

OPERATION AND MAINTENANCE HANDBOOK

D407270XA

vers. 1.0



Thank you for choosing one of Silca's high quality key cutting machines. This machine has been designed, tested and produced in our factory using the most modern technology to provide you with many excellent years of precision key duplicating.

Before using the machine, we suggest that you read the information presented in this manual thoroughly.

The proper care and maintenance that your machine requires is also detailed in this handbook.

By following these instructions you will ensure a long, trouble free life for your machine.

If anything is at all unclear, please contact your supplier, who directly or by means of Silca's Technical Service Department will provide you with the service and assistance you require.

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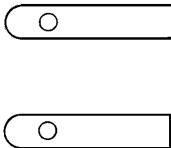
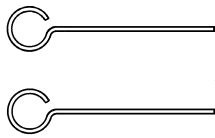
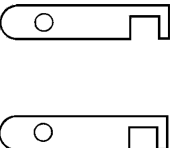
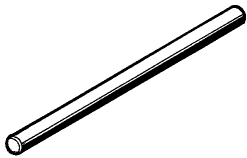
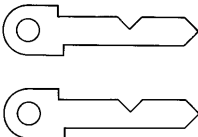
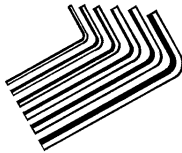
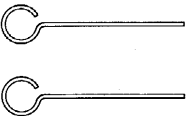

BRAVO FEATURES

- Professional key cutting machine for automobile, household cylinder keys and cruciform keys.
- Micrometer adjustment for the tracer.
- Removable chip tray.
- Tynex brush.
- Carriage operates on twin rods with sealed bushings.
- Carriage is automatically released once the gauges are disengaged.
- Carriage locks in down position.
- Machined jaws give excellent grip with minimal pressure.

TECHNICAL DATA

MOTOR: single phase 110V-60Hz
 CUTTER: High speed steel dia. 3.15" x 0.197" x 0.63" (80 mm x 5 mm x 16 mm)
 MOVEMENT: on bearings. Self cleaning synthetic bushings.
 JAWS: four side, revolving.
 SAFETY DEVICE: carriage is released only when the gauges are out of safety position.
 MAX. CUT. LGTH.: 2.09"
 DIMENSIONS: length 18.11", width 14.96", height 9.65"
 WEIGHT: 39.7 lbs.

ACCESSORIES

<p>Pair of steel tip stops Code D402302BA (each)</p> 	<p>Pair of ø 0.066" steel pins Code D401225ZZ (each)</p> 
<p>Pair of steel tip stops with neck Code D402301BA (each)</p> 	<p>Locking bar for cutter removal Code D400754BA</p> 
<p>Pair of setting blanks for calibrating Code D401561BA (each)</p> 	<p>Set of allen keys (6 pcs.) 2mm, 2.5mm 3mm, 4mm, 5mm, 6mm</p> 
<p>Pair of ø 0.047" steel pins Code D401224ZZ (each)</p> 	<p>Wrench 19mm Code D300783ZZ</p> 

PARTS OF THE BRAVO

- A) Original key
- B) Key blank
- C) Cutter
- D) Tracer point
- D1) Tracer point support
- F) Complete carriage assembly
- G) Jaw
- H) Jaw handle
- J) Transparent cutter shield
- L) Brush
- M) Tracer point locking screw
- M1) Tracer point lock nut
- N) Key gauge
- O) Carriage lever
- P) Brush switch
- Q) Chip tray
- R) Tracer point adjusting screw
- R1) Micrometer
- S) On/Off switch
- T) Carriage release button
- U) Key gauge drum
- W) Belt cover
- Y) Motor
- Z) Carriage handle

