Operations Manual

www.cantekamerica.com

MRS300

Multi Blade Gang Ripsaw

Please ensure you have your serial number available when contacting us for parts or service.

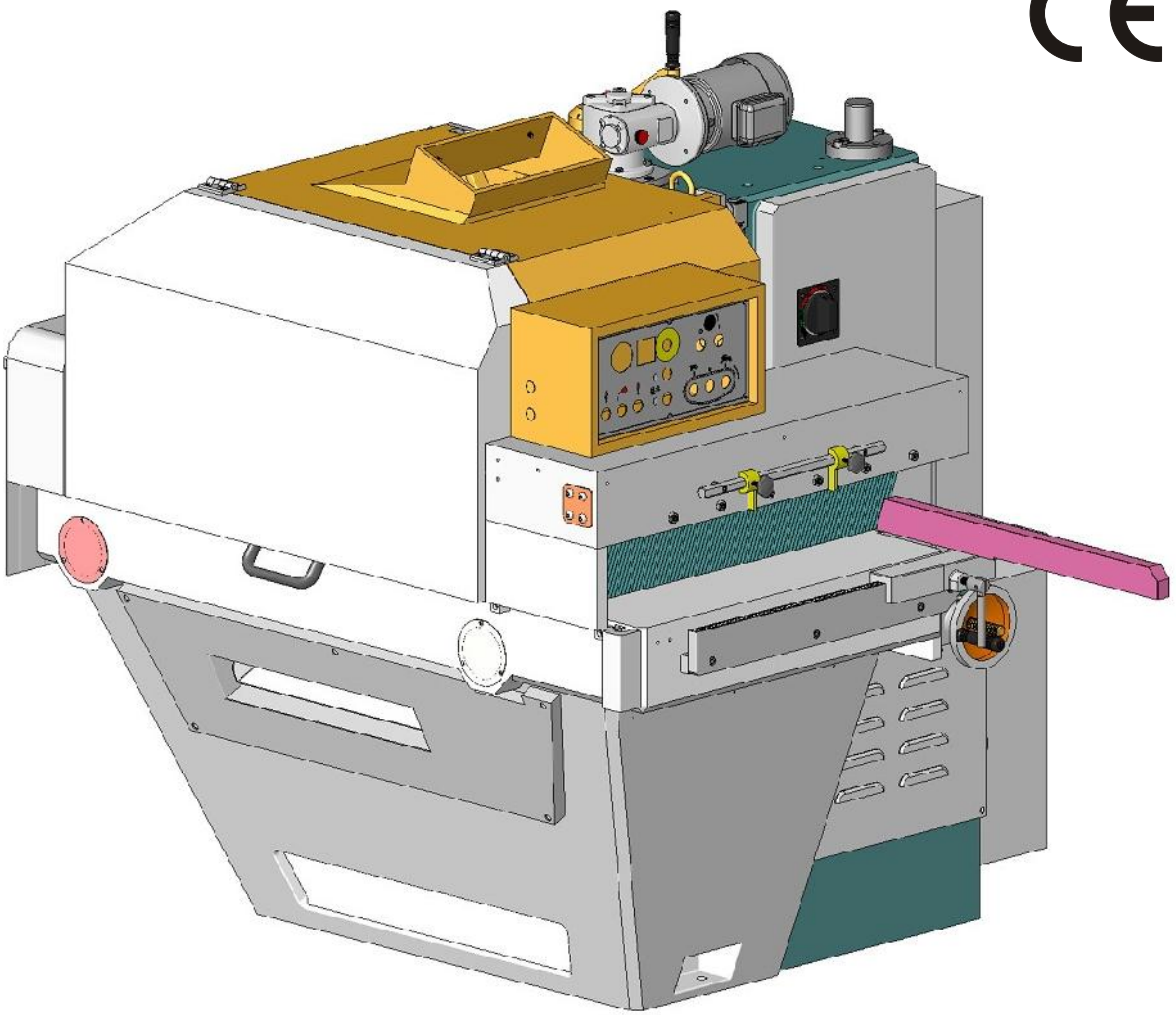
Cantek America Inc. | 1.888.982.2683 | **Parts:** sales@cantekamerica.com | **Service:** service@cantekamerica.com

CANTEK

MULTIPLE RIP SAW

MRS-300

CE



OPERATION & BREAK-DOWN

SPECIFICATIONS

Model NO.: MRS-300

Serial NO.: 0816312018

Production date: AUG.2016

Operating volt: 460 Volt

Drive specifications:

Drive Motor	Q'TY	HP	Volt	Hz
Saw arbor motor	1 set	☐30 ☐40 ☐50 ☑60	460	60
Feed motor	1 set	☑2(4/8P) ☐3(4P)	460	60
Pressure rollers elevation motor	1 set	1/2	460	60

Belt specifications:

Shaft	☑5 ☐6 ☐8 ☐9 pcs	Triangular belt ☐3V-710 ☑SPA-1957 ☐SPA-2000
Conveyor belt accelerator	☑1 pc	Triangular belt 1922V403
	☐2 pcs	Triangular belt A42

PREFACE

This manual explains how to install, operate, and maintain the MRS-300 MULTIPLE RIP SAW. Please make certain to read the information contained herein to ensure safe operation and to achieve the longest lifespan and finest results possible.

