

OPERATION MANUAL

Automatic Band Saw Grinding Machine **WINTER SAWMAX 250**



WARNING!

*The operator must thoroughly read this manual before operation.
Keep this manual for future reference.*

Henrik Winter Holztechnik GmbH

Druckereistr. 8
04159 Leipzig

Tel: +49 (0)341/ 4619021 Fax: +49 (0)341/4618358 Funk: +49 (0)171/2820443
Em@il: info@winter-holztechnik.de Internet: www.winter-holztechnik.de

FOREWORD

Dear User,

Here in this operating manual, we aim to serve all the service area, operating and maintenance details of machine, Automatic Grinding Machine for Band Saws. Those who will be in charge of the machine should thoroughly read, understand and follow the instructions stated in this operating manual to get the best and aimed performance from the machine.

Since the manufacturer will not accept any liability for losses caused by not using the machine in the way as it is recommended in this manual and if the machine is installed by Y K VGT"J qđ vgej pkm vgej plekp="k'ku" highly advised to read this manual carefully before attempting to use the machine.

The machine that has arrived to you may be different than the one visualized in this operating manual, however this will not change the general operating principle of the machine.

In case of any questions or problems please do not hesitate to contact the customer service or our nearest representative in your area. It is and will be manufacturer's duty to assist and support the customers. It is also the manufacturer's pleasure to know that machine works trouble-free and in it's best possible performance.

If you make an inquiry about any problem concerning our products please quote the following product details:

Type and model :
Serial Number :
Date of purchase :

After-Sale Contact details for complaints, servicing and spare parts:

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1. PURPOSE

1. PURPOSE

SAWMAX is produced to grind all types of band saws used in wood cutting. The purpose of this machine is to provide a smooth and clean material cut by the precise ground band saws that are used in woodworking areas.

Using the machine for other purposes than the ones stated in this manual will be accepted as an invalid use, the user will bear all the responsibility of all the losses that may be caused in such case.

2. TECHNICAL SPECIFICATIONS

Band saw width	15 – 250 mm
Tooth pitch	5 - 55 mm
Tooth depth	Max. 25 mm
Tooth profiles	NV, PV, KV, SB
Infeed angle	-10° +30°
Band saw thickness	0.6 – 3.2 mm
Tooth number (speed controlled)	10 to 30 teeth/min.
Wheel revolution (speed controlled)	1400-4500 rev/min.
Total power	1,5kW
Weight	470kg
Dimensions	100*100*175cm

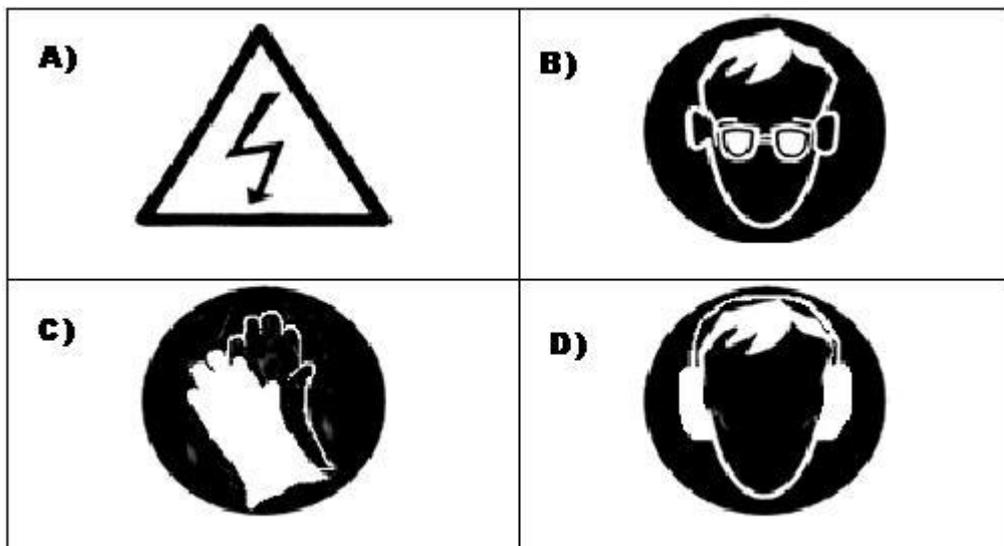
3. SAFETY INSTRUCTIONS

3.1. Precautions

For a safe operation, SAWMAX should be operated according to the technical specifications and requirements explained in this operating manual. The safety information and the warning signs are given to prevent damage to the people, to the machine and to the environment.