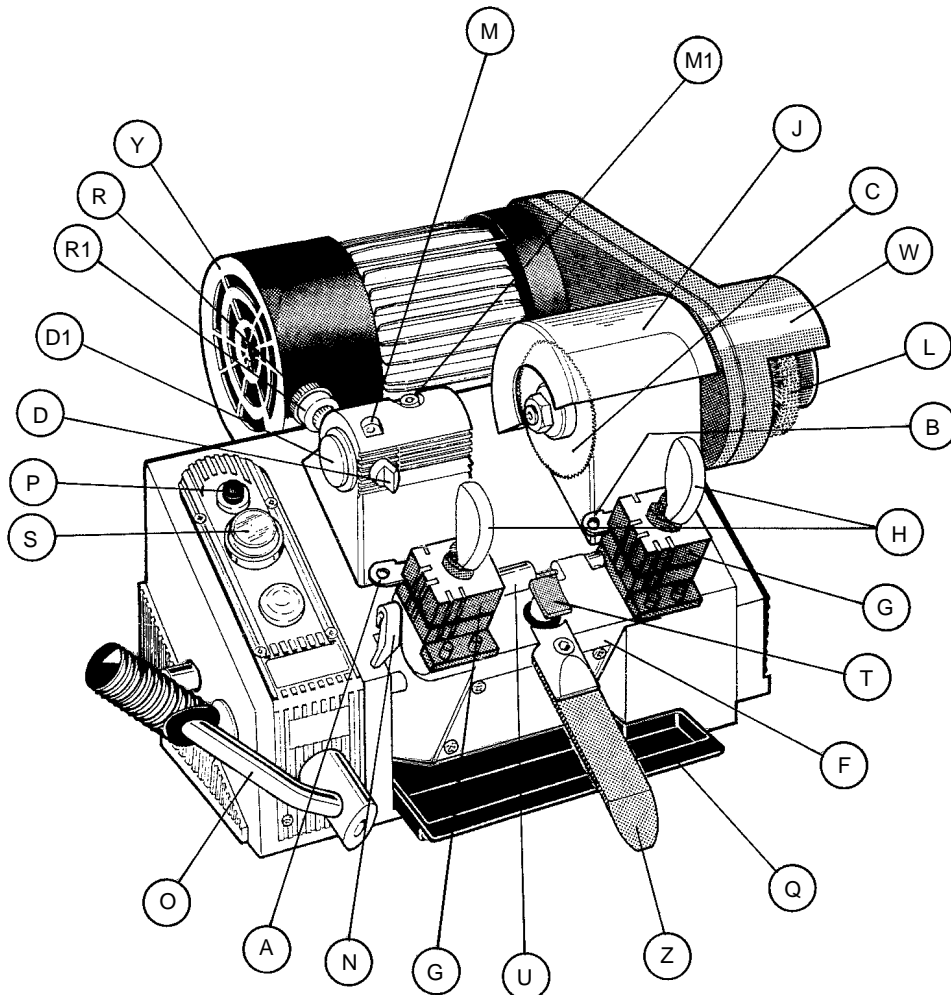


Fig. 1

CHECKING CALIBRATION OF THE MACHINE

The machine is calibrated and tested before leaving our factory, however, before operating the machine it is advisable to check the machine.

Whenever you change the cutter the machine must be recalibrated.

- 1) Place the machine on a high enough bench to give you an overall view.
- 2) Make sure that the voltage is 110 Volts.
- 3) Make sure that the main switch is in the Off position. On/Off switch is the letter (S) in the diagram. (fig. 1, page 2).
- 4) Place the setting blanks (K) (see fig. 2-B) in the jaws. Make sure that the blanks are laying flat and level in the jaws. Leave approx. a 1/16" of an inch between the left jaw side and the shoulder of the blanks. Bring the key gauge (N) to the blanks by turning the drum (U) towards you with your thumb, turn in the opposite direction to return the gauges in the neutral position. The gauges should be in contact with both of the blanks shoulders, if not adjust accordingly.

ATTENTION: as a safety feature, the carriage can not be released unless the gauges are in the neutral position.

- 5) Release the carriage by applying slight downward pressure on the carriage handle and at the same time pressing down on the carriage release button (T). Bring the blanks to the cutter and the tracer point. Turning the cutter in the opposite direction of cutting, the cutter should skim the blank.
- 6) If the cutter is too low or high; loose screw (M) and turn the knob (R). Turning clockwise lowers the tracer point and therefore gives a deeper cut. Turning counter-clockwise raises the tracer point which will give you a shallower cut. The graduated drum is marked off in divisions of 0.002". When the cutter skims the blank as required, tighten the screw (M) and zero the tracer point by turning the indicator (R1) to the white mark on the graduated drum. To do this, hold the knurled part of the knob (R) still with one hand and turn the free part below it (R1) with your other hand.

