



# **Tri-Code**

## **H.S.**

Operating manual

**D430597XA**

vers. **3.0**



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*Edition: june 2012*

*Printed in Vittorio Veneto  
by SILCA S.p.A.  
via Podgora, 20 (Z.I.)  
31029 VITTORIO VENETO (TV) - Italy*

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## REFERENCE GUIDE

This manual has been produced to serve as a guide for users of the TRI-CODE H.S. electronic key-cutting machine. Read it carefully; it is essential if you wish to operate your machine safely and efficiently.

### CONSULTATION

The contents of the manual are divided into sections relating to:

- Machine description ..... chapter 1
- Transport and installation ..... chapters 2-3
- Regulation and use ..... chapters 4-5-6
- Maintenance ..... chapters 7-8-9

### TECHNICAL TERMS

Common technical terms are used in this manual.

To assist those with little experience of keys and key cutting, below is an illustration of the terms most frequently used.

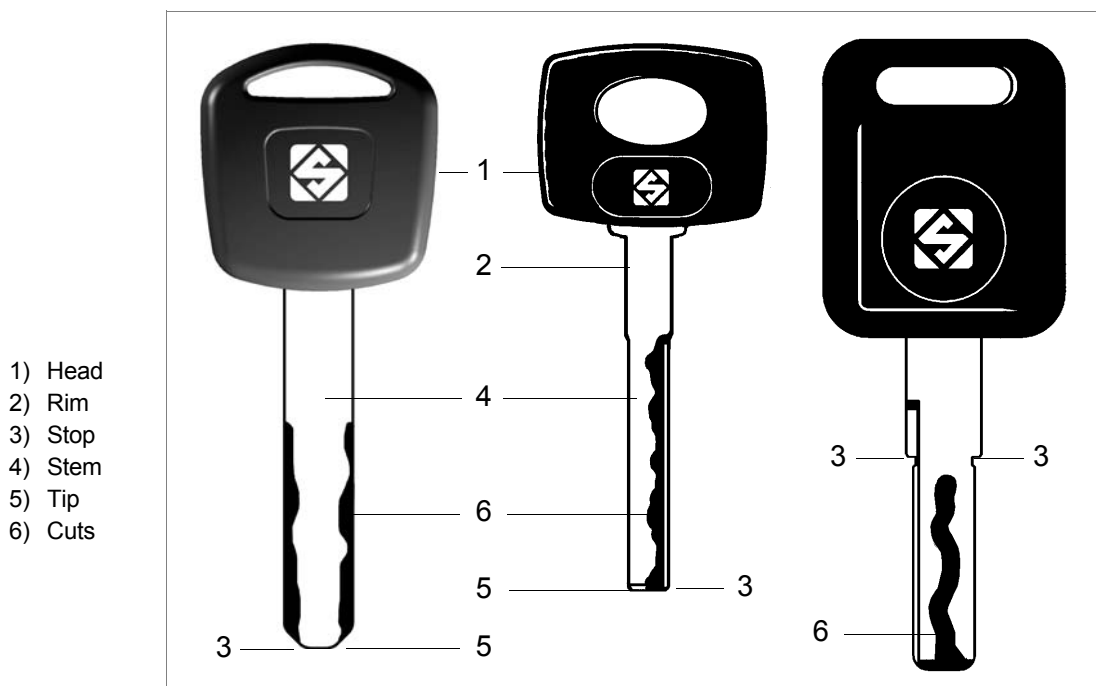


Fig. 1

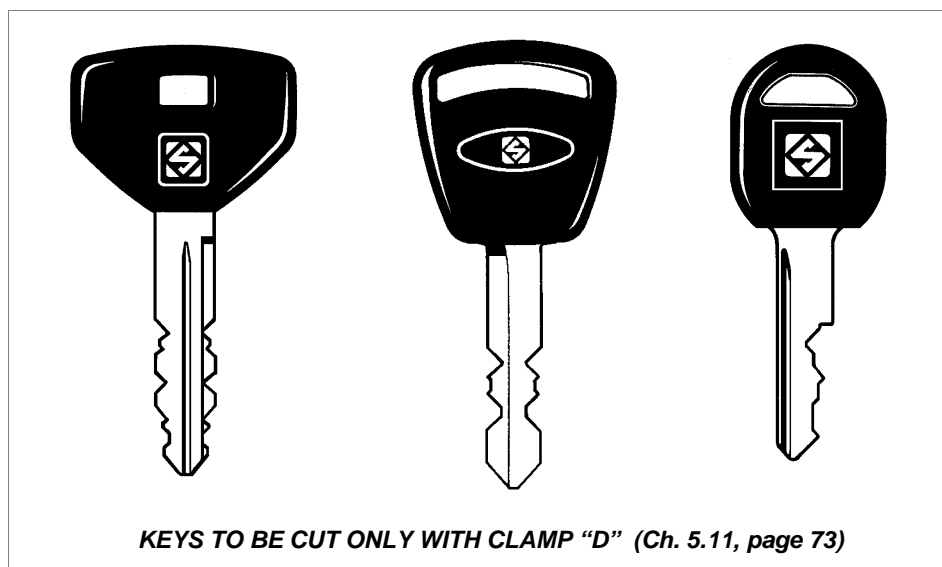


Figura 2

## GENERAL

TRI-CODE H.S. has been designed in compliance to the European Community normative (CE). From the design stage risks for the operator have been eliminated in all areas: transport, regulation, cutting and maintenance.

Further risks have been eliminated by means of protective devices.

The materials used to manufacture this machine and all its components are not hazardous.

Silca has also experimented and applied various technical solutions by means of which Silca key-cutting machines can optimize the quality of the keys produced. To achieve the best results and maintain them, follow the instructions below:

- observe the procedures described in this manual;
- always use Silca Original Tools as these are designed to get the most out of your TRI-CODE H.S. and achieve the highest quality cutting;
- use Silca key blanks, manufactured with prime quality materials;
- have your key-cutting machine checked periodically by a Silca authorized After-Sales Centre (list at the back of this manual);
- always use Silca Original Spare Parts. Don't make do with imitations!

### **USE**

TRI-CODE H.S. is designed for cutting keys of ferrous materials: brass, silver nickel etc.

It must be installed and used according to the instructions indicated by the manufacturer.

If the machine is used differently or for purposes different from those described in this manual, the customer will forego any rights he may have over Silca S.p.A. Furthermore, unforeseen danger to operator or any third parties may arise from incorrect use of the machine.

### **INSTRUCTIONS MANUAL**

The instructions manual provided with the machine is essential to its proper use and to carry out the necessary maintenance.

We therefore recommend protecting the manual from damage in a safe sheltered place, easily to hand for quick consultation.

### **INCORRECT USE**

In the case of negligence to the proper use of this machine or failure of the operator to observe the instructions written in this manual decline all guarantees and responsibilities of the manufacturer.

It is therefore indispensable to carefully read this operating manual in order to properly use and benefit all the machine's features.

### **FURTHER RISKS**

No further risks will arise when properly using the TRI-CODE H.S.

**PROTECTION AND SAFETY PRECAUTIONS FOR THE OPERATOR**

TRI-CODE H.S. is entirely built in compliance to the Machine Directives. The operations for which it has been designed are easily carried out with no risk to the operator.

The adoption of general safety precautions and observance of the instructions provided by the manufacturer in this manual eliminate all human error, unless deliberate.

TRI-CODE H.S. is designed with features which make it completely safe in all its parts.

• **Power supply**

TRI-CODE H.S. is supplied with electrical power by means of an earthed plug and differential switch.

• **Start-up**

The machine is turned on by means of a master switch that is located on the back side.

• **Maintenance**

The operations to regulate, service, repair and clean the machine are structured in the simplest and safest way possible. Parts that the operator can dismount cannot be incorrectly replaced therefore avoiding any risks.

• **Machine identification**

The machine is provided with an identification label which includes the machine's serial number (fig. 3).

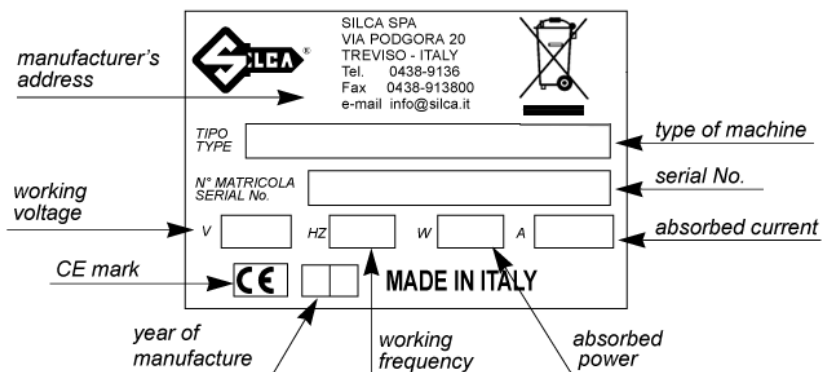


Fig. 3

# 1 MACHINE DESCRIPTION

TRI-CODE H.S. is an electronic machine operating on two axes with controlled movement. Accurately studied, it adds a high degree of precision to operating speed and ease of use. TRI-CODE H.S. can be used in 3 different ways:

- **entering the cuts directly**
- **entering the key code by means of the machine keypad**
- **reading the key with the decoder installed on the machine**



Fig. 4

## 1.1 MAIN CHARACTERISTICS

- **Movements**

Movement of the 2 axes (top, bottom) operates on ball screws activated by step motors, on rectified roller guides.

- **Clamp**

Universal standard clamp with 3 positions.

- **Working tool**

Dedicated cutter in HSS (high speed steel) for traced keys. Tools are quick and easy to replace.

- **Display**

Retro-illuminated and placed on the front of the machine.

Display with 4 rows of 20 characters each.

Its technical features and positioning make it highly practical in use.

## 1.2 SAFETY

- **Protective shield**

The transparent protective shield is designed to cover the working parts as fully as possible, making them completely safe.

The shield (V) (fig. 5, page 6) must be raised in order to fit keys for cutting or carry out other operations. Raising of the shield is controlled by a microswitch and disactivates the operating and movement functions, including the cutter. A special message appears on the display to warn that the shield is not closed. To re-start the work cycle, replace the shield in its original position and press the START button on the machine keypad.

- **Emergency stop**

The red emergency button (P) (fig. 5, page 6), placed on the right-hand side of the machine is used to stop it immediately in the event of faulty operation or danger for the operator.

When the cause of the emergency has been eliminated, turn the button clockwise 45° to disactivate it.

**Note:** *the operator is responsible for keeping the area around the button clear so that it can be reached as quickly as possible.*

**IMPORTANT:** keys in anodized aluminium, plastic or any other material that has no electrical conductivity **CANNOT BE DECODED!**

For keys of this type use only the “key-cutting” function.

### 1.3 MAIN WORKING PARTS



Fig. 5

- A - master switch
- B - keypad
- C - display
- D - clamp
- E - cutter spindle
- F - clamp knob
- F1 - clamp locking handle
- F2 - anatomic grip
- G - fuses
- H - lamp
- L - cutter
- N - dial locking handle
- M - decoder (U111DC)
- O - depth regulating dial
- P - emergency push button
- R - serial port
- S - top axis connector
- T - bottom carriage
- U - top carriage
- V - protective shield
- Z - plug socket



Fig. 6

## 1.4 TECHNICAL DATA

*Electricity supply:*

120V - 60Hz

*Maximum absorbed power:*

4 Amp. 340 Watt

*Cutter motor:*

1 speed single phase

*Cutters:*

Available in hard metal (or HSS rapid steel)

*Cutter speed:*

8600 rpm (+/- 10%)

*Movements:*

on 2 axes with ball screws activated by step motors, on rectified roller guides.

*Clamp:*

universal interchangeable for fixed grip

*Runs:*

bottom axis X: 35 mm (1.377") top axis Y: 54 mm (2.125")

*Dimensions:*

width: 500mm (19.67") depth: 500mm (19.67") height: 480 mm (18.89") (with shield raised 700mm - 27.548")

*Mass:*






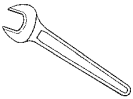


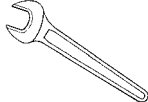




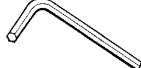


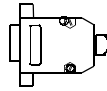
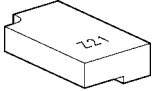

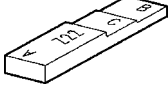
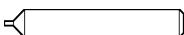
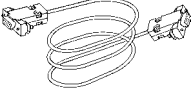


Kg. 43

*Noise rating:*

sound pressure  $L_p(A)$  = 74 dB(A) (cutting steel keys)  
74,5 dB(A) (cutting Silver Nickel keys)

## 1.5 ACCESSORIES PROVIDED

TRI-CODE H.S. comes with a set of accessories for its operation and maintenance (tools, hex wrenches, fuses, etc.) supplied in a special tool kit comprising:

tool kit 	2mm allen key (0.0787") 	6mm allen key (0.236") 
2 Amp fuse – delayed 	2,5mm allen key (0.0983") 	10mm spanner (0.3935") 
4 Amp fuse – delayed 	3mm allen key (0.118") 	13mm spanner (0.5115") 
6,3 Amp fuse – delayed 	4mm allen key (0.157") 	1,5mm allen key (0.059") 
10 Amp fuse – delayed 	5mm allen key (0.196") 	"T" allen key 2,5 mm (0.0983") 
10 Amp fuse - rapid 	Z4 serial test connector 	sensor calibration template Z21 
Brush 	cutter calibration template Z22 	Tracer point U111 for Laser keys D929921ZR 
Serial cable 9/9 D709281ZB 	Cutter W101 D709238ZB 	cd WIN-TRANSFER program 

## 2 TRANSPORT

The key-cutting machine is easily transported and is not dangerous to handle. The packed machine should be carried by at least two people.

### 2.1 PACKING

The packing for the TRI-CODE H.S. is designed to ensure safe transportation and protect the machine and all its parts.

It comprises a pallet base (b) to which the machine is attached and a cardboard box as a cover (a). The machine is fixed to the base with screwed down brackets that hold it firmly in place during transport, avoiding damage to the protective shield.

The closed packing is held in place by two straps which hold the cardboard box firmly on the pallet. Symbols are printed on the outside of the cardboard box to give instructions and warnings for transportation.

**Note:** *keep the packing and use it every time the machine must be transported.*

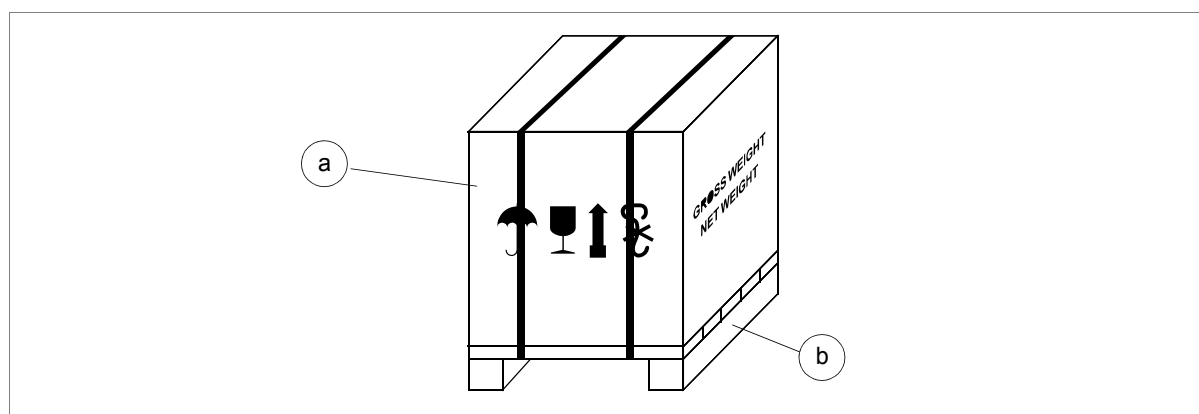


Fig. 7



Keep dry



Handle with care



This side up



Don't use

**Attention:** put the machine into its original packing and fix it with the brackets every time it is transported.

### 2.2 UNPACKING

To remove the machine from the packing box:

- 1) cut the straps with scissors and remove
- 2) raise the top part of the cardboard box
- 3) loosen the screws on the front and rear brackets holding the machine on the pallet
- 4) use the special spanner to loosen the nuts on the machine feet by a couple of turns
- 5) remove the metal brackets and tighten the nuts on the feet.
- 6) check the contents of the box, comprising:
  - 1 TRI-CODE H.S. key-cutting machine
  - 1 set of documents, including: operating manual, spare parts list and guarantee
  - 1 power cable
  - 1 tool kit (with standard clamp)

## 2.3 MACHINE HANDLING

When the TRI-CODE H.S. has been unpacked, place it directly on its workbench; this operation must be carried out by at least two people.

**Attention: when lifting the machine hold it firmly by the base, and no other part (fig. 8/A).**

**Never lift the machine by holding the keypad stand (fig. 8/B).**



**YES**

Fig. 8/A



**NO!**

Fig. 8/B

### 3 MACHINE INSTALLATION AND PREPARATION

The key-cutting machine can be installed by the purchaser and does not require any special skills. It is supplied ready for use and does not need to be set up. However, some checks and preparation for use have to be carried out by the operator.

#### 3.1 CHECKING FOR DAMAGE

TRI-CODE H.S. is so lid and compact and will not normally damage if transport, unpacking and installation have all been carried out according to the instructions in this manual. However, it is always advisable to check that the machine has not suffered any damage.

#### 3.2 ENVIRONMENTAL CONDITIONS

To ensure that the best use is made of the key-cutting machine, bear in mind the following parameters for its location: the area should be well-aired and dry.

The ideal conditions for the machine are:

temperature between 10°C and 40°C; relative humidity: approx 60%

#### 3.3 POSITIONING

- 1) place the machine on a horizontal surface, solid enough to take the weight (43 Kg).
  - for comfort when using the working parts of the machine, the workbench should be at the same height as the operator's hips.
  - it is important to leave clearance of at least 30 cm (11.805") behind the machine and on each side to ensure proper ventilation.
- 2) ensure that the mains voltage is the same as that of the machine, which must be earthed and provided with a differential switch.
- 3) connect the electricity supply wire to the power inlet and the plug (Z) (fig. 5, page 6).

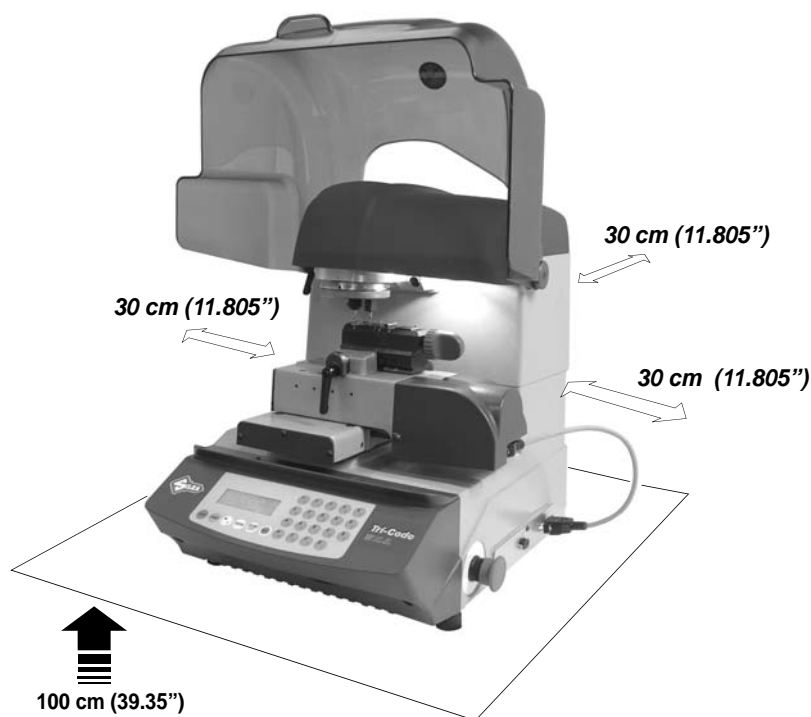


Fig. 9

### 3.4 DESCRIPTION OF WORK STATION

The machine needs only one operator, who has the following controls at his/her disposal (fig. 5, page 6):

- master switch placed on the back of the machine
- key positioning clamp
- keypad
- display
- emergency push button

### 3.5 GRAPHICS

The Plexiglas protective shield carries an adhesive warning label (fig. 10).

**This label must never be removed.**



Do not use compressed air  
for cleaning

Fig. 10

### 3.6 SEPARATE PARTS

The standard clamp (fig. 11) is in the tool kit and not installed on the machine.

Install as indicated in this operating manual (Ch. 4.4, page 18).

**Attention: for the initial start-up DO NOT install the clamp UNTIL the axis clearing procedure has been carried out.**

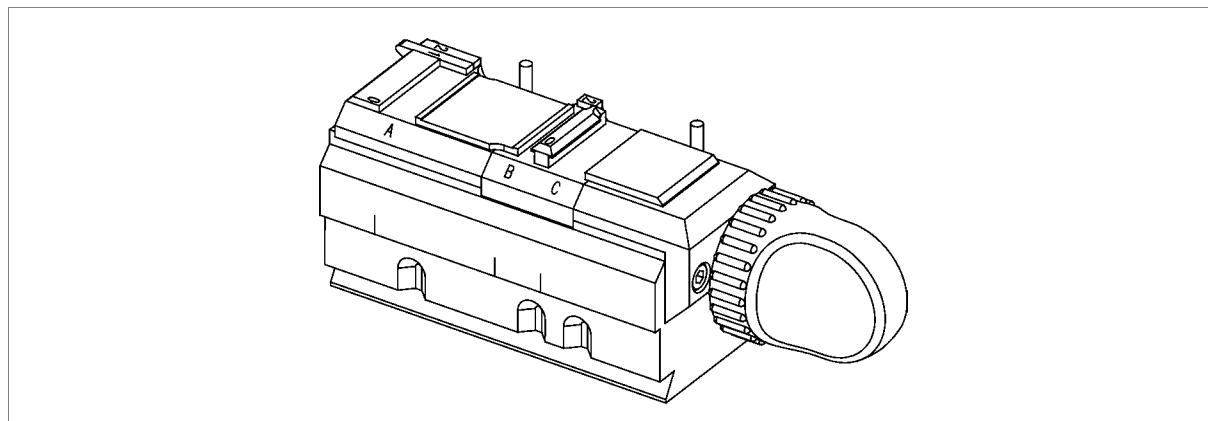


Fig. 11


## 4 REGULATION AND USE OF THE MACHINE



### 4.1 KEYPAD AND FUNCTION KEYS

The machine's keypad has 19 alphanumeric and 6 function keys.

The alphanumeric keys are used for entering the data card number and 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 (white), which is directly active, and an alternate character (red), which is activated by simultaneously pressing the SHIFT key.

E.g.  [1/H] key pressed directly produces: 1

Held down  [SHIFT] and pressed  [1/H] key produces: H

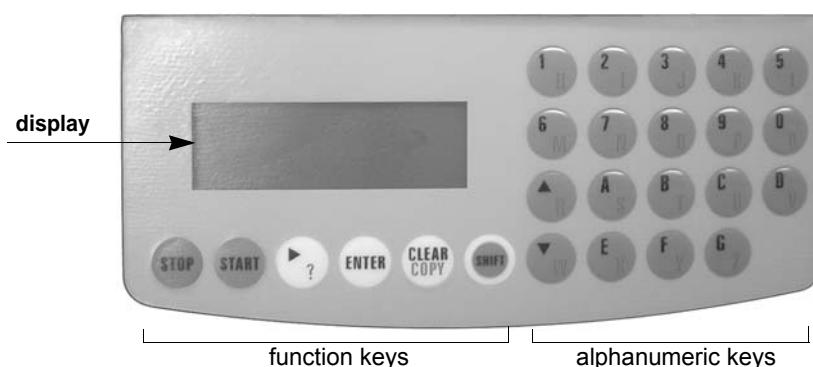


Fig. 12

#### FUNCTION KEYS



[STOP]

Stop button, particularly when the machine is in motion. Interrupts the function in progress at any time during operation.



[START]

Activates machine operations (with shield down).



[ENTER]

Confirms advancement of the various functions in the menu.



[CLEAR]

deletes characters.



The combination of the [SHIFT] + [CLEAR/COPY] keys allows automatic entry into the 'Decode and copy' function from any of the menus.

To clear the axes enter the main menu and use the combination of keys [SHIFT] + [STOP].



[SHIFT]

Press the SHIFT key and hold down together with the double function keys in order to digit the red letters.

#### • Regulating the display

It is possible to modify the angle of vision (illumination) on the machine's display by following the instructions below.

- Press the arrow key [Down] ▼ to get a better view from below and then press the arrow key [Up] ▲, simultaneously keeping the arrow keys both pressed [Up/Down] ▼▲ up until you reach the desired visualization.
- Press the arrow keys [Up/Down] ▼▲ to get a better view from above and then press the arrow key [Down] ▼, simultaneously keeping the arrow keys both pressed [Up/Down] ▼▲ up until you reach the desired angle.

## 4.2 USE OF THE CLAMP

The machine is provided with the standard clamp shown in fig. 13.

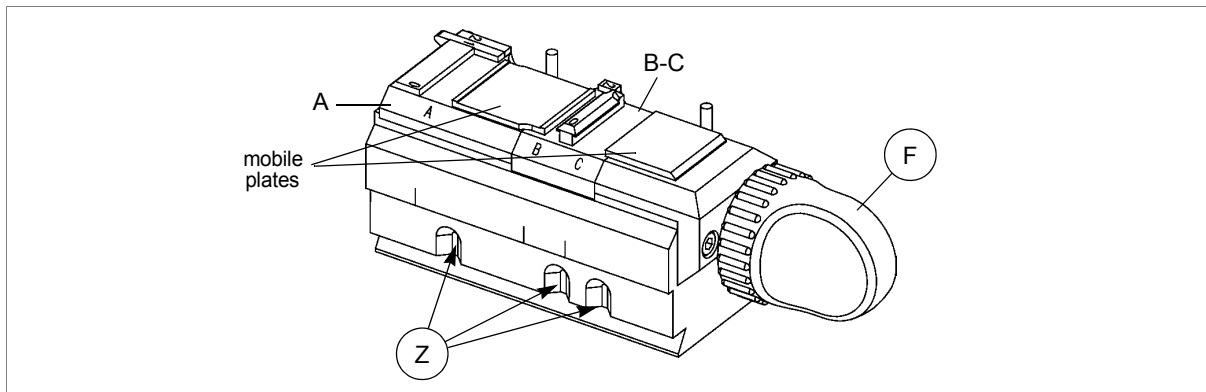


Fig. 13

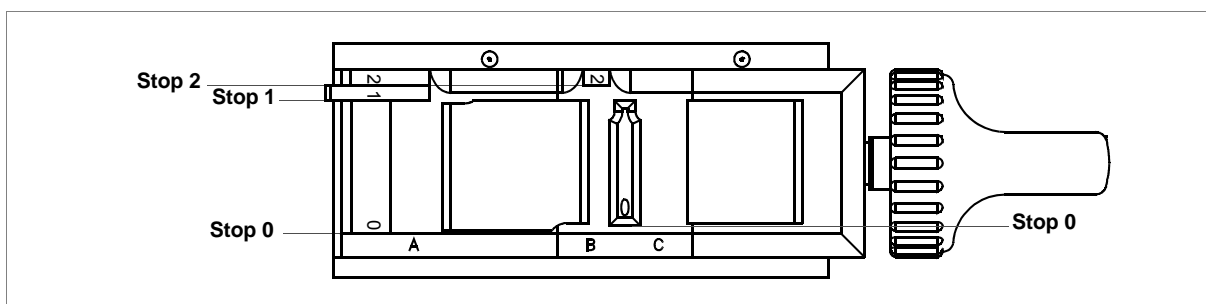


Fig. 14

As illustrated in fig. 13, the clamp has 3 fixed plates (A-left; B/C centre; right) and 1 mobile double plate. Two of the fixed plates (A e B/C) plus the mobile double plate can be replaced when worn. The clamp has 2 vertical cylindrical pins to detect/recognise the clamp by electric contact. The A clamp comes with 3 Stops (0-1-2) for keys to be decoded or cut with jaw A. The B clamp comes with 2 Stops (0-2) for keys to be decoded or cut with jaw B. The C clamp comes with 1 Stop (0) for keys to be decoded or cut with jaw C. The clamp has 3 position notches (Z) so that it can be easily accommodated in the required position (Clamp A, B or C). When the (F1) handle is loosened by at least one turn and the anatomic grip (F2) is pulled towards the front of the machine the clamp is released therefore can slide to the right or left. When the (F2) anatomic grip is released and the clamp is manually moved, the positioning device will lock the clamp into the first position notch it finds. When the clamp is in the required position (jaw A, B or C) the (F1) handle should be tightened.

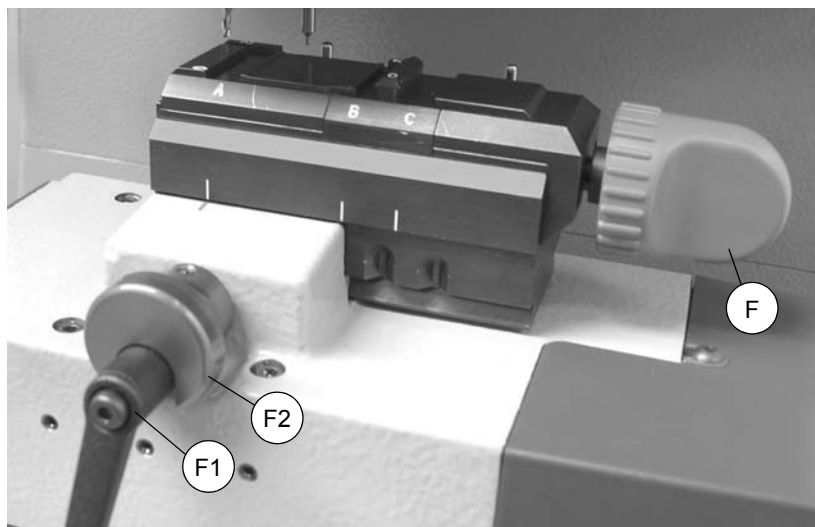


Fig. 15

### 4.3 LOCKING THE KEYS

The clamp is designed to grip different types of car cylinder keys, example: keys with shoulder stops or with tip stops.  
 Shoulder stop keys are placed up against the clamps (0 Stop) and the tip stop keys are placed against either STOP 1 or 2, as indicated on the machine display.

- **Clamp POSITION A**

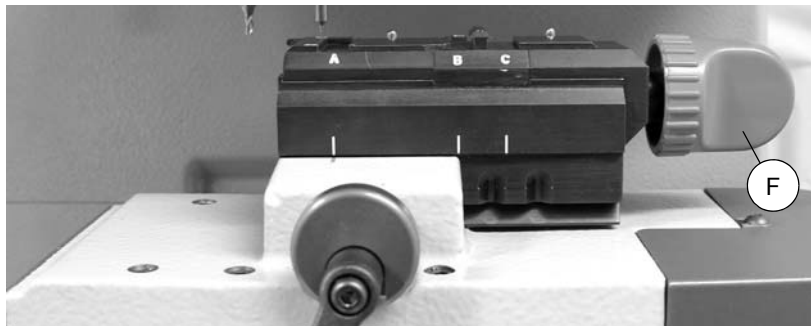


Fig. 16

#### STOP 0

Turn the (F) knob to the left. Fit the key so that it lies flat on the clamp with the keys shoulder stop up against Stop 0 (when necessary, the Stop 1 plate should be turned all the way down to the left).  
 Secure the key by turning the (F) knob to the right.

