

Twister II NA

Operating Manual

Original Instructions

D445453XA

vers. 1.0



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Edition: May 2015

Printed in India
by MINDA SILCA Engineering Ltd.
Plot no.37, Toy City, GREATER NOIDA (U.P.) - 201308

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GUIDE TO THE MANUAL

This manual has been produced to serve as a guide for users of the TWISTER II NA 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:

- Transport and handlingCh. 1
- Description of machine and safety devicesCh. 2-3-4
- Proper use of machineCh. 5-6-7
- MaintenanceCh. 8-9-10

Technical terms

Common technical terms are used in this manual. To assist those with little experience of key cutting, below is an illustration of the terms used for the different parts of keys.

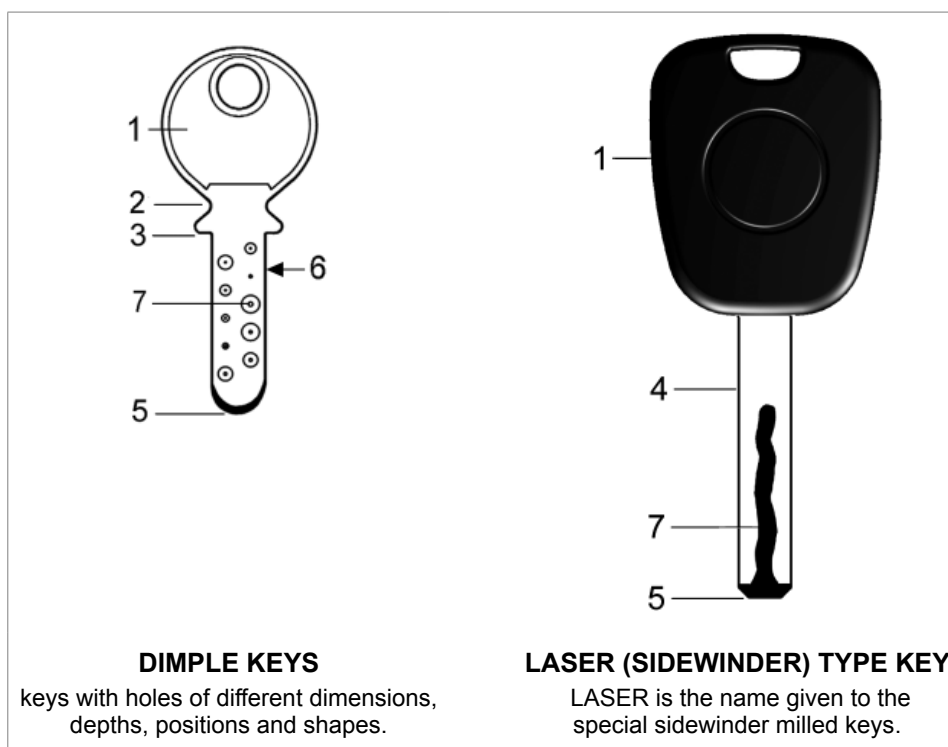


Fig. 1

- | | |
|------------------|---------|
| 1) Head | 5) Tip |
| 2) Rim | 6) Edge |
| 3) Shoulder Stop | 7) Cuts |
| 4) Stem | |

GENERAL INTRODUCTION

The TWISTER II NA key-cutting machine has been designed according to CE specifications. From the design stage risks for the operator have been eliminated in all areas: transport, key-cutting, regulation and maintenance. Other risks have been eliminated by the use of protective devices for the operator.

The protective devices used are designed not to provoke further risks and, above all, they cannot be ignored unless deliberately cut out. They do not hinder visibility of the work area.

A special adhesive label is attached to the machine warning the operator to use goggles during the cutting operations, and this is strongly recommended in this manual.

The material used in the manufacture of this machine and the components employed during use of the machine are not dangerous and their use complies with standards.

Use

The TWISTER II NA must be installed and used as specified by the manufacturer.

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

Negligence in the use of the machine or failure on the part of the operator to observe the instructions given in this manual are not covered by the guarantee and the manufacturer declines all responsibility in such cases.



IT IS OBLIGATORY to read the manual carefully before using the machine.

Further Risks

There are no further risks arising from the use of the machine.

Protection and safety precautions for the operator

The TWISTER II NA key-cutting machine is built entirely to CE standards. The operations for which it has been designed are easily carried out at no risk to the operator.

The adoption of general safety precautions (wearing protective goggles) and observation of the instructions provided by the manufacturer in this manual eliminate all human error, unless deliberate. The TWISTER II NA key-cutting machine is designed with features which make it completely safe in all of its parts and operation.

- **Power supply**

The key-cutting machine is powered by electricity supplied through a separate grounded plug.

- **Start-up**

The machine is turned on by means of the master switch located on the left-hand side. The switch has a safety function that prevents untimely start-up when voltage returns after a power outage.

- **Operation**

The machine is started up by means of a motor switch.

- **Illumination**

The work area is illuminated by a lamp which operates when the machine is switched on with the master switch.

- **Maintenance**

The operations to regulate, service, repair and clean the machine have been devised in the simplest and safest way possible. There is no danger of removable parts being re-placed wrongly or unsafely.

Machine identification

The TWISTER II NA key-cutting machine is provided with an identification label which shows the serial number (Fig. 2).

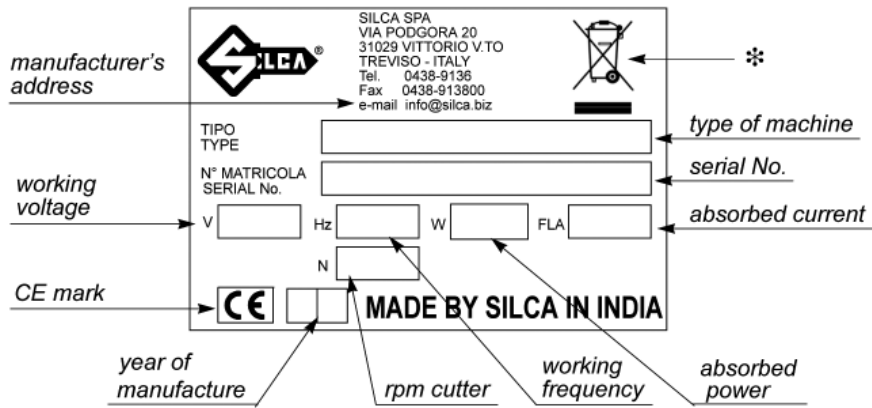


Fig. 2

1 TRANSPORT

The TWISTER II NA key-cutting machine is easily transported and is not dangerous to handle. The packed machine can be carried by two persons.

1.1 PACKING

The packing used for the TWISTER II NA guarantees that the machine will travel safely without danger of damage to it or its components.

The packing comprises two shells, lower and upper in expanded plastic in the machine is wrapped.

A strong outer cardboard box, the measurements of which can be seen in Fig. 3 and the plastic wrapping protect the machine even over a long period of storage.

