Translation of the original operating instructions

This manual must be kept for future reference and must always remain with the machine

T 55ES - TW 55ES

INSTRUCTION MANUAL

CE

SPINDLE MOULDER FOR WORKING WITH WOOD AND MATERIAL WITH SIMILAR PHYSICAL CHARACTERISTICS



minimax

Rel. 0.0 / 06-2017 **00L0370023G** **EN**

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MANUFACTURER:	**SCM INDUSTRIA S.p.A.**
ADDRESS:	**Via Valdicella, 7 - 47892 - Gualdicciolo - Rep. San Marino**
DESIGNATION:	**SPINDLE MOULDER FOR WORKING WITH WOOD AND MATERIAL WITH SIMILAR PHYSICAL CHARACTERISTICS**
BRAND:	**SCM**
TYPE:	**T-01**
MODEL:	**T 55ES - TW 55ES**
TYPE OF DOCUMENT:	**INSTRUCTION MANUAL**
DOCUMENT CODE:	**00L0370023G**
EDITION:	**Rel. 0.0 / 06-2017**
CONFORMITY:	CE

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(PURSUANT TO ATTACHMENT IIA OF DIRECTIVE 2006/42/EC
AND "EU" DECLARATION PURSUANT TO OTHER APPLICABLE DIRECTIVES)

IL FABBRICANTE: *THE MANUFACTURER:*	**SCM INDUSTRIA S.P.A** **VIA VALDICELLA 7 - 47892 GUALDICCIOLO (R.S.M.)**

DICHIARA CHE LA
DECLARES THAT

MACCHINA: *MACHINE:*	**TOUPIE PER LA LAVORAZIONE DEL LEGNO E DI MATERIE CON CARATTERISTICHE FISICHE SIMILI** **SPINDLE MOULDER FOR WORKING WITH WOOD AND MATERIAL WITH SIMILAR PHYSICAL CHARACTERISTICS**		
MARCA: *BRAND:*	***SCM***	N°DI SERIE: *SERIAL No.:*	
TIPO: *TYPE:*	***T-01***	ANNO DI COSTRUZIONE: *YEAR OF CONSTRUCTION:*	
MODELLO: *MODEL:*	***T 55ES***		

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ORGANISMO NOTIFICATO CHE HA EFFETTUATO L’ESAME CE DI TIPO *NOTIFIED BODY WHICH DELIBERATED ON THE “EC” TYPE EXAMINATION CERTIFICATE*	***KIWA CERMET ITALIA S.p.A. NB 0476*** ***VIA CADRIANO, 23*** ***40057 CADRIANO di GRANAROLO (BO)***
NUMERO DI ATTESTATO D’ESAME CE DI TIPO *NUMBER OF “EC” TYPE EXAMINATION CERTIFICATE*	***C09E223/28***

PERSONA AUTORIZZATA A COSTITUIRE IL FASCICOLO TECNICO: *PERSON AUTHORISED TO PRODUCE THE TECHNICAL FILE:*	***SCM GROUP spa Via Emilia n° 77*** ***I-47921, Rimini (RN) - ITALY***

IL RAPPRESENTANTE DELEGATO DEL FABBRICANTE
THE MANUFACTURER’S REPRESENTATIVE

****CITTA’****, ****DATA****,

*** IDENTIF CAZIONE FIRMATARIO ***
FIRMA AUTOGRAFA

[IT] LINGUA ORIGINALE DICHIARAZIONE
[EN] TRANSLATION OF DECLARATION ORIGINAL LANGUAGE

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TIPO: *TYPE:*	***T-01***	ANNO DI COSTRUZIONE: *YEAR OF CONSTRUCTION:*	
MODELLO: *MODEL:*	***TW 55ES***		

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1.1 AIM OF THE HANDBOOK

(ev-1-1_0.0)

Responsible for the introduction of the machine onto the EU market in compliance with article 9, paragraph 2 of the EMC 2004/108/EC Directive
SCM GROUP S.p.A. Via Emilia n.77, I-47921, Rimini (RN) - ITALY

This handbook has been written by the machine manufacturer and is an integrating part of the machine[2].
The information serves for qualified technicians[3].

With this handbook we wish to give you all information regarding to the use and maintenance of the machine: in this way you are sure to protect the production as well as the equipments.

The handbook defines the proper use of the machine and gives all information necessary for:
- right use of the machine
- working economy
- long operation life

If the instructions are always kept, it is possible to guaranty safety conditions for the operator, safe machine operation, service economy and a longer life of the machine.

To make the easier, the handbbok is divided in proper sections.
To quickly find the subject, see the Contents.



NOTE-INFORMATION:
some images present in this handbook may:
- not exactly correspond to the real machine version when this does not influence the validity of the information and instructions described and does not prejudice the safe operation.
- Be indicated without safety guards in order to make the parts described in the text more visible.



DANGER-WARNING:
the safety guards are necessary to ensure the safe machine operation and the working without the safety guards is forbidden.

SCM sales organization is always at your disposal for any technical problem (reparation, spare part delivery etc.) and to improve your business.
Keep this handbook for future information besides it shall always be with the machine.
SCM is not responsible for damages caused by wrong use or maintenance of the machine.

For any technical problem apply to SCM dealer:

[2] The definition "machine" replaces "T 55ES" - "TW 55ES" machine name.

[3] Technicians who, thanks to their technical background and experience, are able to recognize and to avoid possible dangers during:
- the machine transport
- the installation
- the machine use and maintenance.

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1.2 MACHINE IDENTIFICATION

(gg-1-2_0.0)

Machine data are punched on the metallic plate applied to the side of the machine frame.

Designation		Abbreviated, conventional description of the machine designation and its function
Marca		Merchandise mark
Anno		Production year
N° Serie		Serial number
kg		Weight (kg)
Tipo		Machine type
Modello		Machine model
Un	V	Rated voltage (volt)
~		Phases number (alternate current)
In	A	Rated current (ampere)
F	Hz	Frequency (hertz)
Icc.	kA	Short circuit breaking capacity of the protective device (kA)
w.d.		Wiring diagram number
Comp.		Machine configurations
Ref.		Internal references



1.3 MAIL CONTACT

(gg-1-3_0.0_ce)

Writing or telephoning to the dealer or to SCM for problems concerning your machine, always specify the following information:

1) machine model
2) serial number
3) voltage and frequency
4) purchase date
5) name of the dealer where the machine was bought
6) detailed information about the trouble
7) detailed information about the working to be carried out
8) period of use - number of working hours

Manufacturer's address:

SCM INDUSTRIA S.p.A.
Via Valdicella, 7
47892 - GUALDICCIOLO - (R.S.M.)
Web: www.scmgroup.com
Email: minimax@scmgroup.com

Assistance Department
from Italy: Tel. 0549/876910 - Fax. 0549/999604

from abroad: Tel. 00378 - 0549/876912 - Fax. 00378 - 0549/999604
E-mail: minimax@scmgroup.com

Spare Parts Department
from Italy: Tel. 0541/674706 - Fax. 0541/674720

from abroad: Tel. 0039 - 0541/674706 - Fax. 0039 - 0541/674720
E-mail: spareparts@scmgroup.com

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1.4 NOTES FOR THE USER

(gg_1-4_0.0_ce)

The handbook describes all operations required for the normal maintenance of the machine.
Do not carry out any operation not described in this handbook.
All operations which require to desmount machine members as well as maintenance operations shall be carried out only by authorized technicians.
For the correct use of the machine carry out the proper instructions given in this handbook.
Only trained and authorized technicians may use the machine and carry out maintenance operations.
Keep the general safety norms as well as the rules of industrial medicine.
Keep this handbook for future necessity.

NOTE-INFORMATION:
- ***use only*** SCM ***parts. The manufacturer is not responsible for damages due to the use of not original parts.***

1.4.1 ABBREVIATIONS USED IN THIS HANDBOOK

(gg-1-41_0.0_ce)

pag.	=	page
fig.	=	figure
par.	=	paragraph
chap.	=	chapter
i.e.	=	example
ref.	=	reference
DPI	=	Individual protective equipment (IPE)

1.4.2 ENCLOSED DOCUMENTATION

(mmax_1-4-2_0.0)

The following attachments are an integral part of this instruction manual:

- Electrical diagrams (read the number of the electrical diagram on the identification plate placed on the machine in the "W.D." line).
- Spare parts catalogue

NOTE-INFORMATION:
the electrical diagrams are for the exclusive use of competent technicians, therefore they are only in Italian and English.

1.5 SYMBOLS USED IN THIS HANDBOOK

(gg-1-5_0.0_ce)

OPT	***OPTIONAL = devices indicated in list price available only upon request.***

	***Operator position.***

	***DANGER-WARNING: imminent dangers could cause serious injuries; careful attention is needed.***

	***NOTE-INFORMATION: technical, very important information.***

	***READ-MANUAL: indicates that before using the machine, you must read the instructions manual and understand all its parts***

	***FORBIDDEN: indicates manouvres, commands or others that cannot be carried out as they can create very dangerous situations for persons and damage the machine.***

	***CAUTION: suitable measures should be taken to prevent accidents or to prevent things from being damaged.***

	**MACHINE OFF STATUS** efore carrying out any type of maintenance and/or making any adjustment to the machine, all of the power supplies (electric and pneumatic) must be switched OFF. Make sure that the machine is stopped power supplies electric and pneumatic (if is present) must be switched OFF. Make sure that the machine is stopped and that it is impossible for it to start up unexpectedly (main switch in the “0” position and locked; compressed air cut-off valve closed and compressed air cut-off valve closed and locked).

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Personnel who will be working on the machine must, apart from being professionally trained for the job, read the manuals paying particular attention to the safety regulations and the paragraphs relative to his area of competence. The machine operators are identified as follows:



ASSIGNED OPERATOR

A professionally trained operator who is at least 18 years old, in compliance with the laws in force in the country where the machine is being used, qualified to exclusively turn on, use, tool-up, set (only with the safety devices enabled and the machine turned off) and to switch off the machine, in full compliance with the instructions given in this with the instructions given in this manual.



MAINTENANCE ELECTRICIAN

A qualified technician (electrician with the technical/professional qualifications required by current regulations), authorized to exclusively carry out operations on the electric devices in making adjustments, performing maintenance and/or repairs, even with the power supply ON and the safety devices disabled (subject to the consent of the health and safety officer), in full compliance with the instructions given in this manual or in other specific documents furnished exclusively by the Manufacturer.



OPERATOR IN CHARGE OF MOVING THE MACHINE

A professionally trained operator who is at least 18 years old, in compliance with the laws in force in the country where the machine is being used, qualified to drive fork lift trucks, bridge cranes or cranes used to safely move the machine and/or parts of the used to safely move the machine and/or parts of the machine.



MAINTENANCE MECHANIC

A skilled technician qualifi ed to exclusively carry out operations on the mechanical, hydraulic and pneumatic parts of the machine, to make adjustments, perform maintenance and/or repairs, even with the safety device disabled (subject to the consent of the health and safety officer), in full compliance with the instructions given in this manual or in other specific documents furnished exclusively by the Manufacturer.



COMPANY HEALTH AND SAFETY OFFICER

A qualified technician, designated by the Client with the technical/professional qualifications required by current regulations relative to worker health and safety in the by current regulations relative to worker health and safety in the workplace.



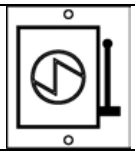
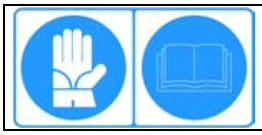
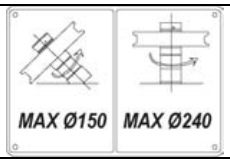
MANUFACTURER'S TECHNICIAN

A qualified technician sent by the Manufacturer and/or Dealer who is authorized to provide required technical assistance, to perform routine and extraordinary maintenance operations and/or operations not referred to in this manual which require specific and detailed knowledge of the machine.

1.6 SYMBOLS ON THE MACHINE

(gc-1-6_0.0_ce)

CAUTION:
the operator must pay attention to the signs and plates fixed on the machine.

	***Danger due to electric power***	**- B -**
	***It cuts electrical power supply to the machine***	**- D -**
	***Use gloves for handling the tools*** ***Read the manual and follow the manufacturer's instructions***	**- E -**
	***Technical specifications plate***	**- G -**
	***Indicates the point where the hooks shall be applied for machine raising***	**- L -**

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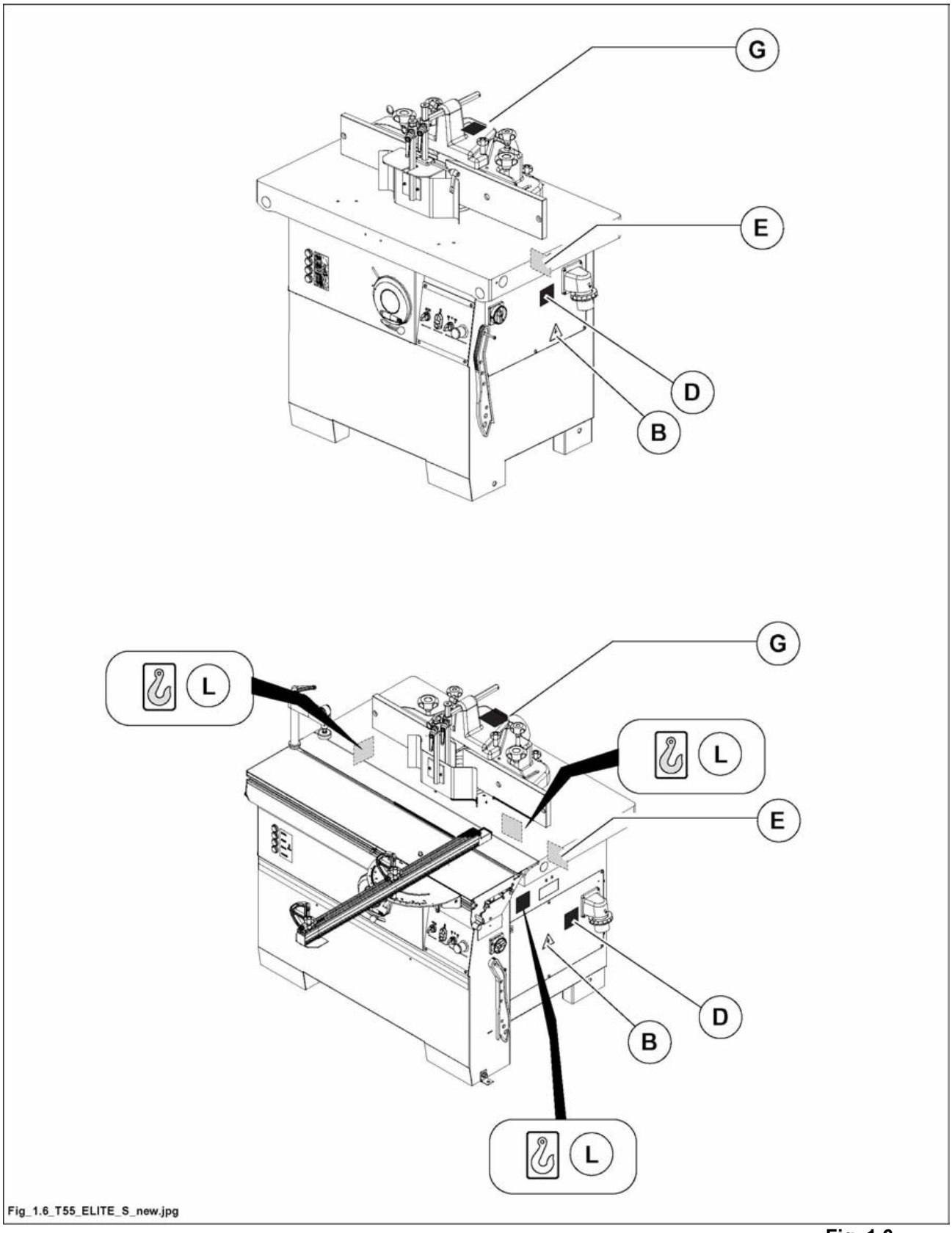
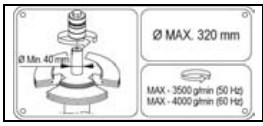
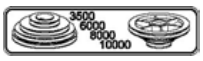
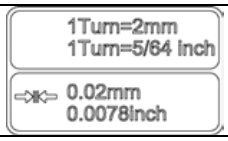
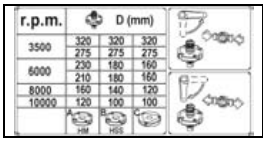


Fig. 1.6

	***Danger: cutting of upper limbs (rotating tools)***	**- N -**
	***Tenoning hood warning plate***	**- R -**
	***Moulder spindle speed for positioning belt plate***	**- V -**
	***Technical specifications plate***	**- W -**
	***Moulder spindle speed for tool type and diameter***	**- Z -**

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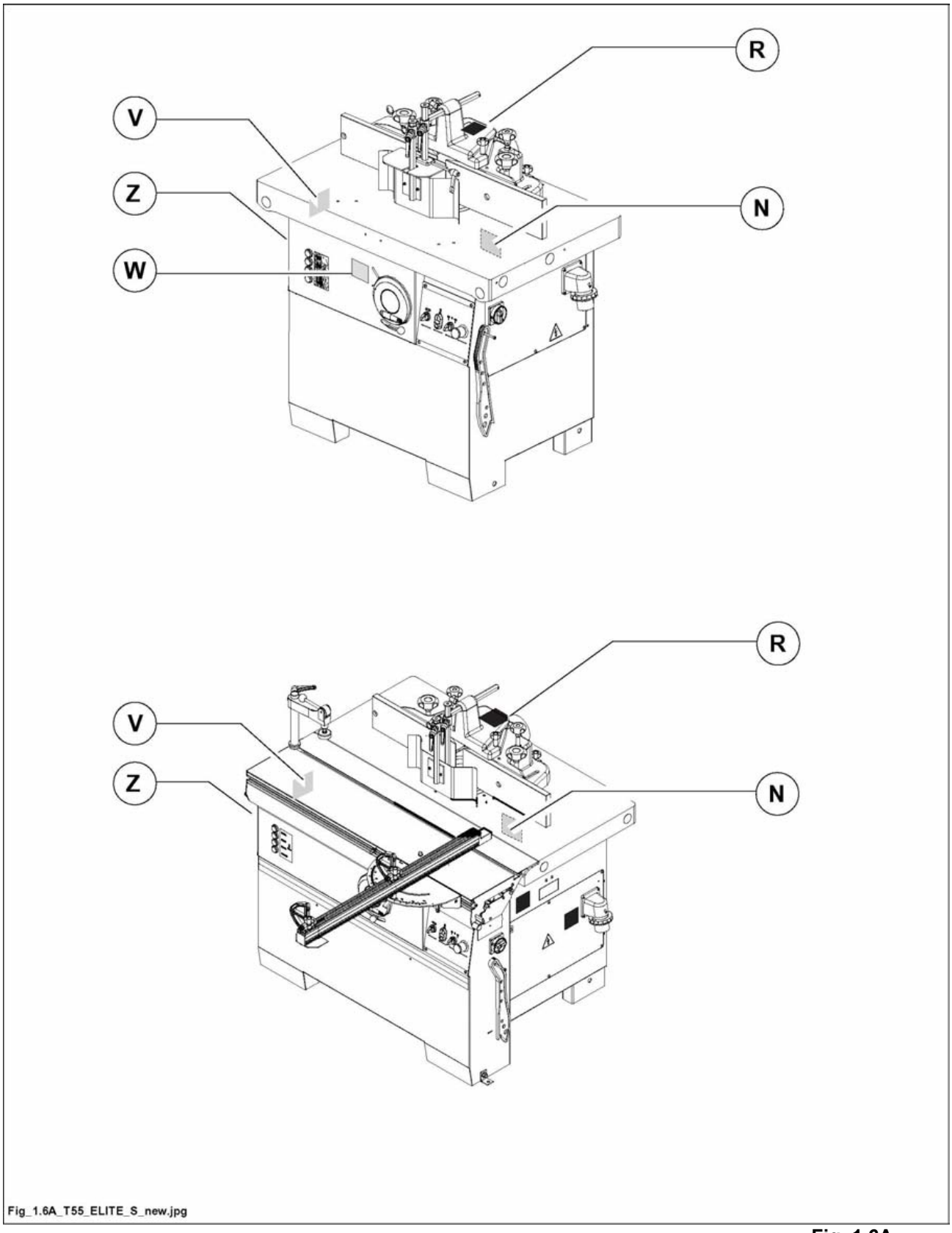


Fig. 1.6A

1.7 MACHINE DESCRIPTION

(ev_1.7-0.0)

The machine is a fixed or tiltable shaft moulder, strong and highly firm. On request, can be equipped with interchangeable spindle and reversible spindle-moulder rotation. The adjustable moulder fences and the protections against accidents make the machining accurate and safe.
The locking system of the moulder shaft for milling cutterchange, is easy and handly for the operator. The operator can choose the more suitable speed for each kind of work.

The basic machine parts are herein referred to and described to make you quickly familiar with them since they shall be later mentioned in this manual. Please pay attention to the following descriptions:

1 - MOULDER LIFTING

2 - MOULDER UNIT

3 - MOULDER INCLINATION

4 - SLIDING TABLE

5 - CONTROL BOARD

6 - WORKING TABLE

7 - SUPPORTING FRAME

8 - PRESSER

9 - PUSHER

10 - ELECTRICAL SOCKET FOR THE POWER SUPPLY

11 - TELESCOPIC FENCE

12 - ROUTER LIFTING LOCK

13 - ROUTER TILT LOCK

14 - WORK TABLE SIDE EXTENSION

15 - WAGON LOCKING

16 - DEVICE FOR ANGLED CUTS

17 - WORK TABLE FRONT EXTENSION

18 - LOCK SPINDLE MOULDER FOR TOOL CHANGE

19 - ELECTRIC SOCKET FOR FEEDER

20 - SET OF TOOLS AND WRENCHES FOR USE AND MAINTENANCE

(**) - FIXED GUARDS THAT CAN BE REMOVED FOR MAINTENANCE OR CLEANING

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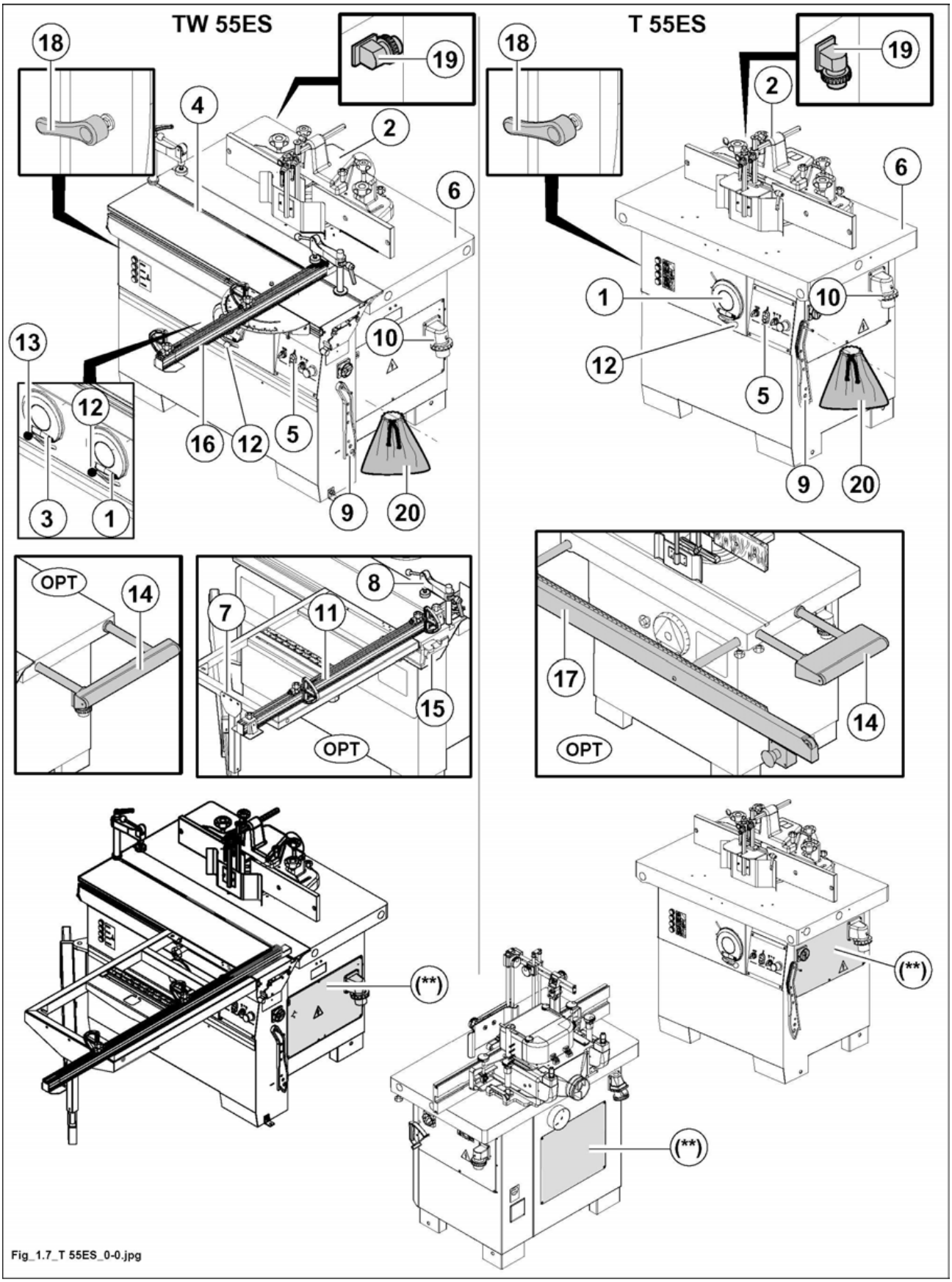

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Fig_1.7_T 55ES_0-0.jpg

Fig. 1.7

1.8 CONDITIONS FORESEEN FOR THE USE

(ev_1-8_0.0)

The machine has been designed and manufactured for thicknessing solid wood pieces and wood based materials: therefore a different use of the machine is not permitted and the user is responsible for damaged caused.
Light metals (e.g. bronze and aluminium) cannot be used, neither can plastics or wood based composites (wood cement). Machining may not be carried out using different tools from those designed for the machine, either single or in packs. Machine guards must always be used during machining.

Working permitted: tenoning, profiling, interrupted milling, shaping.



DANGER-WARNING:
materials different from those quoted above, since dissimilar to wood, are thus prohibited: the user is solely responsible for any damage caused by machining such materials.



DANGER-WARNING:
the fitting of circular blades on the spindle is not permitted.
It is forbidden to insert shims between the spacer rings to willingly unbalance the tools.

1.9 TOOLS WHICH MAY BE USED

(ev_1-9_0.0)

The machine has been designed to use only tools for manual feed (marked MAN), in accordance with EN 847-1 Norm, proper for the material used.

By manual feed we mean the piece guidance by means of:
- the hand,
- the sliding table pushed by hand,
- the feeder.

Features of the tools required for manual feed:
- max. chip thickness 1.1 mm,
- tool shape round,
- chip exhaust space narrow.

As to the relation between tool and rotation speed see par. 9a.3.

1.10 WORKING ENVIRONMENT

(gg_1-9_0.0)

The machine can work under these conditions:
Max. humidity 90%
Max. altitudine sea level: 1000 m (in case of higher altitude apply to the machine manufacturer)
Temperature: Min. +10° C ; Max. +35° C (macchina in operation)
Temperature: Min. +05° C ; Max. +35° C (machine off, not in working condition)
Always connect the machine to the suction system (see par. 4-5).
The machine may not be used in the open air.
The machine was designed for industrial use.
The machine may not operate in explosive rooms.

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1.11 INCORRECT USE THAT CAN BE REASONABLY EXPECTED

(1.1_(01-2010))

- IT IS FORBIDDEN to push small parts forwards without pusher (Chap.15).
- The fitting of circular blades on the spindle is not permitted.
- DO NOT use the machine if you are not an authorised and trained operator.
- DO NOT use the machine in ways that differ from those that the machine has been designed for and described in this manual.
- DO NOT use the machine without the required guards for every machining process or removing part of the guards (DO NOT disassemble the fixed and mobile guards, bypass the safety microswitches)
- DO NOT use the machine in ways that differ from those described above (Sect.1.8).
- DO NOT use the machine in environmental conditions that differ from the ones indicated above (Sect.1.10)
- DO NOT handle the tools without individual protective equipment (not supplied by SCM) for the hands and forearms.
- DO NOT use the machine without individual protective equipment from noise (ear plugs)(not supplied by SCM).
- DO NOT use the machine without extraction.
- DO NOT use the machine without having assessed the need to use individual protective equipment (not supplied by SCM) in relation to wood dust (we recommend the use of individual protective equipment: hard wood dust is carcinogenic).
- DO NOT use the machine if the area around the machine is not flat, well maintained and free of loose material (e.g. shavings and rejects).
- DO NOT machine different materials from the ones that the machine has been designed for and that are not set out in this manual.
- DO NOT machine materials of dimensions that the machine has not been designed for and that are not set out in this manual(Sect.3.1).
- DO NOT use tools not included in standard EN847-1 or of a size not compatible with the machine technical specifications.
- DO NOT make modifications to the machine.
- DO NOT allow children, domestic animals or any unauthorised personnel in the work area.

NOTE-INFORMATION:
performing modifications, voids the machine's Declaration of Conformity.
The user will be solely responsible for any damages resulting from improper use.

1.12 RESIDUAL RISKS

(ev_1-12_0.0)

Any machine tool may be potentially dangerous, do not forget it.
The final safety depends on you.

The machine is equipped with proper guards to ensure the safe machine operation.
Such guards are efficient if they are properly used and kept.

Even if the safety prescriptions are kept and the machine use occurs in accordance with the rules described in this handbook, the following risks may rise:

- **contact of the tool with the tenoning table.**
- **Contact with the standstill or rotating tool.**
- **Contact with the rotating spindle.**
- **Contact with rotating members (belts, pulleys, chains ...).**
- **Kickback of the workpiece or of its parts (splits): never stop in the position corresponding to the trajectory of possible split ejection.**
- **Ejection of tool inserts: never stop in the position corresponding to the trajectory of possibile split ejection.**
- **Dust inhalation in case of working without suction.**
- **Fulguration caused by contact with hot parts.**
- **Contrary direction of tool rotation due to wrong electric connection.**
- **Danger due to wrong working position of the operator.**
- **Danger caused by the wrong tool fitting.**
- **Possible squashing of the hands, with the fixed parts of the machine, during the sliding table motion.**

1.13 OPERATOR'S TRAINING

(ev_1-13_0.0)

It is compulsory that the machine operator is trained for the machine set up and operation.
The operators shall carefully read this handbook and consider the safety rules.

In particular:
a) the principles of the right use and operation of the machine, the adjustment of the fence and guards and the use of devices for special working.
b) The correct handling of the workpieces during the working.
c) The right position of the hands to the tools, before, during and after the cutting.
d) The right selection of the tools.
e) The piece feed to the tool which shall occur in the contrary direction to the spindle rotation direction.
f) The selection of the proper spindle speed required by the tool.

The operators are to be informed about the dangers due to the machine operation and about the precautions to be taken; besides the operator shall be able to carry out periodical tests on guards and safety devices.

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SAFETY OVER ALL

1.14 SAFETY RULES

(gg_1-13_0.0)

1- Carefully read this instructions manual completely before starting the machine.
2- Carefully read the warning plates applied on the machine and comply with their indications.
3- Only correctly trained personnel can use the machine.
4- The operator training must include information about the dangers associated with using the machine and the precautions that he must observe.
5- The operator must trained on the correct use of the guards and safety devices.
Moreover he must be trained to perform regular controls on the aforementioned guards and safety devices.
6- The operator must never leave the machine unattended while it is operating.
7- This machine has been designed to be used by one operator.
8- This machine has been manufactured to provide maximum safety along with optimum performance.
9- Unauthorised changes to the machine release the manufacturer of any responsibility from any damages that may result.
10- Do not use the machine under the influence of alcohol, drugs or sleep inducing medication.

The safety depends on you. Any machine tool may be potentially dangerous, do not forget it.

1.14.1 PERSONAL SAFETY

(gg_1-13-1_0.0)

1- Before starting the machine the operator shall already have read the handbook.
Your eyes are the best safety device you have: carefully look before moving.
2- Experience teaches that there are various objects on a person that can cause injuries; take off rings, watches, bracelets; button your sleeves tightly around yuor wrists, take off ties that could be caught in tight places, keep hair gathered underneath proper nets (cap, elastics, hair pins). Use prescribed footwear usually recommended by all countries.

ALWAYS WEAR THE FOLLOWING INDIVIDUAL PROTECTIVE EQUIPMENT (IPE) (NOT SUPPLIED BY THE SCM**) BEFORE STARTING TO WORK:**

A- Proper aprons, e.g: aprons made of double leather with synthetic fiber cloth insertion (not supplied by SCM**) to protect the operator in case of splinters ejection.**
B- Glasses or protective shields for your eyes.
C- Proper means for ear protection.
D- Proper means against dust inhalation (masks).
E- Gloves for handling the blades.
F- Proper shoes with reinforced steel point and rubber soles.

1.14.2 MACHINE SAFETY

(ev_1-14-2_0.0)

DANGER-WARNING:
the machine must be fixed to the floor.
Fix the supplied angles (B fig. 4.2) to machine feet (A fig. 4.2) and fix on ground by means of expansion bolts (C fig. 4.2) (not supplied).

1- Be extremely careful when starting any working and periodically check the shields and safety devices.
Follow the instructions for grounding the machine's electrical system.
2- Never start the machine without having properly closed the covers for the spindle and the belts.
3- Before starting the machine make sure that on the worktable or inside the guard there are no wood residues or parts which do not relate to the working.
4- Do not machine workpieces too small or too big for the machine.
See relative paragraph 3.1 "DIMENSIONS OF WORKPIECE TO BE MILLED".
Ensure that the pushers are intact and efficient.
5- Do not machine pieces with defects (deflections, clefts, knots, metallic parts, ...).
6- The guards and reference rules or fence halves are to be fitted and set when the machine is off.
7- Work only with all guards properly fitted and efficient.
Make sure that all the indicator lamps function correctly (replace faulty components immediately)
The use of the machine is not permitted if such conditions are not kept.
8- In case of long pieces use roller tables or table extensions (not supplied by SCM).
9- It is necessary to connect all suction hoods to the suction system.
Before starting the working make sure that the suction system is switched on.
10- Test working to check the cutterblock adjustment may not carried out without the guards required.
11- Never try to remove the wastes or other parts of the workpiece from the working area when the machine is in operation.
12- Push the workpiece forwards by using a proper pusher or feeder.
13- After a given working period the transmission belts get slack; this may cause an increase of the time required to stop the tool. In that case immediately stretch the belts (see paragraph 20.23 or 20.24).
14- Periodically remove chips and dust to avoid fire risk: carry out this operation always with the machine off.

DANGER-WARNING:
in case of long machining pauses or machine stops remove the power supply cable socket.

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1.14.3 TOOLS SAFETY

(ev_1-14-3_0.0)

FORBIDDEN:
the use of circular blades fitted to the spindle is not permitted.
It is forbidden to insert shims between the spacer rings to willingly unbalance the tools.

- Before fitting the tools, make sure that each support surface is clean, free from dents and perfectly flat.
- The tools shall be fitted and set when the machine is off, STILL TOOLS and with proper instruments (gauge, comparator).
- Make sure that the tools are perfectly balanced, sharp and well clamped.
  Not sharp tools reduce not only the quality of the finished piece but they increase the piece kickback danger.
- Fit the tools in the right working direction.
- For fastening the saw blade to the spindle, the use of rings or bushes not prescribed by SCM is forbidden.
- Never use deformed saw blades and do not exceed the speed limit indicated on them and prescribed by the tool manufacturer or by SCM.
  Make sure that the dimensional limits and the specifications of the tools suitable for the machine have been stored.
- Use only tools in accordance with EN 847-1 Norm and proper for manual feed.
- Before starting the machine make sure that the tools do not touch the fixed parts of the machine.
- Start working only when the tools have reached the right cutting speed.

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1.14.4 WORKING AREA SAFETY

(gg_1-13-4_0.0)

The working area shall have a good lighting and a sufficient room so that the operator is always out of a dangerous area.
The floor shall be well leveled to avoid slipping danger and also free from loose material (e.g. waste, chips).
Only the authorized operator may stay in the working area.
The operator shall never stay in the trajectory where eventual splits or tool parts are ejected.
If along this trajectory there is another work station (that is another machine) or a passage for persons, immediately install proper protective barriers.

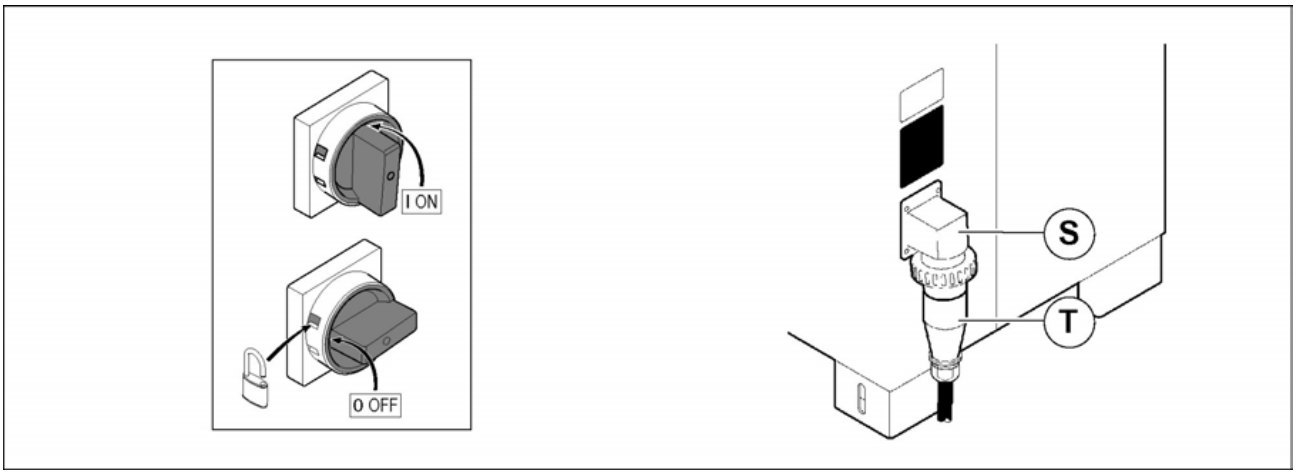
1.14.5 MAINTENANCE SAFETY

(ev_1-14-5_0.0)

DO NOT THINK that the electric current is switched off during the maintenance .... CHECK IT PERSONALLY!
Strictly follow the indications provided for the frequency of the controls and maintenance of devices subject to checks and/or wear.

1- Stop the machine to carry out adjustments or to demount any machine, turn the main switch to zero and lock it, then indicate it by a sign.
The operator who carries out the machine set up, maintenance and cleaning shall keep the only key.

1- Before carrying out any of the operations make sure to cut the main electric power and disconnect socket T from plug S.



2- Completely stop the machine before cleaning operations and before removing any guard to carry out the maintenance.
3- The general cleaning of the machine (in particular of worktable) and of the surrounding floor is an important safety factor.
4- Regularly carry out cleaning and maintenance operations: remove chips and dust to avoid fire risk.
5- Use proper gloves for handling the tools.
6- The tools require a regular maintenance: when necessary replace them.
7- In case of any trouble concerning the machine, the guards and the tools, it is necessary to immediately take the proper measures.

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1.14.6 SAFE WORKING PRACTISE

(dj_1-14-6_5.0)

(Copy of C enclosure of EN 848-1 European Norm)

C.1 General

These notes are given as examples for the safe operation of the machine.

C.2 Operator training

It is necessary that all operators of vertical spindle moulding machines are properly trained in the use, adjustment and operation of the machine.
In particular:

a) The principles of the correct set up operations and the use of the machine including the right use and adjusting of the devices for workpiece locking and guidance, the selection of shields and tools.
b) The safe handling of the workpiece during milling operations.
c) How to adjust safety equipment such as shapes, table extensions and mechanical strikes.
d) The use of personal ear and sight protective devices.

C.3 Stability

To ensure the correct and safe operation of the machine, it shall be stable and and securely fixed to the floor (see Chapter 4).

C.4 Machine and set up

Before carrying out the machine equipment :
a) make sure that the tools are sharp, selected and set according to the tool manufacturer instructions.
b) shut off the machine from the power supply
c) reduce the bore on the table in order to get the room between table and spindle as small as possible
d) handle the tools with extreme caution

C.5 Piece guidance

It is important to use:

a) the hood-fence unit to ensure during the milling the proper piece guidance.

b) When possible a proper element joining the fence halves in order to minimise the gap between the tool and the fence halves.

c) A pusher for the manual piece feed or when possible a feeder which may be switched off when it shall not be used.

d) Roller tables or table extensions to support long pieces.

C.6 Direction of rotation and rotation speed selection

C.6.1 Direction of rotation

It is very important that the tool rotates in the correct direction.and that the piece feed occurs in the direction contrary to direction of the spindle rotation.

C.6.2 Rotation speed selection

The operator must ensure that the right rotation speed has been selected and that the speed selected is proper for the tool fitted to the spindle.

C.7 Machine operation, guard selection and adjustment

Because of the variety of workings which can be carried out on vertical spindle moulding machines by using different spindles, toolholders and tools , no safeguard can be considered effective for all conditions.

Each working should be considered separately and the best practicable safeguard selected for that particolar job.
The cutter type, the tips projection and the height at which the tool is set, will determine the minimum diameter of the hole on the table.

This may be obtained by using the reducing rings supplied, thus reducing the risk that the workpiece oscillates or fits into the tools .

The guard shall enclose the tools to the greatest extent according to the working.

The distance between the fence halves shall be so large only to permit the tool rotation without contact.

If you use a removable feeder, the tools shall be covered as much as possible and trapping hazards are to be avoided.

If no feeder is used, pressers forming a tunnel, through which the workpiece can be fed, may be properly used; the pressers are to be used for milling at the fence.
It is necessary to reduce the room between fence halves and tool as much as possible.
In this case use a proper joining element .

C.8 Milling at the hood -fence unit; working on the entire piece length

To hinder the access to the tool during the milling at the hood-fence unit, it is necessary to use together with the fence a removale feeder with proper guards or vertical and horizontal pressure shoes eqipped with contact elements according to the workpiece size.

The following piece may be used to push the previous one; the last workpiece is milled at the end by using a pusher.

In case of thin pieces only the vertical pressure shoe may be used if its thickness is proper.

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C.9 Interrupted milling

To hinder the access to the tool during the not-through milling (interrupted milling) it is necessary to use together with the hood-fence unit a removable feeder or guards equipped with proper pressers according to the piece dimensions.

To hinder kickback of the piece use front and rear stops which are fastened to the fence, to the table or to the table extension.

We recommend to use a clamping template unless the piece may be hold in a safe way by the hands.
For clamping the piece use fast locking devices which operate with levers or cams.

C.10 Milling at the spindle

To hinder the access to the tool during the milling at the spindle use the proper guard and a clamping template.

C.11 Chamfering

To hinder the access to the tool during the oblique milling, besides the hood-fence unit use a special template or an auxiliary stop.

C.12 Climb milling

When possible it is necessary to avoid the clim milling.

C.13 Tenoning

To ensure a safe piece guidance to the tool, it is necessary to use the proper additional table foreseen by the manufacturer as well as the tenoning hood.

1.15 EMERGENCY CONDITIONS

(ev_1-15_0.0)

DANGER-WARNING:
in case of flooding of the room where the machine is housed, immediately disconnect the electrical power supply. Before starting work, have the machine checked by a specialised technician.

DANGER-WARNING:
in case of fire, immediately disconnect the electrical power supply and intervene using suitable fire extinguishers directing the jets at the base of the flames. Even if the machine has suffered no apparent damage, before restarting work have the machine checked by a specialised technician.

A free space without obstructions must be provided around the machine (see par. 3.7), to allow fast escape in case of danger.

This machine must not be operated in explosive environments.

1.16 MACHINE REMOVAL - STORING - DEMOLITION

(ev_1-16_0.0)

To remove the machine, disconnect it from the electric and pneumatic system. Follow the instructions in chap. 4.

In case of extended inactivity of the machine, disconnect it from the electrical and pneumatic system. Thoroughly clean it as already described for ordinary cleaning and cover the work and sliding tables and the tool holder spindles with antirust protection. Do not store the machine in humid environments and protect it from atmospheric agents.

The machine is constructed in non-toxic unharmful materials. In case of demolition, separate the ferrous material from the plastic materials and send them to the respective scrap yards.

1.16.1 OUT OF ORDER MACHINE

(1.16.1)

The machine is manufactured with non-toxic or harmful materials; in case of scrapping separate the ferrous materials from the plastic materials and scrap respectively. We recommend contacting a specialised and authorised company, in compliance with the applicable laws and standards.

The operators moving the machine and the maintenance personnel must wear the IPE required for the risks involved with the type of use and in compliance with the applicable laws and standards.

To move and transport the machine refer to the instructions in chap. 4.

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2.1 Arrangement and description of emergency devices (Fig. 2.1).....2

2.2 Arrangement and description of safety devices (Fig. 2.2).....4

2.1 ARRANGEMENT AND DESCRIPTION OF EMERGENCY DEVICES (FIG. 2.1)

(ev-2-1.0.0)

Emergency equipment consists of special devices whereby operators can promptly stop the machine if necessary or in case of danger.

DANGER-WARNING:
emergency devices must never be removed or disconnected for no reason whatsoever ("Machine Directive" 2006/42/CE).

Description

A - Emergency mushroom-head push-button:
it causes an immediate emergency stop.

CAUTION:
periodically, check that the devices, listed above, are efficient.

DANGER-WARNING:
any anomalies found during the control of these devices, must be reported promptly to the manager , who will put the machine out of service and call the SCM ***Support Service.***

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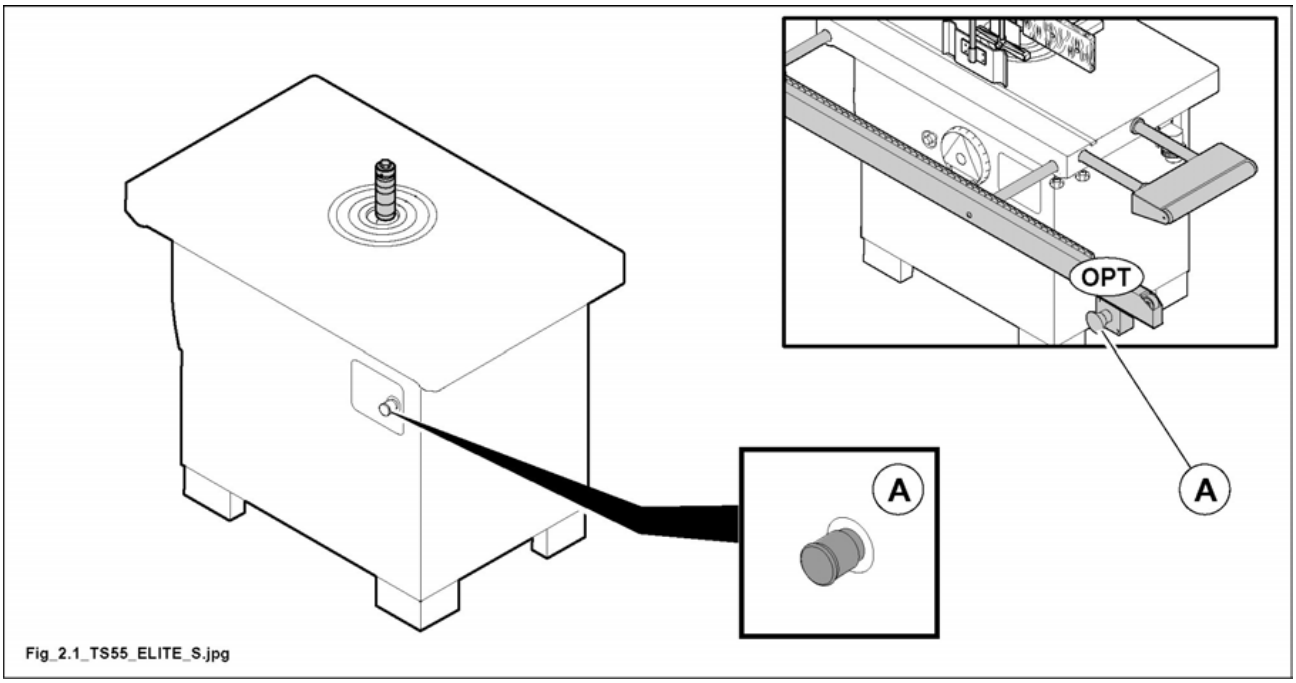


Fig. 2.1

2.2 ARRANGEMENT AND DESCRIPTION OF SAFETY DEVICES (FIG. 2.2)

(ev-2-2.0.0)

Safety devices are special accident-prevention guards whereby the machine is protected against possibly dangerous situations.

DANGER-WARNING:
safety devices must never be removed or disconnected for no reason whatsoever ("Direttiva macchine" 2006/42/CE).

Description

A - Main electrical switch (padlockable):
when at zero (OFF), it cuts electrical power supply to the machine.

D - Automatic brake:
it acts directly on moulder working unit motor power.

Limit switches:
1) limit switch fitted to the motor housing door.
it commands the machine stop when the door R is open.
2) micro switch for tenoner hood ø 320 (OPT) :
when tenoner hood is installed ø 320, it enables machine start up only with Spindle moulder rotation speed at 3500 rpm (50 Hz) - 4000 rpm (60 Hz).
3) Limit switch for spindle locking.
disables machine start when mechanical block T is on.

Guards:
1P) guard for tenoning operations.
3P) Guard for shaping at the spindle.
5P) Hood-fence unit for profiling operations.
6P) Presser unit fitted to the hood-fence unit.

Suction hood under the table.

V - Selected tool speed panel indicator lamp:
there must always be a lamp switched on in order to indicate the tool rotation speed.

CAUTION:
periodically, check that the devices, listed above, are efficient.