TO CUT WORN KEYS

- 1) Loosen the tracer point lock nut (M) and turn the tracer point knob (R) counter-clockwise to the required depth. Tighten the tracer point lock nut (M) and cut the key blank.
- 2) To reset the machine, loosen the lock nut (M), turn the knob (R) back to the zero (white line) position and retighten the lock nut (M).

SPACE SETTING

- 1) Place the set up blanks in the jaws as shown in fig. 2-A using the key gauge (N) with the grooves facing the cutter.
- 2) Make sure to leave the main switch off. Release the carriage and position the blanks so that the grooves come in contact with the cutter and tracer point. Turn the cutter a complete revolution by hand in the opposite direction of cutting. The cutter should skim both sides of the groove, in other words the cutter should fit squarely in the groove.
- 3) If the cutter skims only one side of the blank, loosen screw (M1) and move the tracer point support (D1) sideways. When the cutter skims both sides of the blank, tighten the screw (M1).
- 4) Use the carriage handle (Z) to return the carriage to the neutral position. The carriage will automatically lock in position. The machine is now ready for operation.

IMPORTANT: when the set up blanks have been used a number of times, they must be replaced. Two identical blanks can be used as an alternative.

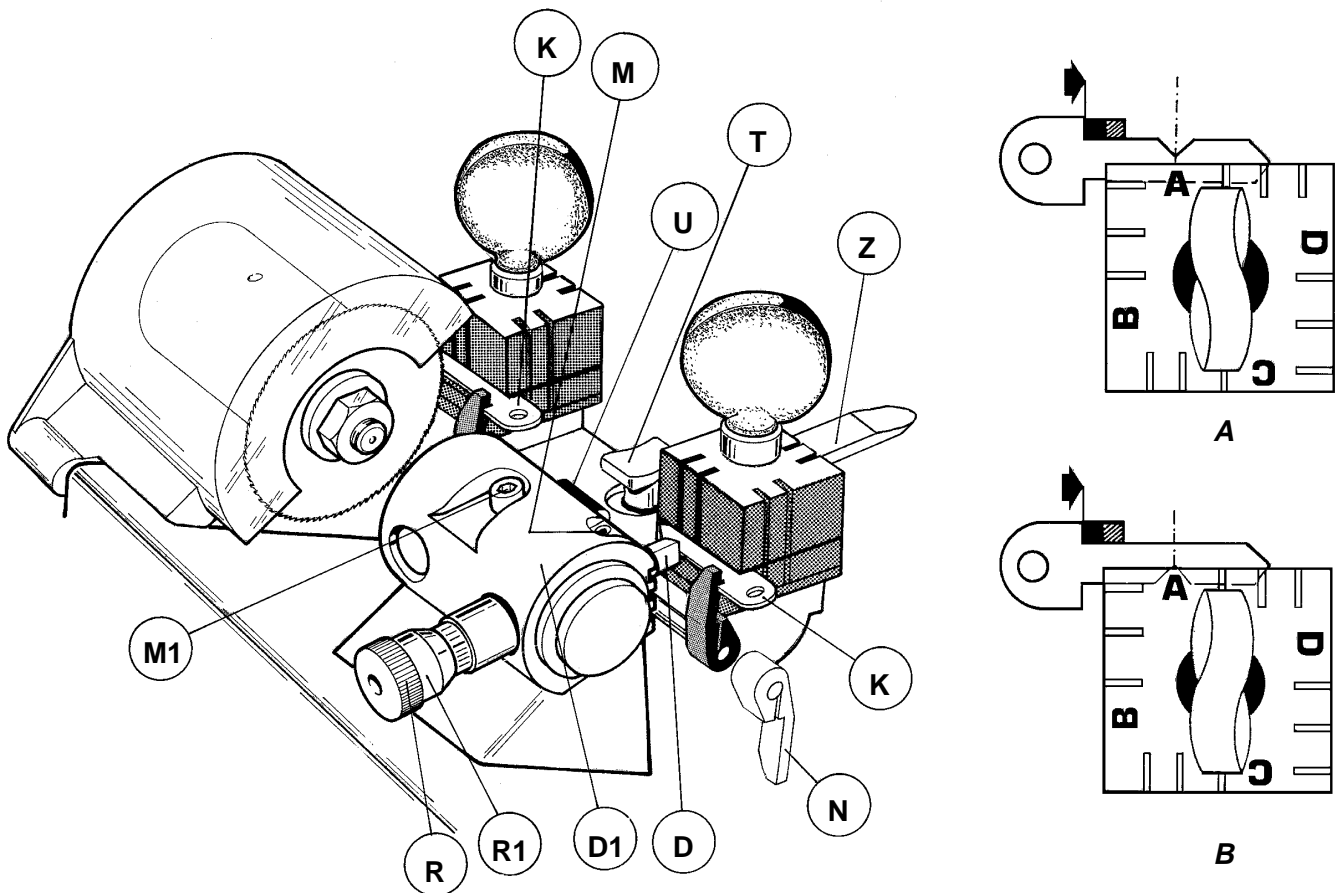


Fig. 2

THE JAWS

The jaws rotate to allow perfect clamping of all cylinder keys against the back and the profile.

Side A & B of the jaws are used for keys that are cut on one side such as normal household cylinder type keys. Jaw side A (shown in fig. 3) is used for keys with shallow cuts (min. 0.148" original key blade width).