When your saw requires professional repair or maintenance, contact your local dealer giving him the following information:

- ☑ Model number
- ☑ Serial number
- ☑ Date of purchase
- ☑ Precise details of the fault or problem

Your dealer can provide parts and service authorized by head office ensuring safe and efficient operation.

IMPORTANT!!

By reason of safety, the operator MUST wear leather gloves and leather apron.

CONTENTS

CHAPTER 1: INTRODUCTION

1-1 SAFETY PRECAUTIONS

A machine of this nature can be dangerous if not used properly, therefore we strongly recommend that the operator comply with the following safety guidelines:

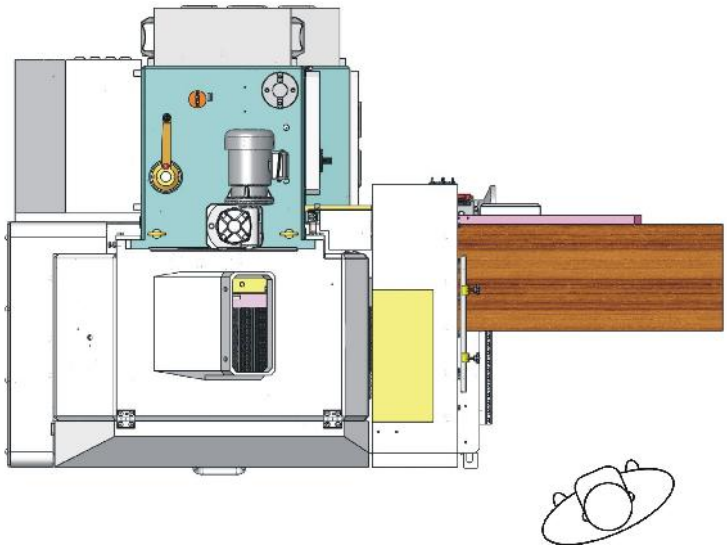
- ☑ The operator must read the operation manual very carefully, before using this machine.

- ☑ The operator must take enough training and have the related working experience.

- ☑ The saw arbor rotation is 3800r.p.m on this machine and the power used is 30~60HP. The work piece that fed by chain takes a large of reacting force during cutting. If the pressure rollers can not hold down the work piece properly, the work piece will be kick back anytime and hurt the operator. To prevent the accident, when make a change on thickness of wood must adjust the pressure rollers to the proper position. (refer to Ch.3-6)

- ☑ As the sawdust will be stuck between the anti-kickback fingers to influence its working, it is necessary to clear the sawdust from them often. Before use the machine, be sure the anti-kickback fingers are not stuck with any sawdust or other substances.

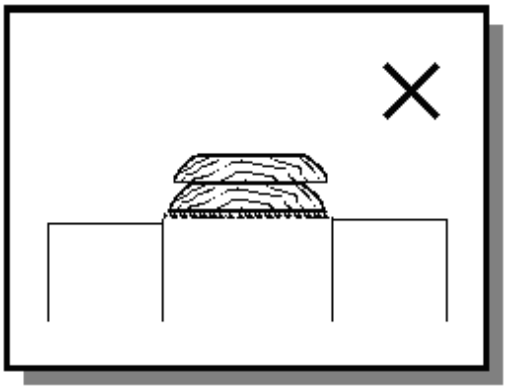
- ☑ The operator should wear leather gloves and leather apron, and should stand at the side of the machine. Never stand in line with the sawing lines.



- ☑ Never touch, either directly or indirectly, any moving parts of the machine while in operation, or wood which is presently being sawed.

☑ Before sawing, the wood should be cleared of any foreign objects such as metal, sand, and earth.

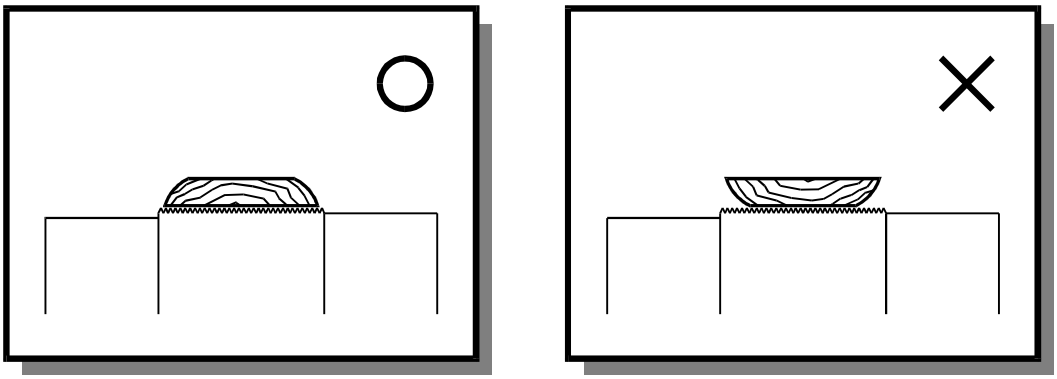
☑ Never feed two or more planks of wood into the machine at the same time.



