

# ALFA 55

USE AND MAINTENANCE MANUAL

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## 1 GENERAL INFORMATION

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The firm LGF will not be responsible for eventual damages caused by a wrong use of the machine deriving from:

- use for functions which are not described in this hand-book;
- working of material, different from aluminium;
- bad or wrong maintenance;
- repairs which are not described in this hand-book;
- use of the machine in explosive places.

**This machine was designed and built exclusively for working aluminium; those who make a wrong use of it, working other materials, do it at their own risk. Therefore the firm LGF declines all civil and penal responsibility.**

For any necessity or direction, apply to the nearest dealer or to the manufacturer:

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Nearest Dealer:

Manufacturer:

**LGF s.n.c.**  
Via Togliatti, 81  
47826 VILLA VERUCCHIO -ITALY  
Tel.0541/677315 - Fax.0541/678752  
Int. Web site: [www.lgf.it](http://www.lgf.it)  
e-mail: info@lgf.it

1.1 DECLARATION OF CONFORMITY

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CE Conformity Declaration

The company L.G.F. s.n.c.  
Via Togliatti, 81  
47826 - VILLA VERUCCHIO - ITALY  
Tel. 0541/677315 - Fax. 0541/678752

Is certifying that the new machine:

Model: ALFA 55

TYPE: CUTTING MACHINE

Year of manufacture:

Serial Number:

Corresponds:

-to the regulations defined by **appendix I of Machines' Directive 2006/42/CE**

-to the European Directive **2004/108/EEC** of Dec. 15th 2004 concerning electromagnetic compatibility (CEM)

-to the European Directive **2006/95/EEC** of Dec. 12 2006, concerning electric material to be used within a certain voltage range.

-to decrees n°**96-725** of Aug. 14. 1996 transposition of European directive **98/37/EEC** of June 22nd 1998 and **91-368/EEC** of June 20th 1991 about technical requirements and applicable conformity certification procedures

Issued in Villa Verucchio

**L. G. F. s.n.c.**

Signature (the Agent)

Signature (Technical Director)

Canuti Luciano

**1.2 INTRODUCTION**

This operation and maintenance hand-book concerns the following model of machine: ALFA - cutting off machine.

**1.3 MACHINE'S IDENTIFICATION**

The machine is identified through the wording on the metal plate (Fig.1) set on the base of the machine.

**1.4 CORRESPONDANCE**

For any advice or explanation concerning the machine, please apply to LGF or to the nearest dealer, supplying with:

- model of the machine;
- matriculation number;
- voltage and frequency,
- purchasing date;
- name of the dealer where the machine has been purchased;
- information about the working to carry out;
- number of employment hours;
- number of duty hours.

For a correct identification of the information concerning the machine, please supply with the data reported on the plate (Fig.1) which is set on the clamps junction-box and describes the data of the electric installation.

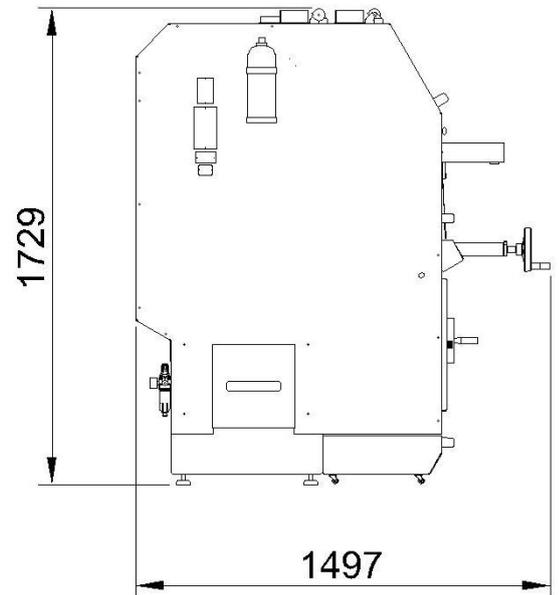
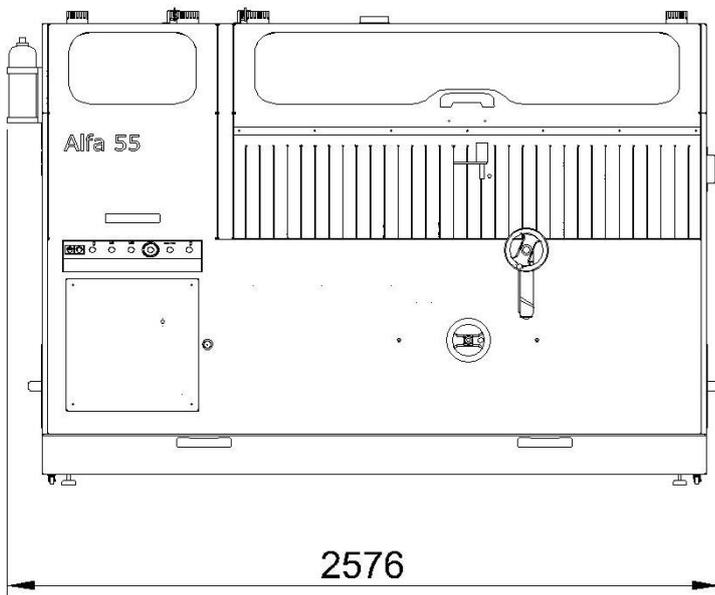


FIG.1

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1.5 OVERALL DIMENSIONS

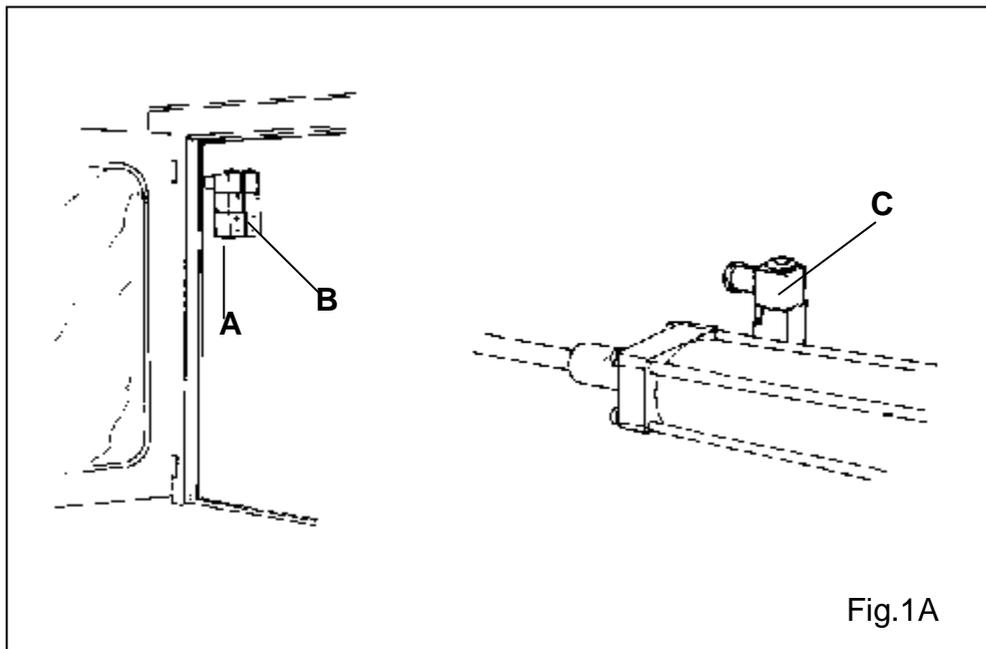
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1.6 DESCRIPTION OF THE ELECTRIC VALVES

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- A (Fig. 1A) = Clamps
- B (Fig. 1A) = Lubrication
- C (Fig. 1A) = Saw blade Feeding

1.7 CONTROL BOARD

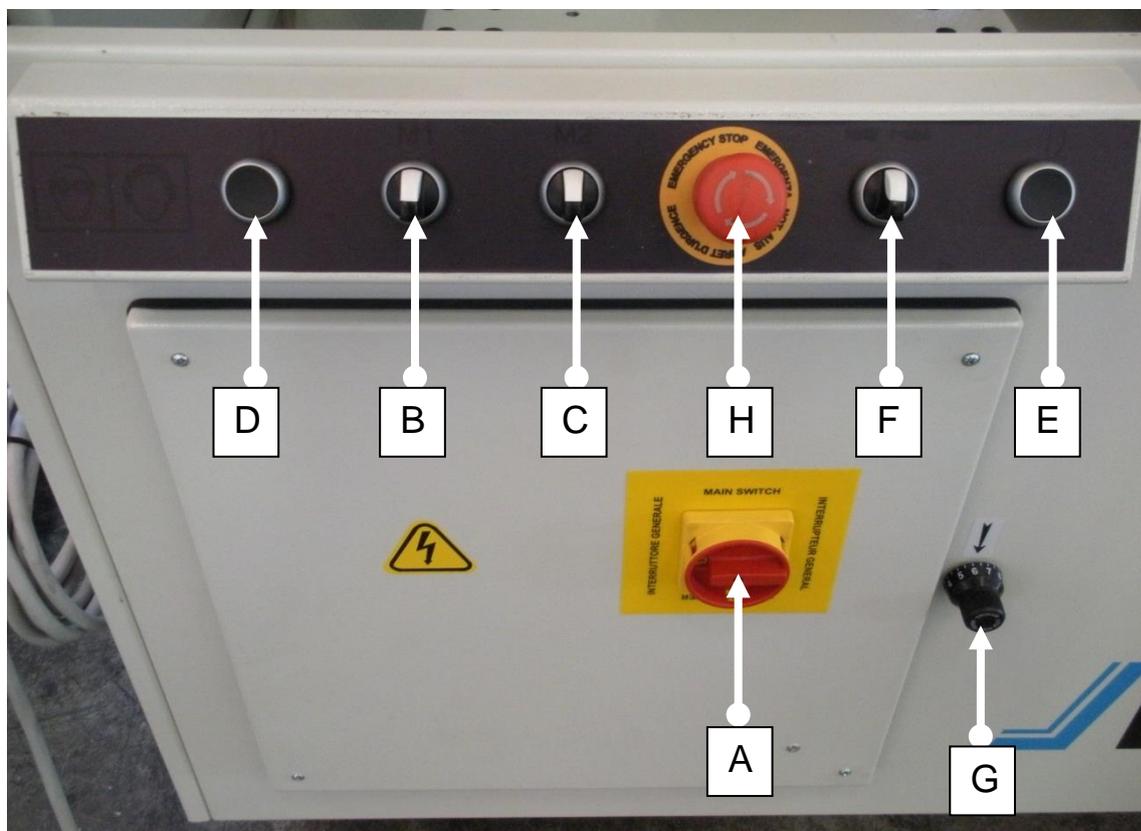


FIG.1B

- A (Fig. 1B) = Main Switch
- B (Fig. 1B) = Start Up Motor 1
- C (Fig. 1B) = Start Up Motor 2
- D (Fig. 1B) = Start for Saw Blades' feeding
- E (Fig. 1B) = Start for Saw Blades' feeding
- F (Fig. 1B) = Clamps' Selector
- G (Fig. 1B) = Speed Regulator for Saw blades' feeding
- H (Fig. 1B) = Emergency Button, turn it to release

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**1.8 TECHNICAL FEATURES**

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T.C.T saw blade .....	Ø550 mm
T.C.T. saw blade.....	Ø 500 mm
Blade shaft diameter .....	30 mm
Max height of profile .....	194 mm
Max width of profile.....	250 mm
Blade's inclination +/- 45° by hand wheel	
Piston's stroke.....	825 mm
Movable fence 45° - 90° -45°	
Horizontal cutting max depth .....	135 mm
Max depth vertical cutting .....	194 mm
Adjustable feed's speed.....	4-10 m/min.
Automatic self-braking motors 3HP 2800 RPM	
Air pressure .....	7 ATM
Overall dimensions .....	1497x2576x1729 mm
Weight.....	730 Kg.

**STANDARD EQUIPMENT**

- No. 1 TCT Saw blade Ø 550 mm
- No. 1 TCT Saw blade Ø 500 mm
- Pneumatic clamps
- Automatic lubrication
- Full protection to the saw blade
- Adjustment of the wagon through hand wheels
- Frontal tank for swarfs and chips
- Additional lateral tanks for swarfs and chips
- Digital display for the angles
- Digital display for profiles end stop adjustment

**ON DEMAND:**

- TCT Saw blade Ø 550mm
- TCT Saw blade Ø 500 mm

**1.9 NOISE LEVEL**

**ACOUSTIC EMISSION OF THE ALFA CUTTING OFF MACHINE ACCORDING TO NORMS EN UNI 7712- ISO 7960**

(Leq) Acoustic pressure in the operator's normal position	(Lw) Level of the machine's normalized acoustic power	(Lmax) Max acoustic level of immediate pressure	WORKING CONDITIONS
dB(A)	dB(A)	dB(C)	
93,0	102,6	< 130	WHILE WORKING

Statements have been carried out according to ISO/DIS 7960 standards for instruments and measurement conditions.

Material: Aluminium tubular profile

Saw blades 550x4 500x4 in TCT

L min: Minimum sonorous working level: dBA

L.o: Noise level range: dBA

Lep.D: Daily personal exposure level: dBA

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**1.10 SONOROUS EMISSION**

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Carrying out many activities together with the use of the machine can sometimes involve physical uneasiness and weariness. For example, being engaged with extra-working activities which require sonorous exposures involves higher risks and a lower health's defence.

Working conditions like, for example, the loudness of the working environment play an important role for the health and personal comfort.

Some factors which influence the real exposure level are:

- the period of exposure.
- the adjacent working machines
- the type and characteristics of the buildings.