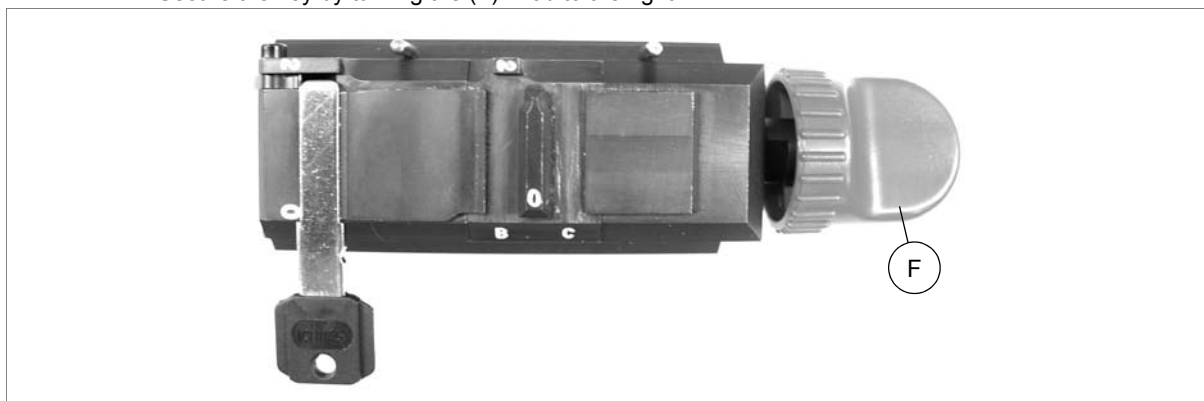


Fig. 17

#### STOP 1

Turn the (F) knob to the left. Fit the key so that it lies flat on the clamp with the tip up against Stop 1.  
 Secure the key by turning the (F) knob to the right.

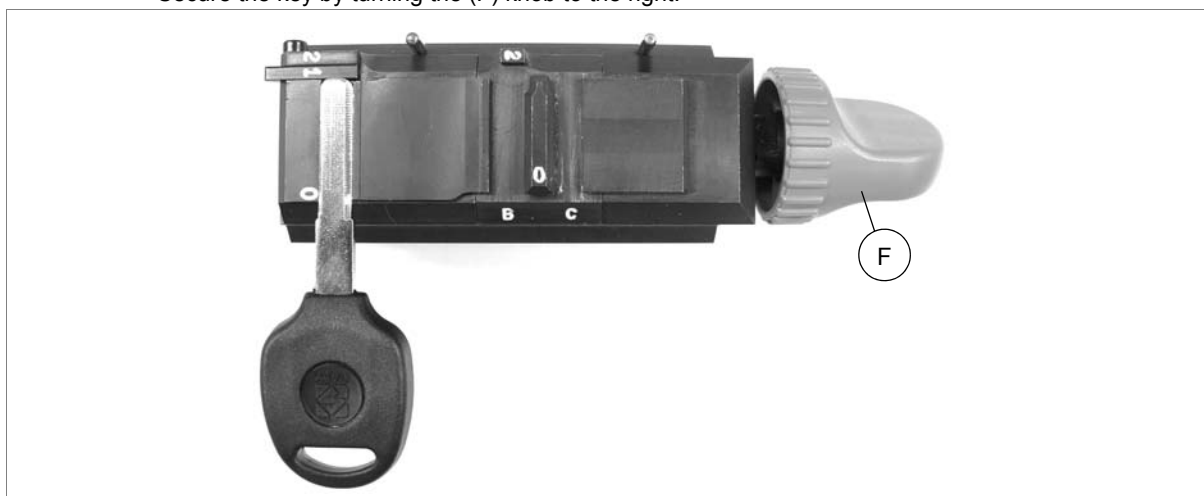


Fig. 18

**STOP 2**

Turn the (F) knob to the left. Fit the key so that it lies flat on the clamp with the tip up against Stop 2 (to do this the Stop 1 plate must be turned left and downwards). Secure the key by turning the (F) knob to the right.



Fig. 19

- **Clamp POSITION B**

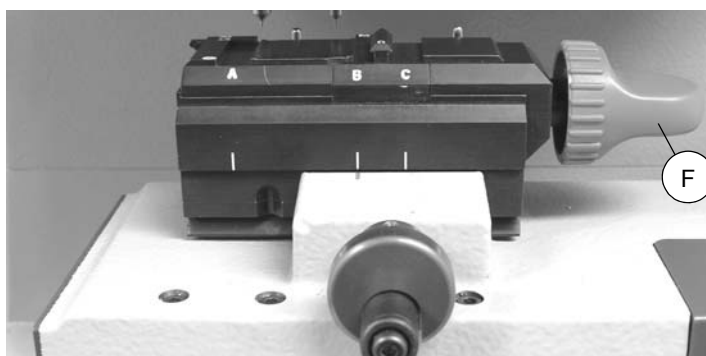


Fig. 20

**STOP 0**

Turn the (F) knob to the right. Fit the key so that it lies flat on the clamp with the tip up against Stop 0. Secure the key by turning the (F) knob to the left.

**STOP 2**

Turn the (F) knob to the right. Fit the key so that it lies flat on the clamp with the tip up against Stop 2. Secure the key by turning the (F) knob to the left.

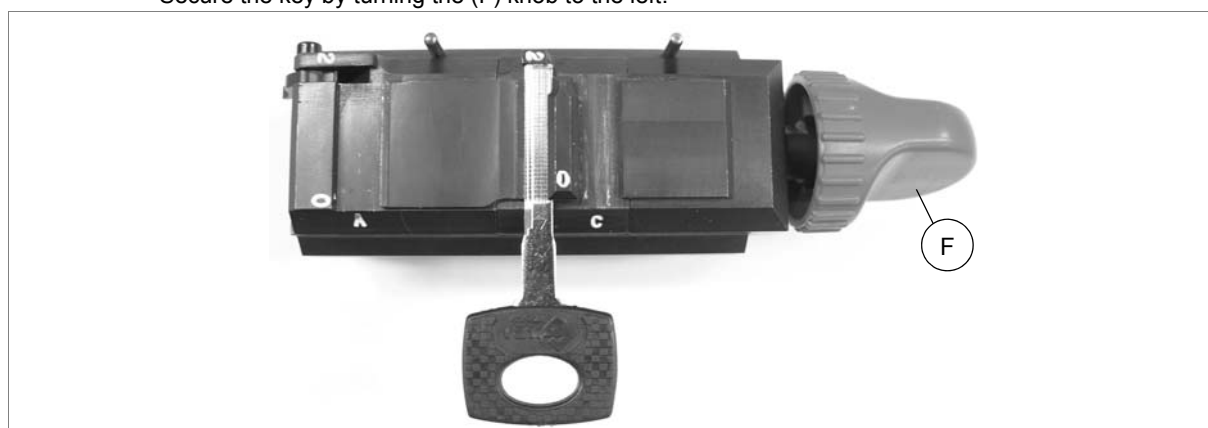


Fig. 21

- **Clamp POSITION C**

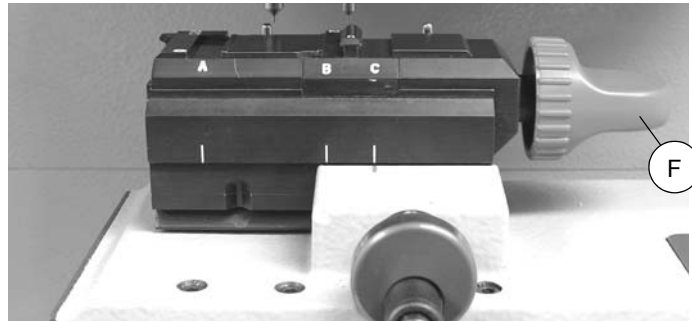


Fig. 22

**STOP 0**

Turn the (F) knob to the left. Fit the key so that it lies flat on the clamp with the key stop up against Stop 0. Secure the key by turning the (F) knob to the right.

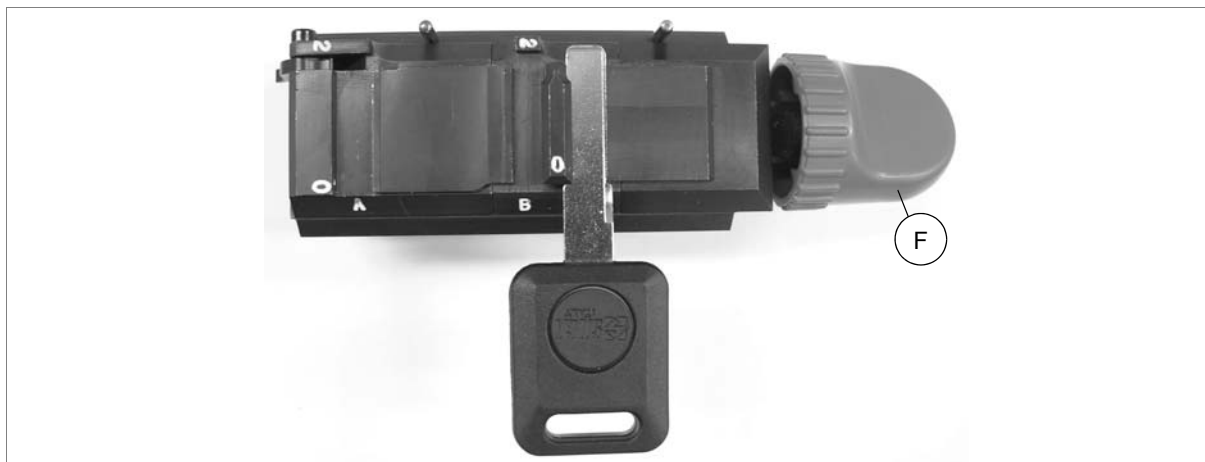


Fig. 23

**Attention:** to ensure effective operation, keep the clamp detector pins and clamp jaws free of any swarf at all times, using the brush provided or a clean cloth.

**Attention:** when closing the clamp do not apply excessive pressure to the knob. To secure the key properly, simply turn the knob about 45° (clockwise or anticlockwise, according to needs) when the key is gripped (fig. 24). Take care to hold the key down properly when closing the clamp to avoid buckling, bad alignment or lack of support for the entire surface.

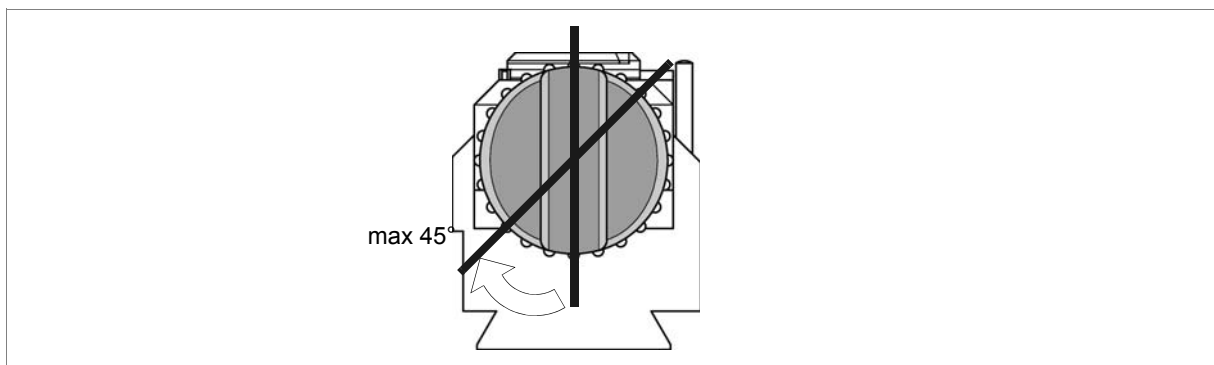


Fig. 24

## 4.4 FITTING THE CLAMP TO THE MACHINE

### To remove the clamp:

- Loosen the (F1) handle by one turn and pull the (F2) anatomic grip towards the operator (front of the machine). This releases the clamp so that it can slide to the right or left along the dovetail groove and be removed.

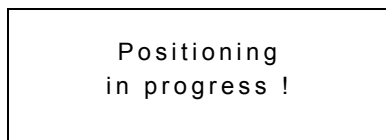
### To install the clamp on the machine:

**Attention: at initial start-up DO NOT CONTINUE. Zero out the axes and remove the tie wrap (H3) (fig. 26).**

**Press both the SHIFT + STOP buttons to continue with the zero positioning.**

The axes are automatically zeroed out.

First the display shows:



Then it returns to the initial menu.

**You can then fit the clamp to the machine.**

Loosen the (F1) handle by at least one turn and pull the anatomic grip (F2) towards the front of the machine to be able to slide the clamp into the dovetail groove. The clamp has 3 positioning notches that correspond to the 3 cutting positions on the clamp (Jaw A, B or C).

When the anatomic grip is released and the clamp is manually moved (to the right or left) the positioning device in the groove will lock the clamp into the first notch it finds. When the clamp is in the required position (Jaw A, B or C), tighten the (F1) handle.

These instructions refer exclusively to the clamp provided.

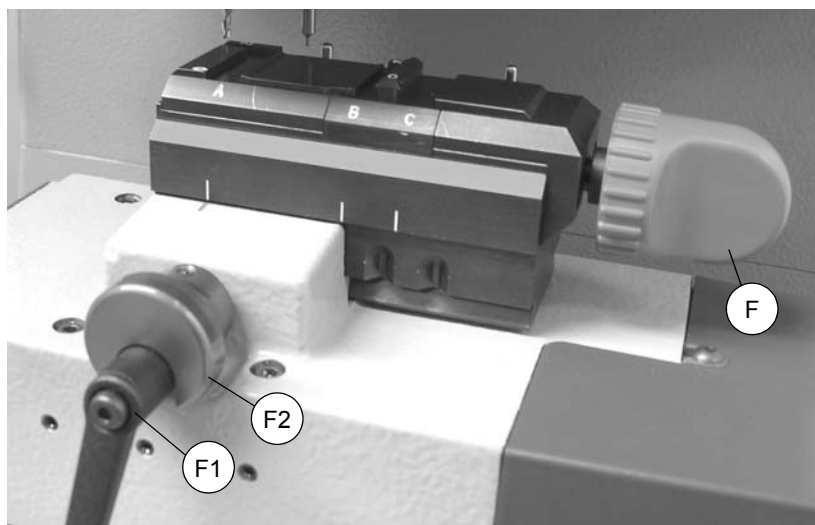


Fig. 25

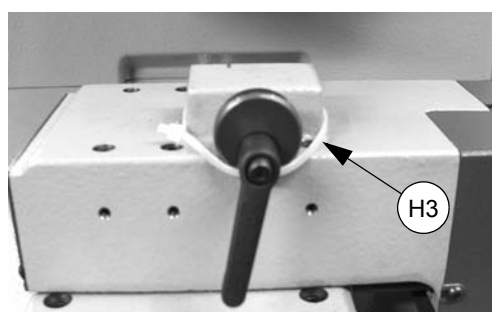


Fig. 26

## 4.5 CUTTER

The cutter provided is the "W101" that is suitable for cutting laser (sidewinder) type keys.

**Attention: the cutter to be used is shown on the display.**

The type of cutter to fit is identified with the letter H (HSS) or W (hard metal).

## 4.6 CHANGING THE CUTTER AND/OR THE TRACER POINT

To remove the tracer point U111 or the cutter W101 from the spindle, proceed as follows:

- raise the protective shield.
- turn the cutter spindle (by hand) in order to reach the tool-locking grub screw (E1) (fig. 28).
- with one hand hold the cutter or the tracer point that needs to be removed and with the other use a 2,5mm (0.0983") hex wrench to loosen the (E1) grub screw.
- remove the tool (cutter or tracer point).

To install cutter or tracer point, proceed as follows:

- raise the protective shield.
- insert the tool all the way up into the spindle.
- holding the tool with one hand, use the other to tighten the (E1) grub screw with the 2.5mm (0.0983") hex wrench.



Fig. 27

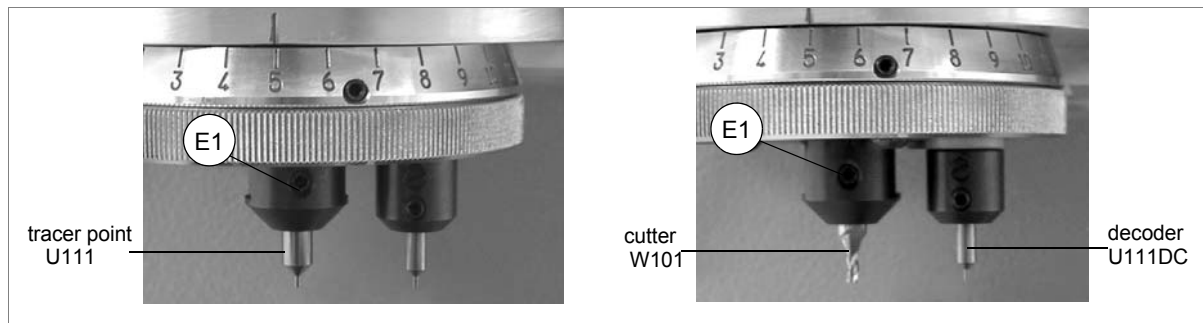


Fig. 28

## 5 OPERATING GUIDE

### INTRODUCTION

The Operating Guide below explains how to use the TRI-CODE H.S.  
All operations are explained step by step for easy accurate use of the key-cutting machine.

See Ch. 5.11 to cut flat keys (vehicle) with clamp "D".

### 5.1 SYMBOLS AND TERMINOLOGY

To facilitate comprehension, below is a glossary of the most commonly used symbols and terms referring to keys or the key-cutting machine.

Reference will be made to the symbols and terms on this page in the following pages, but comprehension will be better if they are read here.

**Cutter W101**... = the letter indicates the material (W = carbide), the number its conformation (rake, base of cut, ...)

**Decoder U111DC** = standard decoder for decoding (to the right of the cutter)

**Tracer point U111** = tracer point for gauging the clamps (and decoding) to fit in the place of the cutter when the standard decoder is disabled

**Clamp A** = standard clamp provided with the TRI-CODE H.S., key-cutting machine, positioned to operate with jaw A

**Clamp B** = standard clamp provided with the TRI-CODE H.S., key-cutting machine, positioned to operate with jaw B.

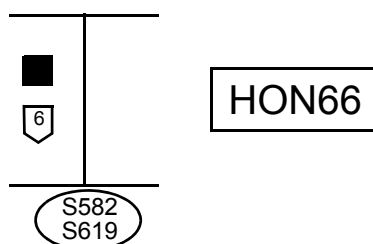
**Clamp C** = standard clamp provided with the TRI-CODE H.S., key-cutting machine, positioned to operate with jaw C.

**System/lock** = all the information comprised in the key to be cut  
E.g.: see examples of symbol tables (below)

..... = each dot corresponds to each cut on the key

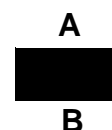
[n°] = position of the cut. The value changes when the cursor is moved (R/H arrow) along the combination

**Silca Serial Number (SSN)** = serial number assigned by Silca to every system/lock. Found in Silca key catalogues or Silca software programs



**MFG (Manufacturer)** = the make of the cylinder or vehicle for the key to be cut  
E.g.: HONDA (make of vehicle)

Sides = the cut sides of the key, identified as  
Side A (1st side)  
Side B (2nd side)



**Axis** = row of cuts on the key

HONDA

Keyblank profile, cutting = **Side A  
Axis 1**



Keyblank profile, cutting = **Side A  
Axis 2**



Keyblank profile, cutting = **Side B  
Axis 1**



Keyblank profile, cutting = **Side B  
Axis 2**



## 5.2 INITIAL OPERATIONS

When the key-cutting machine has been placed on its workbench and connected to the mains (Ch. 3, page 11), proceed as follows:

- 1) make sure that the emergency button is off (P - fig. 5, page 6).
- 2) turn on the machine by means of the switch on the back (A - fig. 6, page 6).
- 3) to check or alter the parameters for use of the machine, consult menu Ch. 5.8 "Options - 5", page 59.

When the machine is turned on, for a few seconds the display shows the software version installed and the machine model:

TRI-CODE H.S.  
Version x.x.xxx  
(ver.DB xx.xx)

**Version** = this refers to the version of the internal software that runs the machine functions. The value changes with every update.

**Ver. DB** = this refers to the version of the data relating to the Systems-Locks entered. Ask SILCA to update your machine database with all the new systems available on the market. The value changes with every update.

**The WinTransfer program (see Ch. 5.10, page 72) allow updating of the program and machine data with the aid of a PC and a serial connection.**

The display shows (on initial start-up only):

Select language. = 2  
1 - Italiano    2 - English  
3 - Deutsch    4 - Francais  
5 - Espanol

Enter the number that corresponds to the language you intend to work with and press [ENTER]. The display shows:



Save the  
modification?

No=STOP    Yes=ENTER

Press ENTER to confirm.

## Main menu

### Operational keys:

Use the arrow keys   [up/down] to position the cursor on the option required, and press [ENTER] or enter the key corresponding to the option number.

The symbol >> indicates that the menu contains other items which can be reached with the [down arrow key]



0-Decode and Copy	
1-Insert the Cuts	
2-List of Codes	
3-Calibrations	>>
4-Maintenance	
5-Options	

**Attention: If the machine is on and unused for a few minutes, the display will change and indicate only the name of the machine and the date and time, as shown in the example:**

TRI-CODE H.S.
15/06/12
10.29.53

Press any key to return to the main menu.

### 5.3 DECODING AND COPY - 0

**IMPORTANT: keys in anodized aluminium, plastic or any other material that has no electrical conductivity CANNOT BE DECODED!**

**For keys of this type use only the “key-cutting” function**

Below is a description of all the different stages for decoding and cutting a key.

Choose the function from the main menu by placing the cursor on “**0-Decode and Copy**”.

```

0-Decode and Copy
1-Insert the Cuts
2-List of Codes
3-Calibrations >>
4-Maintenance
5-Options
    
```


Press ENTER, the display will show:

```

SSN= (Decod.)
MFG =
=>
    
```

Make a search by **SSN** or **MFG**  
(see Ch. 5.1 "Symbols and terminology", page 20).


#### Example for: HONDA

- press the key  [right-hand arrow] to place the cursor next to the “MFG” field.

**It is not necessary to enter the entire name, the first letters are sufficient; the name of the MAKE closest in alphabetical order appears automatically;**

```

SSN = (Decod.)
MFG = H
=> HONDA
[11] List = ENTER
    
```


- the arrow keys  [up/down] can be used to scroll the successive makes in alphabetical order.
- Use the [CLEAR] key to delete the text entered.
- the last line in the window gives the results of the search:
  - “[11] List = ENTER”: means that 11 Silca Serial Numbers (SSN) have been found; press [ENTER] to see the list.

```

HONDA [11]
9:1990 HONDA
10:(1.41) Main (4T-6)
11: (1.41) Sub (4T-6W)
    
```

**Note: the system requires clamp “D” if the letter D appears in front of a description.**

**For example, with the pointer in position 10:**

- To view further information on the SSNs found, hold down the key  [right-hand arrow]. For example, with the pointer in position 1:

```

Silca Nr. 582
(1.41) Main (4T-6W)
1: ACURA
2: HONDA
    
```

Press ENTER to continue

```

DECODE
Clamp: A Pos.: 2
Tracer Dial: 5
[START]
    
```

- Raise the safety shield, loosen the handle (N) and turn the depth regulating (O) dial so that the



Press the key (down arrow) and the display will indicate the cuts corresponding to the second axis (example):

```
Axis: 2 of: 2
Sides: A B
234242
(123456) [6]
```

**ATTENTION**

- press the key [arrow right] to move the pointer (on the same axis) into the various cutting positions.
- Press the key [arrow up] to eliminate the cuts indicated by the pointer (an empty space is created); the cutting positions remain unaltered [6].
- Press the key (CLEAR/COPY) to eliminate some cuts (the machine considers consecutive cuts and not empty spaces) and reduce the cutting positions [5].

Press ENTER to proceed with the cutting operations. The display will show:

```
Clamp: A      Pos.: 2
Cutter: W101  Dial: 5
F=brass
Pcs= 1/1     [START]
```

Raise the safety shield, loosen the (F) knob and remove the original key. Fit the key blank into the clamp (clamp A and Stop 2) and lock the (F) knob.

Lower the safety shield.

If the number of keys to be cut is different from 1, use the alphanumerical keys on the keyboard to enter the number of keys required (pieces) [1-255].

**Attention: the operator is responsible for installing the right cutter as there is no electronic device to warn of any errors!!!**

Press START to begin cutting.

During the cutting operation the following message appears:

```
Clamp: A      Pos.: 2
Cutter: W101  Dial: 5
F=brass
Pcs= 1/1     [START]
```



The value 'Axis: 1' appears during cutting of the 1st axis.

```
CUTTING IN PROGRESS
Copy: 1 of: 1
Side: A Axis: 1
Brass
```



Going on to cut axis 2, the following message appears:

```
CUTTING IN PROGRESS
Copy: 1 of: 1
Side: A Axis: 2
Brass
```



When side A has been cut the following message appears:

```
Clamp: A      Pos.: 2
Cutter: W101  Dial: 5
F=brass
Pcs= 1/1     [START]
```



Raise the safety shield, loosen the (F) knob remove the key, turn it 180°, replace on the clamp (clamp A and Stop 2) and lock the (F) knob.

Lower the safety shield and press START.

The value 'Axis: 1' appears during cutting of the 1st axis.

```
CUTTING IN PROGRESS
Copy: 1 of: 1
Side: B   Axis: 1
Brass
```



Going on to cut axis 2, the following message appears:

```
CUTTING IN PROGRESS
Copy: 1 of: 1
Side: B   Axis: 2
Brass
```



When the cutting operation is complete, the following message appears:

```
Copy: 1 of: 1
finished!
More copies?
No=STOP Yes=ENTER
```

Press [ENTER] to proceed with another copy.

Press [STOP] to end the operation.

## 5.4 INSERT THE CUTS - 1

Below is a description of all the different stages for cutting a key when the SSN is known, or the make associated to the Lock System.

Choose the function from the main menu by placing the cursor on "1 - Insert the Cuts".

0-Decode and Copy	
<b>1-Insert the Cuts</b>	
2-List of Codes	
3-Calibrations	>>
4-Maintenance	
5-Options	



**Note:** make a search by SSN or Make (see Ch. 5.1 "Symbols and terminology", page 20).

### Example for HONDA:

- Press the key  [right-hand arrow] to place the cursor next to "MFG".

It is not necessary to enter the entire name, the first letters are sufficient; the name of the MAKE closest in alphabetical order appears automatically;

```
SSN=      (Cut)
MFG = H
=> HONDA
[11] List= Enter
```


- the arrow keys   [up-down] can be used to scroll the successive MAKES in alphabetical order.
- use the [CLEAR] key to delete the text entered.
- The last line in the window shows the result of the search:
  - "[11]) List = ENTER": means that 11 SSNs have been found; press [ENTER] to see the list.

```
HONDA      [11]
9:1990 HONDA
10:(1.41) Main (4T-6)
11: (1.41) Sub (4T-6W)
```

**Note:** the system requires clamp "D" if the letter D appears in front of a description.

- To view further information on the SSNs found, hold down the key  [right-hand arrow].

```
Axis: 1 of: 2
Sides: A B
. . . . .
(123456)      [1]
```

Use  [down arrow key] to go on to Axis 2.

```
Axis: 2 of: 2
Sides: A B
. . . . .
(123456)      [1]
```

Use the alphanumerical keys to enter only the symbols indicated in brackets (1, 2, 3, 4, 5, 6,) which correspond to the cutting depths admitted for the chosen key.

- If a different symbol is entered, a long warning 'beep' will sound.
- To skip cuts (empty cuts or gaps between cuts) press [up arrow key].
- The figure in square brackets [1] corresponds to the cutting position (pitch);
- To move the cursor horizontally press [right-hand arrow];

(when the end of the line is reached the cursor automatically returns to its starting position).

To view or enter cuts for the various key axes, press [down arrow key].

Enter the cuts, e.g:

```
Axis: 1 of: 2
Sides: A B
123243
(123456) [6]
```

Use [down arrow key] to go on to Axis 2.

```
Axis: 2 of: 2
Sides: A B
245464
(123456) [6]
```

Press ENTER to continue with the cutting operation. The display will show:

```
Clamp: A      Pos.: 2
Cutter: W101  Dial: 5
F=brass
Pcs= 1/1     [START]
```



### 5.4.0.1 Change key material function - F=Brass/Steel

Press **F** to select the material of the key to be cut.

Raise the safety shield, loosen the handle (N) (fig. 28, page 19) and turn the depth regulating (O) dial so that the number 5 is aligned with the reference notch on the spindle support (you should hear a click). Lock the lever (N).

Loosen the handle (N) by one turn and pull the anatomic grip (F2) towards the operator. This releases the clamp, which should be slid to the right.

Release the anatomic grip, move the clamp manually, and the positioning device will lock the clamp into the clamp reference notch. When the clamp is in position (Clamp A) tighten the handle (N).

Turn the (F) knob to the left. Fit the key to be cut into jaw A so that it lies flat on the clamp with the tip up against Stop 2 (to do this turn the Stop 1 plate left and downwards).

Secure the key by turning the (F) knob to the right. Lower the safety shield.

If the number of keys to be cut is different from 1, use the alphanumeric keys on the keyboard to enter the number of keys required (pieces) [1-255].

Cutter W101 is standard on the machine. If the cutter is replaced, gauge it (Ch. 5.6.2, page 39) before proceeding.

**Attention: if the U111 tracer point is used the operator must make sure the cutter has been installed because there is no electronic device to signal any errors!**

If the protective shield is not closed, the following message appears:

```
Close
shield !
```

When the shield is lowered, the following message appears:

```
Continue ?
No=STOP   Yes=START
```

Press START to continue.

The value "Axis 1" appears during cutting of the 1st axis.

```

CUTTING IN PROGRESS
Copy: 1 of: 1
Side: A   Axis: 1
Brass
    
```



Going on to cut axis 2, the following message appears:

```

CUTTING IN PROGRESS
Copy: 1 of: 1
Side: A   Axis: 2
Brass
    
```



When side A has been cut, the following message appears:

```

Clamp: A      Pos.: 2
Cutter: W101  Dial: 5
Key on side B
                [START]
    
```



Raise the safety shield, loosen the (F) knob remove the key, turn it 180°, replace on the clamp (clamp A and Stop 2) and lock the (F) knob.  
Lower the safety shield and press START.

The value "Axis 1" appears during cutting of the 1st axis.

```

CUTTING IN PROGRESS
Copy: 1 of: 1
Side: B   Axis: 1
Brass
    
```



Going on to cut axis 2, the following message appears:

```

CUTTING IN PROGRESS
Copy: 1 of: 1
Side: B   Axis: 2
Brass
    
```



When the operation is complete, the following message appears:

```

Copy: 1 of: 2
finished !
More copies ?
No=STOP Yes=ENTER
    
```

Press [ENTER] to proceed with another copy.  
Press [STOP] to end the operation.

## 5.5 LIST OF CODES - 2


Use the items "Original Code" or key MAKE-USE from the "List of Codes" menu to identify the SSNs that have a code table associated.

When the SSN has been found, the key can be cut in the way described in Ch. 5.4 "Insert the Cuts - 1", page 27.

Choose the function from the main menu by placing the cursor on "2- List of Codes".

Carry out the search by entering the code or Make (Ch. 5.1 "Symbols and terminology", page 20).

### Example by Code: K001

- Press the key  [right-hand arrow] to place the cursor next to the field "Code=".
- Enter the code "HA30055".
- The search finds only one series for HONDA with codes between K001 and N718.