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

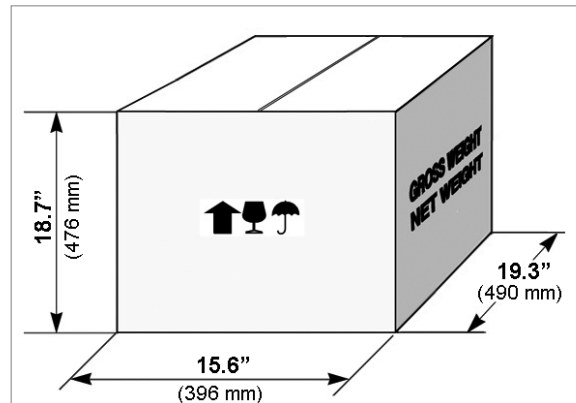


Fig. 3



Keep dry



Handle with care



Up

1.2 TRANSPORT

Symbols are printed on the outside of the cardboard box to give instructions and warnings for transportation. Use of the packing box whenever the machine is transported will avoid knocks or bumps which could cause damage.

1.3 UNPACKING

To remove the machine from the packing box:

- 1) Cut the straps with scissors and remove.
- 2) Open the box without damaging it so that it may be used again (e.g. shipping to the manufacturer for repairs or servicing).
- 3) Check the contents of the box, which should comprise:
 - 1 TWISTER II NA key-cutting machine packed in a protective shell.
 - 1 set of documents, including: operating manual, spare parts list and guarantee.
 - 1 accessory container.
 - 1 separate grounded plug wire.
- 4) Remove the key-cutting machine from the protective shell.

1.4 HANDLING THE MACHINE

When the TWISTER II NA has been unpacked, place it directly on its workbench. This operation can be carried out by one person.

ATTENTION: hold the base, and no other part, to lift and carry the machine.

1.5 SAFETY

- **Protective shield**

A special transparent plastic shield prevents chippings from flying into the air.

2 MACHINE DESCRIPTION

The TWISTER II NA is an excellent quality, high precision key-cutting machine. It features great versatility in cutting keys of different types without the need to replace the clamp or apply fixed adapters.

TWISTER II NA cuts the following types of keys:

- **DIMPLE KEYS (with flat cuts)**
- **LASER (SIDEWINDER) type keys**
- **keys for FICHET**

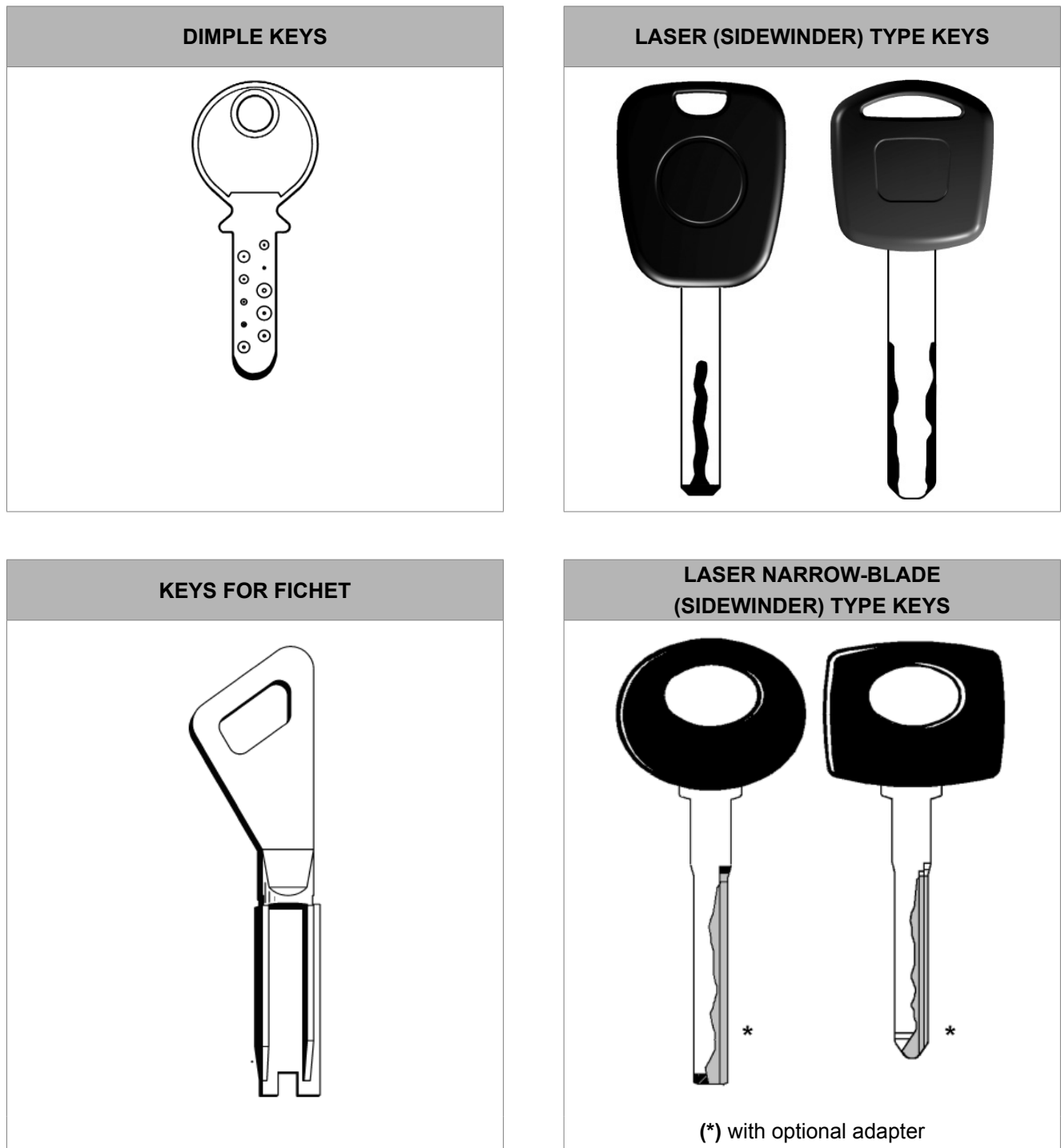


Fig. 4

High precision work is guaranteed by the combination of the functional features on the TWISTER II NA and all its components, such as:

- **MOVEMENTS**

The two axes move on ball guides which provide smooth running and easy sliding without play.

- **TRACER POINT SPRING SYSTEM**

This system guides and facilitates self-centering of the cuts on dimple keys.

- **PROTECTIVE SHIELD**

A special transparent plastic shield minimizes exposure to the cutter and chips.

- **LAMP**

Placed directly on the machine, it illuminates the work area.

- **TRACER POINT ADJUSTING RING NUT**

Ensures perfect depth alignment of the tools and makes it possible to adjust for defects on worn keys.

- **LEVERS AND KNOBS**

Each lever and knob has been designed with dimensions, materials and positions which render grip and movement extremely simple.

Materials and finish have been chosen according to the use of each part, especially:

- lever (I) for vertical carriage (Z axis)
- lever (C) X-Y axes

Note: the letters in brackets refer to Fig. 6 on page 7.

The lever which guides movement along the X-Y axes is ergonomic and allows for precise, sensitive movements.