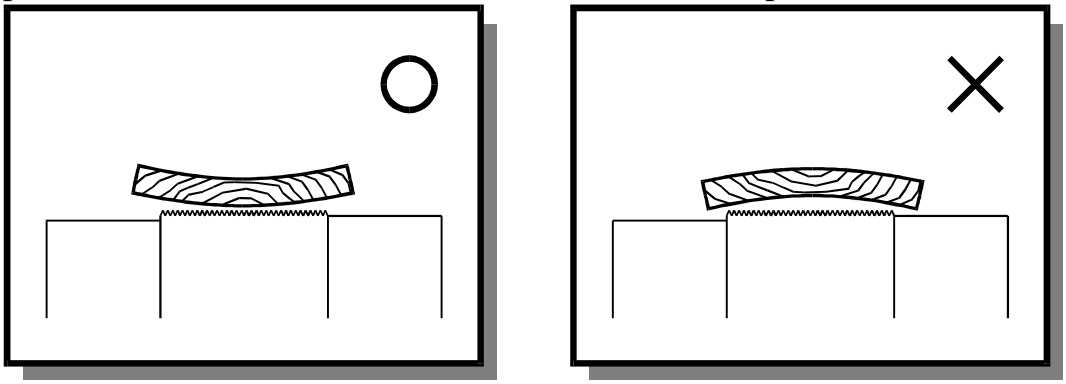
☑ When making a change in the thickness of wood, the height of the pressure rollers must be readjusted to the proper position. This is to ensure the rollers maintain a firm grip so that the wood being cut cannot come flying out.

☑ Never use wood of thickness greater than 120mm or length shorter than 300mm.

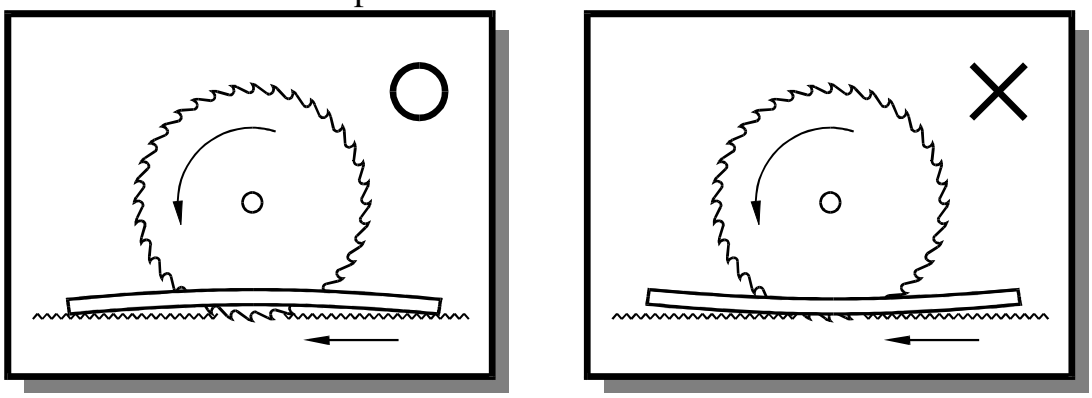
☑ If using planks that have not had the edges squared, the wider side should always be face down on the caterpillar chain.



☑ Planks which are warped crosswise rather than completely flat should be placed with the convex side face down on the caterpillar chain.

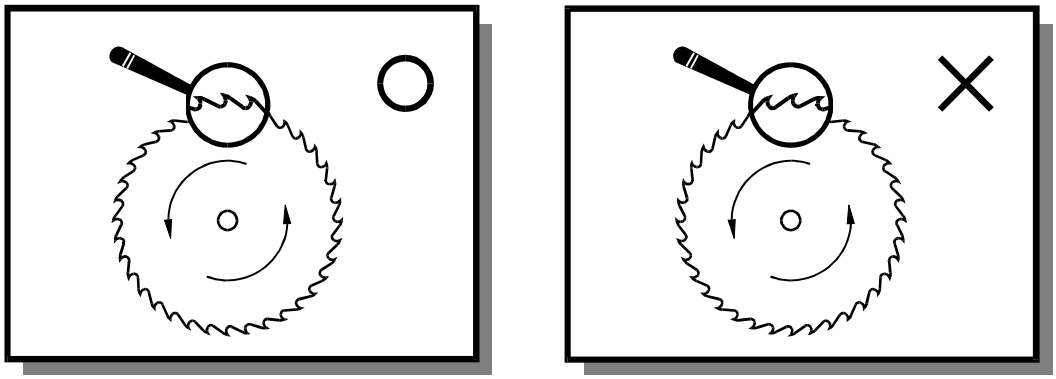


☑ Planks which are warped lengthwise should be placed with the concave side face down on the caterpillar chain.