The display will show:

```
Code = K001
MFG =
=>HONDA
[11] List=ENTER
```

Searches for the code entered is made in all the series relating to the MAKES enabled. With standard settings the machine makes searches in all the series of codes. To filter searches for codes on the basis of given Lock Makes or Cars, follow the instructions on page 59 (ch. 5.8 "Options - 5", 5.8.2 "Preferences", "Preselect Makes"). If the code entered belongs to a series but not to the group of makes selected, the message "Code not found" appears and the last line of the window shows the words "SHIFT + ?". Press the keys [SHIFT] and [?] to temporarily exclude the filter and extend the search to all makes so that the result can be viewed without having to alter the settings for "Preselect Makes."

Press ENTER, the display will show:

```
Code = K001 [02]
1:K001-N718 Master
2:K001-N718 Valet
```

- To view further information about the SSNs found, hold down the key  [right-hand arrow]. Example with cursor on: 1:K001-N718 Master

```
Silca Nr: 582
Master
1 - ACURA
2 - HONDA
```

**Note:** the system requires clamp "D" if the letter D appears in front of a description.

There are now **two** possible choices:

- 1) proceed with [SHIFT+ENTER] in order to follow the complete flow and see the cutting data associated with the code entered. The cutting data is already entered and correspond to the code K001.
- 2) Proceed with [ENTER] in order to skip some of the data and get to the window preceding start of the cutting operation.

Press ENTER, the display will show:

```
Clamp: A      Pos.: 2
Cutter: W101  Dial: 5
F=brass
Pcs= 1/1     [START]
```

Lower the safety shield and press START.

The display will show:

```
CUTTING IN PROGRESS
Copy: 1 of: 1
Side: A  Axis: 1
Brass
```

and then:

```
CUTTING IN PROGRESS
Copy: 1 of: 1
Side: A Axis: 2
Brass
```



When the axis has been cut the display will show:

```
Clamp: A Pos.: 2
Cutter: W101 Dial: 5
F=brass
[START]
```



Raise the safety shield, loosen the (F) knob remove the key, turn it 180°, replace on the clamp (clamp B and Stop 2) and lock the (F) knob. Lower the safety shield and press START.

The display will show:

```
CUTTING IN PROGRESS
Copy: 1 of: 1
Side: B Axis: 1
Brass
```



and then:

```
CUTTING IN PROGRESS
Copy: 1 of: 1
Side: B Axis: 2
Brass
```



When the operation is complete the following message appears:

```
Copy: 1 of: 1
finished !
More copies?
No=STOP Yes=ENTER
```

[ENTER] to continue with a new code.

[STOP] to end the operation.

- after terminating the cutting operation and pressing [STOP], a new window appears to ask whether the user wishes to cut a new key from the same series but with a code different from the previous one, without repeating the search from the beginning:

```
New code?
=K001
( K001-N718 )
[ENTER]
```

- [CLEAR] to delete the existing code.
- Enter the new code to be cut.

```
New code?
=K002
( K001-N718 )
[ENTER]
```

- [ENTER] to continue and cut a new Code
- [STOP] to end the operation.

### Example for HONDA

- Press the key [right-hand arrow] to place the cursor next to the “Code=” field.

```
Code =
MFG =
=>
```

It is not necessary to enter the full name, the first few letters are enough; the screen will automatically show the name of the MAKE closest in alphabetical order;

```
Code =
MFG = H
=> HONDA
[11] List=ENTER
```

- use the arrows [up/down] to scroll the sequence of MAKES in alphabetical order.
- Use the [CLEAR] key to delete the text entered.
- Press ENTER to continue; the display will show the message:

```
Mar.: HONDA [11]
1: K001-N718 Master
2: K001-N718 Valet
```

**Note:** the system requires clamp “D” if the letter D appears in front of a description.

- To view further information about the SSNs found, hold down the key  [right-hand arrow].

Press ENTER to continue; the display will show the message:

```
Insert the code
=
( K001-N718 )
[ENTER]
```

Enter the new code to be cut.

```
Insert the code
= K001
( K001-N718 )
[ENTER]
```

- There are now **two** possible choices:
- 1) Proceed with [SHIFT+ENTER] to follow the complete flow and see the cutting data associated with the code entered. The cutting data is already entered and corresponds to the code K001.

```
Axis: 1 of: 2
Sides: A B
232131
(123456) [6]
```

Use [down arrow key] to go on to Axis 2.

```
Axis: 2 of: 2
Sides: A B
321151
(123456) [6]
```

Press ENTER to continue.

- 2) Proceed with [ENTER] to skip some of the data and get to the window preceding the start of the cutting operation:

Press ENTER to continue; the display will show the message:

```
Clamp: A      Pos.: 2
Cutter: W101  Dial: 5
F=brass
Pcs: 1/1     [START]
```

Press START to continue.

The value "Axis 1" appears during cutting of the 1st axis.

```

CUTTING IN PROGRESS
Copy: 1 of: 1
Side: A   Axis: 1
Brass
    
```



Going on to cut axis 2, the following message appears:

```

CUTTING IN PROGRESS
Copy: 1 of: 1
Side: A   Axis: 2
Brass
    
```



When side A has been cut, the following message appears:

```

Clamp: A      Pos.: 2
Cutter: W101  Dial: 5
F=brass
                [START]
    
```



Raise the safety shield, loosen the (F) knob remove the key, turn it 180°, replace on the clamp (clamp A and Stop 2) and lock the (F) knob. Lower the safety shield and press START.

The value "Axis 1" appears during cutting of the 1st axis.

```

CUTTING IN PROGRESS
Copy: 1 of: 1
Side: B   Axis: 1
Brass
    
```



Going on to cut axis 2, the following message appears:

```

CUTTING IN PROGRESS
Copy: 1 of: 1
Side: B   Axis: 2
Brass
    
```



When the operation is complete, the following message appears:

```

Copy: 1 of: 1
finished !
More copies?
No=STOP YES=ENTER
    
```

Press [ENTER] to proceed with another copy.  
Press [STOP] to end the operation.

- after terminating the cutting operation and pressing [STOP], a new window appears to ask whether the user wishes to cut a new key with a different code without repeating the search from the beginning:

```

New code ?
=K001
( K001-N718 )
                [ENTER]
    
```

- [CLEAR] to delete the existing code.
- Enter the new code to be cut.

```

New code ?
=K002
( K001-N718 )
                [ENTER]
    
```

- [ENTER] to continue with a new code.
- [STOP] to end the operation.

## 5.6 CALIBRATIONS - 3

Below are described all the steps required for calibration.  
Choose the function from the main menu by placing the cursor on "3 - Calibrations".

0-Decode and Copy
1-Insert the Cuts
2-List of Codes
<b>3-Calibrations</b>
4-Maintenance
5-Options

The machine has a 'self-calibration' system that uses the tracer point or special templates when necessary.

The clamps and decoder must be gauged before use.

In the situations shown in the table it may be necessary to carry out one or all gauging operations again for the clamps and decoder.

This operation is semi-automatic and requires close attention to the instructions listed below.

EVENT	CALIBRATIONS		
	CLAMPS	CUTTER	DECODER
Electronic board replacement	YES	YES	YES
Clamp replacement (with a new one of the same type)	YES	YES	NO
Cutter replacement (with a new one)	NO	SI	NO
Decoder replacement (with a new one)	NO	NO	NO

### 5.6.1 Automatic calibration of clamp

Below is a description of all the steps necessary for calibration.

Choose the function from the main menu by placing the cursor on "3 - Calibrations".

Press ENTER, the display will show:

1 - Clamp
2 - Cutter
3 - Tracer point
4 - Adapters

Select "1 - Clamps".

The display will show:

Clamp
1: A
2: B
3: C
4: D

- **With the standard clamp calibration must be performed on the 3 key-positioning jaws (A - B - C).**
- **See Ch. 5.11.2, page 74 to calibrate clamp "D".**

• **CLAMP A**

Place the pointer on "1", press ENTER, and the display will show the message:

```
Clamp: A
Adjustment:
      X=+00  Y=+00
To calibrate  [START]
```

The X and Y values can be different from "00" due to previous calibration. Before calibration, check that there are no keys on the clamp. Press START; the display will show the message:

```
Clamp: A
Templ.: Z22-A Pos.: 2
See operating manual
[ENTER]
```

Loosen the (F1) handle by one turn and pull the anatomic grip (F2) towards the operator. This releases the clamp, which must be slid to the right. Release the anatomic grip, move the clamp manually and the positioning device will lock the clamp in the clamp reference notch. When the clamp is in position (Clamp A) tighten the (F1) handle.

Turn the (F) knob to the left.

Fit the Z22 template into jaw A (fig. 30) so that it lies flat against the clamp with the area marked A up against Stop 2 (to do this, turn the Stop1 plate to the left and downwards).

Secure the Z22 template by turning the (F) knob to the right.

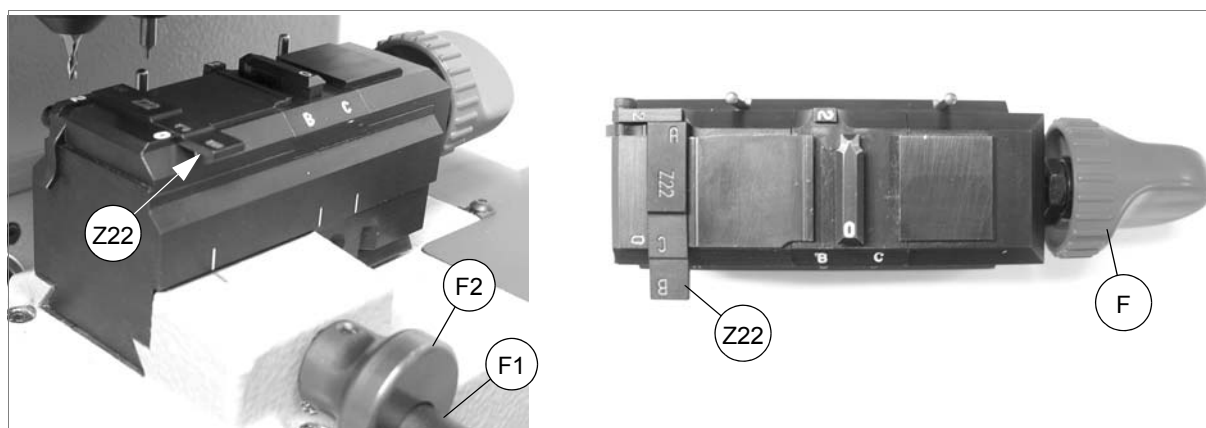


Fig. 30

press ENTER; the display will show the message:

```
Clamp: A      Dial:10
Tracer: U111
See operating manual
[START]
```

**Attention: calibration of the CLAMPS (A-B-C) MUST BE CARRIED OUT with the TRACER POINT U111 fitted in the place of the cutter.**

**Attention: loosen the lever (N) and turn the (O) dial to position 10.**

Remove the W101 cutter and fit the U111 tracer point, making sure the tracer point is not damaged, bent or split (Ch. 4.6 "Changing the cutter and/or the tracer point", page 19).

- close the protective shield. Press START.
- start automatic calibration of the clamp by electrical contact.
- the display will show:

```
Clamp: A
Detection
in progress !
```

At the end of the operation the following message will appear (e.g.):

```

Clamp: A
  X=-03  Y=+02
  Save data?
No=STOP  Yes=ENTER

```

Press [ENTER] to save the data automatically adjusted.

**Attention: if the [STOP] key is pressed the new calibrations will be lost and only the previous calibrations will remain valid.**

- if this is not so, the display will show an error message:

```

Exceeded setting
tolerance limit!
  X=-43  Y=+02
See operating manual.

```

In this case the procedure **MUST** be repeated, carefully following all the steps described; in particular check the positioning of the clamp (Ch. 4.4, page 18).

Wrong positioning can throw out the calibration.

**Note: the calibrations will be accepted only if the variations remain within a range of -50 or +50 hundredths of a mm (-0.0196" / +0.0196").**

#### • CLAMP B

With the pointer on "2", press ENTER; the display will show the message:

```

Clamp: B
Adjustment:
  X=+00  Y=+00
To calibrate  [START]

```

The X and Y values can be different from "00" due to previous calibration.

Before calibration, check that there are no keys on the clamp.

Press START; the display will show the message:

```

Clamp: B      Dial:10
Tracer: U111
See operating manual.
                        [START]

```

**Attention: calibration of the CLAMPS (A-B-C) MUST BE CARRIED OUT with the TRACER POINT U111 fitted in the place of the cutter.**

**Attention: loosen the lever (N) and turn the (O) dial to position 10.**

Remove the W101 cutter and fit the U111 tracer point, checking that the tracer point is not damaged, bent or split (Ch. 4.6 "Changing the cutter and/or the tracer point", page 19).

Loosen the (F1) handle by one turn and pull the anatomic grip (F2) towards the operator. This releases the clamp so that it can slide. Release the anatomic grip, move the clamp manually and the positioning device will lock the clamp into the clamp reference notch. When the clamp is in position (Clamp B) tighten the (F1) handle.

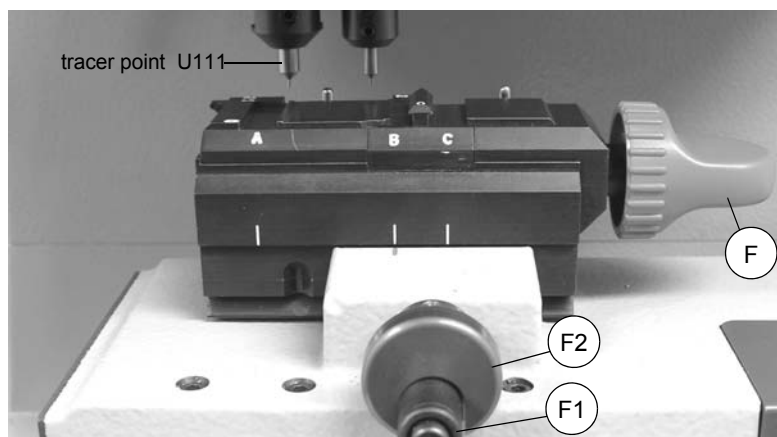


Fig. 31

- close the protective shield. Press START,
  - start automatic calibration of the clamp by electrical contact.
- the display will show:

```
Clamp: B
      Detection
      in progress !
```

At the end of the operation the following message will appear (e.g.):

```
Clamp: B
      X=-02 Y=+01
      Save data ?
      No=STOP Yes=ENTER
```

Press [ENTER] to save the data automatically adjusted.

**Attention: if the [STOP] key is pressed the new calibrations will be lost and only the previous calibrations will remain valid.**

- if this is not so, the display will show an error message:

```
Exceeded setting
tolerance limit !
      X=-02 Y=+42
      See operating manual.
```

In this case the procedure **MUST** be repeated, carefully following all the steps described; in particular check the positioning of the clamp (Ch. 4.4, page 18).

Wrong positioning can throw out the calibration.

**Note: the calibrations will be accepted only if the variations remain within a range of -50 or +50 hundredths of a mm (-0.0196" / +0.0196").**

#### • CLAMP C

With the pointer on "2", press ENTER; the display will show the message:

```
Clamp: C
Adjustment:
      X=+00 Y=+00
To calibrate [START]
```

The X and Y values can be different from "00" due to previous calibration. Before calibration, check that there are no keys on the clamp. Press START, the display will show:

```
Clamp: C      Dial:10
Tracer: U111
      See operating manual.
                        [START]
```

**Attention: calibration of the CLAMPS (A-B-C) MUST BE CARRIED OUT with the TRACER POINT U111 fitted in the place of the cutter.**

**Attention: loosen the lever (N) and turn the (O) dial to position 10.**

Remove the W101 cutter and fit the U111 tracer point/decoder, checking that the tracer point is not damaged, bent or split (Ch. 4.6 "Changing the cutter and/or the tracer point", page 19).

Loosen the (F1) handle (fig. 32) by one turn and pull the anatomic grip (F2) towards the operator. This releases the clamp so that it can slide. Release the anatomic grip, move the clamp manually and the positioning device will lock the clamp into the clamp reference notch. When the clamp is in position (Clamp C) tighten the (F1) handle.

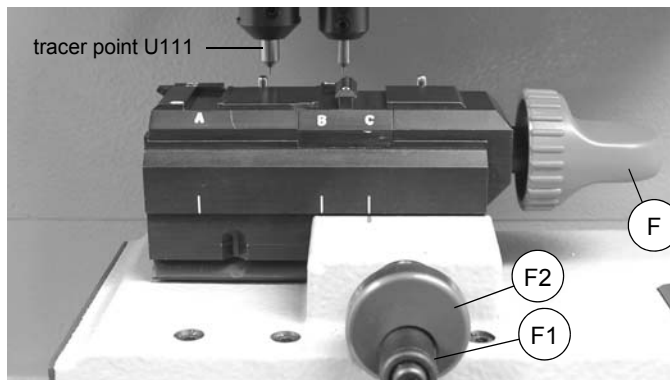


Fig. 32

- close the protective shield. Press START.
  - start automatic calibration of the clamp by electrical contact.
- the display will show:

Clamp: C  
 Detection  
 in progress !

At the end of the operation the following message will appear (e.g.):

Clamp: C  
 X=+04 Y=+01  
 Save data ?  
 No=STOP Yes=ENTER

Press [ENTER] to save the data automatically adjusted.

**Attention: if the [STOP] key is pressed the new calibrations will be lost and only the previous calibrations will remain valid.**

- if this is not so, the display will show an error message:

Exceeded setting  
 tolerance limit !  
 X=+44 Y=+01  
 See operating manual.

**In this case the procedure MUST be repeated, carefully following all the steps described; in particular check the positioning of the clamp (Ch. 4.4, page 18).**

**Wrong positioning can throw out the calibration.**

**Note: the calibrations will be accepted only if the variations remain within a range of -50 or +50 hundredths of a mm (-0.0196" / +0.0196").**

## 5.6.2 Cutter calibration

**Note:** the TRI-CODE H.S. key-cutting machine is already gauged when delivered. In the event of replacing the cutter or checking cutting depth gauging, proceed as follows:

First check that clamp, cutter and Z22 template are all perfectly clean.

Choose the function from the main menu by placing the cursor on "3 - Calibrations".

Press ENTER, the display shows:

```

1 - Clamp
2 - Cutter
3 - Tracer point
4 - Adaptors
  
```

Select "2 - Cutters".  
the display will show:

```

Cutter
1: W101
2: W114
3: H158
4: W302
  
```

Check that the W101 (Standard) cutter is installed. If not, see ch. 4.6 "Changing the cutter and/or the tracer point".

Press ENTER, the display shows:

```

Calibrate height
cutter W101
[ENTER]
  
```

Press ENTER, the display will show:

```

Clamp: A
Templ.: Z22-B Pos.: 2
See operating manual.
[ENTER]
  
```

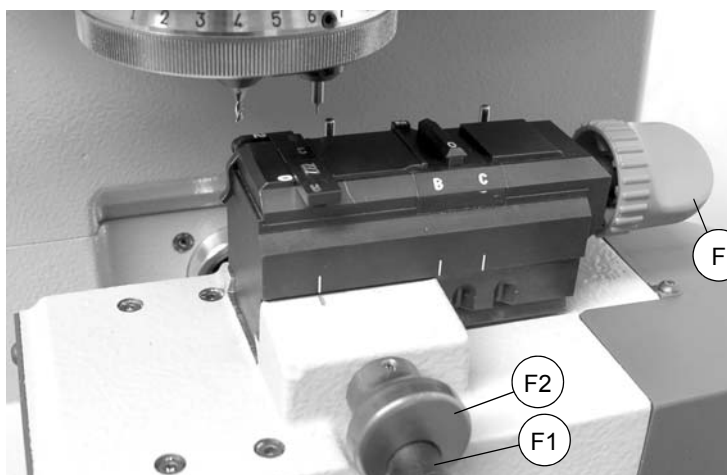


Fig. 33

- Raise the safety shield, loosen the (F1) handle by one turn and pull the anatomic grip (F2) towards the operator. This releases the clamp so that it can slide to the right. Release the anatomic grip, move the clamp manually and the positioning device will lock the clamp into the clamp reference notch. When the clamp is in position (Clamp A) tighten the (F1) handle.
- Turn the (F) knob to the left.
- Fit the Z22 template into jaw A so that it lies flat on the clamp with the area marked B up against Stop 2 (to do this, turn the Stop 1 plate to the left and downwards).
- Secure the Z22 template by turning the (F) knob to the right.

Press ENTER; the display will show the message:

Open dial  
locking lever  
[ENTER]

Release the lever (N) turn it and place it against the vertical side of the machine. Press ENTER; the display will show:

Rotate dial to  
position 16  
[START]

Turn the (O) dial to the left until it reaches position 16 (you should hear a click). Close the shield. Press START; the display will show:

Positioning  
in progress

Rotate dial to right  
up to contact with  
cut. & temp. Z22-B  
Status: OFF

Turn the dial to the right manually until it goes from OFF to ON (also with beeper).

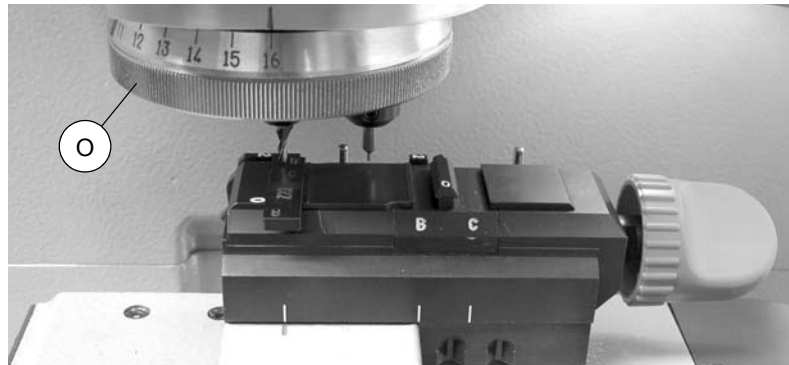


Fig. 34

Rotate dial to right  
up to contact with  
cut. & temp. Z22-B  
Status: ON [ENTER]



Fig. 35

As soon as it goes to ON, press ENTER, and the display will show:

```

Unlock grub screw
regulate numbered
ring to position 6
[ENTER]
  
```

Loosen the (O1) grub screw with the 2mm (0.0787") hex. wrench (fig. 35). Leave the hex wrench on the grub screw (O1) hold the lower knurled dial still and turn the upper graduated bush to position 6 aligned with the notch on the spindle support.

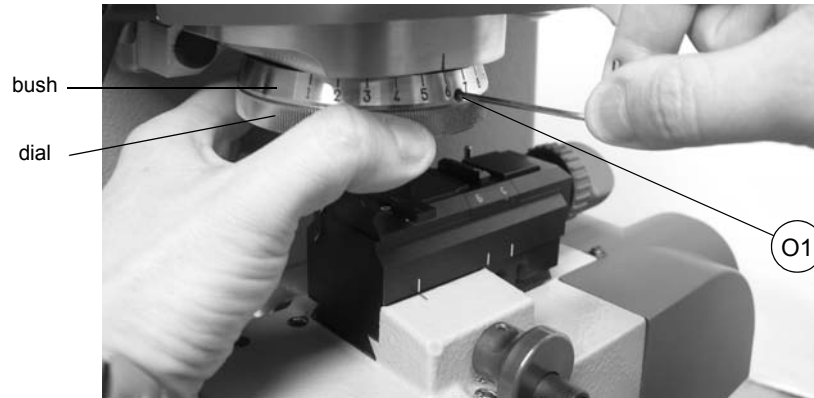


Fig. 36

Press ENTER; the display will show:

```

Lock grub screw
and rotate dial
to position 10
[ENTER]
  
```

Lock the grub screw (O1) with the 2mm (0.0787") hex wrench. Remove the hex wrench. Turn the two dials together to the left until they are on position 10 (you should hear a click).

Lower the protective shield.

Press START; the display will show:

```

Zero out
cutter life ?
No=STOP Yes=ENTER
  
```

- Press STOP to keep the current values for cutter duration by returning to the previous menu.
- Press ENTER to clear the current cutter duration values (preferably when replacing a worn cutter with a new one).

### 5.6.3 Decoder calibration

**Note:** the TRI-CODE H.S. key-cutting machine is already gauged when delivered. In the event of replacing the decoder (Ch. 7.12) or checking cutting depth gauging, proceed as follows:

First check that clamp, decoder and Z22 template are all perfectly clean.

Choose the function from the main menu by placing the cursor on "3 - Calibrations".

Press ENTER, the display will show:

```

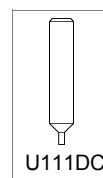
1 - Clamp
2 - Cutter
3 - Tracer point
4 - Adaptors
  
```

Select "3 - Decoder". The display will show:

```

          TRACER
Adjustment:
U111DC: X=-02 Y=-18
To calibrate [START]
  
```

Check that the U111DC decoder on the machine is in good condition. If not, see ch. 7.12 "Decoder (U111DC) replacement".



Press START, the display will show:

```

Clamp: A
Templ.: Z22-A Pos.:2
See operating manual.
          [START]
  
```

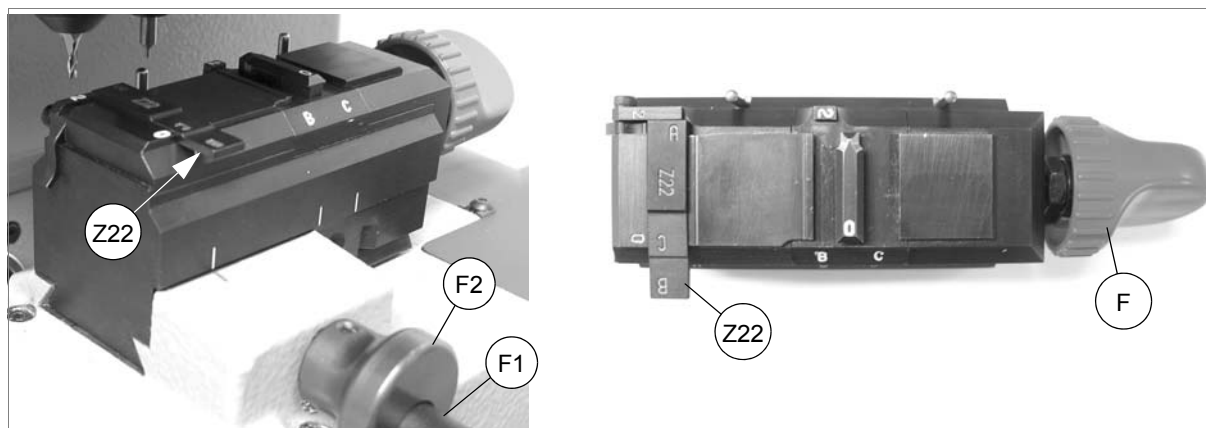


Fig. 37

- Loosen the (F1) handle by one turn and pull the anatomic grip (F2) towards the operator. This releases the clamp so that it can slide to the right.
- Release the anatomic grip, move the clamp manually and the positioning device will lock the clamp into the clamp reference notch. When the clamp is in position (Clamp A) tighten the (F1) handle.
- Turn the (F) knob. to the left. Fit the Z22 template into jaw A so that it lies flat on the clamp with the area marked A up against Stop 2 (to do this, turn the Stop 1 plate to the left and downwards). Secure the Z22 template by turning the (F) knob to the right.
- Press ENTER; the display will show the message:

```

Detection
in progress !
  
```

- At the end of the operation the following message will appear (e.g.):

```

U111DC: X=-01 Y=-18
Save data ?
No=STOP Yes=ENTER
    
```

Press [ENTER] to save the data automatically adjusted.

**Attention: if the [STOP] key is pressed the new calibrations will be lost and only the previous calibrations will remain valid.**

- if this is not so, the display will show an error message:

```

Exceeded setting
tolerance limit !
X=+44 Y=+01
See operating manual.
    
```

In this case the procedure **MUST** be repeated, carefully following all the steps described; in particular check the positioning of the clamp (Ch. 4.4, page 18).

Wrong positioning can throw out the calibration.

**Note: the calibrations will be accepted only if the variations remain within a range of -50 or +50 hundredths of a mm (-0.0196" / +0.0196").**

### 5.6.3.1 MANUAL GAUGING OF DECODER (U111DC)

**Note: this operation has already been carried out during final machine testing. It should be done only in exceptional circumstances, such as: replacing the dial or decoder spindle, or if the operator makes a mistake when replacing the decoder U111DC).**

- Raise the safety shield, loosen the grub screw (K) (fig. 38) and remove the U111DC decoder (Ch. 7.12, page 96).
- Loosen grub screw (K1) (fig. 39).

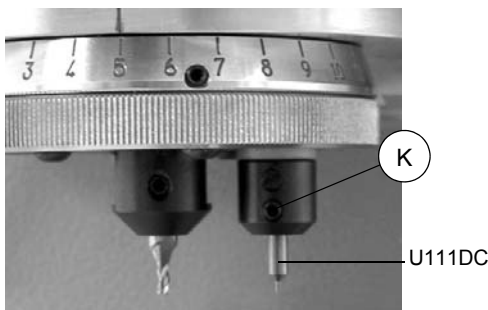
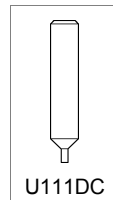


Fig. 38

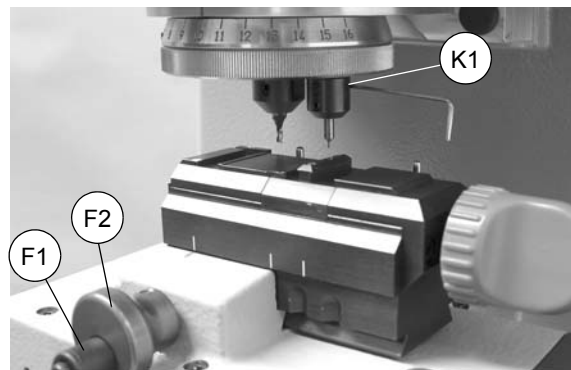


Fig. 39

- Fit the decoder U111DC and use a screwdriver to turn the decoder height regulation cam screw (K2) so that when the decoder is fitted it can be positioned as high as possible. Tighten the grub screw (K) to secure the decoder (fig. 40).

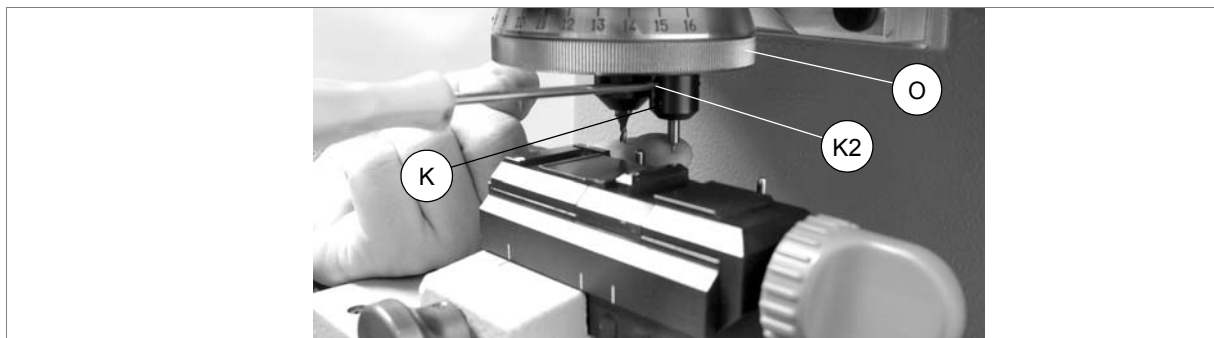


Fig. 40

- Loosen the lever (N) and turn the (O) dial to the left until it reaches position 10 (you should hear it click into place)
- Loosen the (F1) handle by one turn and pull the anatomic grip (F2) towards the operator. This releases the clamp so that it can slide to the right. Release the anatomic grip and move the clamp manually. The positioning device will lock the clamp in the clamp reference notch.
- When the clamp is in position (Clamp A) tighten the (F1) handle.
- Turn the (F) knob to the left. Fit the Z22-B template into jaw A so that it lies flat on the clamp and is well up against Stop 2 (to do this the Stop 1 plate must be turned left and downwards).
- Secure the Z22 template by turning the (F) knob to the right.
- Move the carriages manually, taking the area marked C on the Z22 template precisely under the U111DC decoder.
- Turn the (O) dial to the right until it reaches position 6 (you should hear it click into place).