Fig. 5

3 WORKING PARTS

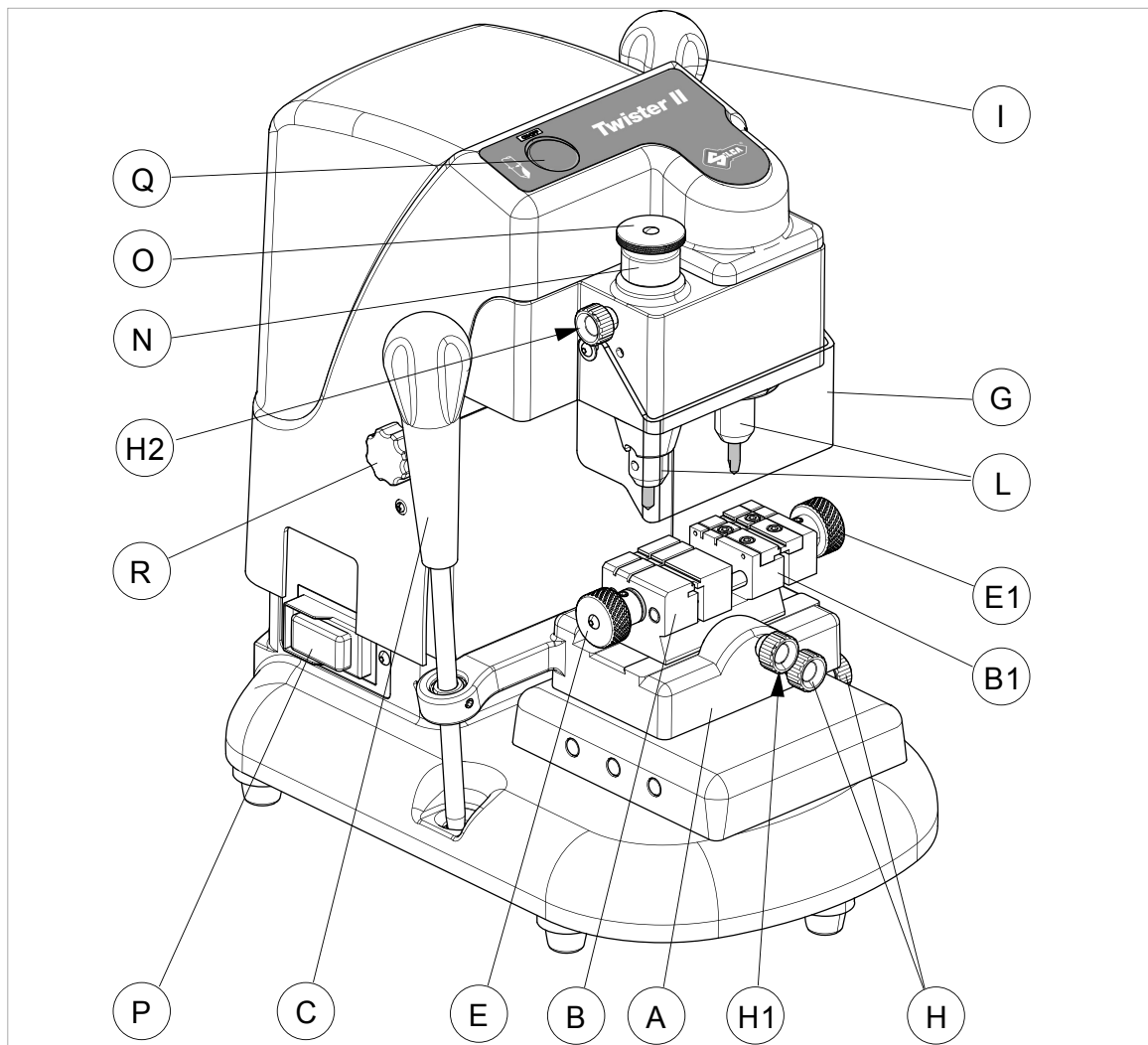








Fig. 6

- | | |
|-------------------------------------|---|
| A - clamp carriage (X-Y axes) | H2 - locking knob tracer shaft |
| B - left-hand jaw | I - vertical carriage lever (Z axis) |
| B1- right-hand jaw | L - sleeve (cutting tool and tracer point holder) |
| C - clamp carriage lever (X-Y axes) | N - ring nut for tracer point adjusting |
| E - left-hand jaw knob | O - regulating knob spring system |
| E1- right-hand jaw knob | P - master switch |
| G - protective shield | Q - motor start switch |
| H - clamp carriage locking knobs | R - "Z" axis locking knob |
| H1- clamp group locking knob | |

3.1 TECHNICAL DATA

Electricity supply:	120V/50-60Hz
Maximum absorbed power	120V: 1,8 Amp. 160 Watt
Motor:	One-speed single phase
Cutting tool:	Super rapid steel HSS
Tool speed:	50Hz: 6000 rpm (+/- 10%) - 60Hz: 6000 rpm (+/- 10%)
Movements	on 3 axes: vertical axis on bars, longitudinal and transversal axes on ball guides
Clamp:	universal interchangeable
Travel:	X axis (lower): 1.6" (40 mm) - Y axis (upper): 2.0" (50 mm) Z axis (vertical): 1.2" (30 mm)
Dimensions :	width: 9.8" (250 mm) depth: 14.6" (370 mm) height: 14.6" (370 mm)
Weight:	53 lbs. (24 Kg.)
Sound pressure:	74,7 dB(A)

GRAPHICS ON THE TWISTER II NA MACHINE

		
<p>THE USE OF PROTECTIVE GOGGLES IS REQUIRED</p>	<p>READ INSTRUCTIONS BEFORE USE</p>	<p>WARNING! TOOL IN ROTATION</p>
		
<p>WARNING! PRESENCE OF ELECTRIC POWER</p>	<p>GROUND CONNECTION</p>	<p>CUTTER ROTATION DIRECTION</p>

3.2 ELECTRIC CIRCUIT

The main parts of the electrical and electronic circuit on the TWISTER II NA are listed below:

- 1) Machine plug
- 2) Fuses 8 Amp delayed (120V)
- 3) Master switch
- 4) Led 4.5W 120V
- 5) Motor start switch
- 6) Electric motor with collector (120/50-60)