Jaw side B is used for keys with a deeper cut (min. original key blank width of 0.108"). Both of these jaw positions are shown in fig. 4 below. Make sure that the keys are laying flat inside the jaw and the shoulder is resting against the jaw face or against the key gauge (N).

Side C & D of the jaws are used for foreign car keys and keys that are cut on both sides. For double sided keys that need to be clamped by the groove on the underside of the key, turn the jaws to side C as shown in fig. 5.

Insert the key with the groove facing downwards, using the lip on the lower part of the jaw as a guide.

For keys with a flat surface, be sure they are inserted parallel to the base of the jaw.

For keys that are double sided that needs to be clamped by the groove on top of the key, the jaws must be rotated to side D as shown in fig. 6.

Insert the keys with the groove upwards using the lip on the upper portion of the jaw as a guide.

Again make sure that the keys with smaller flat surfaces are inserted parallel to the jaw base.

IMPORTANT: the jaw handles have bearing discs and therefore require minimum pressure to tighten them. The key is fully secured by "SNUGGING" the handles. It is recommended that you keep from overtightening to avoid damaging the jaws over a period of time.

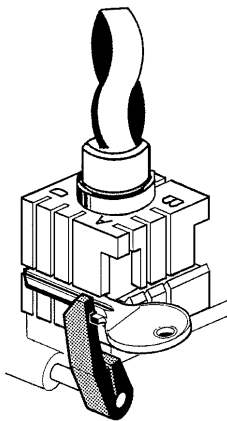


Fig. 3

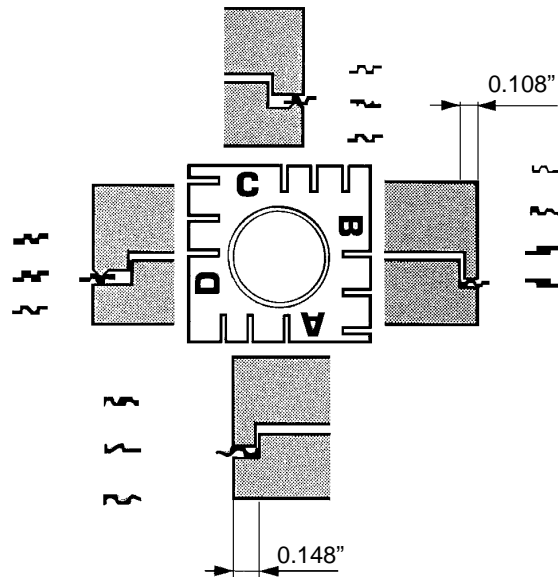


Fig. 4

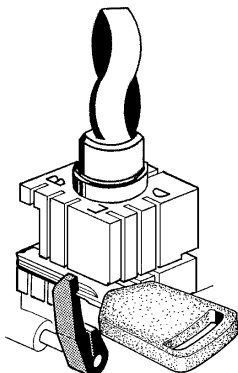


Fig. 5

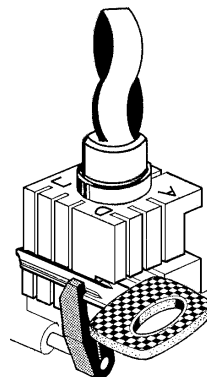
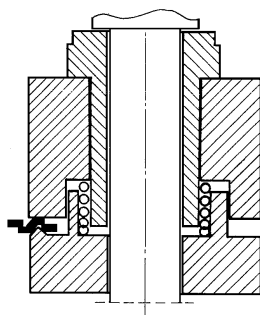
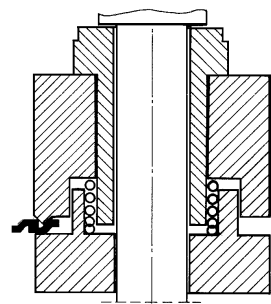