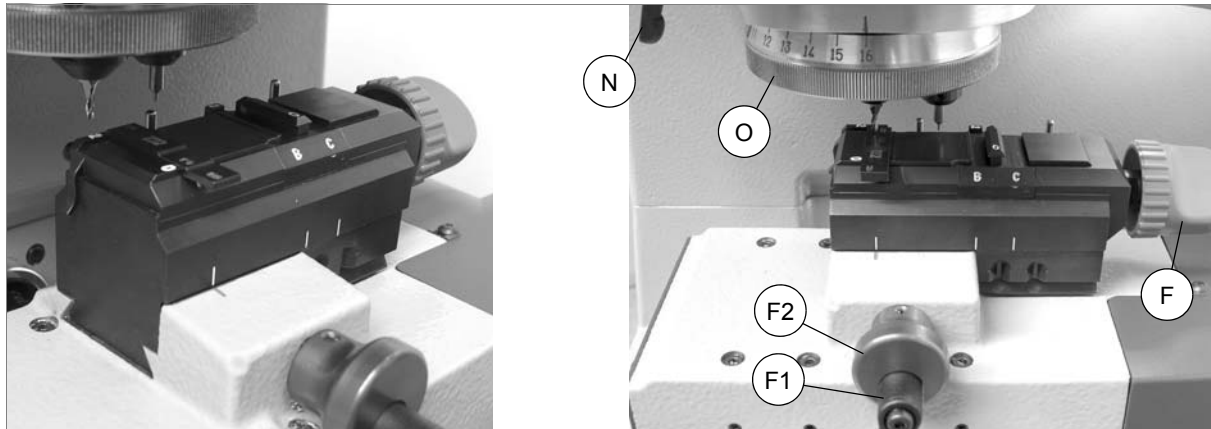


Fig. 41

- Start the key-cutting machine, enter the main menu and position the pointer on "4 - Maintenance". Press ENTER; the display will show the message:

```

1 - Cutter
2 - Test
3 - Cutting Test
4 - Heating cutter
    
```

- position the pointer on "2 - Test" and press ENTER; the display will show:

```

1 - X axis motor
2 - Y axis motor
3 - Cutter motor
4 - X axis sensor    >>
5 - Y axis sensor
6 - Shield micro
7 - Electric contact
8 - Dial lock lever
9 - Keyboard
10- Display
11- Serial port
12- Battery status
    
```

- position the pointer on "7 - Electric Contact" and press ENTER; the display will show:

```

7 ELECTRIC CONTACT
  Make a contact
  CUTTER    TRACER
  Stat.:OFF Stat.:OFF
    
```

- Loosen the grub screw (K) (fig. 42) only slightly so that the decoder does not fall out.

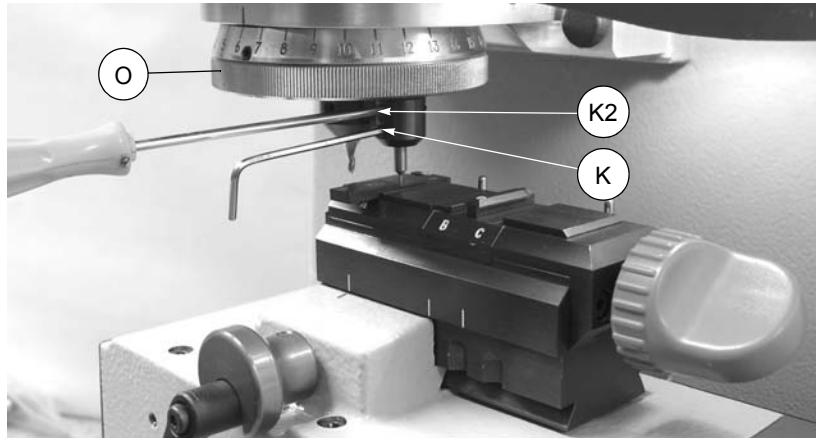


Fig. 42

- Regulate the cam screw (K2) so that the decoder is lowered gradually until it touches the area marked C on the Z22 template. On achieving this (Electric Contact made), the decoder change of status from OFF to ON will be signalled by a beeper and shown on the display:

7 ELECTRIC CONTACT	
Make a contact	
CUTTER	TRACER
Stat.:OFF	Stat.:ON

- Tighten the grub screw (K) to secure the decoder.
- Press STOP to quit the menu. Turn off the key-cutting machine.
- Turn the dial unit to the left until it reaches position 10 (you should hear it click into place)
- Move the carriages manually to take them back to their initial position (take care not to bang into the tools).
- Tighten the grub screw (K1) (fig. 39, page 43).
- Turn the (F) knob to the left and remove the Z22 template.

### 5.6.4 Adaptors calibration

The operator can make manual adjustments to the theoretical references or key stop points by entering the values for parameters X, Y and Z.

This will result in a variation in the cutting, as shown in fig. 43.

1 - Clamp
2 - Cutter
3 - Tracer point
<b>4 - Adaptors</b>

Select 4 - Adaptors and press ENTER.

1: I1
2: I2

Press ENTER.

Adaptor: I1
Adjustment:
X=+02 Y=+04 Z=00

Use the arrows or [ENTER] to place the cursor at the side of the parameter to alter and change the parameters with the following keys:

- SHIFT + [up arrow] increases the value within +50 hundredths of a mm (+0.0196")
- SHIFT + [down arrow] decreases the value within - 50 hundredths of a mm (-0.0196")
- CLEAR to zero the value
- [ENTER] in the last field allows you to quit the window and save the alterations made:

**Attention:** if you press [STOP] the new values will not be saved and the previous calibration settings will remain valid.

Save adjustment?  
No=STOP Yes=ENTER

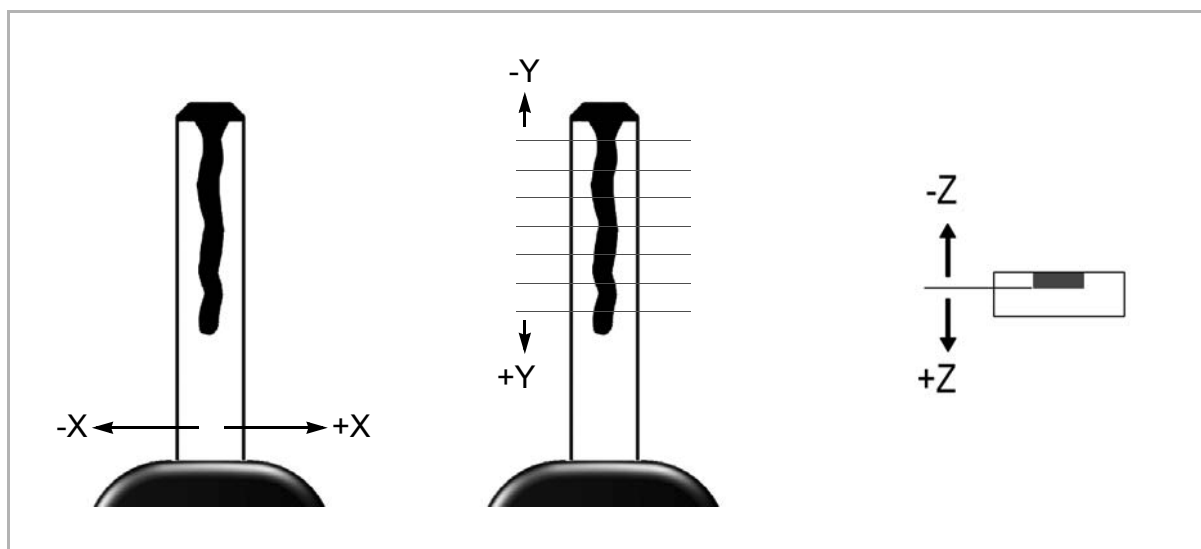


Figura 43

### 5.6.5 User adjustments

By means of the TRI-CODE H.S. program the operator can make manual adjustments by entering values for the X and Y parameters.

Adjustments to the values for X and Y can be made only for the clamp, as shown in fig. 44.

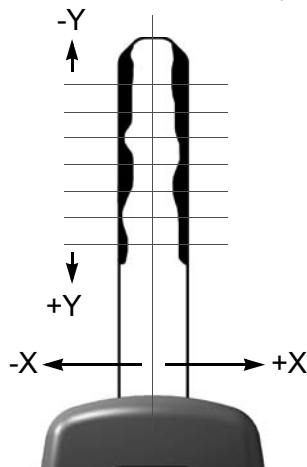


Fig. 44

- **Clamps**

The operator can make manual adjustments to the theoretical references or key stop points by entering values for the X and Y parameters.

This will vary the results of the cutting operation in the way shown in fig. 44.

Select the function from the main menu by placing the cursor on "3 - Calibrations"

Select "1 - Clamps".




Select the clamp (A or B or C).



- **User adjustments with clamp D: see Ch. 5.11.3, page 75**

Clamp: A
Adjustment:
X=+00    Y=+00
To calibrate    [START]

Clamp: B
Adjustment:
X=+00    Y=+00
To calibrate    [START]

Clamp: C
Adjustment:
X=+00    Y=+00
To calibrate    [START]

Place the cursor by the side of the parameter to be altered with the arrows   [up/down] or [ENTER]  and alter the parameters using the following keys:

SHIFT +  [up arrow]	Increases the value within +50 hundredths of a mm (+0.0196")
SHIFT +  [down arrow]	Decreases the value within - 50 hundredths of a mm (-0.0196")
CLEAR	To zero the value

Press [ENTER] on the last field to quit the window. You will be asked if you want to save the adjustments made:

Save adjustment ?
No=STOP    Yes=ENTER

**Attention: if the [STOP] key is pressed, the new settings will be lost and only the previous values will be valid.**

## 5.7 MAINTENANCE - 4

All the steps necessary for maintenance are described below.

### 5.7.1 Cutters

Select the function from the main menu by placing the cursor on "4 - Maintenance". Press ENTER, the display will show:

```

1 - Cutter
2 - Test
3 - Cutting Test
4 - Heating cutter
    
```

The menu item "CUTTERS" includes the tool used by TRI-CODE with its characteristics. Use the [ENTER] key to go to the item "1 - Cutters" or press the "1" key to view the tool used by the machine.

```

          Cutter
1: W101
2: W114
3: H158
4: W302
    
```

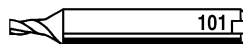



Fig. 45

Press ENTER, the display will show:

```

Cutter: 101    Mat.=W
Life= [XXXXXXXXXX]%
Duration= STANDARD
Leng.: 4000    Base: 250
    
```

Move with the arrow keys or [ENTER] onto the field to be altered and press [SHIFT]+  [down arrow key] to alter the value from those admissible:

<b>Material</b>	<i>The user can select H = HSS or W = Hard Metal, according to the material of the cutter to be used. Cutter W101 = Standard</i>
<b>Life</b>	<i>Shows the life of a (new) cutter with 10 black squares. The fewer the black squares the more worn the cutter is (this characteristic of the cutter cannot be modified)</i>
<b>* Duration</b>	<i>Select: LOW / STANDARD / HIGH / CUSTOM 3X / CUSTOM 4X A STANDARD value is normally established</i>
<b>Length</b>	<i>Cutter length 40 (unalterable characteristic of the cutter)</i>
<b>B. Cutting</b>	<i>The cutter cutting base (unalterable characteristic of the cutter)</i>

**Attention: use cutters provided by SILCA.**

**\* DURATION:**

- LOW
- STANDARD
- HIGH
- CUSTOM 3X = STANDARD x 3
- CUSTOM 4X = STANDARD x 4

## 5.7.2 TEST

There is a TEST menu on the machine, for use in the event of faulty operation or for checks.

**Attention: this 'Test' chapter can be used to check any errors/anomalies that could occur on the machine (Ch. 7.1 "Trouble shooting", page 85).**

Select the function from the main menu by placing the cursor on "4 - Maintenance"  
Select "2 - Test".

1 - X axis motor	
2 - Y axis motor	
3 - Cutter motor	
4 - X axis sensor	>>
5 - Y axis sensor	
6 - Shield micro	
7 - Electric contact	
8 - Dial lock lever	
9 - Keyboard	
10- Display	
11- Serial port	
12- Battery status	

Operational keys: arrow keys [Up/Down] to position the cursor on the option required, and press [Enter].

- **Test 1: X AXIS MOTOR (top carriage)**

1 X AXIS MOTOR Press arrowed keys to move axis.
---

Carefully follow the instructions on the display and check that the X axis carriage moves.

- With the arrow [Down] the carriage moves to the right.
- With arrow [Up] the carriage moves to the left.

**Attention: during this test all the end of run controls are disabled; avoid moving the carriage up against its mechanical stops.**

**Note: if the motor does not start, contact Silca's Technical Assistance Dept.**

- **Test 2: Y AXIS MOTOR (bottom carriage)**

2 Y AXIS MOTOR Press arrowed keys to move axis.
---

Carefully follow the instructions on the display and check that the Y axis carriage moves.

- With the arrow [Down] the carriage moves towards the operator.
- With the arrow [Up] the carriage moves towards the cutter.

**Attention: during this test all the end of run controls are disabled; avoid moving the carriage up against its mechanical stops.**

**Note: if the motor does not start, contact Silca's Technical Assistance Dept.**

- **Test 3: CUTTER MOTOR**

3 CUTTER MOTOR START key to activate motor.
---

Carefully follow the instructions on the display and check that the cutter motor works.

**Note: if the cutter motor does not turn, contact Silca's Technical Assistance Dept.**

- **Test 4: X AXIS SENSOR (top carriage)**

4 X SENSOR Press arrows keys to move axis. Status:OFF
--

- the machine display should show OFF with the carriage moved all the way to the right.
- the machine display should show ON with the carriage moved all the way to the left.

**Note:** if the ON/OFF transition is nor made, contact Silca's Technical Assistance Dept.

- **Test 5: Y AXIS SENSOR (bottom carriage)**

5 Y SENSOR Press arrows keys to move axis. Status:OFF
--

- the machine display should show ON when the carriage is drawn away from the machine towards the operator.
- the machine display should show OFF when the carriage is pushed all the way in towards the machine.

**Note:** if the ON/OFF transition is nor made, contact Silca's Technical Assistance Dept.

- **Test 6: MICRO CARTER**

6 SHIELD MICRO Open & close shield. Status:ON
--

Raise or lower the safety shield and check on the display that the indication goes from OFF to ON.  
ON = safety shield down; OFF = safety shield up.

**Note:** if the ON/OFF transition is nor made, contact Silca's Technical Assistance Dept.

- **Test 7: ELECTRIC CONTACT**

7 ELECTRIC CONTACT Make a contact CUTTER            TRACER Stat.:ON       Stat.:OFF
--

Use any metal conductor to create a connection between the cutter and the clamp, checking that the machine display shows first OFF then ON.  
The same procedure applies to the decoder.

**Note:** if the ON/OFF transition is nor made, contact Silca's Technical Assistance Dept.

- **Test 8: DIAL LOCK**

8 DIAL LOCK LEVER Close and open the locking lever Status:ON
---

Check the state of the dial by moving the lever (N) and checking on the display that the indication goes from OFF to ON. ON = lever locked; OFF = lever released.

**Note:** if the ON/OFF transition is nor made, contact Silca's Technical Assistance Dept.

- **Test 9: KEYPAD**

9	KEYBOARD	00000
Press		00000
keys		00000
		0000000000

Press all the keys (except STOP) one at a time and check that an asterisk (\*) appears for each key pressed. Press STOP to quit.

**Note:** *if this is not so, contact Silca's Technical Assistance Dept.*

- **Test 10: DISPLAY**

10	DISPLAY
	START to activate.

Press START and check that all points on the display should be obscured.

**Note:** *if this is not so, contact Silca's Technical Assistance Dept.*

- **Test 11: SERIAL PORT**

11	SERIAL PORT
	Install special
	Z4 connector.
	Status:OFF

Check that the machine display shows OFF.

Fit the special serial test connector (Z4) provided to the machine serial port, checking that the display shows first OFF then ON.

**Note:** *if the ON/OFF transition is not made, contact Silca's Technical Assistance Dept.*

- **Test 12: BATTERY STATE**

12	BATTERY STATUS
	< CHARGED >

Check that the display shows <Charged>.

If not, replace it (Ch. 7.16, page 98).

**Note:** *the machine also works with a flat battery (the battery is used only for the function: Options > Set Clock).*

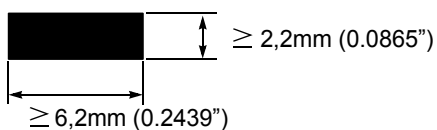
### 5.7.3 Cutting Test

- |                         |
|-------------------------|
| 1 - Cutters             |
| 2 - Test                |
| <b>3 - Cutting Test</b> |
| 4 - Heating cutter      |

Enter the main menu and choose this function by placing the pointer on “4 - Maintenance”  
Select “3 - Cutting Test”.

CLAMP A	
Cutt.:W101	Dial:5
Pos.:2	
	[START]

Insert a key (HON66) or with the following dimensions:



Place the key in the clamp, as illustrated in fig. 46.



Fig. 46

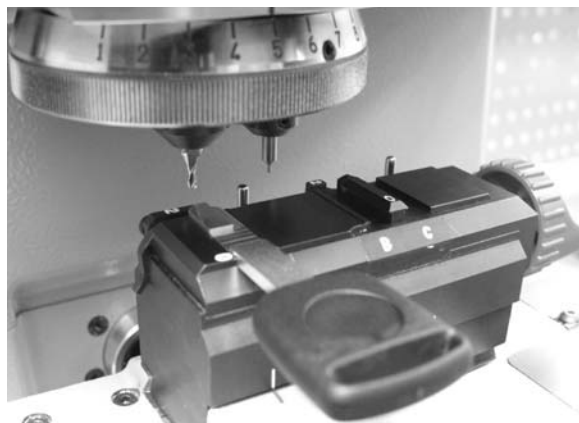
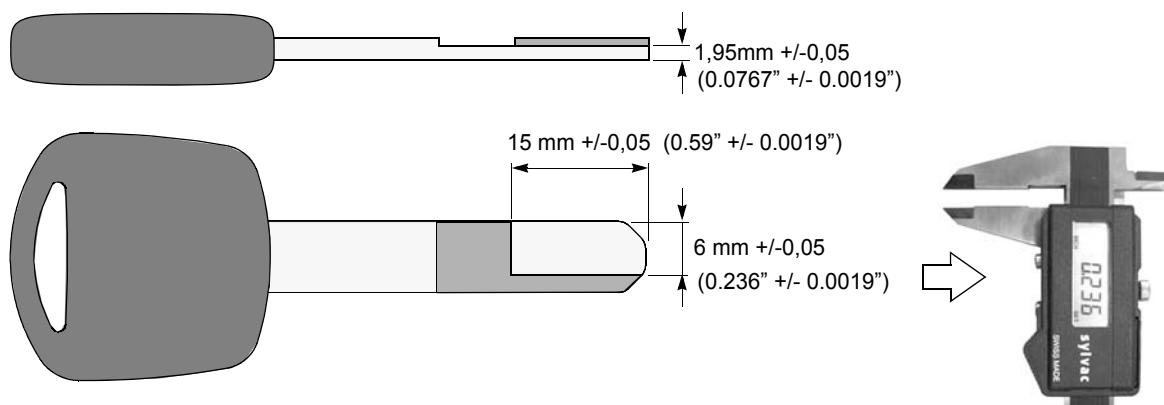


Fig. 47

Press START.

Cutting in progress!
-------------------------

At the end of the operation remove the key/template (fig. 47) and check the dimensions with a centesimal gauge.



If the dimensions do not correspond, re-gauge (Ch. 5.6, page 34).

### 5.7.4 Heating cutter

This operation is performed to heat the cutter and ring nut unit so that the ring nut will rotate freely even when the machine has not been used for some time and/or is installed in a very cold place.

1 - Cutters
2 - Test
<b>3 - Cutting Test</b>
4 - Heating cutter

Select 4 – Cutter heating and press ENTER; the display will show:

Heating procedure of cutter motor [START] to activate
--

Press START, the cutter motor will start and the display will show:

Proced. in progress 120 [STOP] interrupt
--

The time to complete the operation (120 seconds) is shown and decreases progressively as the seconds go by.

Press STOP to interrupt the procedure.

Proced. in progress 68 [STOP] interrupt
---

At the end of the procedure (after 120 seconds) the display will show:

Heating procedure of cutter motor [START] to activate
--

Press STOP to exit, or START to carry out a new cutter motor heating cycle.

### 5.7.5 Machine Zero Points

**Note:** *this function is deliberately semi-concealed so that the operator cannot access this menu by mistake and inadvertently alter the data.*

The machine comes with a 'self-calibration' procedure, using a regulating template Z21 (provided) (Ch. 1.5 "Accessories provided", page 8) and special procedures. Such procedures must be carried out strictly according to the descriptions and illustrations.

Regulation is necessary when the following events occur:

EVENT	MACHINE ZEROES
Replacement of electronic board	YES
Replacement of sensors	YES
Replacement of ball screws	YES
Replacement or maintenance of decoder	NO

#### PRELIMINARY OPERATIONS

- 1) Turn the machine off and unplug from the mains.
- 2) remove the back panel (Ch. 7.8, page 92).
- 3) loosen the 3 fixing screws (B5) and remove the X axis carriage cover by pulling in the direction shown (fig. 48).
- 4) replace the plug in the mains socket.
- 5) turn the machine on and carry on with the procedure described below.

**Attention:** the 'Machine Zero Point' loading operation must be carried out following the instructions given to the letter. After this operation no keys can be cut or decoded because the machine program will require new calibration of all the clamps!

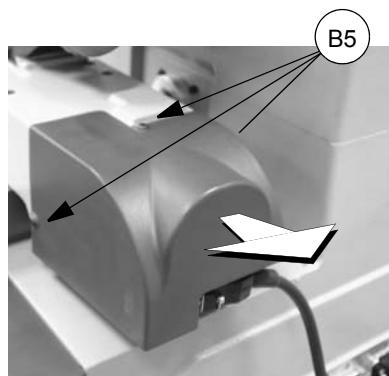


Fig. 48

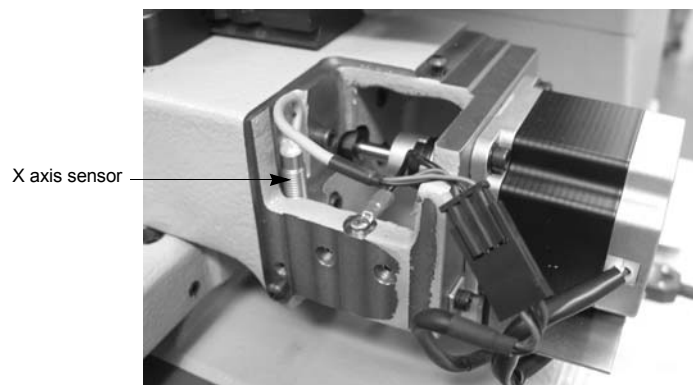


Fig. 49

Select the function from the main menu by placing the cursor on "4 - Maintenance". Press ENTER, the display will show:

```

1 - Cutter
2 - Test
3 - Cutting Test
4 - Heating cutter
    
```

Press the combination SHIFT + [arrow Down]; the display will show:

```

2 - Test
3 - Cutting Test
4 - Heating cutter
5 - Machine 0 points
    
```

With the pointer on position 5, press ENTER, the display will show the message:

```

ATTENTION
See operating
manual before
proceeding! [ENTER]
    
```

**Note:** from here on consult this manual for every operation required on the display. Press ENTER; the display will show the message:

Install  
U111 tracer  
See operating manual.  
[ENTER]

- Raise the safety shield.
- Turn the cutter spindle by hand in order to reach the tool-locking grub screw (E1).
- with one hand hold the cutter to be removed and with the other use a 2.5mm (0.0983") hex wrench to loosen the grub screw (E1) (fig. 50).
- remove the tool.
- fit the U111 tracer point into the spindle (fig. 51) pushing all the way in.
- hold the U111 tracer point still with one hand and with the other tighten the grub screw (E1) with the 2.5mm (0.0983") hex wrench.

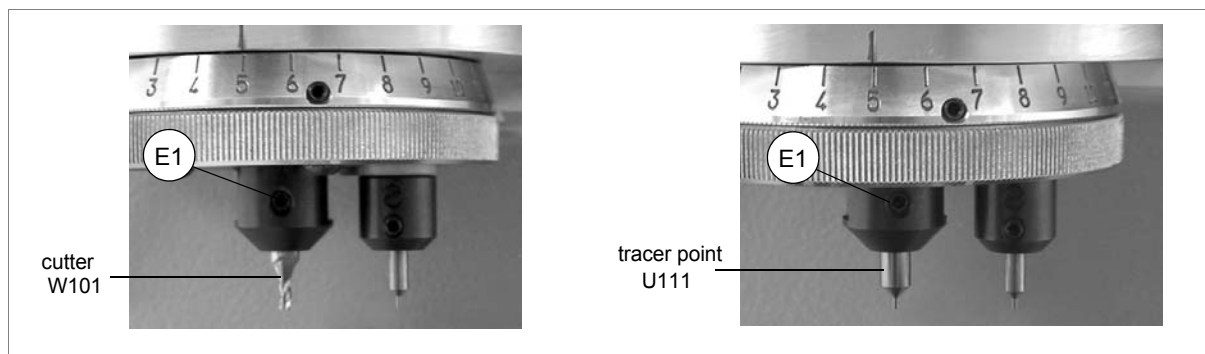


Fig. 50

Fig. 51

Press ENTER; the display will show the message:

Install  
clamp A and  
Z21 template  
[ENTER]

- Loosen the (F1) handle by one turn and pull the anatomic grip (F2) towards the operator. This releases the clamp so that it can slide to the right. Release the anatomic grip, move the clamp manually and the positioning device will lock the clamp into the reference notch.
- When the clamp is in position (Clamp A) tighten the (F1) handle.
- Turn the (F) knob to the left. Fit the Z21 template (fig. 52) into jaw A with the wording "Z21" upwards so that the operator can read it. Make sure it lies flat on the clamp and is right up against Stop 2 (to do this turn the Stop 1 plate to the left and downwards).
- Secure the Z21 template by turning the (F) knob to the right.



Fig. 52

- press ENTER; the display will show the message:

```
Bring tracer in  
contact with Z21.  
See operating manual.  
[START]
```

Move the upper X and lower Y carriages by hand so that the U111 tracer point is in contact with both the sides of the Z21 template (fig. 52).

Lower the safety shield and press START. First the display will show the message:

```
Positioning  
in progress !
```

then:

```
Sensor positioning  
ICX=OFF ICX=OFF  
See operating manual.  
[START]
```

**Attention: if the tracer point and template are not in the position shown in fig. 52 the following message appears on the display:**

```
TEMPLATE ERROR  
No contact made.  
  
See operating manual.
```

Check that the template Z21 and the U111 tracer point are positioned as shown in fig. 52. Press [ENTER] and carry out the procedure described above.

**PROCEED AXIS BY AXIS, AS FOLLOWS:****Regulation of sensor for top carriage (X axis):**

- lift the protective shield.
- use the hex wrench to loosen the grub screw (B1) slowly move the rod (B2) manually in both directions (fig. 53) until the point of transition from OFF to ON is found. The display changes from:

Sensor positioning  
 ICX=OFF ICY=OFF  
 See operating manual.  
 [START]

to:

Sensor positioning  
 ICX=**ON** ICY=OFF  
 See operating manual.  
 [START]

- secure the rod by tightening the grub screw (B1).

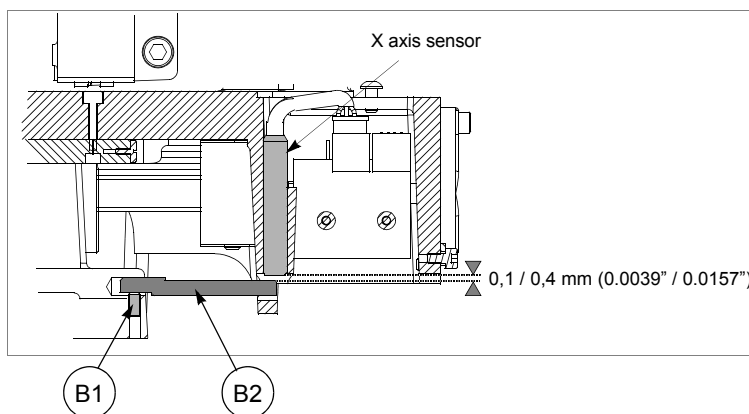


Fig. 53

**Regulation of sensor for bottom carriage (Y axis):**

- tip the machine onto one side.
- Open the lower compartment (Ch. 7.8, page 92).
- Loosen the screw (L5) and remove the sensor plate (fig. 54, page 58).
- Loosen the nut (L3) and regulate the Y measurement.
- Secure the plate by locking the screw (L5) until the display shows a description that goes from OFF to ON. The display goes from:

Sensor positioning  
 ICX=ON ICY=OFF  
 See operating manual.  
 [START]

to:

Sensor positioning  
 ICX=ON ICY=**ON**  
 See operating manual.  
 [START]

- reposition the machine on its workbench and lower the shield.
- press the [START] push button.
- the 'Machine Zero Points' are detected by electric contact.

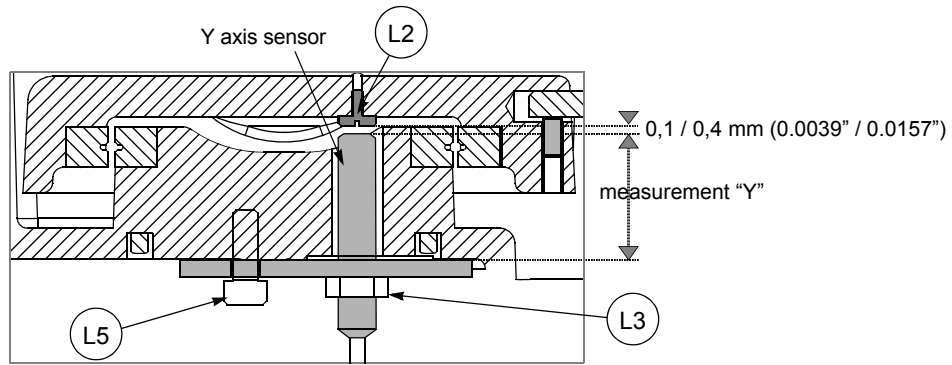


Fig. 54

First the display will show:

Zero detection  
in progress !

then:

- if the calibration values read exceed the limits allowed ( $\pm 50$  hundredths of a mm) ( $\pm 0.0196$ ) calibration is not valid and the following message appears:

Exceeded setting  
tolerance limit !  
X=+53 Y=+257  
See operating manual.

**In this case the operation must be carefully repeated, paying great attention to all the steps, especially positioning of the Z21 template.**

- if the operation is successfully completed the display will show the difference between the theoretical value and the one read (Delta).