DANGER-WARNING:
any anomalies found during the control of these devices, must be reported promptly to the manager , who will put the machine out of service and call the SCM ***Support Service.***

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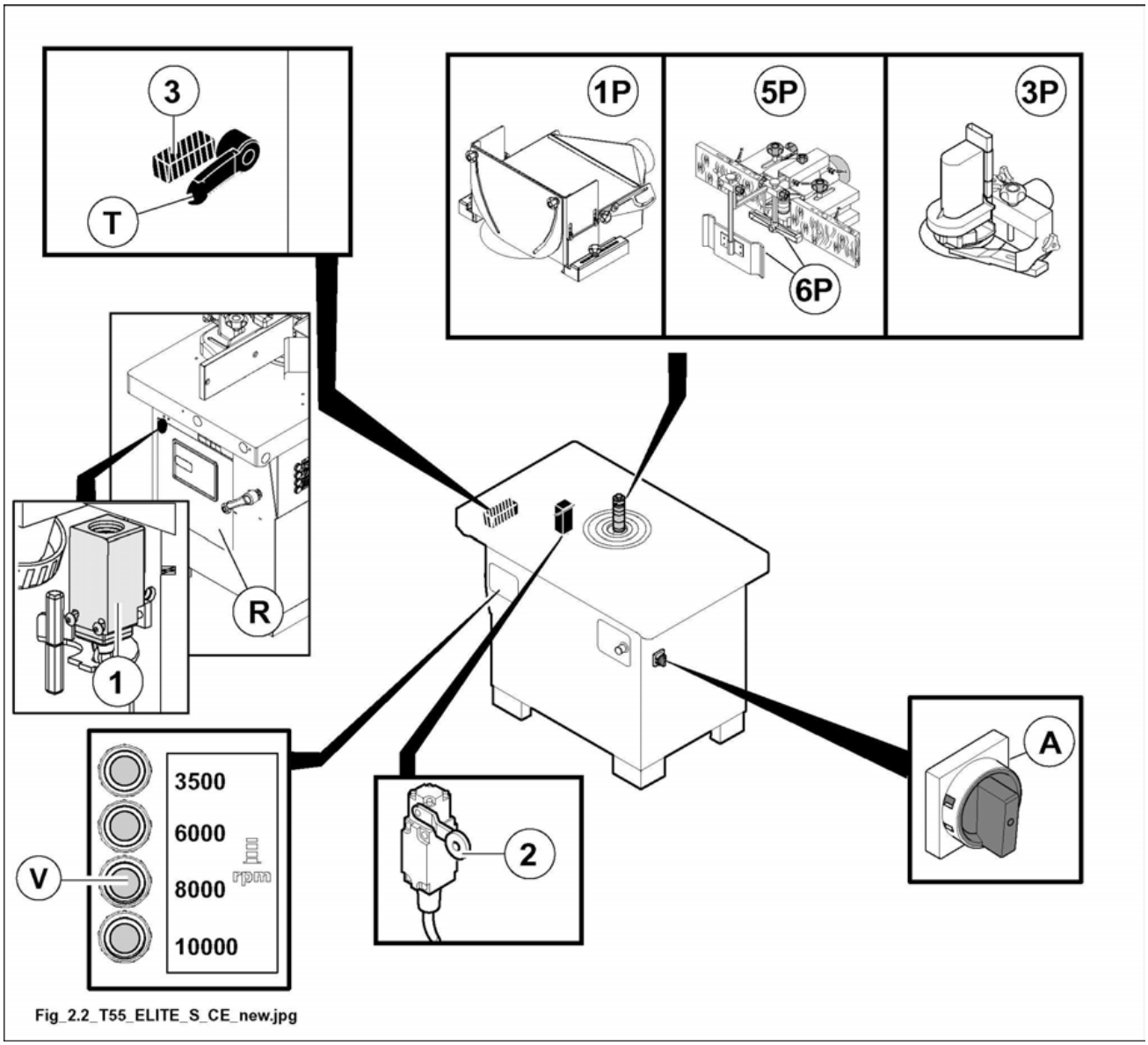

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10000
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V
2
A
Fig_2.2_T55_ELITE_S_CE_new.jpg

Fig. 2.2

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3.3 Standard accessories 5

3.4 Optional accessories 7

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3.7 Working area 12

3.1 DIMENSIONS OF WORKPIECE TO BE THICKNESSED

(ev_3-1_0.0)

DIMENSIONS OF WORKPIECE TO BE MILLED			
Thickness	Min. piece size in case of profiling operation	8	mm
Width	Min. piece size in case of profiling operation	8	mm
Length	Min. piece size in case of profiling operation	400	mm
Thickness	Max. piece size in case of profiling operation	230	mm
Width	Max. piece size in case of profiling operation	180	mm
Length	Max. piece size in case of profiling operation	900 (*)	mm
(*) In case of longer pieces use rest tables			
Thickness	Min. size of solid wood piece in case of tenoning	20	mm
Width	Min. size of solid wood piece in case of tenoning	20	mm
Length	Min. size of solid wood piece in case of tenoning	220	mm
Thickness	Max. size of solid wood piece in case of tenoning	100	mm
Width	Max. size of solid wood piece in case of tenoning	140	mm
Length	Max. size of solid wood piece in case of tenoning	900 (**)	mm
(**) In case of longer pieces use rest tables			
Max. slot depth	Tool diameter Ø 275 (OPT)	117,5 (***)	mm
	Tool diameter Ø 320 (OPT)	140,0 (***)	mm
(***) Uprated motor power recommended			

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3.2 TECHNICAL DATA

(ev_3-2_0.0)

GENERAL SPECIFICATIONS			
Worktable size – (T 55ES)		1080 x 655	mm
Worktable size – (TW 55ES)		1200 x 530	mm
Worktable height from the floor:		900	mm
Working spindle height (fixed)	Ø 30 - 35 - 40 - 50	125	mm
Working spindle height (interchangeable OPT)		90	mm
Max. tool diameter for rebating (with a perpendicular spindle) – moulder hood STD		Ø 210	mm
Max. tool diameter for rebating (with a perpendicular spindle) – moulder hood OPT		Ø 240	mm
Max. tool diameter for rebating (with an inclined spindle)		Ø 150	mm
Max. tool diameter: moulding hood	with Ø 30 mm spindle	150	mm
	with Ø 35 mm spindle	150	mm
	with Ø 40 mm spindle	180	mm
	with Ø 50 mm spindle	180	mm
Max. tool diameter: tenoning hood Ø 275 OPT		275	mm
Max. tool diameter: tenoning hood Ø 320 OPT	with Ø 40 mm spindle	320	mm
	with Ø 50 mm spindle	320	mm
Max. diameter of the tool disappearing under the table:		Ø 240 x h 85	mm
Vertical spindle adjusting:		~ 155	mm
Spindle rotation speed (50 Hz)	3500-6000-8000-10000		r.p.m.
Spindle rotation speed (60 Hz)	4000-7000-9000-12000		r.p.m.
Time required to stop the spindle:		less than 10 seconds	
Motors:			
Main motor power:	50 Hz	5,0	kW
	60 Hz	6,0	kW
Technical details: see data plate on the motor Duty cycle: S6 - 40% (excluded from the energy efficiency constraints of EC Commission Regulation 640/2009) Conditions of service: see Par. 1.10			
Basic machine weight: see plate of machine identification			
Working voltage and frequency: see plate of machine identification			

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DANGER-WARNING:
the table lists the tool mass allowed based on its speed and diameter.

3500 (r.p.m.) (50 Hz) – 4000 (r.p.m.) (60 Hz)	
Diameter (mm)	**Weight (Kg)**
320	**12**

SUCTION SPECIFICATIONS		
Lower spindle suction mouth diameter	Ø 120	mm
Spindle hood suction mouth diameter	Ø 120	mm
Moulding hood suction mouth diameter	Ø 100	mm
Tenoning hood suction mouth diameter OPT	Ø 120	mm
Suction air speed: chips dry (chips wet)	20 (28)	m/sec
Suction air consumption [Ø 120 + Ø 100]	1379 (1932)	m³/h
Suction air consumption [Ø 120 + Ø 120]	1628 (2280)	m³/h

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3.3 STANDARD ACCESSORIES

(ev_3-3_0.0)

Trasformer for auxiliary circuit 110 V
Motor overload cutout
2 Brackets (for fastening the machine to the floor)

Pusher

Set of tools and wrenches for use and maintenance

MOULDER "T 55ES"

Rotation direction reversal
Manual mouvement of the spindle

Direct start of main motor
Light indicating the speed selected for spindle moulder

Prewiring for feeder

Adjustable molder-fence unit
Shaping moulder hood

*) Guard of presser unit for moulding

*) Guard for machining at spindle

Suction hood Ø 120 mm, on the rear frame side

Set of spacer rings on spindle

Tool fixing device

*) Accessories supplied with machine to be mounted according to the type of machining to be carried out.

MOULDER "TW 55ES"

Eccentric clamping
Sliding table made of aluminium alloy with motion on guides
Angular cutting device

Rotation direction reversal
Manual mouvement of the spindle
Numerical height display, spindle height adjustment

Direct start of main motor
Light indicating the speed selected for spindle moulder

Prewiring for feeder

Adjustable molder-fence unit
Shaping moulder hood

*) Guard of presser unit for moulding

*) Guard for machining at spindle

Suction hood Ø 120 mm, on the rear frame side

Set of spacer rings on spindle

Tool fixing device

*) Accessories supplied with machine to be mounted according to the type of machining to be carried out.

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3.4 OPTIONAL ACCESSORIES

(ev_3-4_0.0)

Motors power (three-phase) - S6 / 40%:
..... 7,0 kW - 50 Hz (8,0 kW - 60 Hz)

Motors power (single-phase) - S6 / 40%:
..... 2,2 kW (50 Hz)

Motors power (single-phase) - S1:
..... 3,6 kW (60 Hz)

MOULDER "T 55ES"

Side and front extensions

Anodised aluminium tables for moulder guide

Interchangeable moulder spindle
Moulding spindles available:
Ø 30 - Ø 35 - Ø 40 - Ø 50 spindle to fit to the hole of the cutters used

MOULDER "TW 55ES"

Squaring frame with extension arm and extendable aluminium rule with stops
Side extensions

Motor-driven movement of tool holder spindle shown by electronic digital readout

The machine is prewired for connecting the feeder with an ON/OFF switch.

Tenoning table and hood Ø 320 mm (max. tool diameter 320 mm)
Tenoning table and hood Ø 275 mm (max. tool diameter 275 mm)
Anodised aluminium tables for moulder guide

Moulder spindle inclination. 90° / 45°

Interchangeable moulder spindle
Moulding spindles available:
Ø 30 - Ø 35 - Ø40 - Ø50 spindle to fit to the hole of the cutters used

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3.5 NOISINESS LEVEL

(ev_3-5_0.0)

DECLARED DUAL-NUMBER NOISE EMISSION VALUES in accordance with ISO 4871

Operating conditions – **Profiling** (according to norm 848-1:2007+ A1:2009)*					
Measured size description		Reference norm	Uncertainity **K**	**Profiling**	
				VSA	**LAV**
Lop: sound pressure level at operator station dB (A) and peak level [dB(C)]	Operator station	EN ISO 11202:2010	4 dB	87	90 [98]
	INPUT				
Lw: sound power level dB (A)		EN ISO 3744:2010	2 dB	96	98
The maximum istantaneus noise level pressure is under 130 dB (C).					
VSA : Idle working without suction			**LAV** : In operation		
*Refer to the test document N° 06158 (Rdp 06158) to analyse the actual operating conditions used to make the test, different from those operating conditions prescribed by the norm mentioned above.					

Operating conditions – **Tenoning** (according to norm 1218-1:1999+ A1:2009)*					
Measured size description		Reference norm	Uncertainity **K**	**Tenoning**	
				VSA	**LAV**
Lop: sound pressure level at operator station dB (A) and peak level [dB(C)]	Operator station	EN ISO 11202:2010	4 dB	77	89 [98]
	INPUT				
Lw: sound power level dB (A)		EN ISO 3744:2010	2 dB	85	98
The maximum istantaneus noise level pressure is under 130 dB (C).					
VSA : Idle working without suction			**LAV** : In operation		

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DANGER-WARNING:
the noise levels which have been measured are emission levels and not levels of safe working. The relation between emission levels and exposure levels may not be used to determine whether further precautions are required. Factors which influence the real exposure level for the operator include the exposure time, the room features, further sound sources (as for example number of the adjacent working machines). Also the exposure levels permitted are not the same for all countries. Thank to this information the operator to evaluate the risks and the dangers.

Here are some factors which reduce the exposure to the noise:
- right tool selection
- right rotation speed selection
- machine and tool maintenance
- proper use of ear protective means.

3.5.1 DUST EMISSION

(mmax_3-5-1_0.0)

DUST EMISSION	
Operating conditions – **Moulder machining**	
Reference regulations: **BG-GS-HO- 05**	Dust emitted [mg/m^3]
Operator's site	< 2



FORBIDDEN:
DO NOT USE COMPRESSED AIR.

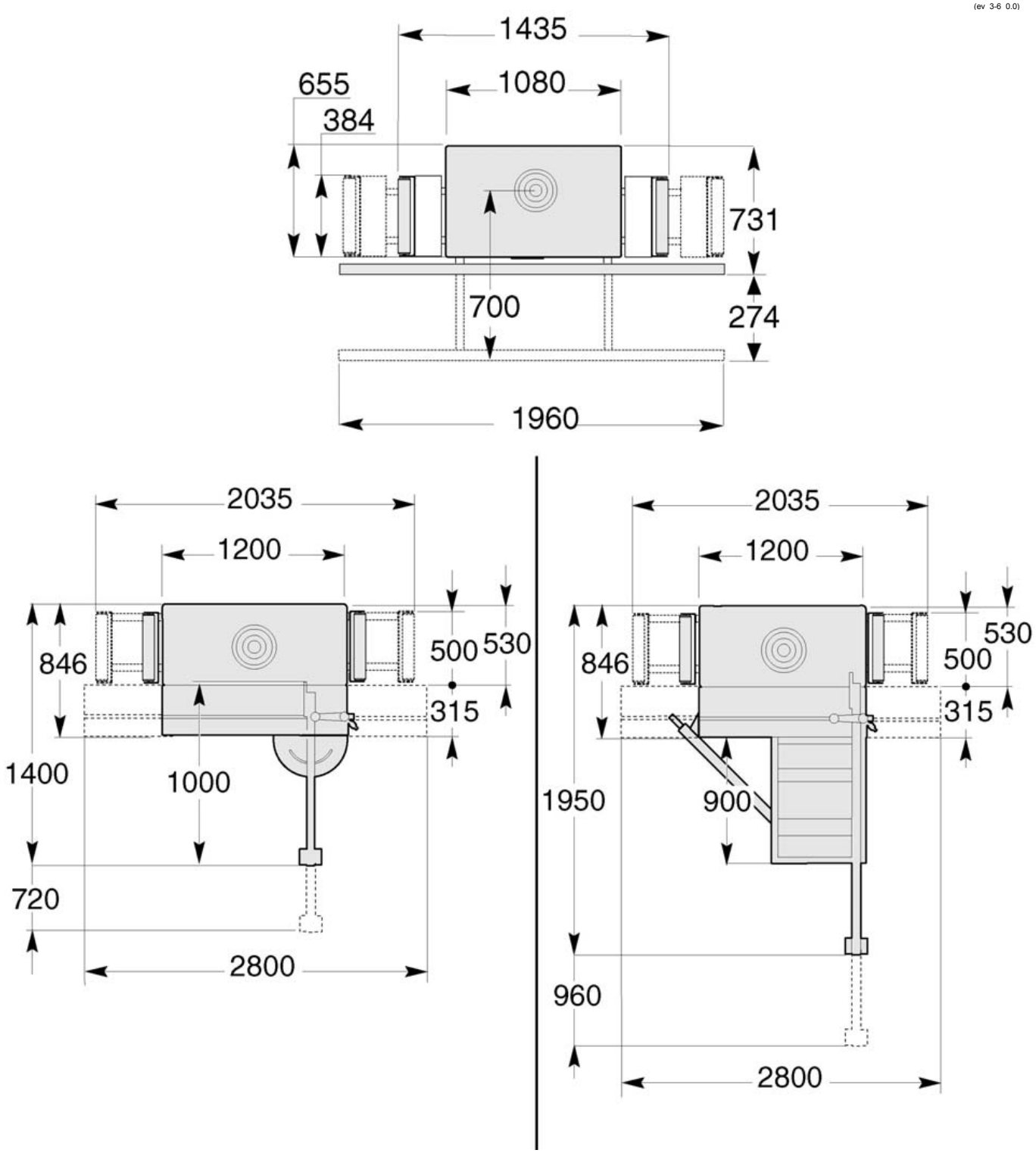


DANGER-WARNING:
it is necessary to connect all suction hoods to the suction system.
Before starting the working make sure that the suction system is switched on.

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3.6 OVERALL DIMENSIONS

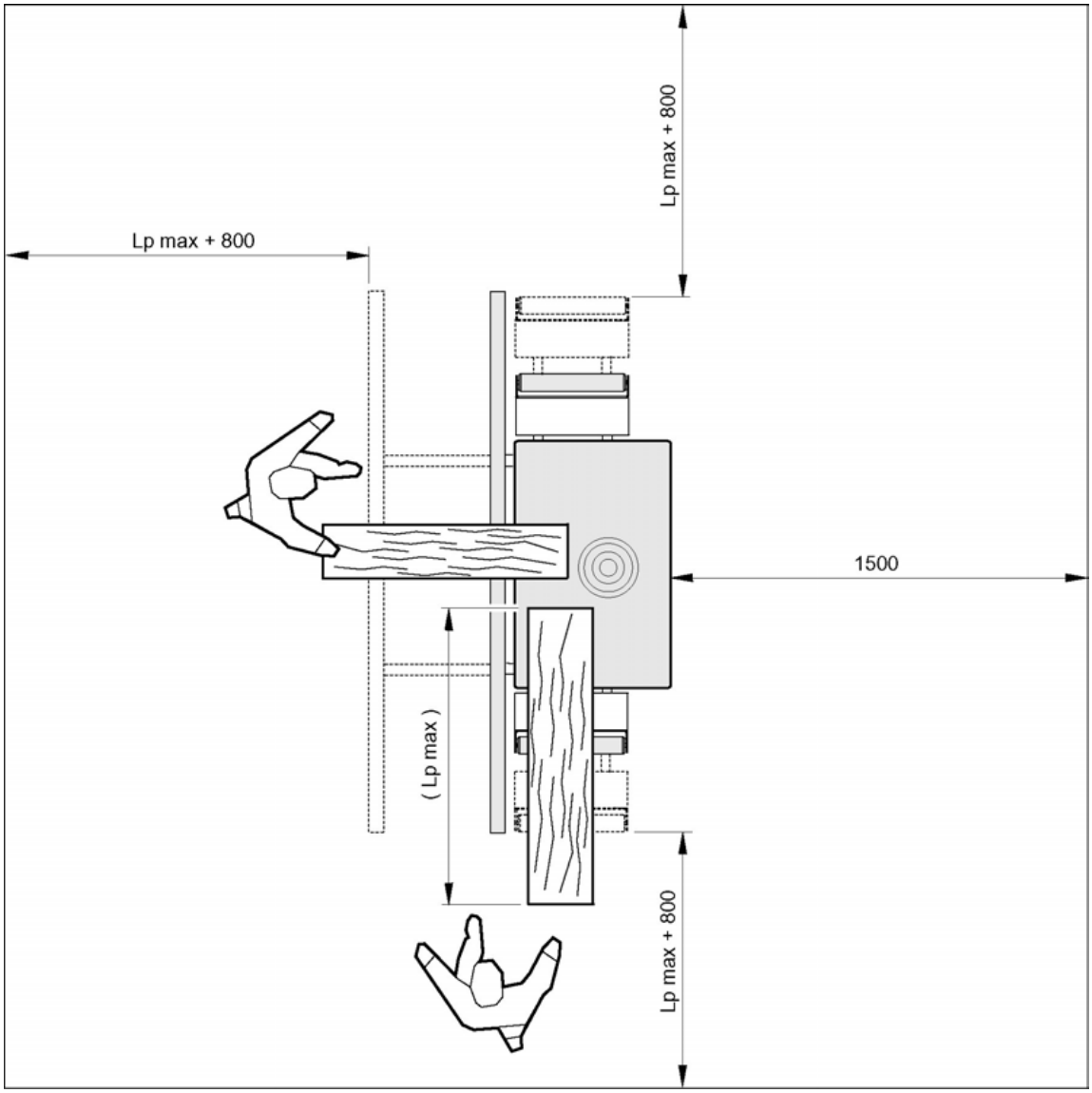
(ev 3-6 0.0)



3.7 WORKING AREA

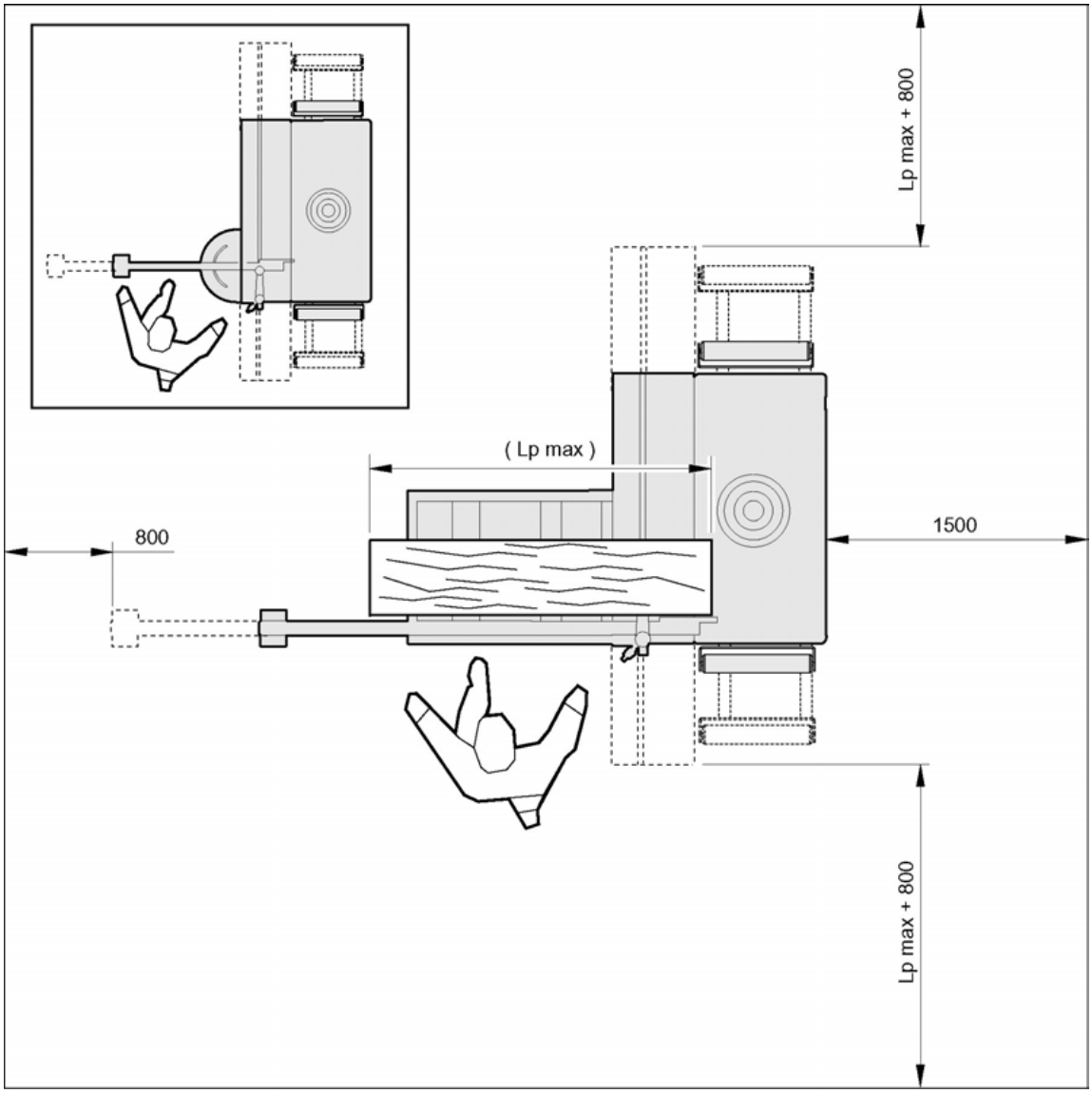
(ev_3-7_0.0)

MOULDER "T 55ES"



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MOULDER "TW 55ES"



CAUTION:
the measures above indicated are to be considered as the free room of the working area.

DANGER-WARNING:
this machine has been designed to be used by one operator.

Lp max = Max. workpiece length

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4.1 UNLOADING THE MACHINE

(ev_4-1_0.0)

NOTE-INFORMATION:
the packing of the machine indicates:
- the weight to be raised
- the hooking areas

DANGER-WARNING:
lifting and handling should only be carried out by skilled personnel specially trained to execute this kind of operations. During loading and unloading, avoid knocks to prevent damages to persons or things. Make sure no one is standing under the overhung load and/or within the bridge crane working range during machine lifting and handling.

Before unloading the machine take off all parts rested on it for packing and transport reasons.

DANGER-WARNING:
- the machine shall be lifted by crane or other raising means by hooking the slings as shown in fig. 4.1.
- Make sure that the crane, the slings as well as the fork truck are proper for lifting the machine.

If a bridge crane or a crane is available, proceed as follows:
– provide slings (C fig. 4.1) of equal lengths and capacity (belts minimum length 2000 mm);
– lift the slings and position them as is shown in the figure 4.1;
– fasten the slings to the bridge crane (D fig. 4.1) having adequate lifting power;
– move the bridge crane by small steps to allow the slings (C fig. 4.1) to settle, until optimum stability conditions are reached;
– lift carefully and slowly, without causing the load to swing, and place the machine in the selected setting.

NOTE-INFORMATION:
aluminium carriage versions only;
if lifting with a hook, open the holes already prepared and indicated by the plate as shown in the figure.

If hoisting is carried out with a lift truck A, proceed as follows:
– provide a fork lift truck (A fig. 4.1) having suitable carrying capacity;
– insert the forks (B fig. 4.1) as per the figure (keeping them alongside the two feet (E fig. 4.1) and check that these protrude at least 15 cm from the rear part of the base.

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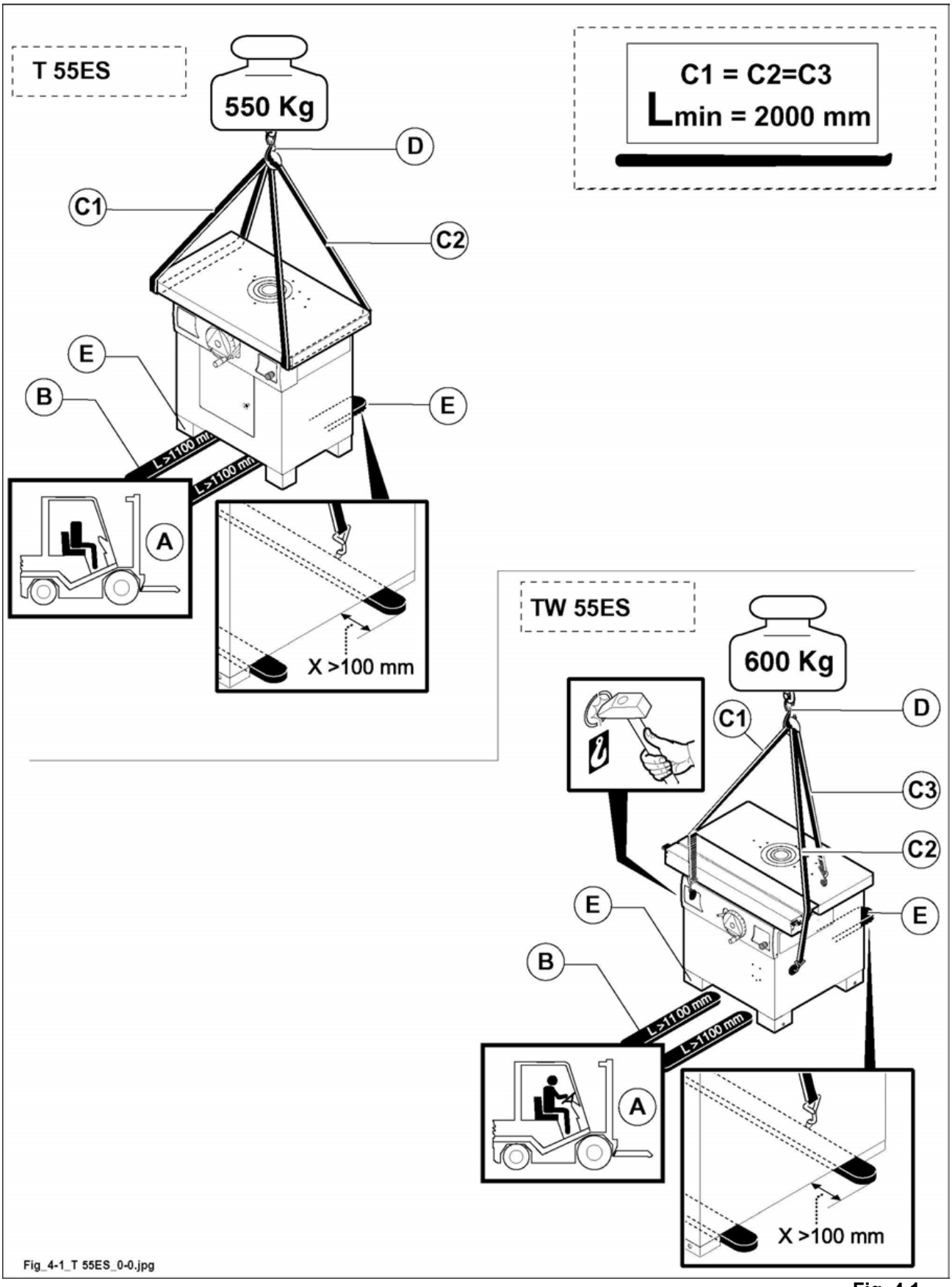

T 55ES
550 Kg
C1 = C2=C3
Lmin = 2000 mm
D
C1
C2
E
B
E
L >1100 mm
L >1100 mm
A
X >100 mm
TW 55ES
600 Kg
D
C1
C3
C2
E
B
E
L >1100 mm
L >1100 mm
A
X >100 mm
Fig_4-1_T 55ES_0-0.jpg

Fig. 4.1

4.2 MACHINE POSITIONING

(ev_4-2_0.0)

The position where to install the machine shall be well lightened (at least 500 LUX), proper for the connection to the power line, to the suction system and for maintenance operations.

DANGER-WARNING:
during the machine positioning you have to consider that, in case of longer pieces, a sufficient room is required to avoid squashing points towards the fixed parts of the working envinronment as walls, columns etc... (see par. 3.7).

Check that the floor is firm in order to ensure a uniform rest of the machine.
A concrete floor is recommended; an asphalt floor is not proper.
We recommend to insert steel plates between machine feet and floor eventually with vibration-dumping material.

DANGER-WARNING:
the machine must be fixed to the floor.
Fix the supplied angles B (fig. 4.2) to machine feet A (fig. 4.2) and fix on ground by means of expansion bolts C (fig. 4.2) (not supplied).

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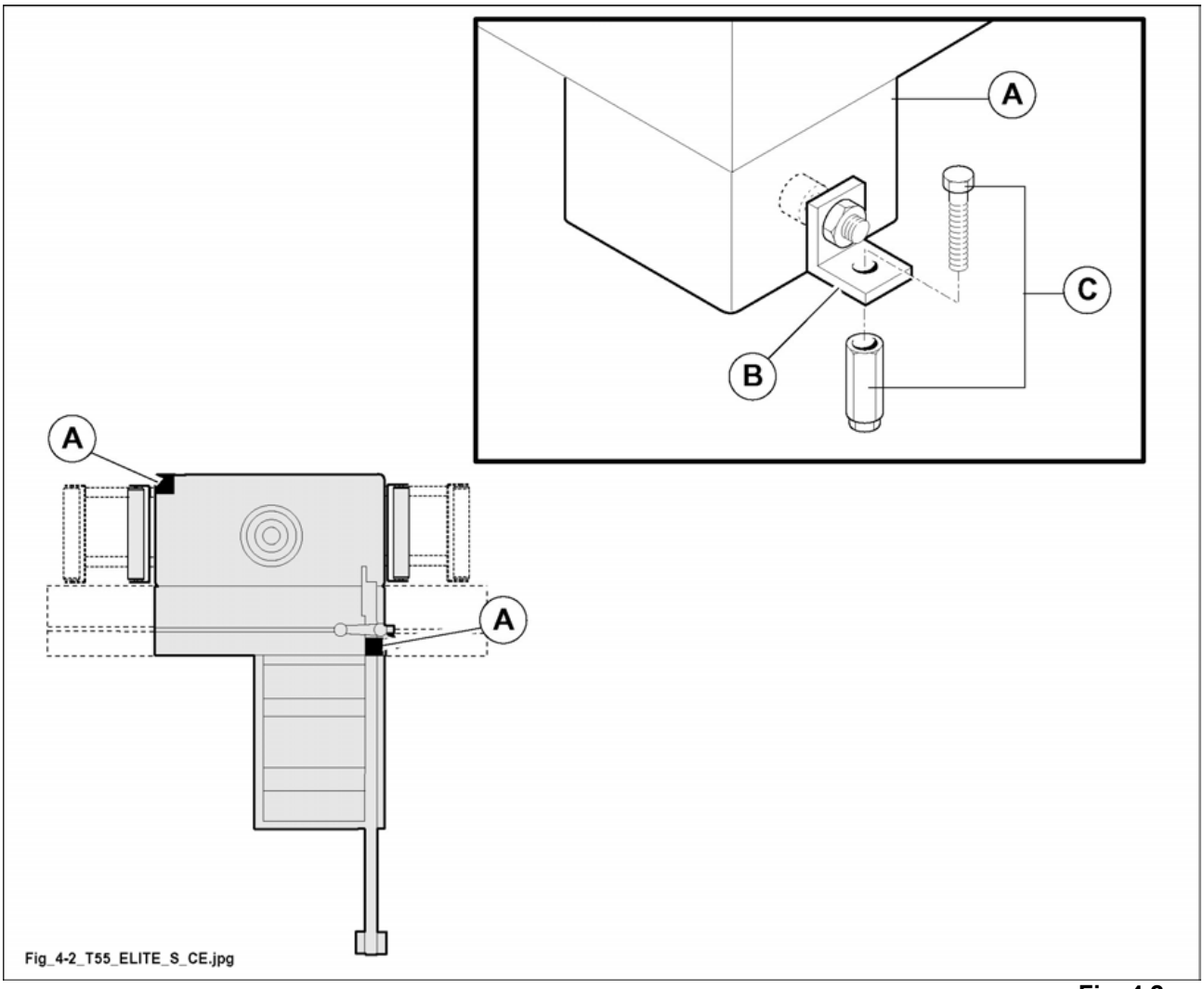


Fig. 4.2

4.3 FITTING THE PARTS DEMOUNTED FOR TRANSPORT REASONS

(ev_4-3_0.0)

For packing and transport reasons some machine members are removed.

4.3.24 FITTING THE SUPPORTING FRAME

(hd_4.3-24_0.0)

OPT

NOTE-INFORMATION:
for transport reasons the frame is demounted from the machine.

1) Insert the support (B fig. 4.3-24) in the groove of the wagon (A fig. 4.3-24).
2) Place the frame (D fig. 4.3-24) on the support (B fig. 4.3-24) and on the pin (F fig. 4.3-24), inserting the two pads (H fig. 4.3-24) in the groove of the wagon.

NOTE-INFORMATION:
the screw (F fig. 4.3-24) must sit perfectly in the special hole underneath the frame (D fig. 4.3-24).

3) Level the table (D fig. 4.3-24), if necessary, acting on the pin (F fig. 4.3-24).
4) Tighten the knobs (C fig. 4.3-24).
5) Insert the stud bolt (L fig. 4.3-24) with the presser (M fig. 4.3-24) in the groove of the wagon (A fig. 4.3-24) and turn it clockwise to lock it.
6) When the wagon (A fig. 4.3-24) is not used, lock it with the lever (N fig. 4.3-24).

The table is already registered; to make further adjustments proceed as follows:
- loosen knobs (C fig. 4.3.24);
- loosen screws (P fig. 4.3.24) and move the dowels (Q fig. 4.3.24) to adjust the height position.

If the "Supporting frame" device is required at a later stage, the operations described above must be preceded by assembly of the telescopic extension arm unit.

- Fit the extension arm support (E fig. 4.3-24) on the base, fixing it using the holes (G fig. 4.3-24).
- Tighten the screws (V fig. 4.3-24) and constrain the position of the support (E fig. 4.3-24) to the base using pins (Z fig. 4.3-24).
- Fit the extension arm (R fig. 4.3-24) on the support (E fig. 4.3-24) and on the spacer (T fig. 4.3-24) and insert the rotation pin (S fig. 4.3-24).
- Act on the grub screws (O fig. 4.3-24) for a first adjustment of the extension arm (R fig. 4.3-24).
- Then fit the supporting frame (D fig. 4.3-24) as shown in the sequence (1 - 5) indicated above.
- Move the sliding table and check extension arm unit smooth running and planarity.
  If the position of the extension arm (R fig. 4.3-24) needs adjusting, act on the pin (S fig. 4.3-24) using the grub screws (O fig. 4.3-24).
- Level the table (D fig. 4.3-24), if necessary, by acting on the screw (F fig. 4.3-24).
- Loosen knobs (C fig. 4.3.24);
  loosen screws (P fig. 4.3.24) and move the dowels (Q fig. 4.3.24) to adjust the height position.
- When the operation is complete, tighten the screws (P fig. 4.3-24) and tighten the knobs (C fig. 4.3-24).

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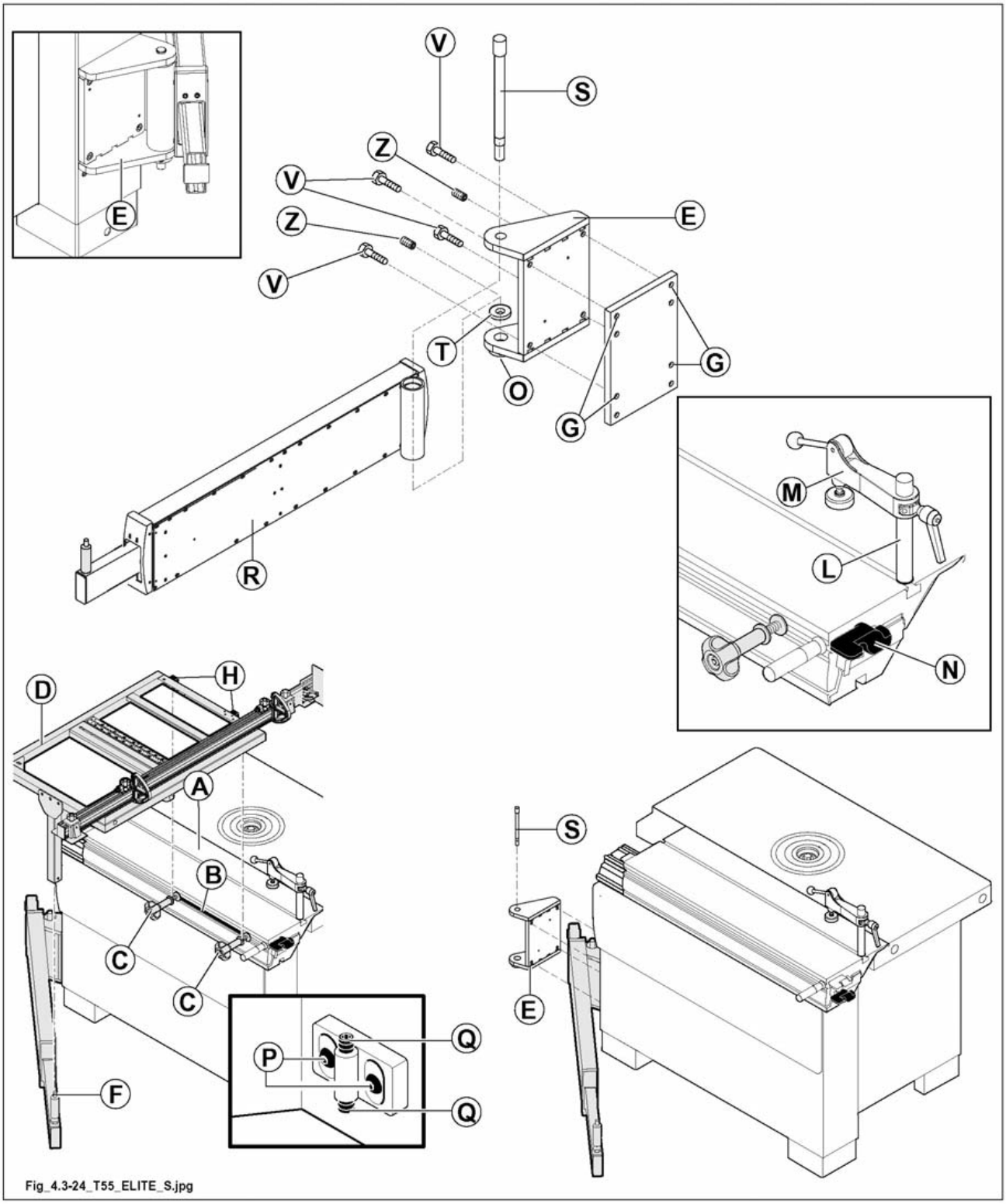


Fig. 4.3-24

Finally, fit the graduated labels (A, B fig. 4.3-24A) as described below.

- Install the rule fence (R fig. 4.3-24A), for right angle cuts (0°), on side "1" of the supporting frame (see Sec. 4.3.24.2).
  If the telescopic rule does not position correctly at 90°, remove the cap (T fig. 4.3-24A) and turn the adjusting screw (V fig. 4.3-24A) until the telescopic rule is positioned correctly at 90°.
- Mark, for example with a pencil, the position of the rule fence (C fig. 4.3-24A).

- Position the rule fence (R fig. 4.3-24A), for 45° mitre cuts, again on side "1" of the supporting frame (see Sec. 4.3.24.2).
- Mark, for example with a pencil, the position of the rule fence (D fig. 4.3-24A).

- Then take the adhesive label (A fig. 4.3-24A),
  position it on the frame as illustrated,
  align its 0° and 45° marks with the two positions (C, D fig. 4.3-24A) previously marked on the frame, then attach the label to the frame.

After positioning the rule fence on side "2" of the supporting frame, repeat the operations listed above to fit the graduated label (B fig. 4.3-24A).

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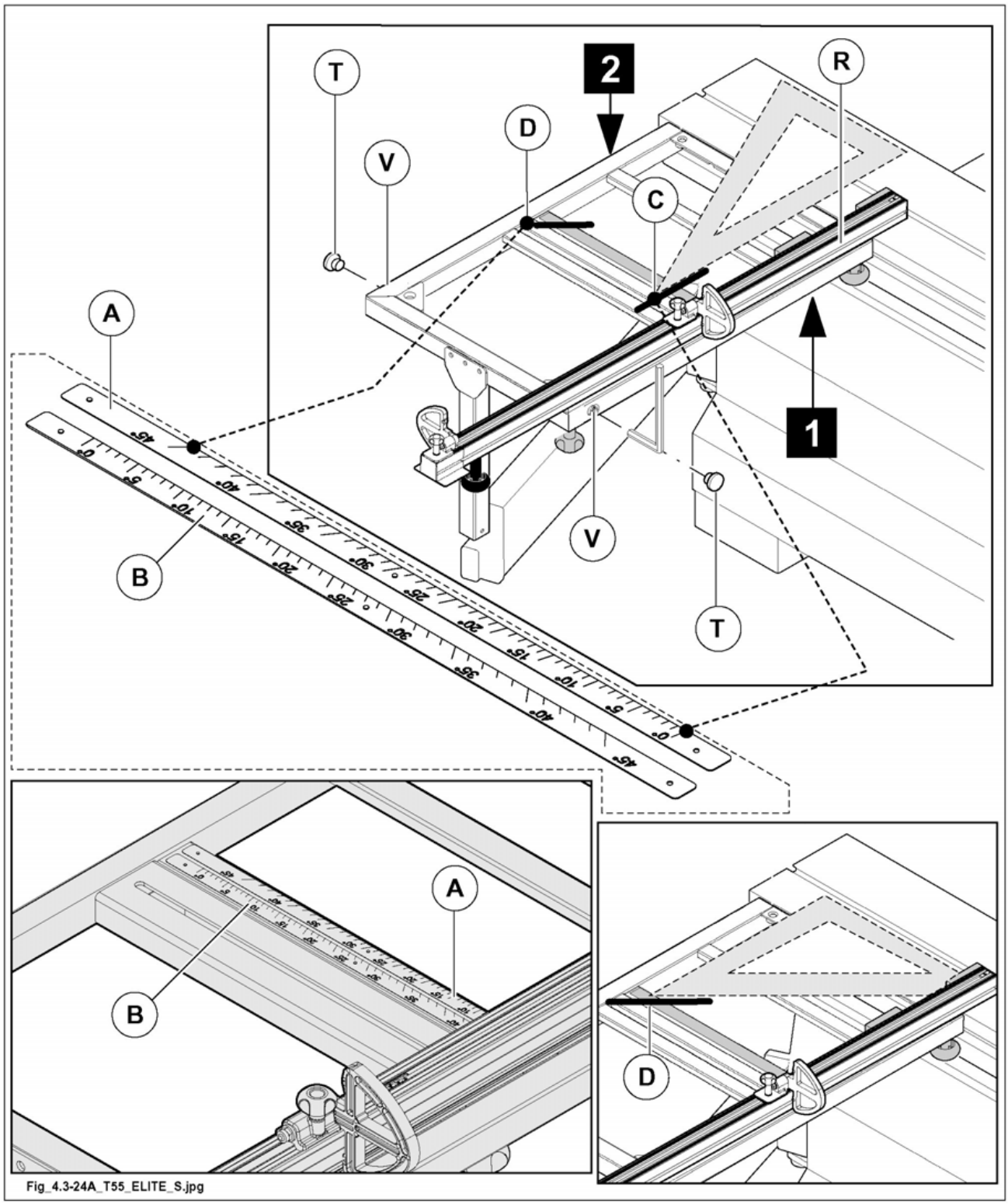


Fig. 4.3-24A

4.3.24.2 FITTING THE REST RULE

(hd_4.3.24.2_0.0)

A *Installation for 90° cuts*

1) Place the telescopic ruler on the table (A fig. 4.3-24-2), inserting the fulcrums (C, S fig. 4.3-24-2) in the holes indicated in figure.
2) Position the telescopic ruler in such a way that the pin (C fig. 4.3-24-2) fits into place against the gib (L fig. 4.3-24-2). The gib (L fig. 4.3-24-2) is adjusted by our technicians and is used to rapidly position the telescopic ruler at the right distance from the spindle moulder (only at a 90° position).
3) Tighten the knobs (F fig. 4.3-24-2) and (E fig. 4.3-24-2).

B *Installation for inclined cuts*

1) Place the telescopic ruler on the table (A fig. 4.3-24-2), inserting the fulcrum (C fig. 4.3-24-2) in the hole (R fig. 4.3-24-2).
   Insert the fulcrum (S fig. 4.3-24-2) in the slot (T fig. 4.3-24-2).
2) For use, position the ruler referring to the plate (P fig. 4.3-24-2).
3) Tighten the knobs (F fig. 4.3-24-2) and (E fig. 4.3-24-2).

The ruler is fitted with an extractable telescopic extension (H fig. 4.3-24-2), which may be lengthened as required after loosening the knob (G fig. 4.3-24-2).
When the chip guard (M fig. 4.3-24-2) is worn, bring it up to the spindle moulder by loosening the grub screw (N fig. 4.3-24-2).

The telescopic rule is supplied with the stops (B fig. 4.3-24-2). These can rapidly be positioned to rest on or push the workpiece during machining, by simply tipping them over.

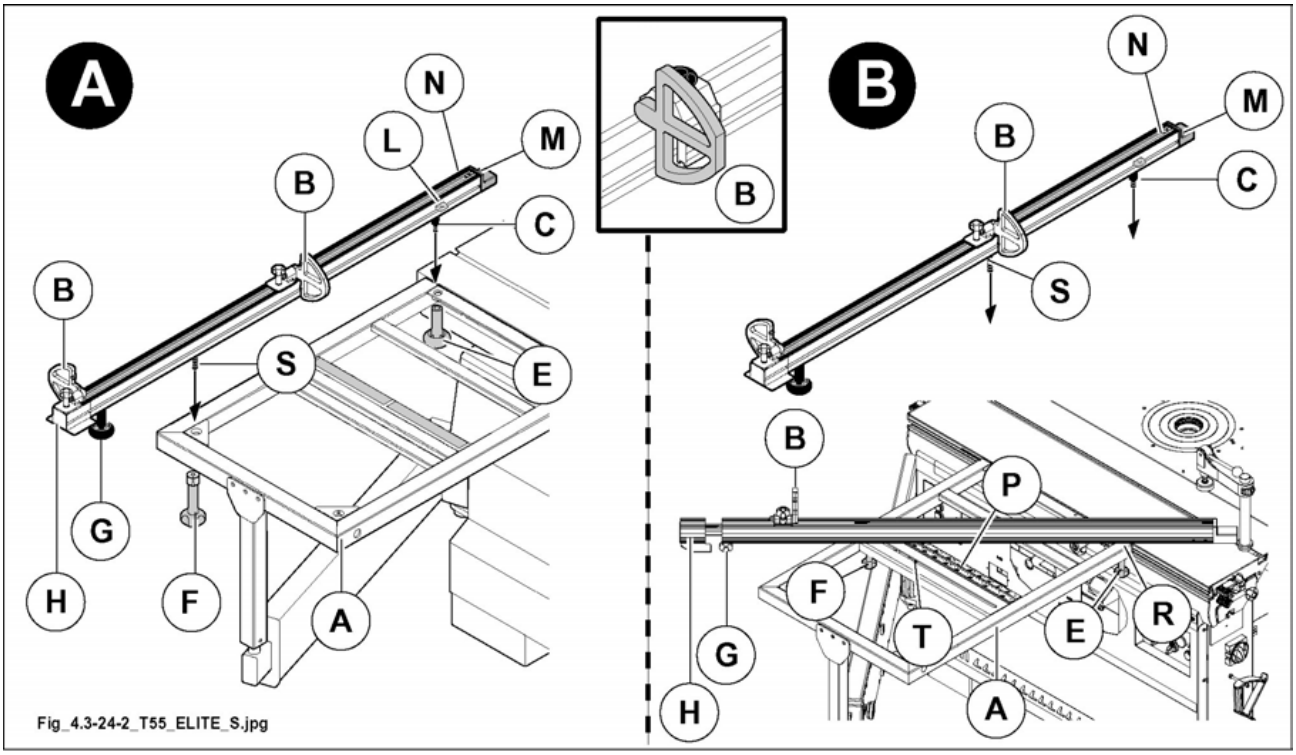


Fig. 4.3-24-2

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4.3.30.1 FITTING THE ANGLED CUTS DEVICE

(mmax_4.3.30.1_0.0)

MOULDER "TW 55ES"

1) Insert the stud bolt (N fig. 4.3-30-1) with the presser (E fig. 4.3-30-1) into the groove of the wagon (C fig. 4.3-30-1).
2) Mount the ruler assembly (A fig. 4.3-30-1) inserting the gib (R fig. 4.3-30-1) in the groove of the wagon (C fig. 4.3-30-1).
3) Tighten the lever (G fig. 4.3-30-1).
4) Loosen handle (F fig. 4.3-30-1).
5) Position the ruler assembly at the right distance from the spindle moulder; at a 90° angle send the ruler assembly to stop up against the gib (L fig. 4.3-30-1); the gib (L fig. 4.3-30-1) is adjusted by our technicians and serves to quickly position the ruler assembly at the right distance from the spindle moulder.
6) To make angular cuts turn the ruler assembly (A fig. 4.3-30-1) using index (D fig. 4.3-30-1) as a reference.
7) Block by tightening handle (F fig. 4.3-30-1).
8) Position the presser up against the ruler assembly ensuring that the washer (Q fig. 4.3-30-1) is inserted into the groove.
9) Rotate the stud bolt (N fig. 4.3-30-1) clockwise to block.

The table has already been adjusted; to adjust proceed as follows:
- loosen levers (G fig. 4.3-30-1);
- adjust the dowels (S fig. 4.3-30-1) to ensure the table is parallel to the wagon;
- loosen screws (T fig. 4.3-30-1) and move the dowels (U fig. 4.3-30-1) to adjust the height position.

When the clip guard (M fig. 4.3-30-1) is worn, bring it up against the spindle moulder by turning the blocking screws.