It is in the interest of the user to follow the instructions, warnings and prohibitions.

3.1.1. Safety Signs



A) Warning! High Voltage! B) Wear Protective Goggles!

C) Wear Protective Gloves! D) Wear Ear Protection!

3.2. Transportation

- When transporting and moving SAWMAX from one place to another, use suitable vehicle, forklifts and cranes to withstand the gross weight of SAWMAX (approximately 480 kg.)
- The moving parts of the machine should be fixed before carrying the machine. If the machine will be moved to long distances, pallets should be used.

3.3. Other Important Precautions

3.3.1. Grinding Hard Metals

- The indoor area should be ventilated from coolant vapour and saw chip dust.
- While grinding hard metals, coolant emulsion including Cobalt is recommended.
- In the working area eating and smoking should be forbidden.

3.3.2. Electrical Supply

- Electrical supplies should be connected by authorized electrical technicians.
- Electrical connections should be connected correctly according to the standards, loss of phase, loose of connections should be checked carefully.

3.3.3. Using the Machine for Intended Purpose

- SAWMAX should only be used for its intended purpose stated in this manual Clause 1.
- This machine should never be used to sharpen knives, tools etc. It is strongly stated not to make any alterations on the machine – such as dismantling or adding new parts.

3.3.4. Operator and Service Personnels

- SAWMAX should be operated only by the trained staff.
- The service and the maintenance of the machine also should only be performed by a responsible personnel.
- All the operators and the service personnels should be warned and instructed for the risks and dangers of the grinding process.

3.4. Safety During Operation

- This machine is constructed in accordance with concerned and accepted safety regulations and standards. In spite of these instructions, special attention should be paid while operating machine.

- The operators have to wear protective goggles, gloves and ear protection when necessary.
- Because of the hazardous chip dust that comes out during grinding process, it is strongly advised to ventilate the work area according to the concerned safety standards or to use a suction unit in the grinding area.
- It should definitely be forbidden to eat, drink and smoke at the work area.
- The hands should be washed thoroughly before coming into contact with food and drinks after the grinding process.
- The clothes should be cleaned with air in a well ventilated area.

!!! These rules are for your safety. Please follow. !!!

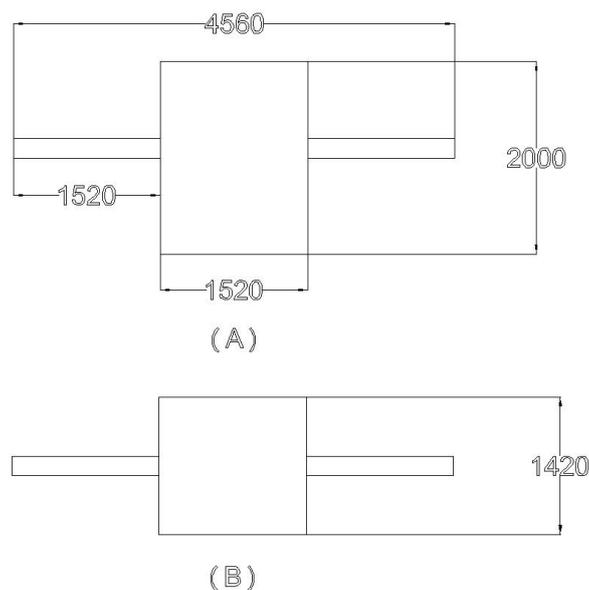
3.5. Safety During Service and Maintenance

- The maintenance of machine should be performed by a trained personnel in regular periods.
- When using chemical and lubrication materials special attention should be paid and those materials should be used according to the safety instructions and warnings on their labels.
- The use of the chemical and lubrication materials in packs without labels should be avoided.
- Never start machine without required connections.