Machine zero points  
measurements:  
X=-17 Y=-32  
No=STOP Yes=ENTER

Press [ENTER] to confirm the data and end the operation.

Press [STOP] to quit without saving.

Turn off the machine.

Replace the bottom panel, X axis protective cover and secure them with the screws provided.

**Attention: after calibration of the 'Machine Zero Points', all the clamps must be calibrated.**

## 5.8 OPTIONS - 5

Below are described all the steps necessary for choosing options.  
 Select the function from the main menu by placing the cursor on "5- Options".

```

0 -Decode and Copy
1 -Insert the Cuts
2 -List of Codes
3 -Calibrations
4 -Maintenance
5 -Options
    
```

Press ENTER. A list of machine OPTIONS will appear:

```

1 - Machine data
2 - Preferences
3 - Tracer point
4 - Jaw recognition
5 - Cutter wear
6 - Language
7 - Protected system
8 - Cutting speed
9 - Clock set
10- Carriage speed
11- Keyboard invers.
    
```

Place the cursor on the option required and press [ENTER].

### 5.8.1 Machine data

The display shows:

- the serial number corresponding to that punched on the rating plate located on the back of the machine.
- the machine model (name)
- the number of keys cut
- the software version on the machine

```

Ser.n.: -----
Model: -----
Keys cut: -----
SW Version: -----
    
```

### 5.8.2 Preferences

```

1 - Measurement unit
2 - Start menu
3 - Preferred MFG
4 - Quick menu >>
5 - Series description
    
```

1 - used to choose the measuring unit used to view dimensions such as parameters, adjustments etc.  
 (1 = INCH or 0 = millimetres).

```

Measurement unit = 0
(0= Millimetres)
(1= Inch)
    
```

**2** - used to select from the main menu the function you wish to appear on the screen when the machine is turned on.

Place the cursor on the item to be selected and press [ENTER]. An asterisk will appear (\*) to highlight the selection made.

```
Select start menu:
-* Main Menu
0 Decode and Copy
1 Insert the cuts
```

**3** - searches by code must be filtered by selecting the car makes in which you are interested. This reduces the number of SSNs involved in the search.

Place the cursor on the item to be selected and press [ENTER]. An asterisk will appear (\*) to highlight the selection made.

Press "CLEAR/COPY" to null the selection.

```
Select MFG      [15]
0 * ALL MFG
1 * ACURA
2 * ALFA ROMEO
```

[15] total number of makes

The STANDARD setting of the machine enables searches through all makes (select the item "0-All makes"); as soon as one of the makes is selected the asterisk disappears from the item "0- All makes" and ONLY the MAKES selected are involved.

**4** - if enabled (=1) is used to skip some steps (or windows), when applicable in heavy operating flows, in order to speed up the procedure required by the operator.

```
Quick menu = 0 (0-1)
```

**5** – used to alter the choice parameters.

```
SERIES DESCRIPTION
TYPE: 1

(1=SILCA  2=ILCO)
```

1. Search based on SILCA keys.
2. Search based on KABA ILCO keys.

### 5.8.3 Decoder

This menu is used to enable or disable use of the standard decoder as the decoding instrument.

The TRI-CODE H.S. program allows the operator to choose whether to use the standard decoder (U111DC) or the U111 tracer point for key decoding operations.

If the user disables the standard decoder the program will require the appropriate tracer point (U111) to be installed when decoding is needed.

If the user enables the standard decoder the program will ALWAYS require the standard decoder when necessary.

```
Use of Tracer = 1
(0= Disabled)
(1= Always enabled)
See operating manual
```

### 5.8.4 Clamp detection

Enter the number for the chosen clamp:

Clamp detecting: 1 0= Disabled 1= Always enabled 2= Only when changing
---

- 0 = the clamp detection procedure will not take place before the cutting or decoding cycle.

**Attention: if the clamp is not positioned properly the tools may break.**

- 1 = the clamp detection procedure will take place before each cutting or decoding cycle.
- 2 = the clamp detection procedure will take place before the cutting or decoding cycle only if the clamp is in a position different from the one in use.

### 5.8.5 Worn cutters

Allows enabling or disabling of the Worn Cutter function (Ch. 5.7.1, page 48).

Cutter wear = 1 (0= Disabled) (1= Enabled) See operating manual
--

### 5.8.6 Language

Enter the number that corresponds to the language you intend to work with.

Select language = 2 1: Italiano    2: English 3: Deutsch    4: Français 5: Español
---

### 5.8.7 Protected Systems

Silca has predisposed limited access to some of the data in the Database, in compliance with agreements with some makers. Limitations apply to:

- SERIES: No access to codes or data cards [SR]
- TABLE: No access to codes [TB]
- DATA CARD: No access to data card [SC]

Gain access to protected data in the following way:

- **request the maker's authorization.**
- **communicate to Silca:**
  - The key-cutting machine **SERIAL NUMBER**
  - The **ACTIVATION CODE**
  - Key-cutting machine **ID**

Silca will issue a Password to enter in order to enable key-cutting of the protected system.

Example: Silca provides a protected data card for SSN No. yyy.

When SSN yyy is selected from menu 0-1 or 2 the following appears on the screen:

```

PROTECTED DATA CARD
Mach. ID:      12345
Code:
Password:      0
    
```

When authorization has been received from the maker, apply to Silca for a password, providing the following information:

- **Key-cutting machine serial No 1170145634567**

Read the serial number on the ID plate fixed to the back of the machine.

- **Machine ID 12345**

Visible in the password application box or by selecting menus 5-7-1 on the machine.

- **ACTIVATION Code ...SC00011**

Shown ONLY when access to protected data is attempted.

Once obtained, enter the password on the **Password** line, as shown in the example given above.

If the correct password has been entered, the screen shows:

```

CORRECT PASSWORD
Save the password?
No=STOP  Yes=ENTER
    
```

The password can **be saved** so that it need not be entered whenever the protected data card is used, or **not saved** so that access is limited only to the person in possession of the password.

#### 5.8.7.1 List of enabled systems ACTIVATED and removal of an activation

To consult the list of enabled DATA (data card, series or table) select menus 5-7:

```

PROTECTED SYSTEMS
1-Machine ID
2-Enabled systems
    
```

Select the item in menu 1 to see the **Machine Identification Number**.

```

MACHINE ID
44621
    
```

Select the item in menu 2 to see the list of Enabled Systems

```

No system enabled
    
```

Use the (r/h arrow >) key to view the description associated to the lock system.

**To delete an enabled system, place the cursor on the line to be eliminated and press the CLEAR key.**

### 5.8.8 Cutting speed

This operation is carried out to reduce the carriage movement speed during cutting in terms of percentage (0 to -35%) (cutter rotation speed does not change).

```
5 -Cutter wear
6 -Language
7 -Protected system
8 -Cutting speed
```

Select 8 – Cutting speed and press ENTER; the display will show:

```
          Cutting speed
          Reduction %   -35
          (0... -50)
```

SHIFT + arrow [up/down] to set the required value.  
Press ENTER.

```
          Save
          the modifications?
          No=STOP   Yes=ENTER
```

Press ENTER to confirm; STOP to quit.

### 5.8.9 Clock (hidden menu)

This menu is used to set the values for Date and Time.  
To gain access to the function press SHIFT+ [down arrow key].

```
1-Format date & time
2-Setup date & time
```

1 - Place the cursor on 1 and press ENTER, the display will show:

```
          DATE-TIME
          Date: DD/MM/YY
          Time:  0 - 24
```

- arrow keys [up/down] to change the sector to be edited.
- SHIFT + [arrow down] to set the exact figure.

Press ENTER to confirm. Press STOP to exit.

2 - Place the cursor on 2 and press ENTER, the display will show:

```
          DATE-TIME SETTING
          Date: 21/06/12  DMY
          Time: 10:20:20
```

Press the arrow keys [up/down] to change the sector to be edited, then use the arrow keys [left/right] to set the exact figure.

Press ENTER to confirm. Press STOP to exit.

### 5.8.10 Carriage speed

The speed at which the carriages approach the cutting area, before cutting starts.

The set speed is that for ideal conditions, but the operator may vary it from a minimum of 1000 to a maximum of 5000, by entering the new value.

```
Carriage approach
speed = 3500
(1000 - 5000)
```

### 5.8.11 Keypad inversion

This operation is used to invert the function of the alphanumerical keys.

**“Keypad Inversion” disabled (0):**

- To digit number 1: press [1/H]
- To digit letter H: press [SHIFT] + [1/H]

**“Keypad Inversion” enabled (1):**

- To digit number 1: press [SHIFT] + [1/H]
- To digit letter H: press [1/H]

**Note:** *this function is operational in “Enter cuts”, “Decode and Copy” and “Code Tables” in the main menu.*

```
Inversion keyboard
function= 0
(1=Enabled)
See operating manual
```

## 5.9 MESSAGES

### 5.9.1 ERROR messages

ERROR 1  
ISO function  
not defined !

The message appears when there are problems updating the machine program.  
Try updating or re-loading the machine program using the WINTRANSFER program.

ERROR 2  
Template error!  
No contact made.  
See operating manual.

Calibration of the "Machine Zero Points" reveals a contact failure between the two templates used (template Z21 and tracer point U111) (Ch. 5.7.5, page 54).

ERROR 3  
X Axis No contact  
made !

A machine zeroing procedure (calibration) has been started on the clamp. One of the following situations has occurred:

- the tracer point or cutter has not been fitted.
- the clamp required for the procedure started is not properly fitted.
- the template is not in position on the clamp.

ERROR 4  
Y Axis No contact  
made !

The Y axis is not detected during gauging.  
Check the condition of the U111 tracer point and the position of the Z22 template.

ERROR 5  
Machine ID  
not defined!  
See operating manual.

The Machine ID has not been set. In such cases access cannot be gained to Protected Systems until the Machine ID is set. Select menu 5-7-1 and check that the **Machine ID** is different from 0.  
To set Machine ID ask for a Software update valid for your machine (machine internal program version higher than or the same as 2.0.040) and install with the SILCA WinTransfer Program.

ERROR 6  
Pick at least one  
manufacturer !  
[ENTER]

In the Options menu - Preferences - Select Make, the makes in the list have been deselected. Select at least one make in order to proceed.

ERROR 7  
Key cannot be  
decoded !

The data on the selected data card do not allow decoding.

ERROR 8  
Key cannot be  
made !

The data on the selected data card do not allow code cutting.

ERROR 9  
Clamp  
not installed  
correctly !

Shows that the clamp has been placed in a position different from that required on the display for the operation in progress (check position of clamp A / B / C)

ERROR!  
Key inclined too  
far during cutting  
Check position

If you use clamp "D" with the "C=Taper Cor." function enabled and the key slopes too much the procedure stops.  
If you wish to continue, disable the C=Taper Cor. function.

## 5.9.2 ALARM messages

ALARM 1  
Clamp  
not calibrated!

The message shows that the clamp required by the program flow for cutting or decoding has not been calibrated. Calibrate the clamp involved (see example in Ch. 5.6.1, page 34) (position A / B / C)

ALARM 2  
Faulty  
contact made!

The message shows that the cutter or tracer has come into contact with an obstacle during its approach to a position not set. E.g.:

- there is a foreign body on the clamp.
- the key has not been placed in position properly (vertically instead of horizontally) or does not correspond to the one required by the SSN selected.
- the clamp fitted is different from that required by the processing/decoding in progress (position A / B / C).

ALARM 3  
Depth limit  
exceeded!

A value exceeding the allowed limit has been detected during cutting.  
It is essential to re-gauge.

ALARM 4  
TEMPERATURE  
Turn the  
machine off !

The electronic control board has exceeded the maximum permitted temperature. Check the cooling fan (see Ch. 7.1 "Trouble shooting", page 85).

ALARM 5  
I/O POWER  
Check  
fuse F4 !

Shows that the fuse has cut out due to a short circuit in an inlet or outlet (see Ch. 7.1 "Trouble shooting", page 85).

ALARM 6  
DIGITAL OUTLET  
Turn the  
machine off !

Signals a short circuit in port P (IN/OUT) (see Ch. 7.1 "Trouble shooting", page 85).

ALARM 7  
CUTTER MOTOR  
Check  
fuse F1 !

Shows that the fuse has cut out (see Ch. 7.1 "Trouble shooting", page 85).

ALARM 8  
CUTTER MOTOR  
Motor circuit  
anomaly !

Signals a fault on the electronic control board.

ALARM 9  
Found obstacle  
cannot continue !  
See operating manual.

Signals that during the decoding cycle the decoder (U111DC) or tracer point (U111) cannot leave the reading path because the electric contact has detected an obstacle.

Solution:

- Carefully clean the clamp of swarf or other foreign objects.
- Check that there are no obstacles around the key.
- Release the lever and turn the graduated dial to a higher position (turn to the left).

ALARM 10  
 Faulty contact made!  
 Press START to move  
 axis at zero point !

Signals that during decoding, cutting, gauging or machine clearance the machine has found an anomalous contact along the optimum path set. Check the position of the clamp, key and template.

ALARM 11  
 DIAL LOCK  
 Close the lever !

Signals that the lever/handle (N) has not been tightened after changing the position of the graduated dial. Raise the safety shield and tighten the lever/handle.

ALARM 12  
 Movement axis  
 not completely  
 zeroed.

This message indicates that there is a fault on the axis referred to (X or Y) due to:

- an obstacle impeding free movement of the axis to complete its run.
- a fault on the limit switch (do the sensor TEST)
- a fault on the motor that moves the axis (do the motor TEST)
- break down of motor control on the electronic board (do the motor TEST).

### 5.9.3 ATTENTION messages

ATTENTION

Install clamp:

Signals that the clamp has not been detected for the operation in progress, or that the clamp has not been positioned correctly on going from one job to another with a different clamp (position A / B C).

ATTENTION

Eliminate contact  
 before proceeding.

Signals that unexpected contact has been made during the operation in progress. According to the operation, carefully clean the clamp, tracer point/decoder, cutter or template. Check that the clamp, key or template is in the right position.

ATTENTION

Battery flat

Signals that the battery for the date/time function is flat. Replace the battery (Ch. 7.16, page 98).

ATTENTION  
Blunt cutter !  
Replace it?  
No=STOP Yes=ENTER

Signals that the cutter has exceeded its set duration (Ch. 5.7.1, page 48).  
Replace the cutter (Ch. 4.6, page 19)

ATTENTION  
The access to this  
series (SSN) is only  
through the code

The selected data card allows cutting by indirect code only.

ATTENTION  
The machine was  
turned-off during  
a work cycle!

Indicates that the machine has been turned on again after an interruption.  
Press START to continue (Ch. 5.9.5 "INTERRUPTIONS", page 70).

ATTENTION:  
Cycle interrupted!  
Key will be damaged  
[ENTER] [START]

Indicates that the cutting cycle has been interrupted (with STOP) (see Ch. 5.9.5, page 70).

ATTENTION  
See operating  
manual before  
proceeding! [ENTER]

Consult the manual (for the operation required) and press ENTER to continue.

ATTENTION  
Key blank  
dimension out  
of tolerance !

If you use clamp "D" with the "G=Key Det." function enabled and there is too great a difference between the key blank measurements and those on the Silca cutting card, cutting stops.  
If you wish to continue, disable the "G=Key Det." function.

### 5.9.4 Various messages

X AXIS ERROR  
No contact  
made !

Appears

- If the template is not found during gauging.
- If the key is not in the clamp.

ERROR  
Clamp (\*\*\*)  
not installed  
correctly !

Appears

- if the decoder is broken or missing,
- if the decoder is not properly gauged (decoder too high),
- if the clamp is installed in a different position (A, B or C),
- if the clamp is not installed, (\*\*\*) = A, B or C

If the previous operation required the dial to be in a position different from 5 (e.g. 6) and the operator forgets to take the dial back to position (5), the display will show the message:

Unlock the lever and  
regulate the dial  
to position 5  
[START]

Release the lever (N) turn the depth regulating (O) dial by hand and check that it is in position 5 (you should hear a click).

### 5.9.5 INTERRUPTIONS

#### • WHAT TO DO IF THE DISPLAY SHOWS:

ATTENTION  
The machine was  
turned-off during  
a work cycle !

Indicates that the machine has been turned on again after an interruption.  
Press START or ENTER to continue; the display will show:

It is requested to  
zero out the axes  
Press [START]  
to proceed.

Raise the safety shield,

loosen the lever/handle (N).

Turn cutter chuck dial to the left until it reaches position 16 (you will feel position it clicks).

Turn the clamp (F) knob and remove the key.

Turn the cutter chuck dial to the right until it reaches its original position.

Tighten the lever/handle (N).

Lower the safety shield and press START.

The display will show first:

Positioning  
in progress !

then return to the initial menu.

**• WHAT TO DO IF THE DISPLAY SHOWS:**

ATTENTION Cycle interrupted! Key will be damaged [ENTER]            [START]
--

Indicates that the cutting cycle has been interrupted (with STOP).

Press the START button to turn on the cutter again. The upper carriage will make a straight run towards the operator in order to leave the cutting operation. The key will be a reject.

Press the ENTER button; the display will show:

See operating manual to avoid a miscut key. [START]
--

Raise the safety shield,

loosen the lever/handle (N).

Turn the cutter chuck dial to the left until it reaches position 16 (you will feel position it clicks).

Turn the clamp (F) knob and remove the key.

Turn the cutter chuck dial to the right until it reaches its original position.

Tighten the lever/handle (N).

Lower the safety shield and press START.

The display will show first:

Positioning in progress !
------------------------------

## 5.10 WINTRANSFER PROGRAM FOR LOADING/UPDATING THE MACHINE PROGRAM

The machine comes with an internal program loaded and tested in workshops. The operator does not therefore need to carry out any operations.

Only in the situations described below will the WinTransfer Program allow the machine to be re-set.

**Here is a list of the situations that require the use of the WinTransfer Program.**

- **Update by SILCA of the program or machine database**

- 1) Connect the PC to the machine with the serial cable provided.
- 2) Turn on the machine.
- 3) Install the WinTransfer Program update on your personal computer, following the instructions in the program.

- **Replacement of the electronic board (see Ch. 7.4) or loss of machine program**

- 1) use the machine keypad to enter the serial number found on the data plate on the back of the machine (see Ch. 5.8.1).
- 2) install the latest version of the WinTransfer Program on your personal computer.
- 3) calibrate the machine according to the instructions in the manual, as follows:

<i>Carry out calibration in the way described in Ch. 5.7.5 "Machine Zero Points", page 54.</i>
--

<i>Calibrate the clamp (Ch. 5.6.1, page 34).</i>
--

<i>Continue by re-calibrating all the remaining clamps.</i>
---

**The machine is now calibrated and ready for operation.**

## 5.11 CUTTING FLAT VEHICLE KEYS WITH THE CLAMP "D" SET

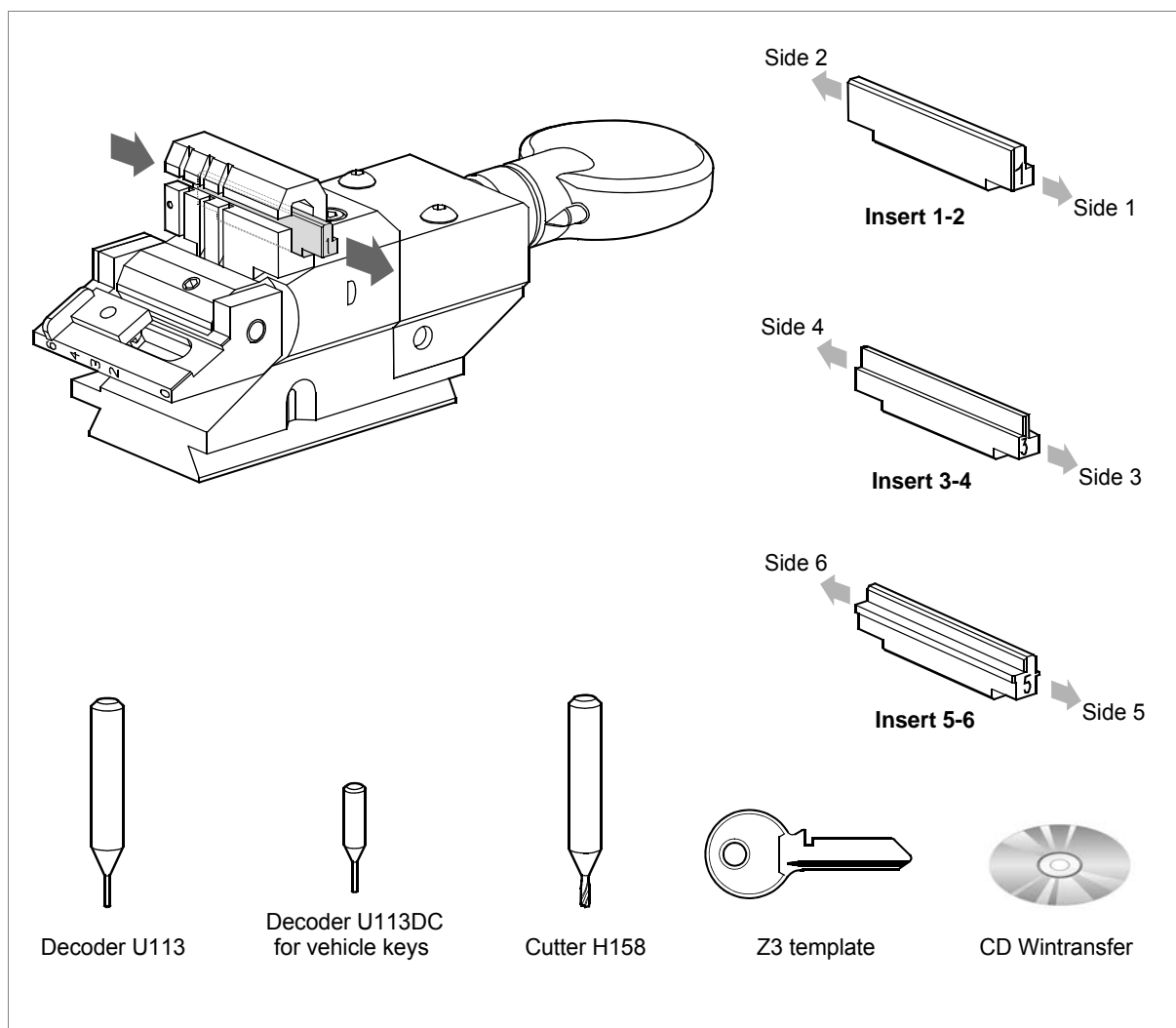


Fig. 55 - Clamp "D" set

### 5.11.1 Initial operation

- 1) Check that the machine SW update is **1.2.018 DB 9.0** or later. If the machine is not updated, use Wintransfer (CD provided in the clamp "D" set). See Ch. 5.10 for the procedure.
- 2) Install clamp "D" (see instructions in Ch. 4.4).
- 3) Remove the existing decoder U111DC and install the new vehicle key decoder U113DC.

**Attenzione:** if you are in possession of clamp "D" you may use tracer point U113 and the new vehicle key decoder U113DC, for all systems.

### 5.11.2 Clamp "D" calibration

- 1) Select "CALIBRATION" and press ENTER.
- 2) Select "CLAMPS" and press ENTER.

Clamps	
1:	A
2:	B
3:	C
4:	<b>D</b>

- 3) Select "D" and press ENTER. The display will show:

Clamp: <b>D-1</b>
Adjustment:
X=+00 Y=+00
<b>To calibrate [START]</b>

Clamp: D-1
<b>Templ.:Z3</b> Pos.: 0
See operating manual
[ENTER]

Clamp: D-1	<b>Dial: 6</b>
<b>Tracer: U113</b>	
See operating manual	
[START]	

- 4) Check that the ring nut is on position **6**.
- 5) Check that tracer point **U113** is installed.
- 6) Check that insert 1-2 is fitted with position **1** towards the operator (fig. 56).
- 7) Fit the key/template **Z3** into the clamp, making sure the back is well aligned on the bottom and the key stop is all the way up against position "0" (fig. 57).

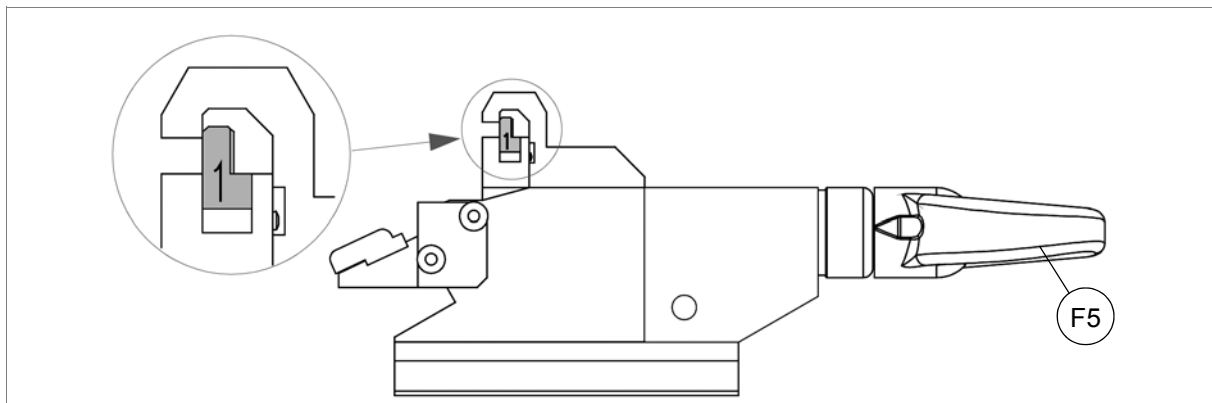


Fig. 56

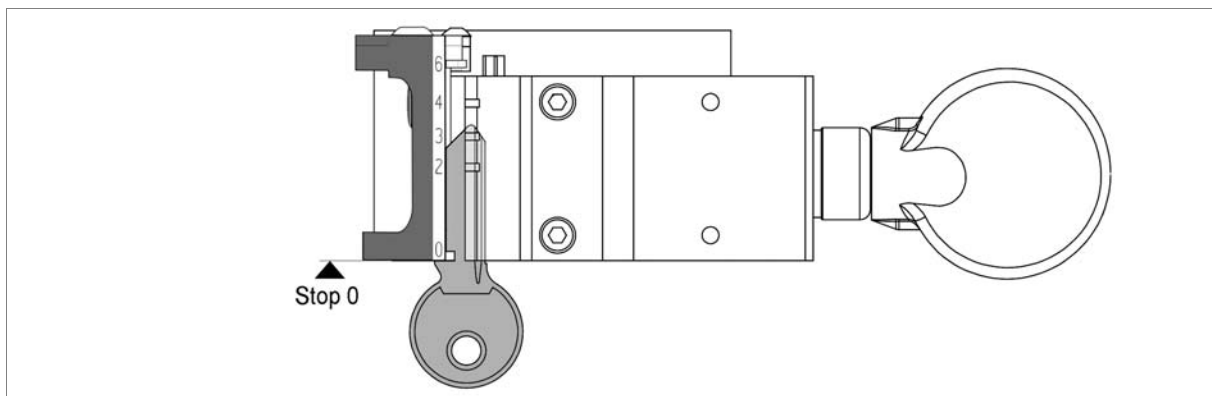


Fig. 57

- 8) Lower the safety shield and press START.

- Start automatic clamp calibration by electrical contact.

The display will show:

```

Clamp: D-1
      Detection
      in progress !
    
```

- At the end the following message (for example) will appear:

```

Clamp: D-1
      X=-02  Y=+01
      Save data ?
      No=STOP  Yes=ENTER
    
```

Press [ENTER] to save the automatic adjustments to the default values.

**Attention:** if you press [STOP] the new measurements will not be saved and the previous calibration settings will remain valid.

- If this is not the case the display will show an error message:

```

      Exceeded setting
      tolerance limit!
      X=-02  Y=+42
      See operating manual.
    
```

In this case you MUST repeat the procedure taking care to perform all the steps described; particularly checking the proper position of the clamp (Ch. 4.4, page 18).  
Lack of this condition may affect calibration.

**Note:** calibration will be accepted only if the variations remain within a range of -50 or +50 hundredths of a mm (-0.0196" / +0.0196").

### 5.11.3 User adjustments - clamp "D"

The operator can make manual adjustments to the theoretical references or key stop points by entering values for the X and Y parameters.

This will vary the results of the cutting operation in the way shown in .

Select the function from the main menu by placing the cursor on "3 - Calibrations"

Select the menu "1 - Clamps".

Select clamp D.



```

Clamp: D-2
Adjustment:
      X=+00  Y=+00
To calibrate  [START]
    
```

- Press SHIFT + ENTER to go from one clamp to the other.

**Note:** clamps D-2, D-3 and D-4 accept only manual adjustments. For further details see Ch. 5.6.5.

Place the cursor at the side of the parameter to alter with the arrows [up/down] or [ENTER] and change the parameters with the following keys:

SHIFT +  [up arrow]	Increases the value within +50 hundredths of a mm (+0.0196")
SHIFT +  [down arrow]	Decreases the value within - 50 hundredths of a mm (-0.0196")
CLEAR	To zero the value

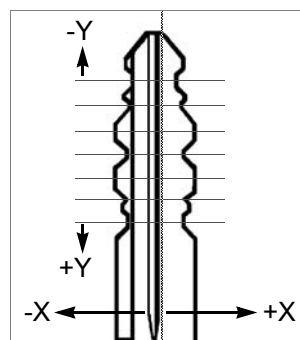


Fig. 58

[ENTER] in the last field allows you to quit the window and save the alterations made:

```

Save adjustment ?
No=STOP   Yes=ENTER
    
```

**Attention:** if you press [STOP] the new measurements will not be saved and the previous calibration settings will remain valid.

### 5.11.4 Decode and Copy - clamp “D”

**IMPORTANT: decoding keys in anodized aluminium, plastic or any key lacking electric conductivity IS NOT ALLOWED! For keys of these types use the “Key-cutting” function only.**

Below is a description of all the steps needed to decode and cut a key.  
Choose the function from the main menu and position the cursor on “0-Decode and Copy”.

```

0-Decode and Copy
1-Insert the Cuts
2-List of Codes
3-Calibrations
4-Maintenance
5-Options
    
```

Press ENTER, the display will show:

```

SSN=                (Decod.)
MFG =
=>
    
```

Do a search by **SSN** or **Make**  
(see Ch. 5.1 "Symbols and terminology", page 20).

#### Example by make: LAND ROVER

- Press the key [right-hand arrow] to place the cursor next to the “Make” field.  
**You do not need to enter the whole name, the first letters will be enough; the name of the closest MAKE in alphabetical order will appear automatically;**

```

SSN =                (Decod.)
MFG = LA
=> LAND ROVER
[08]                List = ENTER
    
```

- You can use the arrows [up/down] to scroll the sequence of MAKES in alphabetical order.
- Use [CLEAR] to delete the text entered.
- The last line in the window gives the results of the search:  
- “[08] List = ENTER”: 8 SSN found, press [ENTER] to see the list.

```

LAND ROVER          [08]
1: 1361 DAF
2: 97/91 LAND ROVER
3: CRG 85+ and US TR >>
    
```

**Note:** the letter D in front of a description indicates that the system requires clamp “D”.

**Example with cursor in position 1:**

- To view other information about the SSNs found, hold down the key (right-hand arrow). For example, with the cursor in position 1:

```
Silca Nr. 1361
1361
1: DAF
2: FORD EU
```

Press ENTER to continue; the display will show:

```
          DECODE
Clamp.: D-2      Pos.: 0
Tracer          Dial: 6
                [START]
```

- 1) Raise the safety shield, loosen the handle (N) and turn the depth regulating ring nut (O) so that the number 6 corresponds with the spindle support notch (it will click into place). Block the handle (N).
- 2) Fit insert 1-2 in the clamp with notch 2 towards the operator (fig. 59).
- 3) Fit the key to be decoded in the clamp so that it lies flat with the stop up against Stop 0.
- 4) Secure the key by tightening the knob (F5) to the right.