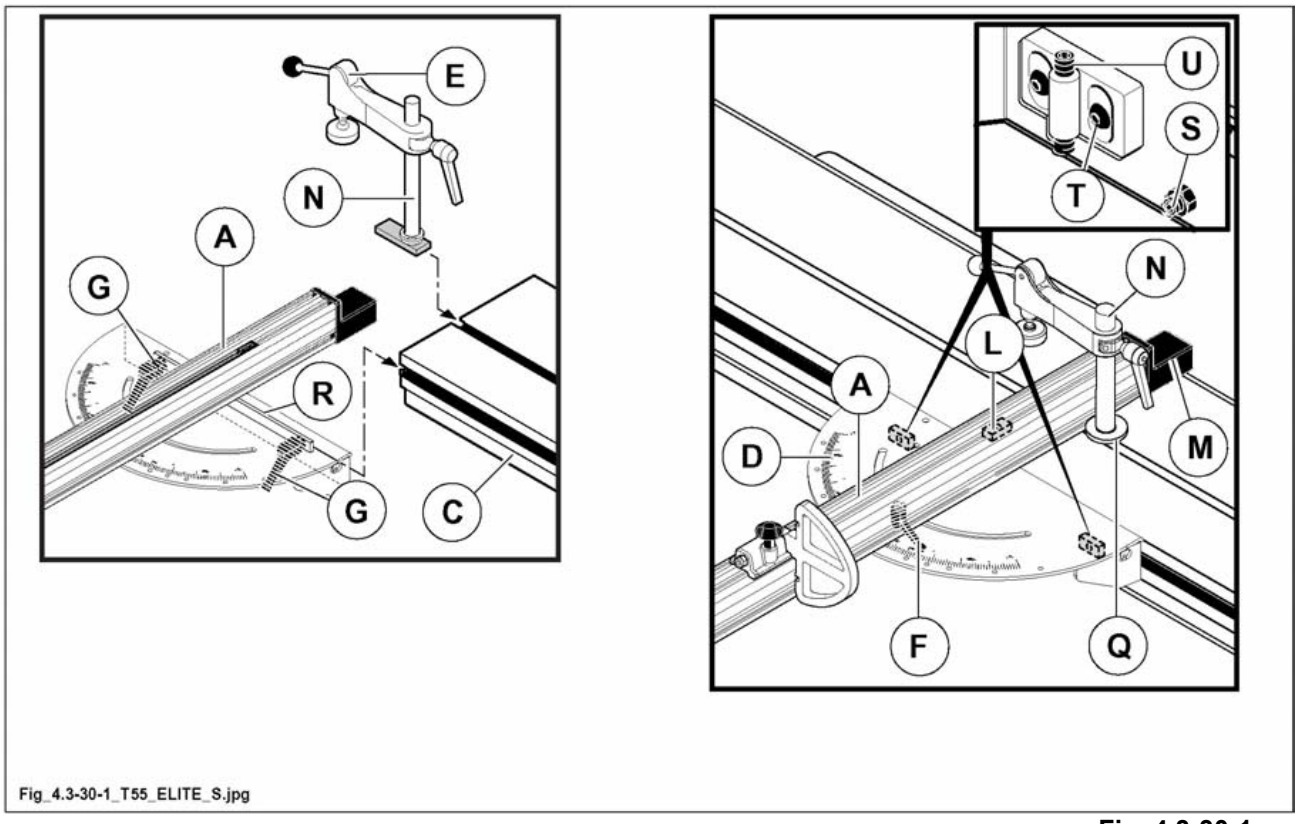


Fig. 4.3-30-1

4.3.52 TENONING TABLE AND GUARD - ASSEMBLY

(cu-4-3-52-0.0)

NOTE-INFORMATION:
for packing and transport reasons some machine members are removed.

- Insert the wedge (A fig. 4.3-52) in the slot on the wagon.
- Fasten the tenoning table (C fig. 4.3-52) to the table (D fig. 4.3-52) or (F fig. 4.3-52), using screws (E fig. 4.3-52).

Chip shield

DANGER-WARNING:
the chip shield (N fig. 4.3-52) is not suitable for tenoning.

Therefore:
- loosen screw (P fig. 4.3-52) and remove the chip shield (N fig. 4.3-52).
- Construct one or two wooden pegs (Q fig. 4.3-52) on the basis of the length of the panel, so as to ensure an adequate support for the piece to be processed.
- Fix it to the guide using two securing countersink screws (L fig. 4.3-52).

CAUTION:
the screw heads must be sunk completely into the wood so they don't protrude.

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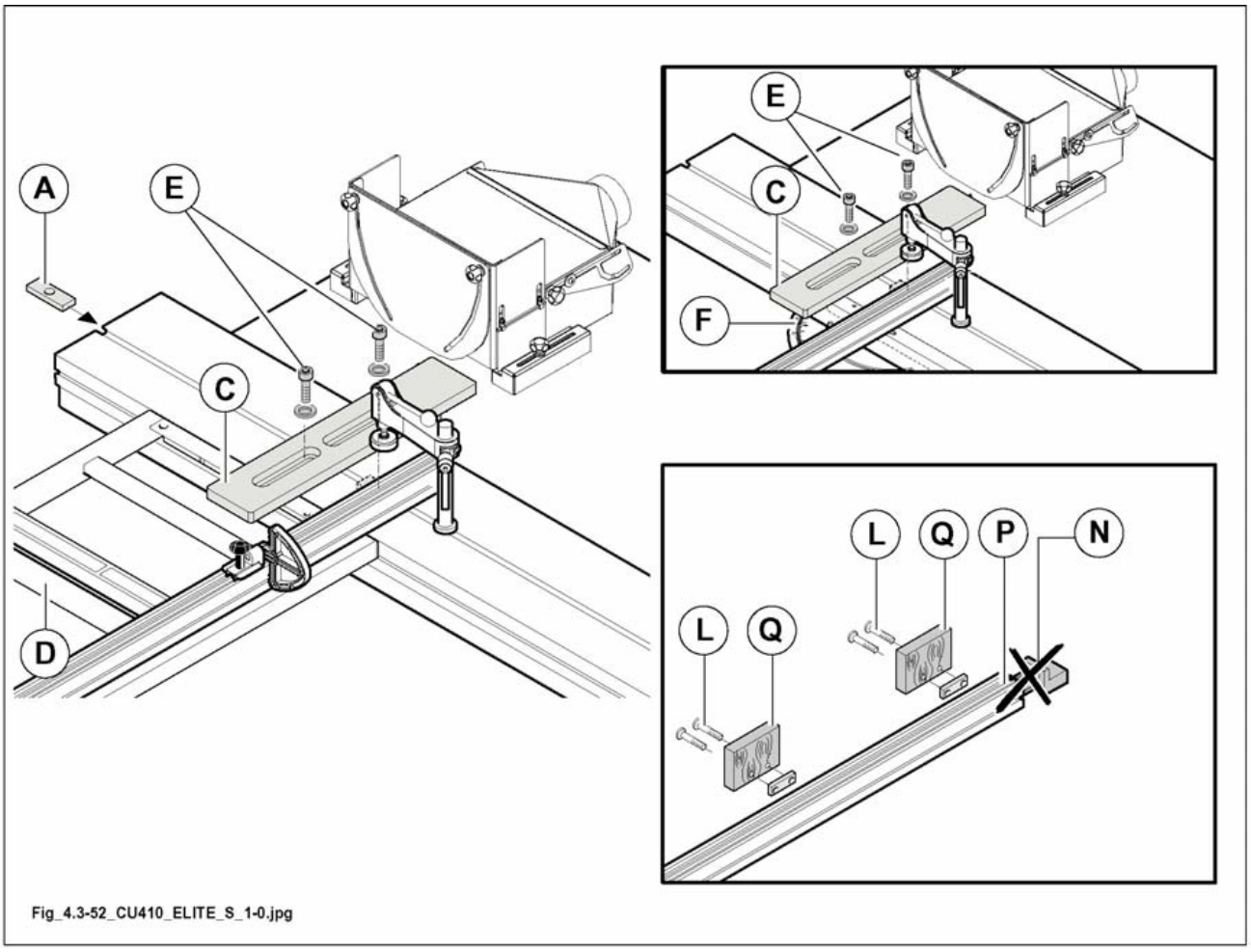


Fig. 4.3-52

4.3.73 FITTING GUARDS

(cu_4-3-73_0.0)

DANGER-WARNING:
the guard must always be mounted and must be positioned in such a way as to completely cover the tool.

4.3.73.1 SPINDLE MOULDER HOOD GUIDE

(cu_4-3-73-1_0.0)

DANGER-WARNING:
to carry out profiling operations, (POSITION 1 - (STD)) fit the hood-fence unit by screwing down knobs (B fig. 4.3-73-1) in holes (P).

To carry out working at the front end, (POSITION 2 - (OPT)) fit the hood-fence unit by screwing down knobs (B fig. 4.3-73-1) in holes (T).

DANGER-WARNING:
it is forbidden to carry out dead cuts when the hood-fence unit is fitted for working at the front end (POSITION 2 - (OPT)).

Before starting the working adjust guards (Q - R - S fig. 4.3-73-1) to protect the operator as much as possible against eventual ejections of splints or tool parts.

DANGER-WARNING:
it is forbidden to work without guards (Q, R, S fig. 4.3-73-1).

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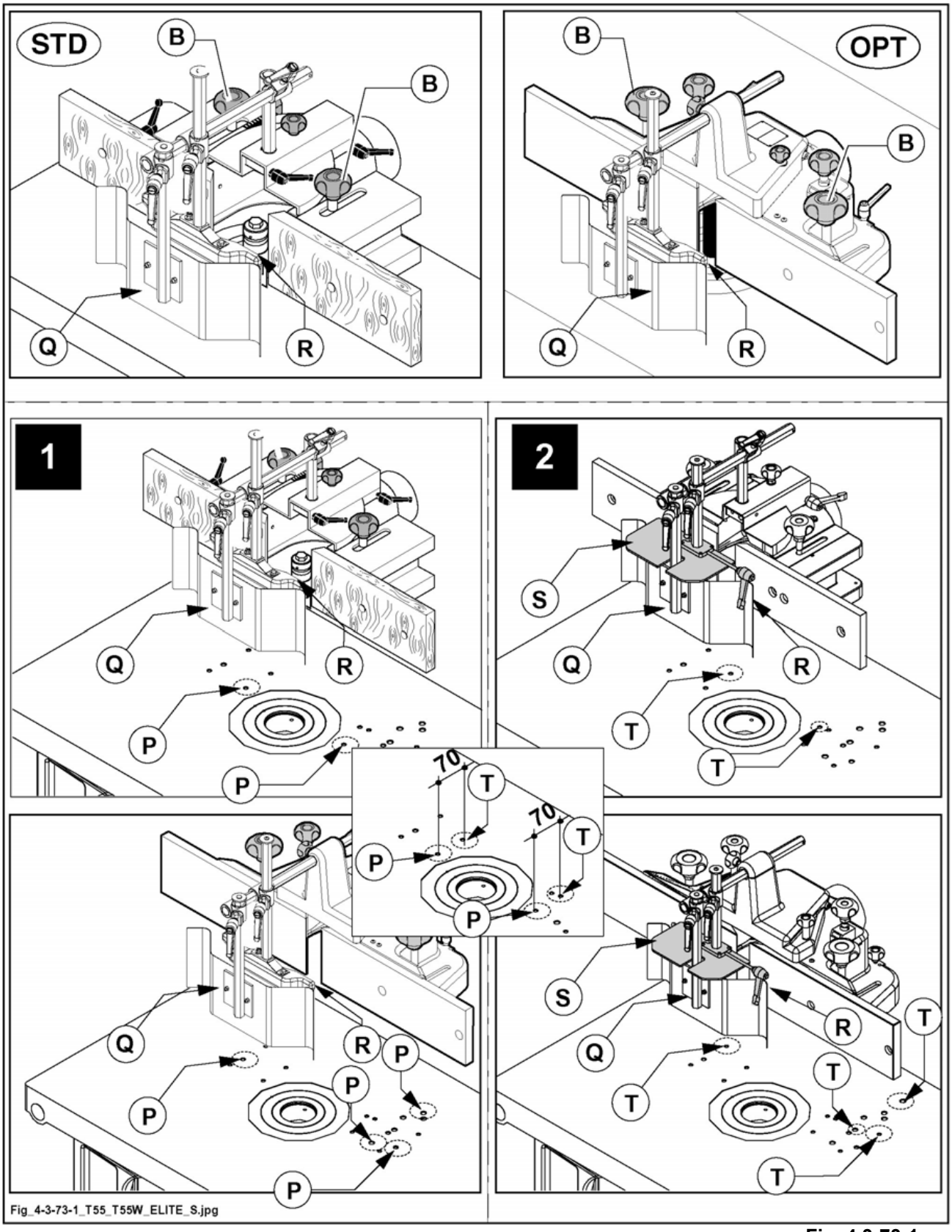

STD
B
B
Q
R
OPT
B
B
Q
R
1
Q
R
P
P
2
S
Q
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T
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70
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70
T
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P
P
P
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Q
R
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T
T
T
Fig_4-3-73-1_T55_T55W_ELITE_S.jpg

Fig. 4.3-73-1

4.3.73.4 TENONING HOOD-FENCE UNIT

(cu_4-3-73-4_0.0)

OPT

- Rest the hood on the table in the position proper for the milling depth required, the fasten it by tightening knobs (1 fig. 4.3-73-4).

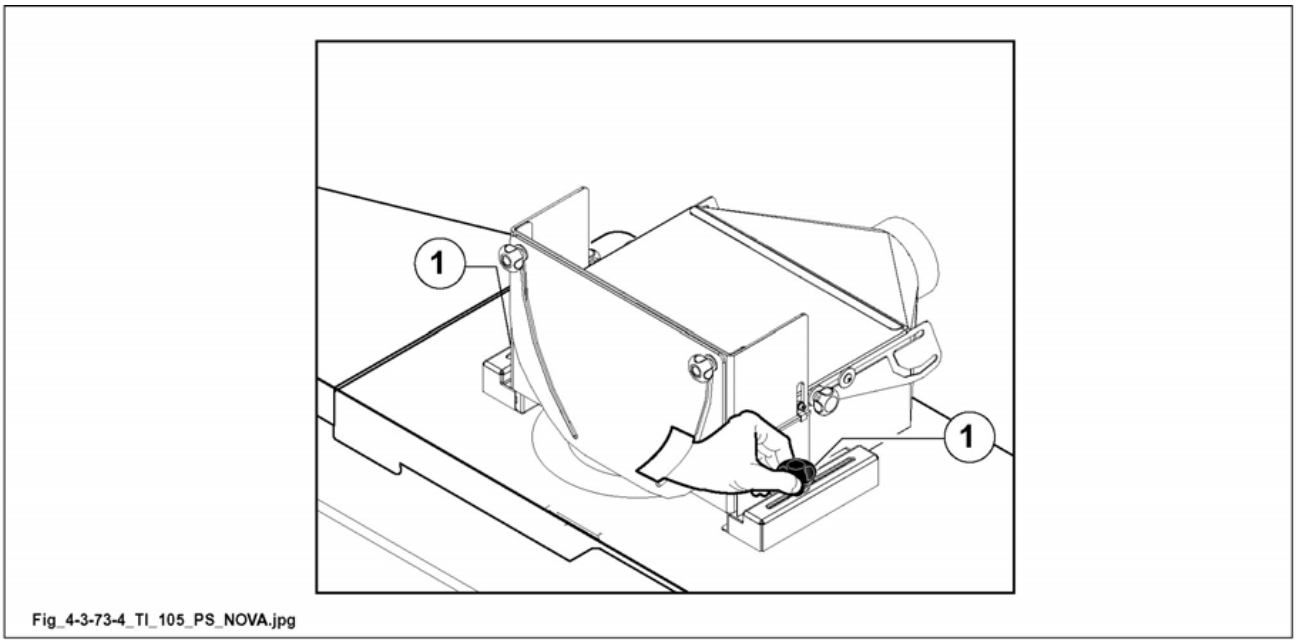


Fig. 4.3-73-4

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4.3.73.5 GUARD FOR MILLING AT THE SPINDLE

(cu_4-3-73-5_0.0)

- Position the hood on the work table centring the reference pin (C fig. 4.3-73-5) in the through hole.
- Screw down the pin (D fig. 4.3-73-5).
- Mount the bracket (A fig. 4.3-73-5) (supplied only for the version with router rotation inversion).

When necessary, move the guide (B fig. 4.3-73-5) screwing it into the bracket (A fig. 4.3-73-5).

DANGER-WARNING:
all adjusting operations are to be carried out with standstill spindle.

DANGER-WARNING:
before starting working manually turn the tool to make sure that there is no contact with the fixed parts.

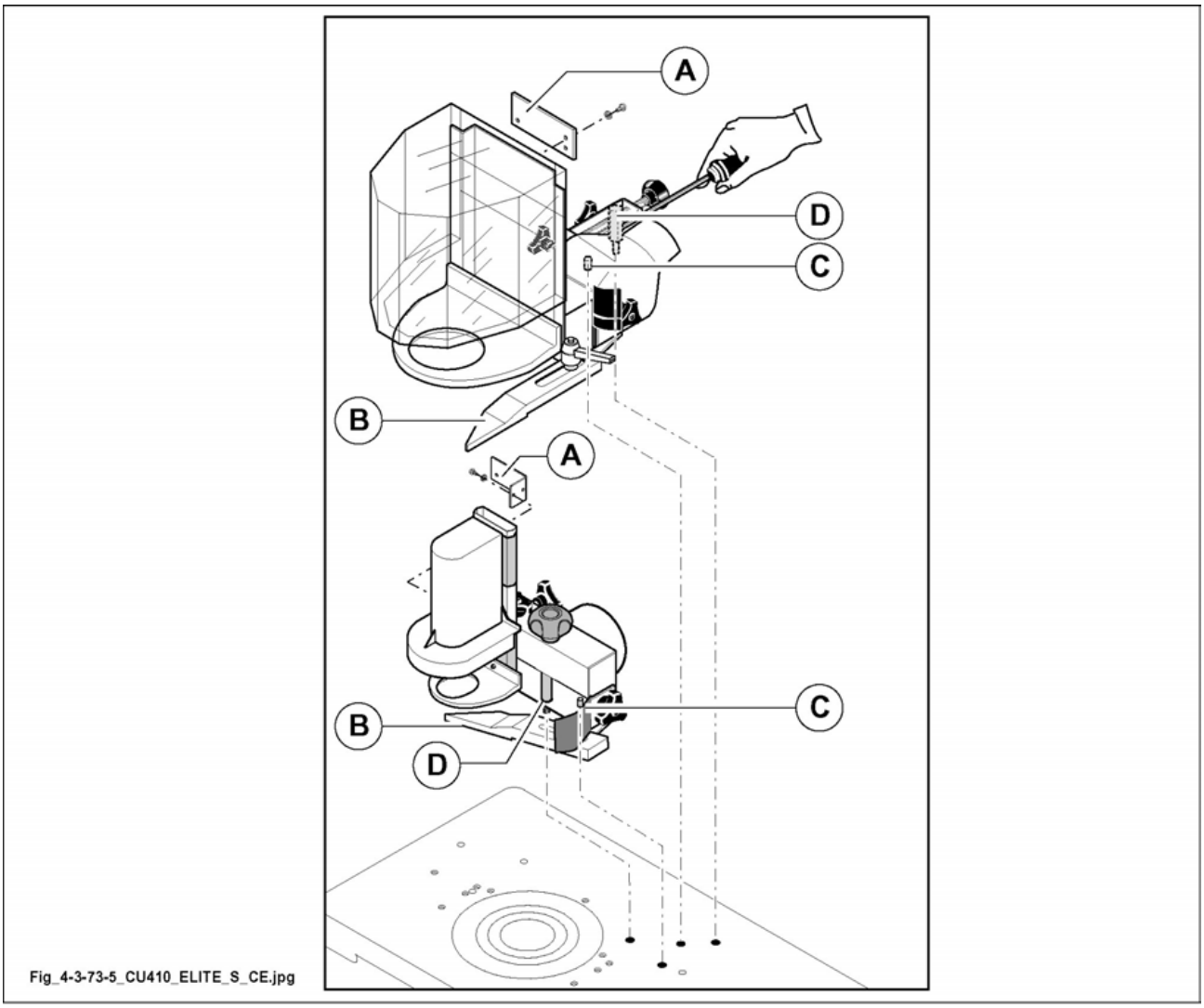


Fig. 4.3-73-5

4.3.76 FITTING SPINDLE

(cu_4-3-76_0.0)

DANGER-WARNING:
all adjusting operations are to be carried out with standstill spindle.

4.3.76.1 INTERCHANGEABLE SPINDLE

(cu_4-3-76-1-0.0)

OPT

DANGER-WARNING:
take off or fit the interchangeable spindle when no tools are fitted to the spindle.
Handle the tools with protective gloves.

1) Lift spindle moulder spindle, by rotating handwheel (B fig.4.3.76.1) or using electric controls if present OPT.
2) Press the emergency button.
3) Move the moulder hood to free the worktable.
4) Turn selector (G fig. 4.3-76-1) to ( ); unlocked motor brake, pilot lamp switched on.
5) Lock rotation of the router spindle moving it manually until managing to lock it by turning the lever (C fig.4.3.76.1).
6) Unscrew ring nut (Q fig.4.3.76.1) counterclockwise by wrench (P fig.4.3.76.1) in order to take off spindle (O fig.4.3.76.1).
7) Make sure that taper shanks (D fig.4.3.76.1) and the threads of the spindle and of the chuck are clean, free from dents and flat.
8) Fit the new spindle by screwing it down to the rubber ring (R fig. 4.3.76.1), clamp it by half turn, then tighten ring nut (Q fig.4.3.76.1) by turning wrench (P fig.4.3.76.1) clockwise.
9) Ensure the moulder spindle can rotate freely by moving lever (C fig.4.3.76.1) to its original position.
10) Turn selector (G fig. 4.3-76-1) to ( ); locked motor brake, pilot lamp switched off.
11) Release the emergency button.

DANGER-WARNING:
after machining, before changing the spindle, allow it to cool, then substitute it.

The right machine use is a determinant factor to obtain the best results. It is important to carry out the maintenance operations foreseen in this handbook.

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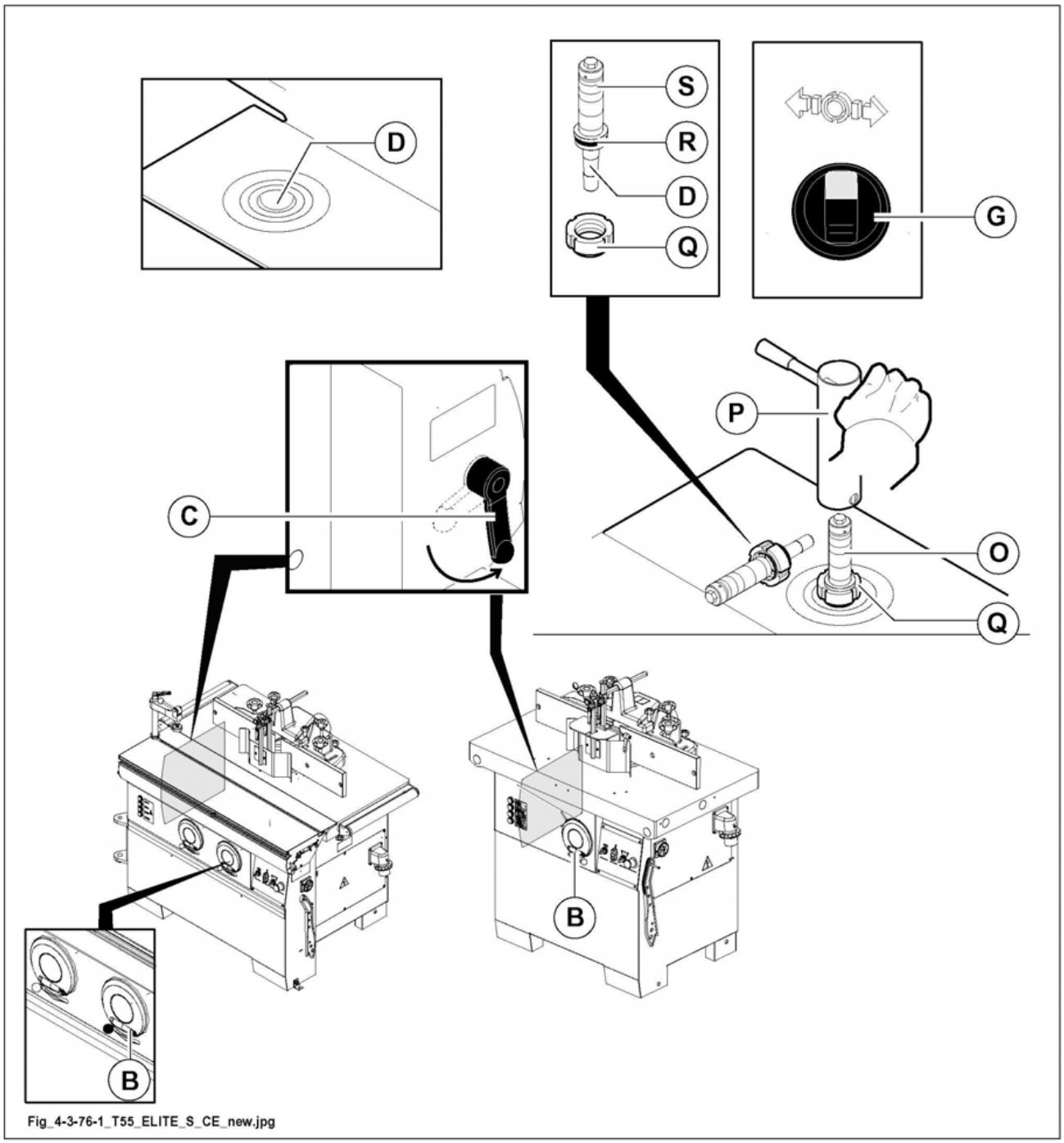


Fig. 4.3-76-1

(vuota_4-06)

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4.3.82 TOOL FITTING - SAFETY NOTES

(cu_4-3-82_0.0)

SAFETY OVER ALL

- **Circular blades may not be fitted to the spindle.**
- **It is not permitted to insert shims between the spacing rings of the spindle to willigly unbalance the tools.**
- Each working shall be separately considered and you have to fit the proper guard.
- The min. hole diameter on the table depends on the tool and the height at which the cutter is set.
  To get the hole as small as possible use the supplied rings (T fig. 4.3.82 supplied with machine).
  In this way you reduce the risk that the workpiece oscillates and fits into the cutters during its passage on the hole.
- Make sure that the last ring with screw or nut for tool locking (untiunscrewing device) has a sufficient grip on the spindle, then clamp.
- Adjust the hood - fence unit in order to reduce the opening between fence halves and tool to a minimum.
- The tool adjustment shall be carried out with the machine off and with proper instruments (gauge, comparator).
- **Before working make sure that there is no contact between the tool with the machine parts.**

DANGER-WARNING:
all adjusting operations are to be carried out with standstill spindle.

NOTE-INFORMATION:
the operator may use both set of tools and single cutters.
In that case it is convenient to number the single cutters.
Each number indicates:
- a measure corresponding to the tool height from the worktable.

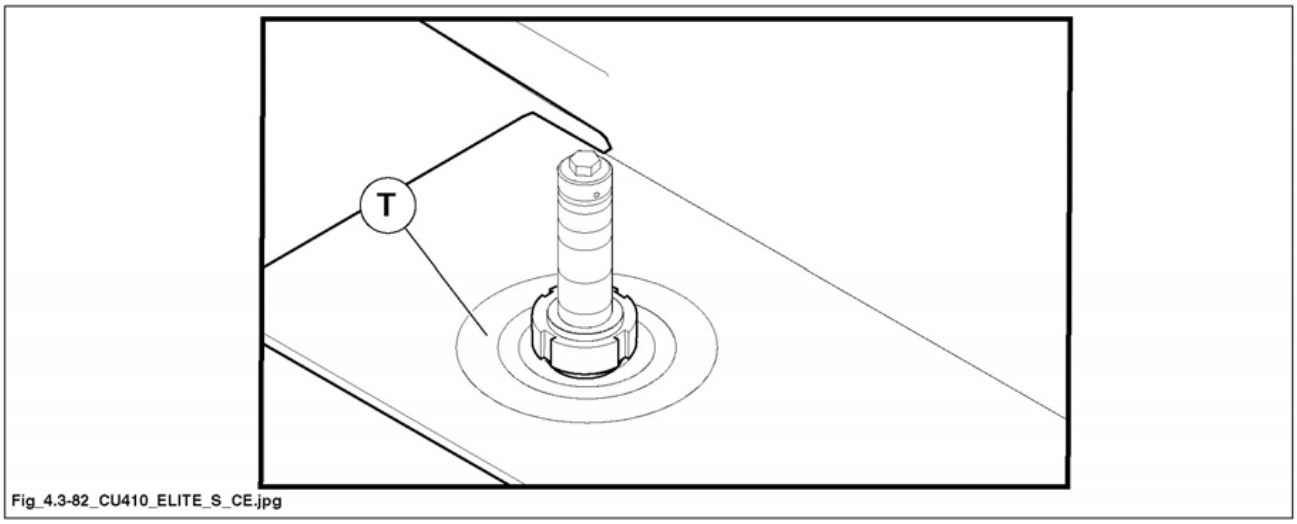


Fig. 4.3-82

4.3.82.1 TOOL FITTING

(cu_4-3-82-1_0.0)

DANGER-WARNING:
use proper gloves for handling the tools.

1) Lift spindle moulder spindle, by rotating handwheel (B fig.4.3.82.1) or using electric controls if present (OPT).
2) Press the emergency button.
3) Turn selector (G fig. 4.3-82-1) to ( ); unlocked motor brake, pilot lamp switched on.
4) Lock rotation of the router spindle moving it manually until managing to lock it by turning the lever (C fig.4.3.82.1).
5) Loosen knob (D fig. 4.3-82-1).
6) Raise door (L fig. 4.3-82-1) of the spindlemoulder hood (1 fig. 4.3-82-1).
7) If the shaping hood (2 fig. 4.3-82-1) is installed on the machine, disassemble the guard (Q fig. 4.3-82-1) and the tracer rests (T fig. 4.3-82-1), while with the tenoning hood (3 fig. 4.3-82-1) open the door (Z fig. 4.3-82-1) to mount the cutters.
8) Loosen the screw (R fig. 4.3-82-1) by means of the accessory wrench.
9) Remove spacer rings (E fig. 4.3-82-1).
10) Remove if necessary rings (S fig. 4.3-82-1) from the machine table.
11) Mount milling cutters (F fig. 4.3-82-1) on the moulder shaft using the special spacer rings between one tool and another.

CAUTION:
fit the cutters as low as possible on the spindle, taking every precaution to avoid vibrations.
It is prohibited to mount tools with a diameter and weight exceeding that indicated in Chap. 3.

12) Tighten screw (R fig. 4.3-82-1).
13) Ensure the moulder spindle can rotate freely by moving lever (C fig.4.3.82.1) to its original position.
14) Return the moulder guard (1,2,3 fig. 4.3-82-1) to the initial conditions (tighten the door L, Z fig.4.3.82.1 or the guard Q fig.4.3.82.1).
15) Turn selector (G fig. 4.3-82-1) to ( ); locked motor brake, pilot lamp switched off.
16) Release the emergency button.

NOTE-INFORMATION:
the shaft vertical positioning should always be executed starting from its lower part, to counteract the effect of any possible mechanical slack.

DANGER-WARNING:

with selector (G fig. 4.3-82-1) turned to ( ) (pilot lamp lit) the machine is in safe condition.

Remember that the the motor can be started only if selector (G fig. 4.3-82-1) is turned to ( ) again; locked motor brake, pilot lamp switched off.

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NOTE-INFORMATION:
the operator may use both set of tools and single cutters.
In that case it is convenient to number the single cutters.
Each number indicates:
- a measure corresponding to the tool height from the worktable.

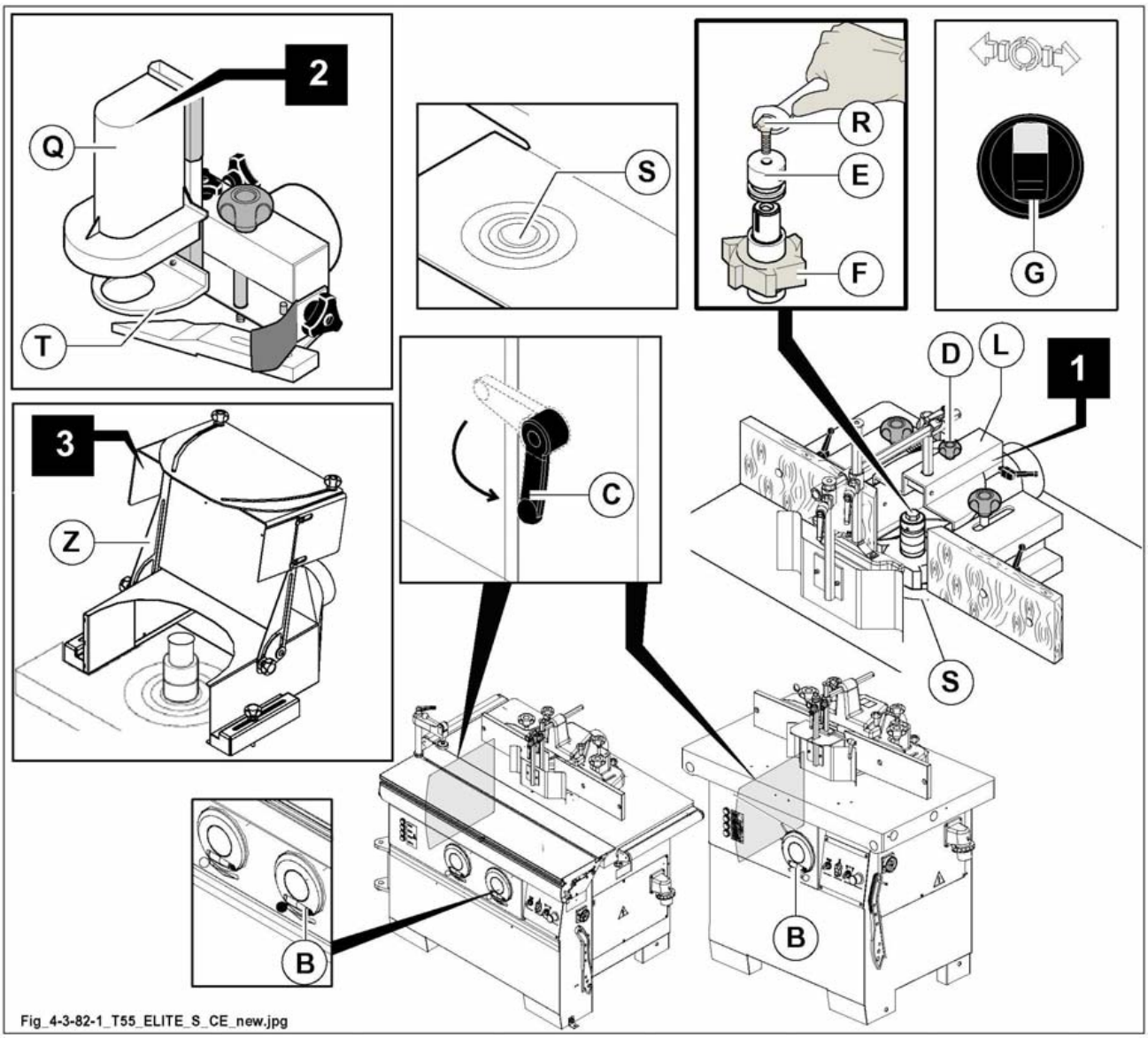


Fig. 4.3-82-1

(vuota_4-07)

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4.4 ELECTRIC CONNECTION AND GROUNDING

(st-el_4-4_0.0)

DANGER-WARNING:
the installation operations must be performed by specialised technical personnel SCM ***or personnel authorised by the manufacturer.***

4.4.1 REQUISITES FOR THE ELECTRICITY SUPPLY SYSTEM

(st-el_4-4-1_0.0)

DANGER-WARNING:
the electric connection and subsequent controls must be carried out by a specialised electrician, referring to the wiring diagram supplied with the machine.

Make sure that the main electric system of the factory can absorb the machine power and that earthing system meets the norms in force.

In the connection point the supposed short-circuit current shall be lower than 10 kA.
Make sure that the mains voltage corresponds to the machine one.

NOTE-INFORMATION:
the right working voltage is indicated on the plate fig.4.4; tolerance range: +/- 5%.

For voltage values out of this range you have to set the mains voltage.
Read out the value of the total absorbed current (Ampere) on the machine identification plate.



DANGER-WARNING:
the electric connection and subsequent controls must be carried out by a specialised electrician, referring to the wiring diagram supplied with the machine
- the best conditions are that the machine is supplied with the exact voltage as carried on the machine's identification plate
- check that your electrical line equipment is suitable for machine power supply requirements (refer to Table)
- use the rated current values (In) to calculate the cross-section of the electric cables.



DANGER-WARNING:
consider that the cross-section of the power cables does NOT depend on the rated current alone, but also on the length of the installation and on the short-circuit current value.
Therefore consider the table only as indicative and first analysis. Whoever performs the electric connection for the final customer must make the correct evaluations.
To simplify reading, the table only indicates the use of "fuses", but switches can be used as well as long as they have the same size.

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The yellow-green earth cable must have the same section as the power cable wires and must comply with the current safety regulations of the country where the machine is installed.

DANGER-WARNING:
use the table indicated below and select the cable section and the "RETARDED INTERVENTION" fuses to fit ahead of the machine.

ELECTRICAL INPUT (Amp.)	CABLE SECTION (mm²)	AM FUSE
0 → 10	2,5	12 A AM
10 → 14	4,0	16 A AM
14 → 18	6,0	20 A AM
18 → 22	6,0	25 A AM
22 → 28	10,0	32 A AM
28 → 36	10,0	40 A AM
36 → 46	16,0	50 A AM
46 → 54	16,0	63 A AM
54 → 76	25,0	80 A AM
76 → 92	35,0	100 A AM
92 → 110	50,0	125 A AM

DANGER-WARNING:
- the machine is not protected against risks of electrocution due to indirect contact (ref. 6.3 of the European Standard EN60204-1).
- The machine is not protected against overcurrent arising from a short circuit in the machine feeder (ref. 7.2 of European Standard EN60204-1).

NOTE-INFORMATION:
the Customer is in charge of the protection against these risks, and must refer to specialised technicians (electrician who installs electric systems).

NOTE-INFORMATION:
with regard to this, in the following systems:

1) TT type, Low Voltage, mains-powered
2) TN type, Medium Voltage, mains-powered

the machine power supply line must be protected by Residual Current Devices, suitably coordinated with the user's earthing system (ref. IEC 60364-4-41; HD 60364-4-41).

The maximum value of the differential intervention current is equal to 300 mA for environments with a greater risk of fire (to ensure protection against fire caused by currents dispersed towards the ground).

For TN type systems, the system must be type TN-S with separate neutral and protective earth conductors (IEC 60364-4-482; HD 384.4.482).

SCM machines provide the end-customer with a TN-S power supply. Under different situations, transformers (available as an option) or auto-transformers must be installed upstream the machine.

4.4.2 ELECTRIC CONNECTION

(st-el_4-4-2_0.0)

DANGER-WARNING:
before performing the connection disconnect the main line switch; in any case check that the electrical cable used for the machine connection is not live.

Connect the machine to the elecric system by proceeding as follows:
- prearrange the feeding cable near the terminal board (A fig. 4.4);
- connect the cables to the terminals L1-L2-L3 of the socket and the earthing cable to the terminal marked by the symbol (⏚ / PE);
- connect socket (A fig. 4.4) to plug (B fig. 4.4).

4.4.3 CHECK THE CORRECT CONNECTION

(st-el_4-4-3_0.0)

DANGER-WARNING:
CAREFUL WITH THE ELECTRICAL CONNECTION.
Incorrect rotation of the tool causes danger to the operator and damage to the product. If the machine is fitted with rotation inversion, position the selector (C fig. 4.4) in Pos. 1. Activate the moulder unit for a fraction of a second and check that the shaft turns counterclockwise. Should rotation be incorrect, immediately switch off the power and invert two of the three phases on the terminals (L1-L2-L3).

CAUTION:
if the machine is connected by a mobile supply cable, use a flexible rubber cable marked H07RN-F or A07RN-F.
The relative socket shall meet DIN 49463 as well as IEC 309-1 and IEC 309-2.

NOTE-INFORMATION:
the documentation with wiring diagram and certificates is inside the accessories case.

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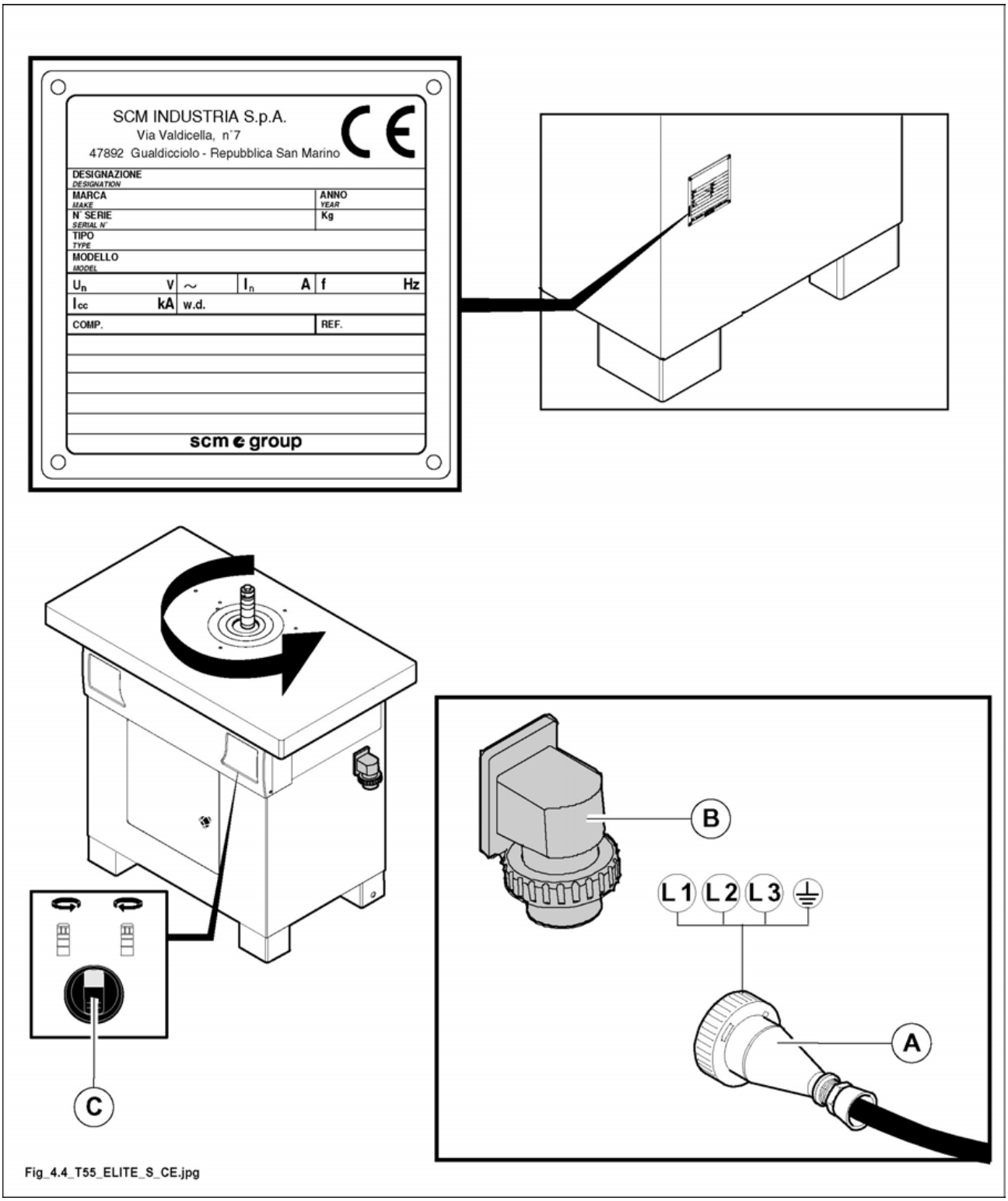

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B
L1 L2 L3
A
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Fig_4.4_T55_ELITE_S_CE.jpg

Fig. 4.4

All machines are prewired for connecting the feeder, and the socket (A fig. 4.4A) is always located on the rear of the base, while the plug for the feeder is inside the accessories kit. When the spindle motor has reached the right number of revolutions, the feeder socket is automatically powered up.

DANGER-WARNING:
to connect the feeder (not supplied by SCM ***), use only the socket (A fig. 4.4A power max. 0,75 kW), because when the emergency pushbutton is pressed, the power supply to the socket (A) is also interrupted, thus blocking the feeder.***

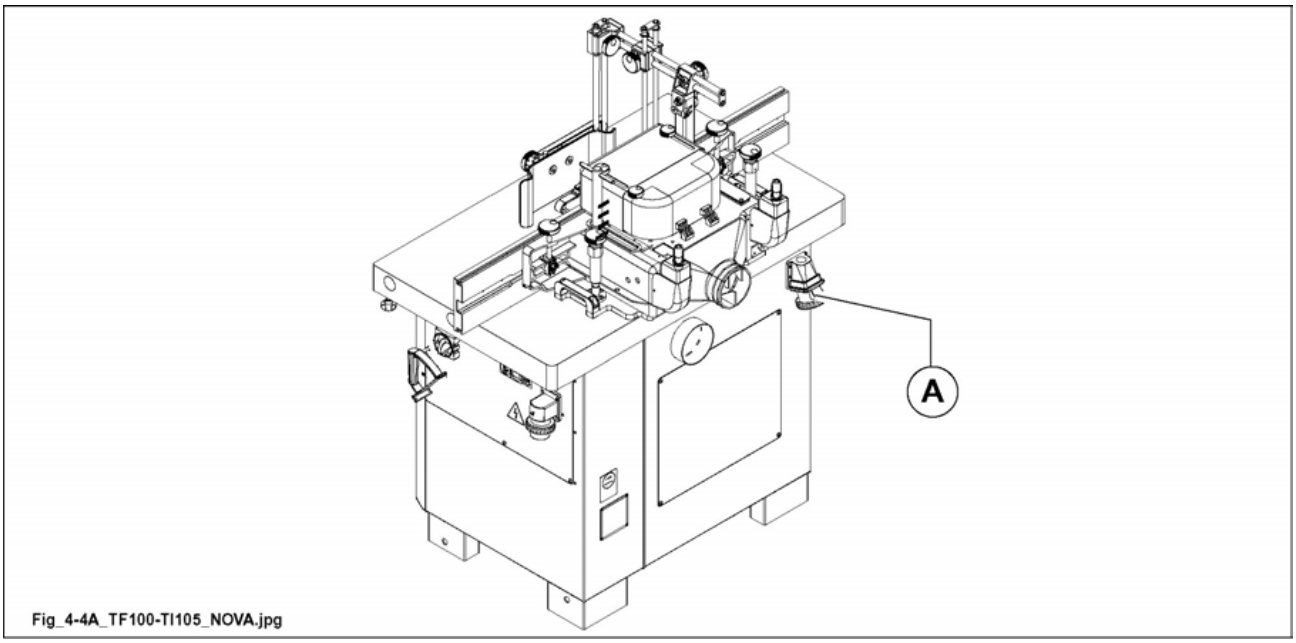


Fig. 4.4A

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4.5 CONNECTION TO THE SUCTION SYSTEM

(ev_4-5_0.0)

DANGER-WARNING:
the connection to the suction system is necessary for the machine operation and for the operator's safety. Always work with the suction system in operation.

NOTE-INFORMATION:
the extraction system must comply with EN 12779:2004.

Always start the suction system and the operator assembly motor at the same time.

Connect the exhaust pipes to the suction system with hoses of proper diameter.

NOTE-INFORMATION:
we recommend that the suction sleeve is arranged out of the suction hood in order to avoid clogging caused by chips.
The suction pipe fitting should not hinder the operator during the woodworking process.

Connect the hose to suction hood:
- (A fig. 4.5) diameter 120 mm (Moulder hood)
- (B fig. 4.5) diameter 100 mm (Shaping hood)
- (C fig. 4.5) diameter 120 mm OPT (Tenoning shaper hood)
- (D fig. 4.5) diameter 120 mm (Base coupling)

Clamp it with the proper metallic clip to ensure the contact between suction hood and hose.

[D + A]	the suction system shall ensure a flow equal to 1628 m^3/h at a flow speed at least of 20 m/s - chips dry (2280 m^3/h --> 28 m/s - chips wet).
[D + B]	the suction system shall ensure a flow equal to 1379 m^3/h at a flow speed at least of 20 m/s - chips dry (1932 m^3/h --> 28 m/s - chips wet).
[D + C] OPT	the suction system shall ensure a flow equal to 1628 m^3/h at a flow speed at least of 20 m/s - chips dry (2280 m^3/h --> 28 m/s - chips wet).

This value shall be checked before starting the working.
If further machines are connected to central suction system carry out a test when all suction systems are in operation.
The right operation of the suction system reduces the risks due to dust inhalation.

Other factors which reduce the dust emission in the working environnement.
- maintenance of tools, of the machine and of the suction system;
- proper use of protective devices against dust.

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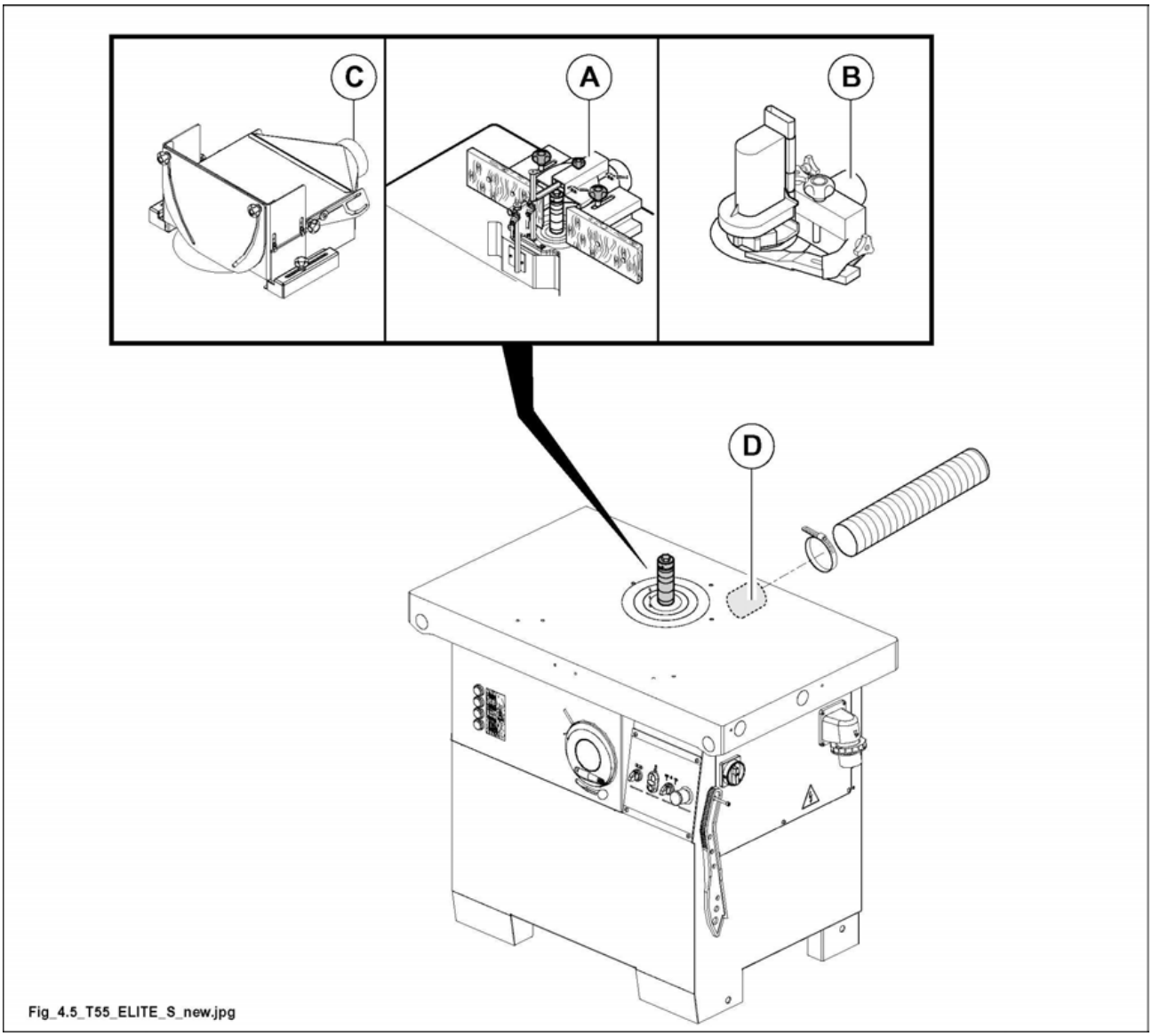


Fig. 4.5

NOTE-INFORMATION:
to connect the machine to the suction plant, use hoses made of antistatic and self-decomposing material, in order to prevent electric discharges due to an accumulation of static electricity (the discharges could compromise the right operation of the electronic components on the machine) and to avoid possible fire to propagate.