Moreover, noise emission can be contained by:

- reducing the number of the machine's revolutions,
- a low advancing,
- a correct fastening of the piece,
- a good condition of the tools.
- and, above all, using the appropriate acoustic protections.

**A protracted exposure over 85 dB (A) could cause health troubles. In any case, it is advisable to employ some appropriate protection systems (ex: casings, plugs)**

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### 1.11 SAFETY WARNINGS

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While drawing up this hand-book, we considered all the necessary functions for a correct maintenance of the machine, getting the best use of it.

Therefore read carefully through these directions before starting up the machine. This machine was built to offer the highest possible safety together with the best performances.

The greatest security is in your hands. It must be kept in mind that the use of every kind of machine-tool involves some risks.

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### 1.12 SAFETY ON YOUR PERSON

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- 1) The operator must have reached the legal age, according to the law, and must not be lacking knowledge of manufactures of aluminium machines. The machine is foreseen for working with an adult operator.
- 2) Experience teaches that there are several objects which could cause you accidents. Take off rings, watches and eventual bracelets; fasten the sleeves round your wrists, buttoning them accurately; take off neckties which, hanging down could get entangled in the most disparate places; put up your hair with pro-accessories (caps, rubber bands).  
Make use of suitable footwear which anti-accident regulations in all countries of the world prescribes and recommend.
- 3) Always make use of glasses or protective screens for your eyes.
- 4) Always make use of working gloves
- 5) Always make use of anti accident shoes

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### 1.13 SAFETY ON THE MACHINE

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- 1) Pay the utmost attention before starting any work.
- 2) Never start the machine without controlling that all the protection coverings of cutters, betts, etc. are properly set up.
- 3) Work only with all appropriate protections at their place and in perfect efficiency.
- 4) Make sure that the tools are perfectly balanced, sharpen and accurately keyed and tight; never make use of bigger tools than the ones indicated in the technical data.
- 5) Never employ cracked, warped cutters.
- 6) The machine must be overhauled by specialized staff, acquainted with safety regulations.
- 7) The machine must not be left unguarded when working. Shutters and protections must be disassembled strictly when the machine is stalled and it is not working.
- 8) All shutters and protections provided with keys must be closed and the key is to be kept by responsible staff in suitable places.
- 9) Never employ petrol, solvents or other inflammables for the cleaning.  
Make use of commercial solvents which are not inflammable or toxic.
- 10) The manufacturing firm declines all responsibility for the inobservance of these regulations.

**N.B.** All disassembly and repairing operations must be carried out exclusively by authorized and qualified staff.

Moreover, it is to be recommended not to carry out reparations or others which are not written in this hand-book.

**1.14 MAINTENANCE SECURITY**

Maintenance must be carried out by qualified staff. The various operations for the ordinary and extra ordinary maintenance are indicated in the last pages of this hand-book.

It is compulsory to switch off the general electrical equipment, when it is necessary to adjust the machine or to disassemble any protection, by pointing out such operation through a clearly visible plaquard.

An important security factor is the cleaning of the machine, of the working tables, of the floor and the surrounding places.

It is very useful to read carefully through this hand-book before starting the machine: in this way you will realize that the machine has been concerned to offer the best performances together with the highest security.

Encumbering and mobile objects, which could come into contact with the moving organs, are very dangerous.

A certain risk factor, which is eliminable with a good technique and with a constant attention by your side exists in every work.

Before starting the machine, make sure that there are no other people carrying at maintenance operations.

**1.15 OTHER RISKS**

Despite the adopted security directions, some other risks could remain.

- Electrical cabinet. The grid-feeding voltage persists, so pay attention every time you enter it. Please wait at least for 20 seconds before going into the electrical cabinet.
  - Do not put the hands in the groove among fix and moving cover. In case it is open it can injury the hands
  - Pay attention to safety cover
  - Pay attention to the sharpen edges of the parts during uploading and downloading of the parts in the machine.

**1.16 ADMISSIBLE VALUES FOR A PROPOER FUNCTIONING OF THE MACHINE**

Temperature of working of the machine .....	from +10° to +45°
Maximum variation of the supply voltage .....	from +5% to -10%
Air pressure .....	6÷8 bar
Electrical protection .....	IP54
Moisture.....	from 30% to 95%
The machine is conceived to work inside.	

**1.17 DISPOSAL**

The 93% ~ of the whole line is in iron and recyclable 100%

The 3% ~ of the whole line is in copper / aluminium recyclable 100%

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Disposal of plastic material are ~ 4% and are represented by belts, polycarbonate, electric cables foil, by insulated material of electrical components, must respect the conformity of the standards of the nation where the machine is.

Painting of the machine is epoxy.

The parts of the line that are painted or zinc-coated are not treated

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## 2 MACHINE INSTALLATION

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Your cutting off machine mod. ALFA 55, will be delivered by one of your authorized forwarders or directly by the dealer. Verify the conformity of your goods and their good repair.

### 2.1 UNLOADING THE MACHINE

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The machine can be moved and lifted in the following way:

- **With ropes, chains and overhead crane.** Please check that cables, chains or ropes, are approved and of adequate capacity. Calculate the ropes' capacity considering, for each of the four parts of the rope, to hold about the double of the weight from the one shown on the metal plate of the machine, this must be done to compensate possible bad positioning of the ropes. Please use two bars in rolled iron, Fe 37A, diameter 40 mm as minimum and 150 mm length and insert them in the holes like shown in this picture. It is compulsory to have a balance yoke.
- **With fork-lift truck,** with the forks placed in the middle of the machine, lift the machine from the centre of gravity.

**ATTENTION: please delegate these operations to skilled authorized personnel only (for cargo sling, trolley and crane).**

### 2.2 PLACEMENT

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Choose the most favourable position, according to the length of the pieces to work and to the connections of the electric and compressed air installations, for an easy maintenance.

Verify the solidity of the floor surface (preferably a material that cannot be deformed, like cement) so that the frame can find a solid support.

Insert the 4 anti vibration feet (which are included with the machine) in the special holes on the frame of the machine.

For levelling, screw or unscrew the feet (fig.2)

N.B. The machine is greased and oiled for transport. Therefore, take the grease off the working tables and the protections accurately.

### 2.3 WHAT TO DO IF THE MACHINE COMES DAMAGED

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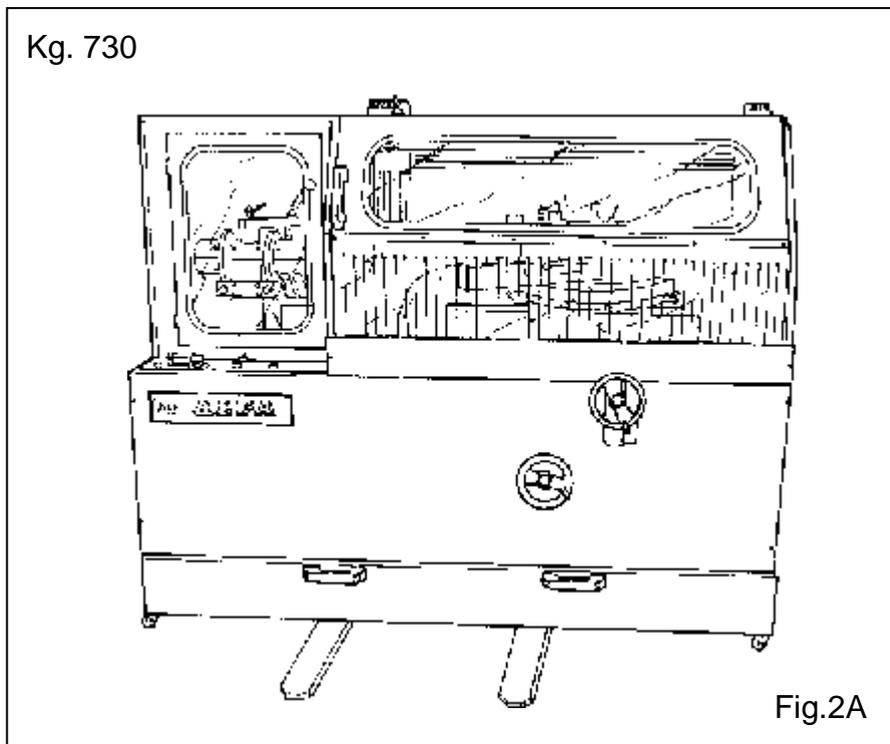
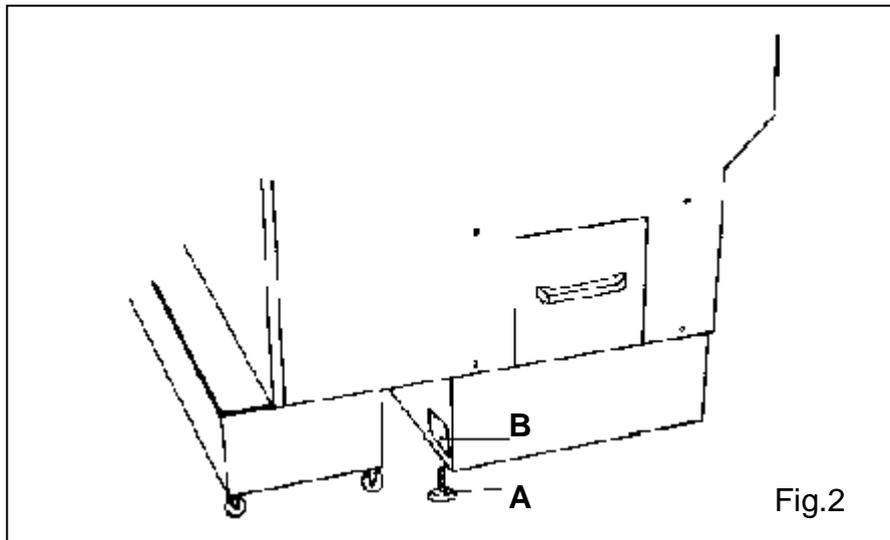
- 1) Of course, the carrier is covered by an insurance, which will fairly refund you the damages.
- 2) After questioning the damages, you will have to communicate it within two days by registered letter to the carrier and the dealer.
- 3) Make to the manufacturer a request for eventual pieces to replace as well. Cash on delivery will forward those to you. The insurance company must reimburse the invoice of such pieces, together with eventual assembly expenses.

Attention: the goods travel at the customer's exclusive risk.



2.4 MACHINE LEVELLING

Level the machine, making sure it has been perfectly placed horizontally and transversally, using a spirit level placed on the working plan. Adjust the level operating on the feet screws A (fig. 2) and fix the machine on the floor with the tools B in equipment (fig.2) on the side of the frame.



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**2.5 COLLEGAMENTO ELETTRICO E DI MESSA A TERRA**


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A specialized electrician according to norms EN 60204-1 must always carry out the electrical connection and the necessary inspections.

Make sure that the electrical installation in the factory is able to support the power of the machine and control that the main supply voltage corresponds to that of the machine.

**Note:** the best working condition for the machine is providing with the same voltage reported on the plate in fig. 1. Yet it can also adapt itself to higher or lower voltages in a range of endurance of +/- 5% (ex: a machine with working voltage  $V=380$  has a range of endurance which runs from 380 to 420 volts).

Out of this range, provide for the adjustment of the feeding voltage.

Read the value of the total absorbed current (Amp) on the identification plate of the machine.

**Consult the following table to use the right wire section and to install on the machine “DELAYED INTERVENTION FUSES”.**

Absorbed Ampere	Wire section	Delayed fuses
From 3 to 6	2,5mm	10A AM
From 6 to 10	2,5mm	10A AM
From 10 to 14	4,0mm	16A AM

Connect the supply cable B to its socket A (Fig.3) placed on the side of the machine. Make sure the rotation sense of the saw blades is correct like described in the next pages. In case the saw blades do not turn in the correct flow please do the following:

- Take the voltage off the grid,
- Invert two phases,
- Check again the rotation sense that must be anti-clock wise.