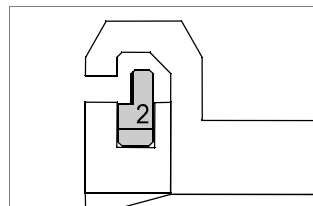


Fig. 59

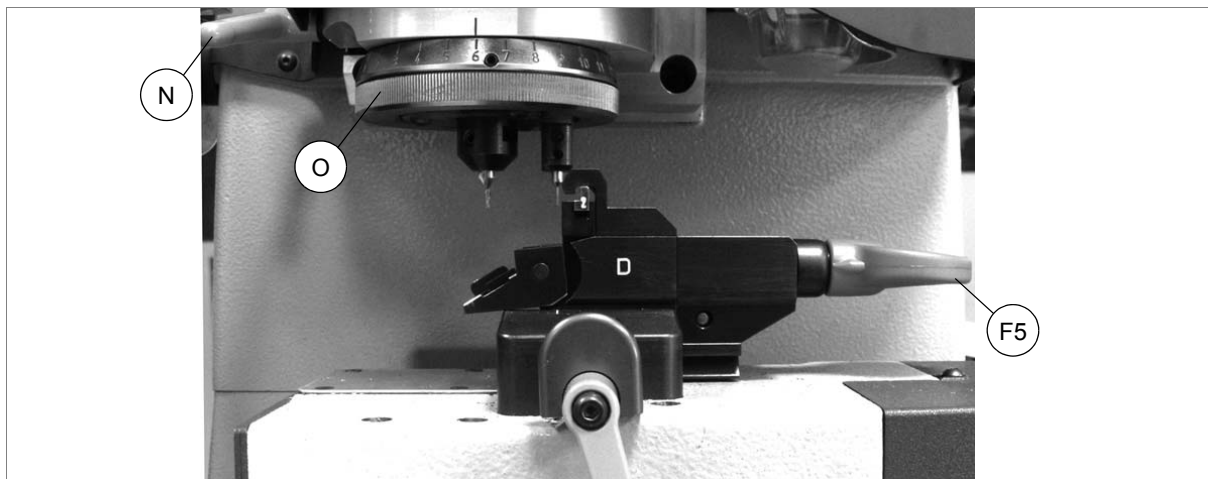


Fig. 60

Close the safety shield and press [START] to begin decoding. If the safety shield is not closed, the following message will appear:

```
Close
shield !
```

When the safety shield is lowered the following message will appear:

```
Continue ?
No=STOP   Yes=START
```

Press START to continue; the display will show an initial message:

```
DECODING IN PROGRESS
Side: A
Axis: 1
```

At the end of the procedure the display will show the message (example):

```
Axis: 1 of 2
Sides: A B
44223344
(1234) [8]
```

**ATTENTION:**

- Press [right-hand arrow] to move the cursor (on the same axis) into the various cutting positions
- Press [up arrow] to eliminate the cut in the cursor position (an empty space is created) and the cutting positions remain the same [8]
- Press (CLEAR/COPY) to eliminate cuts (the machine considers consecutive cuts and not empty spaces) and the cutting positions decrease [7]

Press ENTER and continue with cutting, performing the operations described in capitolo Ch. 5.11.5 "Insert Cuts - clamp "D"".

**5.11.4.1 Key copying by measurements read**

After decoding the operator can choose to reproduce the key by measurements read (EXACT COPY) or by the decoded measurements (COPY BY CUTTING CARD).

```
Want to copy the key
using the measurem.
just read?
No=STOP Yes=ENTER
```

**5.11.5 Insert Cuts - clamp "D"**


Below are described all the steps needed to cut a key when the SSN (Silca Serial Number) or Make associated to the Lock System is known.

Choose the function from the main menu and place the cursor on "1-Insert cuts".

```
0-Decode and Copy
1-Insert the Cuts
2-List of Codes
3-Calibrations
4-Maintenance
5-Options
```



**Note:** do a search by SSN or Make (see Ch. 5.1 "Symbols and terminology", page 20).

**Example by Make: LAND ROVER**


- Press  [right-hand arrow] to place the cursor next to "Make".

You do not need to enter the whole name, the first letters will be enough; the name of the closest MAKE in alphabetical order will appear automatically;

```
SSN= (Cut)
MFG = L
=> LAND ROVER
[08] List= ENTER
```




- You can use the arrows [up/down]   to scroll the sequence of MAKES in alphabetical order.
- use [CLEAR] to delete the text entered.
- The last line in the window gives the result of the search:
- "[08] List = ENTER": 2 SSN found, press [ENTER] to see the list.

```
LAND ROVER [08]
1: 1361 DAF
2: 87/91 LAND ROVER
3: CRG 85+ and US TR
```

- To view other information about the SSNs found, hold down the key  [right-hand arrow]. With the cursor in position 1 press ENTER:

```
Axis: 1
Sides: A B
. . . . .
(1234) [1]
```

Use the alphanumerical keys to enter only the symbols given in brackets (1, 2, 3, 4) that correspond to the cutting depths admitted for the chosen key.

- If a different symbol is entered, you will hear a long warning beep.
  - To skip cuts (empty cuts or skipped cuts) press  [up arrow].
  - The value in square brackets [1] corresponds to the position (pitch) of the cut;
  - To move the cursor horizontally press  [right-hand arrow];
- (at the end of the line the cursor will automatically go back to the beginning).  
To view or enter cuts on the key axes, press  [down arrow].

Enter the cuts, e.g.:

```
Axis: 1
Sides: A B
22334433
(1234) [8]
```

Press ENTER to continue with the cutting operations.  
The display will show:

```
Clamp.: D-2    Pos.: 0
Cutter: H158   Dial: 6
F=Brass       G=Key Det.
Pcs. 1/1      [START]
```

Cutting instructions continue on page 80.

### 5.11.5.1 Cutting flat keys (descriptions)

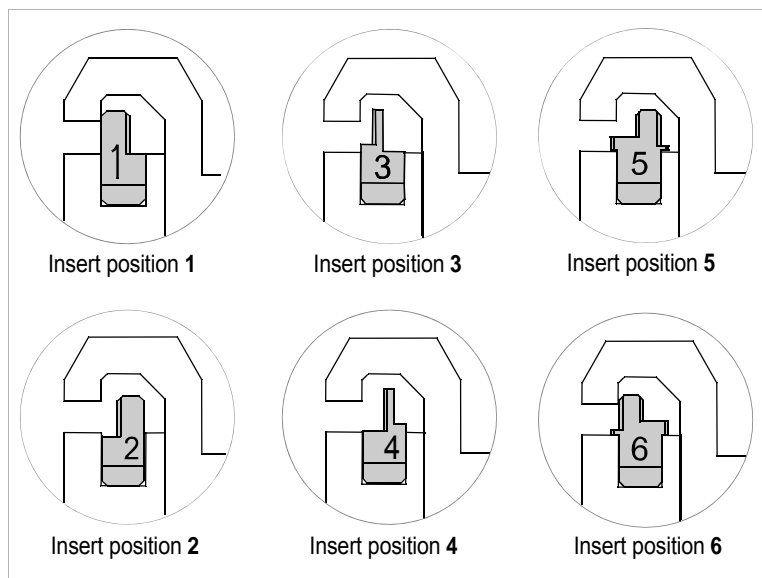


Fig. 61

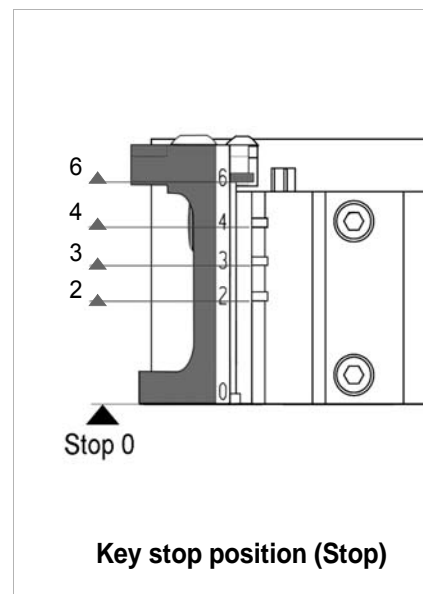


Fig. 62

**Clamp: D-2**

Clamp required - Insert position (fig. 61)

**Pos.: 0**

Key stop position (fig. 62)

**Cutter: H158**

Cutter required for system involved.

**Dial: 6**

Dial (O) position (fig. 63)

**Pcs. 1/1**

Number of pieces to cut

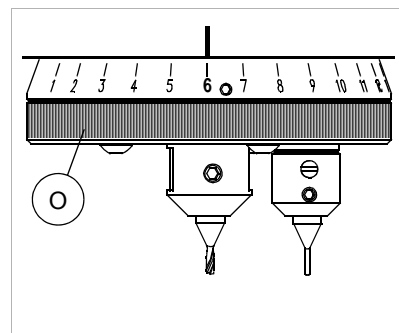


Fig. 63

**5.11.5.2 Change key material function - F=Brass/Steel**

Press F to select the material of the key to be cut.

**5.11.5.3 Key blank measurement reading function - G=Key Det.**

This function is used to read the measurement of the key blank (stem width) in order to adapt cutting to the key blank in use. If this function is enabled it is automatically applied only to keys with two sides.

Press G to enable the function.

When the words "G=Key Det. f"lash the function is enabled.

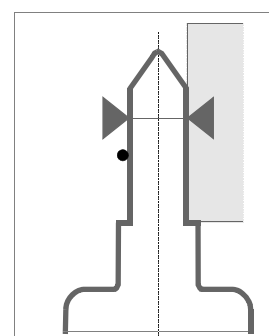


Fig. 64

**With the "G=Key Det. F"unction enabled, if there is too great a difference between the key blank measurements and those on the Silca cutting card, cutting stops and the following message appears:**

ATTENTION  
Key blank dimension  
out of range !

**If you wish to continue, disable the "G=Key Det." function.**

*Cutting instructions (continue from page 79)*

- 1) Raise the safety shield, loosen the knob (F5) and remove the original key. Fit the key blank into the clamp (Stop 0) and tighten the knob (F5).
- 2) Lower the safety shield.
- 3) If the number of keys to be cut is different from 1, enter (using the alphanumerical keys on the keypad) the number of keys required (pieces) [1-255].

**Attention:** the operator is responsible for installing the right cutter as there is no electronic device to warn of any errors!!!

- 4) Press START to begin cutting.

CUTTING IN PROGRESS  
Copy: 1 of: 1  
Side: A Axis: 1  
Brass

- 5) At the end of side A the display will show:

Clamp.: D-2	Pos.: 0
Cutt.: H158	Dial: 6
<b>C=Taper Cor.</b>	<b>Side:B</b>
	[START]

### 5.11.5.4 Key Inclination Adjustment Function C= Taper Cor.

This function is used to check that the key has been properly positioned: this is because the cuts on side A make it difficult to align the key in the clamp.

If enabled this function is automatically applied only to keys with double sides.

To enable the function press C. When the words "C=Taper Cor." flash the function is enabled.

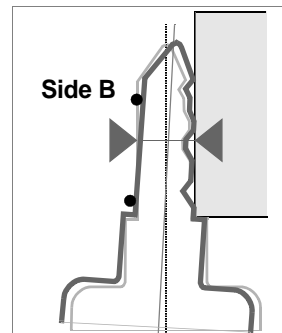


Fig. 65

When the "C=Taper Cor." function is enabled and the key is inclined too much, the procedure stops and the following message will appear:

ERROR!  
Key inclined too  
far during cutting  
Check position

If you still wish to continue, disable the "C=Taper Cor." function.

- 6) Raise the safety shield, loosen the knob (F5), remove the key and turn it 180°. Replace in the clamp (Stop 0) and tighten the knob (F5).
- 7) Lower the safety shield and press START.

CUTTING IN PROGRESS  
Copy: 1 of: 1  
Side:B Axis:1

At the end of the operation the display will show:

Copy: 1 of: 2  
finished!  
More copies?  
No=STOP Yes=ENTER

Press [ENTER] to proceed with another copy.

Press [STOP] to end the operation.

### 5.11.6 Code Tables - clamp "D"


The "CODE TABLES" menu is used to identify the SSNs with an associated code table using search criteria such as "Original Code" or the key MAKE-USE.

When the SSN has been identified the key can be cut in the way described in Ch. 5.11.5 "Insert Cuts - clamp "D"", page 78.

Choose the function from the main menu and position the cursor on "2- Code Tables".

Do a search by entering the code or Make (Ch. 5.1 "Symbols and terminology", page 20).

#### Example by Code: 8442

- Press  [right-hand arrow] to place the cursor next to the "Code=" field.
- Enter the code "8442".
- The search finds 12 series that use the code in question.

The display will show:



```
Code = 8442
MFG =
=>
[12] Lista=ENTER
```

The search for the code in question is made in all the series relating to the MAKES enabled. The machine with its standard settings makes a search in all the series of codes.

If you wish to filter code searches according to given Lock or Vehicle Makes follow the instructions on page 59 (cap. 5.8 "Options - 5", 5.8.2 "Preferences", "Preselezione Marche").


If the code in question belongs to a series but not the group of makes selected, a message will appear "Code not found" and the last line of the window will show the words "SHIFT + ?". Press [SHIFT] and [?] to temporarily exclude the filter and extend the search to all makes so as to view the result without changing the "Make Preselection" setting.

Press ENTER to view the list of series involved.

Use the arrows [up/down]   to move the cursor to select the required series, for example with cursor in pos. 2.

Press ENTER; the display will show:

```
Code = 8442 [12]
1:AA00-7T51 GM<I> 94+
2:5001-8442 HONDA 88
3:1-17735 K (2T-9W)
```

- To view other information about the SSNs found, hold down the [right-hand arrow] .

```
Silca Nr: 1348
HONDA 88+ ISUZU 98+
1 - ACURA
2 - HOLDEN
```

There are now 2 possibilities:

- Proceed with [SHIFT+ENTER] to follow the complete flow and see the cuts associated to the code in question. The cuts are already inserted and correspond to code 8442.
- Proceed with [ENTER] to skip some steps and go to the window that appears before cutting start.

```
Clamp: D-2 Pos.: 0
Cutt.: H158 Dial: 6
F=Brass G:Key Det.
Pcs. 1/1 [START]
```

Lower the safety shield and press START.

**Continue with cutting, performing the operations described in Ch. 5.11.5 "Insert Cuts - clamp "D"**.

- When you have finished cutting the key and pressed [STOP] the next window appears to ask if you wish to cut another key with the same series but a code different from the previous one without making a new search:

```
New code?  
=8442  
                (5001-8442)  
                [ENTER]
```

- [CLEAR] to delete the existing code.
- Enter the new code to be cut.

```
New code?  
=5002  
                (5001-8442 )  
                [ENTER]
```

- [ENTER] to continue and cut a new code
- [STOP] to end the operation

## 6 CLEANING

- keep the operational parts of the machine as clean as possible by brushing away the chippings.
- The clamp, detection pins, decoder, cutter and Z22 template must always be kept perfectly clean.
- under no circumstances use compressed air to clear the work zone of chippings as this will blow them onto the moving parts.
- Never use oily products or thinners for cleaning painted surfaces, clamps, electrical or electronic connections.

## 7 MAINTENANCE

**Attention: for repairs or replacement of parts for maintenance, the 'CE' mark is guaranteed only if original spare parts provided by the manufacturer are used.**

Although the TRI-CODE H.S. key-cutting machine does not require special maintenance, it is advisable to check and, if necessary, replace the parts subject to wear and electric/electronic parts (fuses, circuit boards, etc.) in the event of faulty operation.

Replacement is simple and can be carried out by the operator consulting the instructions.

**Attention: for normal servicing of the burnished mechanical parts, we recommend using lubricants or protective oil, e.g. WD40 or similar. Do not apply to the parts used for electrical contact (clamps, decoders, cutters, gauging templates, etc.). Do not contaminate the electronic parts with the oil.**

Before starting any type of maintenance (checks or replacements) read the instructions below:

- never carry out maintenance with the machine switched on
- always remove the mains plug
- always remove the mains plug
- use original spare parts (see 'Spare Parts List' provided with the machine).

### 7.1 TROUBLE SHOOTING

FAULT	CHECK	PROBABLE CAUSE	
Machine on, no message on display:	check if the rear fan is working:	YES	a) emergency button activated
			b) faulty general fuses in power socket
			c) master switch on back of machine in OFF position
			d) disconnected supply wire
		NO	a) fuse F3 on the electronic control board has cut out
			b) loose connection wire between display and electronic board
c) display out of order			
Cutter motor not working:		a) the closed protective shield is not making proper contact with the safety microswitch (see Ch. 7.10, page 95).	
		b) fuse F1 on the electronic control board cut out (see Ch. 7.3, page 88)	
		c) motor wire not properly connected to the connector (see Ch. 7.4, page 89)	
		d) faulty electronic control board	
The display shows "Cutting in progress, or decode, etc." but the X-Y axes are immobile and none of the keys is enabled.		Check the fuse F2 (fig. 69, page 88) on the electronic control circuit board involved.	
		Use tests No 1-2 (Ch. 5.7.2, page 49) to check the X-Y axis motors	
		Check the X axis connecting cable (fig. 80, page 94)	
		The wiring connecting the X-Y axis motors to the electronic control board is not properly secured or the connectors are not fitted correctly (Ch. 7.4, page 89)	
With shield closed display shows message "Close shield"		a) the closed protective shield is not making proper contact with the safety microswitch (see Ch. 7.10, page 95)	
		b) fuse F4 on the electronic control board has cut out (see Ch. 7.3, page 88)	
Keypad not working (partially or completely)		a) the keypad connector is not properly connected to the interface board (fig. 66)	
		b) the wiring between the keypad/display and electronic control board is not properly attached to the relative connectors (see Ch. 7.4, page 89 and Ch. 7.5, page 90)	
		c) faulty keypad (see Ch. 7.5, page 90)	
		d) faulty electronic control board (see Ch. 7.4, page 89)	
During clamp gauging or decoding the U111 tracer point bumps repeatedly against the template or against the key.		the earth wire (C2) on the cutter (fig. 86, page 96) is detached or broken.	
		the wire connecting the connector (J14) for the electronic control board is not properly fitted into the relative connector (fig. 69, page 88).	
		there is swarf on the top part of the cutter shaft.	
		electronic control circuit board faulty.	
Key-cutting machine fails to communicate with computer		a) wiring between the 9-pin serial port and electronic control board badly fixed or disconnected (see Ch. 7.4, page 89)	
		b) serial wire between key-cutting machine (serial port fig. 5, page 6) and computer faulty or disconnected	
		c) faulty computer serial port	
		d) electronic control board faulty (see Ch. 7.4, page 89)	

FAULT	CHECK	PROBABLE CAUSE	
<p>Display shows message 'TEMPERATURE ALARM, turn the machine off'.</p>	<p>Check whether the fan on the back of the key-cutting machine is working:</p>	<p>Not working</p>	<p>a) fan faulty or badly wired b) faulty electronic control board (see Ch. 7.4, page 89)</p>
		<p>Working</p>	<p>a) faulty electronic control board (see Ch. 7.4, page 89)</p>
<p>Display shows message 'CUTTER MOTOR ALARM, check Fuse F1'.</p>		<p>a) fuse F1 on the electronic control board cut out (see Ch. 7.3, page 88).</p>	
		<p>b) cutter protective cover microswitch cut out or disconnected (see Ch. 7.10, page 95 and Ch. 7.11, page 95).</p>	
		<p>c) cutter motor wiring disconnected.</p>	
		<p>d) internal fault on the electronic control board (see Ch. 7.4, page 89).</p>	
<p>The top X axis carriage moves to the left or right and bumps against the machine end of run.</p>		<p>Use test No 5 (Ch. 5.7.2, page 49) to check operation of the sensor.</p>	
		<p>Check the fuse F4 (fig. 69, page 88) on the electronic control board.</p>	
		<p>Check the X axis connecting cable (J1) (fig. 80, page 94).</p>	
		<p>electronic control board faulty.</p>	
<p>The bottom Y axis carriage moves towards the operator or the machine face and bumps against the end of run.</p>		<p>Use test No 6 (Ch. 5.7.2, page 49) to check operation of the sensor.</p>	
		<p>Check the fuse F4 (fig. 69, page 88) on the electronic control board.</p>	
		<p>electronic control board faulty.</p>	

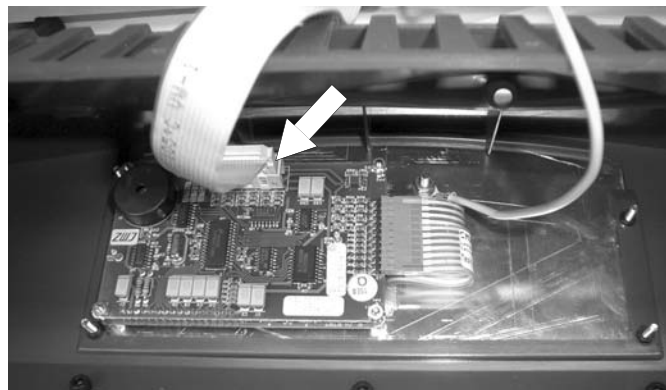


Fig. 66

## 7.2 BELT REPLACEMENT AND TENSION ADJUSTMENT

- 1) Turn off the machine and unplug.
- 2) open the top compartment (Ch. 7.6, page 91).
- 3) loosen (without removing) the grub screw (Y2) that secures the belt tightening pulley (fig. 67).

### 4 a) tightening:

- increase belt tension by means of the socket head screw (Y3), using the allen key provided.

### 4 b) replacement:

- loosen the belt by means of the socket head screw (Y3), using the allen key provided.
  - remove the belt and replace it.
  - tighten by means of the socket head screw (Y3) using the allen key provided.
- 5) lock the belt tightening pulley by tightening the socket head screw (Y2).
  - 6) reposition the belt cover.

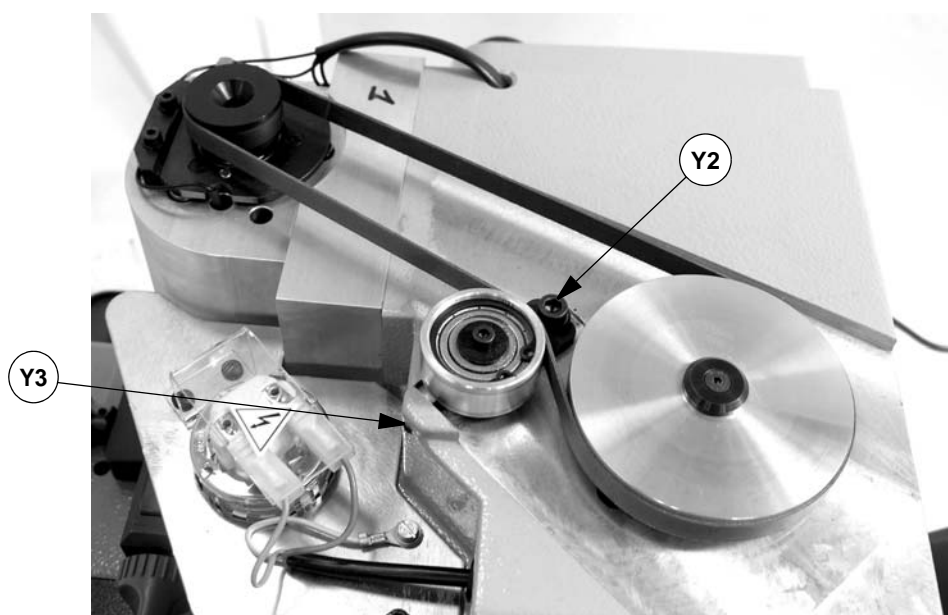


Fig. 67

### 7.3 FUSE CHECK AND REPLACEMENT

Fuses should be checked with an instrument for measuring their continuity (tester, ohmmeter, multimeter, etc.) as they may appear to be in good condition to the naked eye even when they are electrically faulty. Fuses must always be replaced with others of the same type (rapid or delayed) and with the same amps, as given in the manual.

There are 6 fuses in the TRI-CODE H.S. key-cutting machine.

• **2 fuses: 10 Amps rapid**

They are situated in the power socket on the back of the machine, next to the switch (fig. 68). They protect the machine from power variations and short circuits.

To check and replace when necessary, proceed as follows:

- 1) turn off the machine and unplug.
- 2) use a screwdriver to open the flap covering the socket, remove the fuses and replace if necessary.



Fig. 68

• **4 fuses: F1, F2, F3 e F4**

**F1: 10 Amps delayed**

- protects the cutter motor and its control electronics (120V a.c.)

**F2: 6,3 Amps delayed**

- protects the step motors and their control electronics (+32V d.c.)

**F3: 4 Amps delayed**

- protects the logic control circuits on the microprocessor board (+5V d.c.)

**F4: 2 Amps delayed**

- protects the digital output circuits for the low voltage controls and the sensor inlets (+24V d.c.)

Those situated on the electronic circuit board inside the base (fig. 69), protect the board from short circuits. To check and replace when necessary, proceed as follows:

- 1) turn the machine off and unplug it from its power supply cable.
- 2) remove the bottom plate (Ch. 7.8, page 92).
- 3) check and replace the fuses if necessary, in the way described below:

**To remove the fuse:**

- press the fuse cap with your fingers and turn it counter clockwise.

**To fit the new fuse:**

- carefully position the fuse back into place, then gently press the fuse cap downwards turning it clockwise.

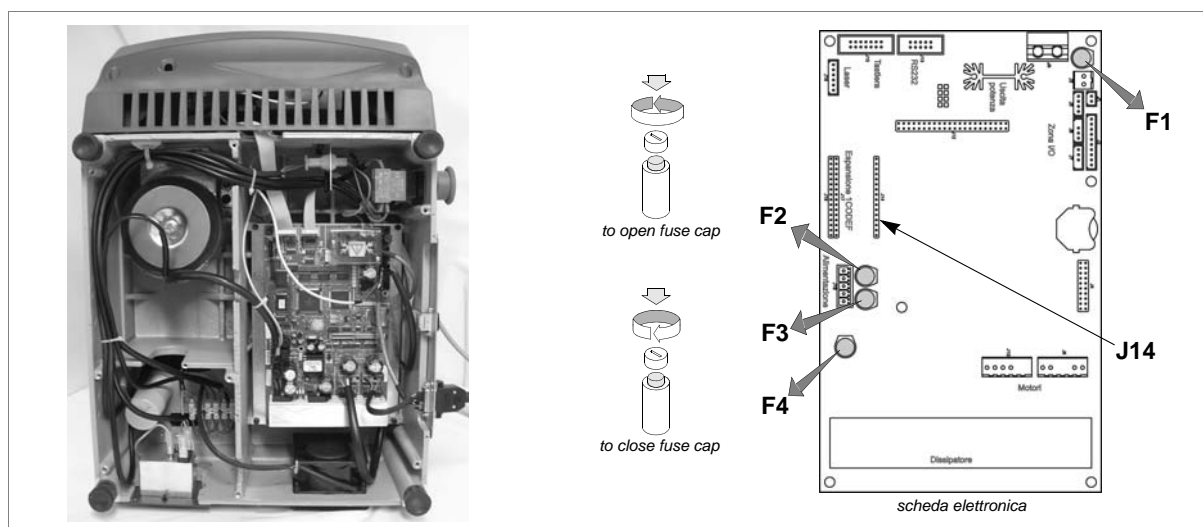


Fig. 69

## 7.4 ELECTRONIC CIRCUIT BOARD REPLACEMENT

Replace the electronic circuit board in the following way:

- 1) turn off the machine and unplug.
- 2) remove the bottom panel (Ch. 7.8, page 92).
- 3) disconnect all the wires from the board.

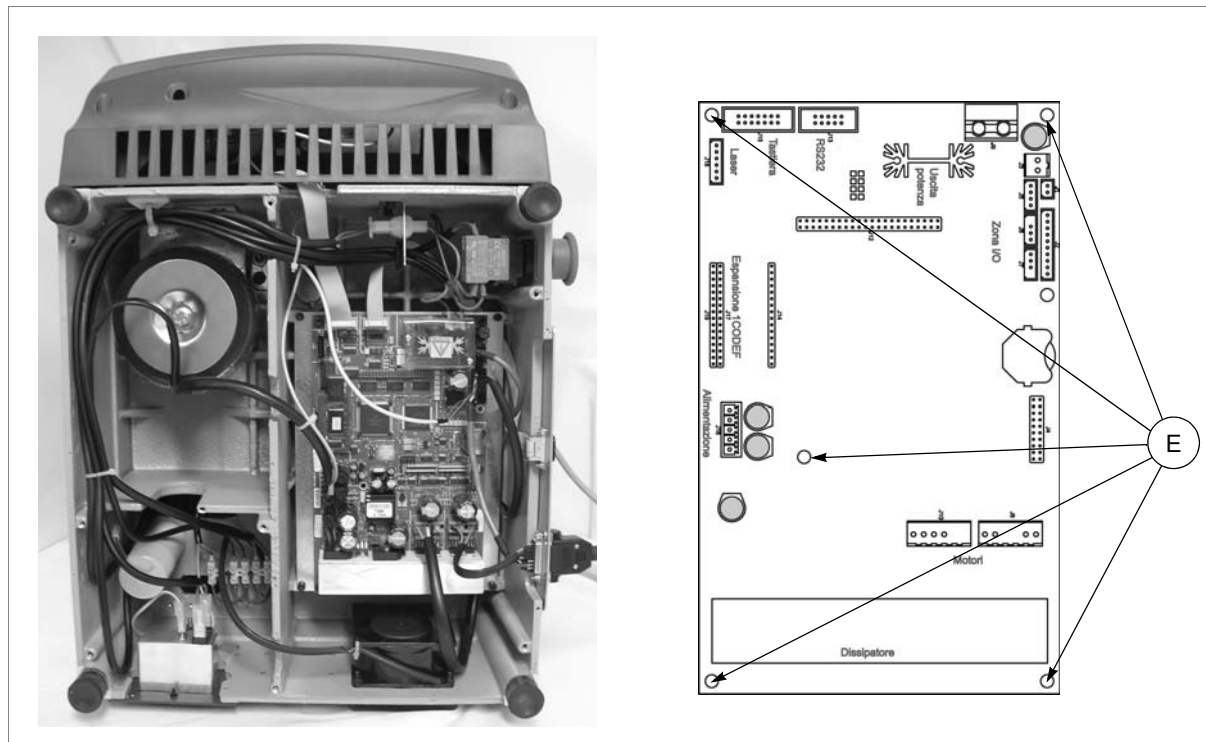


Fig. 70

- 4) loosen the nuts (E) and remove the board.
- 5) fit the new board on the threaded pins and screw down the nuts, re-connect all the wires (each connector is polarized and cannot be placed in the wrong position).
- 6) replace the bottom plate and re-position the machine on the workbench.
- 7) turn on the machine and launch the TRANSFER PROGRAM in order to transmit the software.
- 8) carry out the calibration operations (Ch. 5.7.5 "Machine Zero Points", page 54 and Ch. 5.6.1 "Automatic calibration of clamp", page 34).

## 7.5 KEYPAD/DISPLAY REPLACEMENT

- 1) turn off the machine and unplug.
- 2) remove the display stand by unscrewing the 2 fixing screws (B1) (fig. 71).
- 3) detach the wire and earth wire from the keypad (fig. 72).
- 4) loosen the keypad fixing nuts and remove from its stand.
- 5) fit the new keypad/display, repeating the operations described above in reverse order.