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5.4.3 Tenoning 8


5.5 Machine start - stop 10


5.5.1 Machine with COUNTERCLOCKWISE SPINDLE ROTATION (against feed direction) 12

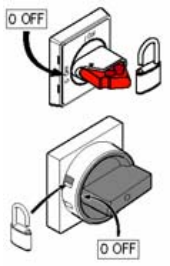
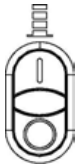
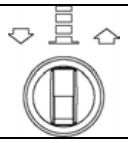

5.5.2 Machine with CLOCKWISE rotation (feed direction) 12

5.11 Auto-brake motor 14

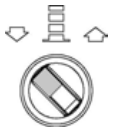
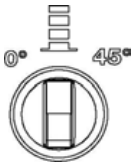
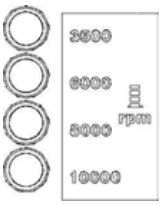
5.1 CONTROLS BOARD

(ev_5-1_0.0)

The control board depends on the machine version:

Ref.	Image	Function	Use
1		Padlockable main switch on the control cubicle. It switches on/off the voltage for the machine power supply. It may be locked in position "**0**" by means of padlock.	 = ON  = OFF
2		Emergency button. To shut off the motor supply voltage with intervention of the brakes when present.	Pressed: machine in emergency conditions. Turn to the arrow direction to reset.
3		2-position selector for locking/releasing the autobrake motor.	 = Motor brake locked: pilot lamp off.  = Motor brake released: pilot lamp lit.
4		Buttons for starting / stopping the spindle.	 = Press to start.  = Press to stop.
5		3-position selector to select the spindle rotation direction.	 To select the counterclock-wise rotation of the spindle (normal direction of rotation).  Spindle moulder motor disenabled.  To select the clockwise rotation (pilot lamp lit). **Dangerous rotation.**
6		Numerical height display, spindle height adjustment.	
7		Spindle moulder height adjustment button. OPT	 = Raising spindle moulder.

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Ref.	Image	Function	Use
			 = Lowering spindle moulder.
8		Spindle moulder lifting indicator. Digital display (OPT) .	
9		Spindle moulder tilt indicator (OPT) .	
10		Spindle moulder tilt adjusting selector. (OPT)	 = Tilt towards 0°.  = Spindle moulder tilt towards 45°.
11		Spindle moulder tilt indicator. Digital display (OPT) .	
12		Lamps to indicate the selected spindle speed.	To select the speed move the belt into the race corresponding to the desired speed.

5.2 EMERGENCY BUTTONS

(ev_5-2_0.0)

In case of danger if you press the emergency button, any function of the machine is locked.

Emergency buttons present on the machine are:

- on the electrical control panel (1 fig. 5.3).
- On the work table front extension (2 fig. 5.3).

Periodically press the emergency buttons to check whether they are efficient.

DANGER-WARNING:

any anomalies found during the control of these devices, must be reported promptly to the manager, who will put the machine out of service and call the electrical, mechanical maintenance personnel or the SCM ***Support Service.***

5.3 ACCESS TO THE ELECTRIC HOUSING

(ev_5-3_0.0)

DANGER-WARNING:
before carrying out any of the operations make sure to cut the main electric power and disconnect socket (T fig. 5.3) from plug (S fig. 5.3).

DANGER-WARNING:
only a skilled electrician may reach the electric housing.

Shut off the power.
Turn the main switch (A fig. 5.3) to 0 (OFF).
Remove the screws (V fig. 5.3) closing the door (P fig. 5.3).

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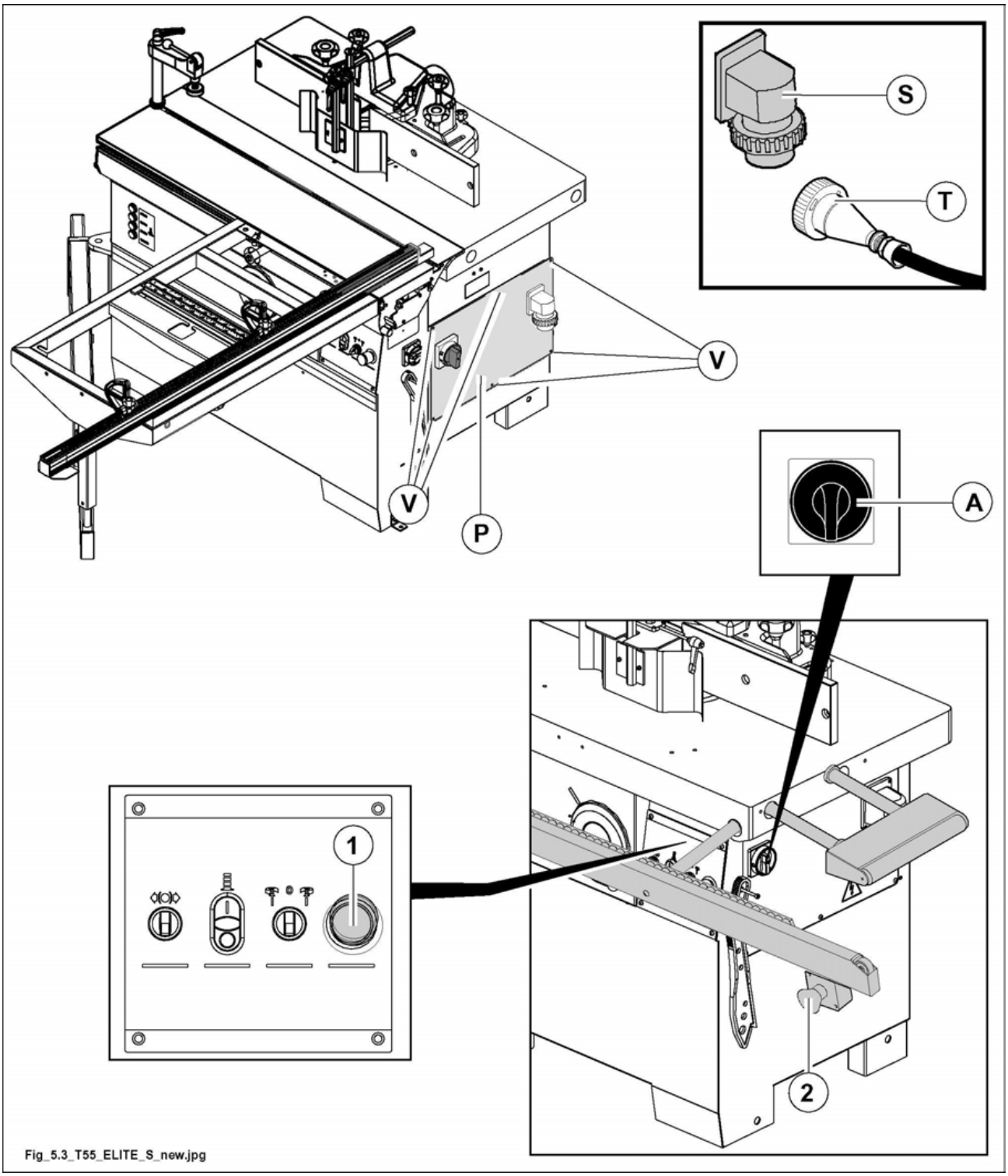


Fig. 5.3

5.4 GENERAL CONTROLS BEFORE MACHINE STARTING

(ev_5-4_0.0)

Make sure that:
- The spindle motor housing door is closed.
- The machine is connected to the suction system.
- The emergency buttons (2 fig. 5.4) are in the right position (if necessary release them).

- Switch (3 fig. 5.4) is turned to (pilot lamp off).
- Main switch (1 fig. 5.4) is turned to I (ON).

NOTE-INFORMATION:

every day, check that the brake release selector (3) operates correctly, turned to the position (warning light lit) the motor brake must be released, otherwise make the adjustments indicated in section 20.8.

DANGER-WARNING:

any anomalies found during the control of these devices, must be reported promptly to the manager, who will put the machine out of service and call the electrical, mechanical maintenance personnel or the SCM ***Support Service.***

NOTE-INFORMATION:
make sure that the speed indicated is proper for the tool fitted to the saw spindle.

FORBIDDEN:
do not modify or exclude any of the circuits or devices installed.

DANGER-WARNING:
if the machine features reversal of rotation, make sure this is set for desired operating rotation direction.

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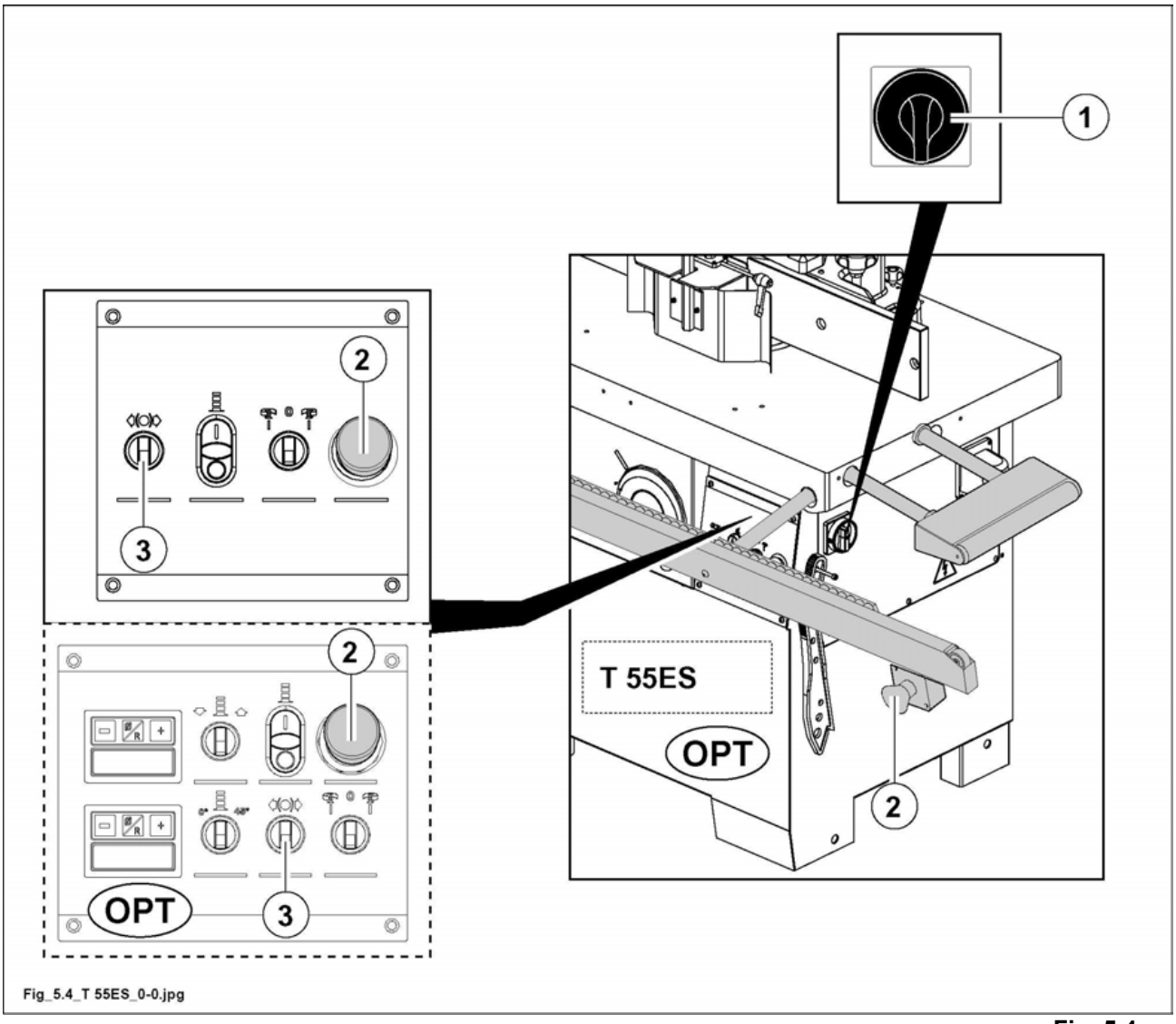


Fig. 5.4

5.4.1 PROFILING OPERATIONS

(cu_5-4-1_0.0)

Make sure that:
- hood-fence unit (V fig. 5.4-1) is in right position and locked by knobs (H, B fig. 5.4-1).
- NEVER exceed the max speed nMAX indicated on the tool; see Chapter 9A.
- Presser shoes (F and G fig. 5.4-1) cover the toolas much as possible (see paragraph 9.50A); for the workpiece feed use a proper pusher (S fig. 5.4-1) or a feeder.

5.4.2 MILLING AT THE SPINDLE (SHAPING)

(cu_5-4-2_0.0)

Check that:
- guard (P fig. 5.4-1) is in the right position (with the pin inserted in the slot on the table) and locked by the pin (M fig. 5.4-1).
- The speed is proper for the tool (see Chapter 9A).

5.4.3 TENONING

(cu_5-4-3_0.0)

OPT

Check that:
- tenoning hood (T fig. 5.4-1) is in right position and locked by knobs (R fig. 5.4-1).
- The max. spindle speed is 3500 (4000 - 60 Hz) rpm and that it does not exceed the max. speed permitted for the fitted tool.

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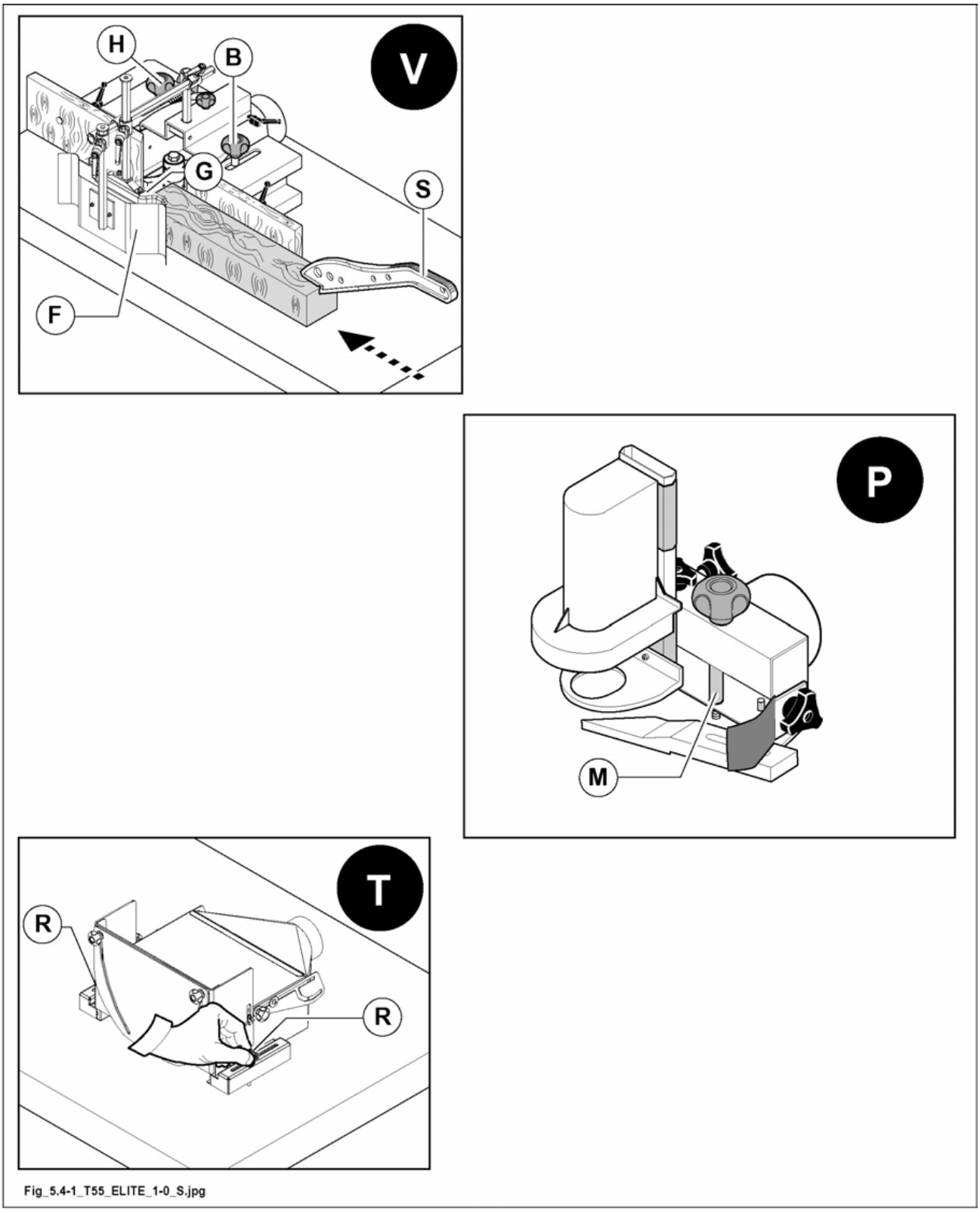


Fig. 5.4-1

5.5 MACHINE START - STOP

(ev_5-5_0.0)

DANGER-WARNING:
before switching on the machine, ensure that all the tools are well tightened, that the set spindle rotation speed is correct (see Chapter 9A) and that the router protection suitable for the type of machining has been installed.

NOTE-INFORMATION:
carry out the checks of par. 5.4.

Machine Start procedure

1) Press the (E fig. 5.5) button.

Machine Stop procedure

1) Press the (D fig. 5.5) button.
2) Move main switch (G fig. 5.5) to position 0.

FORBIDDEN:
it is forbidden to stop the motor by turning selector (3 fig. 5.5) to .

DANGER-WARNING:
when work has been completed render the machine safe by disconnecting the electrical power supply and positioning the thermal switch (G fig. 5.5) in position "0".

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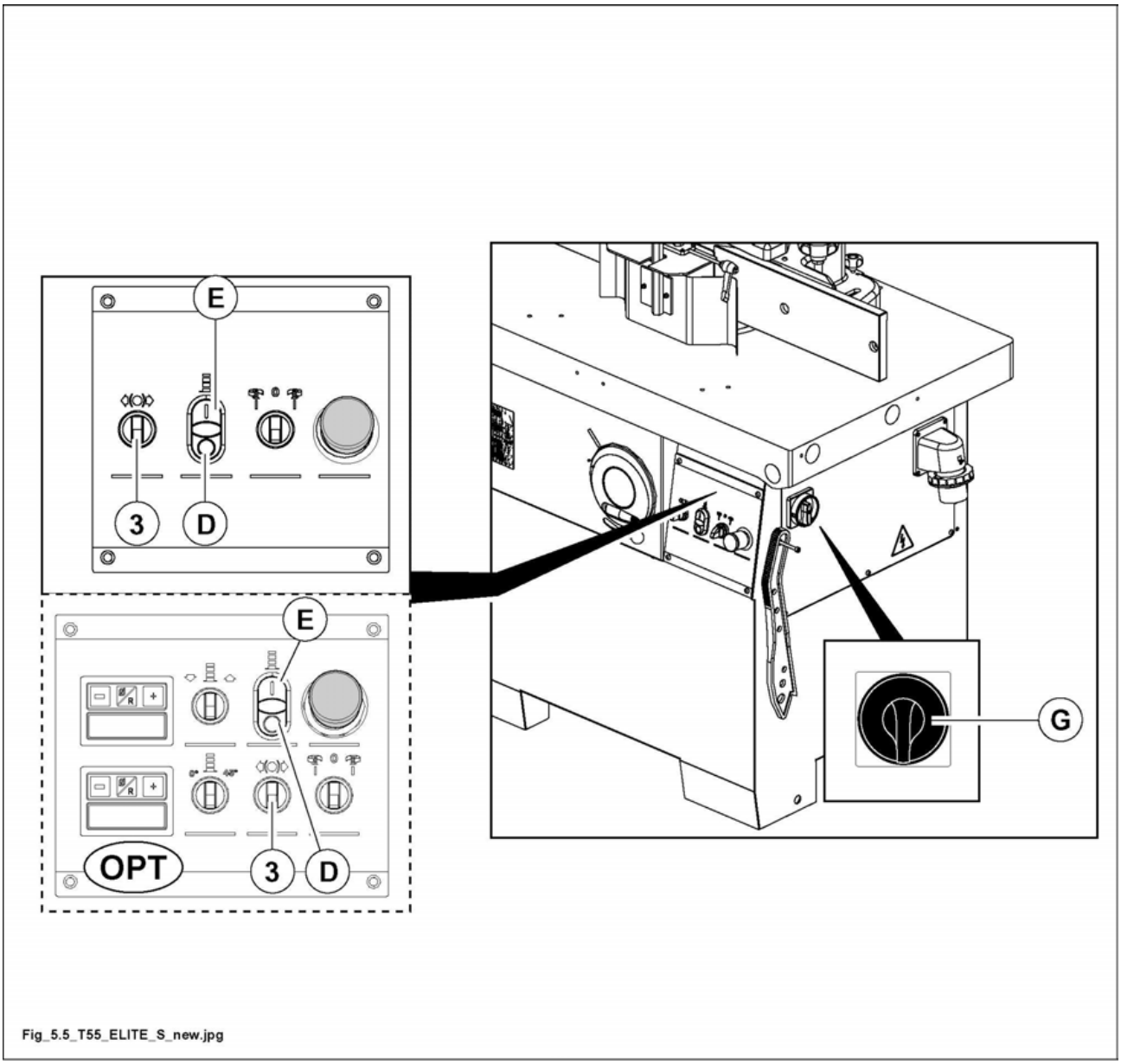


Fig. 5.5

5.5.1 MACHINE WITH COUNTERCLOCKWISE SPINDLE ROTATION (AGAINST FEED DIRECTION)

(cu_5-5-1_0.0)

NOTE-INFORMATION:
when possible always use this rotation direction when possible as it is the normal rotation direction.

Machine Start procedure

- Turn the selector switch (N fig. 5.5-2) towards the left and keep it in that position. Press the button (M fig. 5.5-2) to start the operator unit; release the selector switch (N fig. 5.5-2) to return to the central position.
- Go to the relative work station.

NOTE-INFORMATION:
when you stop the machine it is necessary repeat instructions if you want to start with counterclockwise spindle rotation.

Machine Stop procedure

1) Press the (D fig. 5.5-2) button.
2) Move main switch (G fig. 5.5-2) to position 0.

FORBIDDEN:

it is forbidden to stop the motor by turning selector (3 fig. 5.5-2) to .

5.5.2 MACHINE WITH CLOCKWISE ROTATION (FEED DIRECTION)

(cu_5-5-2_0.0)

DANGER-WARNING:
for safety reasons rotation inversion cannot be used when tenoning.

DANGER-WARNING:
avoid this direction of rotation as much as possible: as the cutter rotates "in feed direction "there is the risk that the cutter withdraws the workpiece from the presser: pay attention!.Set the pressers (see Chapter 9A).

Machine Start procedure

- Turn the selector switch (N fig. 5.5-2) towards the right and keep it in that position. Press the button (M fig. 5.5-2) to start the operator unit; release the selector switch (N fig. 5.5-2) to return to the central position.
- Go to the relative work station.

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NOTE-INFORMATION:
this operation is to be carried out every time you stop the machine and when you want to start the machine with clockwise spindle rotation.

Machine Stop procedure

1) Press the (D fig. 5.5-2) button.
2) Move main switch (G fig. 5.5-2) to position 0.

FORBIDDEN:

it is forbidden to stop the motor by turning selector (3 fig. 5.5-2) to .

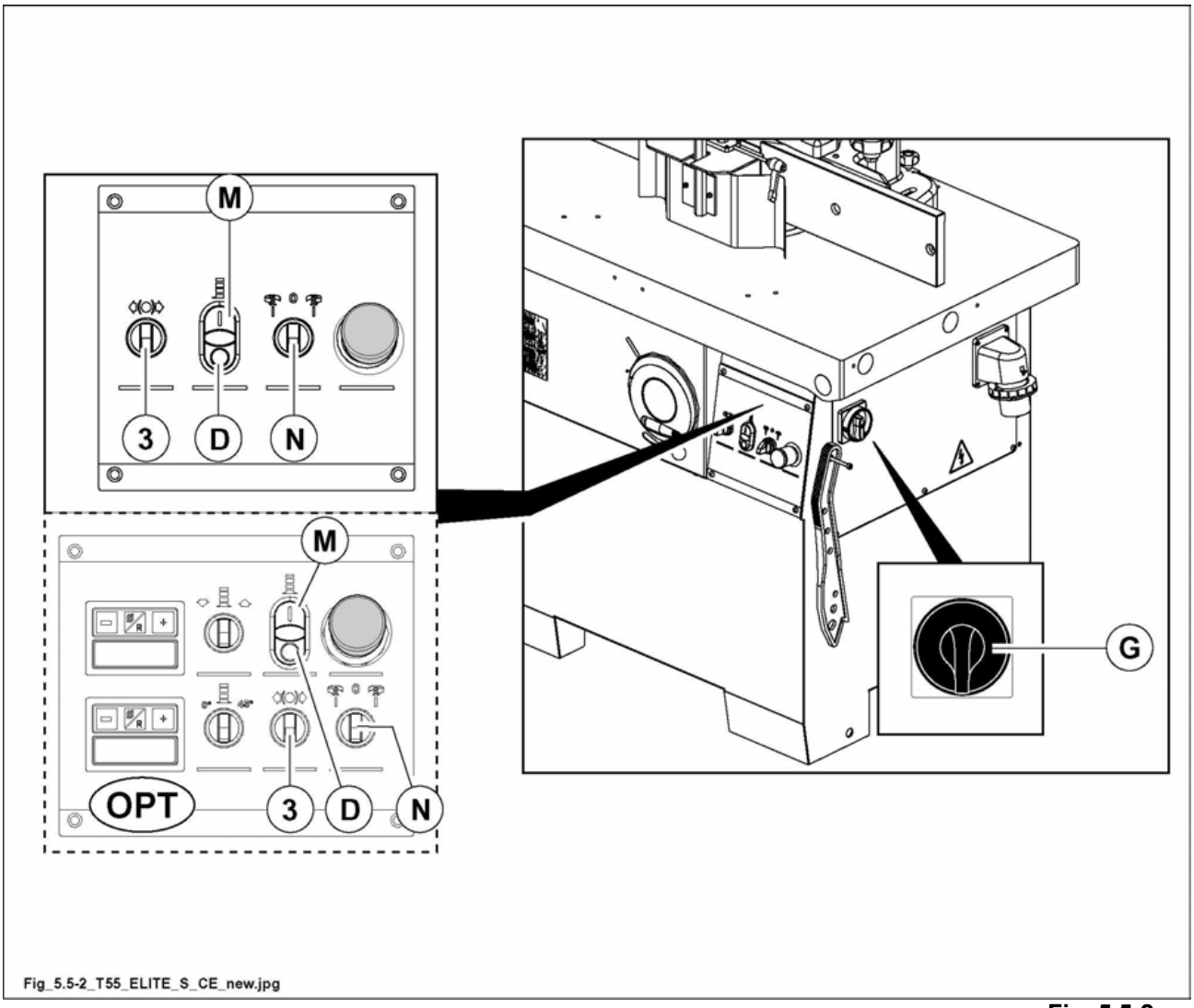


Fig. 5.5-2

5.11 AUTO-BRAKE MOTOR

(ev_5-11_0.0)

The spindle rotation occurs by means of autobrake motor.

Under normal working condition selector (3 fig. 5.11) is turned to ; locked motor brake, pilot lamp switched off. When you switch off the motor or you shut off the power, the motor automatically brakes and remains braked until the next spindle start.

In case of adjustment as cutter fitting etc. for which the spindle shall turn freely, turn selector (3 fig. 5.11) to ; the pilot lamp lights up at the same time.

The motor may be started only when selector (3 fig. 5.11) is turned to ; locked motor brake, pilot lamp switched off.

NOTE-INFORMATION:
the material used for auto-brake motors does not contain any cancerous components.

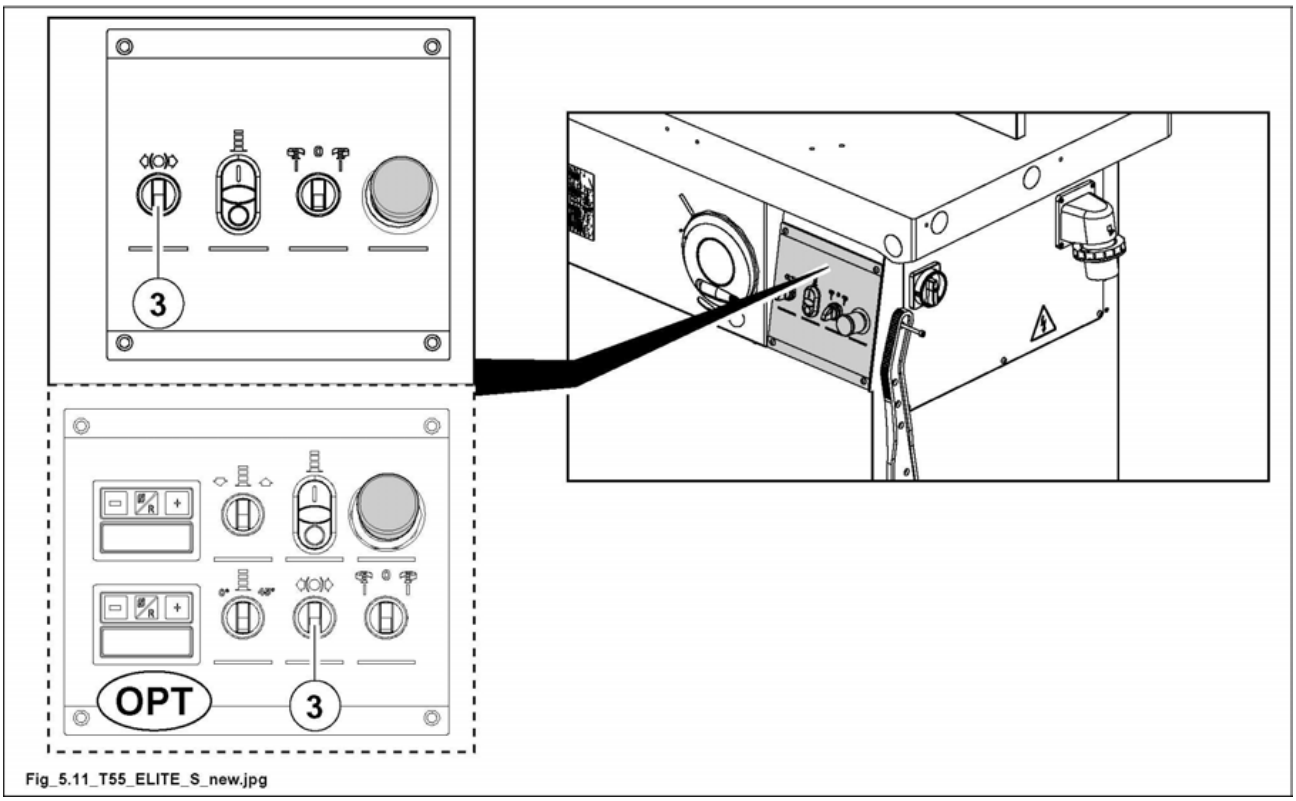


Fig. 5.11

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(st-9a)

9A.1 ADJUSTMENTS

(cu_9a-1_0.0)

DANGER-WARNING:
ensure that during shaft movement there is no interference with machine parts.

If the indicator (L fig. 9.1-1-1) gives an imprecise indication, restore adjustments as follows:

- unscrew screw (V fig. 9.1-1-1) and remove indicator.
- Manually rotate indicator until the pointer, which is always in a vertical position, does not coincide with 0° notch.

9A.1.1 SPINDLE HEIGHT ADJUSTING

(cu_9a-1-1_0.0)

It adjusts the tool to the worktable.

DANGER-WARNING:
the tool adjusting must be carried out with machine off.

9A.1.1.1 SPINDLE HEIGHT ADJUSTING

(cu_9a-1-1-1_0.0)

- Loosen the knob (B fig. 9.1-1-1).
- The spindle height adjusting occurs by means of handwheel (A fig. 9.1-1-1).
- After any adjusting tighten knob (B fig. 9.1-1-1).

Check entity of spindle moulder movement of spindle moulder using index (H fig. 9.1-1-1) (only version 1) or using numeric index (L fig. 9.1-1-1).

DANGER-WARNING:
to take up slack you have to reach the right height always with motion upwards.

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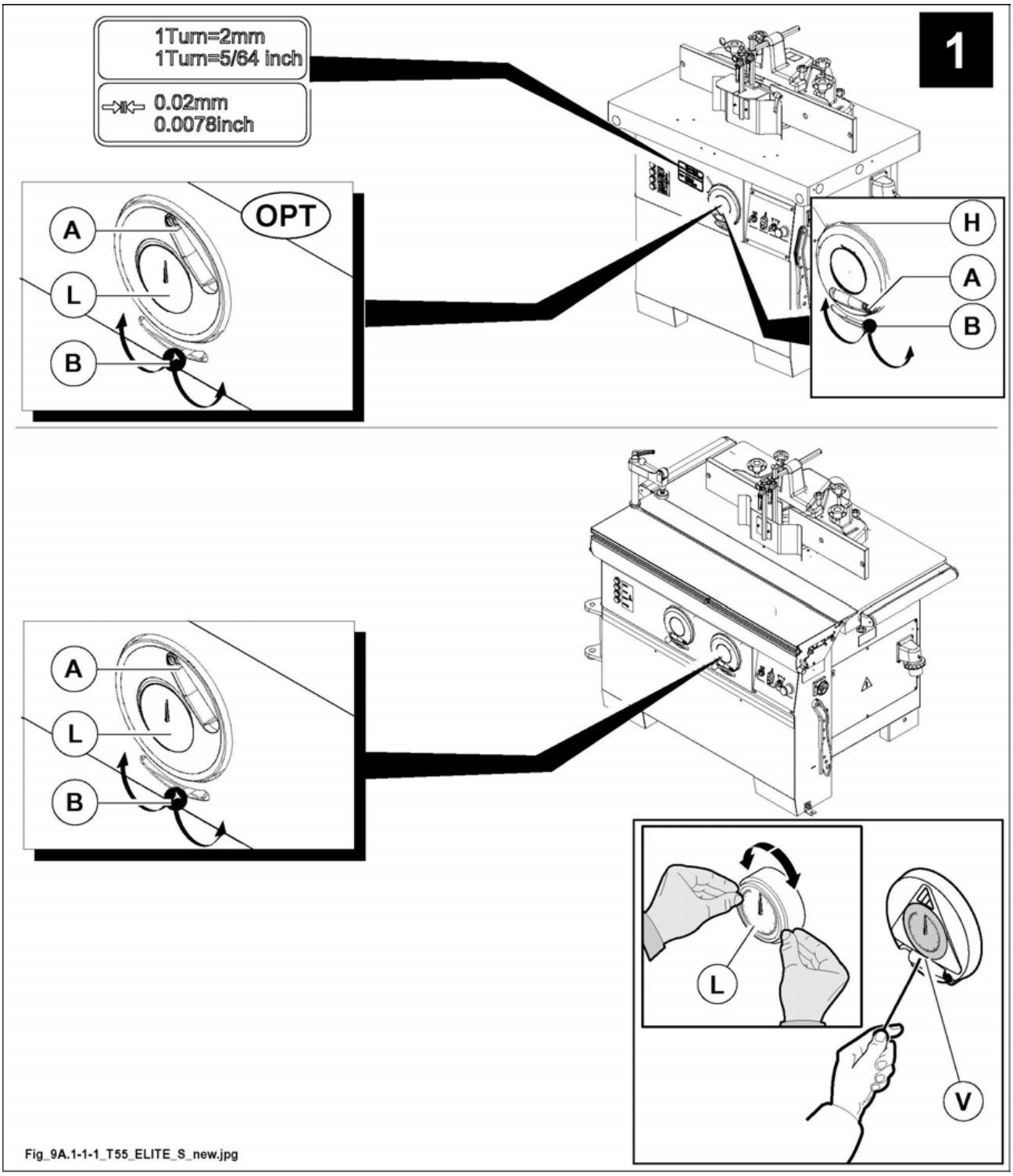

1Turn=2mm
1Turn=5/64 inch
0.02mm
0.0078inch
1
OPT
A
L
B
H
A
B
A
L
B
L
V
Fig_9A.1-1-1_T55_ELITE_S_new.jpg

Fig. 9.1-1-1

9A.1.5 MOTORIZED SPINDLE HEIGHT ADJUSTING

(cu_9a-1-5_0.0)

OPT

It adjusts the tool to the worktable.

DANGER-WARNING:
ensure that during shaft movement there is no interference with machine parts.

DANGER-WARNING:
the spindle can only be adjusted with the tool stationary.

9A.1.5.1 MOTORIZED SPINDLE HEIGHT ADJUSTING

(cu_9a-1-5-1_0.0)

OPT

- For versions with electrical lifting, react on the control (M fig. 9.1-5-1) to adjust the height and check the entity of the shifting on the digital indicator (L fig. 9.1-5-1).

DANGER-WARNING:
for greater precision the required spindle position should only be reached on the upstroke, moving over the final stretch at a low speed.

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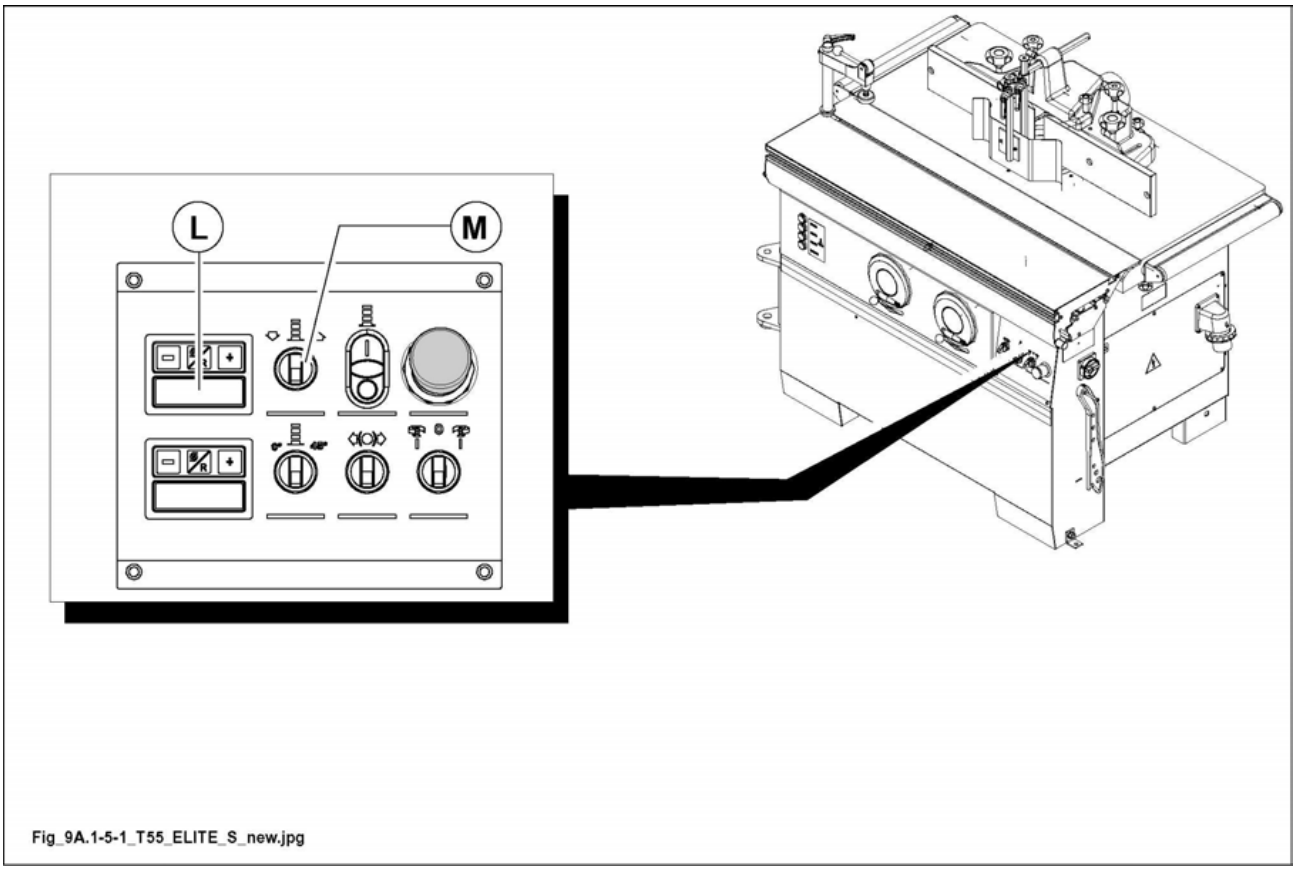


Fig. 9.1-5-1

9A.1.9 SPINDLE TILTING

(cu_9a-1-9_0.0)

OPT

DANGER-WARNING:
tilting is only possible with tools having a maximum diameter of 150 mm.

DANGER-WARNING:
the spindle can only be adjusted with the tool stationary.

DANGER-WARNING:
make sure that during spindle movement there is no interference with parts of the machine.

9A.1.9.1 SPINDLE TILTING

(cu_9a-1-9-1_0.0)

OPT

- Turn handwheel (C fig. 9.1-9-1) after loosening knob (Dfig. 9.1-9-1).
- After any adjustment, tighten knob (D fig. 9.1-9-1).
- Read out the measure on display (I fig. 9.1-9-1).

NOTE-INFORMATION:
the angle shown on the number indicator (I fig. 9.1-9-1) has a ± 0.25 mm error range; in the 45° and 90° positions, for a more precise reading use the mechanical end of stroke stops as a reference, turning the handwheel (C fig. 9.1-9-1) as far as possible.

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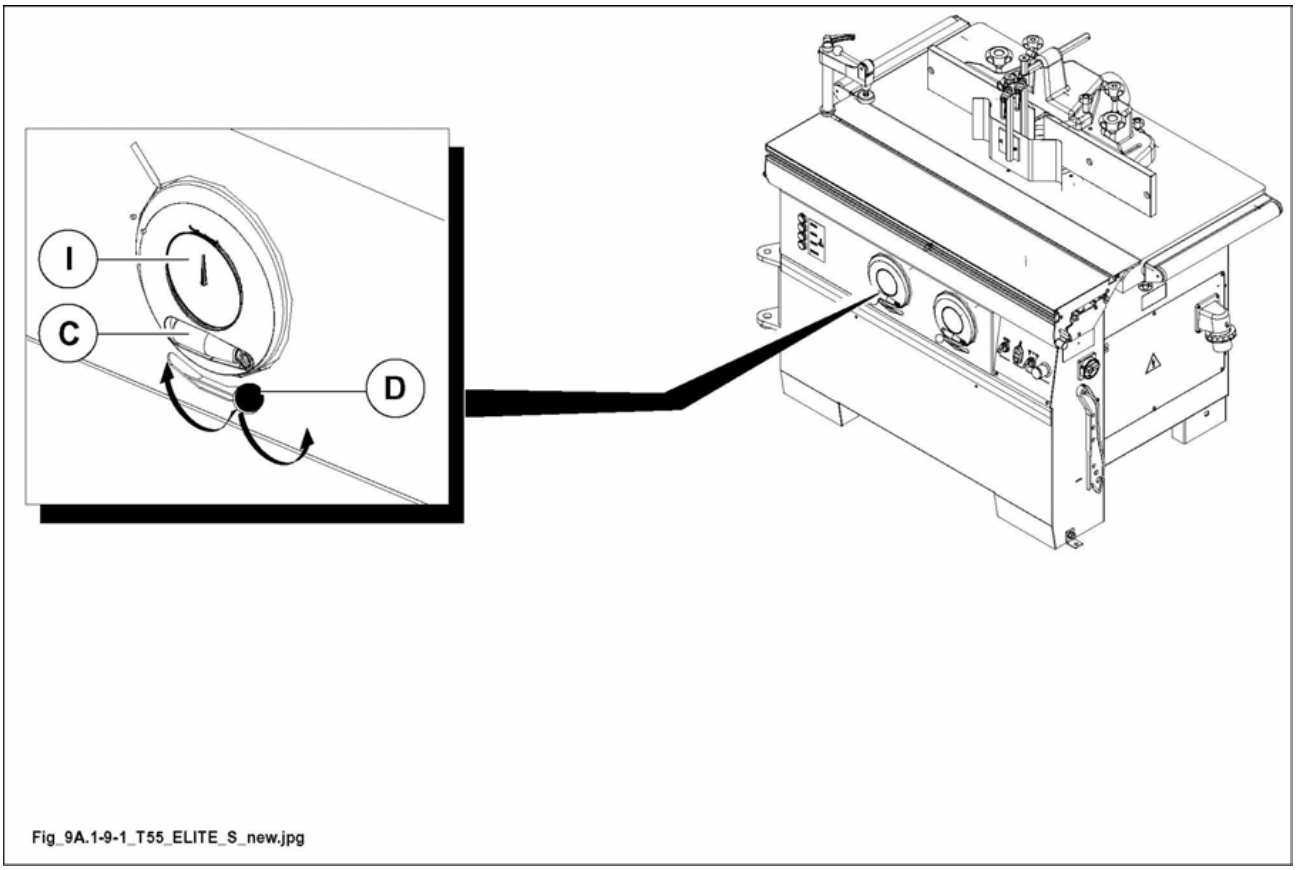


Fig. 9.1-9-1

9A.1.9.2 ELECTRICAL SPINDLE MOULDER ANGLE ADJUSTING

(cu_9a-1-9-2_0.0)

OPT

- For versions with electrical tilting, react on the control (M fig. 9.1-9-2) to adjust the angle and check the entity of the shifting on the digital indicator (L fig. 9.1-9-2).

DANGER-WARNING:
for greater precision go to "0" starting from negative positions (- sign) and move over the final stretch in jog mode, until the " -" sign disappears.

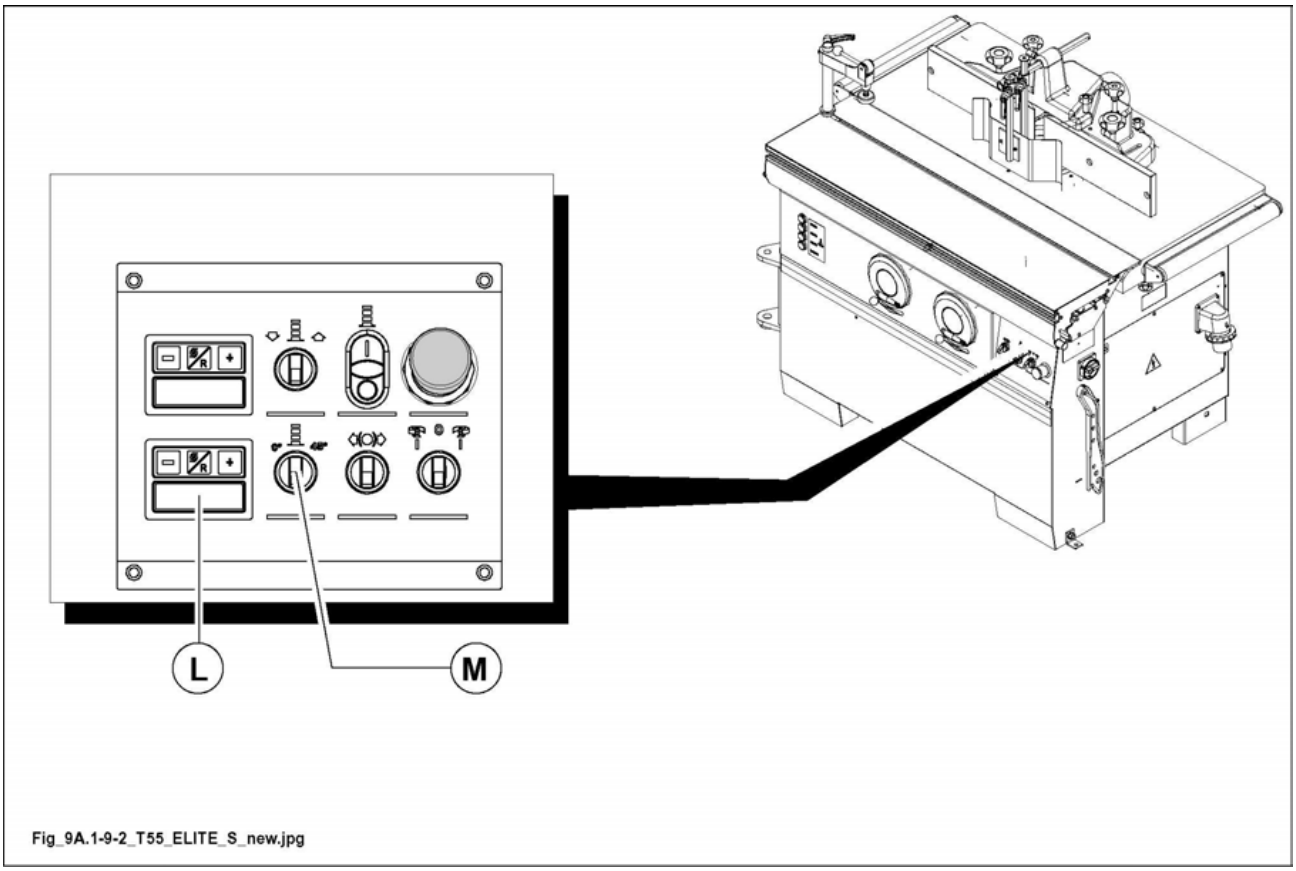


Fig. 9.1-9-2

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9A.3 SPINDLE SPEED SELECTION

(cu_9a-3_0.0)

Select the spindle speed according to the tool, the wood and the working.

Diagram (fig. 9.3A) indicates how to select the speed (rpm) according to the rim speed and the tool diameter tool diameter (with tool Ø 150 mm and surface speed 60 m/s, the speed to be set is 8000 rpm).

DANGER-WARNING:
tenoning must exclusively be carried out with a spindle rotation speed of 3500 rpm (50 Hz) - 4000 rpm (60 Hz).

DANGER-WARNING:
do not select values different from the ones indicated in diagramm (fig. 9.3A), or rotation speed higher than the speed indicated on the tool.
There is the risk of piece kickback or tool rupture.

DANGER-WARNING:
in case of more tools fitted to the spindle, the lowest maximum rotation speed tool is to be considered as a reference. (e.g.: never exceed 6000 rpm, if you use 2 tools, one tool with max. speed 8000 rpm the other tool with max. speed 6000 rpm).