☑ Suitable circular woodcutting blades should always be used. The blades should be checked regularly for bluntness, crack, and accumulation of sawdust.

☑ Make certain that blades are installed with the teeth pointing in the same direction as the rotation of saw arbors turns.

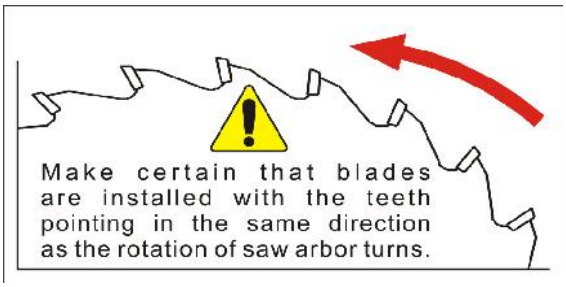
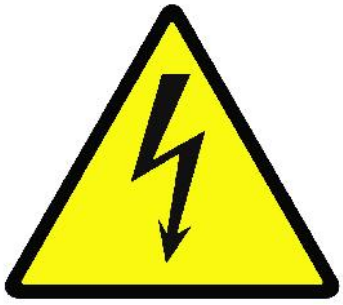


☑ Checks should be made regularly to ensure that there are no foreign objects jammed in the gaps between the feed chain. An air gun should be used daily to remove sawdust from these gaps.

☑ Make certain that the power of the machine is disconnected from the power source before effecting any cleaning, lubrication, maintenance, repair, adjustments, or part replacements.

☑ The operator should never leave the machine unattended when in use. Similarly, after switching off the machine, the operator must be certain to wait until the machine comes to a complete standstill before walking away.

1-1.1 WARNING PLATES

INDICATOR	DESCRIPTION
	DO NOT move unless change saw blade or adjust blade.
	Make certain that blades are installed with the teeth pointing in the same direction as the rotation of saw arbor turns.
	Warning.
	Danger & Safety Instructions.
	Warning. (electricity)

INDICATOR	DESCRIPTION
	The machine MUST be with the grounding installation below 10 Ω.
	Danger.
	Warning.
	Warning.
	Warning.

INDICATOR	DESCRIPTION
	Warning.
	Warning.

✱Operator MUST follows all safety principles and warning stickers on machine.

1-2 SPECIFICATIONS TABLE

Mini. length of workpiece	600 mm
Mini. length of workpiece (w/ sort stock device) – ***Option***	300 mm
Max. cutting thickness	120 mm
Max. cutting thickness (w/ sort stock device) – ***Option***	95 mm
Minimum cutting width	300 mm
Distance from column to caterpillar chain center	360 mm
Max. sawblade diameter	∅380 mm (15")
Mini. sawblade diameter	∅203 mm (8")
Sawblade bore	∅70 mm
Saw arbor diameter	∅50 mm
Saw arbor speed	3800 rpm
Saw arbor motor	30, 40, 50 or 60 HP
Feed motor	2 HP
Feed speed	7.5~30 m/min
Feed motor (c/w frequency inverter) – ***Option***	3 HP
Feed speed (c/w frequency inverter) – ***Option***	2.5~24 m/min
Hold down roller elevating motor	1/2 HP
Dust hole diameter	2x∅150 mm
Table height from floor	850 mm
Table area (L×W)	1525×765 mm
Overall dimensions (L×W×H)	2089×1536×1726 mm

✱We reserve the right to amend any of the above specifications without prior notice.

1-3 FEATURES

CATERPILLAR CHAIN WITH VARIABLE FEED SPEED:

The caterpillar chain feed mechanism provides extremely accurate straightness and high precision cutting. The feed speed range is 7.5~30 m/min, and is easily adjusted by the handwheel at the stock infeed position.

COMPREHENSIVE SAFETY DEVICES:

Three rows of anti-kickback fingers are positioned at the frontal and side plate to guarantee safe operation. A specially designed width safety limit switch prevents over-wide workpieces from damaging the cover. The maximum infeed workpiece width is 585mm.