4. MAKİNA KURULUMU

4.1. Required Space

For the operator to work in a safe environment and operate the machine in the most productive way, along with being able to do the maintenance and repairs with minimum efforts, the machine should have enough space around it.

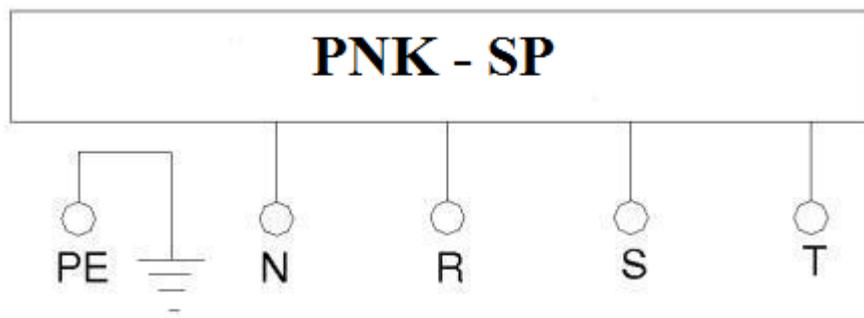


4.2. Floor Requirements

For the machine to work in the most efficient and accurate state, the floor has to be free of vibrations (which might be caused by the operation of heavy machinery). Also the floor should be hard enough to withstand the working weight of machine.

4.3. Electrical Requirements

This machine needs electrical supply in order to be run.



PE: Ground (Green and Yellow)

N: Neuter (Blue)

R: Phase (Red)

S: Phase (Black)

T: Phase (Green)

Figure 5.2 Electrical Connection

4.3.1. Electrical Voltage.

The electrical connection of the machine should be made by a qualified person in accordance with Wiring Diagram shown on the machine. If no special request is stated in the order for the operating voltage, the default settings of the machine is 3 phases 380/400V, 50 Hz.

Maximum power load : 3500 VA

4.3.2. Electrical Connections (For Max. Electrical Load)

- Operating Voltage : 380 V
- Rated Current : 6,0 A
- Fuse : 10.0 A
- Conductor cross section : min. 5x2,5 mm²

5. PACKING AND TRANSPORTATION

5.1. Packing

The base of machine is fixed on a standard EURO pallet (900x1300x150 mm) at four corners by bolts and nuts. If no special packaging request is stated in the order, the machine is wrapped by air-bubbled plastic. Any damages caused due to transportation, or missing items should be reported immediately at the arrival of the machine.

By the time of the delivery, the packaging has to contain the following items:

- Operating Manual
- Coolant Unit
- Grinding Wheel Mountage Flange
- Lamp Unit

5.2. Transportation

When transporting machine, special attention should be paid not to cause any damage in any part of the machine. For loading and the unloading of the machine suitable cranes and forklifts should be used.

5.3. Rust Protection

Machine has undergone a rust protection process before delivery. The rust protection substance should be cleaned with a petroleum derivate or alcohol with a soft piece of cloth. It is recommended to lubricate the moving parts of the machine after cleaning the rust protection substance.

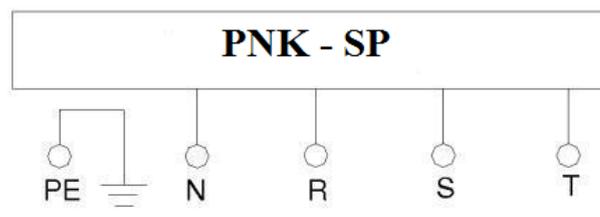
!!! Wear protective gloves when using cleansing materials. !!!

5.4. Machine Installation

The required space should be in Clause 4.1 and 4.2.

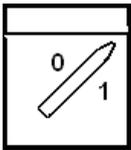
5.5. Electrical Connection

CHECK ALL THE CONNECTIONS INSIDE CONTROL PANEL BEFORE FIRST-RUN. If there is no light on the control panel, swap the phases. The panel controls the motors running directions.