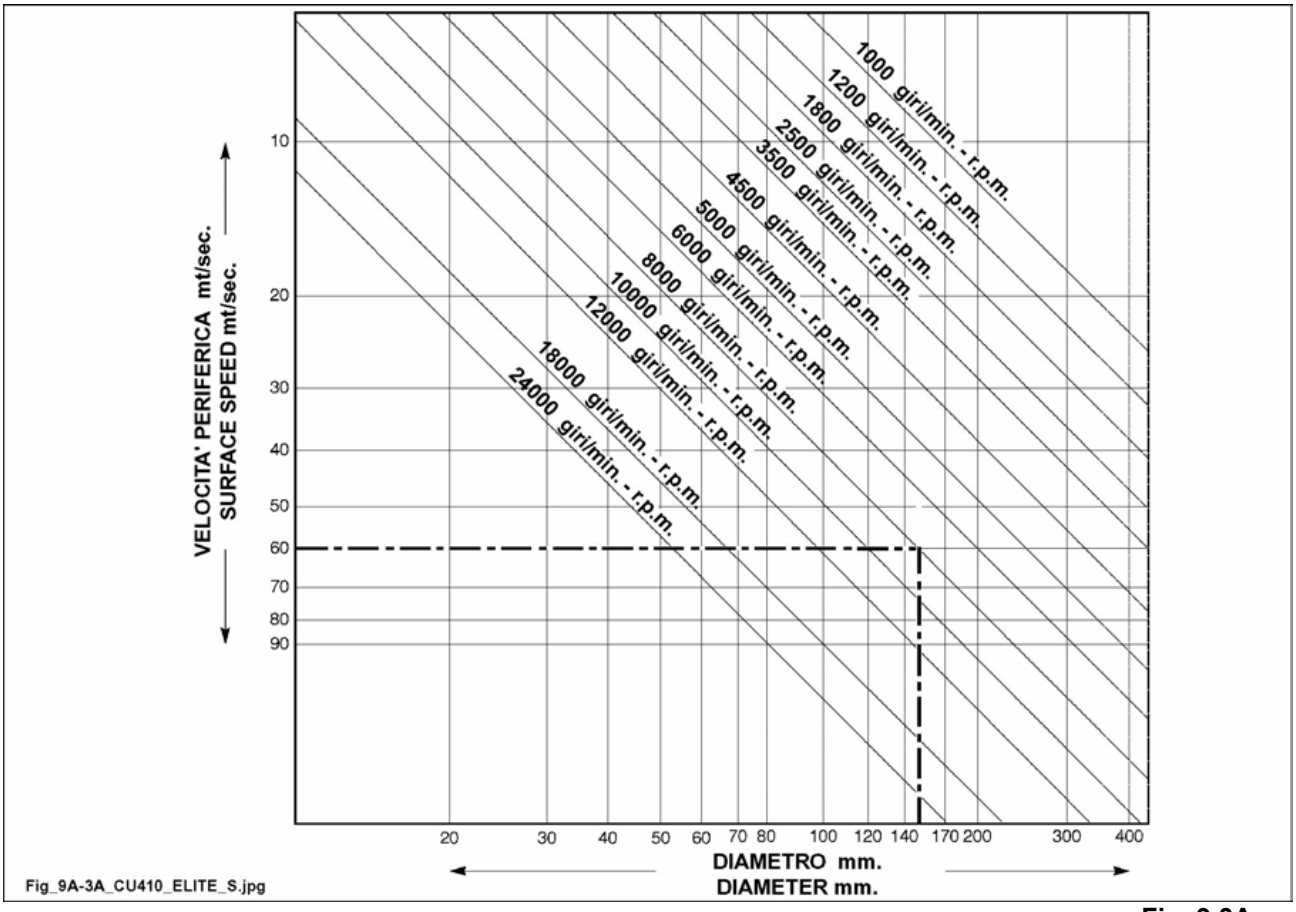


Fig. 9.3A

The table gives the approximate values of the rim speed according to the material to be milled.

MATERIAL	HSS (m/s)	HM (m/s)
Hard wood	50/70	50/70
Soft wood	42/60	45/70
Chipboard		50/70
Fiber board (MDF)		35/50

Diagrams (1, 2, 3 fig. 9.3B) give the speed selection according to:

- the cutter height position (L or L1 fig. 9.3B);
- cutting height (S fig. 9.3B);
- tool cutting edge diameter (Ø fig. 9.3B).

When selecting the diagram, bear in mind that (L fig. 9.3B) refers to the fixed shafts and (L1 fig. 9.3B) to the interchangeable shafts. For cutter height positions different from L or L1, refer to the diagram with the nearest whole number below the true measurement. For example, with a cutter in position L=120 mm refer to the diagram in (1 fig. 9.3B).



DANGER-WARNING:
it is prohibited to exceed the speed obtained from the diagram.

In the diagram (1 fig. 9.3B), with a cutter D=190, S=55 mounted at the upper end of the router shaft (L=125 or L1=90), the maximum operating speed is ~7500 rpm. Set the speed to the nearest whole number below but never above (6000 rpm).

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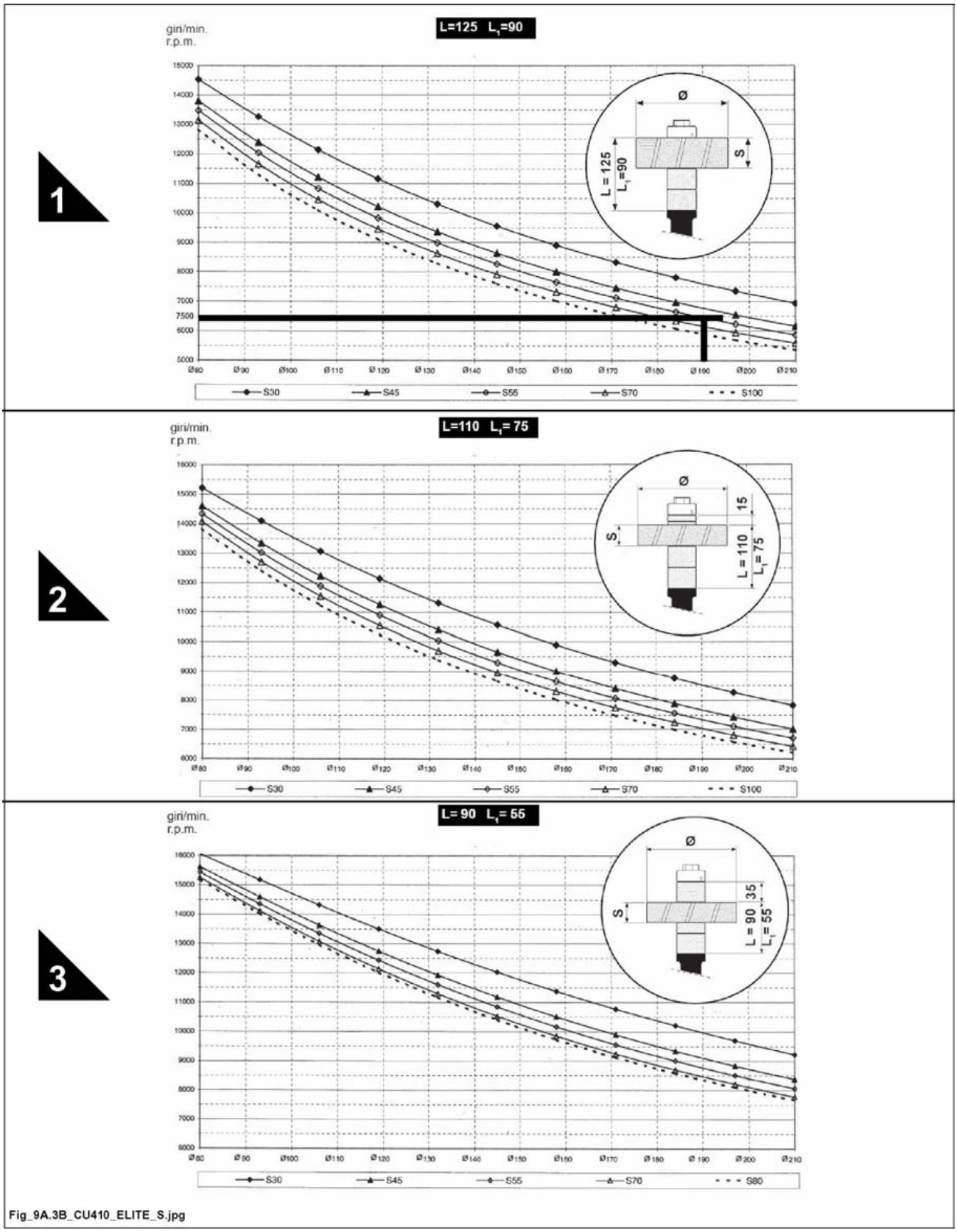

1
giri/min.
r.p.m.
L=125 L1=90
Ø
S
L = 125
L1=90
S30
S45
S55
S70
S100
2
giri/min.
r.p.m.
L=110 L1= 75
Ø
S
15
L = 110
L1= 75
S30
S45
S55
S70
S100
3
giri/min.
r.p.m.
L= 90 L1= 55
Ø
S
35
L = 90
L1= 55
S30
S45
S55
S70
S80
Fig_9A.3B_CU410_ELITE_S.jpg

Fig. 9.3B

(vuota_cu_01)

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9A.3.1 SPEED CHANGE

(cu_9a-3-1_0.0)

The spindle speeds are (50 Hz): 3.500 - 6.000 - 8.000 - 10.000 rpm. - (60 Hz): 4.000 - 7.000 - 9.000 - 12.000 rpm.

Positions and relative speed are given on the plate (B fig. 9.3-1).
To select the speed move the motor belt into the proper race corresponding to the speed desired, proceeding as follows.

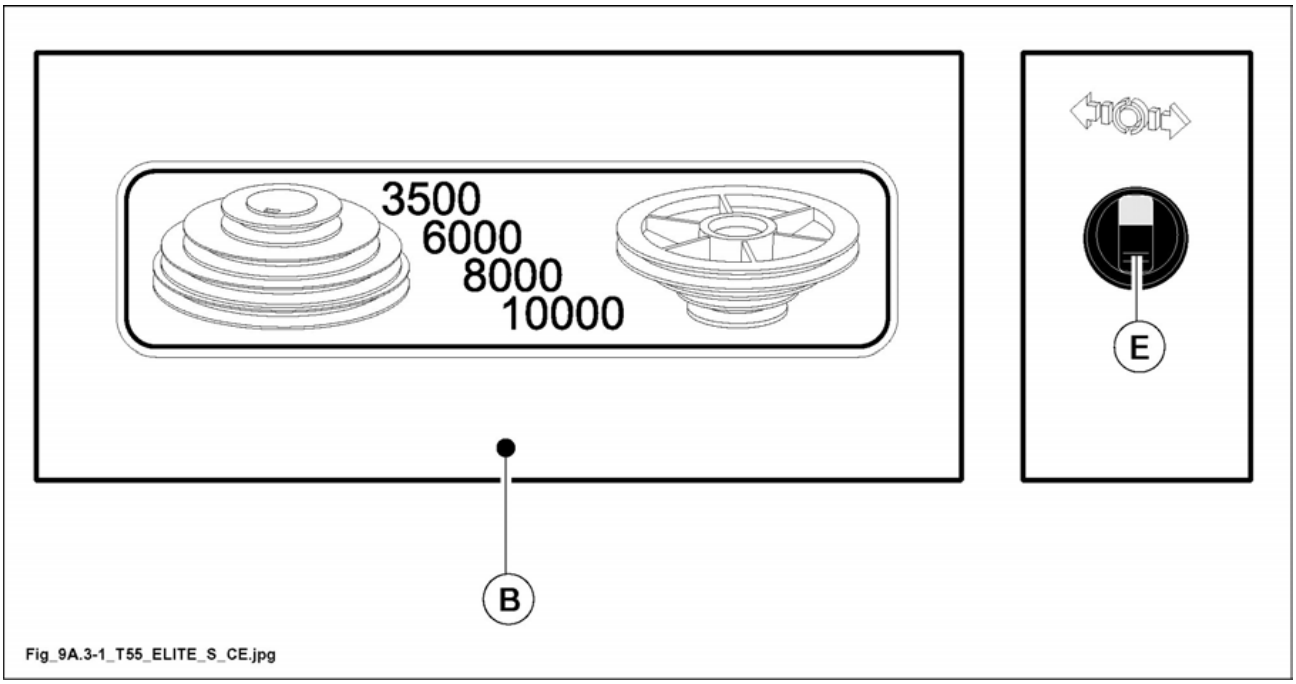


Fig. 9.3-1

DANGER-WARNING:

with selector (E fig. 9.3-1) turned to ( ) (pilot lamp lit) the machine is under safe condition.

Before starting the machine make sure that the rotation speed you have selected is proper for the working, the wood type and for the tool used on the machine.

9A.3.1.1 SPEED CHANGE

(cu_9a-3-1-1_0.0)

1) Press the emergency stop push-button.

2) Release the brake by turning the selector (E fig. 9.3-1-1) to the ( ) position (pilot lamp lit).

3) Open the door (g fig. 9.3-1-1) (activating a limit switch which sets the machine to safety conditions).

4) Pull lever (L fig. 9.3-1-1) into position (2 fig. 9.3-1-1) to slacken the tension of the belts.

5) Rotate selector (M fig. 9.3-1-1) in relation to number of revs you want to set.
On the speed indicator (V fig. 9.3-1-1) the warning light comes on at the selected speed.

NOTE-INFORMATION:
ensure manually that the belt is in the pulley sheaves relative to required rotation speed. If necessary position them correctly.

6) Push lever (L fig. 9.3-1-1) into position (1 fig. 9.3-1-1) to tension the belts.

NOTE-INFORMATION:
push the lever until a click is heard. This means that the dead point has been reached.

7) Tension the belt if necessary (see sec. 20.23).

8) Close the door.

9) Lock the brake by turning the selector (E fig. 9.3-1-1) to the ( ) position.

10) Release the emergency stop push-button.

To view speed, look at the position of the belt on screen (H fig. 9.3-1-1) or using warning lights on panel (V fig. 9.3-1-1).

Positions and speed values are shown on the data plate (B fig. 9.3-1-1).

DANGER-WARNING:

with selector (E fig. 9.3-1-1) turned to ( ) (pilot lamp lit) the machine is under safe condition.
Before starting the machine make sure that the rotation speed you have selected is proper for the working, the wood type and for the tool used on the machine.

Always check that the selected speed (belt position - see label B) corresponds to the indicator lamp currently illuminated on the panel.

DANGER-WARNING:
(TW 55ES, with Ø min. 40 mm spindle);
use of tenoner hood Ø 320 mm (OPT) is enabled only at speed of 3500 revs/min - 4000 revs/min (60 Hz). If, with hood fitted, the speed is not set to this number of revs the machine does not start.

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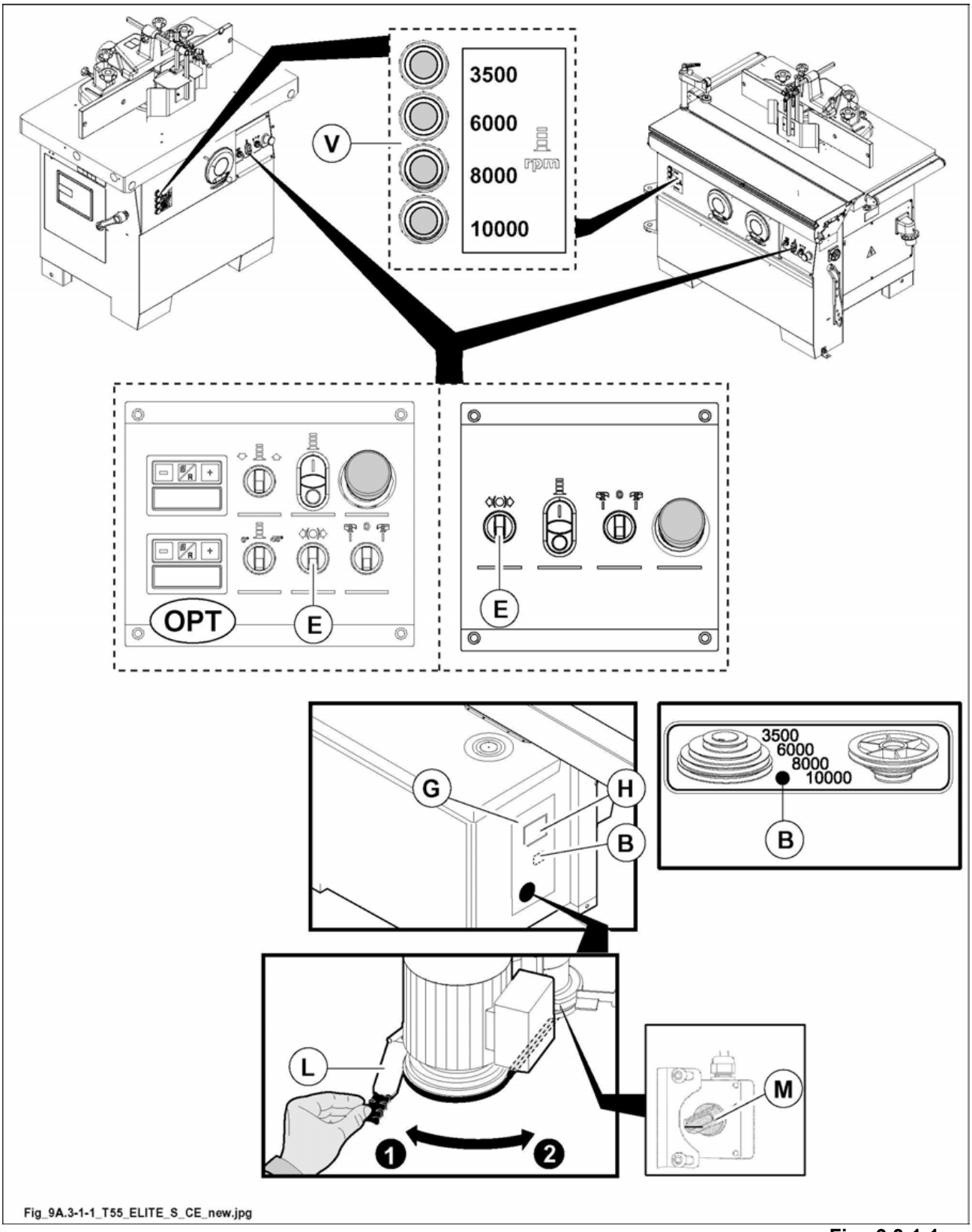

V
3500
6000
8000
10000
rpm
OPT
E
E
G
H
B
3500
6000
8000
10000
B
L
M
1
2
Fig_9A.3-1-1_T55_ELITE_S_CE_new.jpg

Fig. 9.3-1-1

9A.5 ALUMINIUM SLIDING TABLE

(tw_9a-5_0.0)

(ONLY FOR "TW 55ES" VERSION)

The aluminium sliding table moves on high precision slideways made of hardened steel in order to ensure the uniform and smooth motion with small friction, necessary for obtaining precise cuts.

The sliding table is locked and unlocked by means of lever (A fig. 9.5):

1) lever up: sliding table locked.
2) Lever down: sliding table unlocked.

The sliding table may be locked in 2 points:
- the lever (A fig. 9.5) is used to lock the wagon in the rest position (wagon closed) and in the loading position for the piece to be machined (wagon translated to right end stop).

Fasten the following devices:

- fit gib of column (D fig. 9.5) into groove of sliding table, fit arm (E fig. 9.5) to the column, then tighten handle (F fig. 9.5).

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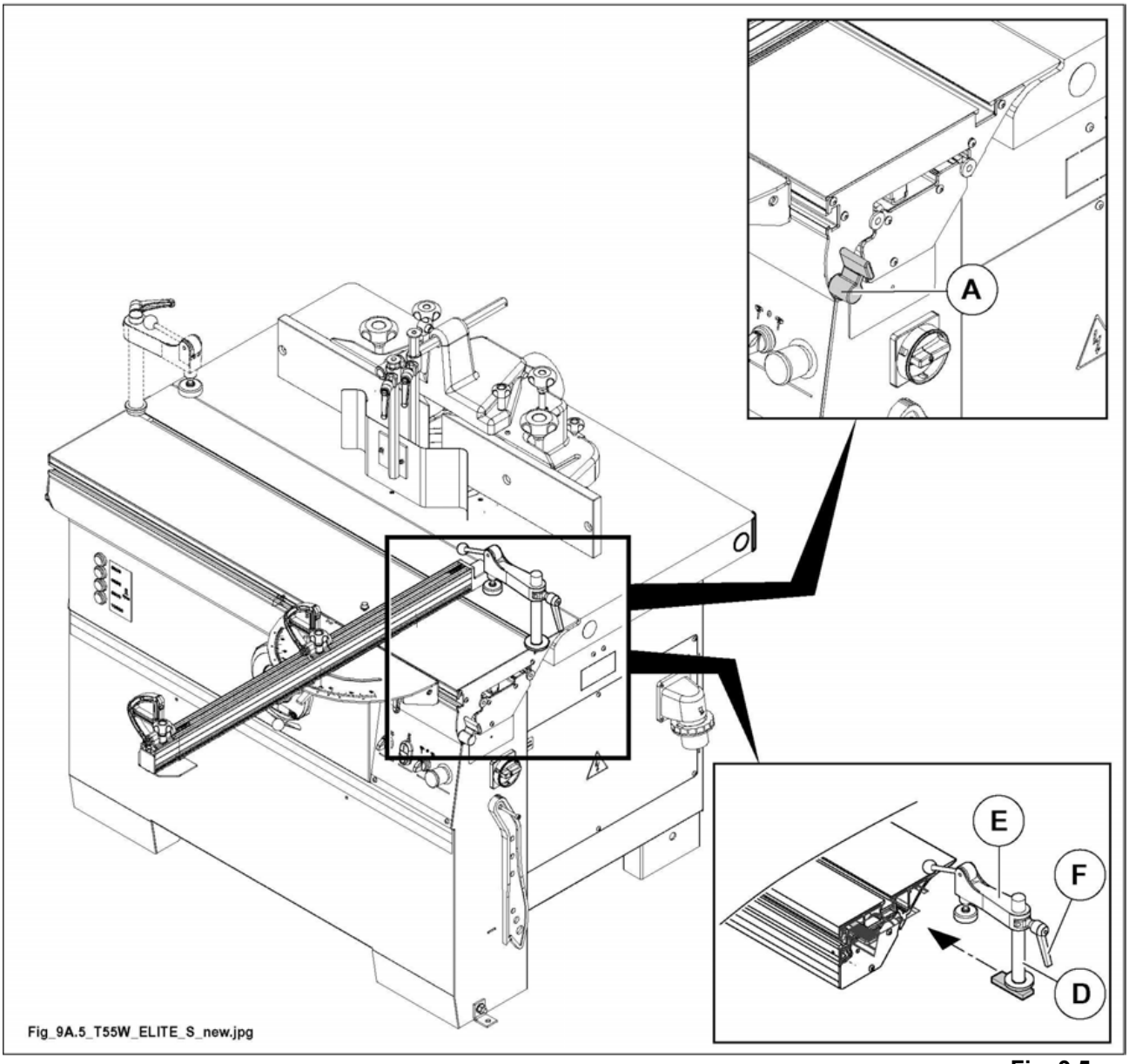


Fig. 9.5

9A.5.1 USE OF TELESCOPIC RULER

(tw_9a-5-1_0.0)

(ONLY FOR "TW 55ES" VERSION)

For 90° cuts

- Position the telescopic ruler in such a way that the pin (C fig. 9.5-1) fits into place against the gib (L fig. 9.5-1). The gib (L fig. 9.5-1) is adjusted by our technicians and is used to rapidly position the telescopic ruler at the right distance from the spindle moulder (only at a 90° position).
- Tighten the knobs (F fig. 9.5-1) and (E fig. 9.5-1).

- For use, position the stops (B fig. 9.5-1) referring to the metric ruler (P fig. 9.5-1).

For inclined cuts

- For use, position the ruler referring to the plate (P fig. 9.5-1).
- Tighten the knobs (F fig. 9.5-1) and (E fig. 9.5-1).

The ruler is fitted with an extractable telescopic extension (H fig. 9.5-1), which may be lengthened as required after loosening the knob (G fig. 9.5-1).
When the chip guard (M fig. 9.5-1) is worn, bring it up to the spindle moulder by loosening the grub screw (N fig. 9.5-1).

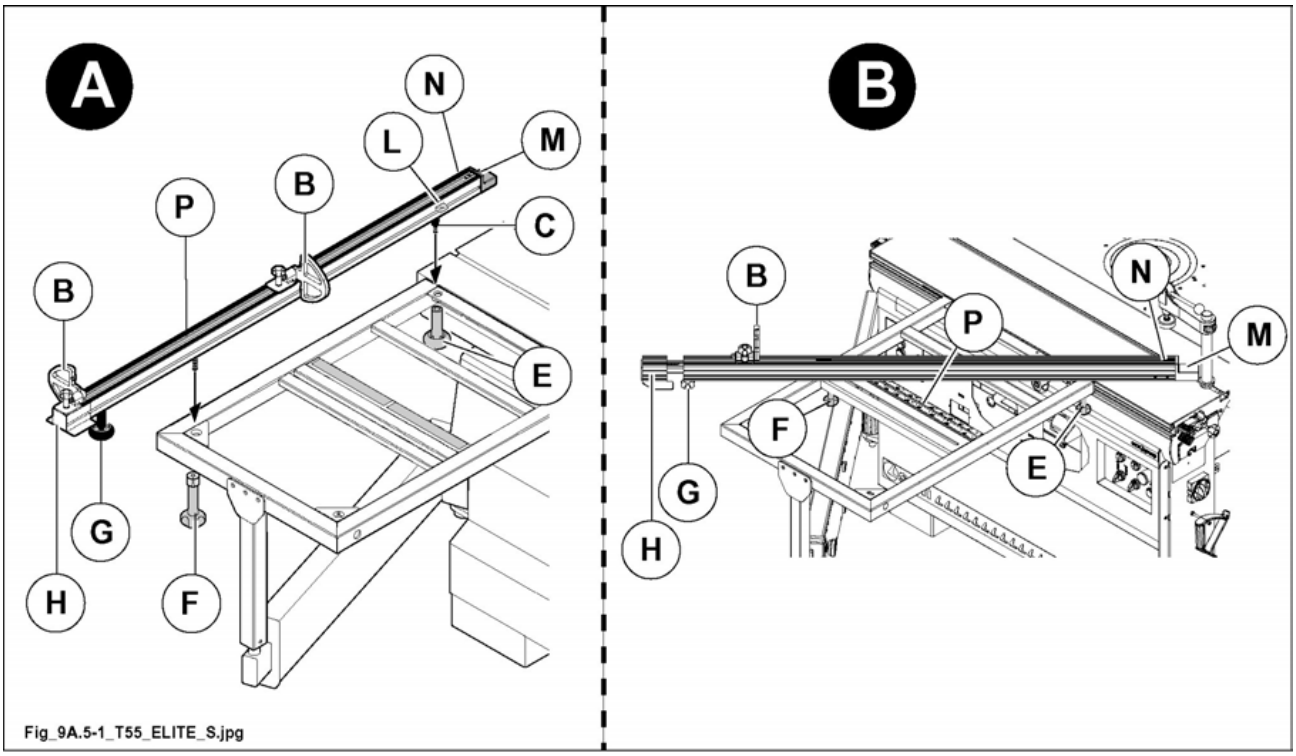


Fig. 9.5-1

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9A.5.2 USE OF THE PRESSER UNIT

(tw_9a-5-2_0.0)

(ONLY FOR "TW 55ES" VERSION)

- Operate on handle (G fig. 9.5-2) to adjust the foot height.

DANGER-WARNING:
to ensure a strong panel clamping, the foot shall be at a 1 mm height from the panel surface before lowering the lever.

- By means of lever (H fig. 9.5-2) lower foot (L fig. 9.5-2) for clamping the piece.

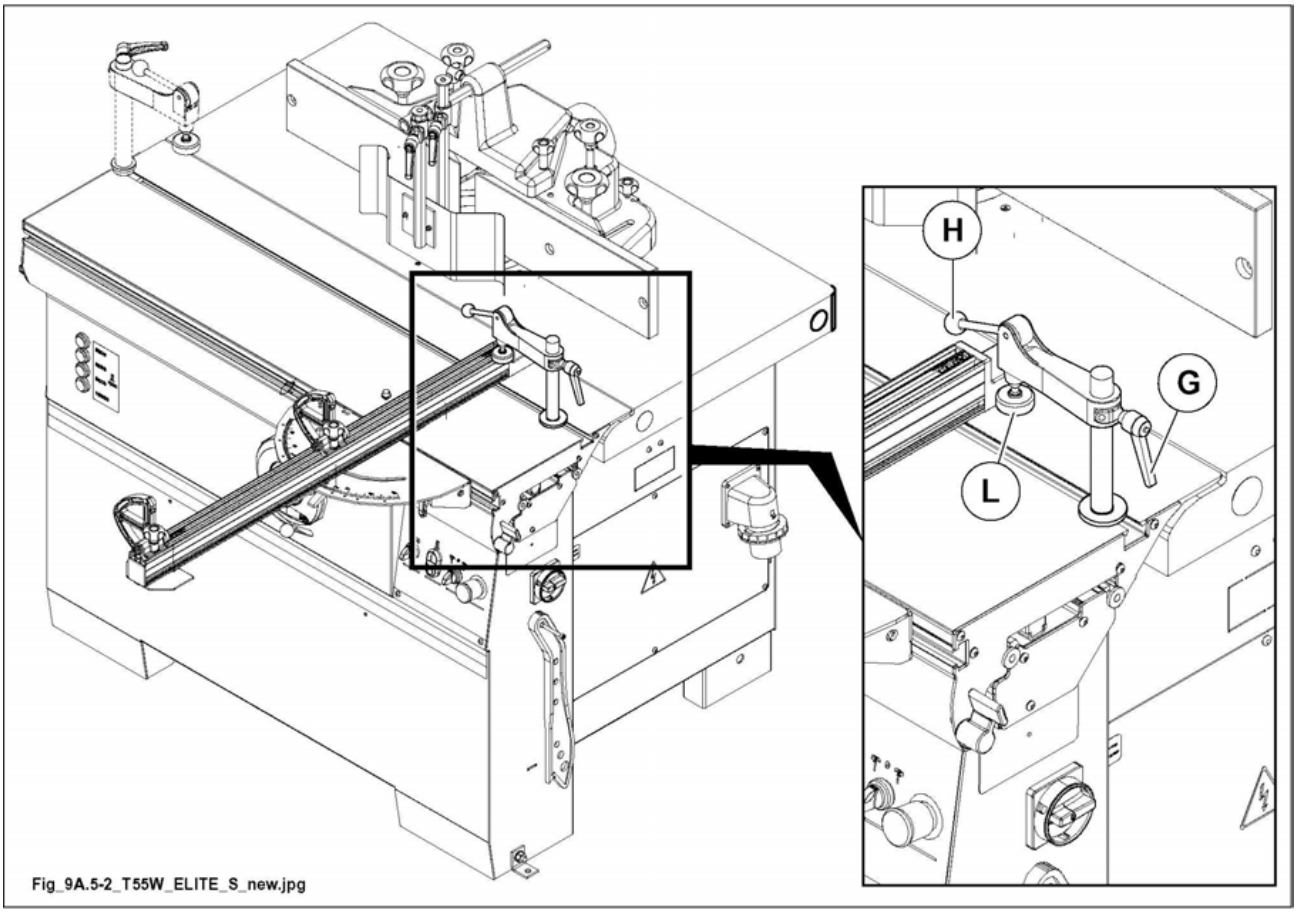


Fig. 9.5-2

9A.5.3 ADDITIONAL RULE FOR OBLIQUE CUTS WITH MILLIMETER RULE

(ev_7-25_0.0)

(ONLY FOR "TW 55ES" VERSION)

- Unlock the ruler assembly by turning (counterclockwise) the stud bolt (N fig. 9.5-3);
- loosen handle (F fig. 9.5-3);
- position the ruler assembly at the right distance from the spindle moulder;
- for mitre cuts turn the fence unit (A fig. 9.5-3) using scale (D fig. 9.5-3) as a reference;
- block by tightening handle (F fig. 9.5-3);
- position the presser up against the ruler assembly ensuring that the washer (Q fig. 9.5-3) is inserted into the groove;
- lock the ruler assembly by turning (clockwise) the stud bolt (N fig. 9.5-3).

The table has already been adjusted; to adjust proceed as follows:
- loosen levers (G fig. 9.5-3);
- adjust the dowels (S fig. 9.5-3) to ensure the table is parallel to the wagon;
- loosen screws (T fig. 9.5-3) and move the dowels (U fig. 9.5-3) to adjust the height position.

NOTE-INFORMATION:
when the chip guard (H fig. 9.5-3) is worn, move it after having loosened the retaining screws.

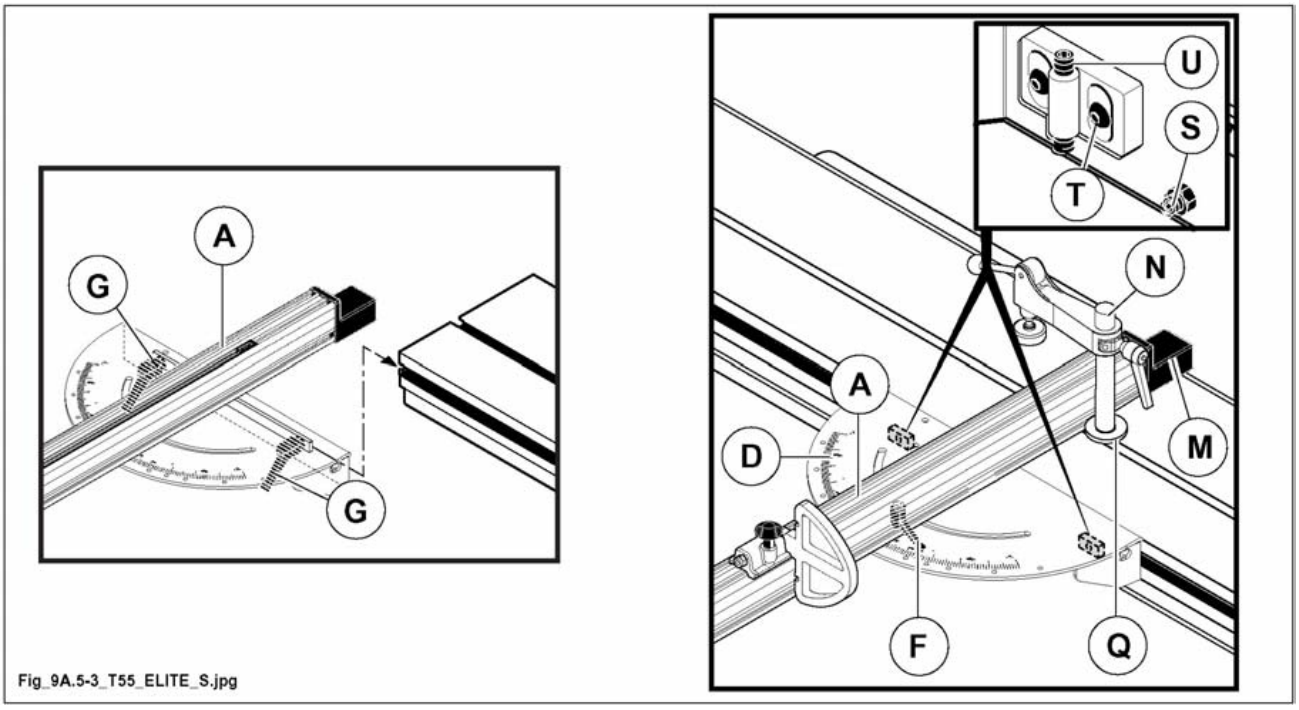


Fig. 9.5-3

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(vuota_9a_01)

9A.6 TELESCOPIC RULE ON TENONING TABLE

(cu_9a-6_0.0)

(ONLY FOR "TW 55ES" VERSION)

OPT

NOTE-INFORMATION:
the splinter guard is fixed to the rule with screws (V fig. 9.6).
If the splinter guard becomes worn, move it towards the tool by slackening the securing screws.
If you need to replace it, see Chapter 20.

9A.6.1 RULE ROTATION

(cu_9a-6-1_0.0)

A

1) Loosen the knobs (F fig. 9.6).
2) For use, position the ruler referring to the plate (P fig. 9.6).
3) Tighten the knobs (F fig. 9.6).

9A.6.2 TO MOVE THE RULE UP TO THE TOOL

(cu_9a_6-2_0.0)

B

1) Loosen the knobs (F fig. 9.6).
2) Position the telescopic ruler (R fig. 9.6) at the right distance from the tools (U fig. 9.6).
3) Tighten the knobs (F fig. 9.6).

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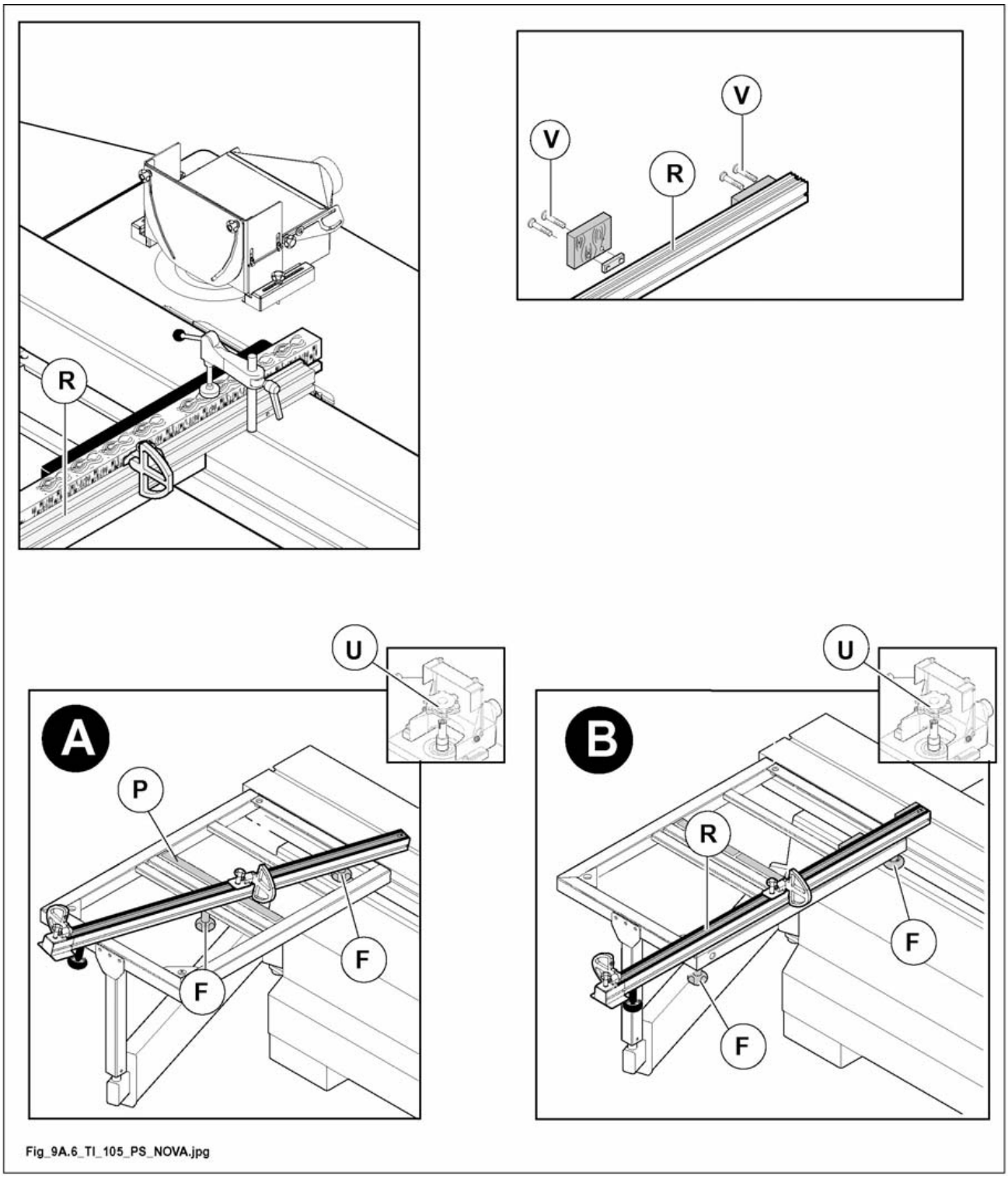


Fig. 9.6

9A.8 USING THE TENONING TABLE

(cu_9a-8_0.0)

(ONLY FOR "TW 55ES" VERSION)

OPT

Tenoning is a head milling operation (against the grain) which is carried out to obtain joints between male tenons (A fig. 9.8) and female tenons (B fig. 9.8).
Carry out this operation with sliding table after fitting additional table OPT (O fig. 9.8).

DANGER-WARNING:
always lock the piece using the presser provided;
tenoning must exclusively be carried out with a spindle rotation speed of 3500 rpm (50 Hz) - 4000 rpm (60 Hz).

For TW 55ES, with Ø min. 40 mm spindle;
use of tenoner hood Ø 320 mm OPT is enabled only at speed of 3500 rpm (50 Hz) - 4000 rpm (60 Hz).
If, with hood fitted, the speed is not set to this number of revs the machine does not start.

For a better assembly:
- *adjust the tenon depth 0,5 mm less than the jamb width (X fig. 9.8);*
- *adjust the slot depth 0,5 mm less than the crosspiece width (Y fig. 9.8).*

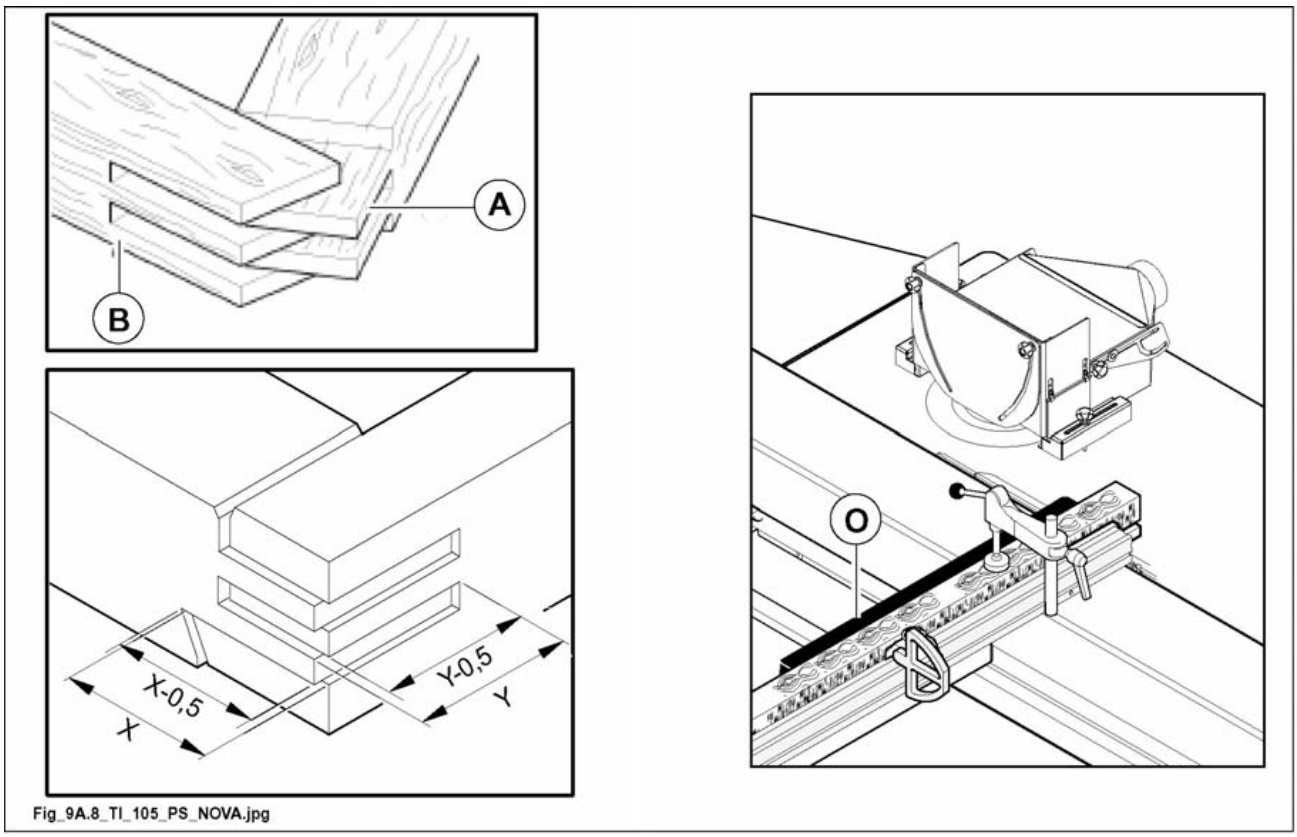


Fig. 9.8

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(vuota_cu_02)

9A.8.1 TENONING

(cu_9a-8-1_0.0)

- Fit the tenoning hood and set it as described in paragraph 9.44.

- Position the telescopic ruler as described in paragraph 4.3.24.2.
- For use, position the stops (B fig. 9.8-1) referring to the metric ruler (T fig. 9.8-1).

DANGER-WARNING:
make sure that no contact between tenoning table and tool is possible.

- Clamp the workpiece with the presser foot (P fig. 9.8-1) by lowering the lever (D fig. 9.8-1).

9A.8.1.1 CLAMPING ARM USE

(cu_9a-8-1-1_0.0)

- For height adjusting loosen handle (C fig. 9.8-1).

- By means of lever (D fig. 9.8-1) lower foot (P fig. 9.8-1) to clamp the piece.

DANGER-WARNING:
always lock the piece using the presser provided.

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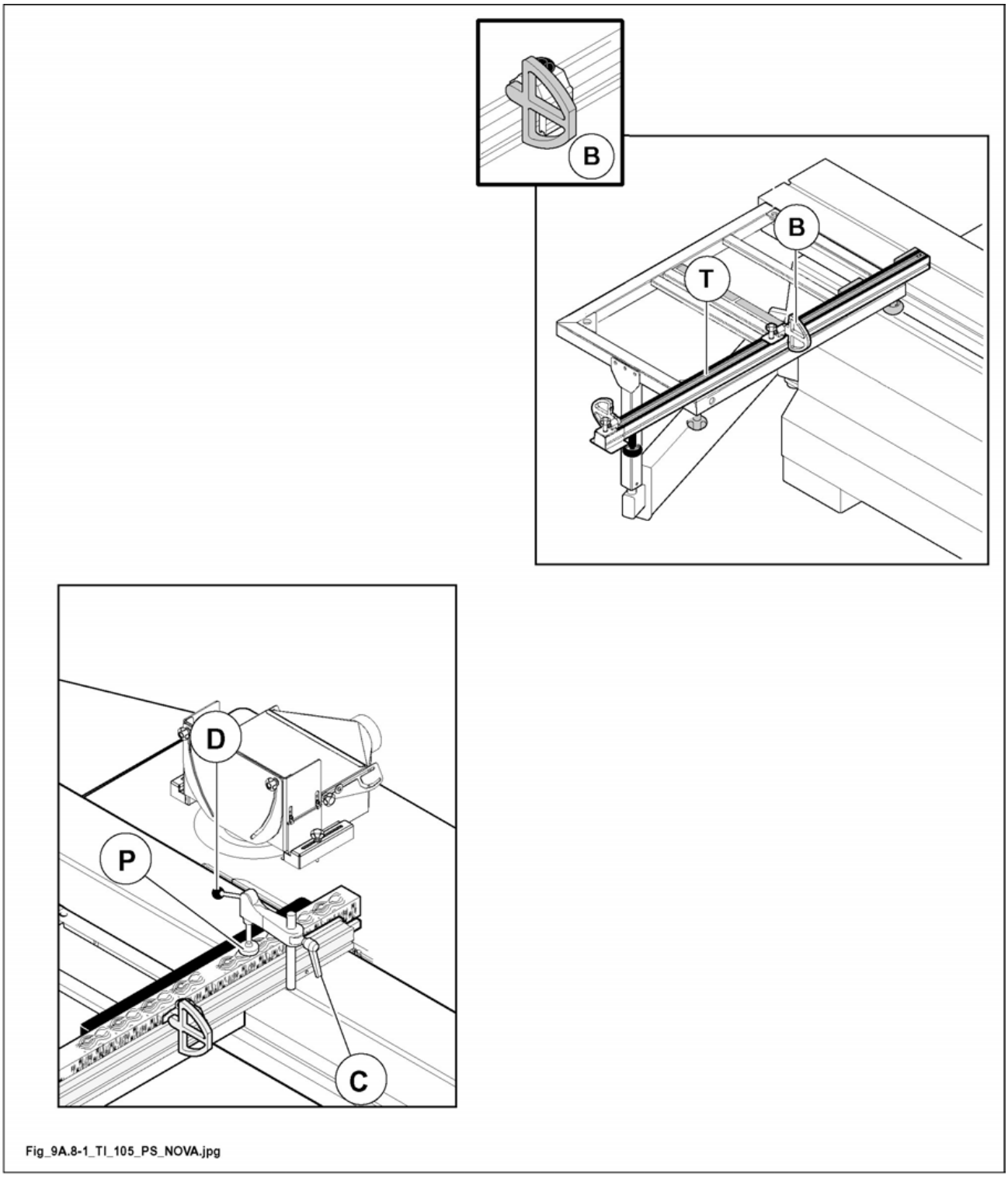


Fig. 9.8-1

9A.8.2 OBLIQUE TENONS

(cu_9a-8-2_0.0)

The working of oblique tenons is quick, because it is sufficient to turn telescopic rest rule (G fig. 9.8-2) clockwise.

- Loosen the knobs (F fig. 9.8-2).
- Turn the rule to the desired angle clockwise (+ / index 1) then read the value directly on scale (T fig. 9.8-2) applied on the table.
- Tighten the knobs (F fig. 9.8-2).

The rule (G fig. 9.8-2) can slide if the two handles are released (F fig. 9.8-2).
This adjustment may be needed to suit the various cutter diameters.

9A.8.2.1 CLAMPING ARM USE

(cu_9a-8-2-1_0.0)

- For height adjusting loosen handle (C fig. 9.8-2).
- By means of lever (D fig. 9.8-2) lower foot (P fig. 9.8-2) to clamp the piece.

DANGER-WARNING:
always lock the piece using the presser provided.

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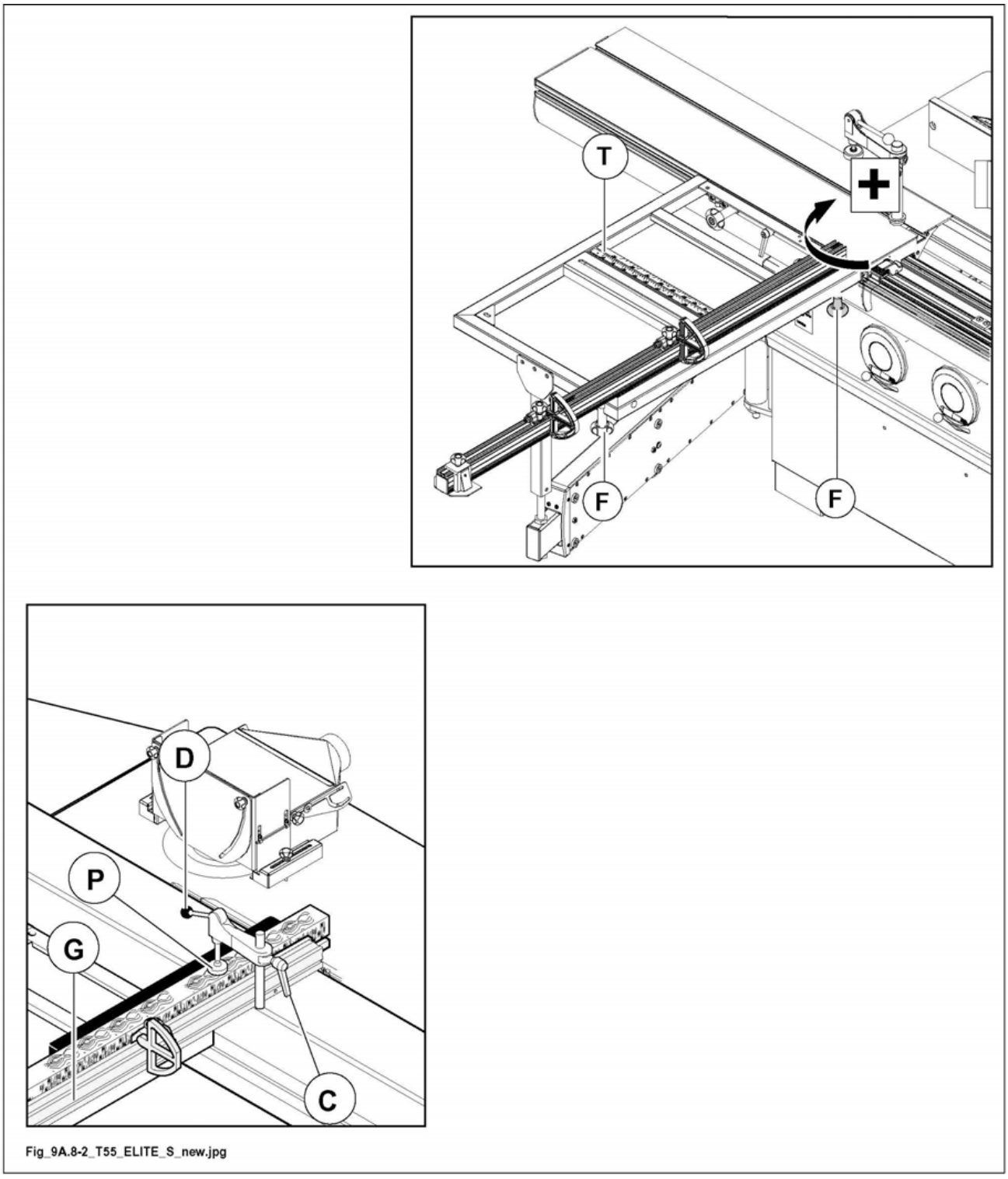


Fig. 9.8-2

9A.33 ADJUSTABLE HOOD-FENCE UNIT

(cu_9-33_0.0)

SAFETY OVER ALL

DANGER-WARNING:
all adjusting operations shall be carried out with standstill spindle.