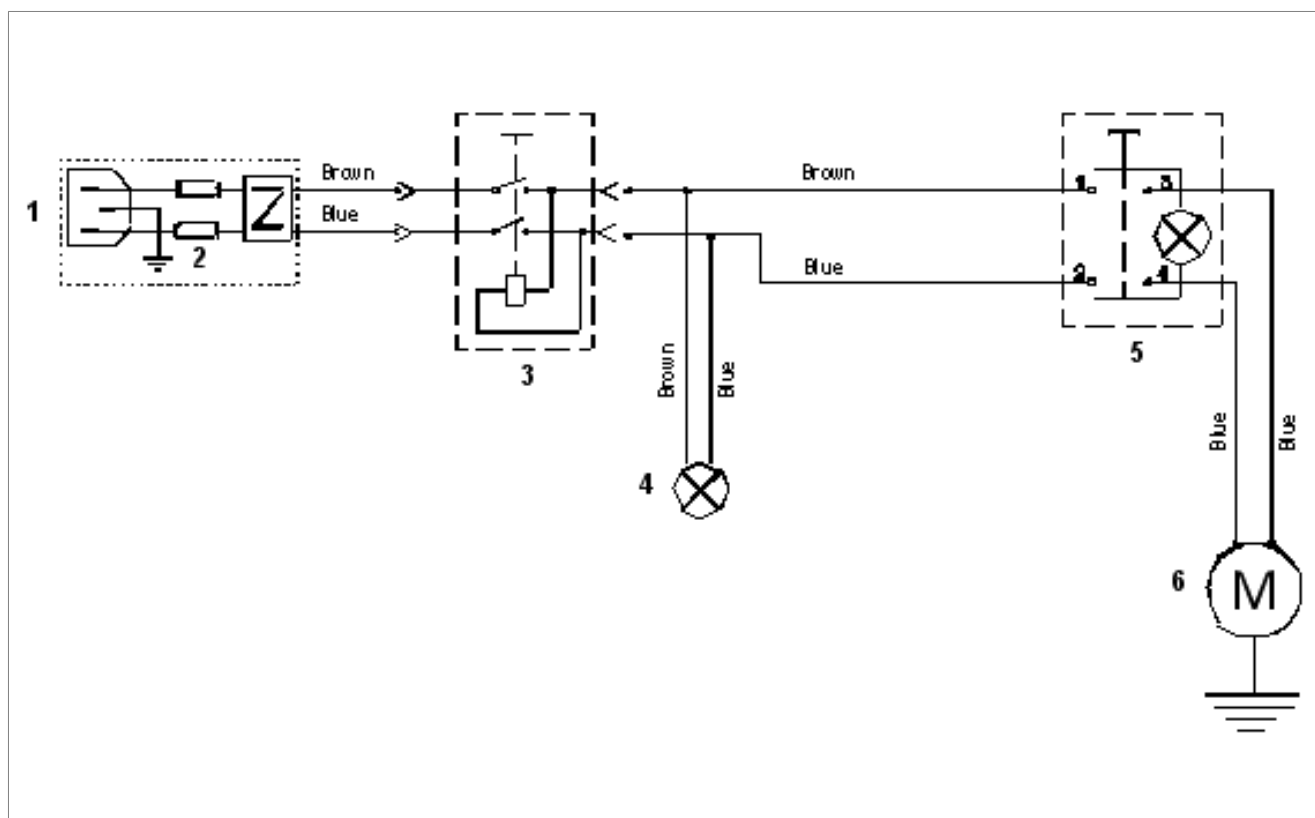


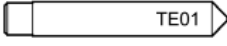
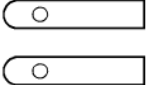


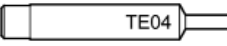


Fig. 7

4 ACCESSORIES PROVIDED

A set of accessories is supplied for use with the machine or for servicing (tools, Allen keys and adapters).
The accessories provided are:

 <p>CUTTING TOOL for dimple keys</p>	 <p>3 mm ALLEN KEY</p>
 <p>TRACER POINT for dimple keys</p>	 <p>STEEL TIP STOP BAR 2 pcs.</p>
 <p>CUTTER for Laser (sidewinder) keys</p>	 <p>FUSES (2 pcs) 8 Amp - delayed (120V)</p>
 <p>TRACER POINT for Laser (sidewinder) keys</p>	

5 MACHINE INSTALLATION AND PREPARATION

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

5.1 CHECKING FOR DAMAGE

The TWISTER II NA key-cutting machine is solid 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.

5.2 ENVIRONMENTAL CONDITIONS

To ensure that the best use is made of the TWISTER II NA key-cutting machine, certain parameters must be borne in mind:

- damp, badly ventilated sites should be avoided.
- the ideal conditions for the machine are:
 - between 50 and 104 °F (10 and 40°C); relative humidity: approximately 60 %.

5.3 POSITIONING

Place the key-cutting machine on a horizontal surface, solid enough to take the weight.

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 12" (30 cm) behind the machine and on each side to ensure proper ventilation.



ATTENTION: ensure that the machine voltage is the same as that of the power supply, which must be properly grounded and provided with a differential switch.

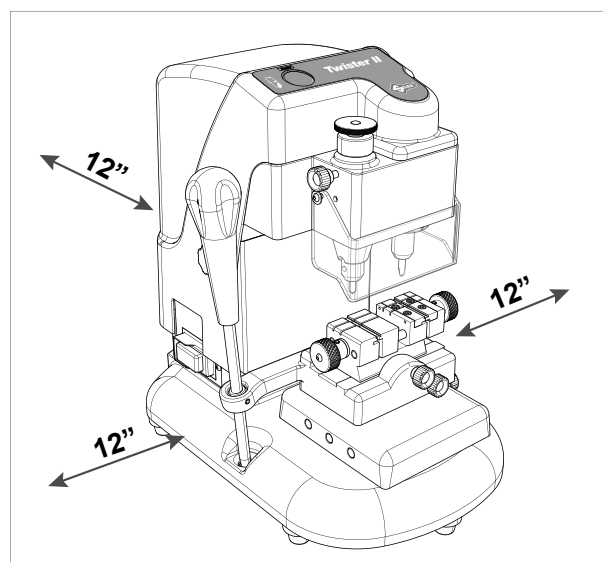


Fig. 8

5.4 DESCRIPTION OF WORK STATION

The key-cutting machine needs only one operator, who has the following controls at his/her disposal:

- **master switch (P).**
- **motor start switch (Q).**
- **levers:**
 - lever (C) to move the clamp carriage
 - lever (I) to move the vertical carriage

Note: the letters in brackets refer to Fig. 6 on page 7.

6 MACHINE REGULATION AND UTILIZATION

Before carrying out cutting operations:

- insert the proper cutter and tracer
- activate the spring system (if cutting dimple keys) (section 7.2)

6.1 FITTING AND REGULATING THE TOOLS

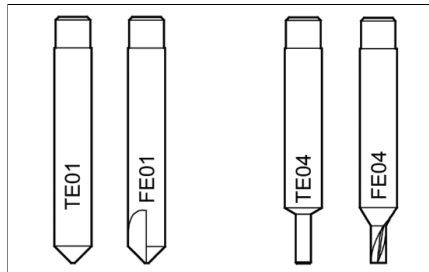


Fig. 9



ATTENTION: Turn power off on machine.

To fit the tracer point and cutting tool into the sleeves:

- 1) Place the tracer point all the way into the left-hand sleeve and secure by tightening the grub screw (M) (fig. 10).
- 2) Place the cutting tool all the way into the right-hand sleeve and secure by tightening the grub screw (M1).

Releasing the tools

Unscrew the grub screw (M) and (M1) to remove the tracer point and cutting tool from the sleeves.