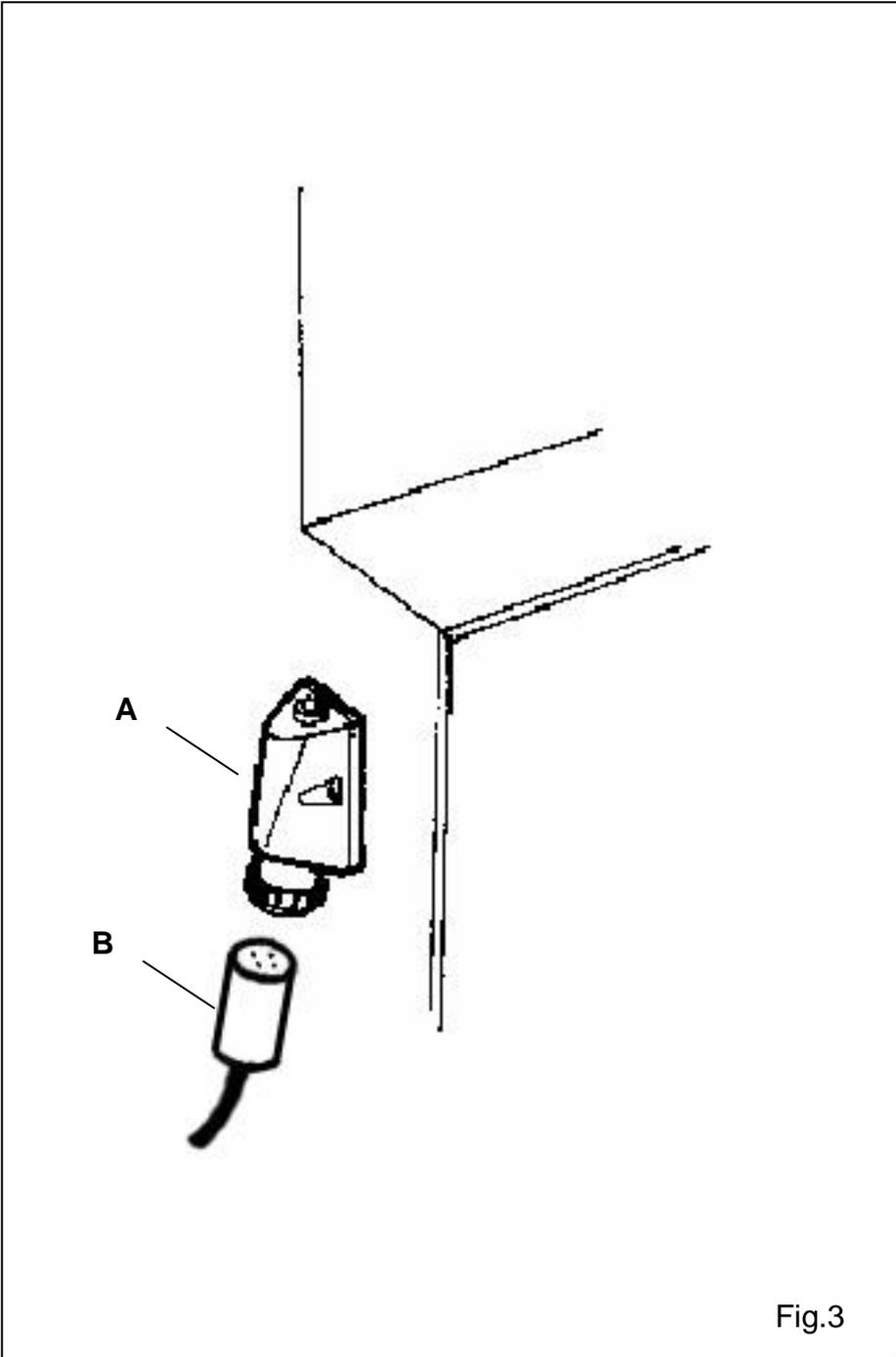


Fig.3

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**2.6 MOUNTING OF THE SPARE PARTS UNLOADED FOR TRANSPORT EXIGENCES**

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Some parts can arrive unloaded for transport and packing exigencies.

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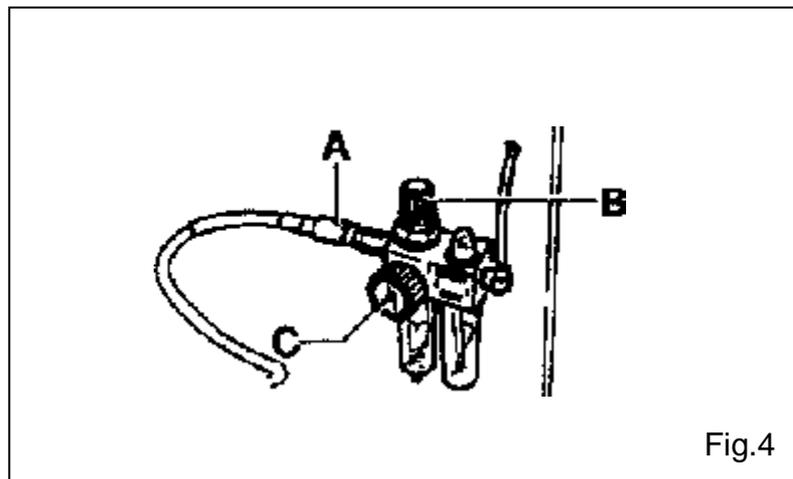
**2.7 PNEUMATIC CONNECTION**

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The pneumatic connection is made by coupling a pipe  $\varnothing$  8 mm into attack A (Fig.4). The pressure can be adjusted from 0 to 12 ATM, just turn handle B (Fig.4) and read the value on the pressure gauge C (Fig.4).

**Please remark: the working pressure of the machine is 6/7 bar.**

**ATTENTION: the pneumatic energy must be easily sectioned during every maintenance operation!**



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## 3 USE AND ADJUSTMENT

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### 3.1 START UP THE MACHINE

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- Turn the main switch A on (Fig.5)
- Turn selector B (Fig.5) automatically to start up the horizontal motor.
- Turn selector C (Fig.5) automatically to start up the vertical motor

**NOTE** BEFORE OPENING THE SAFETY GUARDS AND GO TO THE MACHINE ADJUSTMENTS PLEASE MAKE SURE THE MAIN SWITCH TTORE A IS IN POSITION 0 (OFF).

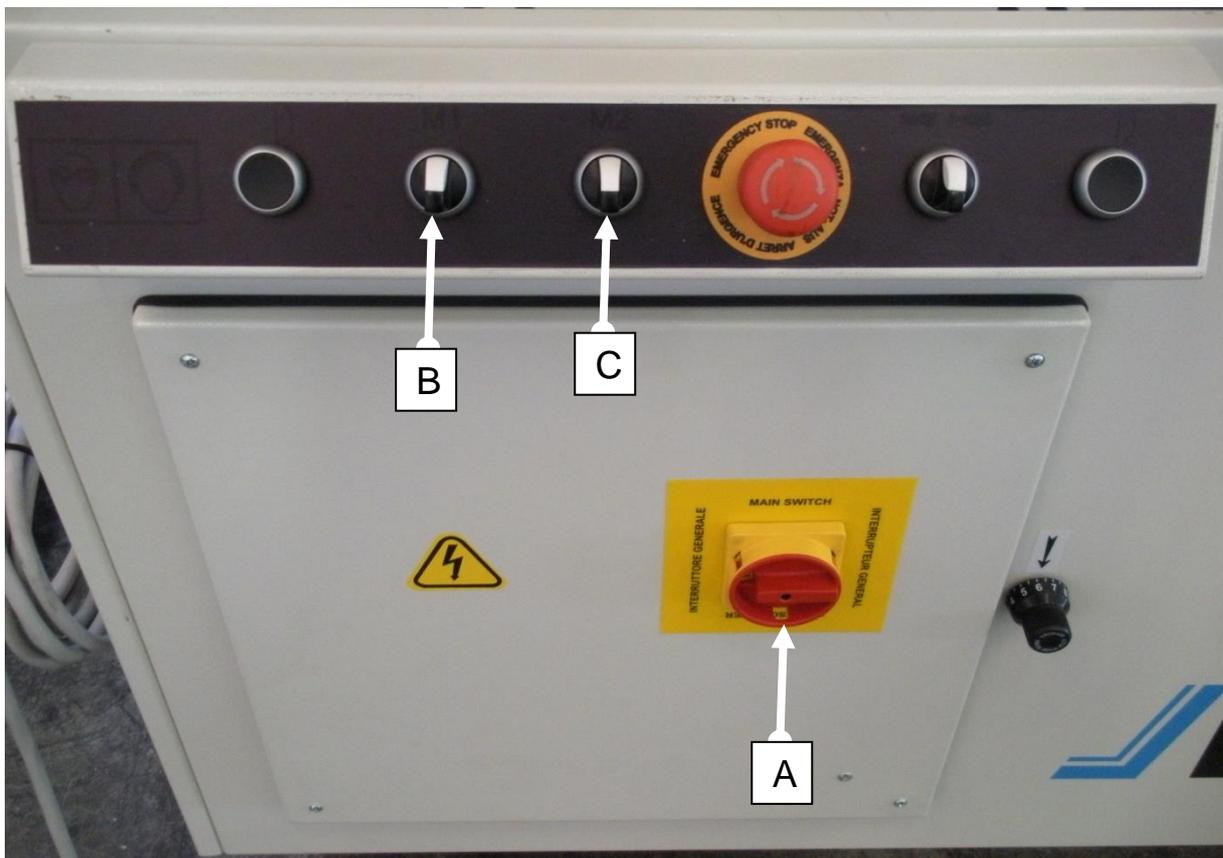


FIG.5

### 3.2 ADJUSTMENT OF THE CYLINDERS FOR PARTS' LOCKING

Locking cylinders must be adjusted according to the profile to be cut, this way:

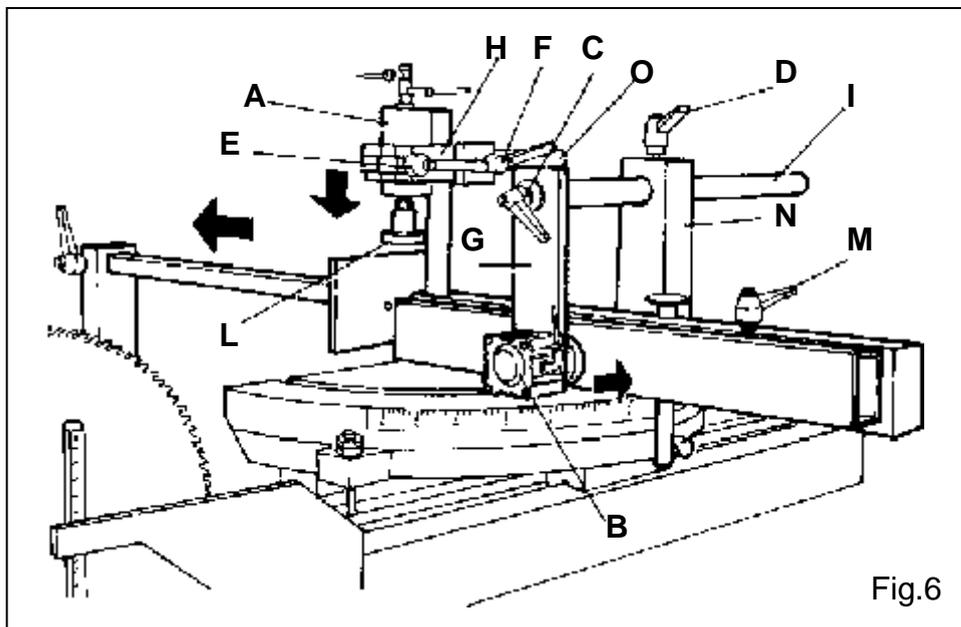
#### VERTICAL CYLINDER

- for the vertical adjustment loosen the jumper lift E (fig. 6) and let slide cylinder A (Fig.6) in support H (Fig.6) to the required position, and lock the jumper lift E (Fig.6).
- for the horizontal adjustment loosen jumper lift F (Fig.6) and let slide pin O (Fig.6) on which it is fixed support H (Fig.6) cylinder A (Fig.6) to the required position, and lock jumper lift F (Fig.6).

#### HORIZONTAL CYLINDER

- for the vertical adjustment loosen jumper lift C (Fig.6) while rotating support G (Fig.6) of cylinder B ( Fig.6) to the right or to the left to the required position, and lock the jumper lift C (Fig.6).
- for the horizontal adjustment loosen jumper lift D (Fig.6) while sliding support I (Fig.6) cylinder to the required position, and lock jumper lift D (Fig.6)
- for transversal adjustment loosen jumper lift M (Fig.6) while sliding support N (Fig.6) to the required position, and lock jumper lift M (Fig.6).

**NOTE** The machine is equipped of double pressure pneumatic clamps as required by CE standards to prevent any damage due to pressure.



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**3.3 SAFETY GUARDS TO THE SAW BLADES**

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Only with safety guards A and B closed (Fig.7) the machine operates the saw blades' feeding, because if micro switches C and D (Fig.7) are pressed (Covers open) they do not give consent to saw blades' feeding.

**NOTE** THE MICRO SWITCHES OF SAFETY GUARDS MUST NEVER BE TOUCHED!!  
BEFORE OPENING PROTECTION GUARD B (UNDO HANDLE E, LIFT PROTECTION GUARD A THROUGH HANDLE F) MAKE SURE THE MACHINE IS COMPLETELY STAND STILL.

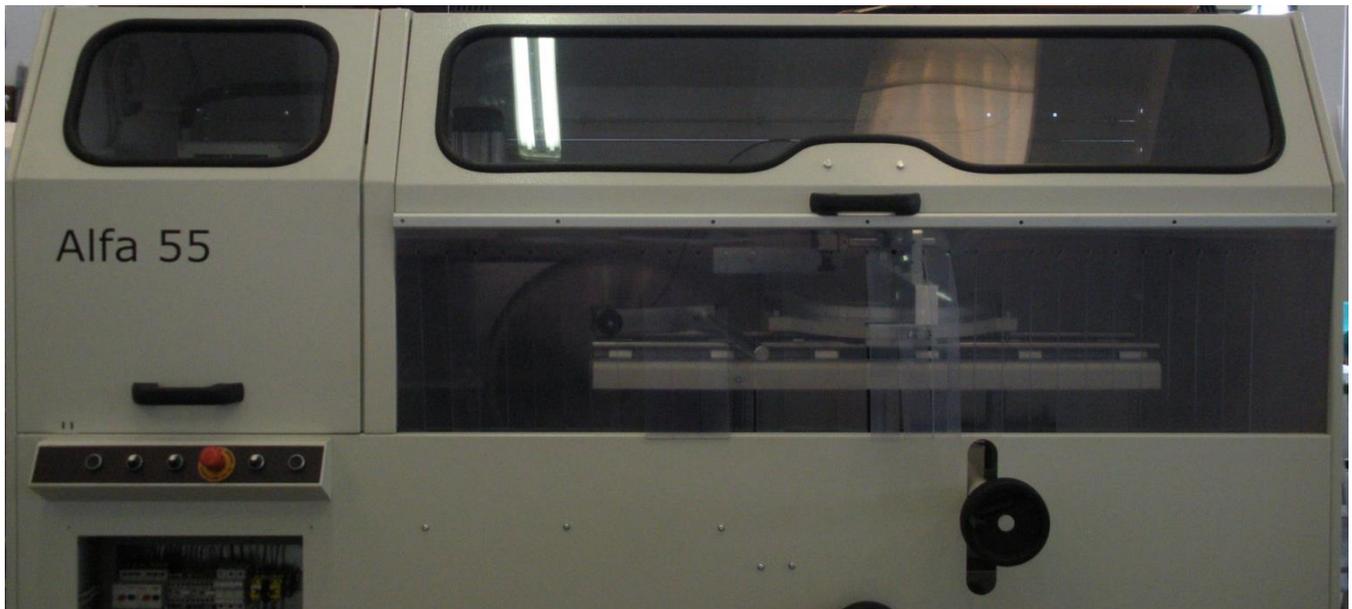


FIG.7

**3.4 HOW TO ADJUST THE TILTING OF HORIZONTAL SAW BLADE**

- Loosen the 2 screws B and C (Fig.8) with the help of service spanners
- Insert spanner D (Fig.8A) in seat F (Fig.8A) and turn it to the required tilting, which can be read on display G dedicated to the horizontal saw blade (Fig.8A).
- lock screws B and C (Fig.8) with the screw.