DANGER-WARNING:
Check that the spindle speed does not excede the max. speed permitted for the used tool. Otherwise see paragraph about speed change.

The tool shall rotate in the right direction.
The pilot lamp on the control board lights up when the tool rotates clockwise.

The operator shall make sure that the spindle can rotate in the direction desired and that the piece feed occurs in the direction contrary to the spindle rotation one.

Use roller conveyors or extension tables (not supplied by SCM***) when machining very long pieces.***

Before working always adjust vertical and horizontal pressure shoe to form a protection of the hands and against eventual ejection of splits and tool parts (see paragraph 9.50).

Before starting the machine make sure that the tools do not touch the parts of the machine.

After every adjustment always close the top cover of moulder hood.

It is prohibited to mount tools with a diameter greater than indicated in Chap. 3.

Machining with the router fence hood should be carried out while keeping the two support tables in their closest possible position, to prevent the tool from carrying the workpiece along. Before proceeding with machining, adjust the router hood and the pressers as indicated (Par. 9A.33).

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The positioning and adjustment of the spindle moulder fence changes according to the type of operation to be carried out.

When profiling the entire side of workpiece half-fence (B) shall be alignad with tool (1 fig. 9.33A)

If profiling is not done on the entire side, but only on a part, the two fences A and B must be aligned (2 fig. 9.33A)

Adjust the guides A and B on the basis of the processing as indicated as follows.
Position the hood on the working table and screw the two knobs (C,G fig. 9.33A) into their special holes.

DANGER-WARNING:
the two fences must be adjusted so the workpiece is stable at both infeed and outfeed.

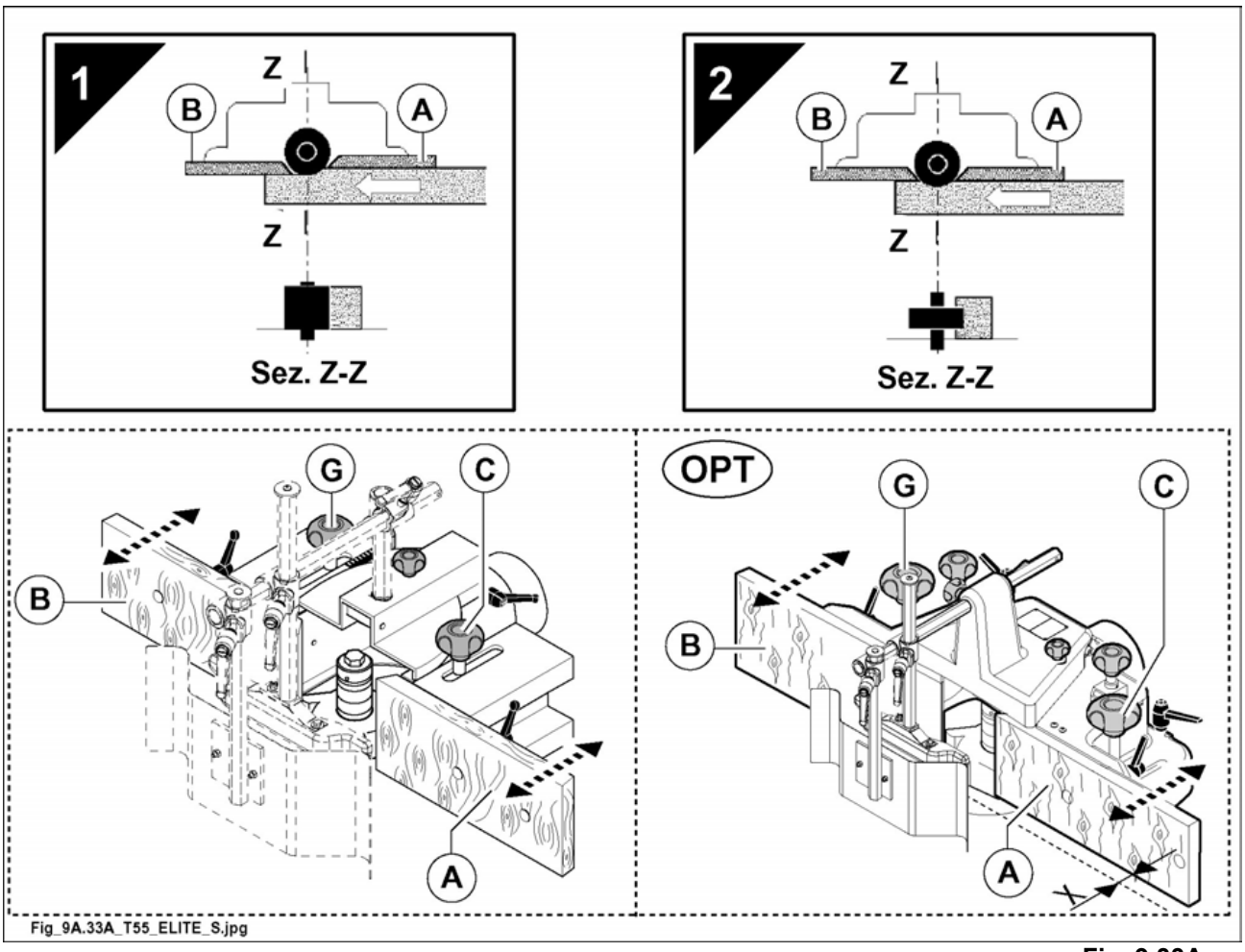


Fig. 9.33A

9A.33.1 ADJUST SPINDLE MOULDER HOOD GUIDE FOR MOULDING WITHOUT REMOVAL

(cu_9a-33-1_0.0)

Simultaneous adjustment of the guides A and B (fig. 9.33-1).

Standard version

- Adjust fence (A fig. 9.33-1) by means of knob (E fig. 9.33-1) after loosening knob (C fig. 9.33-1).
- Adjust fence (B fig. 9.33-1) by means of knob (E fig. 9.33-1) after loosening knob (G fig. 9.33-1).

- The fence halves (A and B fig. 9.33-1) must be as near the tool as possible (about 2-3 mm). To make this adjustment loosen handles (D fig. 9.33-1) behind the fence halves.

NOTE-INFORMATION:
for this operation the fence halves shall be aligned with one another.
Read the deviation between the two tables on index (H fig. 9.33-1). When the index is positioned on "0", the fences are aligned.

- When the adjustment has been carried out, tighten the knobs C and G (fig. 9.33-1).

Version with three movements OPT

- Check that the lever H and the knob E are blocked (fig. 9.33-1).
- Slacken the knobs G and C and the lever L (fig. 9.33-1).
- Adjust the guides via the knob F (fig. 9.33-1).

- The fence halves (A and B fig. 9.33-1) must be as near the tool as possible (about 2-3 mm). To make this adjustment loosen handles (D fig. 9.33-1) behind the fence halves.

NOTE-INFORMATION:
for this operation the fence halves shall be aligned with one another.
The value visualized on the indicator (U fig. 9.33-1) corresponds to the distance from the centre of the spindle moulder to the panel (B fig. 9.33-1). If the tool is level with the panel (B fig. 9.33-1) this measurement coincides with its radius.

- When the adjustment has been carried out, tighten the knobs C and G and the lever L (fig. 9.33-1).

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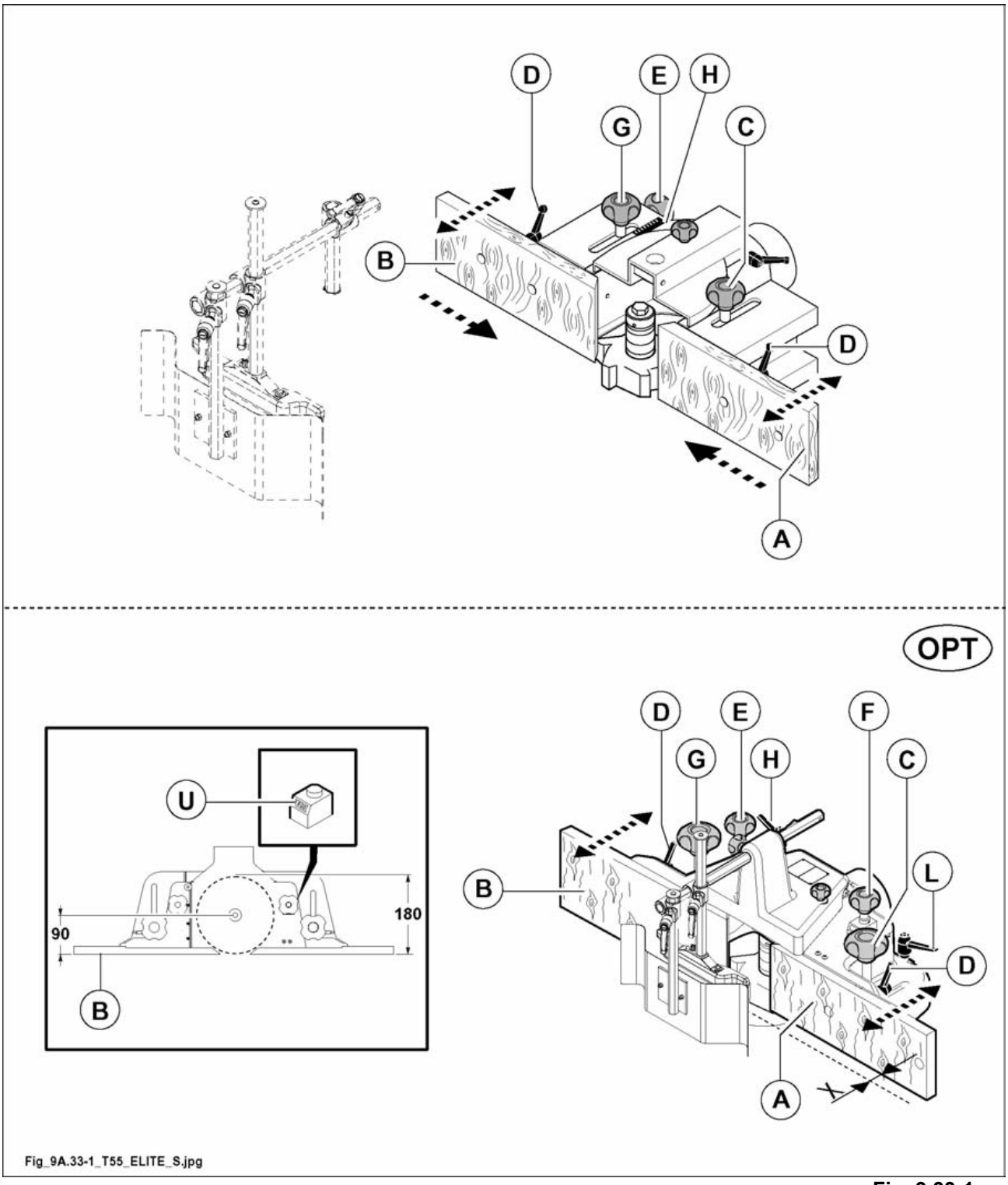


Fig. 9.33-1

9A.33.2 ADJUST SPINDLE MOULDER HOOD FOR MOULDING WITH REMOVAL.

(cu_9a-33-2_0.0)

- After loosening knobs (G, C fig. 9.33-2) move the entire hood- fence unit to the most suitable position for the depth of cut required, then tighten the knobs.

- The fence halves (A and B fig. 9.33-2) must be as near the tool as possible (about 2-3 mm). To make this adjustment loosen handles (D fig. 9.33-2) behind the fence halves.

For further micrometric adjustment of the depth of cut set the fence half (A fig. 9.33-2) as follows:

Standard version
- slacken the knob (C fig. 9.33-2).
- Turn knob (E fig. 9.33-2) to find the correct position: indicator (H fig. 9.33-2) indicates the adjusting measure.
- When the adjustment has been carried out, tighten the knob (C fig. 9.33-2).

Version with three movements (OPT)
- check that the lever (H fig. 9.33-2) and the knob (G fig. 9.33-2) are locked.
- Slacken the knob (C fig. 9.33-2) and the lever (L fig. 9.33-2).
- Turn knob (F fig. 9.33-2) to find the correct position: indicator (U fig. 9.33-2) indicates the adjusting measure.
- When the adjustment has been carried out, tighten the knob (C fig. 9.33-2) and the lever (L fig. 9.33-2).

For micrometric adjustment of fence half (B fig. 9.33-2):

Standard version
- slacken the knob (G fig. 9.33-2).
- Turn knob (E fig. 9.33-2) and with a bar check the alignment of the fence half with the tool.
- When the adjustment has been carried out, tighten the knob (G fig. 9.33-2).

Version with three movements (OPT)
- check that the lever (L fig. 9.33-2) and the knob (C fig. 9.33-2) are locked.
- Slacken the knob (G fig. 9.33-2) and the lever (H fig. 9.33-2).
- Turn knob (E fig. 9.33-2) and with a bar check the alignment of the fence half with the tool.
- When the adjustment has been carried out, tighten the knob (G fig. 9.33-2) and the lever (H fig. 9.33-2).

NOTE-INFORMATION:
Standard version:
Read the deviation between the two tables on index (H fig. 9.33-2). When the index is positioned on "0", the fences are aligned.

Version with three movements (OPT) ***:***
for this operation the fence halves shall be aligned with one another.
The value visualized on the indicator (U fig. 9.33-2) corresponds to the distance from the centre of the spindle moulder to the panel (B fig. 9.33-2). If the tool is level with the panel (B fig. 9.33-2) this measurement coincides with its radius.

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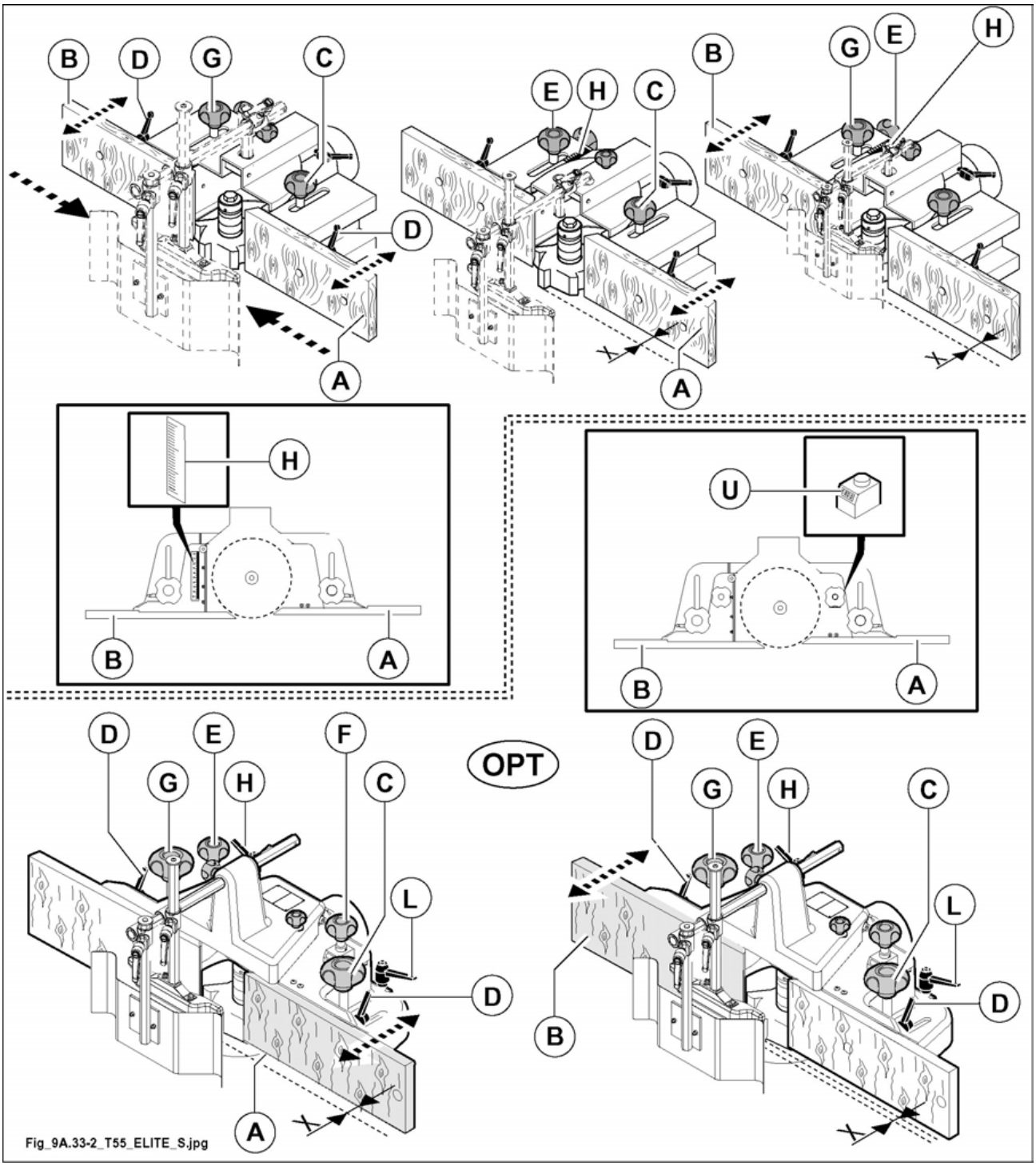


Fig. 9.33-2

9A.33.3 USE OF HOOD-FENCE FOR SMALL PIECES

(cu_9a-33-3_0.0)

When repetitive or special operations must be carried out, it is recommended to make a counterfence to be applied to the router hood, opened to let the tool through. The counterguide must be secured to the two tables by means of the 2 convex-head screws and 2 m8 nuts (fig. 9.33-3).

To mill the passage opening proceed in this way:

- **set horizontal pressure shoe (C fig. 9.33-3) in order to protect the operator against eventual ejection of splits and tool parts.**
- **Move the entire hood-fence unit backwards very slowly, up to opening of passage.**

DANGER-WARNING:
do not use inserts with openings larger than the tool thickness.

DANGER-WARNING:
after each adjustment, always remember to close the upper cover on the moulder hood and position the pressers unit (see par. 9.50).

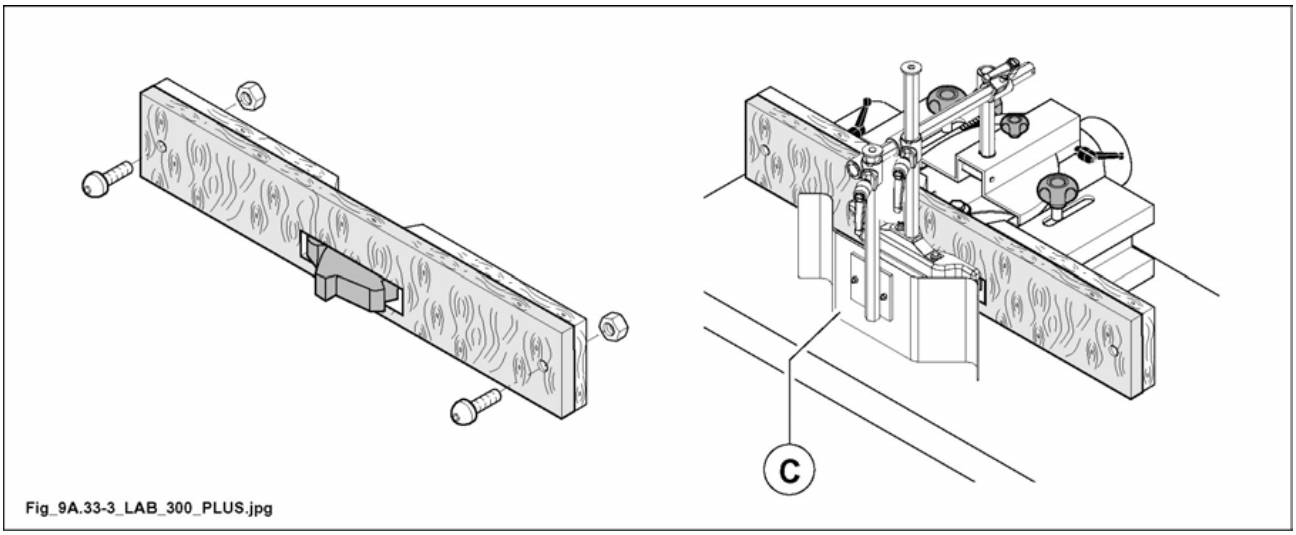


Fig. 9.33-3

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9A.33.4 HOOD-FENCE ADJUSTING FOR PROFILING WITH ROTATION DIRECTION REVERSAL

(cu_9a-33-4_0.0)

DANGER-WARNING:
the machine is equipped with spindle rotation reversal (spindle rotation clockwise).

NOTE-INFORMATION:
the pilot lamp on the control board lights up when the tool rotates clockwise (that is in feed direction).

DANGER-WARNING:
this rotation direction (fig. 9.33-4) is to be avoided as much as possible; as the cutter rotates in "feed direction".
Make sure that the workpiece feed occurs in the direction opposite to the cutter rotation direction..

DANGER-WARNING:
NEVER make the workpiece feed in the tool rotation direction because there is the risk that the workpiece is withdrawn by the pressure shoe.

DANGER-WARNING:
all adjusting operations are to be carried out with standstill spindle.
Adjust pressure shoes (see paragraph 9.50).

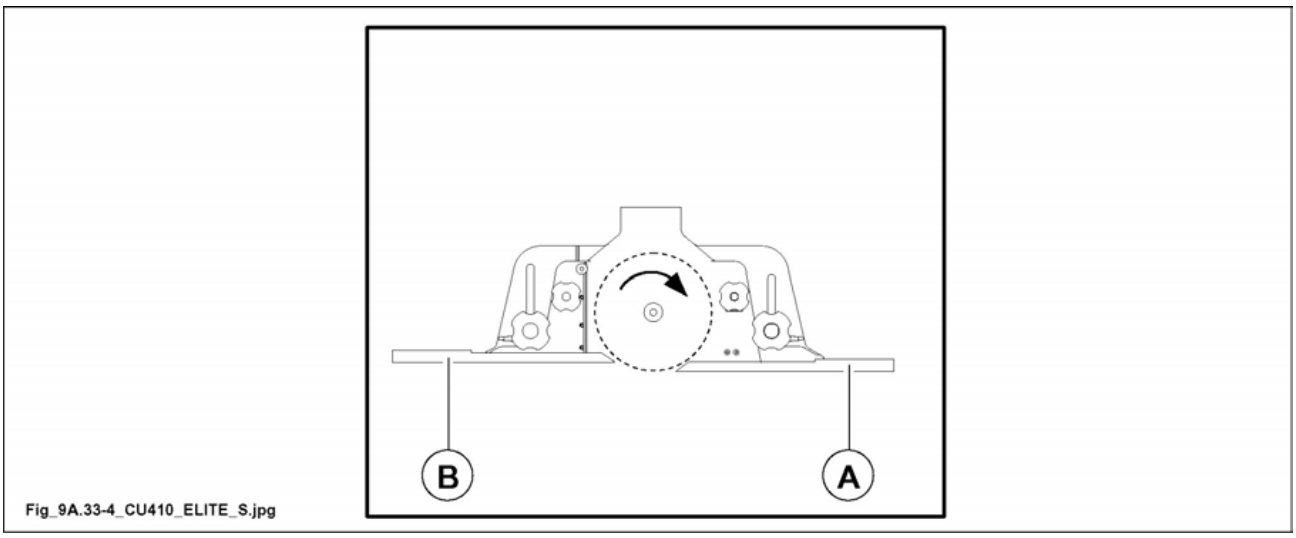


Fig. 9.33-4

In this case, the output guide (B fig. 9.33-4A) can be retracted to 5 mm.

- After loosening knobs (G, C fig. 9.33-4A) move the entire hood- fence unit to the most suitable position for the depth of cut required, then tighten the knobs.

- The fence halves (A and B fig. 9.33-4A) must be as near the tool as possible (about 2-3 mm). To make this adjustment loosen handles (D fig. 9.33-4A) behind the fence halves.

For a further micrometric adjustment of the depth of cut, set fence half (B fig. 9.33-4A) as follows:

- loosen the handle (T fig. 9.33-4A).

- unscrew the regulator by rotating the knob (R fig. 9.33-4A) counter-clockwise.

- Turn knob (P fig. 9.33-4A) clockwise to retract the guide (B fig. 9.33-4A) as required.

- Tighten the handle (T fig. 9.33-4A).

For micrometric adjustment of fence half (A fig. 9.33-4A):

- check that the lever (H fig. 9.33-4A) and the knob (G fig. 9.33-4A) are locked.

- Slacken the knob (C fig. 9.33-4A) and the lever (L fig. 9.33-4A).

- Turn knob (F fig. 9.33-4A) and with a bar check the alignment of the fence with the tool.

- When the adjustment has been carried out, tighten the knob (C fig. 9.33-4A) and the lever (L fig. 9.33-4A).

To re-align the guides:

- loosen the handle (T fig. 9.33-4A).

- Rotate the knob (P fig. 9.33-4A) counter-clockwise as far as the end stop.

- Rotate the knob (R fig. 9.33-4A) clockwise as far as the end stop.

- Retract the guide (B fig. 9.33-4A) by rotating the knob (P fig. 9.33-4A) clockwise as far as the end stop.

- Tighten the handle (T fig. 9.33-4A).



DANGER-WARNING:
the two fences must be adjusted so the workpiece is stable at both infeed and outfeed.

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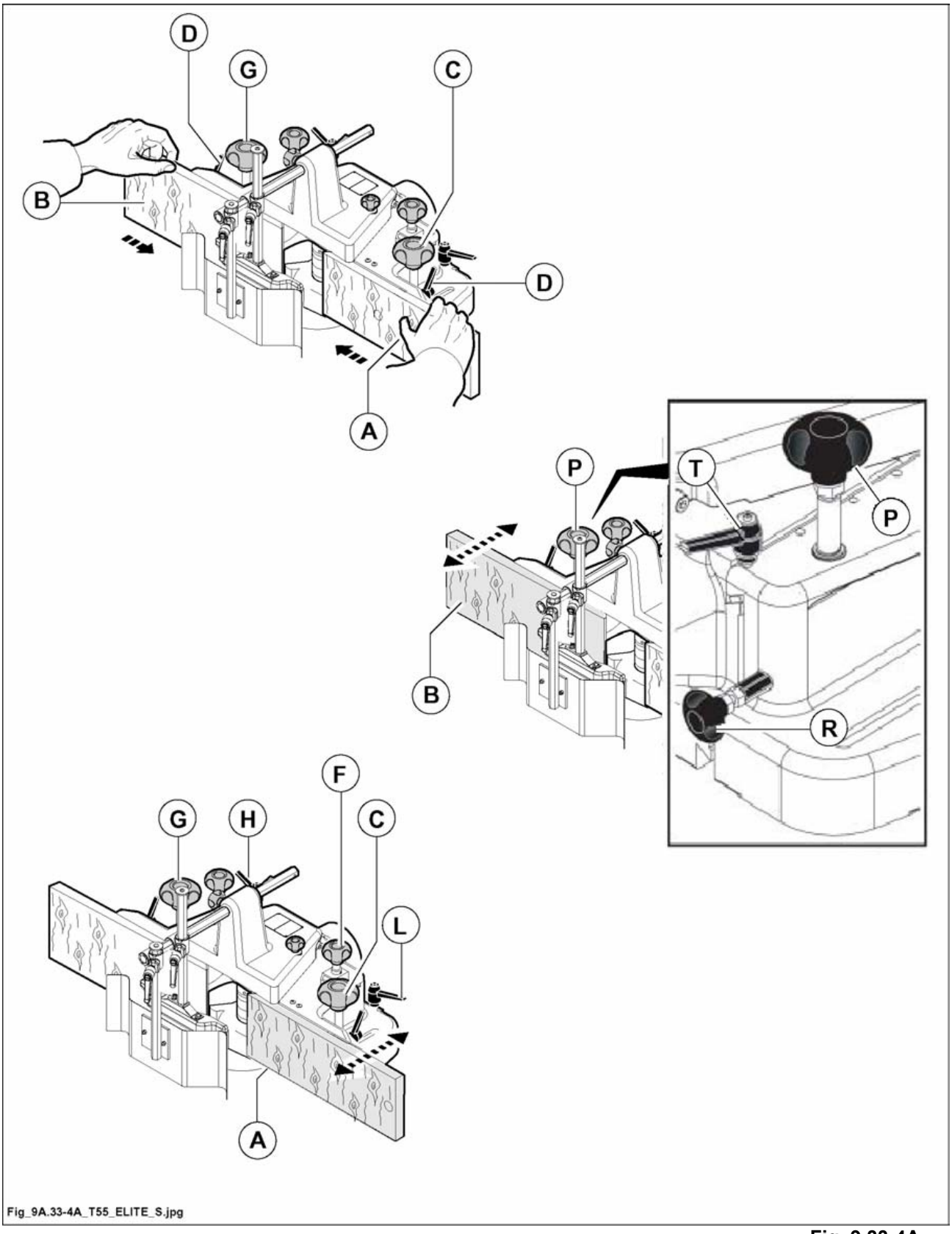


Fig. 9.33-4A

9A.33.5 WORKING EXAMPLES

(cu_9a-33-5_0.0)

Profiling

It is carried out along the wood grain on straight pieces. During the feed motion the entire workpiece shall be in contact with both half-fences of the moulder fence.

CAUTION:
before proceeding with machining, adjust the router hood and the pressers as indicated in paragraph 9A.33.
Before starting work check the various fittings.
Connect fitting (4 fig. 9.33-5A) to the suction system.

DANGER-WARNING:
the piece being machined must always be fed using the wood thrust provided (A fig. 9.33-5A).

Start the system and machine asample workpiece. Check the profile height and depth using a gauge. A good finishing requires a milling with constant feed.

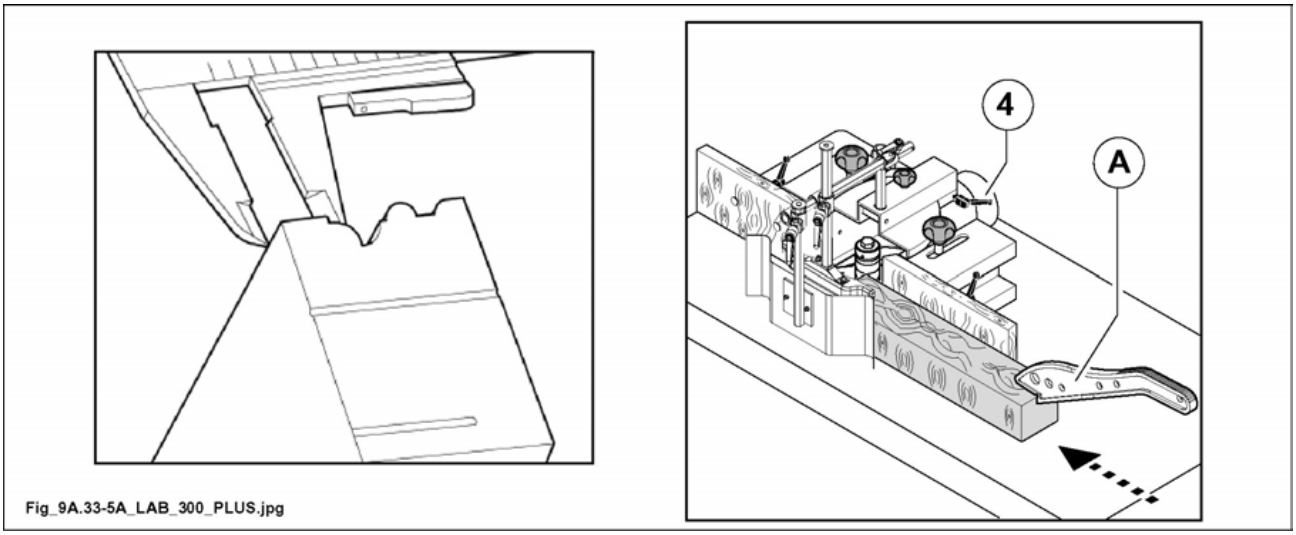


Fig. 9.33-5A

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Profiling with tilted shaft (OPT)

This type of processing permits the production of different profiles using the same tools. This allows machining of different profiles using the same tools.

Set up the machine in the following way:

- fit the hood (G fig. 9.33-5B);
- remove if necessary the rings on the table hindering shaft tilting;
- mount the tools on the shaft (see chapter 4).

DANGER-WARNING:
machining with inclined spindle must exclusively be carried out with a tool of maximum 150 mm diameter.

- Adjust the height and the inclination of the router spindle (Chap.9a);
- adjust working depth using the moulder fences (see chapter 9a).

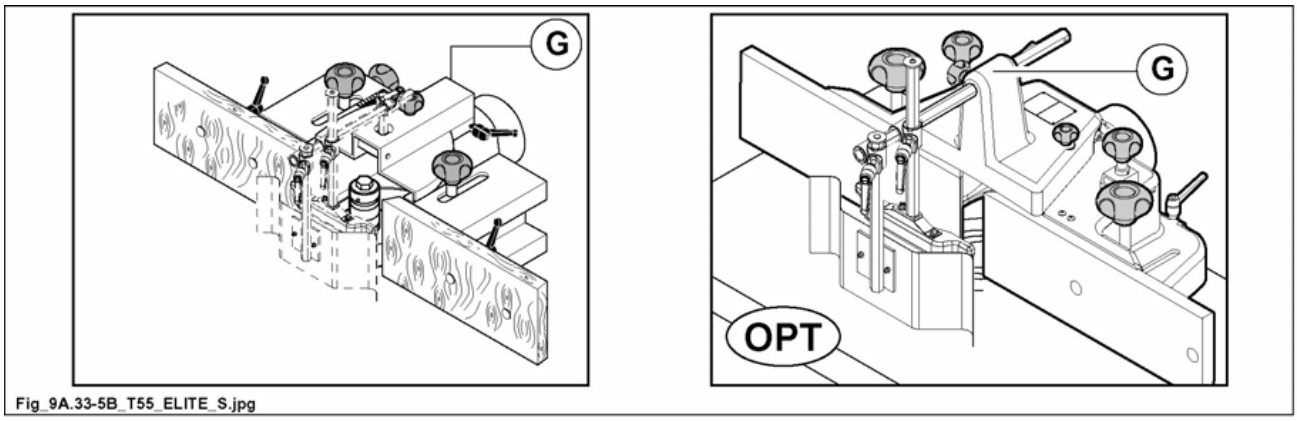


Fig. 9.33-5B

+45° tilt (OPT)***: profiling of flitch (K fig. 9.33-5C) in wings***

Adjust the shaft so that it is perpendicular to the table and using the specially shaped tool (U fig. 9.33-5C) verify that:

- the tool rim speed at point (B fig. 9.33-5C) is much higher than at point (A fig. 9.33-5C), because R1 < R2.

This might lead to a difference in finishing all over the A - B surface or even to burns. When the shaft is tilted to +45° (1 fig. 9.33-5C), this difference is minimized because R1 ~ R2, if a specially shaped tool is used.

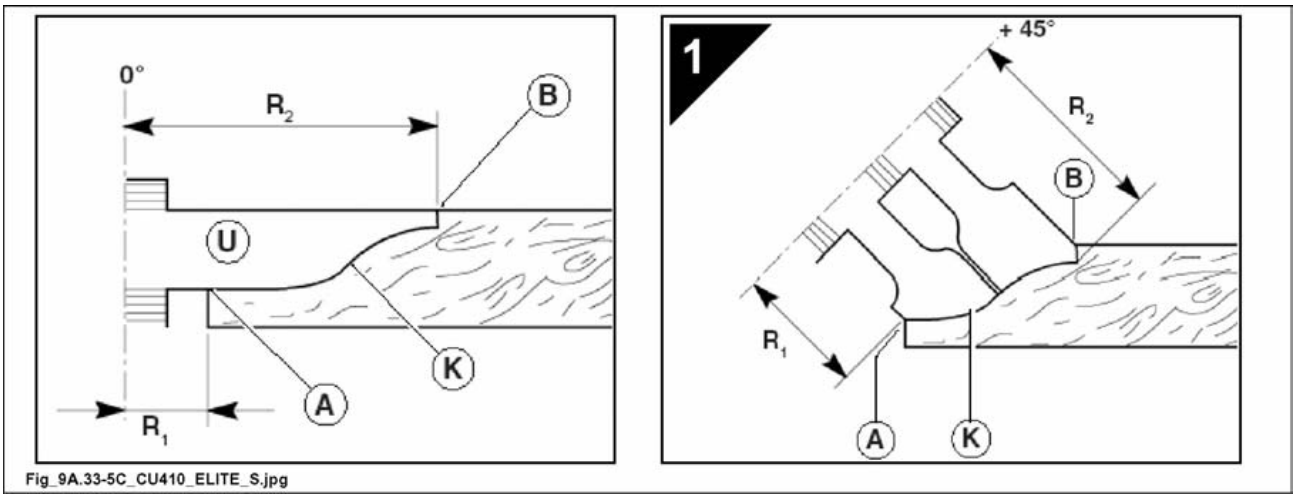


Fig. 9.33-5C

For dead milling cuts (H fig. 9.33-5D) and the machining of short pieces, it is necessary to fi t the stops (A fig. 9.33-5D) and (B fig. 9.33-5D) (not supplied) onto the input fence and the half–fence.
The stops must be fastened ontothe fences (D fig. 9.33-5D) by means of the screws (C fig. 9.33-5D).

To perform the machining, proceed as follows:
- prepare the machine;
- start the moulder shaft;
- rest the wood piece against the stops (A fig. 9.33-5D) and push it against the milling cutter;
- move the piece forward to the stop (B fig. 9.33-5D).

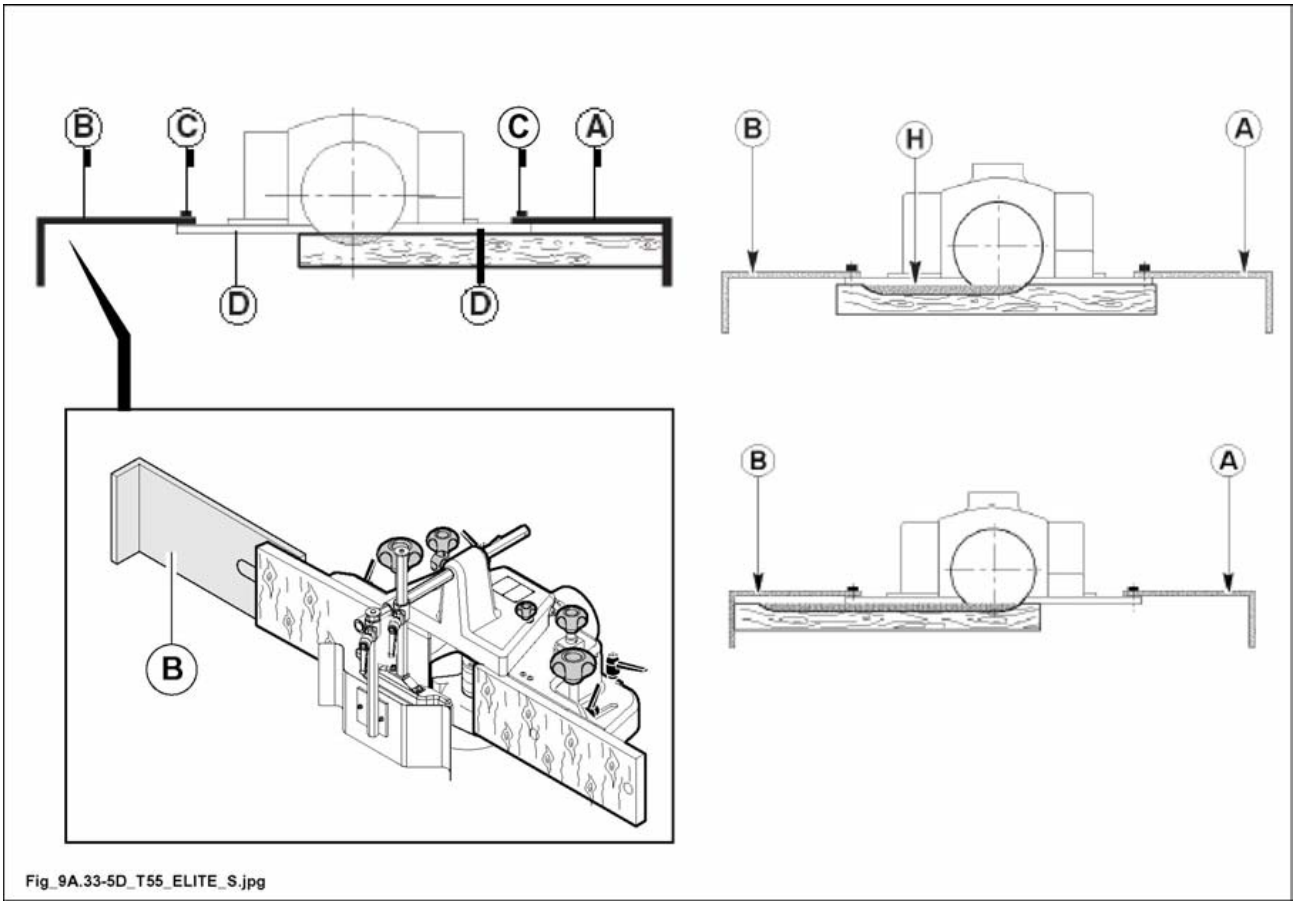


Fig. 9.33-5D

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Rabbeting

It is the external profiling (P fig. 9.33-5F) of a frame. This operation may be carried out with the workpiece on the machine table and against the moulder fence or clamped to the sliding table.

It is better to begin from a crosspiece then turn the frame 90° every time in order to eliminate the chipping obtained in the previous stroke, then work the jamb in the wood grain direction (1 fig. 9.33-5F).

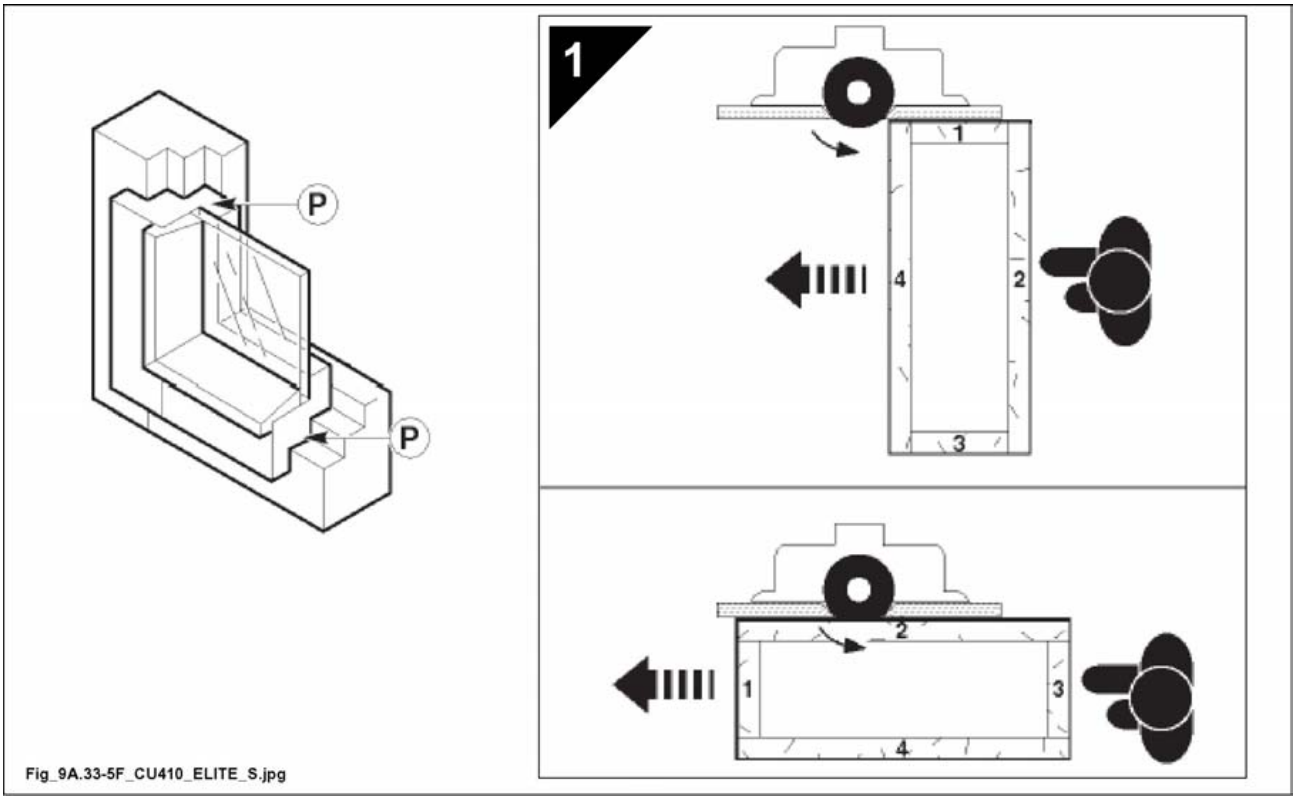


Fig. 9.33-5F

9A.38.4 HOOD-FENCE UNIT ADJUSTING FOR WORKING AT THE FRONT END

(9a.38.4)

OPT

FORBIDDEN:
for this type of machining it is forbidden to perform through routing.

NOTE-INFORMATION:
this working type requires the interchangeable moulding spindle (OPT) with collet for fitting cutters with cylindrical shank.
For this working type set the hood-fence unit to POSITION 2 , see Par. 4.3.73.1

Simultaneous adjustment of the guides A and B (fig. 9.38-4).

Standard version

- Adjust fence (A fig. 9.38-4) by means of knob (E fig. 9.38-4) after loosening knob (C fig. 9.38-4).
- Adjust fence (B fig. 9.38-4) by means of knob (E fig. 9.38-4) after loosening knob (G fig.9.38-4).
- The fence halves (A and B fig. 9.38-4) must be as near the tool as possible (about 2-3 mm). To make this adjustment loosen handles (D fig. 9.38-4) behind the fence halves.

NOTE-INFORMATION:
for this operation the fence halves shall be aligned with one another.
Read the deviation between the two tables on index (H fig. 9.38-4). When the index is positioned on "0", the fences are aligned.

- When the adjustment has been carried out, tighten the knobs C and G (fig. 9.38-4).
- **Before starting the working adjust guards (Q - R - S fig. 9.38-4) in order to protect the operator against eventual ejection of splints or tool parts.**

Version with three movements (OPT)

- Check that the lever H and the knob E are blocked (fig. 9.38-4).
- Slacken the knobs G and C and the lever L (fig. 9.38-4).
- Adjust the guides via the knob F (fig. 9.38-4).

- The fence halves (A and B fig. 9.38-4) must be as near the tool as possible (about 2-3 mm). To make this adjustment loosen handles (D fig. 9.38-4) behind the fence halves.

NOTE-INFORMATION:
for this operation the fence halves shall be aligned with one another.
The value visualized on the indicator (U fig. 9.38-4) corresponds to the distance from the centre of the spindle moulder to the panel (B fig. 9.38-4). If the tool is level with the panel (B fig. 9.38-4) this measurement coincides with its radius.