6. FEATURES OF THE MACHINE

6.1. Control Panel



Main switch for ON and OFF operations.



START button is used after selecting AUTO/MANUAL modes. Machine runs in both modes.



STOP button stops the machine in Automatic mode.



AUTOMATIC button is selected to run the machine in AUTO-mode.



MANUAL button is used while adjusting the machine to see the machine, start button will react as soon as it is pressed in this mode.



This button is used to activate the grinding wheel. It is pressed once.



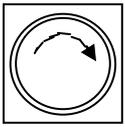
This button is used to change the wheel direction.



COOLANT button runs the coolant pump.
PAY ATTENTION not to run the pump when the tank is empty.



LIGHT button is used for illumination. It is opened or closed once it is pressed. The machine is equipped with 24V LED lamp.



EMERGENCY STOP. Once it is pressed it cuts the working voltage. In order to run the machine, turn off and turn on the Main Switch.



SET button is used to enter number of teeth, which is selected by X1, X10 and X100 on the panel.



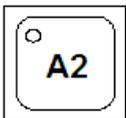
It is used to input the units digit value between 0-9, The value changes between 0 – 9 in each press. The entered number can be followed from the adjustment screen (0 0 0).



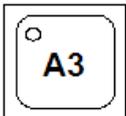
It is used to input the tens digit value between 0-9, The value changes between 0 – 9 in each press. The entered number can be followed from the adjustment screen (0 0 0).



It is used to input the hundreds digit value between 0-9, The value changes between 0 – 9 in each press. The entered number can be followed from the adjustment screen (0 0 0).



Increases grinding speed.



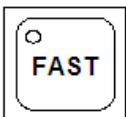
Decreases grinding speed.



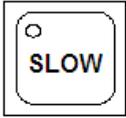
Increases grinding wheel revolution.



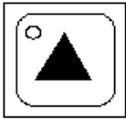
Decreases grinding wheel revolution.



Runs the machine in maximum grinding speed.



Runs the machine in minimum grinding speed.

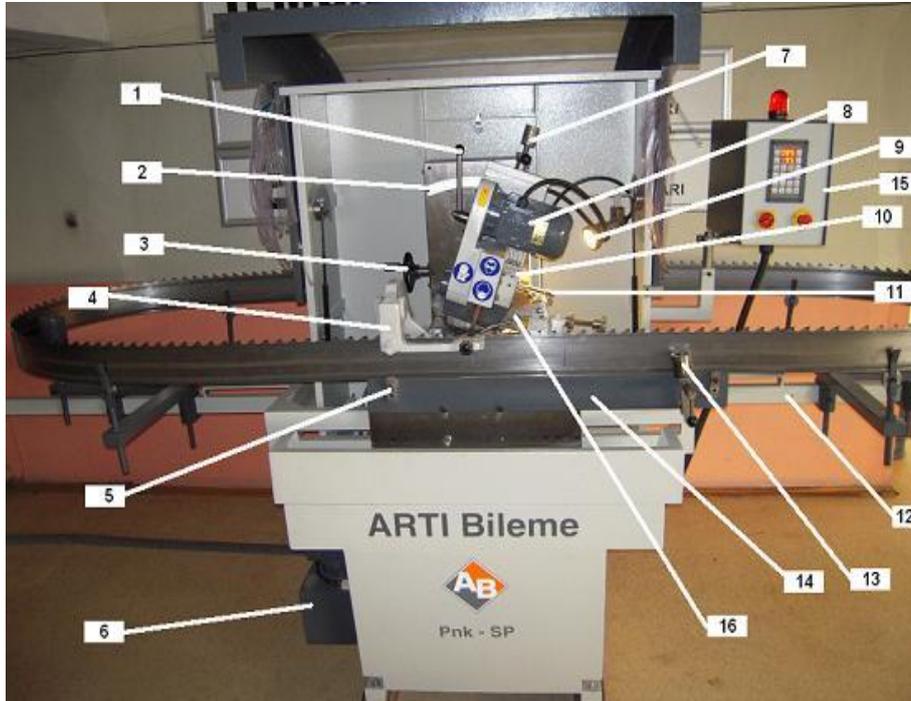


Lifts the saw blade carrier UP. (Until it sees the limit proximity switch up)