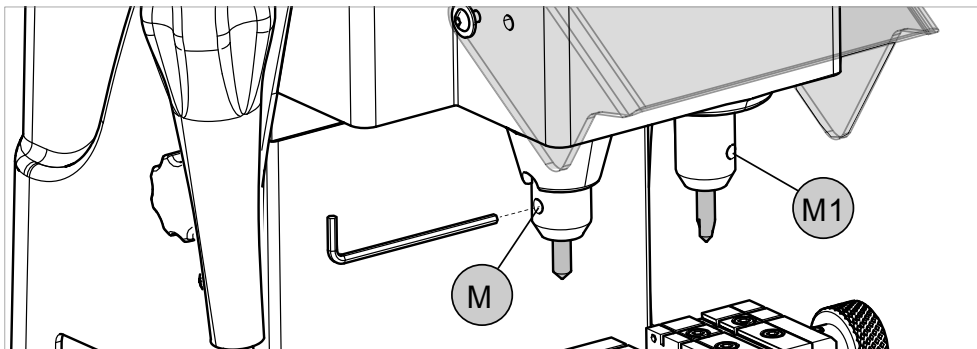


Fig. 10

6.2 CALIBRATION OF THE CUTTER AND TRACER

Once the appropriate cutter and tracer have been installed, place two identical key blanks into the clamps and proceed as follows (see Fig. 6 on page 7):

- 1) Loosen the locking knob (H2).
- 2) Turn the ring nut (N) counter-clockwise.
- 3) Lower the vertical carriage by means of the lever (I) and rest the tracer point lightly on the key in the left hand jaw.
- 4) Turn the ring nut (N) clockwise until the cutting tool touches the key in the right hand jaw.
- 5) Lock the regulating knob (O) and the locking knob (H2).

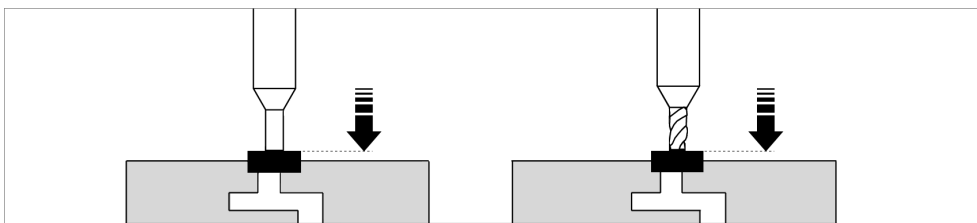


Fig. 11

7 CUTTING OPERATIONS



ATTENTION: for complete safety during the cutting operations, take the following precautions:

- Always work with dry hands.
- Ensure that the machine is properly grounded.
- Wear protective goggles even if the machine is provided with a safety shield over the cutting tool.
- Before starting the motor (switch Q), carry out the following operations:
 - a) place the pattern and blank keys into the clamps.
 - b) install and calibrate the cutter and tracer (see section 6.2).
- Keep hands away from the cutting tool in motion.

7.1 GAUGING KEYS

When loading keys into the clamps on the TWISTER II NA both the pattern key and the key to be cut must be gauged properly in the clamp prior to beginning the cutting operation. Keys are gauged using either the shoulder stop or tip of the key (for keys that do not have a shoulder).

When loading keys with shoulder stops place the key in the jaw so that the shoulder of the key is resting against the front edge of the clamp (Fig. 12).

When loading keys gauged by the tip, insert the tip stop bar into the appropriate slots on the clamp and load the key into the jaw so that the tip of the key rests against the tip stop bar (Fig. 13).

It is important that both the pattern key and the key to be cut are gauged in the same manner in each jaw.

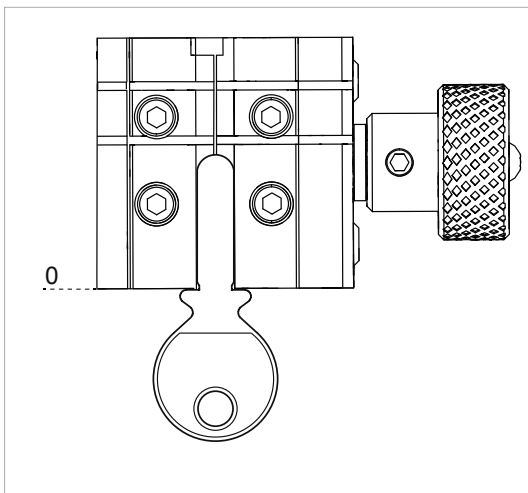


Fig. 12

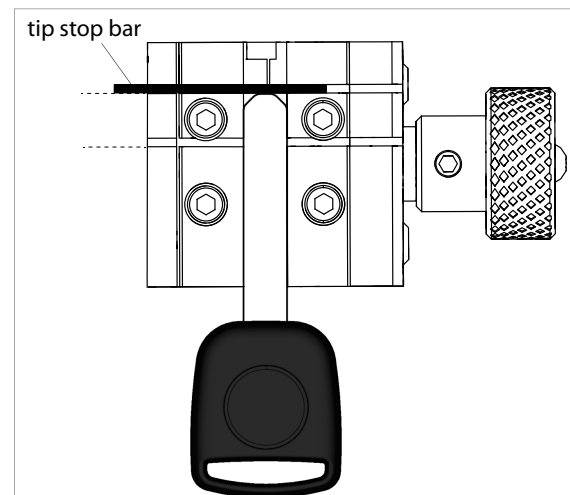


Fig. 13

7.2 CUTTING DIMPLE KEYS

The TWISTER II NA key-cutting machine is equipped with a spring mechanism which allows precise duplication of dimple keys. Using this system, it is possible to position the tracer into each dimple of the pattern key before making the cut. The spring system is to be used only for dimple keys (fig. 1) and is activated by rotating the ring nut (O).

- 1) Turn on the machine using switch (P).
- 2) Install and calibrate the cutter and tracer (see section 6.2).
- 3) Once the keys have been loaded and gauged properly, press the switch (Q) to turn on the cutter.
- 4) Using lever (C) move the clamp group according to the cuts that have to be carried out.
- 5) Using lever (I) lower the cutter/tracer group so that the tracer enters a dimple in the pattern key. Press the lever (I) with sufficient force to make sure the cutter removes all the necessary material from the key for the dimple being cut.
- 6) Repeat the operation for each dimple on the pattern key.
- 7) After having carried out all the cuts, turn the machine off using the switch (Q) and remove the keys from the clamps.

Cutting the edge

If cuts are to be made on the edge, place the key in a vertical position.

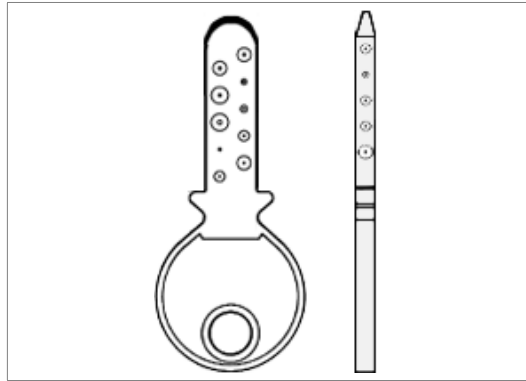


Fig. 14

7.3 CUTTING LASER (SIDEWINDER) TYPE KEYS

NOTE: before attempting to cut laser (sidewinder) type keys, deactivate the spring system for dimple keys using knob (O).