Fig. 6



USE OF THE PINS

For broken keys use one of the steel pins #D401224ZZ or #D401225ZZ and insert into the groove of the key so that the key is properly aligned for cutting as shown in fig. 7.

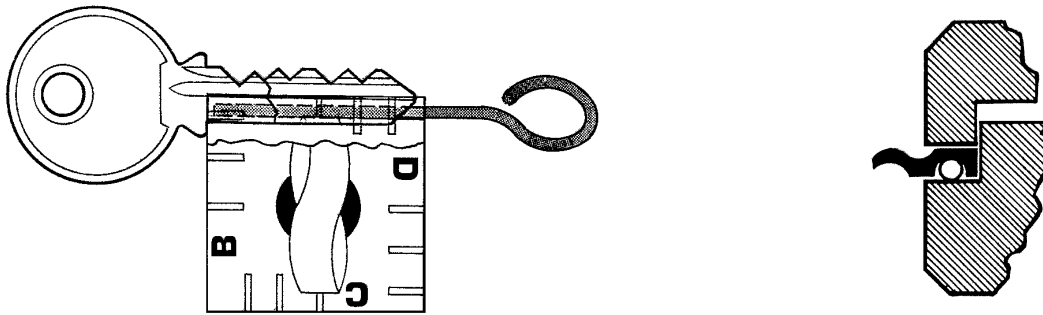


Fig. 7

CUTTING CRUCIFORM KEYS WITH ONE SHOULDER

Using side A of the jaw, most of types of the cruciform key can be cut except for the Y & T profiles. The key must be re-positioned in the jaw to cut each of the three sides of the key. The steel tip stops (#D402301BA) are used to do this. Refer to fig. 8 as you are reading this section.

- 1) Do not use the key gauges.
- 2) Place the bars into one of the slots in the jaws, insert the original and the key blank in their proper jaw until they stop against the bar using the shoulder on the blade of the key. Tighten the jaws by turning the handles.
- 3) Cut the first side then rotate the keys on both sides to the next side you wish to duplicate. Slide the shoulder of the keys against the stop bar to properly gauge the key for the next cut. Tighten the jaws again by turning the handles.
- 4) Repeat step three for the third side to complete duplication.

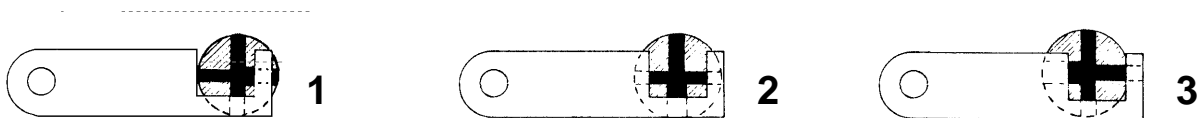


Fig. 8

CUTTING BEST KEYS

Use side A of the jaw to cut the Best keys. You should use the tip stops #D402301BA to cut these keys.

- 1) Insert the tip stops in the last slot on the jaws, insert the original key and the key blank into their proper jaws until they stop. Tighten the jaws by turning the handles.
- 2) Cut the key blank, and repeat previous instruction to cut generations.

REPLACING THE CUTTER

- 1) Raise the cutter shield (J) and insert the locking bar (#D400754BA) into the slot in the base and the hole in the cutter shaft next to the cutter as shown in fig. 9.
- 2) Use the wrench (#D300783ZZ) that was provided to loosen the nut.

IMPORTANT: the thread is a left handed.