Lifts the saw blade carrier DOWN. (Until it sees the limit proximity switch down)

6.2. Machine Sub-Assemblies



1	Release arm (Releases the grinding head on cam follower)
2	Hook(Beta) Angle Scale
3	Hook(Beta) Angle Adjustment Wheel (Lock the screw after adjusting the angle)
4	Clamp arm
5	Band Saw Holder
6	Coolant Tank
7	Infeed Knob
8	Grinding Wheel
9	Illumination LED Lamp
10	Central lubrication piece
11	Tooth height (timing) adjustment screw
12	Band saw holder.
13	Band saw roller clamps
14	Saw Blade front carrier
15	Control Panel
16	Indexing finger

7. OPERATING the MACHINE

7.1. Manual Adjustments

7.1.1 Grinding Angle

According to the material hardness to be cut it is possible to adjust the grinding angle – 10° , 0° , 30° in these values. (For example for poplar tree 18° - 25°).



In order to adjust the hook (beta) angle use the wheel below.



Unlock/lock the screw “A” before/after adjusting the Hook angle.

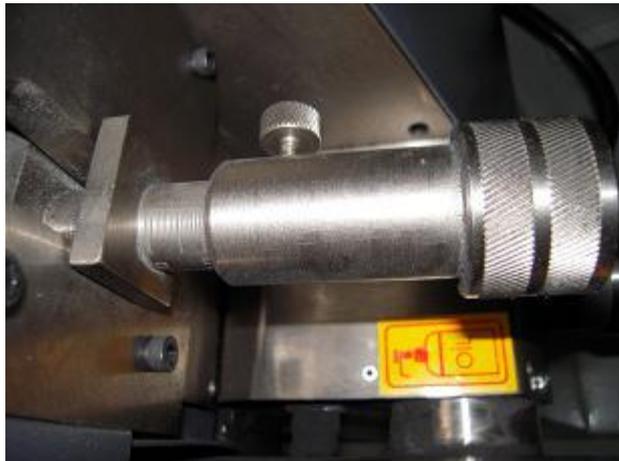
7.1.2. Tooth Pitch

The tooth pitch is adjusted according to the required tooth pitch written on the scale. (0 to 55mm)

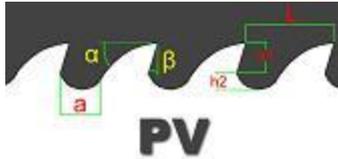


7.1.3. Tooth height(Timing) Adjustment

Tooth height is adjusted according to the required tooth height written on the scale. (0 to 25mm)



Also gullet length(a) should be done longer or shorter by using the delay knob and counter-lock (a = Gullet length)



7.1.4. Blade Thickness

Blade thickness is adjusted by 2 M8x55 bolts which are positioned rear part of the clamping jaw.