Fig. 71

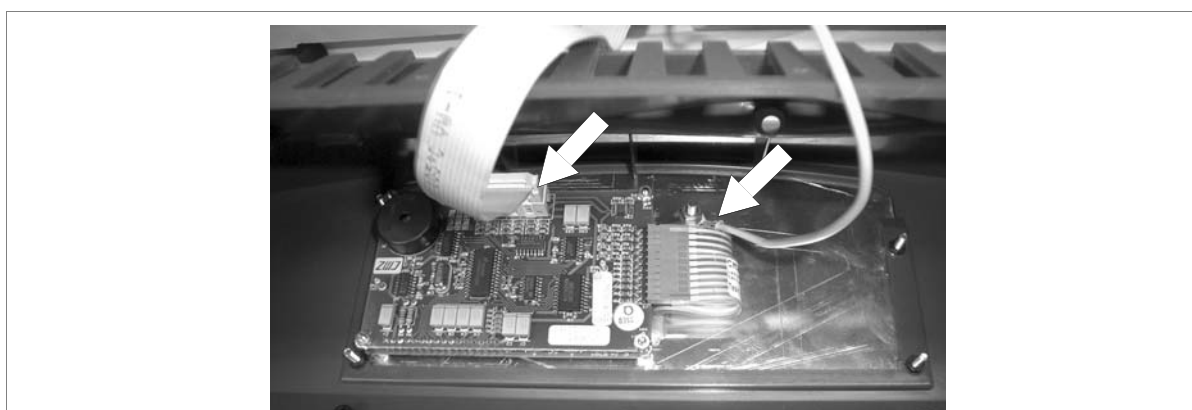


Fig. 72

## 7.6 ACCESS TO TOP COMPARTMENT

To gain access to the top compartment, proceed as follows:

- 1) turn off the machine and unplug.
- 2) loosen the 2 screws (V1) and remove the protective shield.
- 3) loosen the 5 screws (G1) and remove the top cover (fig. 74).

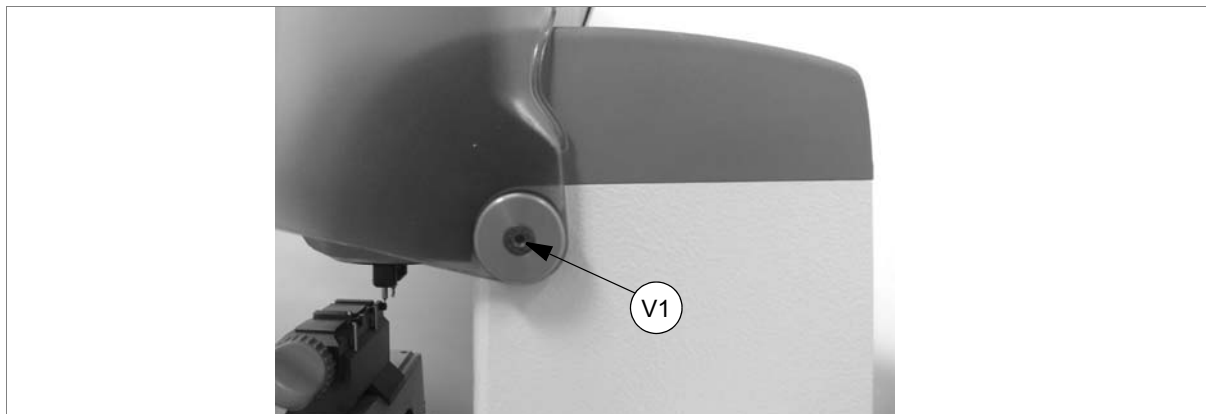


Fig. 73

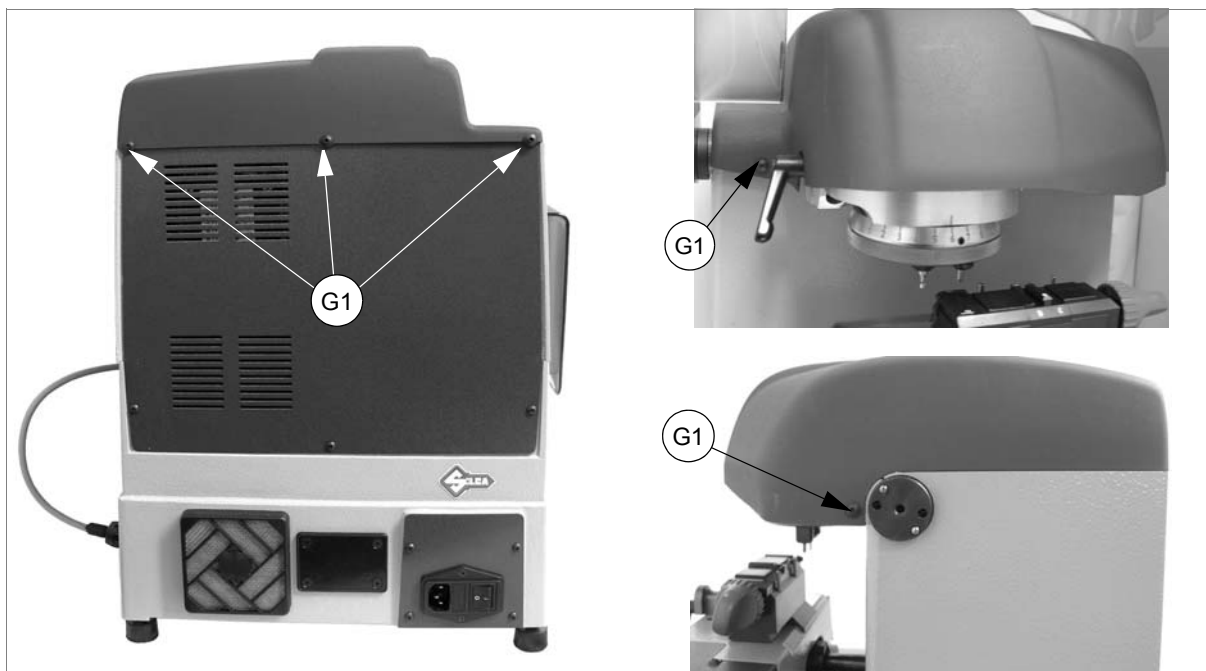


Fig. 74

## 7.7 ACCESS TO REAR COMPARTMENT

To gain access to the rear compartment, proceed as follows:

- 1) turn off the machine and unplug.
- 2) loosen the 6 screws (M1) securing the rear plate (fig. 75) and remove.



Fig. 75

## 7.8 ACCESS TO LOWER COMPARTMENT

To gain access to the lower compartment, proceed as follows:

- 1) turn off the machine and unplug.
- 2) turn the machine onto its back.
- 3) remove the bottom plate by loosening the 8 fixing screws (L1) (fig. 76).

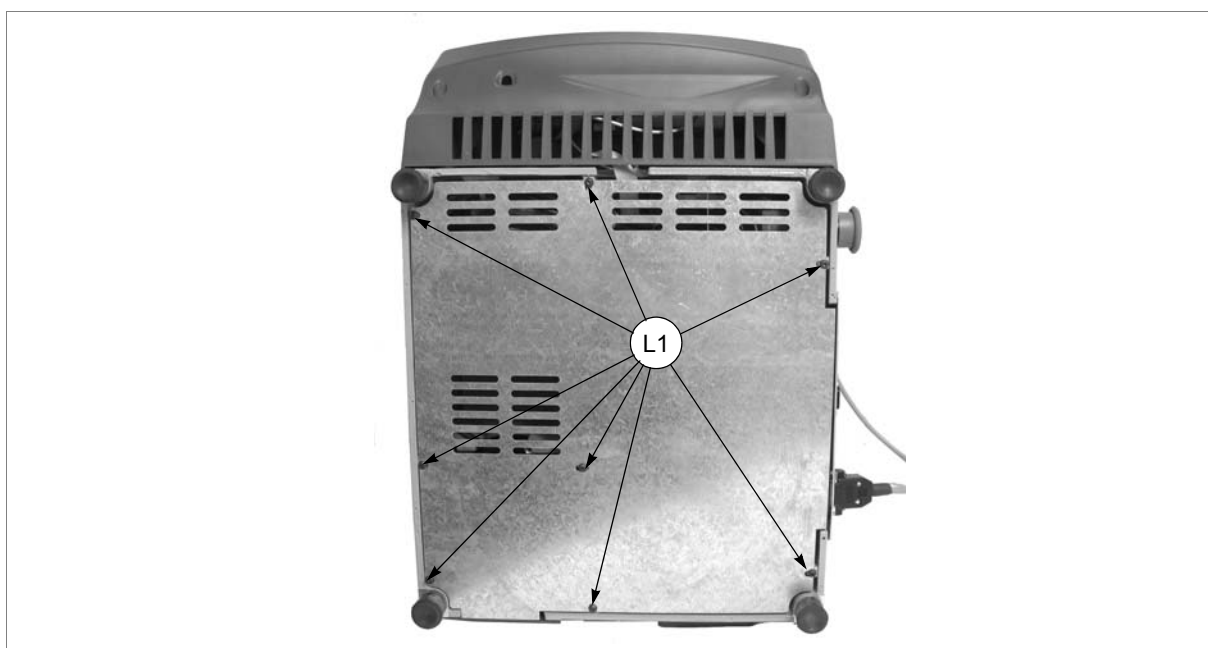


Fig. 76

## 7.9 SENSOR REPLACEMENT

### REPLACING THE BOTTOM AXIS (Y) SENSOR

- 1) Turn off the machine and unplug.
- 2) remove the display stand by unscrewing the 3 fixing screws (B1) (fig. 71, page 90).
- 3) detach the wire and earth wire from the keypad (fig. 72, page 90).
- 4) remove the bottom plate (Ch. 7.8, page 92).
- 5) disconnect the bottom axis (Y) sensor from the circuit board.
- 6) loosen the screw (L5) and remove the plate (sensor).
- 7) check the "Y" measurement.
- 8) loosen the nut (L3), loosen the sensor from the plate and remove (fig. 78).
- 9) loosen the 3 screws (B4) to remove the front cover on the lower carriage (fig. 79).
- 10) place the new sensor in position and screw down to the "Y" measurement (fig. 78), secure with the nut (L3).
- 11) connect the sensor connector (L6) to the circuit board.
- 12) replace the plate (sensor) in position and tighten the screw (L5).

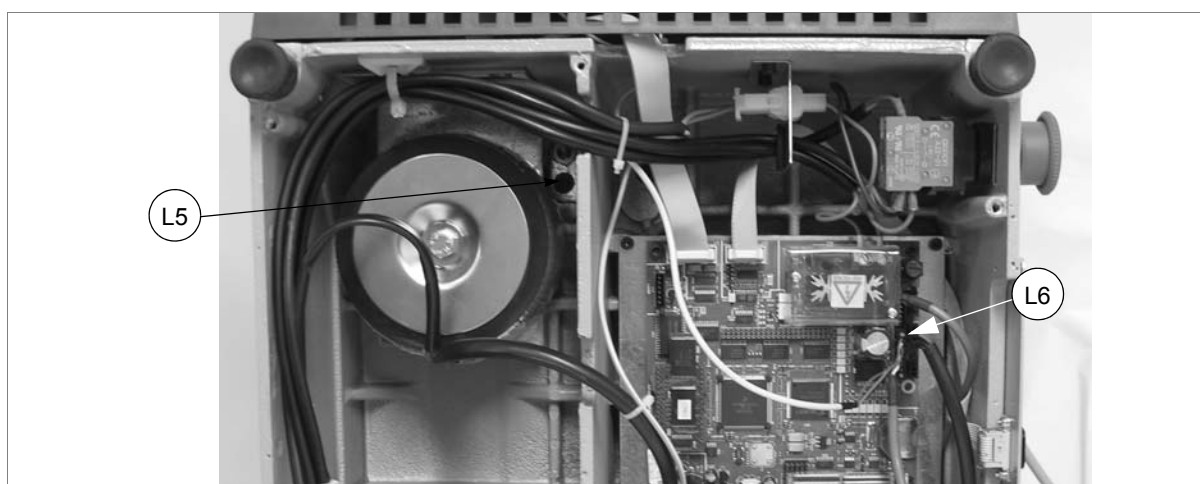


Fig. 77

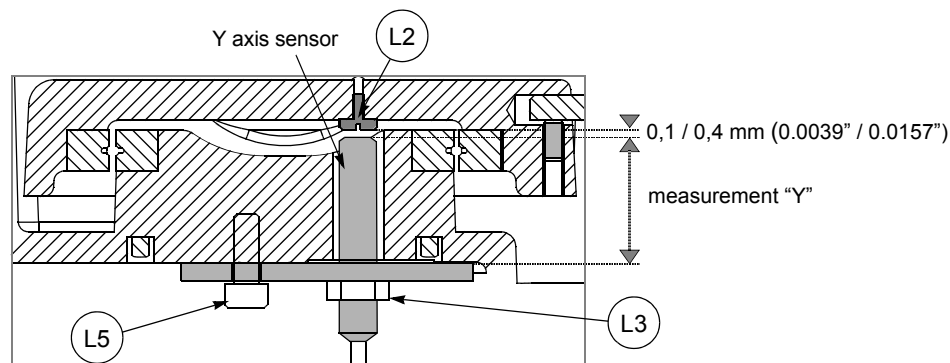


Fig. 78

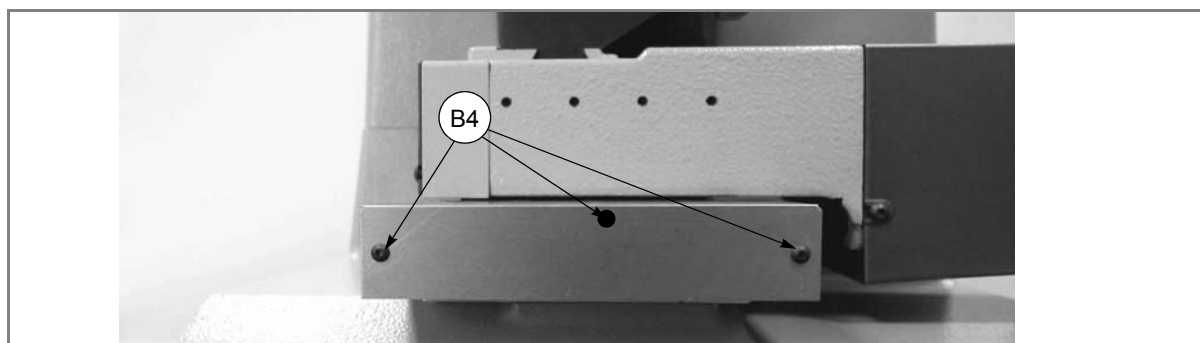


Fig. 79

**TOP AXIS (X) SENSOR REPLACEMENT**

- 1) Turn off the machine and unplug.
- 2) raise the protective shield.
- 3) disconnect the top axis connection wire (J1) from the carriage (fig. 80).
- 4) remove the top axis cover by unscrewing the 3 fixing screws (B5) and pull out in the direction shown (fig. 80).
- 5) disconnect the sensor connector (J) (fig. 81).
- 6) loosen the grub screw (M2) with the allen key provided.
- 7) remove the faulty sensor (M1) and replace with a new one, turning until it almost touches the underlying pin (fig. 82). Tighten the grub screw (M2).
- 8) connect the sensor connector (J).
- 9) replace the top axis cover.
- 10) connect the top axis connection wire (J1) to the carriage.

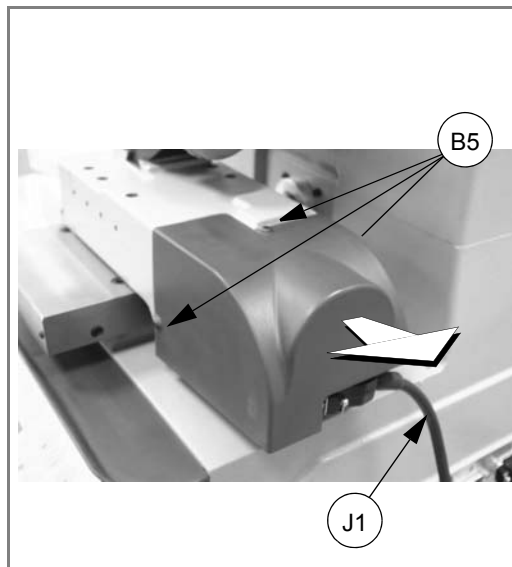


Fig. 80

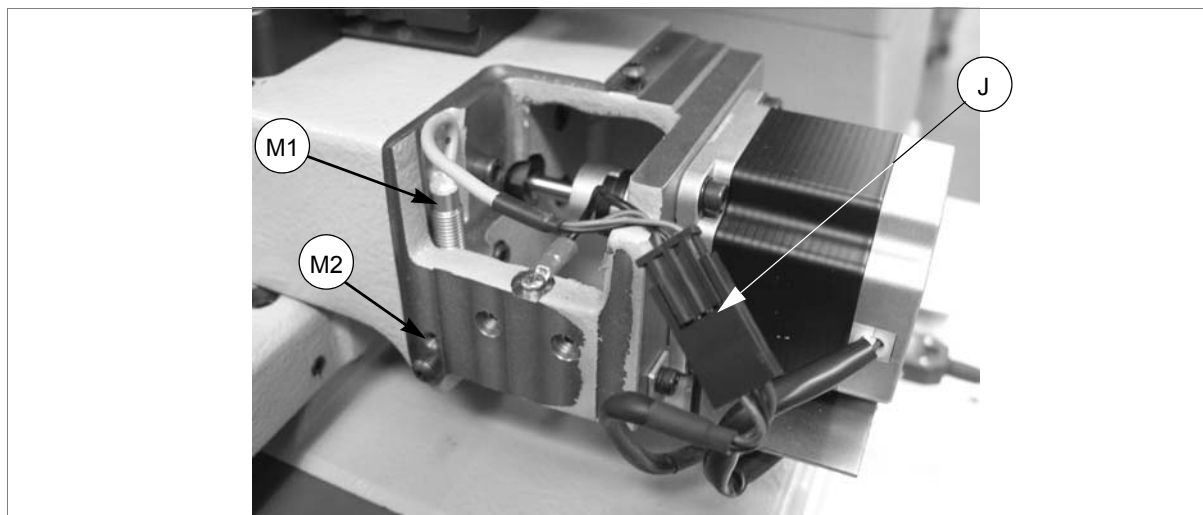


Fig. 81

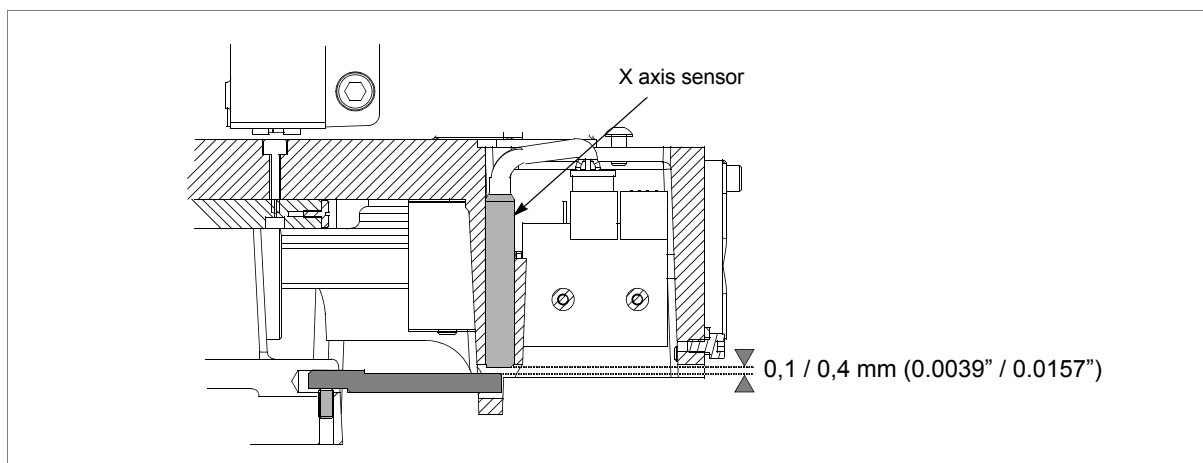


Fig. 82

## 7.10 CHECKING AND REGULATING THE SAFETY MICROSWITCHES

- 1) Remove the back panel (Ch. 7.7, page 92).
- 2) check the connecting wires on the two microswitches (C1 - fig. 83).
- 3) carry out test 11 (Ch. 5.7.2, page 49) to check that proper contact is made.

**If this is not so, check that the cam (S) causes the two microswitches to click. If necessary, regulate the cam as follows:**

- 4) loosen the two screws (L2) and remove the microswitch plate; lower the protective shield (V).
- 5) use the 2,5mm (0.0983") T wrench to loosen the grub screw (S1 - fig. 83).
- 6) turn the cam (S) until the microswitches click, with the microswitch plate installed.

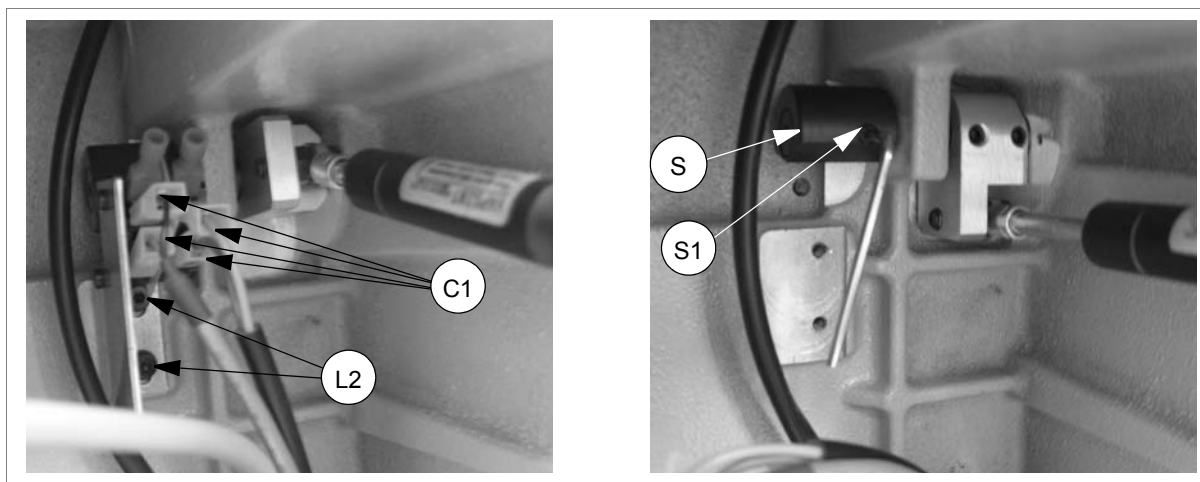


Fig. 83

## 7.11 SAFETY MICROSWITCHES REPLACEMENT

- 1) Remove the back panel (Ch. 7.7, page 92).
- 2) loosen the two screws (L2) and remove the microswitch plate (fig. 83).
- 3) disconnect the wiring between the two microswitches (C1) (fig. 83).
- 4) loosen the two nuts (D1) (fig. 84) and replace the faulty part.
- 5) fix the microswitches with the two nuts and re-connect the two connection wires (grey wire towards the motor, black wire towards the gas spring).
- 6) replace the microswitch plate with the screws (L2) without exerting pressure.
- 7) adjust the position of the microswitch plate until you hear the microswitches click when the protective shield is moved.
- 8) secure the microswitch plate by tightening the screws (L2).

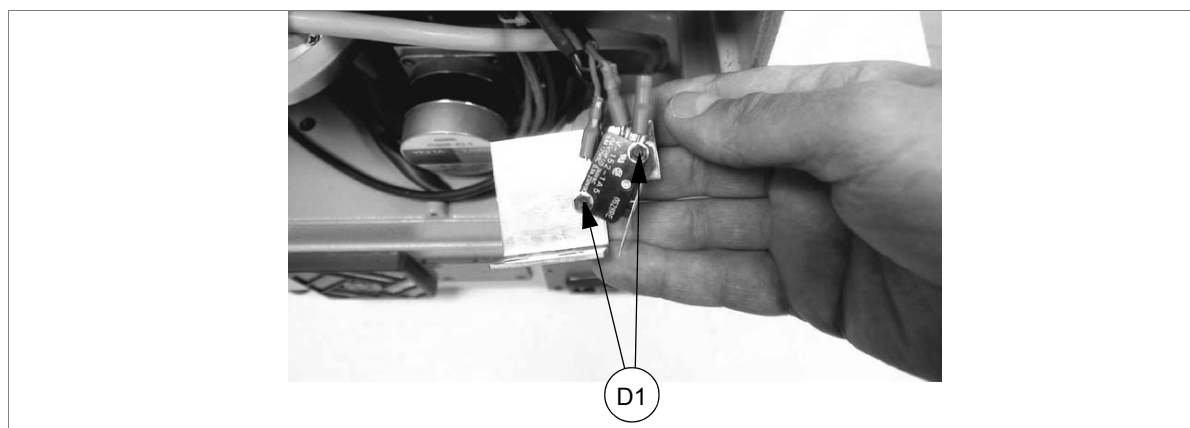


Fig. 84

## 7.12 DECODER (U111DC) REPLACEMENT

- 1) Loosen the grub screw (K) (fig. 85).
- 2) remove the broken decoder from its seat.
- 3) place the new decoder in its seat, pushing it upwards against the end of run.
- 4) tighten the grub screw (K).
- 5) proceed with gauging (Ch. 5.6.3, page 42).

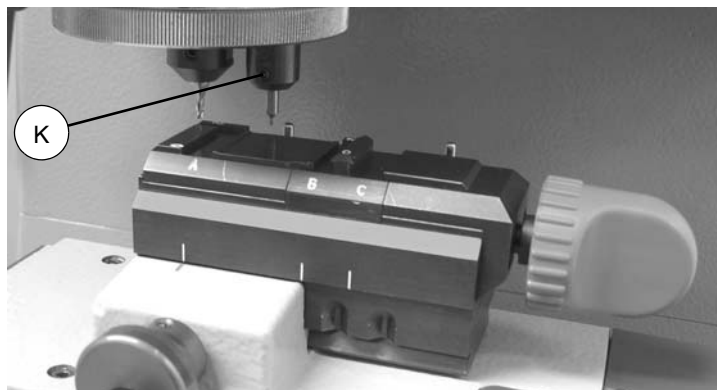


Fig. 85

## 7.13 RING NUT MICROSWITCH REPLACEMENT

- 1) Open the top compartment (Ch. 7.6, page 91).
- 2) loosen the 4 screws (C3) and remove the plate covering the microswitch (fig. 86).
- 3) disconnect the microswitch connector (W).
- 4) turn the lever/handle (N) anticlockwise to free the microswitch fin.
- 5) loosen the 2 microswitch fixing screws (W1) and remove.
- 6) connect the connector (W) to the new microswitch.
- 7) place the new microswitch in position (free fin to the right) and secure with the 2 screws (W1).
- 8) before tightening the two screws (W1) adjust the microswitch position and check with the special test (Test 8, see Ch. 5.7.2, page 49). When locking the microswitch fin the lever/handle (N) should be positioned vertically downwards (fig. 86).
- 9) fix the cover plate with the 4 screws (C3).

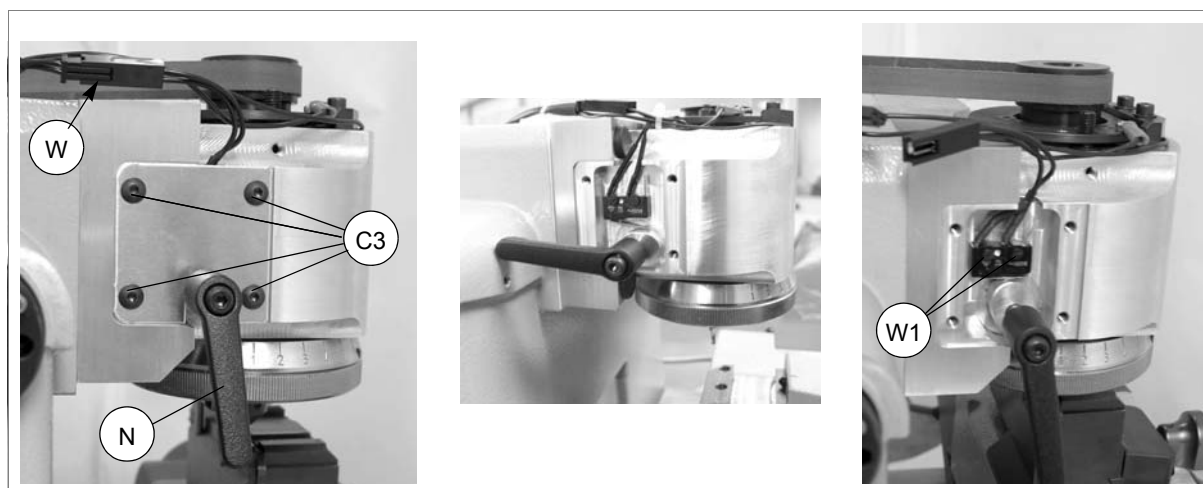


Fig. 86

## 7.14 MOTOR / CONDENSER REPLACEMENT

- 1) Turn off the machine and unplug.
- 2) open the top compartment (Ch. 7.6, page 91).
- 3) turn the machine over onto its side.
- 4) open the rear compartment (Ch. 7.7, page 92).
- 5) open the bottom compartment (Ch. 7.8, page 92).

### Condenser:

- a) loosen the fixing nut (Z1) and remove the washer and condenser.
- b) fit the new condenser and fix with the washer and nut.
- c) remove the cap (Z2) on the new condenser.
- d) remove the cap from the old condenser, detach the 2 connectors (a) and (b) paying careful attention to their position, and connect to the new condenser.
- e) replace the cap (Z2) on the new condenser.

### Motor:

- f) cut the 4 nylon ties on the wiring.
  - g) press on the connector grips (Z3) to remove them (fig. 88).
  - h) remove the belt.
  - i) loosen the screw (Y1) and remove the pulley (fig. 89).
  - j) loosen the 4 screws (Y2) fixing the motor and remove (fig. 89).
  - k) Install the new motor by carrying out in reverse the operations described above. If necessary, also replace the condenser.
- 6) close the bottom compartment.
  - 7) close the rear compartment.
  - 8) close the upper compartment.