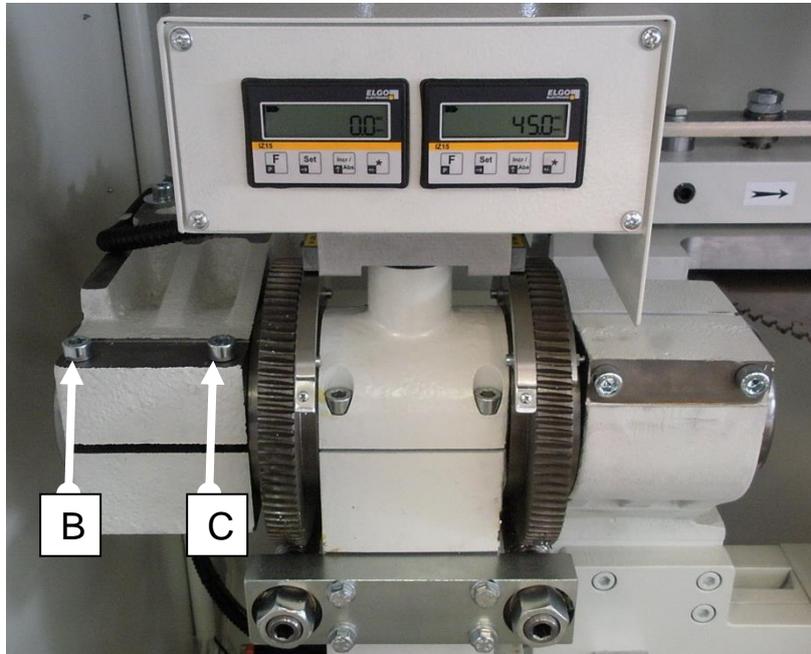


FIG.8

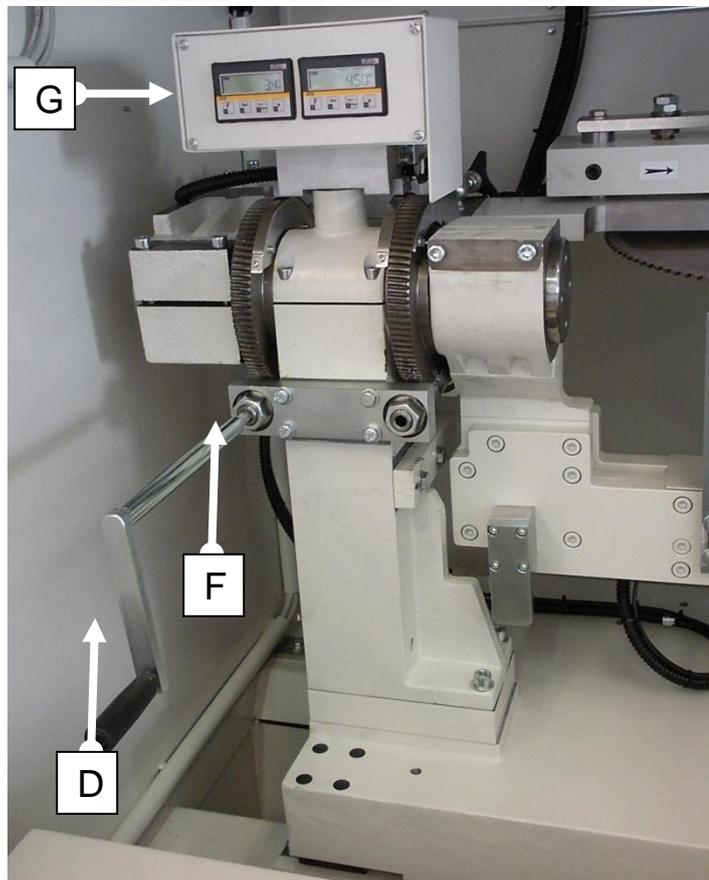


FIG.8A

**3.5 HOW TO ADJUST VERTICAL AND HORIZONTAL SAW BLADE (MAINTENANCE)**

- Loosen screws A and B (Fig.9A) with service spanner C (Fig.9A) locking support D (Fig.9A) motor.

With spanner F (Fig.9) turn nut E (Fig.9) clock wise to lift the blade, and anti clock wise to lower it to the required position.

- Lock screws A and B (Fig.9A) with spanner C (Fig.9A).

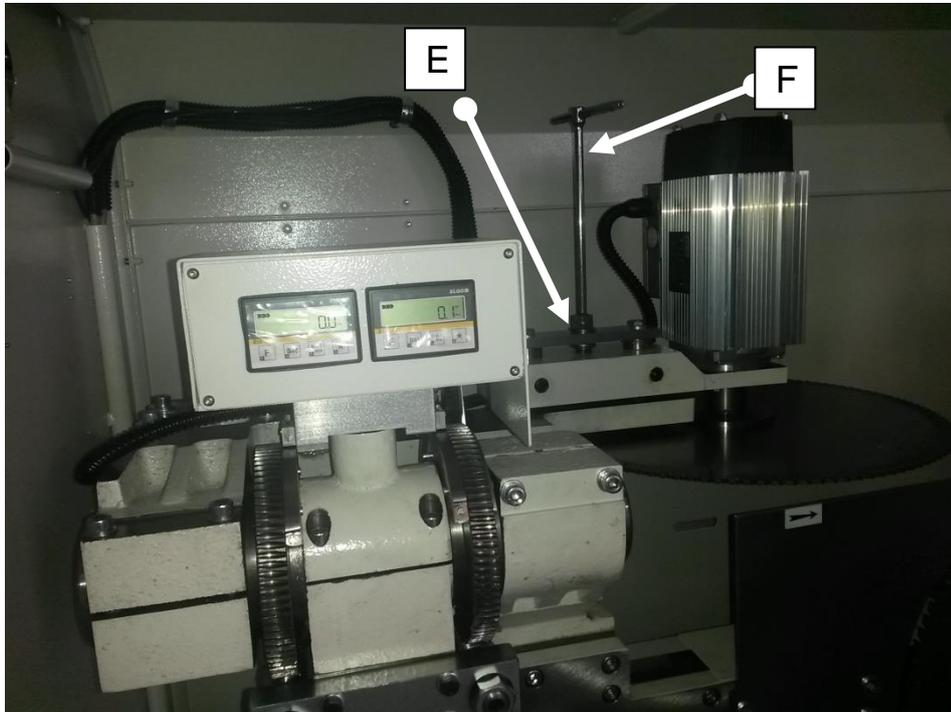


FIG.9

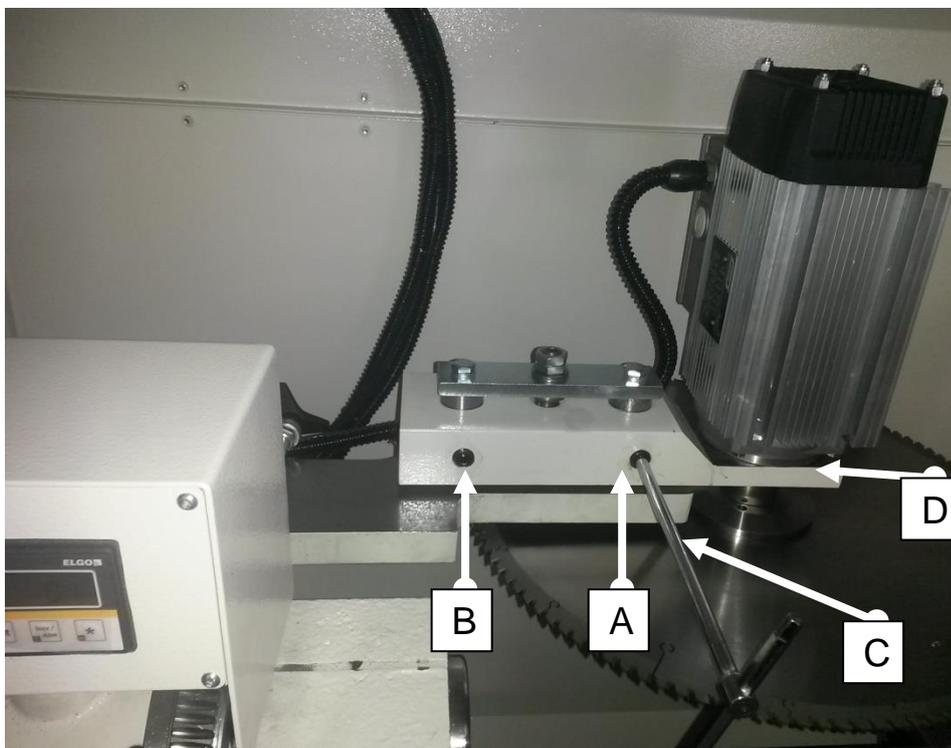


FIG.9A

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### 3.6 HOW TO ADJUST THE TRANSVERSAL POSITION OF HORIZONTAL SAW BLADE (MAINTENANCE)

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- Loosen the six screws A (Fig.10) with spanner B (Fig.10)
- Turn handle C (Fig.10) to go to the required position
- Lock screws A (Fig.10) with spanner B (Fig.10).

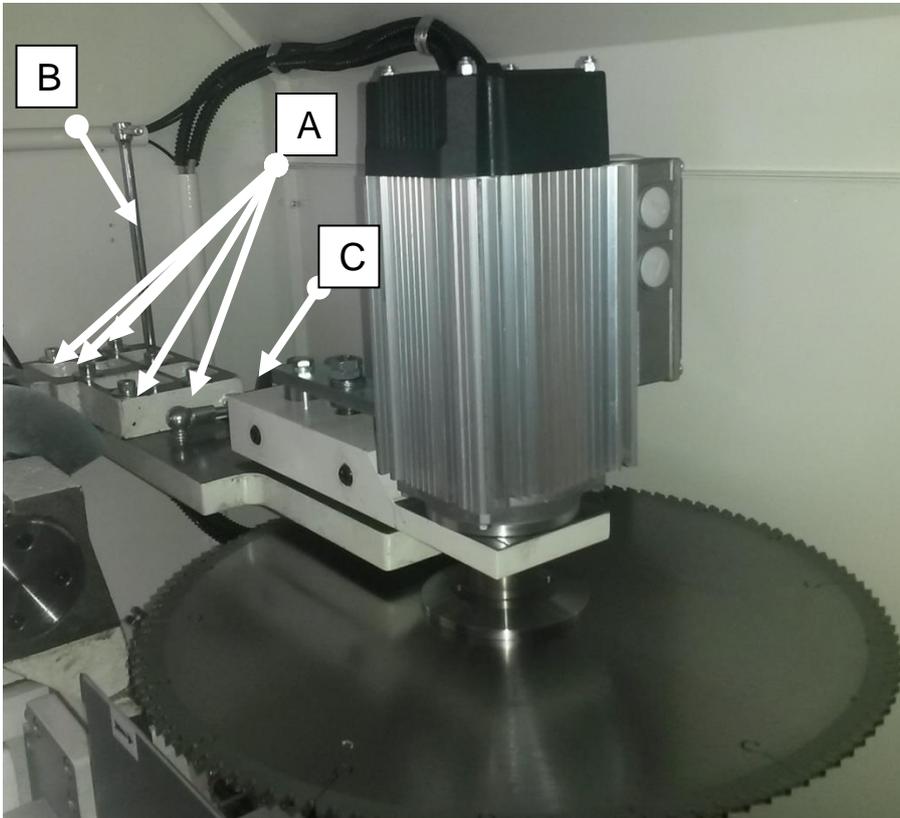


FIG.10

3.7 HOW TO ADJUST VERTICAL SAW BLADE TILTING

- Loosen screws B and C (Fig.11) with spanner in equipment
- Insert spanner D (Fig.11A) in seat F (Fig.11A) and turn it to the required tilting position that can be read on display G (Fig.11A)
- Lock screws B and C (Fig.11) with spanner (Fig.11).