- 3) When replacing the cutter, make sure that the longest sharpened angle of the cutter is facing to the right.
- 4) Clean the cutter and the shaft before installing the cutter.
- 5) Tighten the lock nut. **Make sure to remove the locking bar from the slot before starting the machine.**

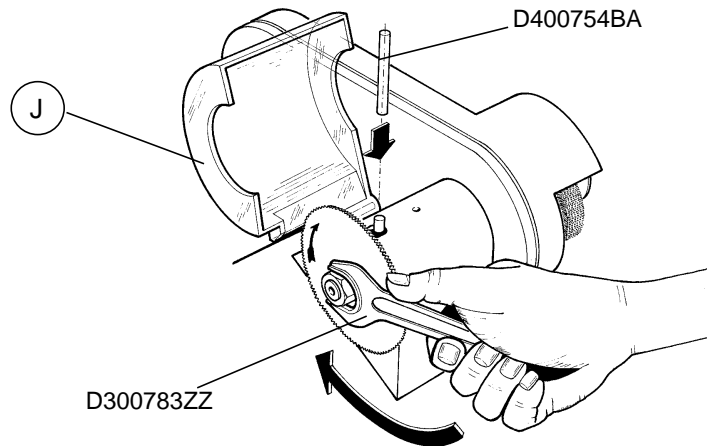


Fig. 9

REPLACING THE BRUSH

- 1) Unscrew the four screws holding the belt shield and remove the shield.
- 2) Raise the cutter shield (J) and insert the locking bar (#D400754BA) into the groove in the base and the hole in the cutter shaft as shown in fig. 10.
- 3) Remove the allen screw with one of the allen keys that was provided.
- 4) Replace the brush.
- 5) After you replace everything, make sure that you remove the locking bar from the slot.

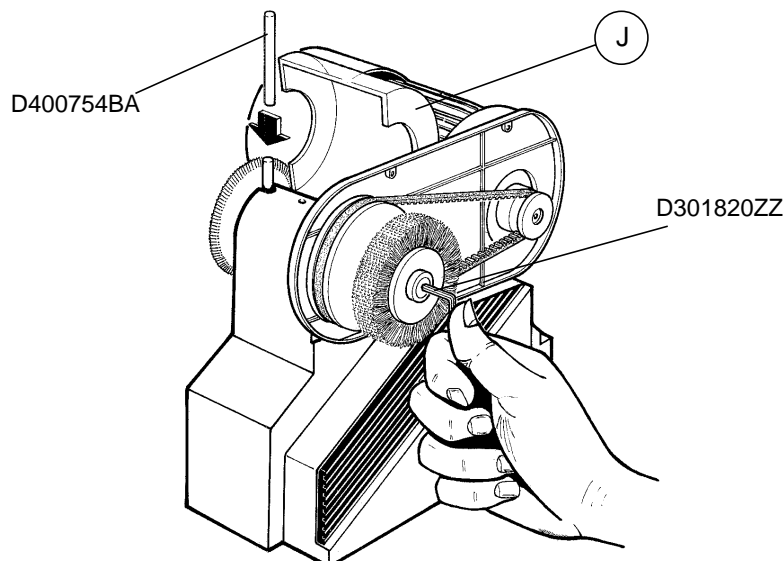


Fig. 10

BELT TENSION AND REPLACEMENT

If the belt should come loose, remove the shield, and loosen the four nuts (*) holding the motor to the base (fig. 11). Adjust the position of the motor until the belt tension is tight (about 1/2" play in the belt). The belt is replaced the same way.

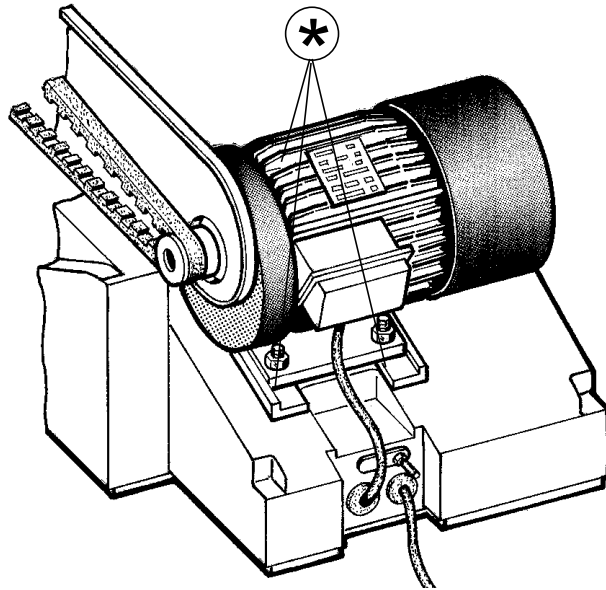


Fig. 11

REPLACING THE TRACER POINT

- 1) Completely unscrew the tracer point knob (R) and remove it as shown in fig. 12.
- 2) Completely unscrew (R2), loosen the dowl (M) and remove the tracer point (D) as shown in fig. 13.
- 3) Replace the tracer point, carrying out the instructions described in #2 in reverse order.
- 4) Replace the knob (R) and tighten. Re-set the machine following the instructions on page 3.