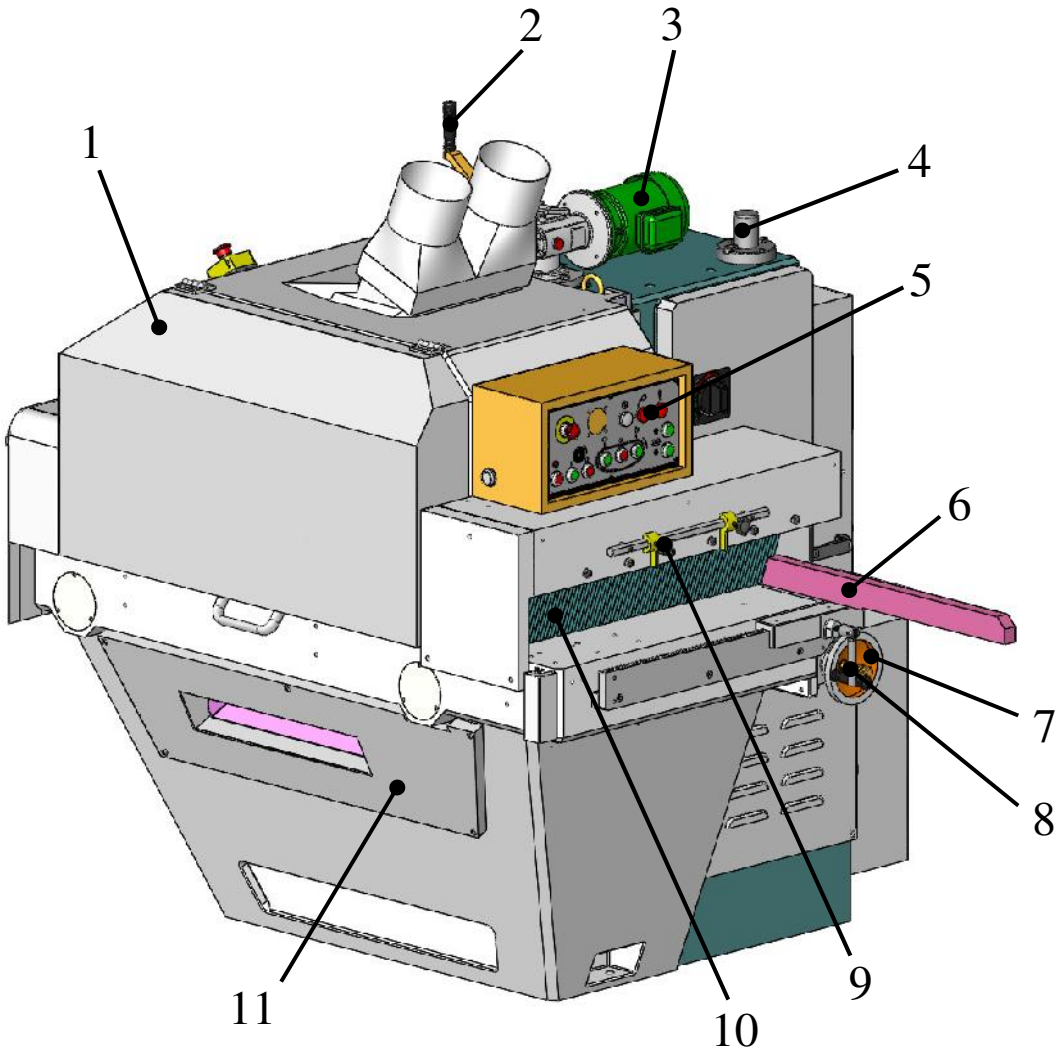
AUTOMATIC FORCED LUBRICATION SYSTEM:

Centralized forced lubrication ensures a proper oil film on the caterpillar chain and rails. If there is insufficient oil in the oil tank, the warning lamp lights up and the caterpillar chain stops running automatically. This can completely preserve the service life of the caterpillar chain and rails.

POWERFUL ARBOR DRIVE MOTOR:

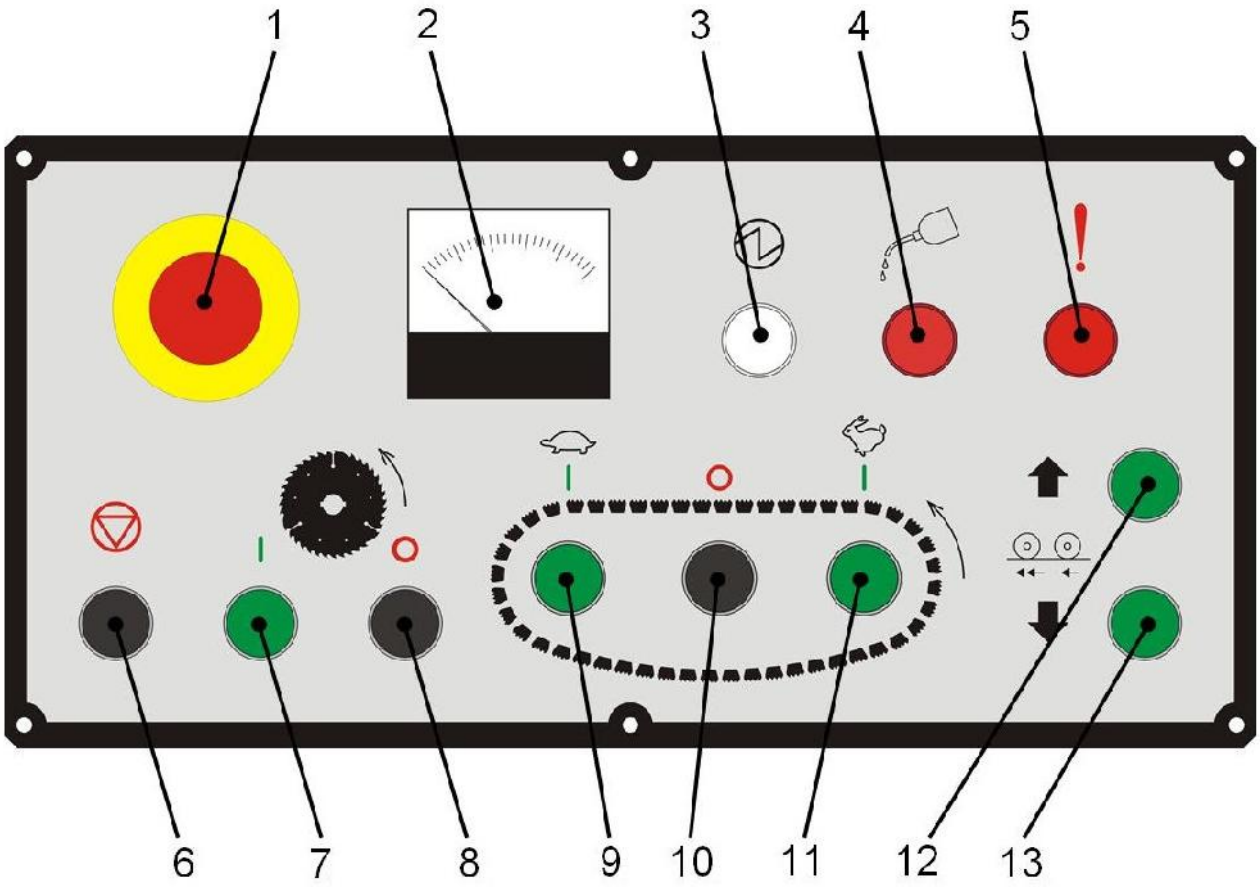
The saw blade is driven with a powerful motor. When requested, range of motors are available: 30, 40, 50, 60HP.

1-4 LOCATION OF PARTS



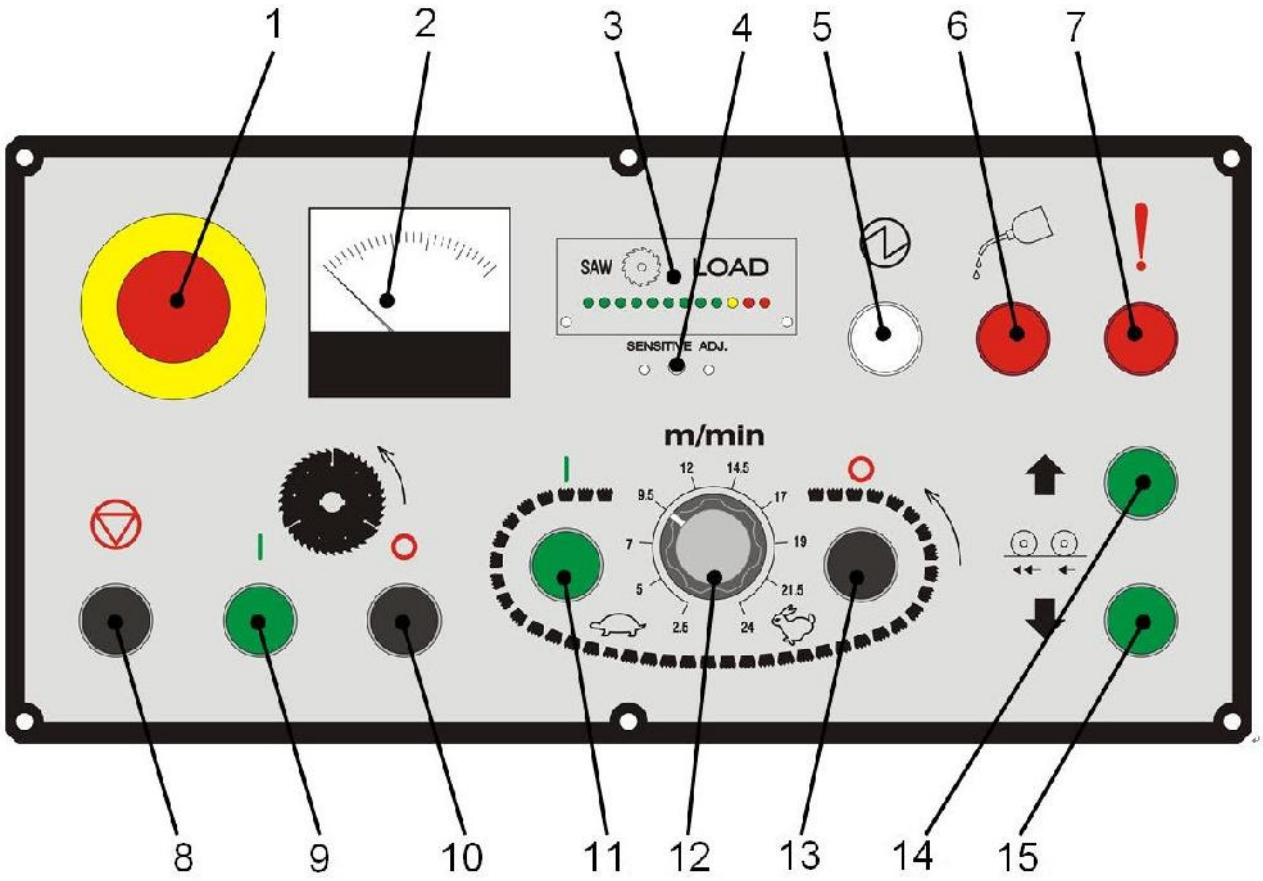
1. Saw arbor front guard
2. Saw arbor elevating handle
3. Holddown roller/housing elevating motor
4. Support rod for saw sleeve
5. Control panel
6. Fence
7. Speed-changing hand-wheel for feeding
8. Fence clamp handle
9. Position guide bar for cutting width
10. Anti-kickback fingers
11. Feed chain cover