- 1) Install and calibrate the cutter and tracer (see section 6.2).
- 2) Gauge and clamp the pattern key into the left side clamp using the shoulder stop or tip stop position as described earlier.
- 3) Using lever (I) lower the Z-axis until the tracer rests lightly on a CUT portion of the pattern key.
- 4) While maintaining light contact tighten the Z axis locking knob (R) to secure the Z-axis in this position.
- 5) Gauge and clamp the key blank into the right side clamp using the same shoulder or tip stop position as the pattern key.
- 6) Once the key blank and pattern keys have been properly clamped, press the motor start switch (Q) to activate the cutter motor.
- 7) Determine the starting point for your cut (see Fig. 15).
- 8) Using lever (C), trace the pattern key while moving the cutter into the the key blank.

NOTE: REMOVE THE TIP STOP BAR PRIOR TO ATTEMPTING TO CUT THE KEY!

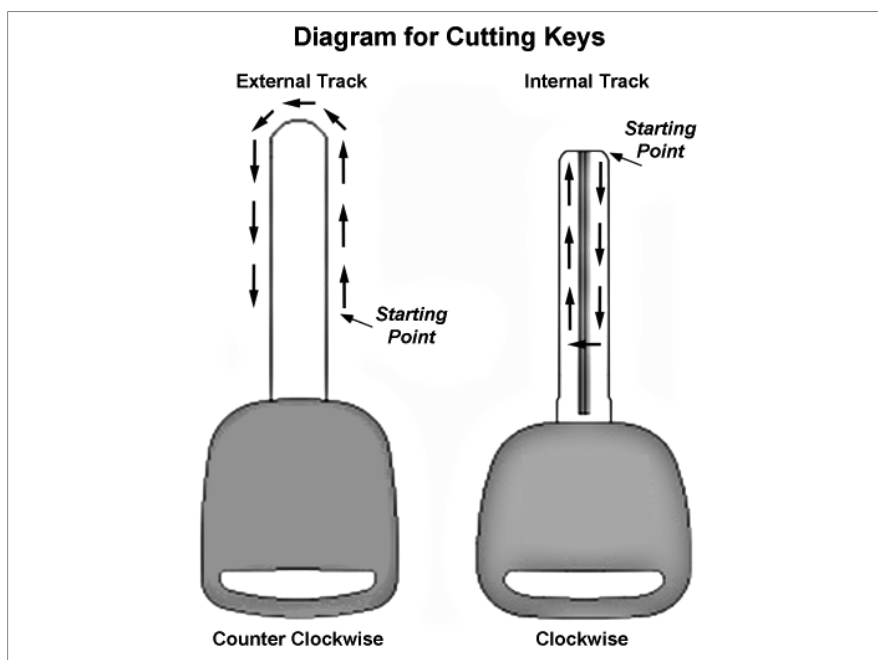


Fig. 15

7.4 CUTTING NARROW-BLADE LASER (SIDEWINDER) TYPE KEYS (ART.HU41P-HU55P-HU64P...)

The clamp can also be used to cut narrow-stemmed Laser (sidewinder) keys but requires the use of the optional adapter. Proceed as follows:

- 1) Open the clamps by loosening knobs (E) and (E1).
- 2) Insert the adapters into the clamps.
- 3) Insert and gauge the pattern key (as described in section 7.3).
- 4) Secure the adapter and key by tightening knob (E) and (E1).

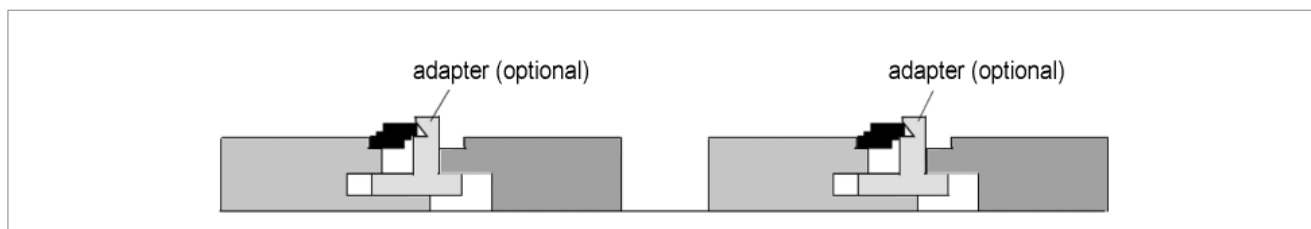


Fig. 16

7.5 CUTTING KEYS FOR FICHET

The clamp can also be used to cut keys for FICHET (H profile). Proceed as follows:

- open the clamps slightly by loosening knobs (E) and (E1) (Fig. 6 on page 7).
- place the keys with the stop up against the clamp.
- secure the keys by tightening knobs (E) and (E1).

Cutting:

turn on switch (Q), lower the collet assembly and position on the beginning of the cut.

- **secure the spindle at this height.**
- **carry out the cuts using only lever (C).**

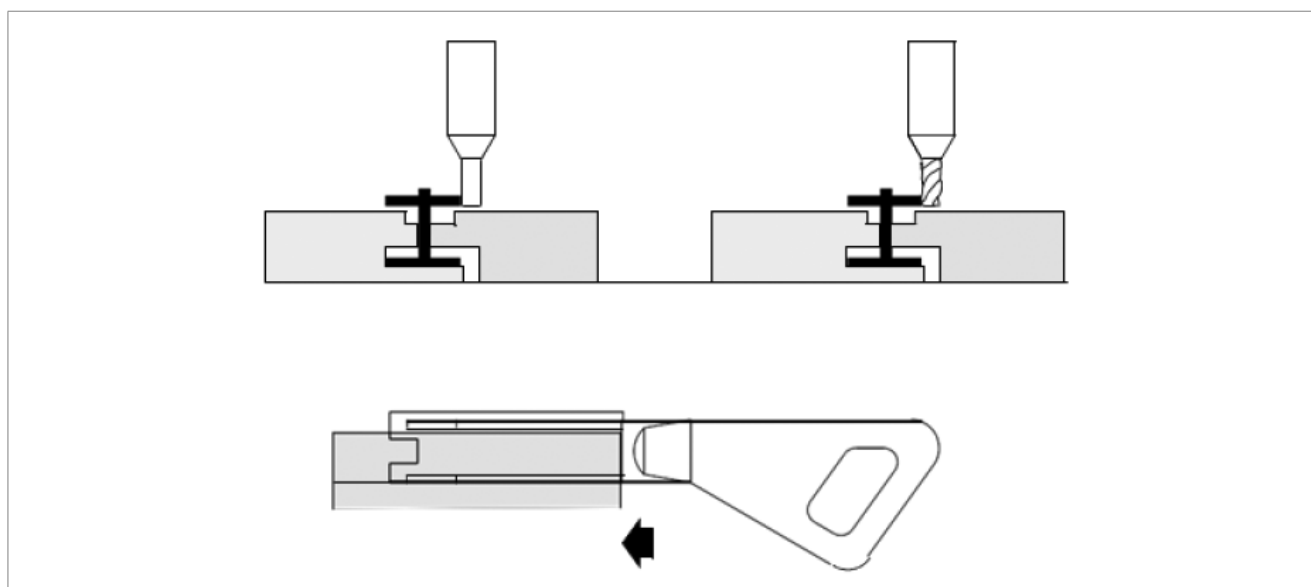


Fig. 17

8 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 TWISTER II NA key-cutting machine does not require special maintenance, it is advisable to check and, if necessary, replace the parts subject to wear, such as: the belt (Section 8.1) and the lamp (Section 8.2). Replacement is simple and can be carried out by the operator.