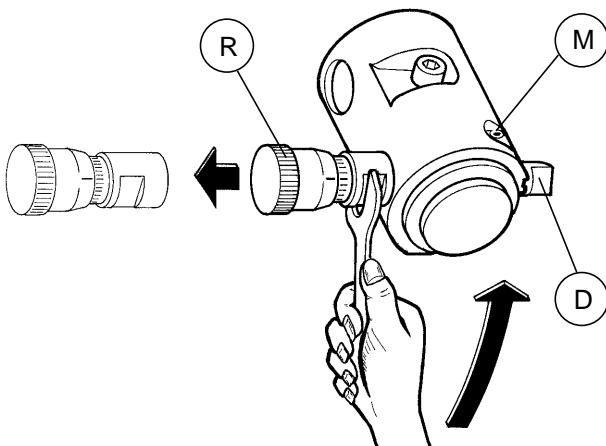


Fig. 12

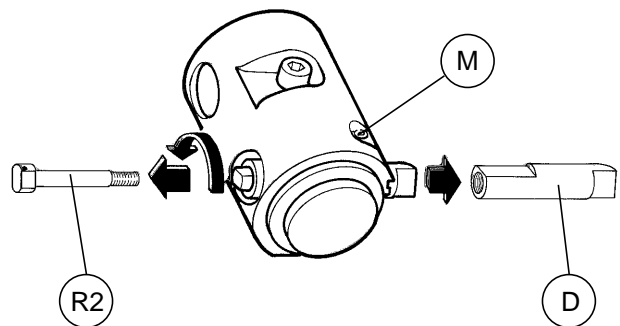


Fig. 13

TO SET THE STOP POSITION OF THE CARRIAGE

Raise the carriage to the cutter. A space of 0.004" should remain between the cutter and the jaw. If this is not the case then the adjustment should be carried out as follows:

- 1) Remove the chip tray.
- 2) Unlock the 0.39" nut (see fig. 14).
- 3) Adjust the space by turning the 0.119" allen screw through the hole in the base of the machine. Then re-lock the nut with a 0.039mm wrench.

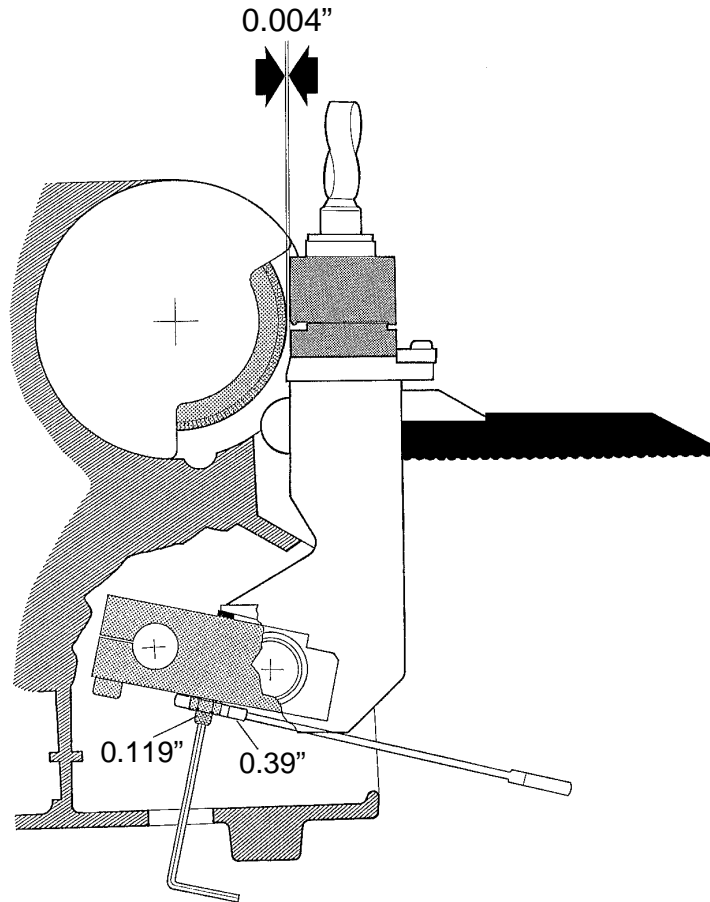


Fig. 14

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.