Control panel (standard type):



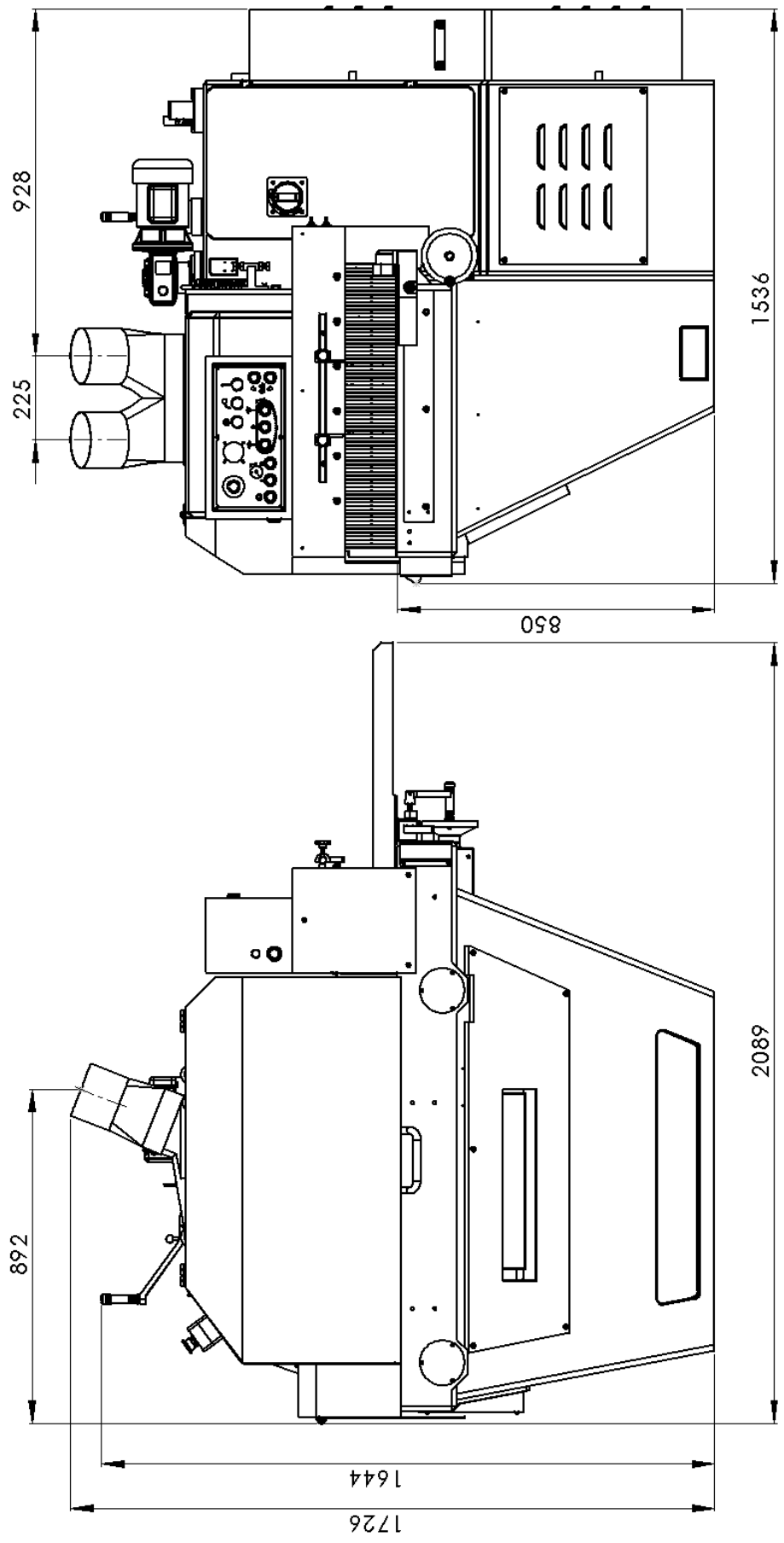
1. Emergent STOP button
2. Ampere meter
3. Power indicator
4. Feed chain lubricant insufficient indicator
5. Protections open indicator
6. STOP button
7. Blade START button
8. Blade STOP button
9. Feed chain START button (low speed)
10. Feed chain STOP button
11. Feed chain START button (high speed)
12. Pressure rollers UP button
13. Pressure rollers DOWN button