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- When the adjustment has been carried out, tighten the knobs C and G and the lever L (fig. 9.38-4).
- **Before starting the working adjust guards (Q - R - S fig. 9.38-4) in order to protect the operator against eventual ejection of splints or tool parts.**

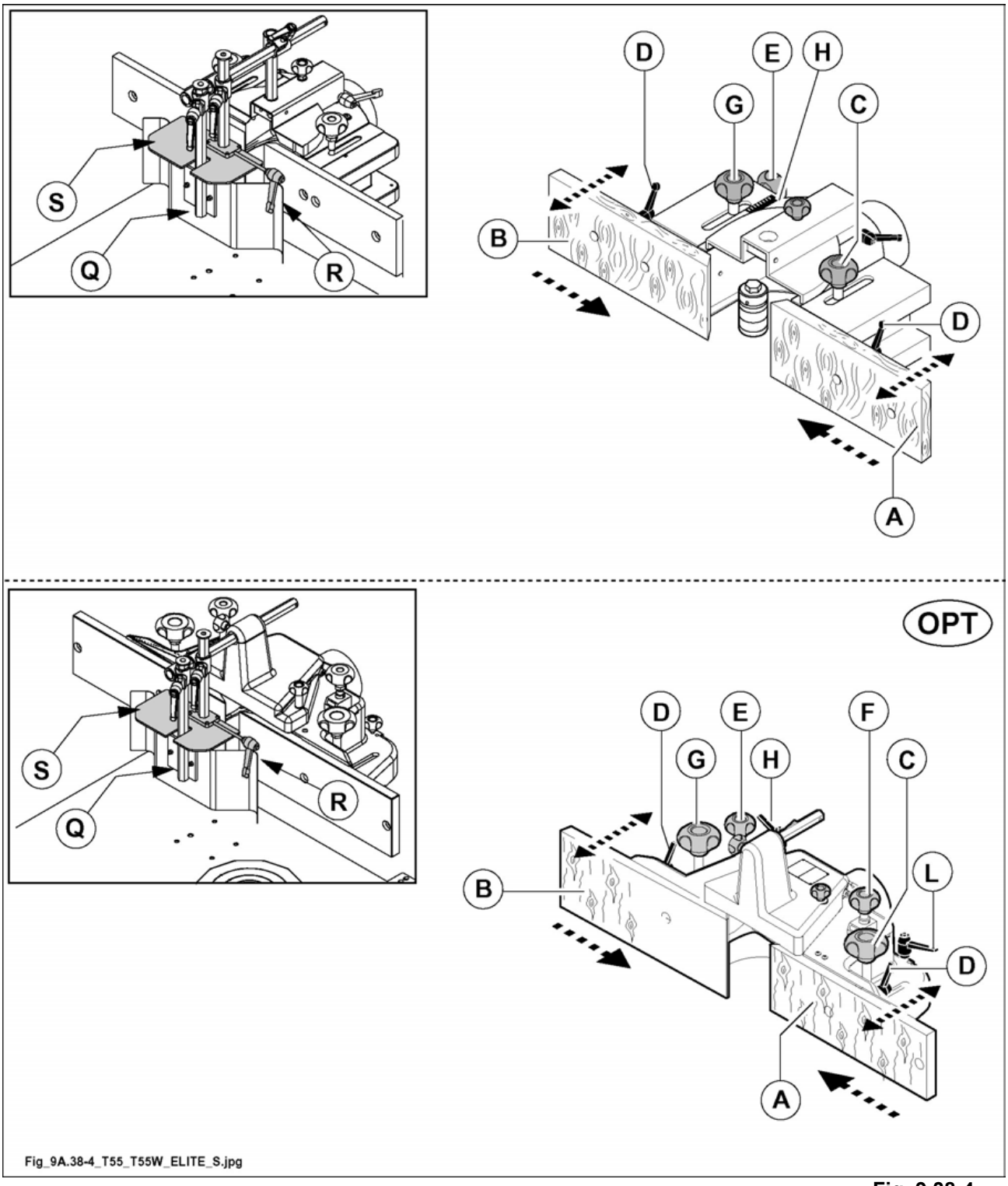


Fig. 9.38-4

9A.44 TENONING HOOD

(cu_9a-44_0.0)

OPT

COMPONENTS

(1 fig. 9.44) - Knobs for locking the hood on the table

(2 fig. 9.44) - Knobs for locking the shield

(3 fig. 9.44) - Cover

(4 fig. 9.44) - Ø 120 mm suction pipe

(5 fig. 9.44) - Shield

(6 fig. 9.44) - Knobs for locking the cover

9A.44.1 ADJUSTING

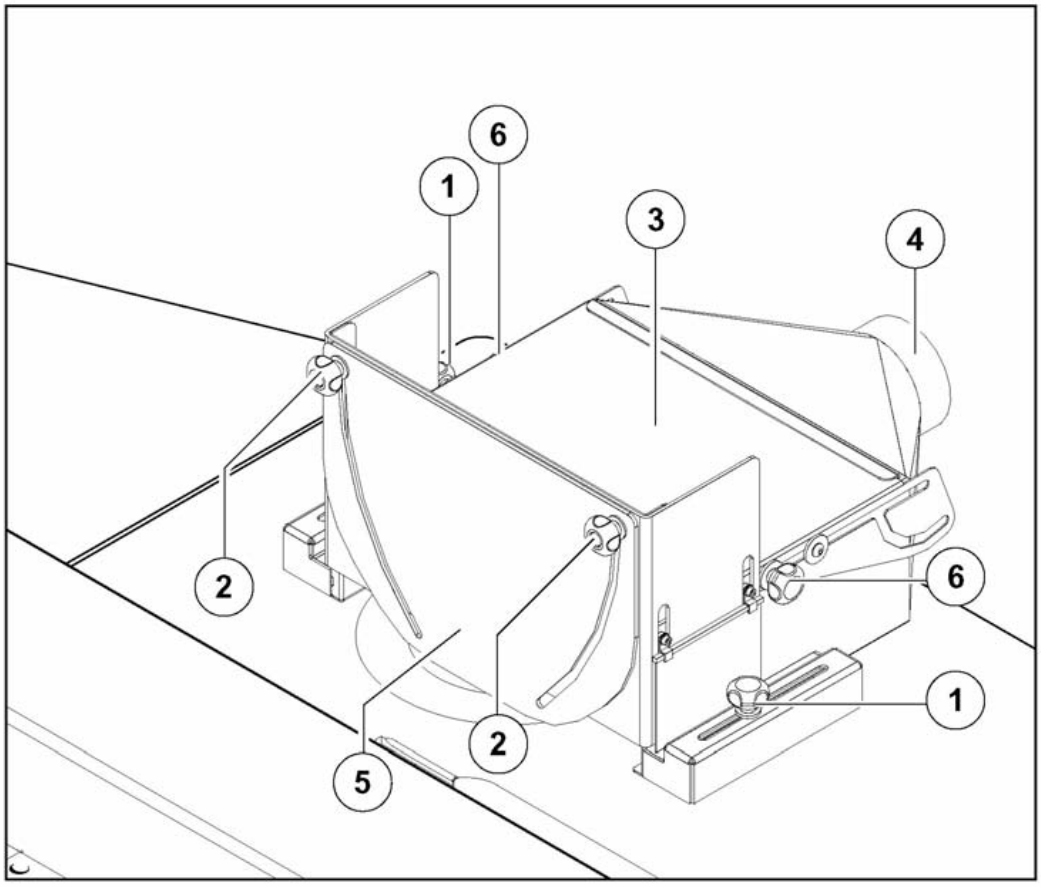
(cu_9a-44-1_0.0)

OPT

- Rest the hood on the table in the position proper for the milling depth required, the fasten it by tightening knobs (1 fig. 9.44).
- To protect the upper part of the tool adjust the upper part of the hood by turning the knobs (6 fig. 9.44).

DANGER-WARNING:
before starting the machine close cover (3 fig. 9.44).
Make sure that the tools do not touch any machine part.

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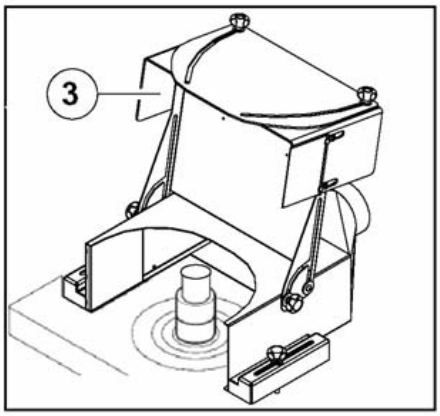


Fig_9A.44_TI_105_PS_NOVA.jpg

Fig. 9.44

9A.50 PRESSURE UNIT FOR PROFILING

(cu_9a-50_0.0)

Components (fig. 9.50):

1) - Horizontal pressure shoe

2) - Vertical pressure shoe

3) - Support

4) - Handle for presser adjusting

5) - Handle for presser adjusting

6) - Handle for presser adjusting

7) - Pusher

DANGER-WARNING:
the vertical and horizontal pressure shoes , fastened to the support, are an efficient protection for the operator's hands and against the eventual ejection of splits or tool parts.

DANGER-WARNING:
all adjustments must be carried out with the shaft stopped.

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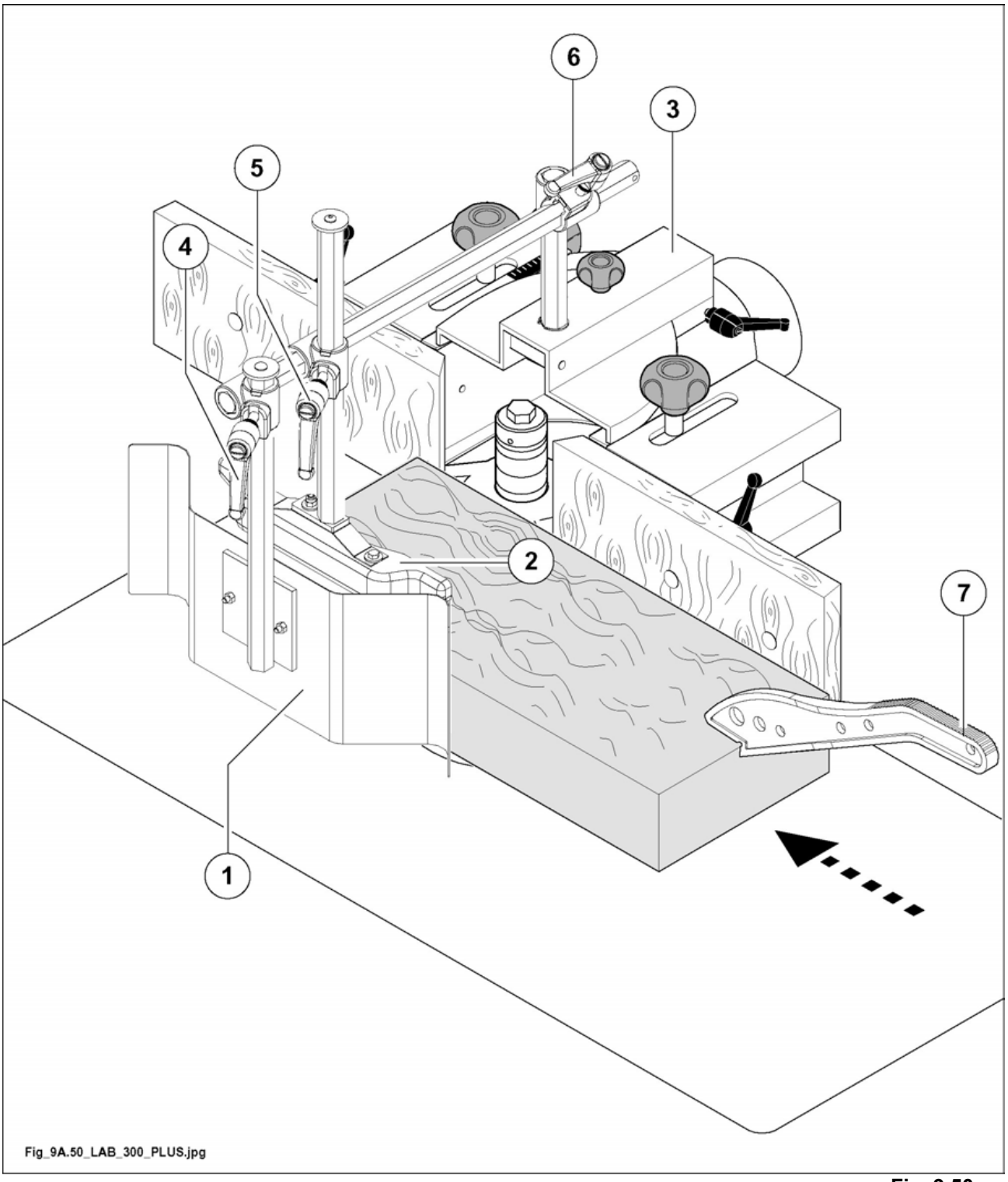


Fig. 9.50

9A.50.1 ADJUSTING

(cu_9a-50-1_0.0)

Before working adjust the pressure exerted by vertical and horizontal pressure shoes.

The workpiece shall easly move without shocks between pressure shoes and fence halves, therefore the pressure shall be not too strong.

- Adjust fence halves (A e B fig. 9.50-1) according to the external cutter diameter.

Adjust the position of the horizontal presser (1 fig. 9.50-1) and the vertical presser (2 fig. 9.50-1) resting it on the piece to be machined and proceed as follows:

Standard version
- slacken the handle (G fig. 9.50-1) and transversally adjust the presser belt (1 fig. 9.50-1) on the basis of the width of the wood to be processed.
- When the adjustment has been carried out, tighten the handle.
- Loosen the handle (M fig. 9.50-1) and position the vertical presser (2 fig. 9.50-1) on the wood maintaining it is close as possible to the cutter.
- Lock the handle (M fig. 9.50-1) when the adjustment has been completed.

Version with three movements OPT
- slacken the knob (G fig. 9.50-1) and transversally adjust the presser belt (1 fig. 9.50-1) on the basis of the width of the wood to be processed.
- When the adjustment has been carried out, tighten the knob.
- Loosen the handle (M fig. 9.50-1) and position the vertical presser (2 fig. 9.50-1) on the wood maintaining it is close as possible to the cutter.
- Lock the handle (M fig. 9.50-1) when the adjustment has been completed.

Adjust the pressure shoes in order to protect the operator against eventual ejection of splits or tool parts.

NOTE-INFORMATION:
after every adjustment make sure that the handles are tight.

DANGER-WARNING:
use a flat pusher (9 fig. 9.50-1) (not supplied by SCM***) to make the piece passage under horizontal pressure shoe (1 fig. 9.50-1) easier.***

NOTE-INFORMATION:
the min. section of the workpiece which may be pressed is 8x8 mm on the entire length.

CAUTION:
release the spindle motor brake.
Turn the tool after carrying out all adjustments in order to avoid any contact with machine parts or with the guard.
Lock the motor brake again.

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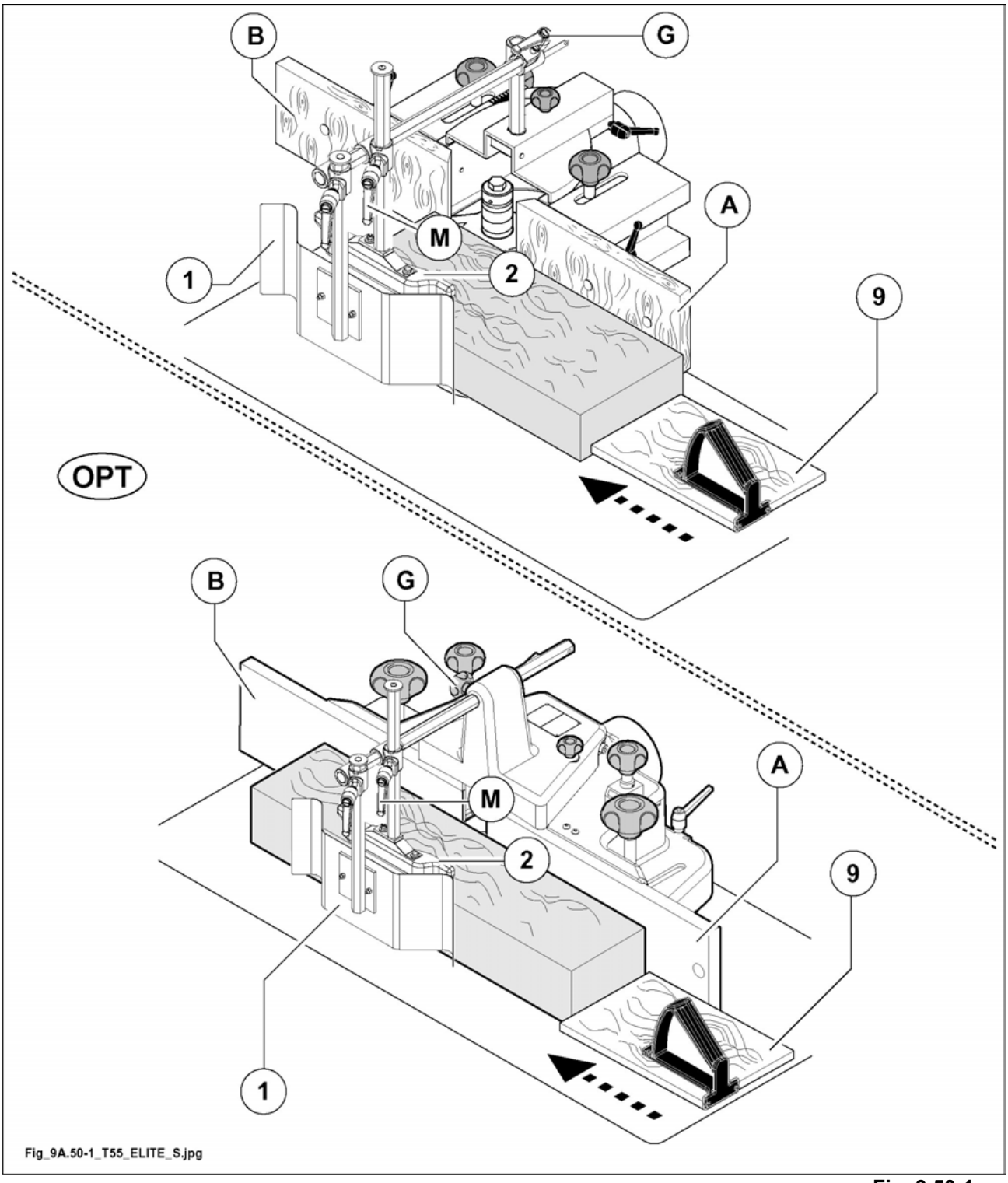


Fig. 9.50-1

9A.55 GUARD FOR MILLING AT THE SPINDLE

(cu_9a-55_0.0)

SAFETY OVER ALL

This device (supplied as a STD accessory) is used for milling pieces with shaped, curved edges or ring-shaped edges.

The right use permits shaping operations in safe conditions.

BEFORE STARTING THE WORKING YOU MUST HAVE ON THE FOLLOWING PERSONAL PROTECTIVE MEANS:

A - Proper aprons, e.g: aprons made of double leather with synthetic fiber cloth insertion (not supplied by SCM**) to protect the operator in case of splinters ejection.**

B - Glasses or protective shields for your eyes.

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9A.55.2 ADJUSTING

(cu_9a-55-2_0.0)

DANGER-WARNING:
all adjusting operations are to be carried out with standstill spindle.

WORKING DEPTH

Version for spindles with max. 30 / 35 mm diameter
- loosen the knob (H fig. 9.55-2A) and act on the knob (M fig. 9.55-2A) to make micrometric adjustments;
- tighten the knob (H fig. 9.55-2A).

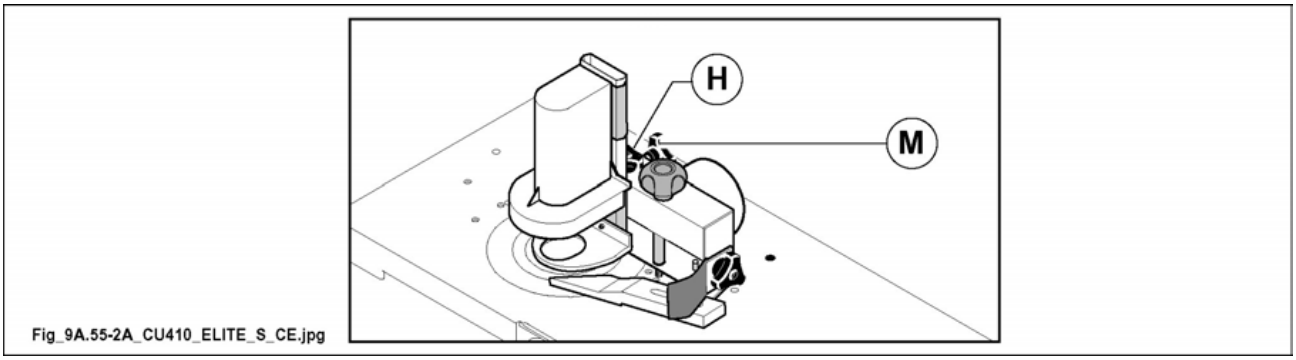


Fig. 9.55-2A

Version for spindles with max. 40 / 50 mm diameter
- loosen the knobs (H fig. 9.55-2B) and (L fig. 9.55-2B) and manually translate the hood in the desired position;
- tighten the knob (H fig. 9.55-2B) and turn the knob (M fig. 9.55-2B) to do the micrometric adjustment;
- tighten the knob (L fig. 9.55-2B).

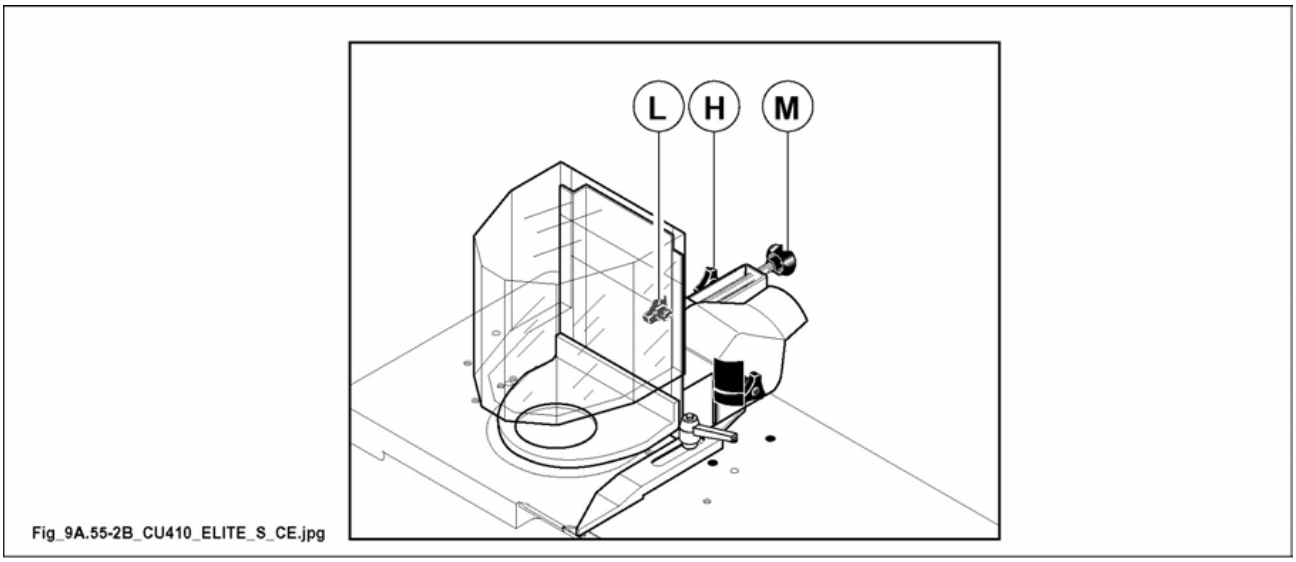


Fig. 9.55-2B

TRACER RESTS - HEIGHT ADJUSTMENT

- loosen the knob (C fig. 9.55-2C) or the screws (B fig. 9.55-2C) and adjust the rest (D fig. 9.55-2C) to the desired height;
- relock when adjustment has been completed.

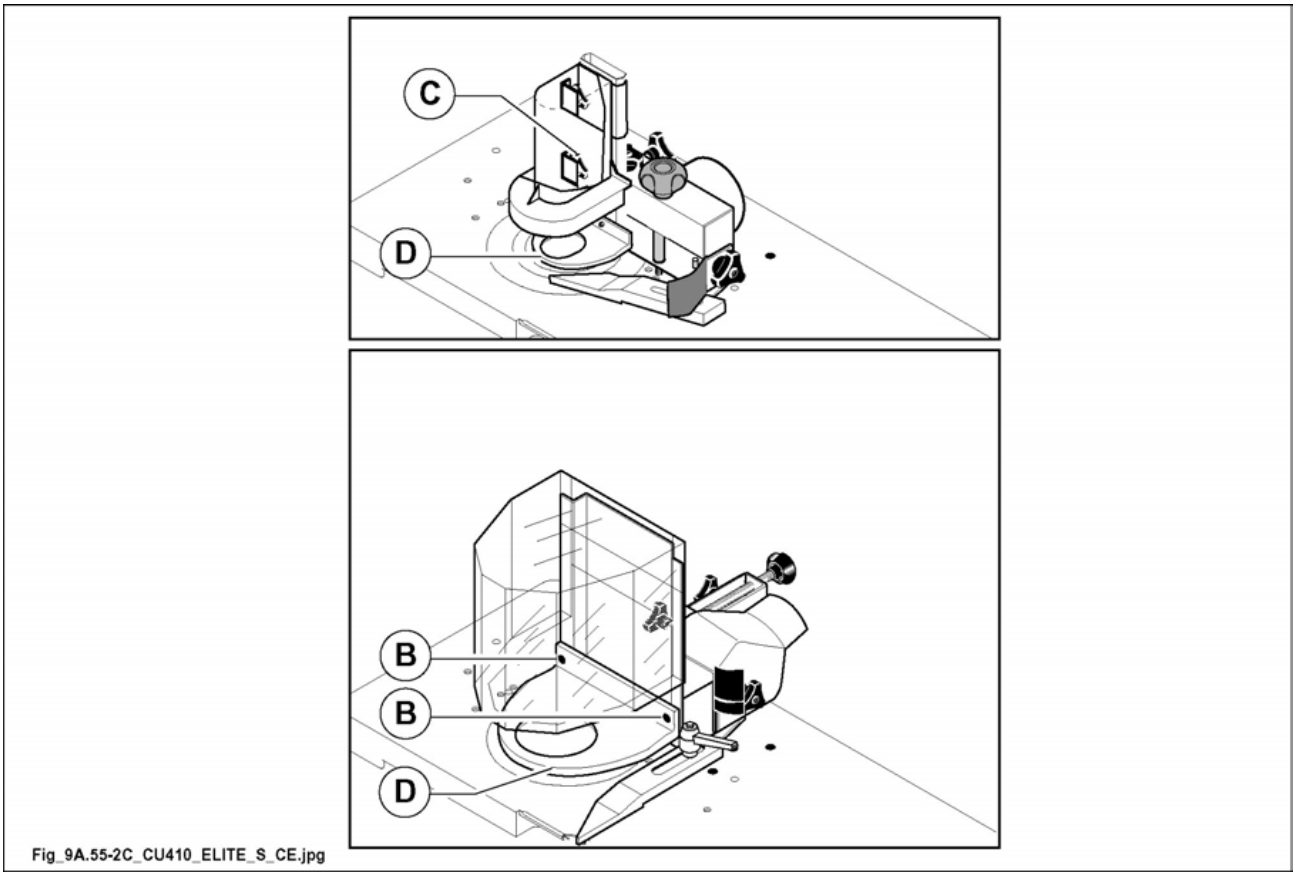


Fig. 9.55-2C

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PRESSER

- loosen the knob (E fig. 9.55-2D) or the screws (A fig. 9.55-2D) and adjust the presser (G fig. 9.55-2D) in such a way that it exercises slight pressure on the piece to be machined;
- relock when adjustment has been completed.

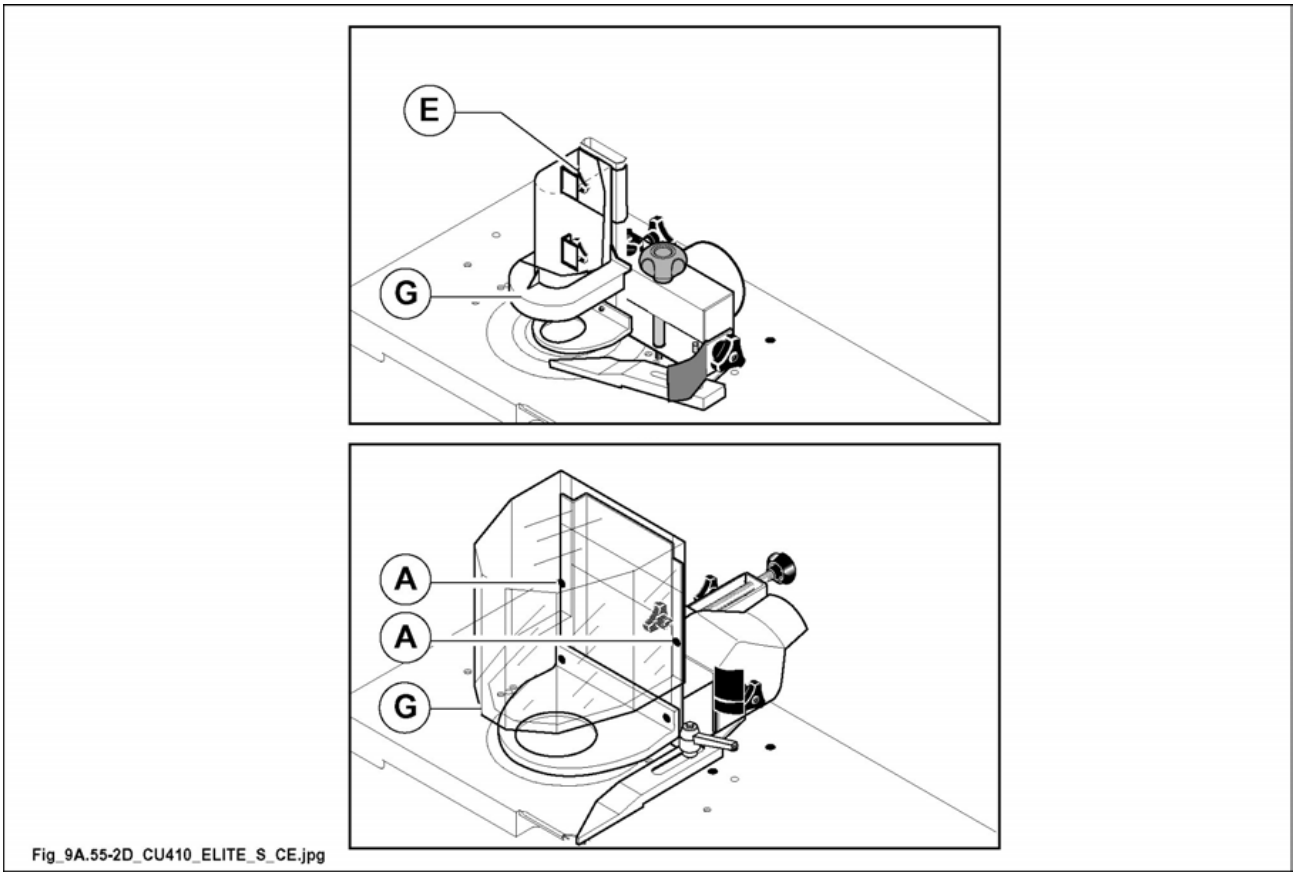


Fig. 9.55-2D

9A.55.3 WORKING EXAMPLES

(cu_9a-55-3_0.0)

This operation is carried out for obtaining profiles along bent lines. The shaping is carried out by means of the milling cutter (A fig. 9.55-3) and the copying ring (D fig. 9.55-3) fitted on the hood (C fig. 9.55-3).

CAUTION:
adjust the hood as indicated in paragraph 9A.55-2.
Before starting work check the various fittings and turn the tool manually to prevent possible contact with fixed parts.
Connect fitting (4 fig. 9.55-3) to the suction system.

For machining proceed by placing the profile on the guide (E fig. 9.55-3), firmly fixed to the support and push it up to the reference (H fig. 9.55-3) stamped on the rest.
Thus progressive attachment is obtained until maximum cutting depth.

The reference (H fig. 9.55-3) indicates the point of maximum cutting depth.

The fence may be fixed to the support both on the right side and on the left side of the operator according to the spindle rotation direction.

NOTE-INFORMATION:
to obtain regular removal the whole machining process must be carried out in correspondence to the reference (H fig. 9.55-3).
As a material for the template (P fig. 9.55-3) use a multilayer panel; the template shall be equipped with clamps (S fig. 9.55-3).

Machine with reversal of rotation
- Mount the bracket (G fig. 9.55-3) as indicated in Par. 4.3.73.5.
- Move guide (E fig. 9.55-3) to opposite side (B fig. 9.55-3) after loosening knob (K fig. 9.55-3).

DANGER-WARNING:
set the clenched fists flat on the piece and push it forward by resting it against fence (E fig. 9.55-3) or against the straight part of the steady rest.

In case of milling against the wood grain or in tranverse direction to the wood grain (dangerous situation), you have to reduce the feed motion to avoid the wood fiber rupture.

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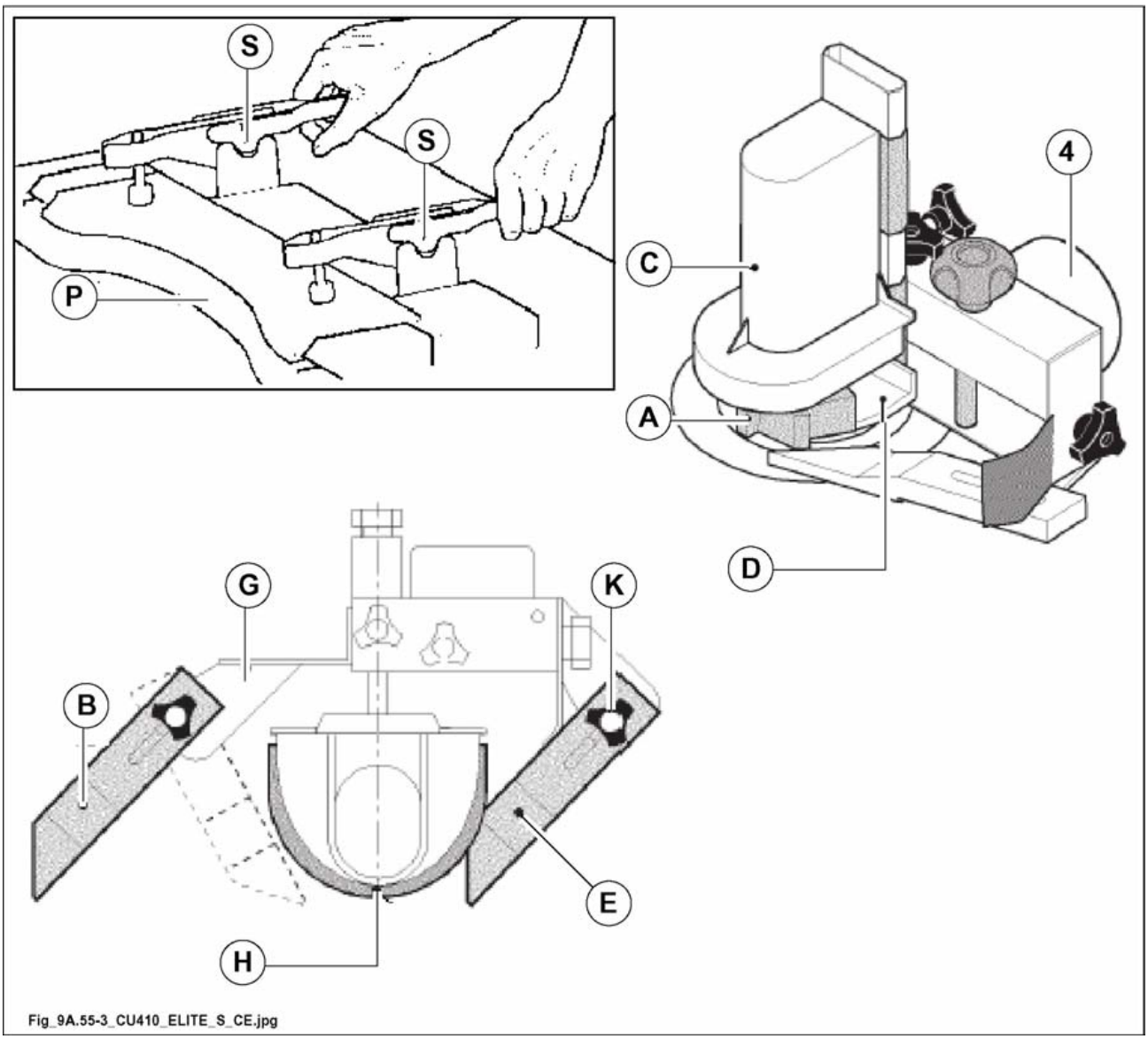


Fig. 9.55-3

9A.55.4 MAINTENANCE

(cu_9a-55-4_0.0)

Replace the worn or damaged parts.

Keep the guard always clean and check its good conditions.

INDEX

15.1 Pusher 2

15.1 PUSHER

(ev_15-1_0.0)

DANGER-WARNING:
when for the execution of a peculiar working, the operator is obliged to put his hands near the tools, for safety reasons a proper pusher shall be used to move the workpiece forwards, to push it against the fence or to remove it after the cutting.

Handle (A fig. 15.1) is supplied for this purpose and can be applied to pushers (D fig. 15.1) of different size by means of screws (B and C fig. 15.1).

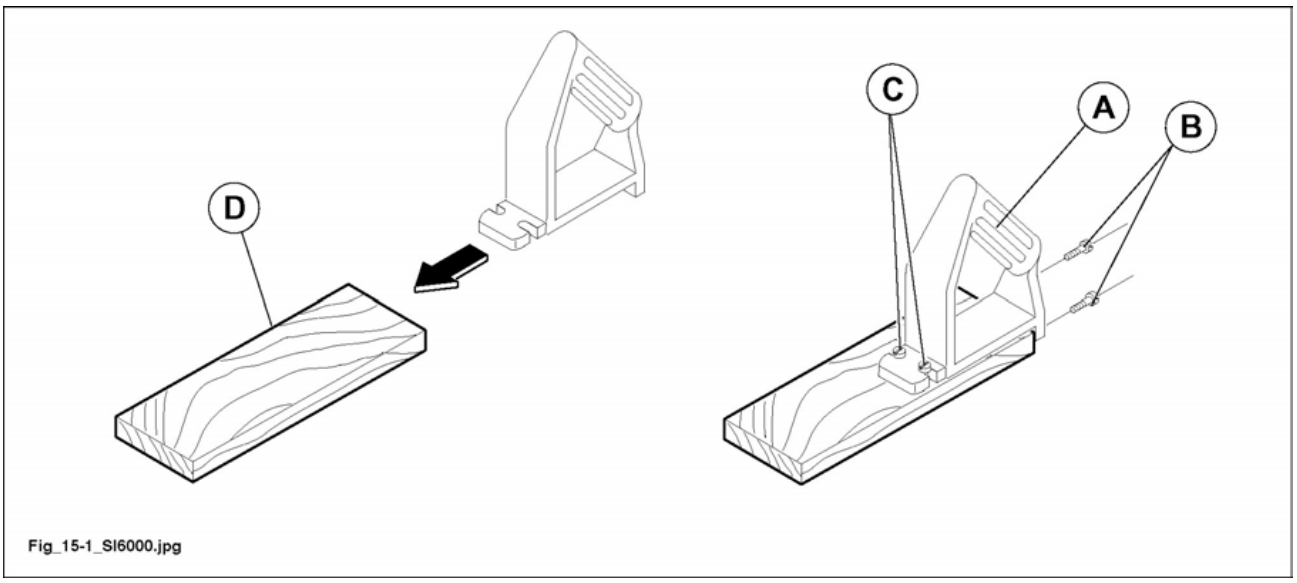


Fig. 15.1

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EV 200

(cu_titolo_ev 200)

ADJUSTING THE ELECTRONIC INDICATOR (Lifting only)

16.A.1 ENTERING A NEW DISPLAY NUMBER

(he_16.a.1_0.0-ce)

If the indicator gives an imprecise indication, restore adjustments as follows.

The function of the 3 front keys is hindered until you press "A/r" for more than 8 seconds.

"--------" is displayed.

Within 5 seconds press "+" and " -" key to enter the new number or press "A/r" key to set to zero (if within 10 seconds you do not press the keys, you return to the normal operation).
The value, you have entered, is stored, if for 10 seconds no key is pressed (and the message “end” is displayed to confirm this).

16.A.2 INSTRUCTIONS ONLY FOR SKILLED TECHNICIAN AUTHORIZED BY SCM

(he_16.a.2_0.0_ce)

CONSTANT INPUT

1) Within 60 seconds after switching on the display, press “+” and “-“ keys at the same time and hold them pressed until “P1” appairs.

2) Press “A/r” key: the constant, you have set, appairs on the display; by means of “+” and “-“ keys input the required constant value.

3) Press “A/r” key: the constant is stored, “P2” appairs on the display. Press “A/r” key again: the correction value is displayed.
By means of “+” and “-“ keys input the required correction value.

4) Press “A/r” key: the correction value is stored, “P2” appairs on the display. Press “A/r” key again the point position is displayed.
By means of “+” and “-“ keys move the point to the required position (0 - 0.0 - 0.00 - 0.000 - 0.0000).

5) Press “A/r” key to store the point position.

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LIST OF FACTORY SET CONSTANT		
Variables	**mm**	**Inch**
P1	38	97
P2	10000	10050
P3	0.0	0.00

If necessary, it is possible to activate the absolute Zero function or relative Zero. Absolute Zero refers to the zero dimension determined by the worktable. Relative Zero refers to the zeroing effectuated by the operator on the basis of his requirements.

- Press the key “A/r” for at least 0.5 seconds; on the first display the letter “r” appears and the dimension is zeroed. It is possible to perform relative movements.
- To pass to absolute Zero again, press “A/r”.

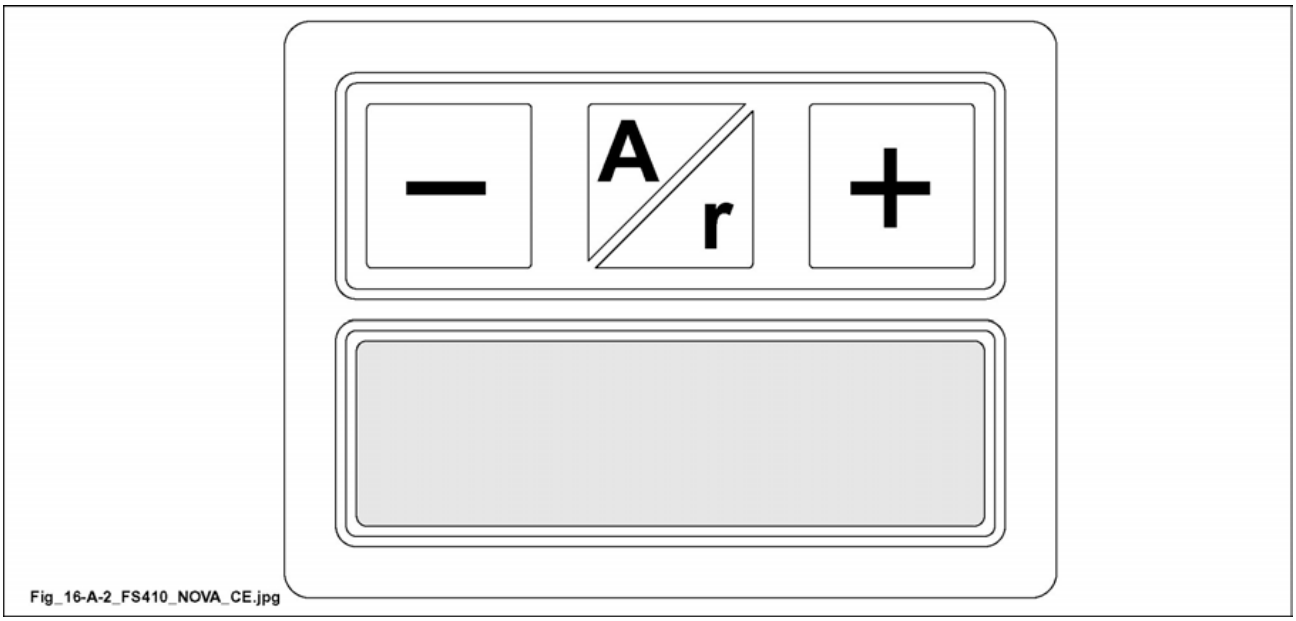


Fig. 16.A.2

EV 202

(lab_titolo_ev202)

16.A.3 TILTING CORRECTION CONSTANT INPUT

(he_16.a.3_0.0_ce)

CONSTANT INPUT

The constants are entered during the machine test at factory.

Only in case of counter replacement proceed as follows:

1) Within 60 seconds after switching on the display, press “+” and “-“ keys at the same time and hold them pressed until “P” appairs.

2) By means of “+” and “-“ keys move to the required correction value “P0”.

3) Press “A/r” key to store the chosen value.

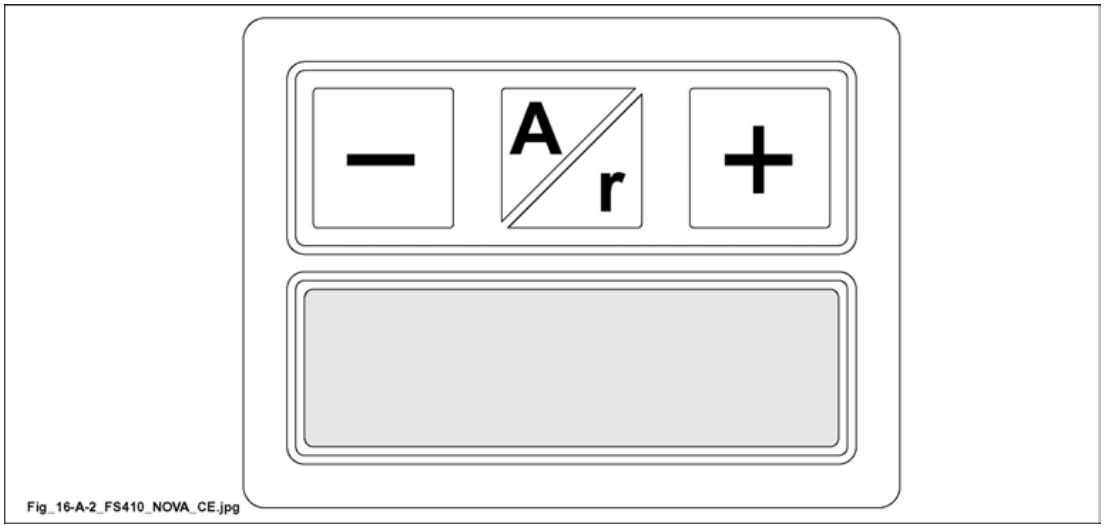


Fig. 16.A.3

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18.2 Card for SEPRI CMR D.C motor control 4

18.1 HOW TO REPLACE THE CARD FOR D.C. MOTOR DRIVE

(fs_18-1_0.0)

1) Shut off the power by means of main switch QS on the electric cubicle.

2) Open the door of electric cubicle by unscrewing the fixing screws and make the access to the card inside the electric box free.

3) Take off the card (S fig. 18.1) from the 4 plastic supports by bending the locking tooth; we suggest to use a small plastic pipe of proper diameter (e.g. a body pen see fig. 18.1).

4) Disconnect the 3 connectors on the card.

5) Position the dip-switches; see diagram fig. 18.1.

6) Connect the new card according to the wiring diagram, fasten the card to the door of the electric box, shut the electric cubicle before putting the machine under voltage.

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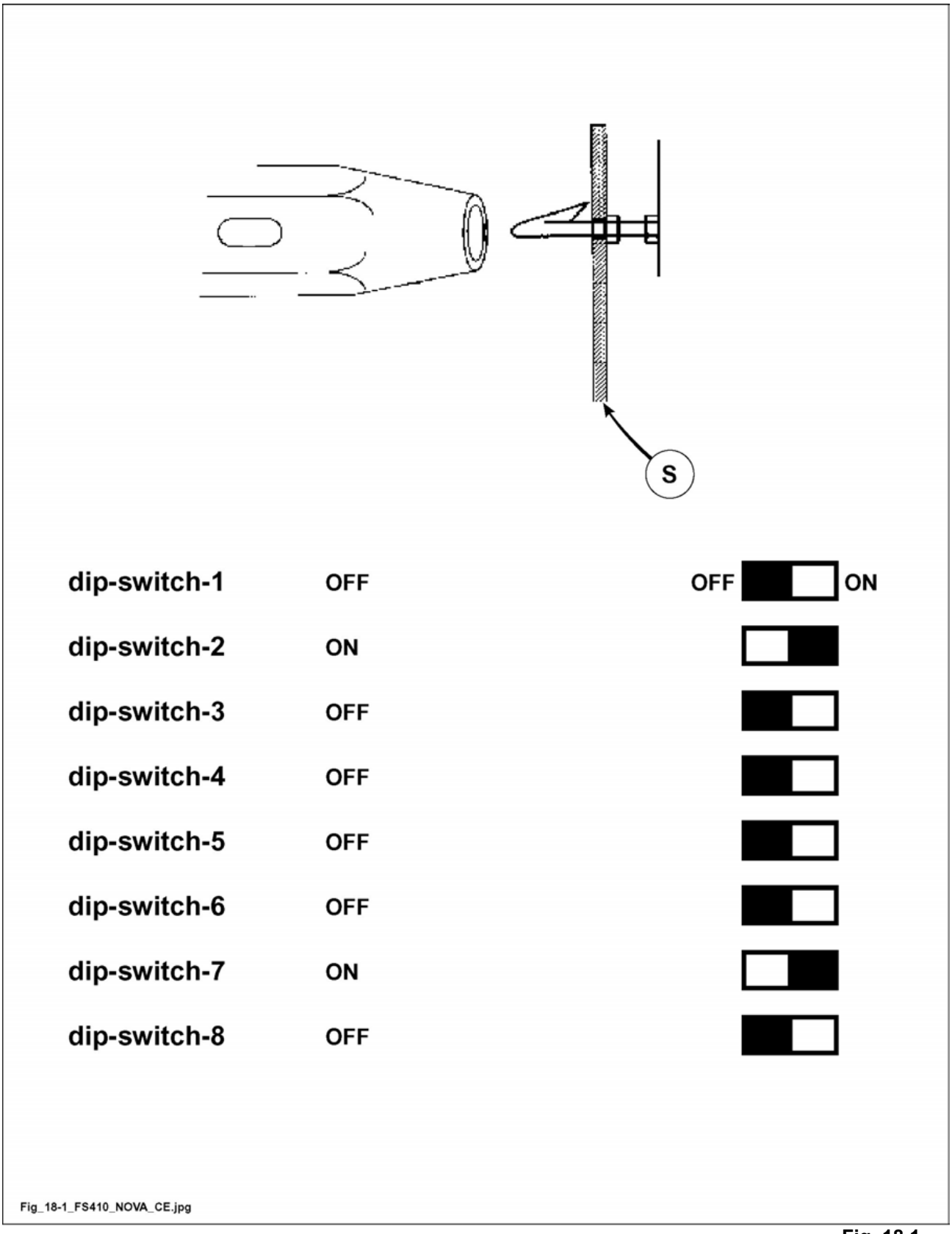

S
dip-switch-1 OFF
dip-switch-2 ON
dip-switch-3 OFF
dip-switch-4 OFF
dip-switch-5 OFF
dip-switch-6 OFF
dip-switch-7 ON
dip-switch-8 OFF
OFF
ON
Fig_18-1_FS410_NOVA_CE.jpg

Fig. 18.1

18.2 CARD FOR SEPRI CMR D.C MOTOR CONTROL

(fs_18-2_0.0)

NOTE-INFORMATION:
check the conditions for the right operation of the card.

Make sure that the following voltage values are present on the card (fig. 18.2):

1) 30 V a.c between terminals 1 and 2 of the terminal board with 10 terminals (fig. 18.2);

2) if the fuse is OK, these are the conditions to have 24 V d.c at output between terminals 3 and 4 of the same terminal board, by sending 110 V voltage (high potential) to channel A (fig. 18.2) or to channel B (fig. 18.2) of the terminal board with 8 terminals.

Otherwise, replace the card and send the defective one to SCM Technical Service.

3 leds are present on the card (E fig. 18.2) :

- red light lit: fuse of the card interrupted;
- green light lit: intervention of motor overvoltage cutout;
- yellow light lit: intervention of motor overload cutout.

CMR CONTROL CARD LEGEND	
Reference	**Description**
A	CHANNEL A - 110 V high
B	CHANNEL B - 110 V high
C	110 V low
D	EMERGENCY
E	LEDS
V a.c.	Volt - alternate current
V d.c.	Volt - direct current

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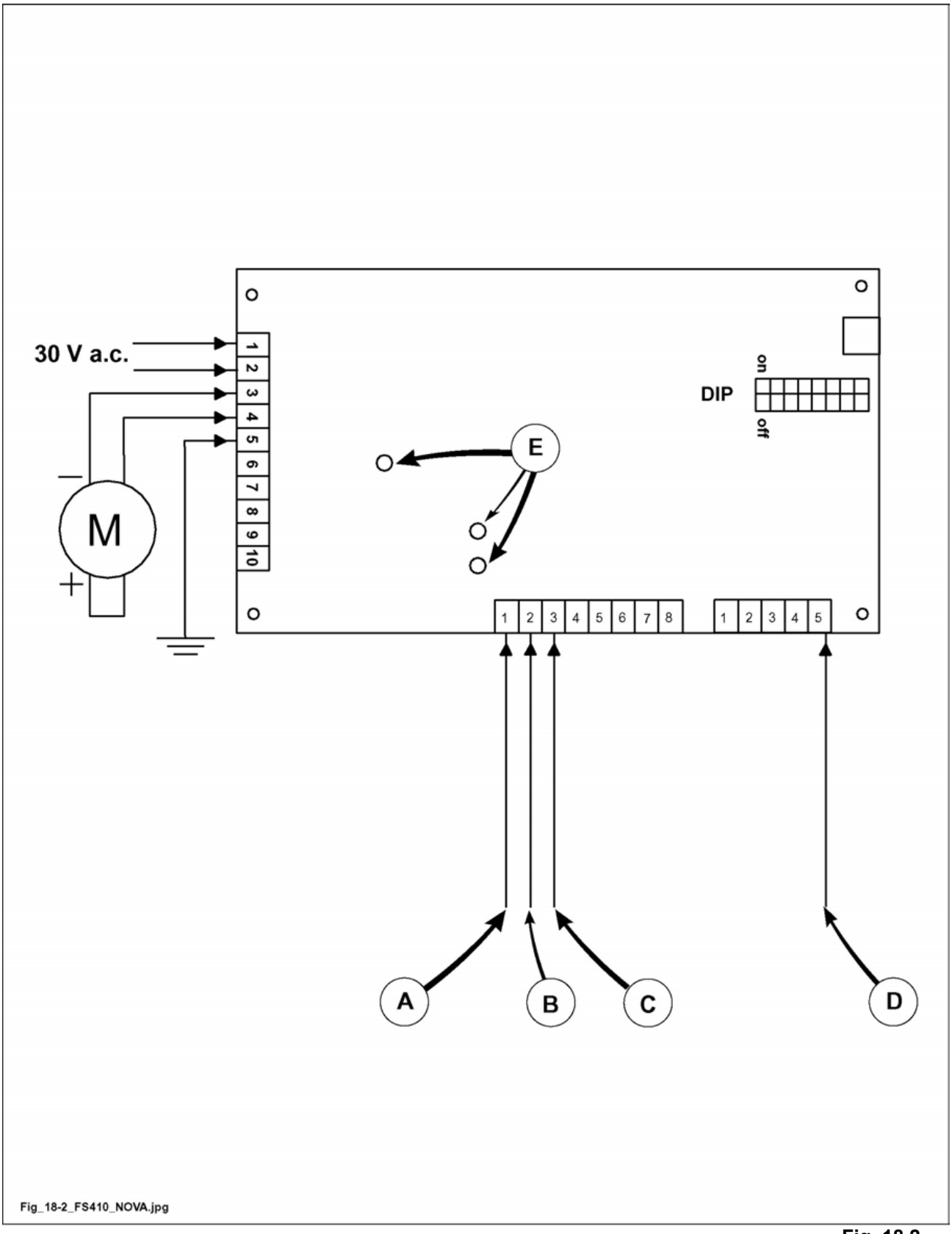

30 V a.c.
1
2
3
4
5
6
7
8
9
10
M
DIP
on
off
E
1
2
3
4
5
6
7
8
1
2
3
4
5
A
B
C
D
Fig_18-2_FS410_NOVA.jpg

Fig. 18.2

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(vuota_20-01)

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20.1 MACHINE CLEANING

(ev_20-1_0.0)

DANGER-WARNING:
all cleaning operations are to be carried out by the machine operator or by skilled technician.