The Bravo machine does not require special maintenance. It is recommended that the jaws and the machine be kept free from chips as much as possible. **DO NOT USE COMPRESSED AIR TO CLEAN THE MACHINE.**

WARRANTY

The manufacturer guarantees the machine as indicated in the warranty. No claims will be recognized if the machine has been abused.

The manufacturer will not be responsible for accidents due to the machine not being grounded.

The manufacturer reserves the right to vary, at it's discretion, the machine models, parts, and materials.

ELECTRICAL DIAGRAM

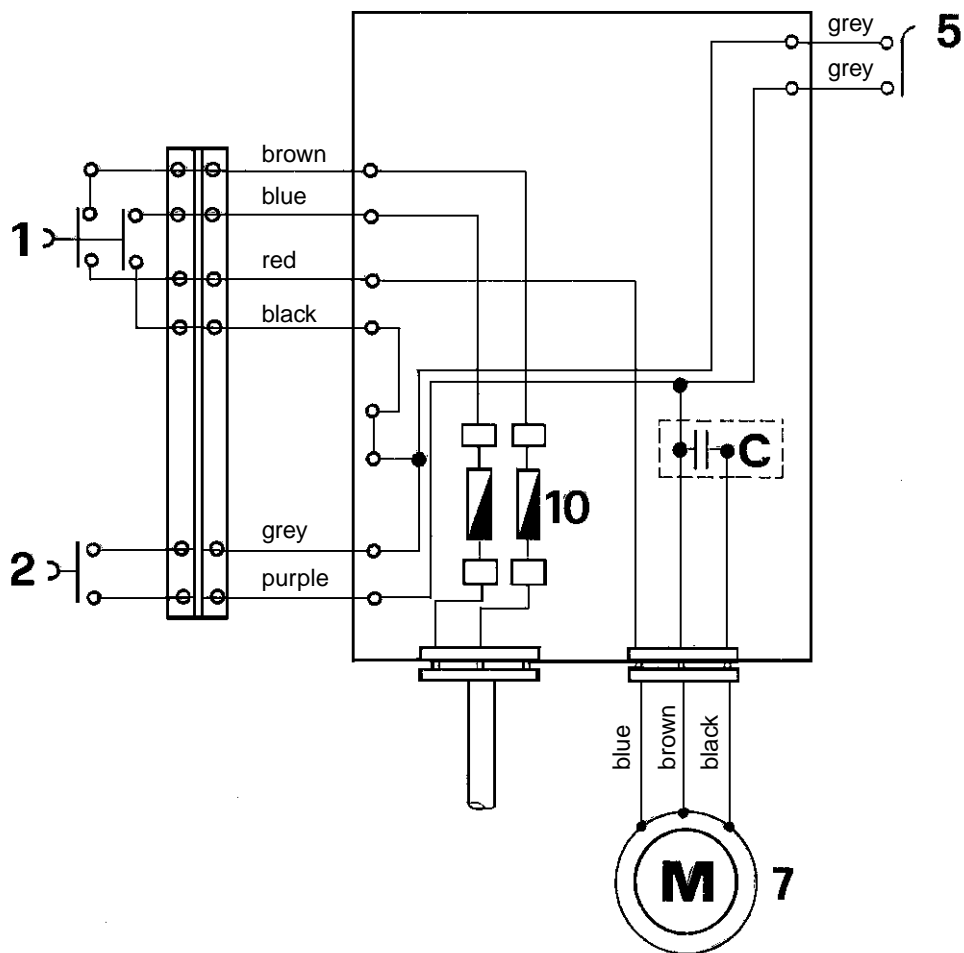


Fig. 15

- 1) Main switch
- 2) Brush button
- 3) Microswitch
- 4) Motor
- 5) Fuses (6,3)



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