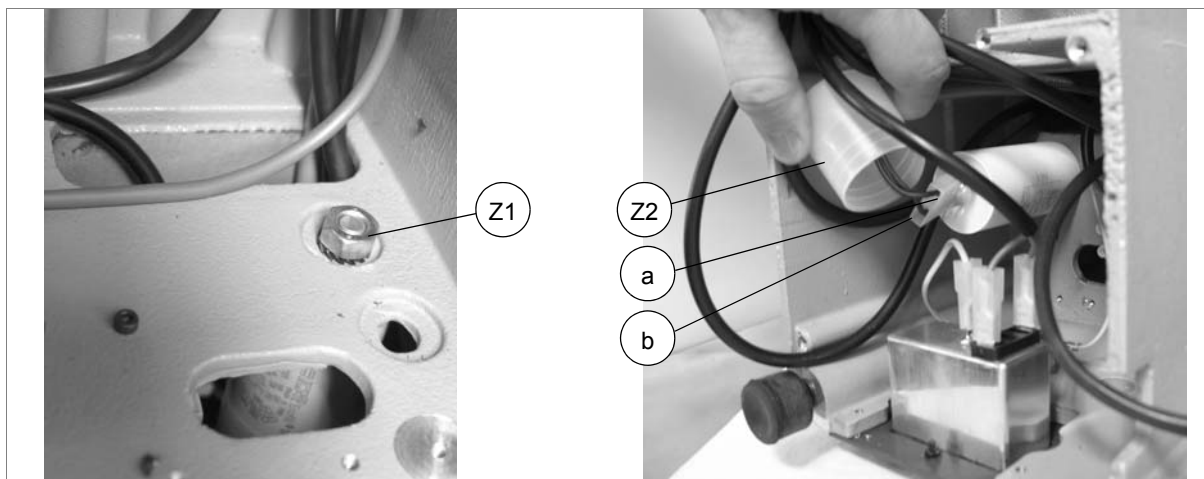


Fig. 87

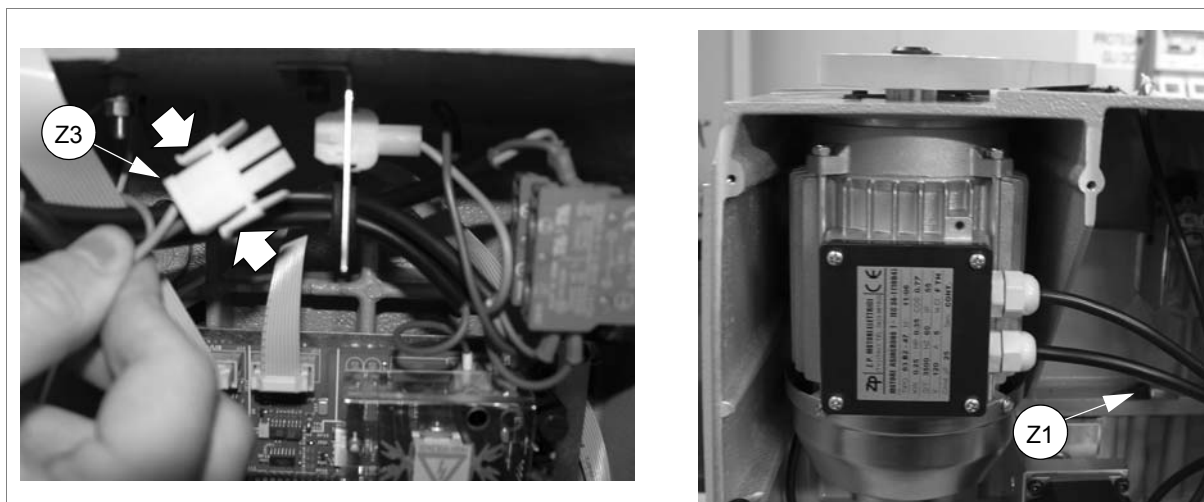


Fig. 88

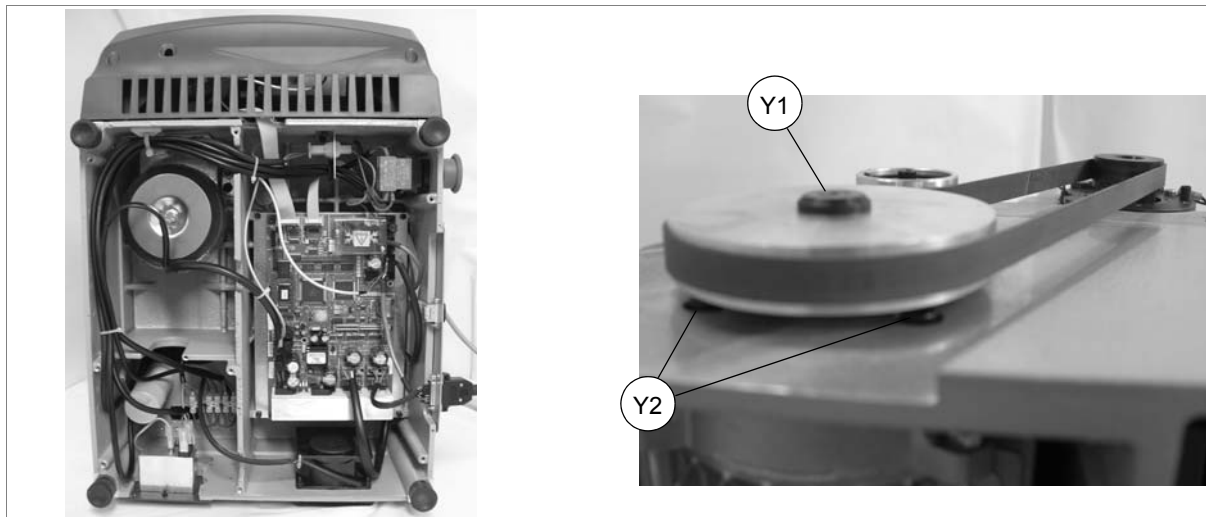


Fig. 89

### 7.15 LIGHT BULB REPLACEMENT

- 1) turn off the machine and unplug.
- 2) raise the safety shield.
- 3) remove the lampshade (H1), unscrewing it manually (fig. 90).
- 4) unscrew the light bulb by hand (H) and remove.
- 5) fit the new bulb by screwing it manually into the bulb holder.
- 6) replace the lightshade (H1), screwing it down manually.

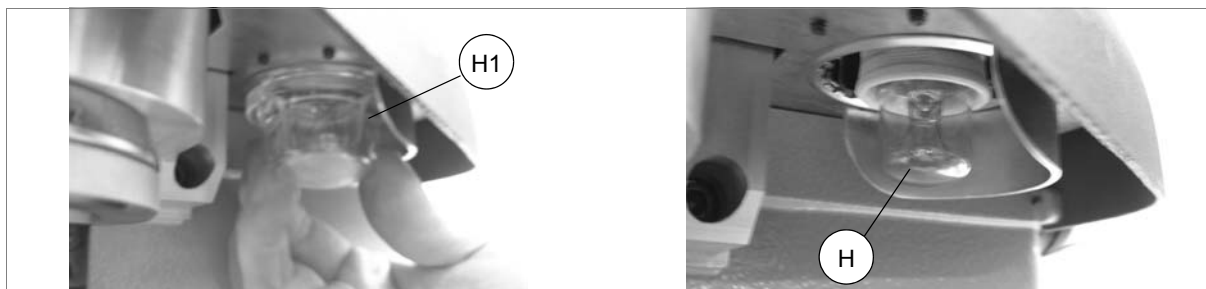


Fig. 90

### 7.16 CLOCK BATTERY REPLACEMENT

- 1) turn off the machine and unplug.
- 2) open the bottom compartment (Ch. 7.8, page 92).
- 3) use a slim insulated tool to push the battery and remove it.
- 4) fit the new battery into its seat, paying attention to the poles.

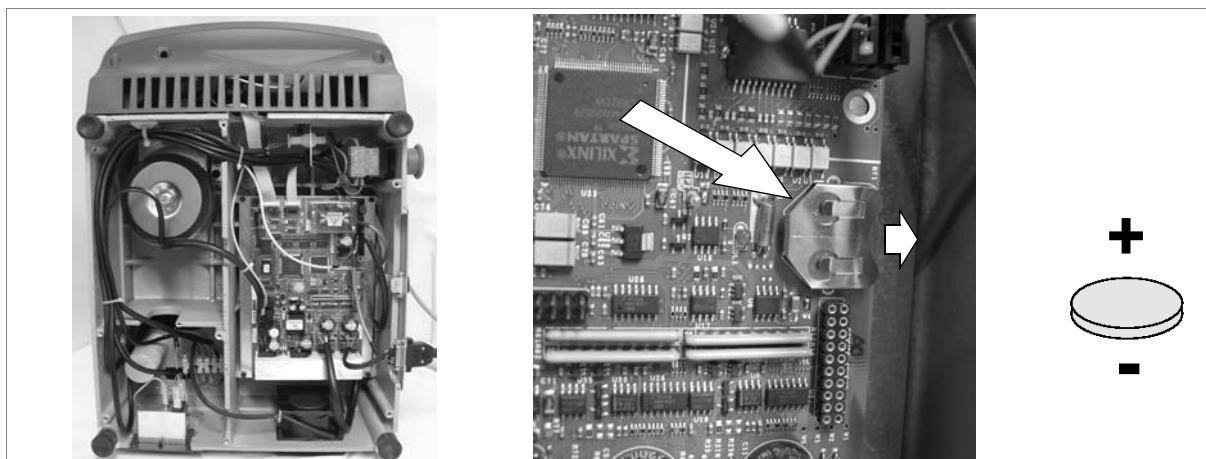


Fig. 91

## 8 DISPOSING OF MACHINE

To dispose the machine, it must be rendered unusable by carrying out the operations listed below:

- deactivation of the electricity supply;
- separation of the plastic and metal parts;
- remove the lithium battery from the electronic board;

**Attention: the lithium battery must be disposed in the special containers.**

When these operations have been carried out the machine can be disposed of according to the current regulations in the country of use.

### ***MACHINE***

TRI-CODE H.S. is a durable machine and is also re-usable.

Recycling is an ecologically sound practice to be recommended.

### ***PACKING***

As the packing in which the TRI-CODE H.S. key-cutting machine is transported is made of cardboard and wood it can be re-used if intact or used as fuel for the production of heat (e.g. wood-fired stoves) if dismantled.

Warning! Take great care when dismantling the packing as it contains nails, the points of which will be exposed. Bend them down into the wood with a hammer or remove separately and dispose of them in an authorized metal recycling centre.

As waste the packing is considered solid urban waste and must not be thrown into the environment but taken to the special collection centres.

### ***WASTE DERIVING FROM KEY CUTTING***

Waste deriving from key cutting is classified as special waste, but included in solid urban waste, considered as metal wool. Such waste must be disposed of in the special collection centres according to the classification assigned to them by current law.

## **9 AFTER-SALES SERVICE**

Silca provides full service to purchasers of the TRI-CODE H.S. key-cutting machine. To ensure complete safety for the operator and machine, any job not specified in this manual should be carried out by the manufacturer or in a Silca authorized Service Centre.

On the back cover of this manual is a list of the manufacturer's addresses; listed below are the addresses of Silca authorized Service Centres.

### **9.1 HOW TO REQUEST SERVICE**

The guarantee attached to the TRI-CODE H.S. key-cutting machine ensures free repairs or replacements of faulty parts within 24 months of purchase. All other service calls must be arranged by the customer with Silca or with a Silca authorized Service Centre.

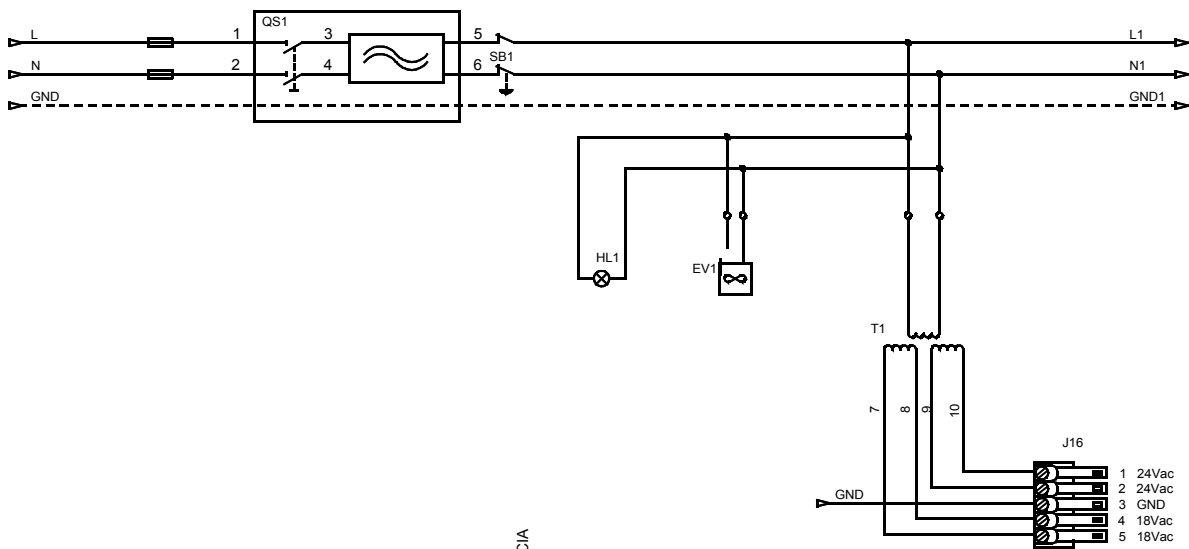
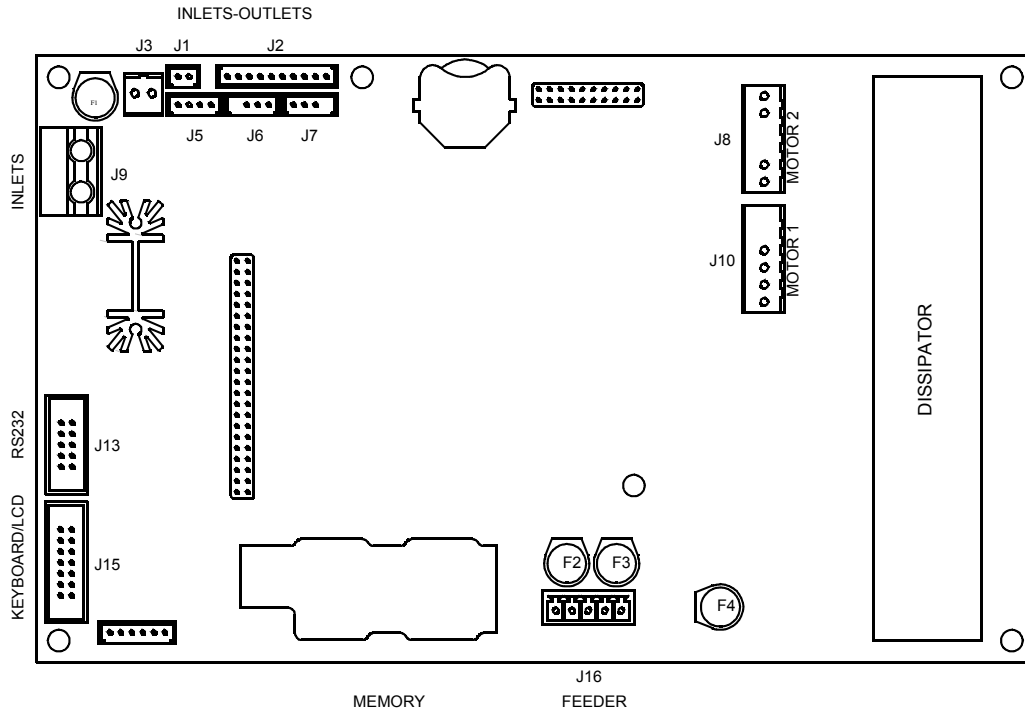
## **Appendix 1 - ELECTRICAL DIAGRAMS**

The following pages contain the electrical diagrams for the TRI-CODE H.S. key-cutting machine described in this manual.



# TRI-CODE H.S. Key-Cutting Machine

## ELECTRICAL DIAGRAMS



120V-60Hz

Fus. 10A.RAP. 120V

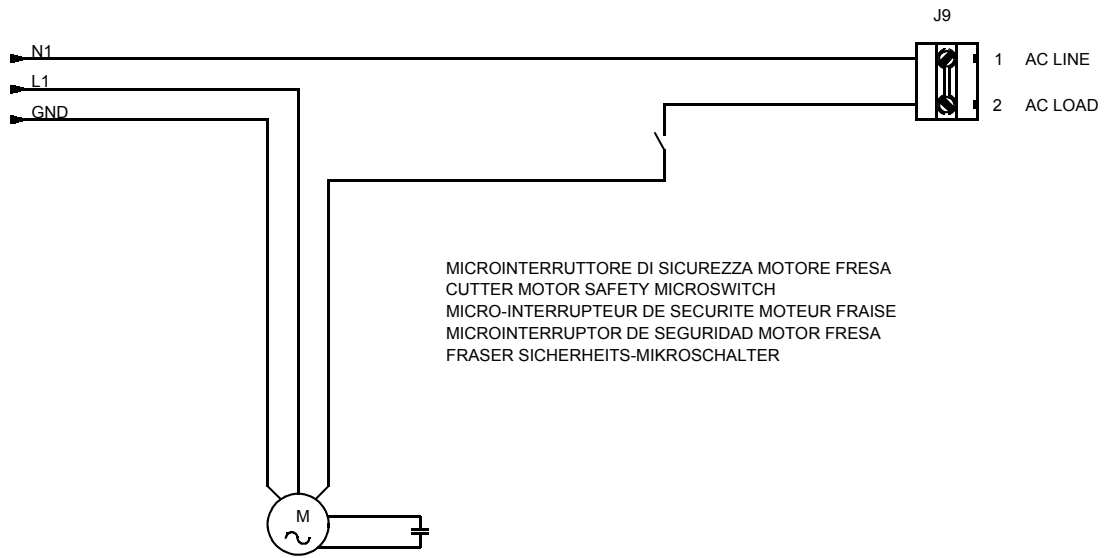
INTERRUTTORE + FILTRO  
SWITCH + FILTER  
INTERRUPTEUR + FILTRE  
INTERRUPTOR + FILTRO  
SCHALTER + FILTER

PULSANTE EMERGENZA  
EMERGENCY BUTTON  
POUSOIR D'URGENCE  
PULSADOR DE EMERGENCIA  
NOTS/STOPTASTE

LAMPADA  
LAMP  
LAMPE  
LAMPARA  
LAMPE

VENTILATORE  
FAN  
VENTILATEUR  
VENTILADOR  
VENTILATOR

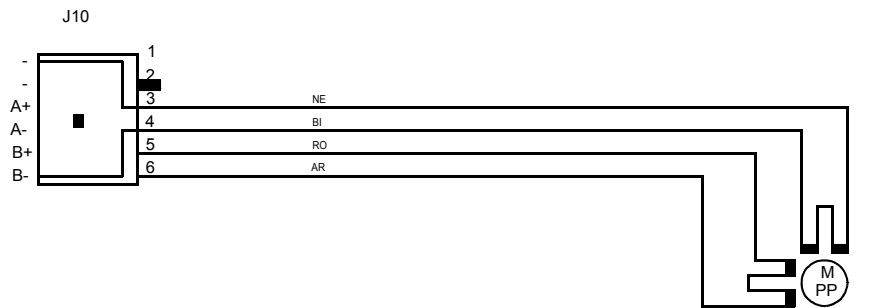
TRANSFORMATORE  
TRANSFORMER  
TRANSFORMATEUR  
TRANSFORMADOR  
TRANSFORMATEUR



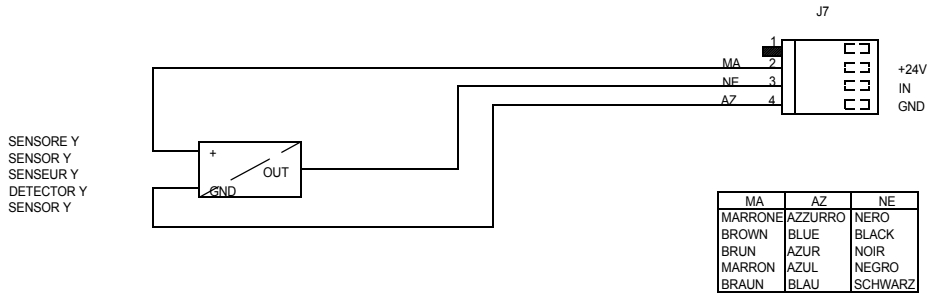
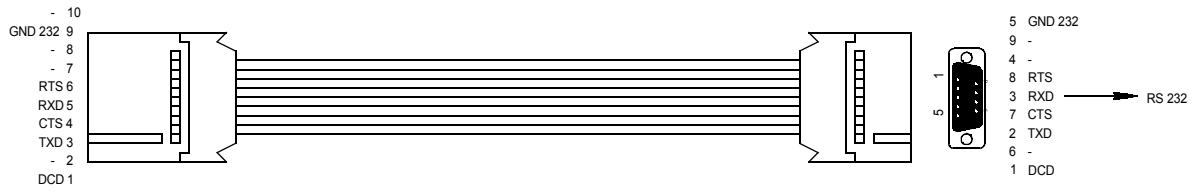
MOTORE FRESA  
CUTTING TOOL MOTOR  
MOTEUR FRAISE  
MOTOR FRESA  
MOTOR FRASER

20 mF V.120/60 Hz.

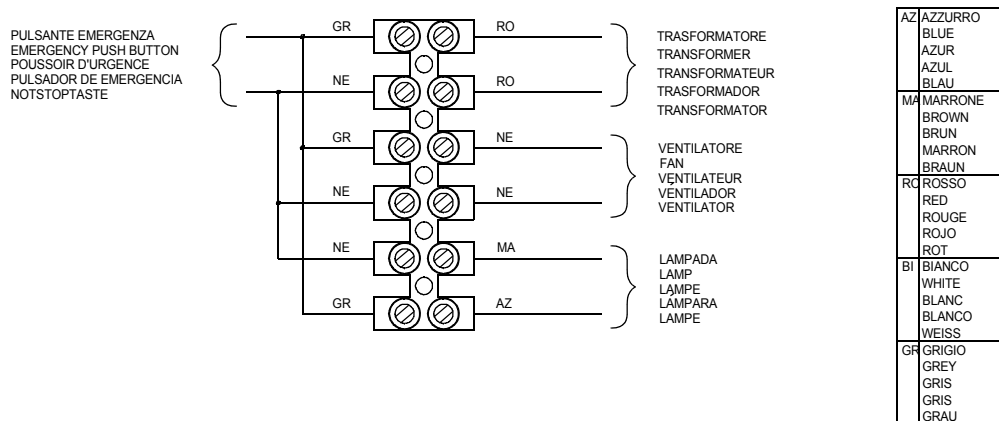
RC	ROSSO RED ROUGE ROJO ROT
BI	BIANCO WHITE BLANC BLANCO WEISS
AR	ARANCIONE ORANGE ORANGE ANARANJADO ORANGE
NE	NERO BLACK NOIR NEGRO SCHWARZ

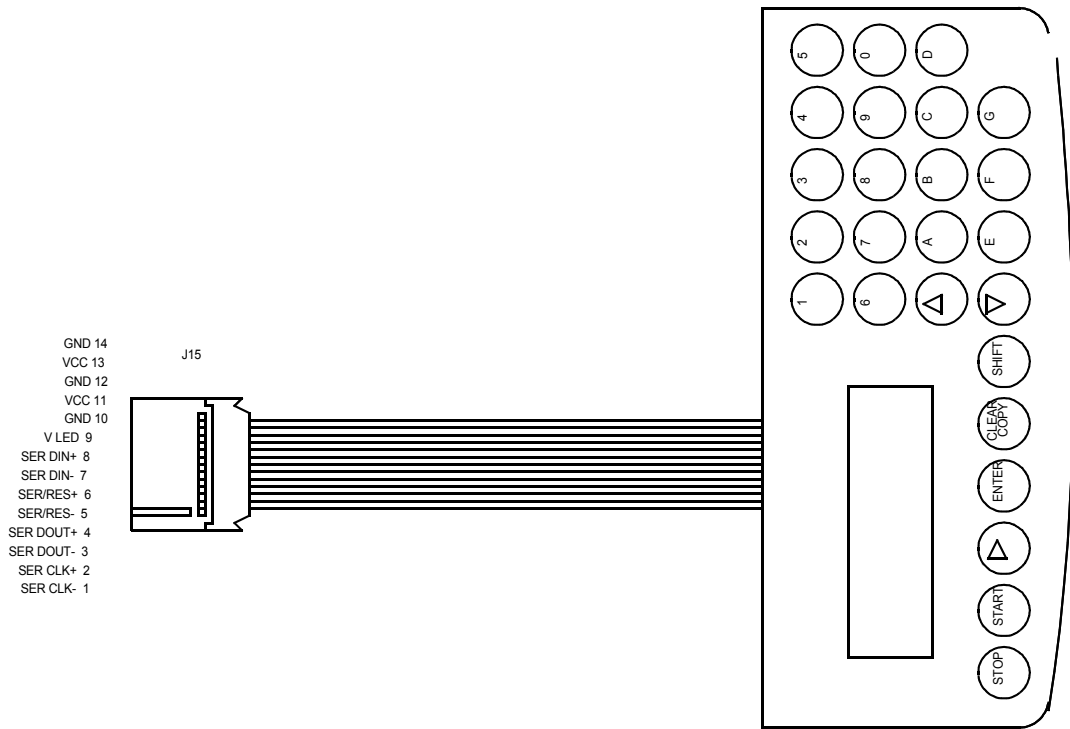


ASSE CARRELLO Y  
CARRIAGE AXIS Y  
AXE CHARIOT Y  
EJE CARRO Y  
ACHSE SCHLITTEN Y

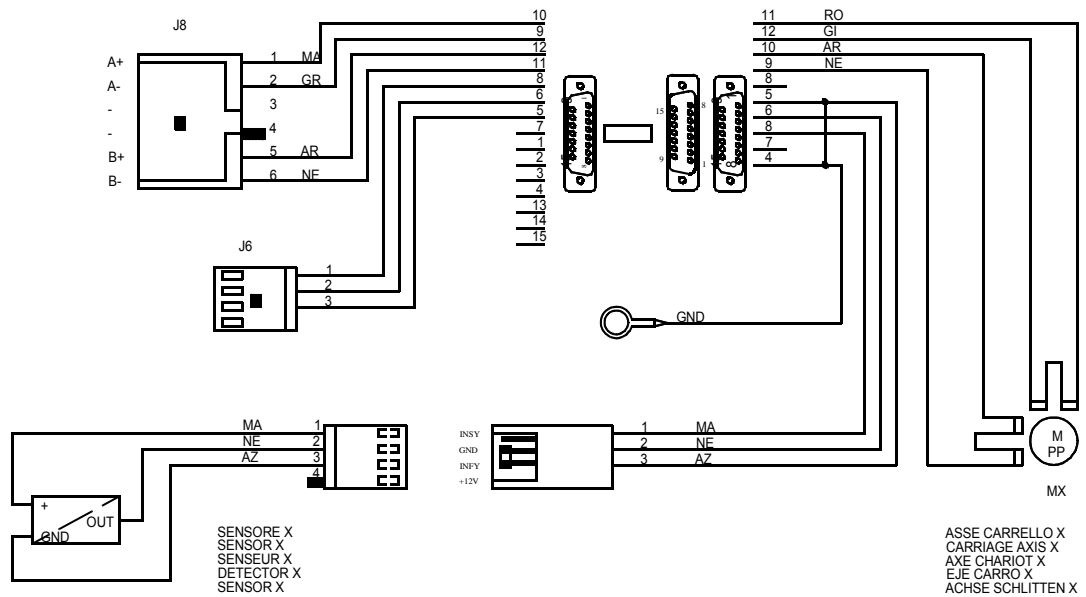


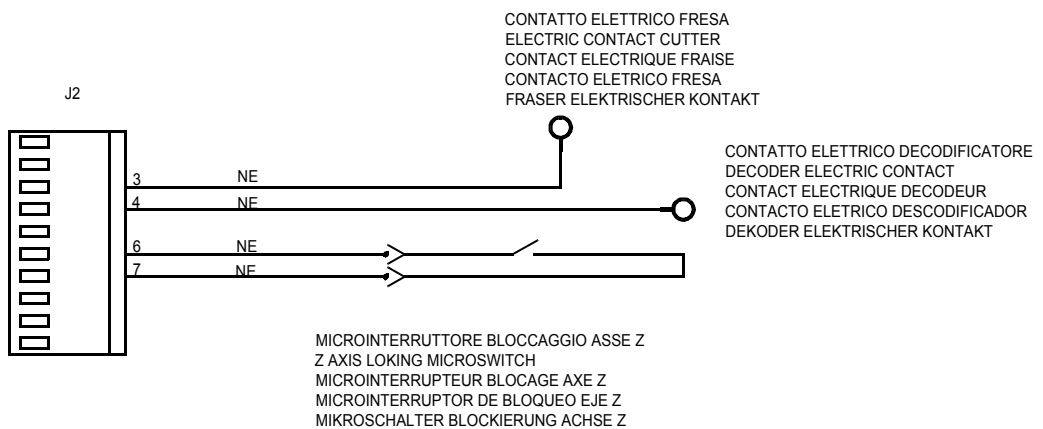
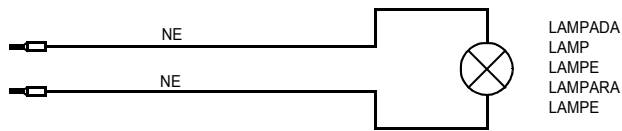
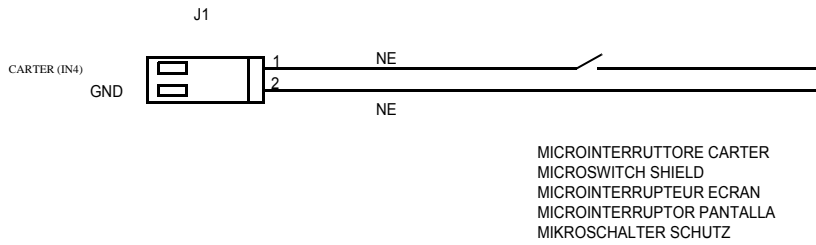
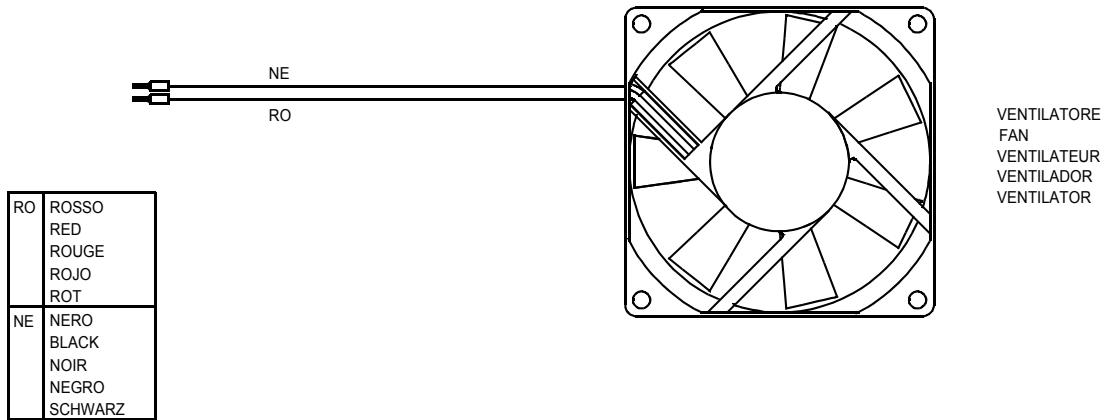
COLLEGAMENTI ALLA MORSETTIERA





RO	ROSSO RED ROUGE ROJO ROT
GI	GIALLO YELLOW JAUNE AMARILLO GLEB
AR	ARANCIO ORANGE ORANGE ANARANJALO ORANGE
NE	NERO BLACK NOIR NEGRO SCHWARZ
MA	MARRONE BROWN BRUN MARRON BRAUN
AZ	AZZURRO BLUE AZUR AZUL BLAU
BI	BIANCO WHITE BLANC BLANCO WEISS
GR	GRIGIO GREY GRIS GRIS GRAU







**SILCA S.p.A.**

Via Podgora, 20 (Z.I.)  
31029 VITTORIO VENETO (TV)  
Tel. 0438 9136 Fax 0438 913800  
E-mail: [silca@silca.it](mailto:silca@silca.it)  
[www.silca.biz](http://www.silca.biz)

Members of the Kaba Group