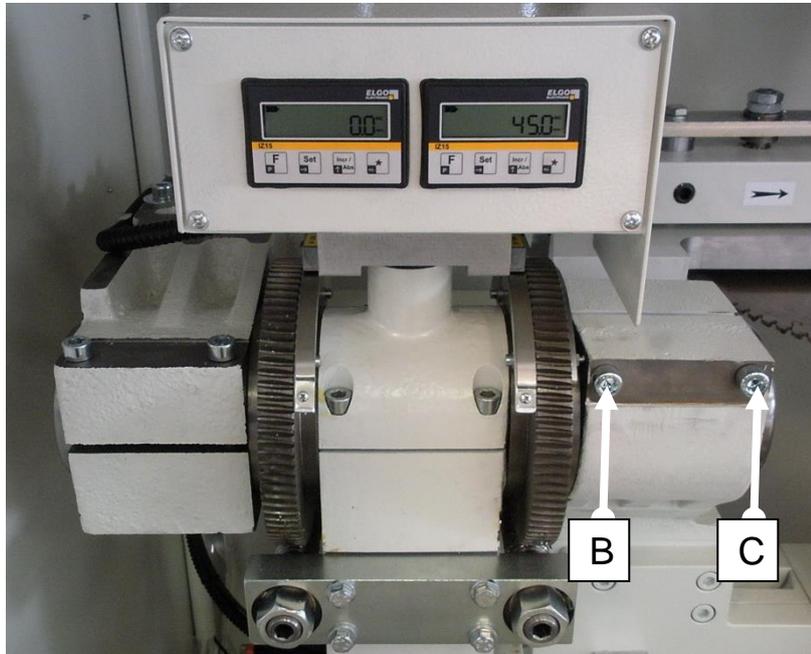


FIG.11

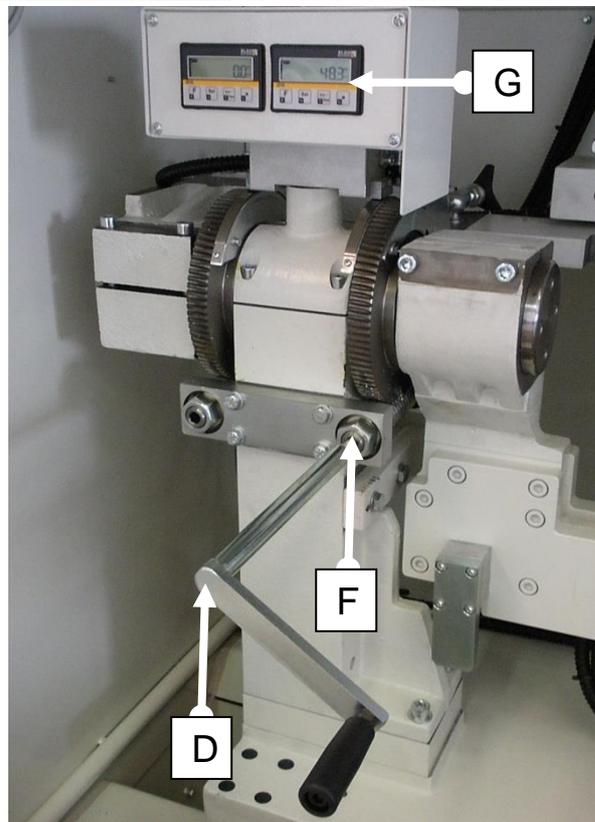


FIG.11A

**ATTENTION PLEASE:** for safety reasons, when it is necessary to tilt the vertical saw blade at an angle included between 3° and 45°, it is **COMPULSORY** to place the

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**working plan of the profile backwards (to the operator) till pushing the micro switch controlling this position.**

**If the operator does not fulfil, the wagon will not start.**

**3.8 HOW TO ADJUST VERTICALLY THE PROFILE HEIGHT**

- Loosen jumper lift A and B (Fig.12A).
- Turn hand wheel C (Fig.12) clock wise to lower it and anti clock wise to lift it to the required position that can be read on indicator D (FIG.12B).
- Lock jumper lifts A and B (Fig.12A)

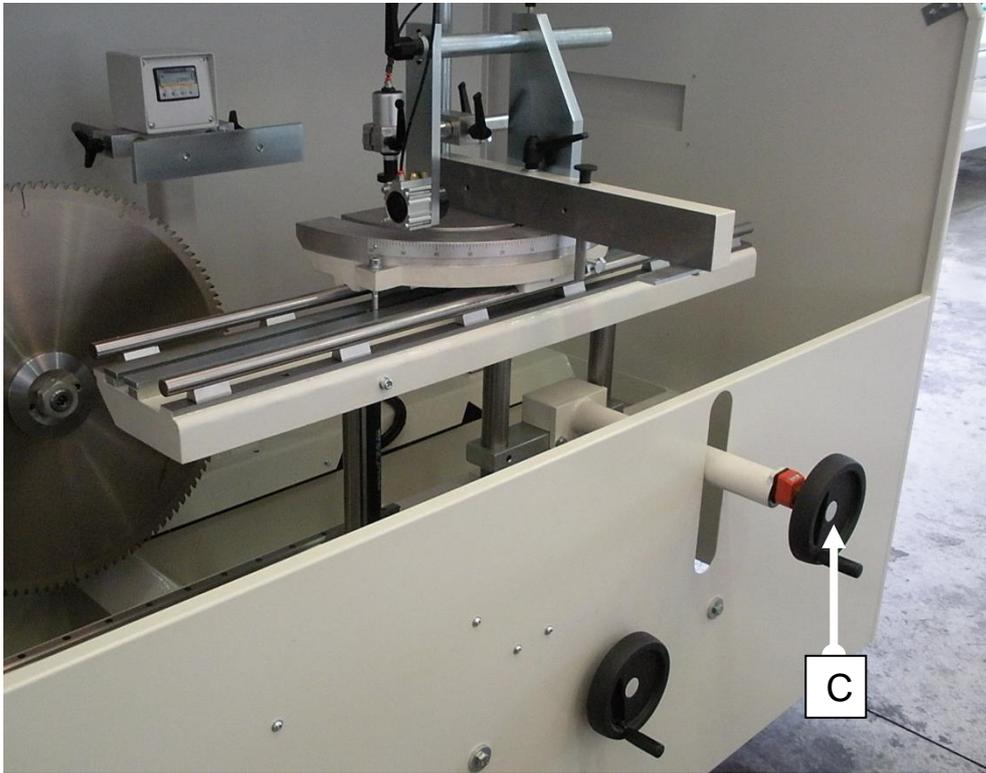


FIG.12

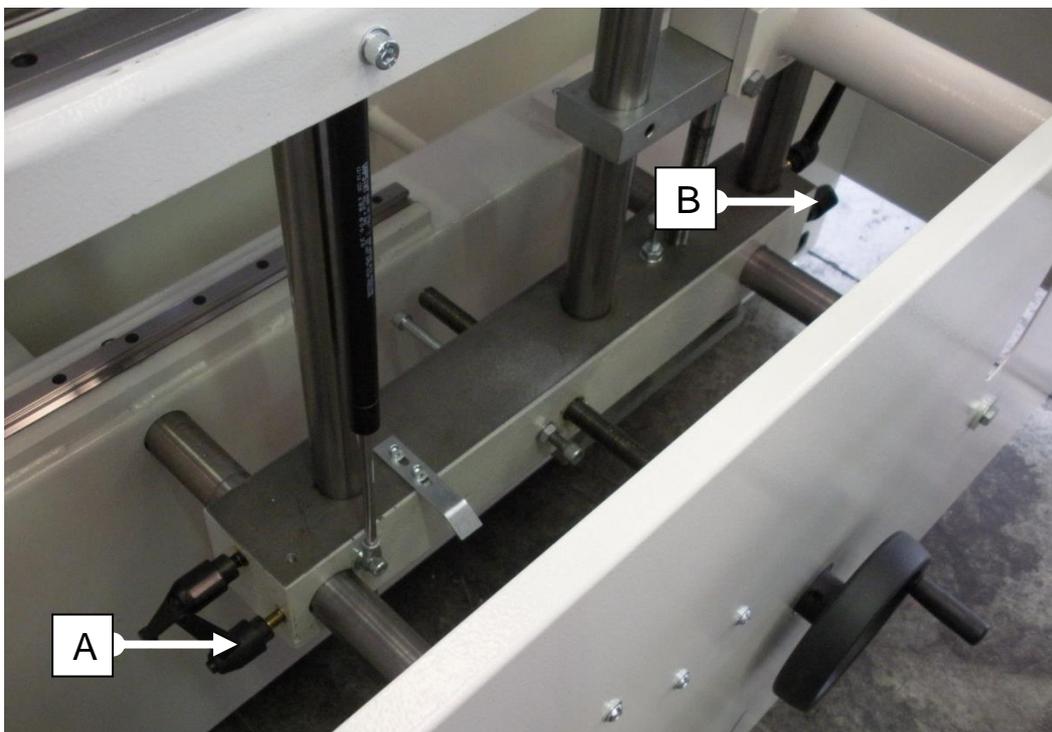


FIG.12A

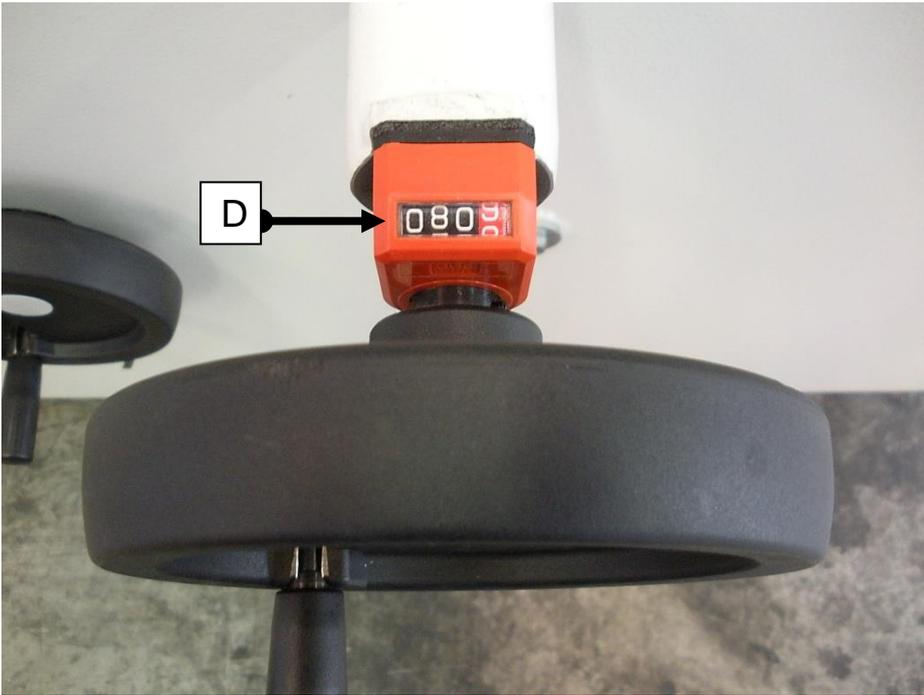


FIG.12B

3.9 HOW TO ADJUST ACROSS THE WORKING PLAN

- Loosen jumper lift A (Fig.13) and jumper lift B (Fig.13)
- Turn hand wheel C (Fig.13A) clock wise to go far from saw blades and anti clock wise to go close to the saw blades to the required position
- Lock jumper lift A and B (Fig.13).