CLEANING: keep the carriage and clamps free of chippings from the cutting operations by cleaning with a dry brush.



ATTENTION: DO NOT USE COMPRESSED AIR!



ATTENTION: to keep the machine well maintained we recommend using protective oil, e.g. WD40 or similar, applied to the burnished mechanical parts. This prevents oxidation of the parts in question (clamps, guides, carriages, etc.).

Before starting any type of maintenance (checks or replacements), read the instructions below:

- never carry out maintenance or servicing with the machine switched on.
- always unplug the machine prior to servicing.
- follow all the instructions in the manual to the letter.
- use original spare parts.

8.1 REPLACING THE BELT AND ADJUSTING TENSION

If the upper part of the machine vibrates, check the tension on the belt, as described below:

- 1) Turn off the master switch and unplug the machine.
- 2) Loosen the four screws (Y1), knob (R) (Fig. 6 on page 7) and remove the upper casing (Y).
- 3) Loosen (but do not remove) the four socket head screws (Y2) securing the motor.
- 4) **a) tension:**
 - increase belt tension by pushing the motor towards the back of the machine.
- b) replacement:**
 - loosen the belt by pushing the motor slightly towards the tracer point and cutting tool.
 - remove the belt and replace.
 - tighten the tension by pushing the motor towards the back of the machine.
- 5) Secure the motor by tightening the four socket head screws (Y2).
- 6) Replace the upper casing (Y), secure with the four screws (Y1) and replace knob (R).

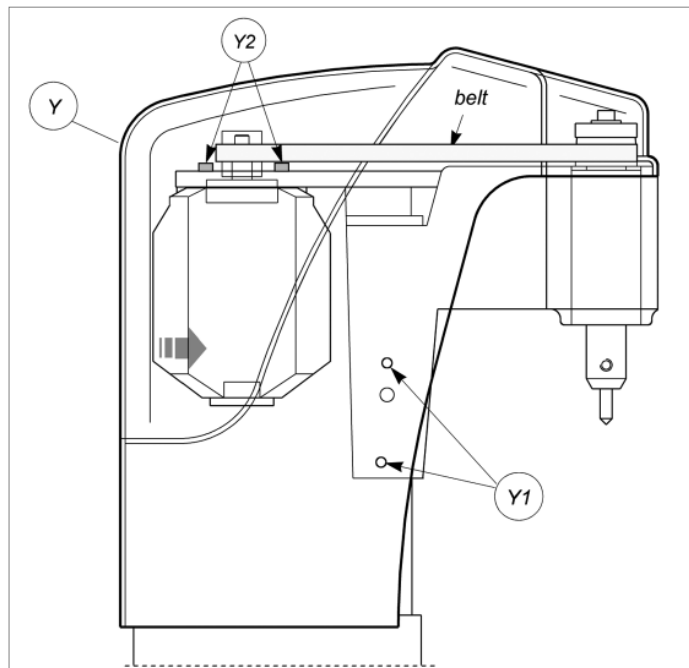


Fig. 18

8.2 REPLACING THE LIGHT BULB

To replace the light bulb:

- 1) Turn off the master switch and unplug the machine.
- 2) Loosen the four screws (Y1), knob (R) (Fig. 6 on page 7) and remove the upper casing (Y).
- 3) Disengage both connectors (Z).
- 4) Remove the two screws (Z1) and remove the LED sub assembly (Z2).
- 5) Install the new LED sub assembly and secure with two screws (Z1).
- 6) Engage both connectors (Z) securely.
- 7) Replace the upper casing (Y) and secure with the four screws (Y1) and replace knob (R).

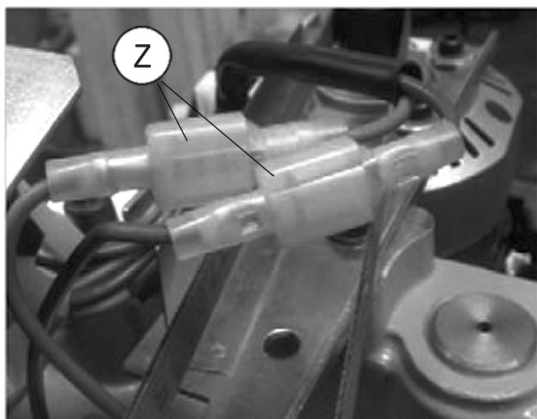


Fig. 19

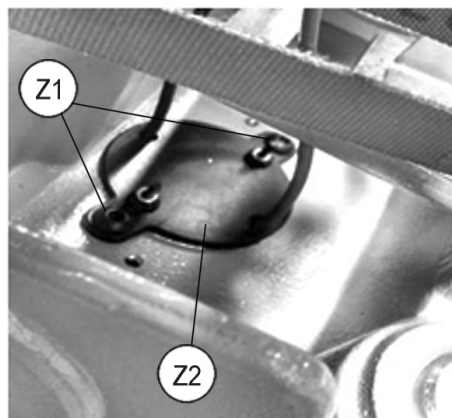


Fig. 20

8.3 CHECKING AND REPLACING THE FUSES

The fuses should always be checked with a continuity measuring instrument (tester, ohmmeter, multimeter etc.) as a visible check may not reveal an electrical fault. Fuses must always be replaced with others of the same type and with the same Amps, as shown in the manual.

The TWISTER II NA key-cutting machine has two fuses:

8 Amps delayed for machines with 120 Volt placed in the inlet socket, to protect the key-cutting machine from sudden changes in voltage or short circuits.

It is advisable to check the fuses if the machine is not activated by turning on the master switch. Proceed as follows:

- 1) Turn off the master switch (P) and remove the power cord.
- 2) Remove the fuse board with the aid of a screwdriver.