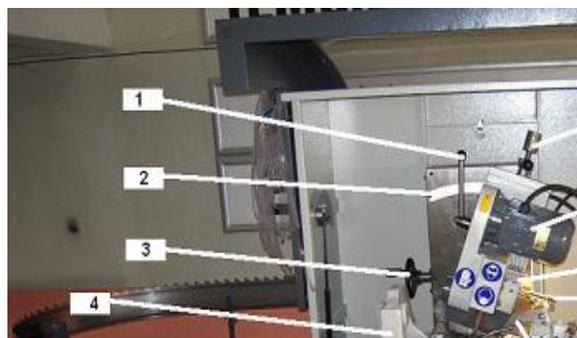
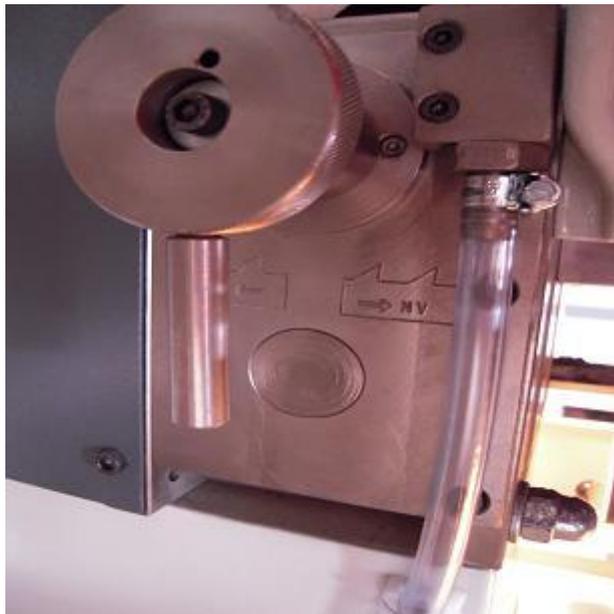
The counter hex-nuts should be tightened after the adjustment.



7.1.5. Adjusting the Tooth Form

The tooth form should be changed while the machine is running. While the machine is running, pull the arm to yourself, turned to the required tooth form CW(PV Form), CCW(NV Form) until the pin is located inside the pin-hole. If the pin does not position in the hole then wrong profiles should be seen.

NOTE : During this operation, the release arm should be lifted up and the machine should be running.



Release arm (No:1)

7.1.6. Tooth Forms

SAWMAX allows the PV,NV,SB,KV tooth forms by the eccentric cam and indexing assemblies.



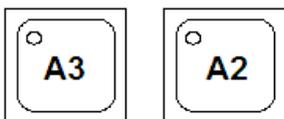
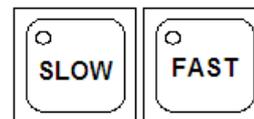
7.1.7. Tooth Parameters

- L = Tooth pitch
- H = Tooth height
- A = Gullet
- β = Hook Angle
- a = Back Clearance angle

7.1.8. Grinding Speed

The standard grinding machine can be adjusted as 10-30 teeth/min as working speed.

Grinding speed selection is done electronically from the control panel.



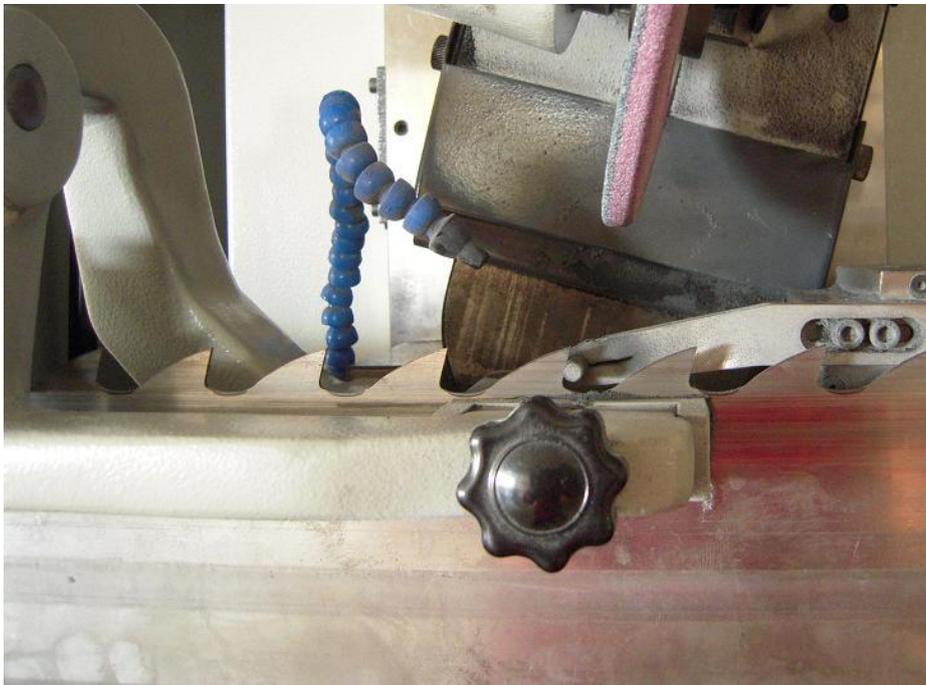
A2 and A3 buttons are to adjust the variable speeds between Max and Min Speeds!