**ATTENTION:** please check that when saw blade D comes closer (Fig.13) it does not cut the guides E then (Fig.13).

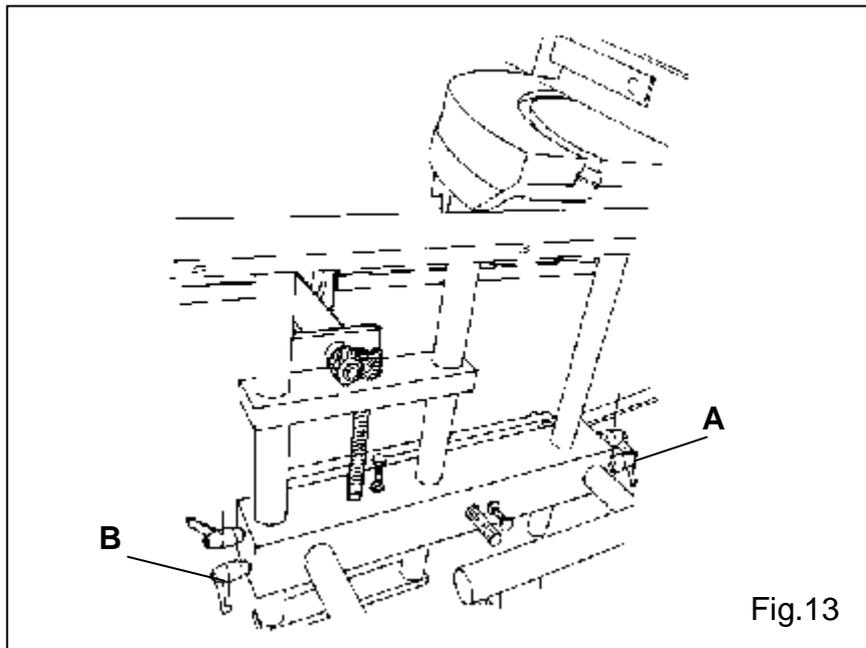


Fig.13

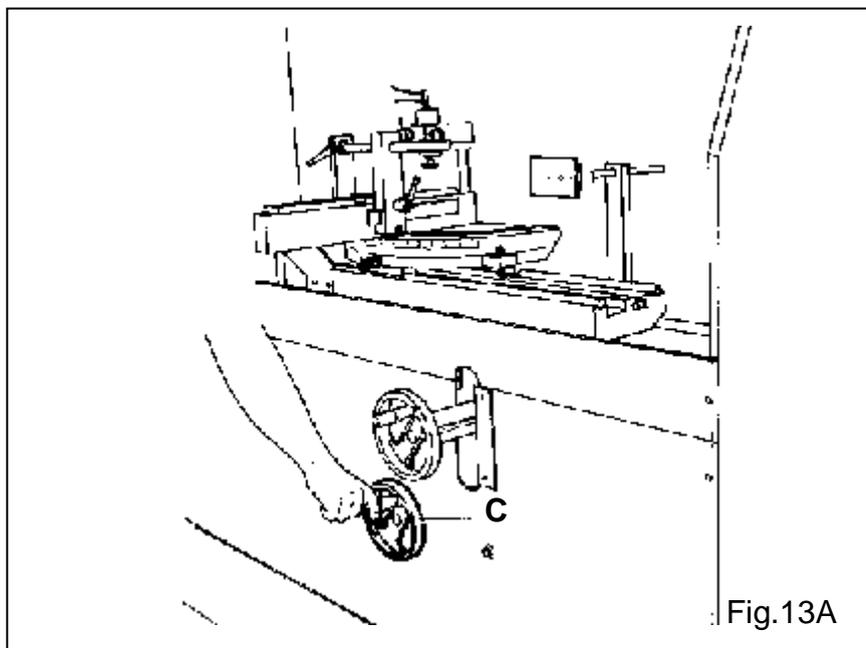


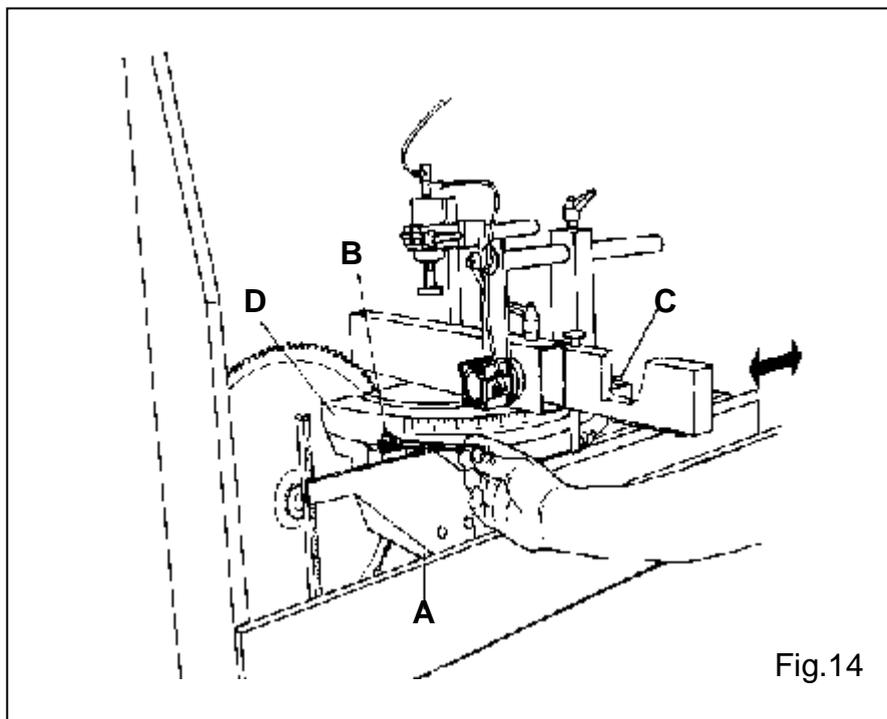
Fig.13A

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**3.10 HOW TO ADJUST HORIZONTALLY THE WORKING PLAN**

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- Loosen with spanner A (Fig.14) screws B and C (Fig.14)
- Move profile support D (Fig.14) to the required position
- Lock screws B and C (Fig.14) with spanner A (Fig.14).



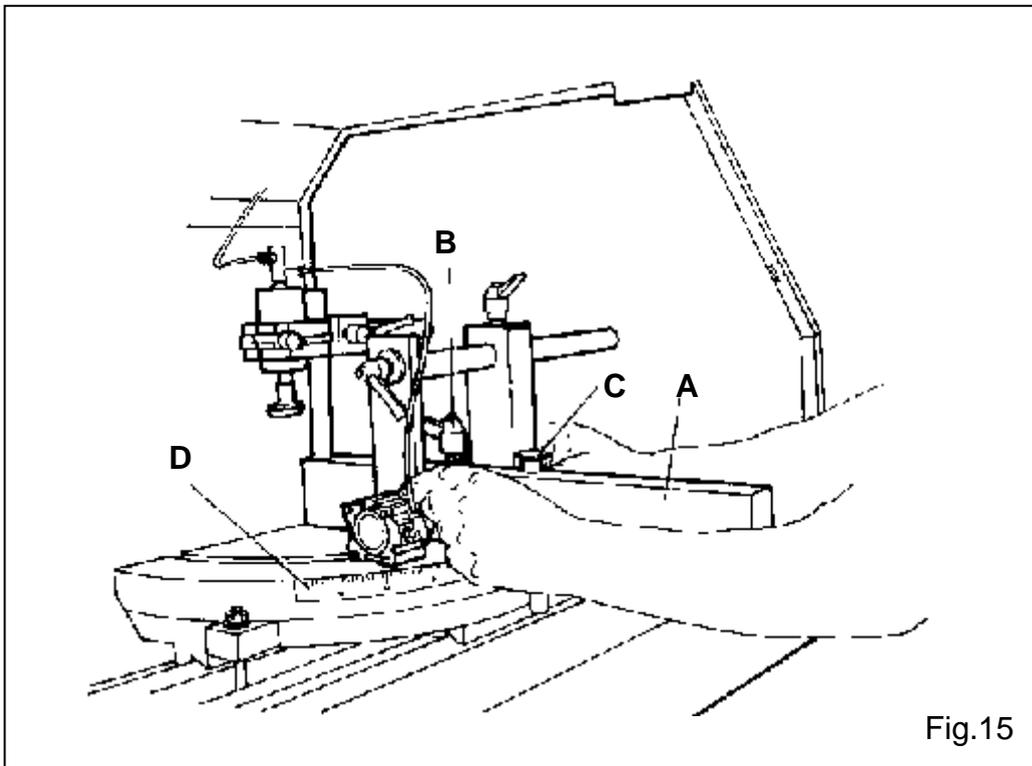
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**3.11 HOW TO ADJUST THE TILTING OF THE WORKING PLAN**

---

The working plan is equipped with square A (Fig.15) that can tilt to 45° left hand and to 45° right hand.

- Loosen jumper lift B (Fig.15)
- Lift pin C (Fig.15) moving square A (Fig.15) to the required tilting position that can be read on the metric ruler D (Fig.15).
- Lock jumper lift B (Fig.15).



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**3.12 HOW TO ADJUST PROFILE END STOP**

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- Loosen handles A (Fig.16)
- Move end stop C (Fig.16) sliding it to the required position that can be read on display D (Fig.16)
- Lock handles A (Fig.16).

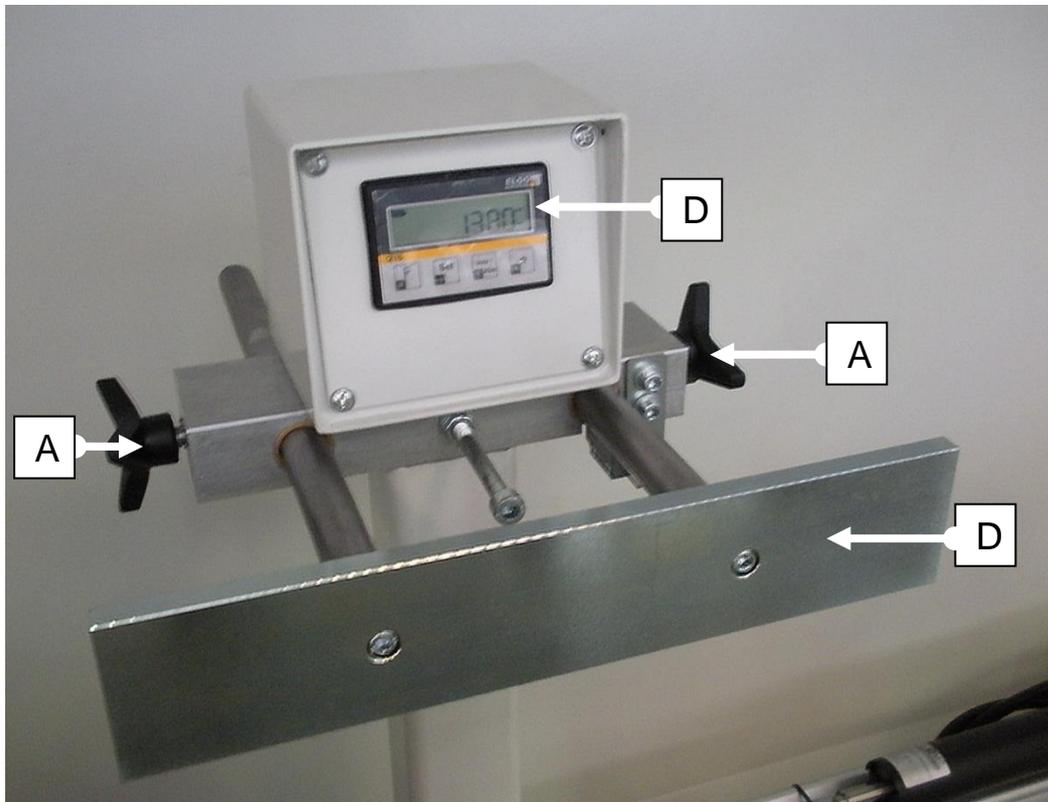


FIG.16

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**3.13 HOW TO EXECUTE THE CUTTING**

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After placing the required angles, please do the following:

- Put profile B (Fig.17) against end stop A (Fig.17).
- Lock profile B (Fig.17) on the working plan with clamps C and D (Fig.17) and turning selector E (Fig.17A)
- Close the safety guard
- Turn main switch F (Fig.17A)
- Turn selector G (Fig.17A) start up motor 1
- Turn selector H (Fig.17A) start up motor 2
- Press simultaneously buttons START I + L (Fig.17A) for saw blade feeding M and N (Fig.17B) and start up lubrication P (Fig.17B), release buttons to obtain automatically the return to the rest position of the saw blade
- Unlock profile B (Fig.17) through selector E (Fig.17A)
- Remove the profile
- Turn motors off with selectors G and H (Fig.17A), thus the machine is equipped with emergency push-button O (Fig.17A) that can also serve to turn motors off.