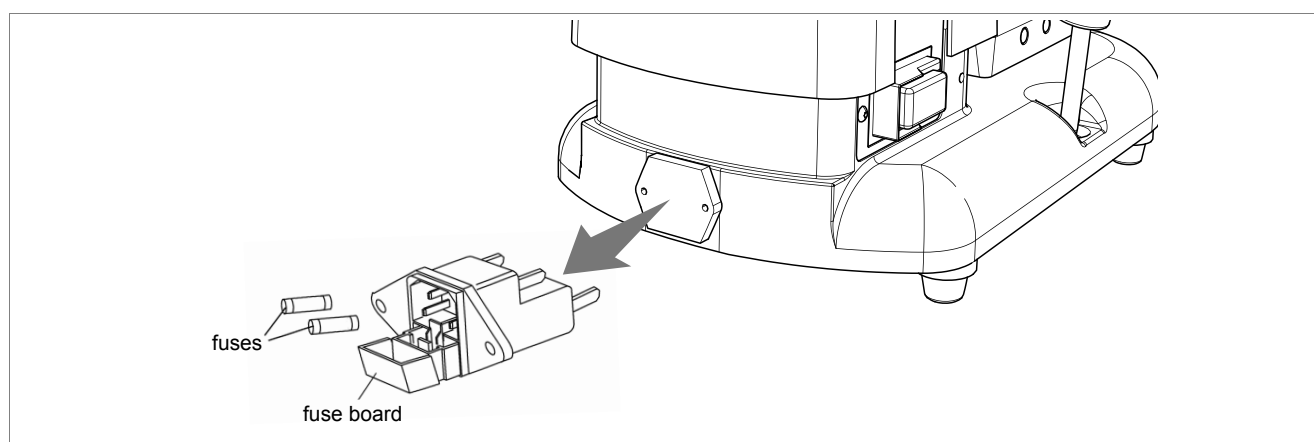


Fig. 21

8.4 REPLACING THE JAWS ON RIGHT-HAND CLAMP

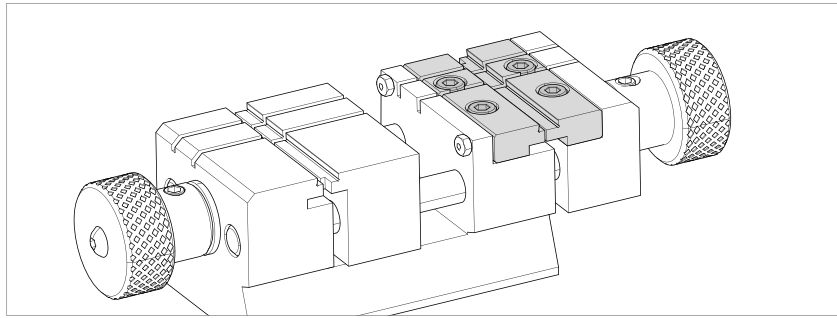


Fig. 22

Make sure the motor ON switch is OFF.

8.4.1 REPLACING LEFT JAW

- 1) Unscrew the knob (E1).
- 2) Loosen the 2 screws (B2) and remove the jaw.
- 3) Fit the new jaw up against the left-hand side and align also from the front.
- 4) Tighten the 2 screws (B2) without exerting pressure.
- 5) Screw in the knob (E1).
- 6) Fully tighten the screws (B2).

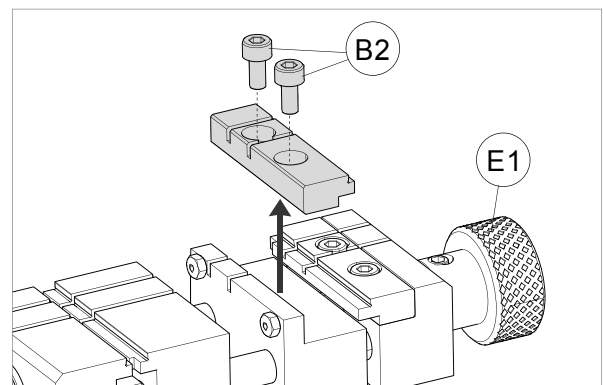


Fig. 23

8.4.2 REPLACING RIGHT JAW

- 1) Unscrew the knob (E1).
- 2) Loosen the 2 screws (B3) and remove the jaw.
- 3) Fit the new jaw up against the right-hand side and align also from the front.
- 4) Tighten the 2 screws (B3) without exerting pressure.
- 5) Screw in the knob (E1).
- 6) Fully tighten the screws (B3).

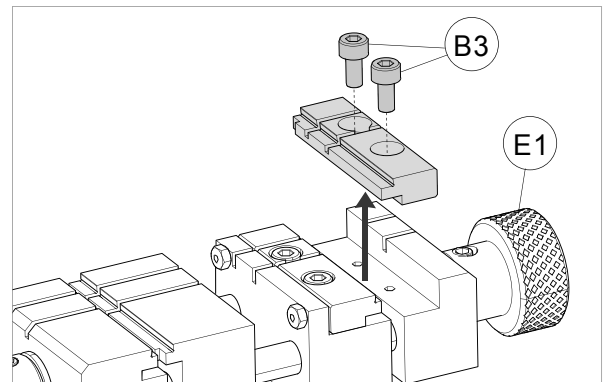


Fig. 24

9 DECOMMISSIONING

To decommission the machine it must be made unusable by:

- **deactivating the power supply;**
- **separating the plastic parts from the metal parts;**

After doing the above, dispose of the waste in compliance with the current directives in the country where the machine is located.

Waste disposal

CEE regulations lay down special methods for disposing of waste (**).

Machine

TWISTER II NA is not only a durable machine, but is also re-usable. Recycling is a good environmentally friendly practice.

Packing

The TWISTER II NA device is consigned in a cardboard packing box which can be re-used if undamaged. When it is to be thrown away it is classified as solid urban waste and should be placed in the special paper collecting bins. The protective shell containing the machine is in expanded polyethylene, classified as SUW, and can therefore be placed in an ordinary waste.

Waste from key-cutting

Residue deriving from key cutting is classified as special waste, but can be included in solid urban waste (SUW) as metal scourers. This waste must be disposed of in the special collection centres according to its classification by current laws in Italy and the European Union. If it is contaminated or contains harmful-noxious substances which transform the metal residue included in SUW into harmful-noxious substances, it is included in the lists of the appendices to current regulations in Italy and the European Union for waste disposal.



INFORMATION TO USERS

*Under the terms of Directive 2012/19/UE
regarding waste from electric and electronic equipment (WEEE),*

- The symbol shown above is also attached to equipment and indicates that it has been placed on the market and must be separated and disposed of when no longer wanted (including all components, sub-assemblies and consumables that are an integral part of the product).
- Please contact SILCA S.p.A. or any other subject on the national registers of other countries in the European Union for information about waste disposal systems for the equipment. Household waste (or of similar origins) can be disposed of by the separate urban waste collection system.
- When purchasing new equipment of an equivalent kind the unwanted equipment can be given back to the dealer. The dealer will then contact the authority responsible for collecting it.
- Separate waste collection of unwanted equipment and its forwarding to treatment, recovery and environmentally friendly disposal makes it possible to avoid potential negative effects on the environment and human health, and assists recycling and recovery of materials.
- Unauthorized disposal of the product by the user is punished by the application of fines established by the countries which have received Directive 2009/98/CE.

(**) wastes are substances or objects deriving from human activity or natural cycles which are discarded, or intended to be discarded.

10 AFTER-SALES SERVICE

Silca provides full service to purchasers of the TWISTER II NA 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.

10.1 HOW TO REQUEST SERVICE

The limited warranty period for the TWISTER II NA 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 its Service Centres.



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