7.1.9. Adjusting pressure of the clamping arm



By adjusting the nut on the Picture above, the clamping pressure can be increased by turning in CW direction.

7.1.10. Adjusting the Indexing Finger



The saw blade is height adjusted as seen on the picture above, the indexing finger is positioned on hook surface of the saw blade. The height adjusted then by the Up and Down buttons on control panel.

7.2. FIRST OPERATION - GRINDING A BAND SAW BLADE

The saw blade is positioned on the saw holders and then clamped by the arm.



Saw blade height is adjusted on the terms of Chapter “Adjusting Indexing Finger”.

Required tooth form is selected on the terms of Chapter “Adjusting Tooth Forms”.

Saw blade tooth pitch is adjusted according to the required Tooth Pitch.

When the RELEASE ARM is in UP position, select a grinding speed and run the machine. This operations are done in MANUAL MODE step by step by starting START button continuously. If all the adjustments are correct, AUTO and START buttons are pressed and the machine starts to run in automatic cycle.

Run the grinding Wheel and check for the PLUNGE CLEARANCE. Release the RELEASE ARM under control.

Grinding head will work in synchronization with indexing finger.

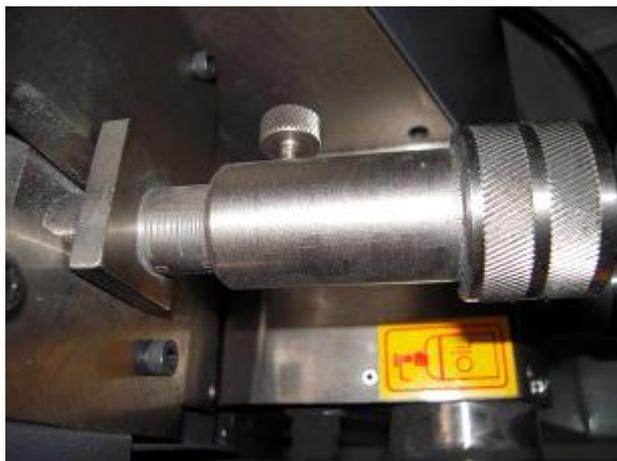
First adjust the infeed knob and touch the blade,



Second adjust the infeed wheel,



Third adjust the tooth height arm and touch the blade.



Grinding operation is done in coordination with indexing and grinding head movements by touching the hook surface of the gullet.

After all the profile touches the wheel, all the counter-lock nuts should be tightened and locked!!!

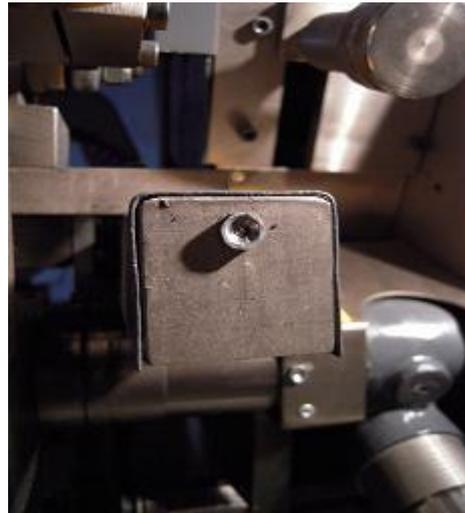
8. MACHINE MAINTENANCE

8.1. Maintenance

Periodical cleaning and maintenance longlasts the machine life. The grinding saw chips should be cleaned daily.

The machine should be oiled periodically, otherwise mechanical assemblies should be weared.

The lubrication points which are shown below should be oiled daily by the manual hand pump!!!



9. ATTACHMENTS

- Attachment 1 : Spare Parts Lists and Drawings
- Attachment 2 : Electric Diagram