**Please remark: the profile must always be locked by both clamps.**

**Please pay attention during positioning that the saw blades do not interfere with fix parts of the machine.**

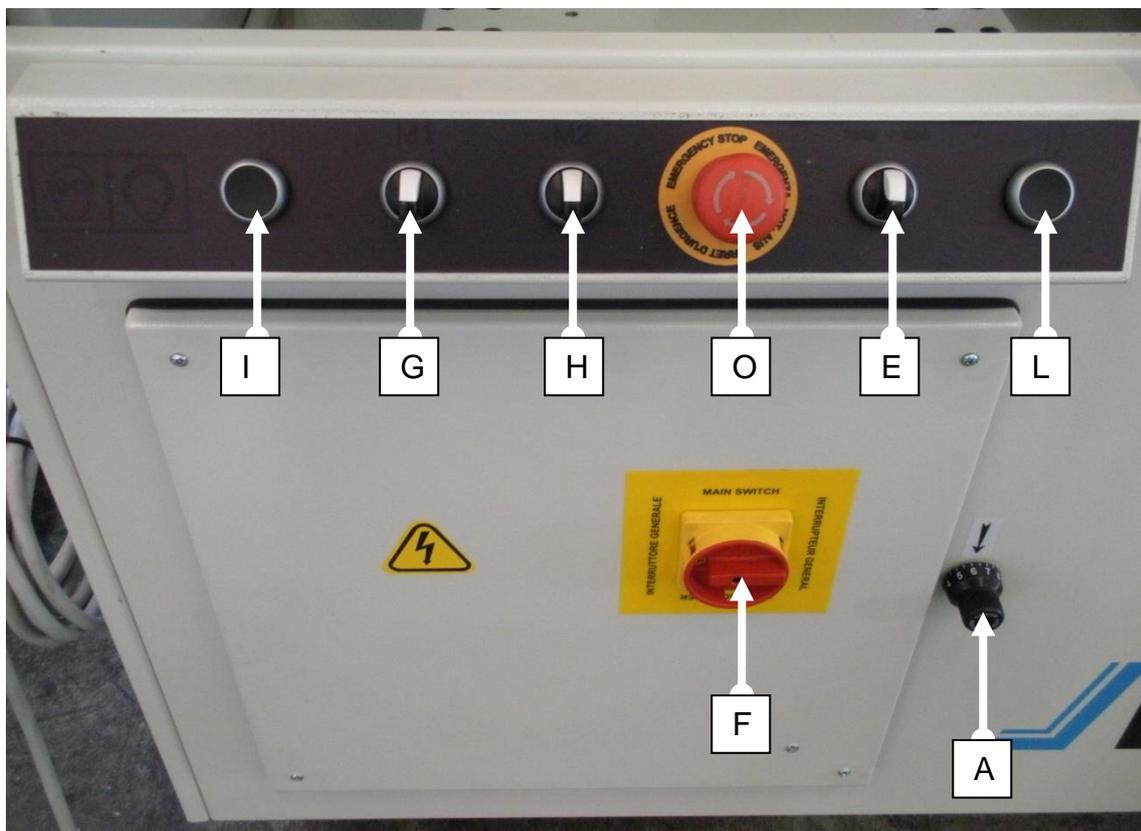


FIG.17A

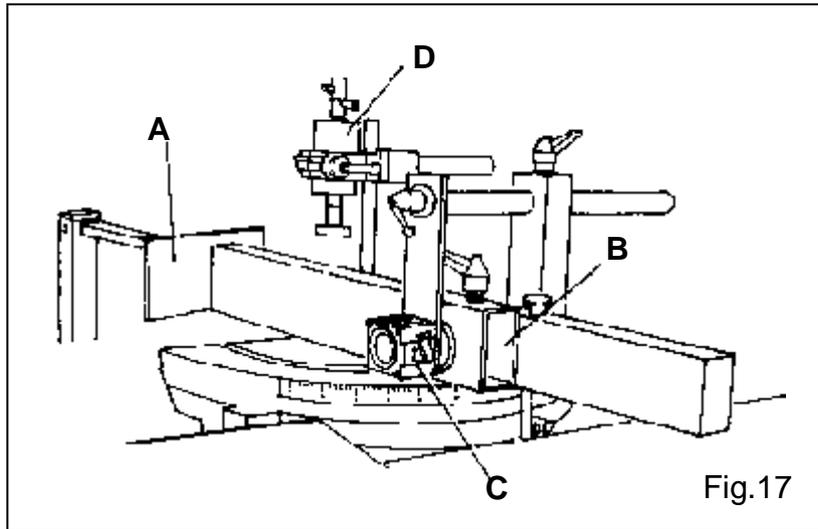


Fig.17

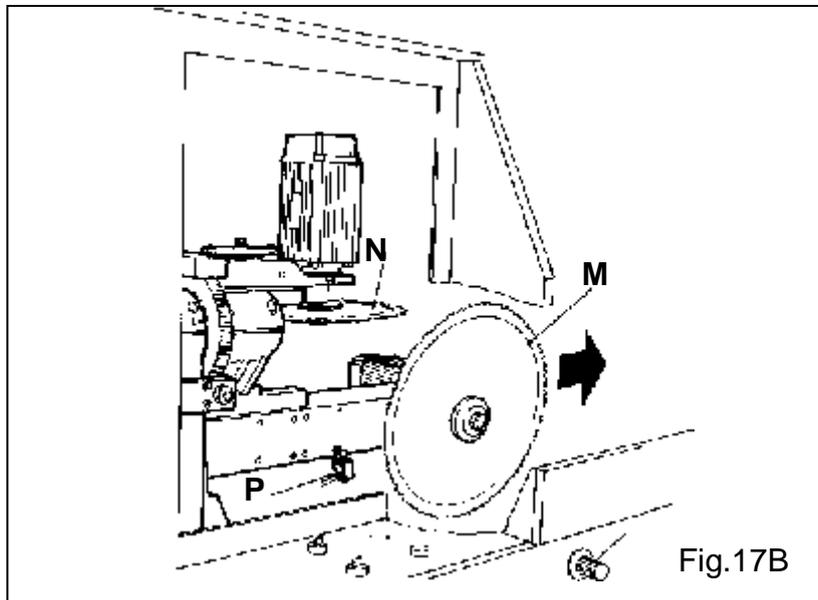


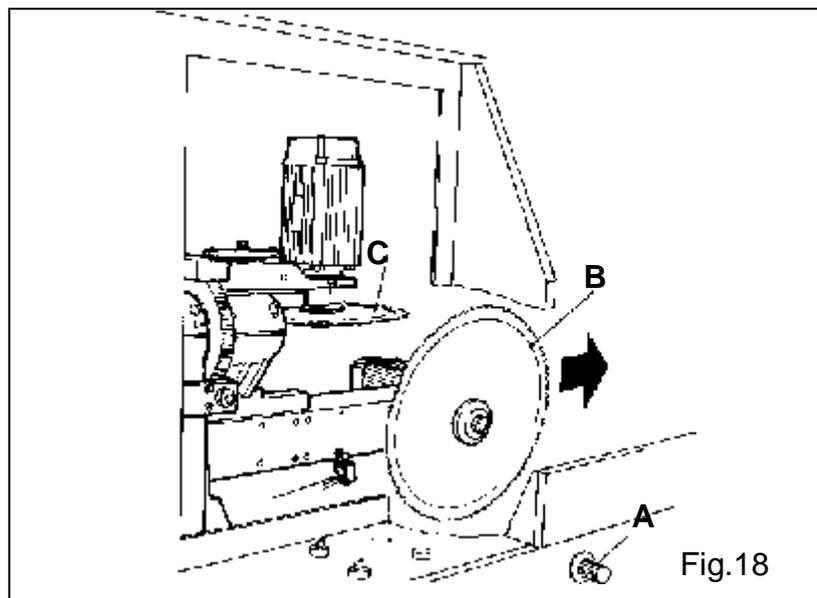
Fig.17B

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**3.14 HOW TO ADJUST THE SAW BLADES' FEEDING**

---

- to increase the feeding speed rate of saw blades B and C (Fig.18) turn handle A (Fig.18) anti clock wise
  - to decrease the feeding speed rate of saw blades turn handle A (Fig.18) clock wise
- Also the return speed rate of the saw blades can be adjusted:
- to increase the return speed rate of saw blades B and C (Fig.18) turn handle D (Fig.18) anti clock wise
  - to decrease the return speed rate of saw blades turn handle D (Fig.18) clock wise



**3.15 DESCRIPTION OF LUBRICATION**

The machine is equipped with a lubrication system, with spray units A and B (Fig.19) that takes up automatically when saw blades move by pushing both START buttons.

The lubricant is in tank C (Fig.19).

Periodically check (every 24 hours of work) that the fluid is at the right level (use cutting oil only).

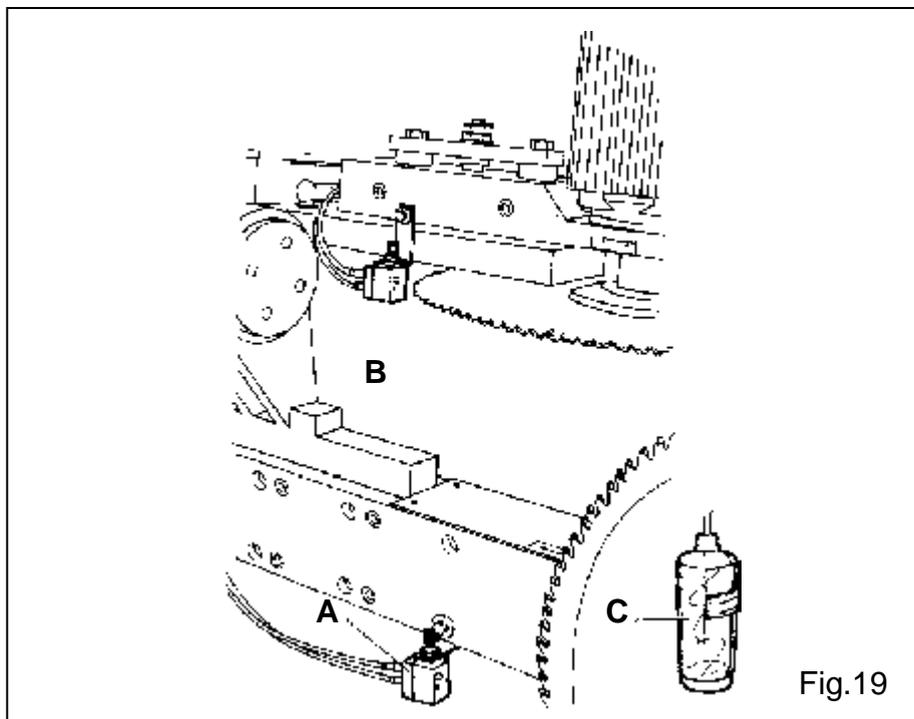


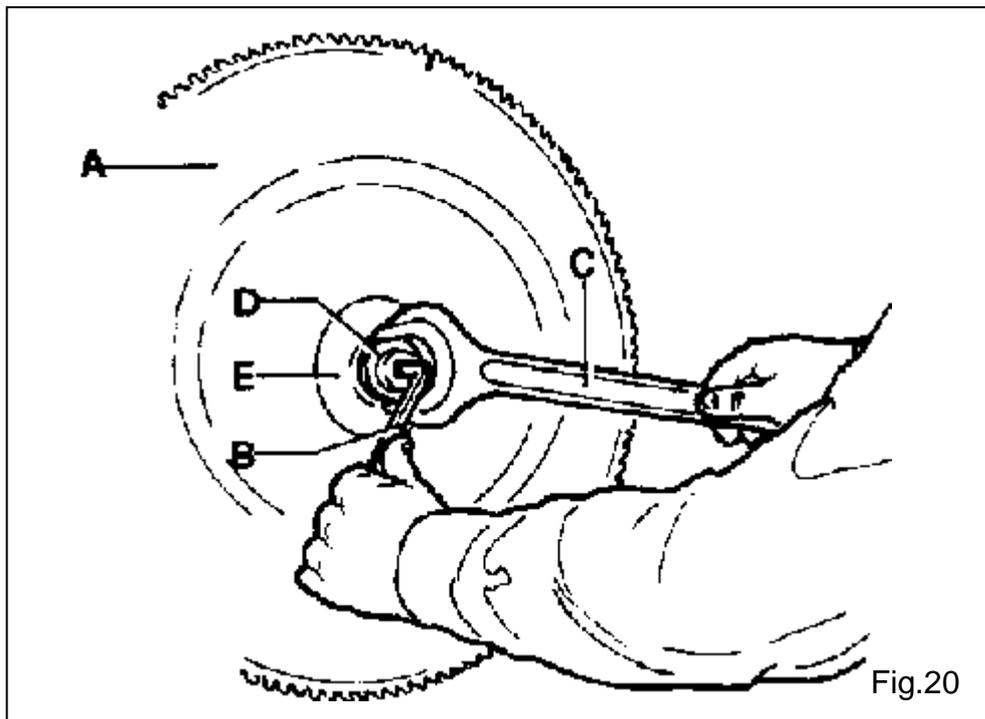
Fig.19

**3.16 HOW TO INSTALL THE SAW BLADES**

To install saw blade A (Fig.20) use both service spanners B and C (Fig.20). Insert spanner B (Fig.20) in the cavity on top of motor shaft. Put spanner C (Fig. 20) in the slot of nut D (Fig.20). Keep standing spanner B (Fig.20), loosen nut D (Fig.20) and turn it clock wise with spanner C (Fig.20). Remove nut D (Fig. 20) and flange E (Fig.20), insert saw blade A (Fig.20) making sure that parts of contact are perfectly clean to prevent any damaging vibrations. Mount back flange E (Fig.20) and nut D (Fig.20) locking with spanners B and C (Fig.20). Make sure the saw blades are sharpened and in good condition.

Always use gloves to handle saw blades.  
 Use only saw blades with HM teeth of this size:

Vertical saw blade	Ø 550 mm
Horizontal saw blade	Ø 500 mm
Shaft diameter	Ø 30 mm
Saw blade thickness	4 mm

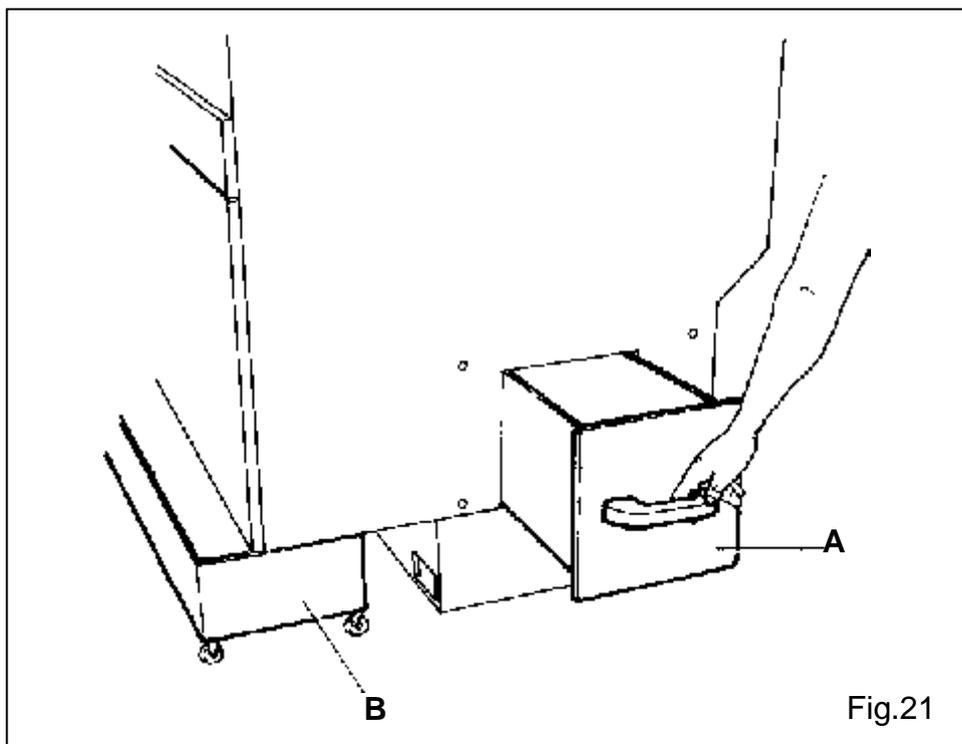


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**3.17 CHIP'S COLLECTING TANKS**

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The machine is equipped with 3 chip collecting tanks, one B (Fig.21) is situated on the front of the machine, the other 2 A (Fig.21) are placed on the side.



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**3.18 HOW TO ADJUST THE SELF-BREAKING MOTOR**

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It is good practice to check the adjustment of the brake with regularity.