DANGER-WARNING:
before carrying out any of the operations make sure to cut the main electric power and disconnect socket (T fig. 20.1) from plug (S fig. 20.1).
Stop the machine to carry out adjustments or to demount any machine, turn the main switch to zero and lock it, then indicate it by a sign.
The operator who carries out the machine set up, maintenance and cleaning shall keep the only key.

DANGER-WARNING
to handle the knives and the cutterblock you shall wear safety gloves.

FORBIDDEN:
DO NOT USE COMPRESSED AIR; by blowing with a strong air jet (fig. 20.1) chips,dust and dirt of any type may enter into the moving members, so the machine is no more efficient.

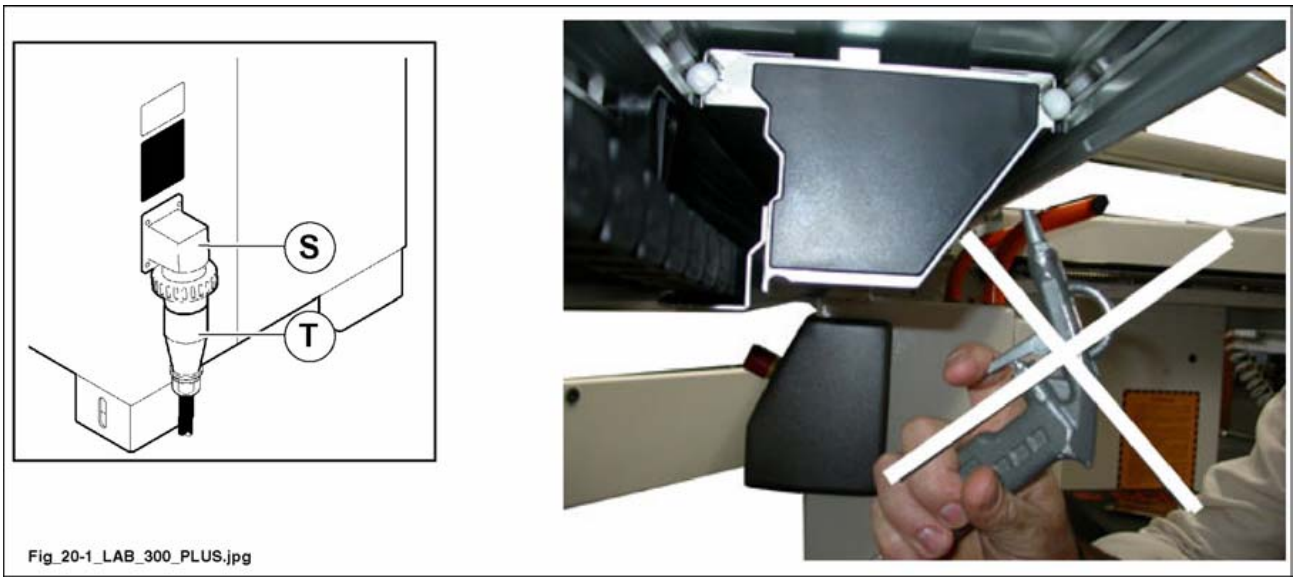


Fig. 20.1

The general cleaning ensures the long life of the machine and is an important safety factor.

NOTE-INFORMATION:
the frequency of cleaning interventions is determined by the room in which the machine is installed and by the machined material.



Fig. 20.1A

Rules for a correct machine cleaning

By using a power dust aspirator (fig. 20.1A) clean:

- the tables and all cavities where you see chips and dust.
- Suction hoods (T fig. 20.1B) by checking that the are no occlusions.
- With the sliding table in position 1 (totally at entry) fig. 20.1B, then in position 2 (totally at exit), its bottom guides and specially the points indicated by arrows (H fig. 20.1B) for a 15 mm depth.
- Guides (A fig. 20.1B) of squaring frame.
- Slideways (S fig. 20.1B) of the sliding table and (B fig. 20.1B) of the rail.
- Extension (D fig. 20.1B) of pivoting arm.
- Groove (C fig. 20.1B), tile-shaped stop and presser with a brush or cloth drunken with not dangerous solvent.
- Spindle sliding cylinder (F fig. 20.1B).
- Presser unit sliding rods (G fig. 20.1B).
- Moulder spindle lifting screw (V fig. 20.1B).
- Worm (W fig. 20.1B) for moulder unit tilting.

Then by using a cloth or a brush drunken with a proper and not dangerous product,
clean all moving parts specially the ones exposed to the resin and dust.

DANGER-WARNING:
do not oil, do not grease:
- the guides of sliding table (S fig. 20.1B) and of rail (B fig. 20.1B) .

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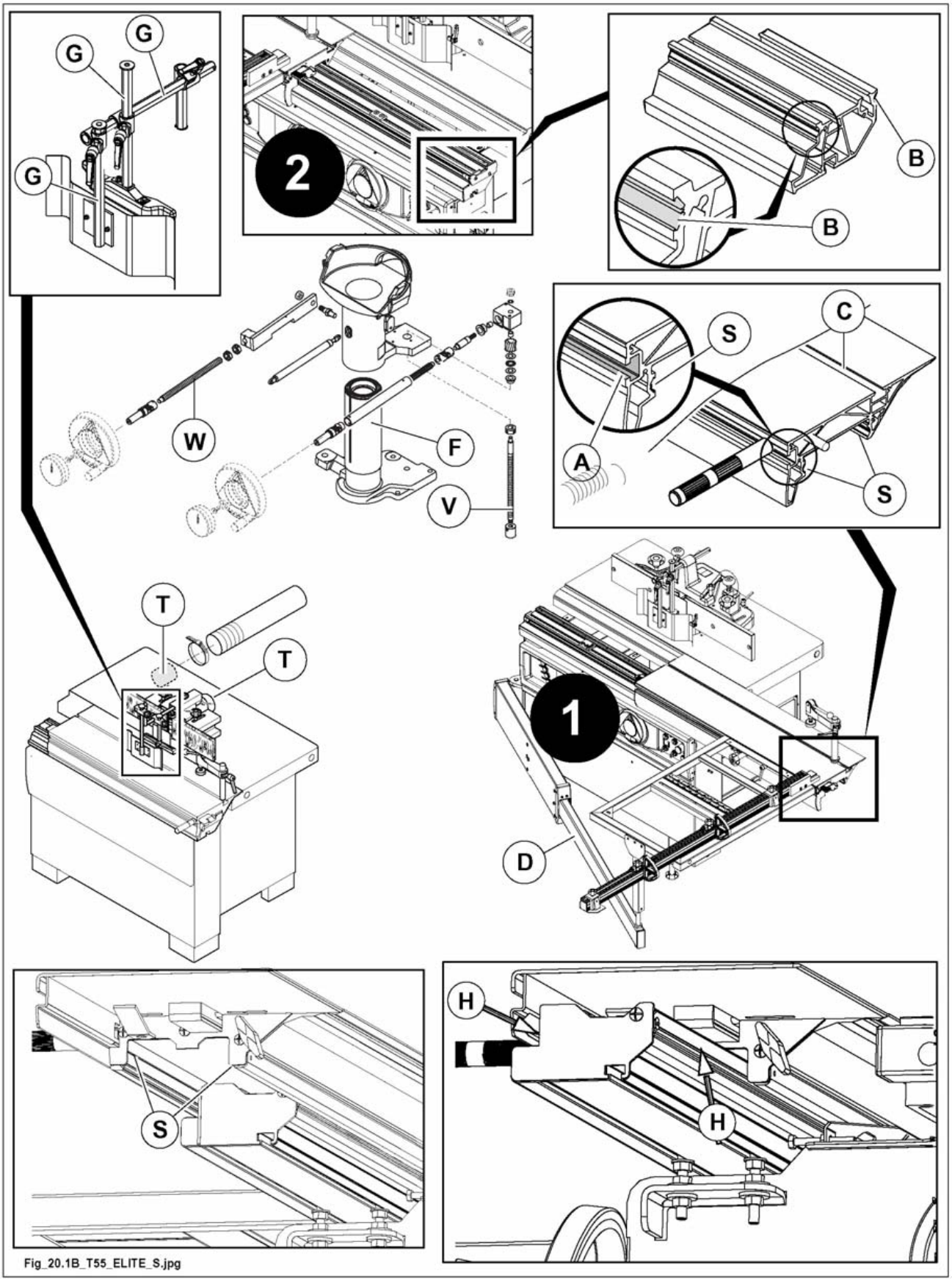


Fig. 20.1B

20.2 SCHEDULED MAINTENANCE

(ev_20-2_0.0)

Scheduled maintenance is of the utmost importance to obtain the best performance as well as a safe operation of the machine.

DESCRIPTION	INSPECTION / FREQUENCY	ACTION
Safety circuit	20 years	Contact the manufacturer

DESCRIPTION	INSPECTION	FREQUENCY	ACTION
Brake release selector operation check	Operation check	Daily	- See section 5.4

DESCRIPTION	INSPECTION	INTERVALS	OPERATIONS
General machine cleaning	Visual inspection	Daily	- Clean with a vacuum cleaner (Par.20-1).
Slideways (S fig. 20.1B) of the sliding table	Visual inspection	Weekly	- With aspirator remove chips and dust (Par. 20.1). - With a cloth or a brush drunken with proper and not dangerous product. - **Do not oil, do not grease.**
Guides (A fig. 20.1B) of squaring frame	Visual inspection	Daily	- With aspirator remove chips and dust (Par. 20.1). - With a cloth or a brush drunken with proper and not dangerous product.
Slideways (B fig. 20.1B) of the rail	Visual inspection	Weekly	- With aspirator remove chips and dust (Par. 20.1). - With a cloth or a brush drunken with proper and not dangerous product. - **Do not oil, do not grease.**
Cleaning the suction hoods (T fig. 20.1B)	Visual inspection	Weekly	- Disconnect the hoses from the suction hoods, make sure that there are no occlusions and clean by means of an aspirator.
Extension (D fig. 20.1B) of swinging support	Visual inspection	Weekly	- With aspirator remove chips and dust (Par. 20.1). - With a cloth or a brush drunken with proper and not dangerous product.
Sliding cylinder (F fig. 20.1B) of the spindle	Visual inspection	Daily	- With aspirator remove chips and dust (Par. 20.1).

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DESCRIPTION	INSPECTION	INTERVALS	OPERATIONS
Sliding rods (G fig. 20.1B) of presser unit	Visual inspection	Daily	- With aspirator remove chips and dust (Par. 20.1). - With a cloth or a brush drunken with proper and not dangerous product.
Worm (V fig. 20.3) for spindle height adjusting	Visual inspection	Weekly	- Lubricate with grease (Par. 20.3).
Worm (W fig. 20.3) for moulder unit tilting	Visual inspection	Weekly	- Lubricate with grease (Par. 20.3).
Belt driving	Tensioning and wear check	Weekly	- Tension properly or replace whenever necessary (Par. 20.23 - 20.18).
Safety and emergency devices (Chap. 2)	Visual check and operation test	Every 2 weeks	- Carry out some stopping tests (Par. 20.7).

DESCRIPTION	INSPECTION	FREQUENCY	ACTION
Indicator lamp	Visual inspection	Daily	- Replace faulty components immediately

20.3 LUBRICATION

(ev_20-3_0.0)

The accurate lubrication ensures the long life as well as the best performance of the machine.

Weekly lubricate with grease:

Manufacturer	Lubricant name
AGIP	GR MU EP1
ARAL	ARALUB HL1
BP	GREASE LTX1
SHELL	SUPER GREASE EP1
MOBIL	MOBILPLEX 46
KLÜBER	CENTOPLEX 1
ESSO	BEACON EP0

4) Moulder spindle lifting screw (V fig. 20.3)
5) Moulder spindle inclination screw (W fig. 20.3) OPT

DANGER-WARNING:
do not oil, do not grease:
- the guides of sliding table (S fig. 20.1B) and of rail (B fig. 20.1B) .

NOTE-INFORMATION:
- as all bearings are sealed and lubrificated-for life, they do not require any maintenance;
- when you have to replace these bearings directly apply to SCM ***spare parts department;***
- bearings of other makes, with corresponding names, are NOT suitable.

NOTE-INFORMATION:
protect all belts and pulleys to avoid contamination with oil.

NOTE-INFORMATION:
the top bearings of the spindle are special.

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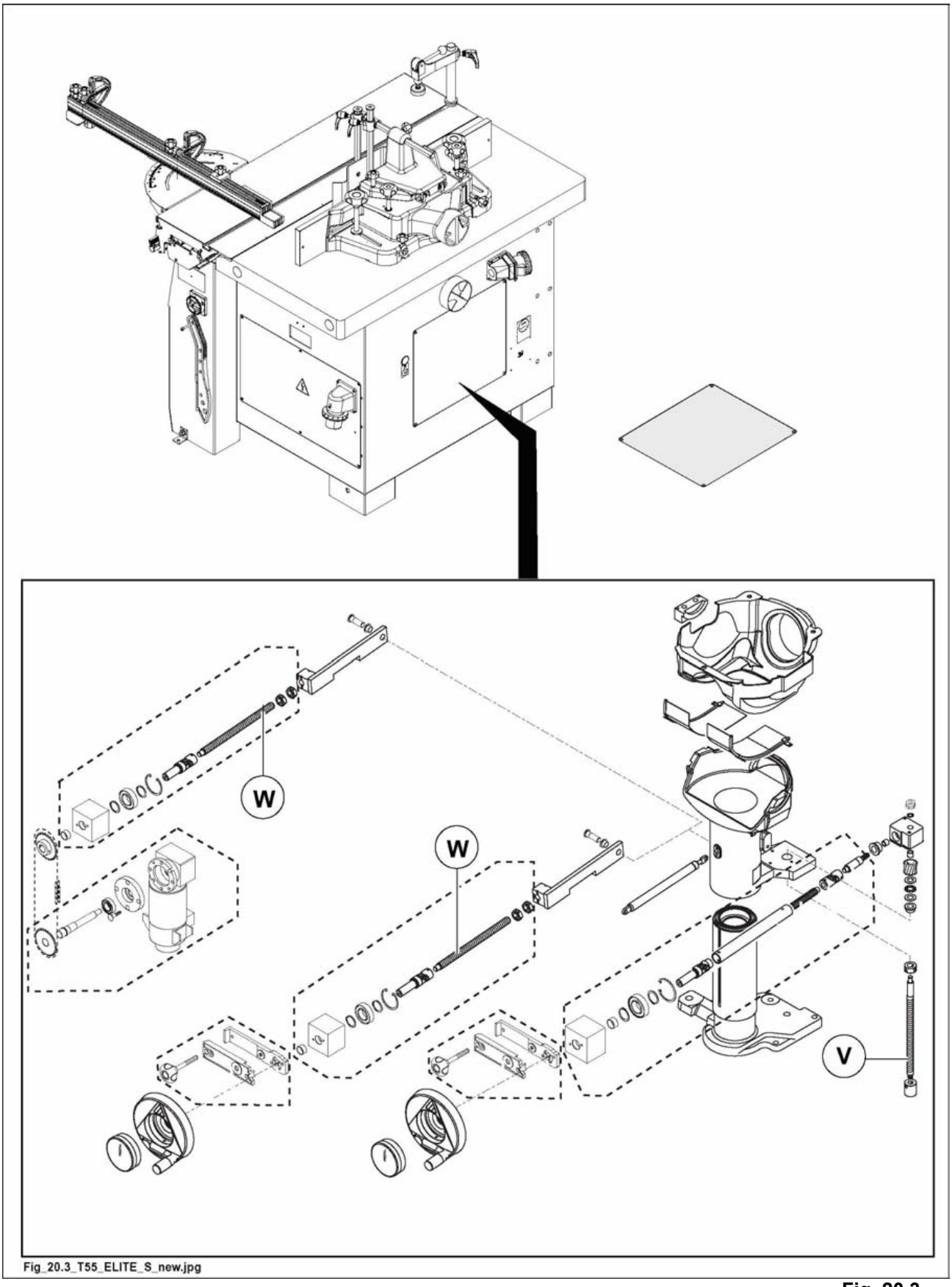


Fig. 20.3

20.7 CHECK OF SAFETY DEVICES

(ev_20-7_0.0)

The machine is equipped with safety devices described in Chapter 2 which ensure tha safe machine operation.
Every 2 weeks check the controls for emergency stops with a test.
With the machine under normal operating conditions press the emergency buttons arranged on the machine one at a time; the motor shall stop.
Every 2 weeks check that the moulder splindle block microswitch is operating efficiently. With the splindle blocked the spindle moulder motor should not start up.

Speed selection:
- mechanical selection: select a speed over 3500 rpm - (4000 rpm - 60 Hz), fit the tenoning hood (Diam. 320 mm (OPT)): the spindle motor must not start.

Every 2 weeks check that the microswitches are efficient.
With the machine under normal operating conditions, by opening the door of the motor housing the spindle motor shall stop.

NOTE-INFORMATION:
- the belt slackening may cause an increase of the braking time, therefore make sure that the belts are stretched and in good conditions (see par. 20.23) (max. time to stop the motor: 10 sec).

- Every 2 months or approx. every 500 brakings check the motor braking time (max. time to stop the motor: 10 sec); in case of brake adjusting, see par. 20-8.

At the beginning of each working shift make sure that the guards on all sides of the machine are efficient and ensure a valid protection.
Selected tool speed panel indicator lamp:
- always check that the selected speed corresponds exactly to the indicator lamp that is currently illuminated.
- there must always be a lamp switched on in order to indicate the tool rotation speed.

Periodically check that the guards are efficient and that the plates in particular the ones with yellow ground are in good state.

DANGER-WARNING:

the responsible technician is to be informed about eventual troubles during the test; in that case he shall shut off the machine and apply to Technical Service of SCM ***dealer.***
Every 20 years the safety circuit must be overhauled. Contact the manufacturer.

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20.7.1 SPARE PARTS THAT AFFECT THE OPERATOR'S HEALTH AND SAFETY

(mmax_20-7-1_0.0)

The previous section "Checking safety devices" indicates the operations which the user must perform and the respective frequency.
Such operations allow early identification of any malfunctions in machine safety systems.

NOTE-INFORMATION:
if a malfunction is detected, the user must contact the Assistance Centre authorised by SCM***.***

FORBIDDEN:
never attempt any work on the devices unless otherwise indicated in this manual.

The SCM assistance centre will identify which safety system component needs substituting and will substitute it (or will provide instructions on how to proceed).

NOTE-INFORMATION:
the user (or a specialised user technician) is only authorised to carry out the work described in this Instruction manual.

NOTE-INFORMATION:
when carrying out any maintenance tasks original spare parts supplied by the SCM ***(manufacturer) must always be used). The manufacturer is not responsible for damages due to the use of not original parts.***

NOTE-INFORMATION:
the entire machine electrical/electronic system is essential to machine safety. Therefore, the user is not authorised to carry out any repair/substitution of electrical or electronic components, except what is indicated in this manual.

DANGER-WARNING:
the user must also comply with the substitution times for the various safety devices, always using the SCM ***Assistance service to identify the correct spare part and to install it (unless otherwise indicated in this manual).***

SPARE PARTS THAT CAN BE INSTALLED BY THE USER

NOTE-INFORMATION:
in the spare parts catalogue the letter "C" indicates the codes of spare parts which affect operator health and safety.

These spare parts can be installed by expert personnel instructed by the user.

DANGER-WARNING:
for all other spare parts contact the Manufacturer's Dealer SERVICE or contact the Manufacturer's SERVICE directly.

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20.8 AUTO-BRAKE MOTOR

(ev_20-8_0.0)

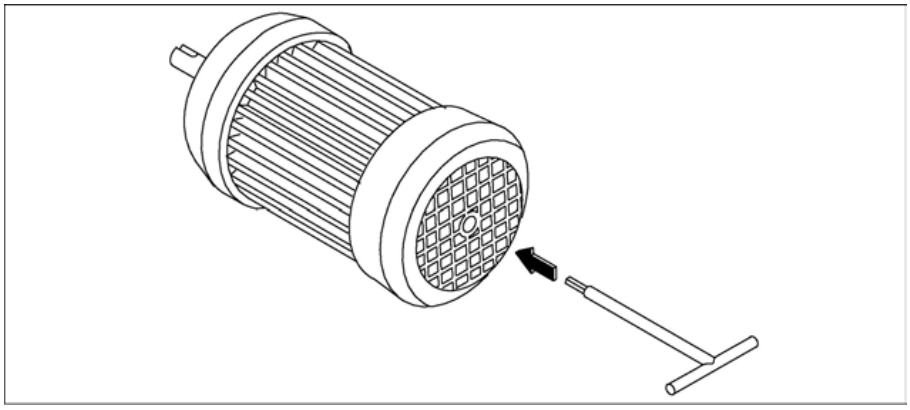
At least every 2 months or 500 stops, check and adjust the electromechanic braking device.
Braking efficacy reduction can be noticed by the increase of the time required to fully stop the cutterblock/spindle (max. time 10 seconds) in case of tool of max. size and at the maximal permitted speed.
Before carrying out any of the operations make sure to cut the main electric power and disconnect socket T from plug S.

Adjustment of braking unit
Every two months or every 500 braking actions, braking unit adjustment is mandatory.
To reset the best braking torque proceed as follows:
- insert an Allen wrench into the hole on cover for the fan in order ot reach the adjusting screw;
- progressively screw down screw in order to join the mobile elements and to eliminate distance (brake clearance);
- unscrew screw by min.1/4 turn (max.1/3 turn) (corresponding to about 0.4 mm air gap);
- turn the brake release selector several times to check that it operates correctly;
- start and stop the motor a few times to check the correct running.

DANGER-WARNING
If the adjustment is not carried out, the machine could have these problems:
- no braking within the maximum stop times (10 seconds)
- no brake release at start command, leading to overheating of the brake and the adjusting systems.

NOTE-INFORMATION:
if the adjustment procedure cannot correctly restore brake operation, substitute the braking unit.

Braking unit substitution
Replacement is to be carried out only by technicians of SCM ***dealer.***



20.18 REPLACING THE BELTS

(ev_20-18_0.0)

DANGER-WARNING:
check the belt tension after the first 10 hours of machine operation.
At least every 6 months, it is necessary to perform a periodical check on the belt.
Do not overstretch the belts not to overload the bearings.
Overstretching may overheat and destroy the belts.
At least once a month check the stopping time of the spindle moulder. If the stopping time exceeds 10 seconds, tighten or replace the belt (if it is ruined) as described in the following paragraphs.
When the adjustment has been carried out, again check the stopping time.

20.18.3 MOULDER

(cu_20-18-3_0.0)

- Stop the machine see Chapter 5; turn the main switch to 0, then lock it and indicate this with a sign.
- Turn selector (3 fig. 20.18.3) to ( ); unlocked motor brake, pilot lamp switched on.
- Open the door (A fig. 20.18.3) (a limit switch ensures the safe machine condition).
- Pull lever (L fig. 20.18.3) into position 2 to slacken the tension of the belts.
- The belt (C fig. 20.18.3) is now slackened and can be substituted.
- Insert belt into pulley sheaves on the basis of the speed required using selector (B fig. 20.18.3).
- Check manually that the belt is inserted correctly and push lever (L fig. 20.18.3) to position 1 to tension the belts.
- Close the door (A fig. 20.18.3).
- Turn selector (3 fig. 20.18.3) to ( ); locked motor brake, pilot lamp switched off.

NOTE-INFORMATION:
push the lever until a click is heard. This means that the dead point has been reached.

DANGER-WARNING:

with selector (3 fig. 20.18.3) turned to ( ) the machine is under safe condition; unlocked motor brake, pilot lamp switched on.

Before starting the machine make sure that the rotation speed you have selected is proper for the working, the wood type and for the tool used on the machine.

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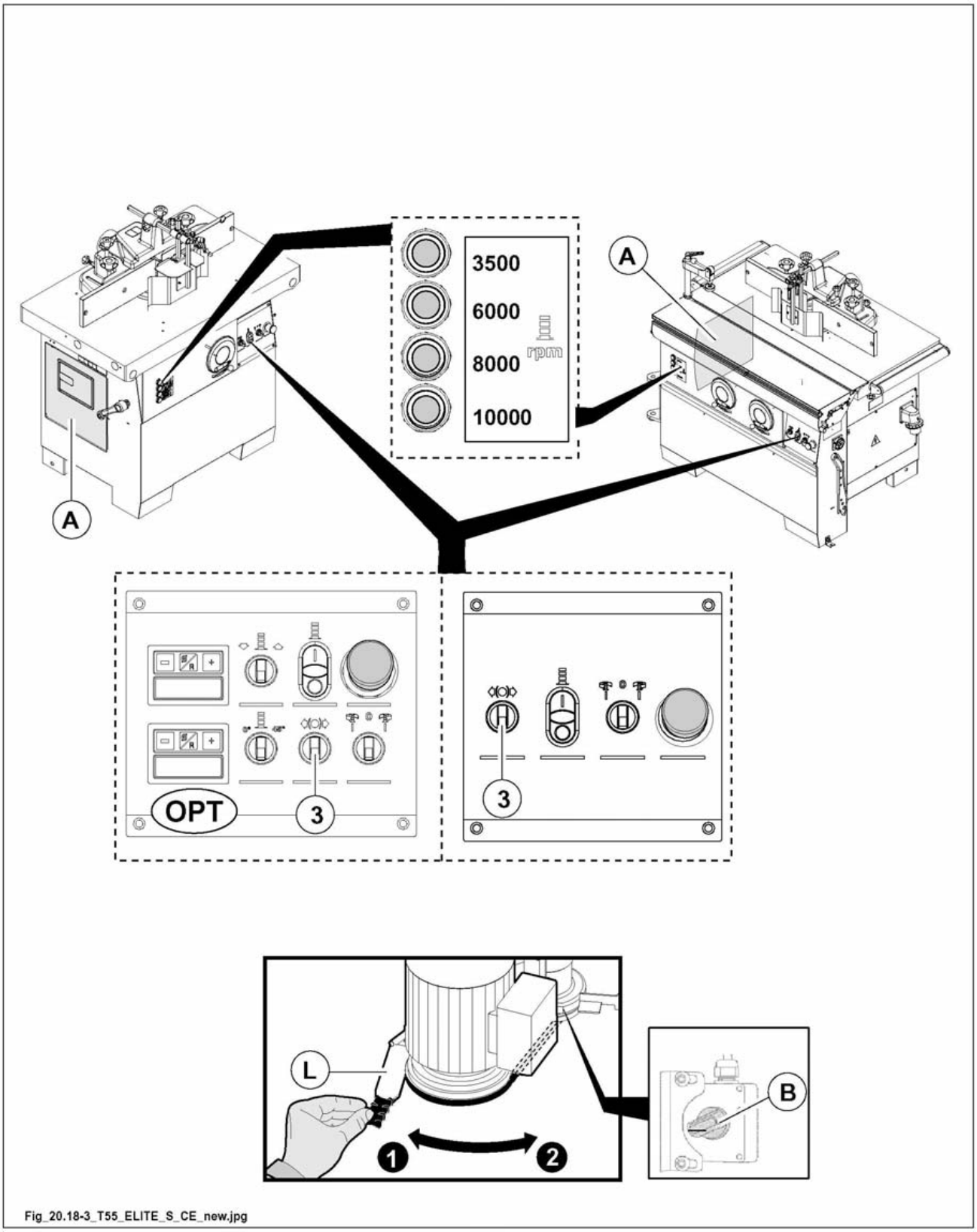

3500
6000
8000
10000
rpm
A
A
OPT
3
3
L
B
1
2
Fig_20.18-3_T55_ELITE_S_CE_new.jpg

Fig. 20.18-3

20.23 BELT STRETCHING

(ev_20-23_0.0)

DANGER-WARNING:
check the belt tension after the first 10 hours of machine operation.
At least every 6 months, it is necessary to perform a periodical check on the belt.
Do not overstretch the belts not to overload the bearings.
Overstretching may overheat and destroy the belts.
At least once a month check the stopping time of the spindle moulder. If the stopping time exceeds 10 seconds, tighten or replace the belt (if it is ruined) as described in the following paragraphs.
When the adjustment has been carried out, again check the stopping time.

20.23.3 MOULDER

(cu_20-23-3_0.0)

- Stop the machine see Chapter 5; turn the main switch to 0, then lock it and indicate this with a sign.
- Turn selector (3 fig. 20.23.3) to ( ); unlocked motor brake, pilot lamp switched on.
- Open the door (A fig. 20.23.3) (a limit switch ensures the safe machine condition).
- Pull lever (L fig. 20.23.3) forward. The belt (C fig. 20.23.3) now is slack.
- For the optimal belt stretching, operate on the nuts (S and N fig. 20.23.3), with slack belt.
- Push lever (L fig. 20.23.3) back. The belt is stretched.
- Close the door (A fig. 20.23.3).
- Turn selector (3 fig. 20.23.3) to ( ); locked motor brake, pilot lamp switched off.

Periodically every week check the belt tension.

CAUTION:
an excessive belt tightening will cause both functioning failures and belts wear beforehand.
By exerting a force P in the middle of a belt, the latter must have a yielding f as shown in the table.

Force P		Yielding f (mm)
N	Kp	
24 ÷ 26	2,4 ÷ 2,6	5,0 ÷ 6,5

DANGER-WARNING:
before starting the machine make sure that you have selected the speed of rotation proper for the working to be carried out, for the wood type and for the tool used on the machine.

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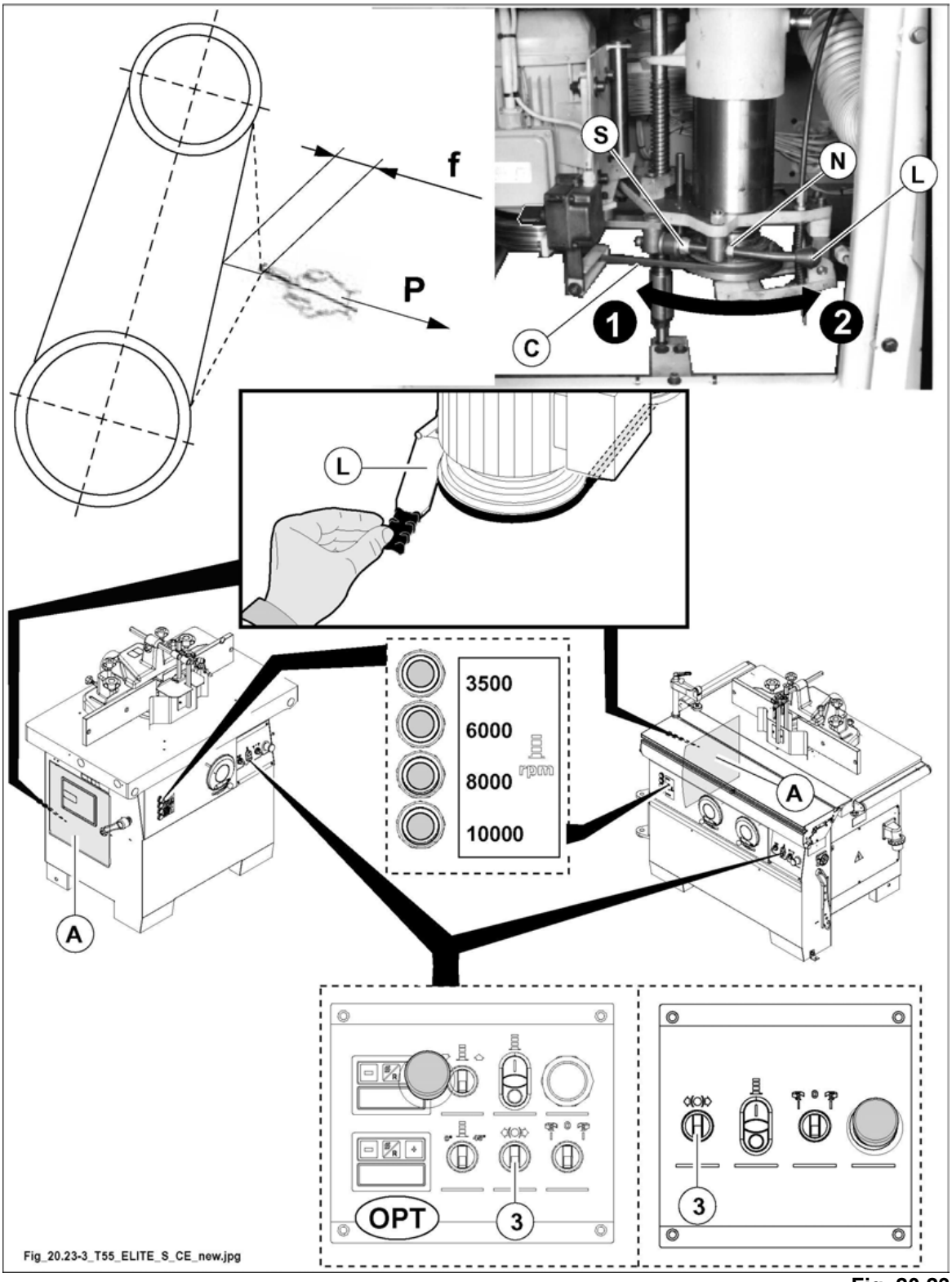

f
P
S
N
L
C
1
2
L
3500
6000
8000
10000
rpm
A
A
OPT
3
3
Fig_20.23-3_T55_ELITE_S_CE_new.jpg

Fig. 20.23-3

20.28 MAKING THE PARTS WHICH GET WORN

(ev_20-28_0.0)

20.28.1 REPLACING THE CHIP BREAKER

(ev_20-28-1_0.0)

If you have to replace wood part (M fig. 20.28-1), request it:

- to SCM dealer;
- or to SCM Spare Parts Department,

or make it by using beech; figure 20.28-1 indicates the measures.

Rule for tenoning table and guard

If you have to replace wood part (K fig. 20.28.1), request it:

- to SCM dealer;
- or to SCM Spare Parts Department,

or make it by using beech; figure 20.28.1 A indicates the measures.

To replace the worn splinter guard, use the screws (X fig. 20.28.1).
Reassemble the new splinter guard and tighten the screws (X).

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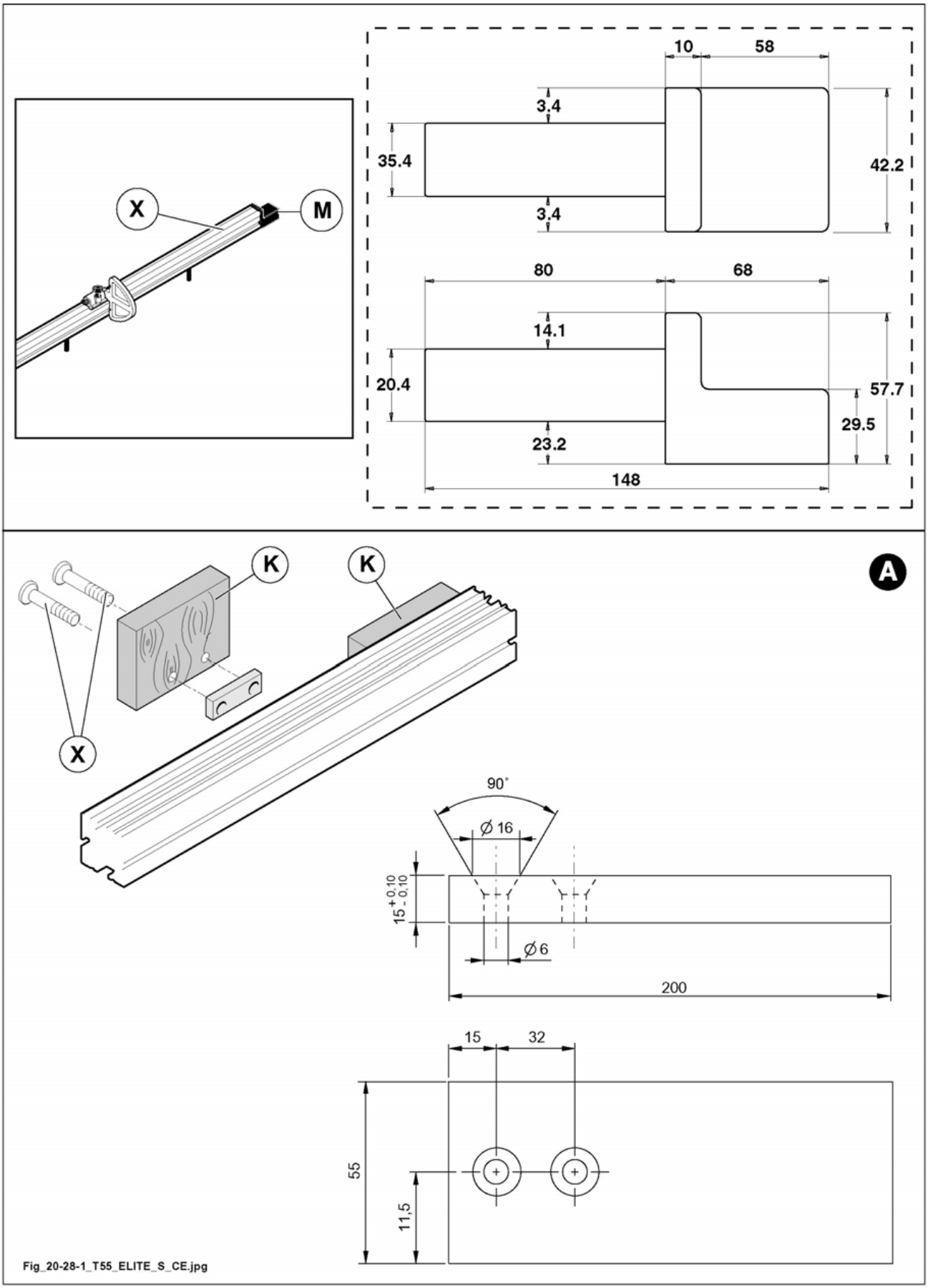

X
M
10
58
3.4
35.4
42.2
3.4
80
68
14.1
20.4
57.7
29.5
23.2
148
K
K
X
A
90°
Ø 16
15 +0.10 -0.10
Ø 6
200
15
32
55
11,5
Fig_20-28-1_T55_ELITE_S_CE.jpg

Fig. 20.28-1

20.37 TROUBLES - CAUSES - WHAT TO DO

(ev_20-37_0.0)

This section indicates how to solve problems which may rise during the machine use.

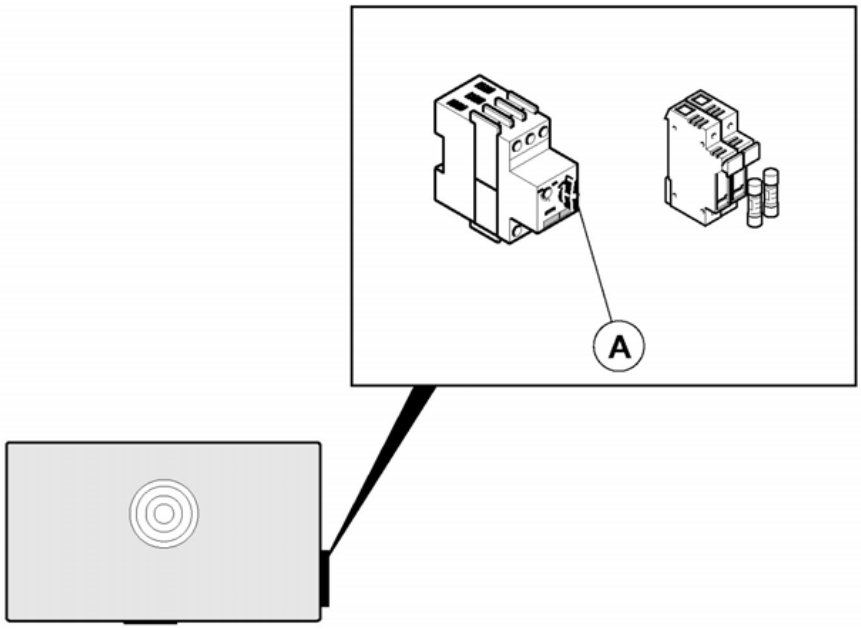
Carry out interventions only after carefully reading all that concerns the problem indicated in this handbook.

For problems not described in the handbook apply to SCM Technical Service.

PROBLEM	CAUSE	REMEDY
The machine does not start		
	No electrical energy on one or more phases of the line.	Check with a tester there is voltage in the three phases.
	The fuses of the auxiliary circuit are interrupted or the fuse block cover is open.	Close the fuse block cover (located inside electric cabinet). If the machine does not start: 1- Open the fuse block cover. 2- Check the integrity of fuse, if necessary, replace them. 3- Adjust the braking unit as described in section 20.8.
	Emergency on.	Switch off the button by turning it.
	Overload switch (**A** fig. 20.37A) triggered because of: - an excessive absorption of current due to improper machine use (task too heavy for power of machine) - insufficient cable size for power of machine (see electrical connection references in chap. 4) - voltage failure due to excessive power supply cable length - short circuit in electrical system.	Solve the problem, wait for the overload switch to cool down and restart the machine; reset overload located inside electric cabinet (see Par. 5.3).
	Moulder motor brake off.	Turn selector for brake release to (brake locked).
	Safety microswitch on.	Check that the protection hatch for access to the spindle moulder is closed, that the spindle moulder blocking for tool change is disconnected and that the ø 320 mm spindle moulder hood is mounted with rotation speed different to 3500 rpm.
	Main ON/OFF switch can be padlocked in position **0** (OFF).	Rotate main ON/OFF switch to **I** (ON).
The machine stops during machining.		
	No electrical energy on one or more phases of the line.	Check with a tester there is voltage in the three phases.
	The fuses of the auxiliary circuit are interrupted or the fuse block cover is open.	Close the fuse block cover (located inside electric cabinet). If the machine does not start: 1- Open the fuse block cover. 2- Check the integrity of fuse, if necessary, replace them.
	Too heavy operation in relation to the power of the motor.	Wait for the cooling of the thermal cut out protection. Reactivate it after a few minutes.

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PROBLEM	CAUSE	REMEDY
	The motor belt is loose or ruined.	Tighten the belts or change them as described in sections 20.18 and 20.23.
The motor rotates but the saw blade stops when it is in contact with the piece.	The motor belt is loose or ruined.	Tighten the belt or change as described in sections 20.18 and 20.23.
The spindle does not move vertically and does not incline.	The screws are jammed with dust and resin.	Clean carefully (see Chapter 20).
	Machine not live.	Check with a tester there is voltage in the three phases.
	Gearmotor faulty.	Contact the technician of your area agent.
	Intervention of the electrical control stops (max. and min. stroke).	Reverse the direction until the control stop is freed.
	CMR card faulty.	Carry out section 18 checks; if necessary change it.
The digital display indicates an unreal quota.	Display irregular.	Read chapter 16 to restore display.
The telescopic rule does not position correctly at 90°.	The end-stops in the frame are not adjusted.	Remove the two caps **T** and turn the adjusting screws **V** until the telescopic rule is positioned correctly at 90° (fig. 20.37A).



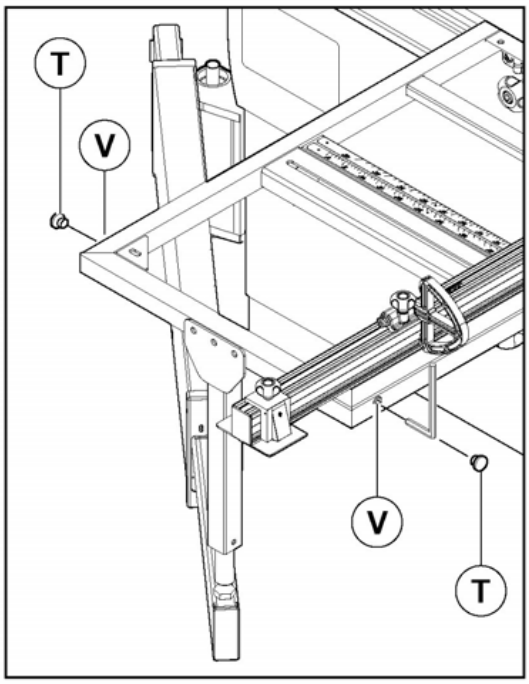


Fig_20.37A_T55_ELITE_S_CE.jpg

Fig. 20.37A

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20.60 UNSCHEDULED MAINTENANCE

(mmax_20-60-0.0)

All tasks not expressly listed in this manual, such as:

- tasks to be carried out following component or electric motor faults
- tasks to be carried out following mechanical system component faults

shall be considered unscheduled maintenance tasks.

These tasks require specific skills and must only be carried out by qualified personnel authorised by the machine manufacturer.

DANGER-WARNING:
never attempt to carry out makeshift repairs or replacements; this could result in dangers of a serious nature for exposed personnel and the machine itself.

INDEX

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A-1 Feeder specifications 2

A-2 Start up - Stop from feeder.....2

APPENDIX - A

(appendice - a)

A-1 FEEDER SPECIFICATIONS

(a-trasc_a-1)

FEEDER NOT SUPPLIED BY SCM

NOTE-INFORMATION:
connect the feeder to the relative socket (A fig. A.1 max. power 0.75 kW) .

The feeder can be fitted:
- by requesting, to SCM, the feeder adapter kit (OPT) which support and could switch off it
- or on a commercial support (not supplied by SCM) installed on the spindle moulder table in the zone defined in figure A.1, by following the instructions in the Feeder Instructions Manual.

The feeder must have the following specifications.
- It must have a CE marking, as interchangeable equipment in compliance with directive 2006/42/EC or earlier.
- The feeder instructions manual must indicate that it can be fitted on SPINDLE MOULDER
- Max weight: 50 kg
- Max power: 0.75 kW

A-2 START UP - STOP FROM FEEDER

(a-trasc_a-2)

DANGER-WARNING:
when there is a feeder emergency stop press pushbutton (N fig. A.1).

DANGER-WARNING:
to connect the feeder (not supplied by SCM ***), use only the socket (A fig. A.1 power max. 0,75 kW), because when the emergency pushbutton is pressed, the power supply to the socket (A) is also interrupted, thus blocking the feeder.***

NOTE-INFORMATION:
the feeder can be started when the spindle moulder motor has reached the right number of rpm.

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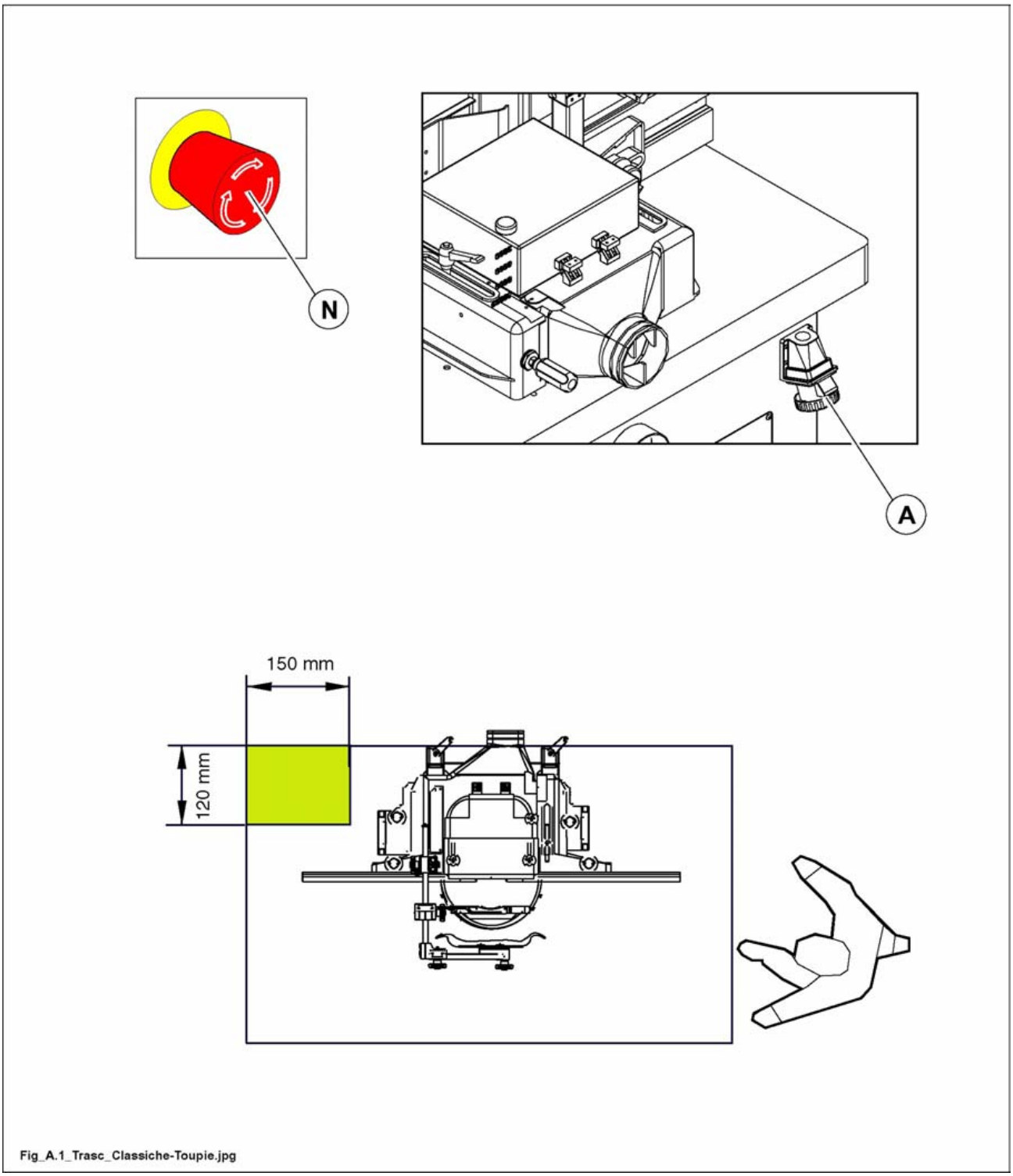


Fig. A.1