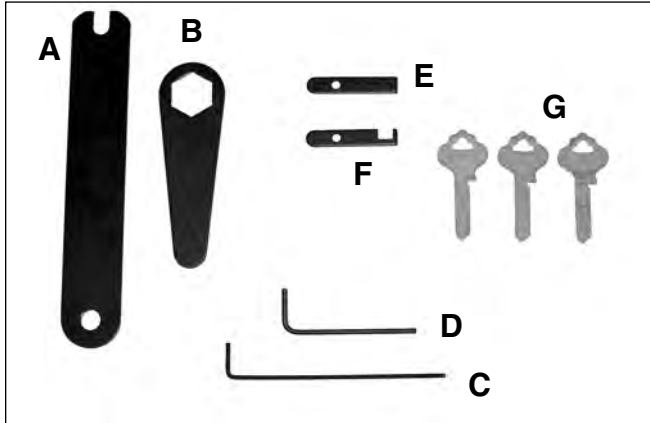
The cutter on your Ilco EZ-Code machine should be replaced if either of the following is observed:

- The cutter begins making noticeably greater noise when cutting
- The machine appears to “struggle” when cutting keys
- There is a noticeable “burr” or “roughness” visible (or remove or identifiable by touch) on the cut surface of keys cut using the machine

9.2 Changing the Cutter

1. Unplug the power cord!
2. Raise the safety shield.
3. Loosen the cutter nut using the supplied box end wrench, while holding the pulley end of the shaft with the special Open End Wrench, also supplied.
VERY IMPORTANT: the thread is left-handed. (reversed).
4. Replace existing cutter with new one, then tighten the cutter nut by turning it counter-clockwise.

5. Recalibrate the machine (see section section 5.7)



- A: Cutter Spindle Wrench
- B: Cutter Nut Wrench
- C: Allen Wrench (large)
- D: Allen Wrench (small)
- E: Key Stop Tool 1 used to position keys that don't have shoulders
- F: Key Stop Tool 2 used to position most IC core keys
- G: EZ3 Calibration Gage Keys



IMPORTANT: You must ALWAYS recalibrate the machine after replacing a worn cutter!

10 ASSISTANCE

Ilco provides full service to purchasers of the Ilco EZ-Code key-cutting machine. To ensure safety to the operator and machine, do not utilize the product for any use not specified in this manual or in a manner inconsistent with the provided instructions!

It is our hope that this Operating Manual will enable you to quickly and efficiently set up, and begin using your new Ilco EZ-Code key machine. For more detailed information, troubleshooting or common maintenance tips, please contact Ilco Technical Assistance. We strongly advise you to keep this document safe and readily available. It will prove very useful in the future as you learn to use the many features of the Ilco EZ Code . Should you require addition assistance or support, please contact the Ilco Technical Assistance Dept.

Ilco Technical Assistance Dept.
400 Jeffreys Road
Rocky Mount, NC 27804
USA
Tel: 1-800-334-1381 (option 8)
Fax: 252-446-4702

10.1 How to Request Service

The Ilco EZ-Code warranty ensures free repair or replacement of faulty parts within 12 months from the date of purchase, subject to its stated terms and conditions. A copy of the purchase invoice is required to verify proof of purchase. Customers are responsible for freight charges when returning product for repair. It is strongly recommended that the machine's original packaging be used when preparing the machine for shipment! Non-warranty repair support is also available. Contact the Ilco Technical Assistance Dept. for details.



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