Undo both nuts to remove the safety cap of the fan

Fig.22

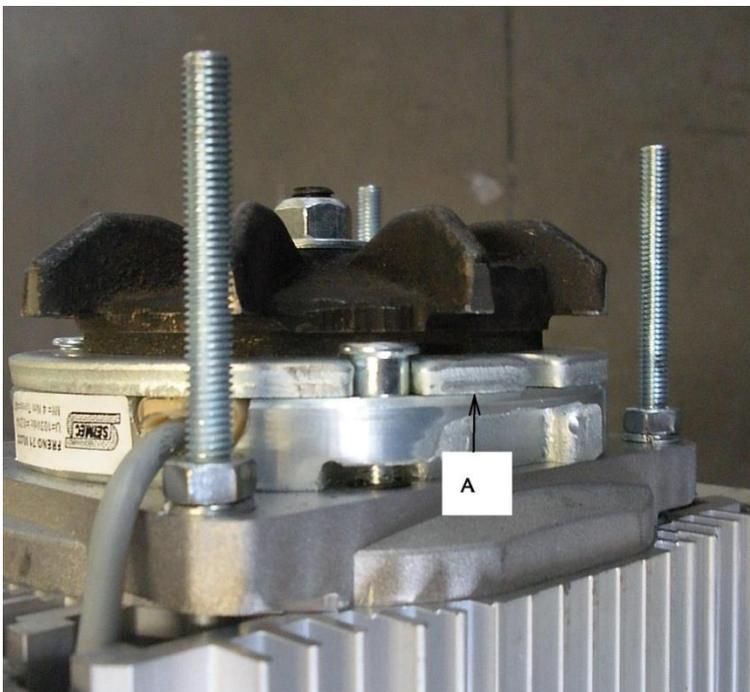


Fig. 23

Make sure that part A is in the correct position, that the parts are clean and that there is no impedance to sliding, after that you can adjust the brake.

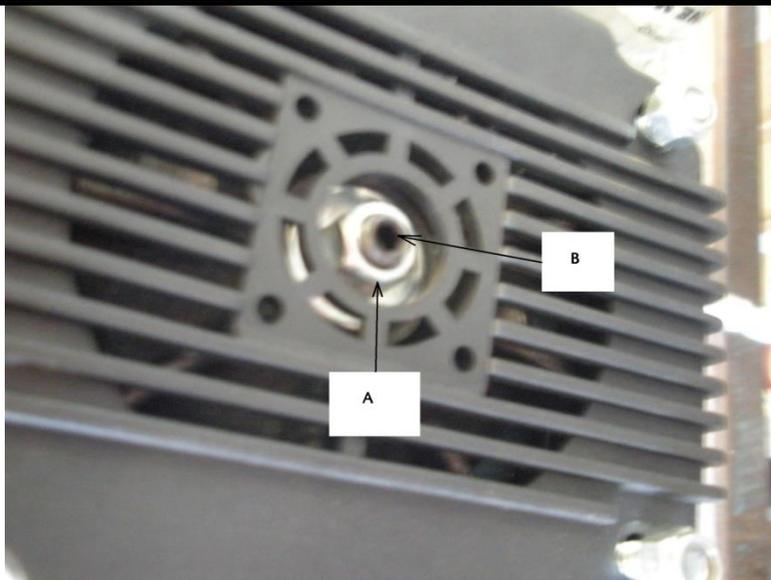


Fig. 24

To increase the braking turn nut A from 13 clock wise.

To decrease the braking turn nut A anti clock wise, keeping stand still tie rod B with hexagonal spanner 4 mm shown in pict. 4. Please act like shown in pict. 4.

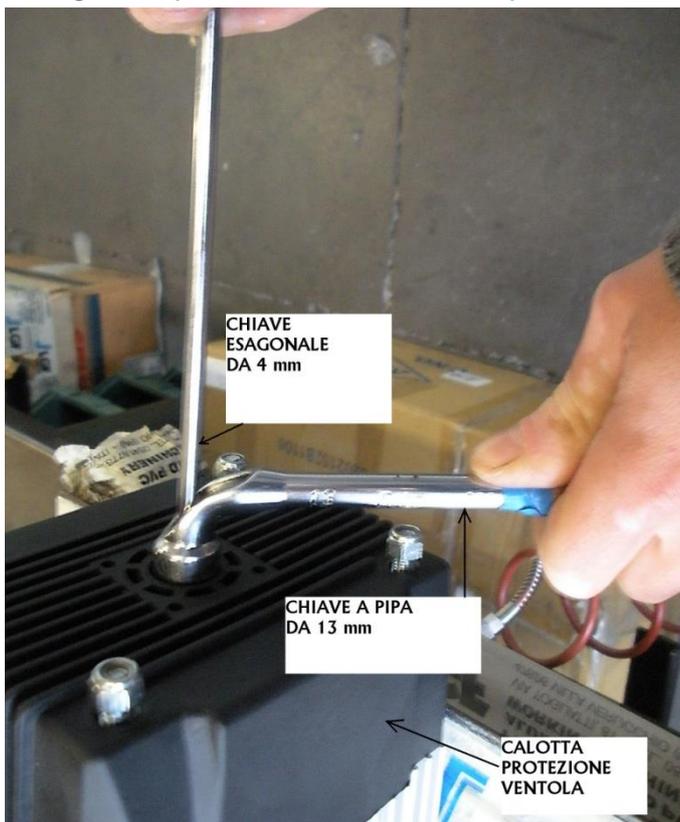
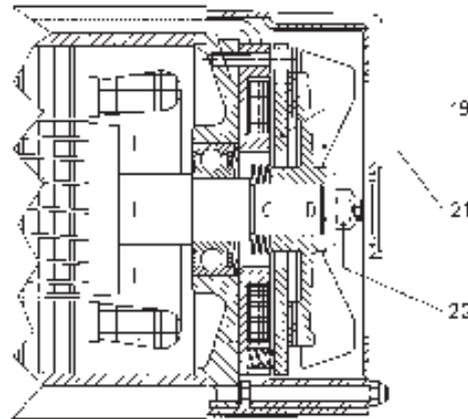


Fig. 25

### 3. Caratteristiche

#### 3.2 Caratteristiche del freno



Il freno è di tipo elettromagnetico a molle (si ha automaticamente frenatura quando non è alimentato), con bobina toroidale a **corrente continua**, a singola superficie frenante e **momento frenante fisso** (normalmente  $M_f P 0,25 \div 1 M_n$ , secondo la grandezza).

Concepito per mantenere **ridotto l'ingombro assiale del motore** (uguale a quello di un motore non autofrenante), è caratterizzato da una **frenatura dolce** e da una **elevata capacità di lavoro di frenatura per singola frenata** grazie alla ventola di ghisa (che funge anche da disco di frenatura), opportunamente dimensionata (per garantire lo smaltimento di elevate energie di frenatura); **massima economicità**.

Particolarmente adatto alle macchine da taglio, per arresti di sicurezza, come freno di stazionamento, ecc.

Quando l'elettromagnete non è alimentato, l'ancora freno, spinta dalle molle, preme sulla ventola di raffreddamento-frenatura generando il momento frenante sull'albero motore; alimentando il freno l'elettromagnete attrae verso di sé l'ancora freno, liberando la ventola e l'albero motore.

Caratteristiche principali:

- tensione di **alimentazione del raddrizzatore** (sempre fornito a morsetteria) alternata monofase **230 V  $\pm$  10% 50 o 60 Hz o 400 V  $\pm$  10% 50 o 60 Hz** (grand. 71L ... 80 per motori avvolti a  $\Delta$ 400 V 50 Hz e motori a doppia polarità); a richiesta altre tensioni, ved. cap. 6;
- alimentazione del raddrizzatore **direttamente da morsetteria** motore o indifferentemente da linea **separata**;
- **classe isolamento F, sovratemperatura classe B**;
- **guarnizione d'attrito** a medio coefficiente d'attrito per bassa usura, integrale con l'ancora freno;
- **ventola di ghisa** la cui superficie affacciata all'ancora freno funge anche da disco di frenatura;
- **regolazione trasferimento anche a copriventoia montato** attraverso un foro dotato di protezione antinfortunistica;
- possibilità di **sbloccaggio manuale del freno** mediante l'allentamento del dado autobloccante **22** finché la ventola **21** si discosta dall'ancora freno **18**;
- predisposizione per rotazione manuale **a vuoto** (o a carico molto ridotto) per mezzo di chiave maschio esagonale dritta chiave 3 per grandezza 50, 4 per grand. 63 e 71, 5 per grand. 80 che si impegna sull'albero motore lato opposto comando;
- per altre caratteristiche funzionali ved. tabella seguente.

Per caratteristiche generali motore ved. p.to 3.1.

Per esecuzioni speciali ved. cap. 6.

Il motore autofrenante è **sempre equipaggiato con raddrizzatore** fissato a scatola morsetteria provvisto di adeguati morsetti di collegamento.

Il raddrizzatore a diodi a semipilce semionda **RV1** per freno tipo VP o **RW1** per freno tipo VQ (tensione uscita c.c. P 0,45 tensione di alimentazione c.a., corrente massima continuativa 1A; RW1 funziona a doppia semionda per i 600 (circa) ms iniziali) può essere inserito/disinserito **solo dal lato c.a.** (frenata normale, silenziosa e progressiva; schema di collegamento al cap. 7).

A richiesta sono disponibili i raddrizzatori RN1X o RR1X per un ritardo di frenatura  $+t_b$  ridotto con alimentazione diretta da morsetteria (ved. cap. 6.(38) e p.to 7.4.).

### 3. Specifications

#### 3.2 Brake specifications

Electromagnetic spring loaded brake (braking occurs automatically when it is not supplied), with **d.c.** toroidal coil and single braking surface, **fixed braking torque** (normally  $M_f P 0,25 \div 1 M_n$ , according to size).

Conceived to keep **reduced motor axial dimensions** (equal to the ones of a non-brake motor), it is featured by a **soft braking** and by a **high braking capacity for each braking** thanks to the cast iron fan, which also acts as brake disk, especially sized (in order to achieve the dissipation of high braking energies); **highest economy**.

Particularly suitable for cutting machines, safety stops, as parking brake, etc.

When electromagnet is not supplied, the brake anchor, pushed by springs, presses the cooling-braking fan generating a braking torque on the motor shaft; by supplying the brake, the electromagnet draws the brake anchor, releases the fan and the driving shaft.

Main specifications:

- **supply voltage of rectifier** (always supplied at terminal block) alternate single-phase **230 V  $\pm$  10% 50 or 60 Hz or 400 V  $\pm$  10% 50 or 60 Hz** (sizes 71L ... 80 for  $\Delta$ 400 V 50 Hz wound motors and two-speed motors); on request other voltages, see ch. 6;
- rectifier supply **directly from motor terminal block** or indifferently from **separate** line;
- **Insulation class F, temperature rise class B**;
- **friction surface** with average friction coefficient for low wear, integral with brake anchor;
- **cast iron fan** whose surface towards brake anchor also acts as brake disk;
- **air-gap adjustment also with mounted fan cover** through a hole with safety protection;
- possibility of **manual release of brake** through the release of self-locking nut **22** so that fan **21** draws away from brake anchor **18**;
- pre-arranged for manual rotation on **no load** (or with a very reduced load) by a straight setscrew (wrench 3 for size 50, 4 for sizes 63 and 71, 5 for size 80) on non-drive end motor shaft;
- for other functional specifications see following table.

For general motor specifications see point 3.1.

For non-standard designs see ch. 6.

Brake motor is **always equipped with rectifier** fixed at terminal box providing adequate connecting terminals.

Simple half-wave diodes rectifier **RV1** for VP brake type or **RW1** for VQ brake type (output d.c. voltage P 0,45 a.c. supply voltage, maximum continuative current 1A; RW1 runs with double half wave for approx. initial 600 ms) can be connected-disconnected **only from a.c. side** (normal, low noise and progressive braking; wiring scheme at ch. 7).

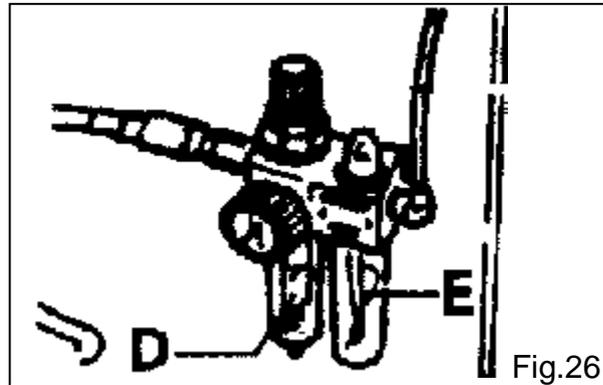
On request the rectifiers type RN1X or RR1X are available for a reduced braking delay  $+t_b$  with direct supply from terminal block (see ch. 6.(38) and point 7.4.).

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## 4 MAINTENANCE CARD

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Check every morning the tank in case of condensate deposit D (Fig.22) (to let the condensate come out, press the push button placed under the tank). Control periodically the oil level in tank E (Fig.22).



**Attention please:** before starting any maintenance operation turn off the electrical and pneumatic connection.

Clean periodically (every 15/20 days) the sliding guides and keep them lubricated with grease or oil, to avoid that the guide scraping for the protection of the slide sleeve bearing runs out on some zones of the guides without lubrication or, worse, on some part of the sliding guide with dried lubricant.

This would spoil the guide scraping and would allow the dirt to enter the sleeve bearing, compromising the sliding of them.

Should the machine not start, control the fuses inside electric case A.

Verify if the calibration of the magneto thermal is correct (by disassembling the plastic protection of the magneto thermal 1 you enter the adjustment ring nut, placed sideways the two push buttons Off-On. Turn it until it reaches the expected value, which is set on the motor plate Ex: HP 1,5 - Kw 1,1 - Volt 380 A = 2,9). Therefore turn the ring nut till 2,9.

### 4.1 ELECTRICAL AND PEUMATIC LAY-OUT

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#### **PNEUMATIC INSTALLATION:**

Control the oil level and, if necessary, supply with the following oils:

AGIP, OSO15  
 ROL OIL, LR10  
 ESSO, NUTO H15  
 MOBIL, ALMO 525