Control panel (Equip electrical amperage display): *(Option)*



1. Emergent STOP button
2. Ampere meter
3. Pilot of saw arbor's load
4. Sensitive adjustment swith of saw arbor's load
5. Power indicator
6. Caterpillar chain lubrication oil insufficient indicator
7. Protection open
8. STOP button
9. Blade star button
10. Blade stop button
11. Caterpillar chain START button
12. Feed speed adjustment switch
13. Caterpillar chain STOP button
14. Pressure rollers UP button
15. Pressure rollers DOWN button

Machine size:



CHAPTER 2: INSTALLATION

2-1 PRE-INSTALLATION INSPECTION

To ensure optimum performance from your machine, the following checks should be made before installation:

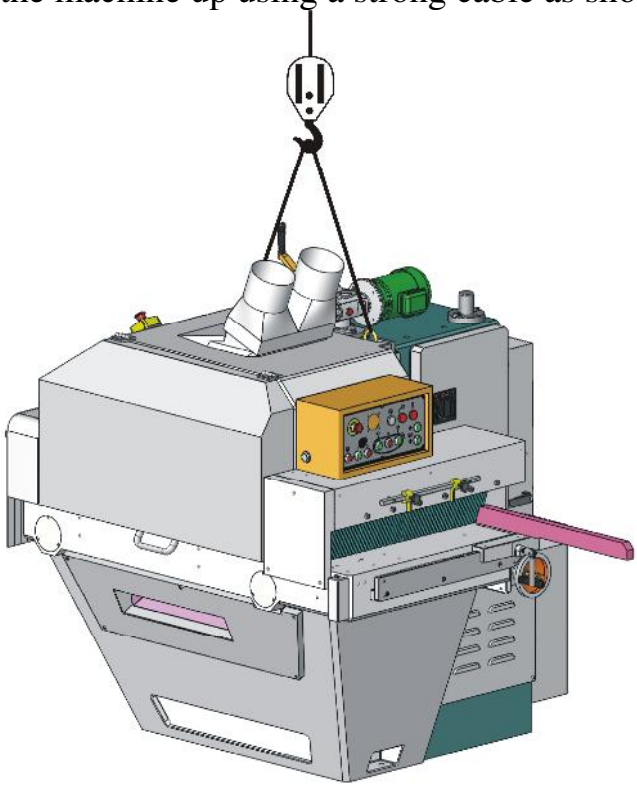
- ◎ Is there any damage to the crate containing the machine?
- ◎ Does the machine show any signs of having been dropped or mishandled?

If the answer to either of these questions is "yes", please contact your dealer immediately and the matter will be handled by qualified technicians.

2-2 MOVING THE MACHINE

The machine may be moved in two ways:

1. Firstly, remove the bolts which fix the machine to the base of the crate. Secondly, lift the machine up using a strong cable as shown below.



2. Pick up the machine from the bottom using a fork lift truck of grade at least 2.5 tons.

2-3 FIXING THE MACHINE IN POSITION

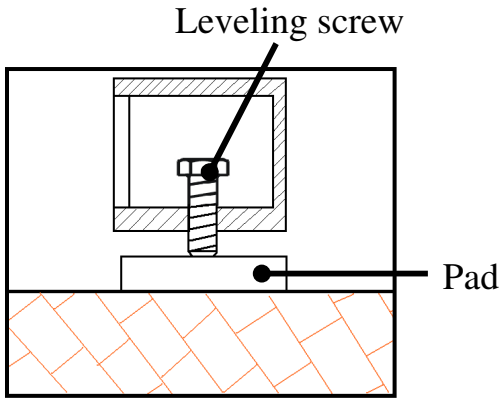
1. PROPER LOCATION FOR THE MACHINE

◎ The floor must be able to support the machine's weight as well as the vibrations produced when it is operating.

◎ The direction of sawed wood coming out of the machine must not be facing an area where people may be passing.

2. LEVELING THE MACHINE

Place a leveler on the worktop of the machine and adjust the height of the three sets of foundation nuts under the machine until the offset between the X and Y shafts and horizontal is less than 0.3mm/m. After completion of the leveling process, be certain to re-tighten the foundation nuts.



2-4 POWER CONNECTION

☞The power source should be connected by a qualified electrician.

◎ All wiring must be conform to international safety guidelines, choose a most suitable size of cable subject to the voltage and mounting motors.

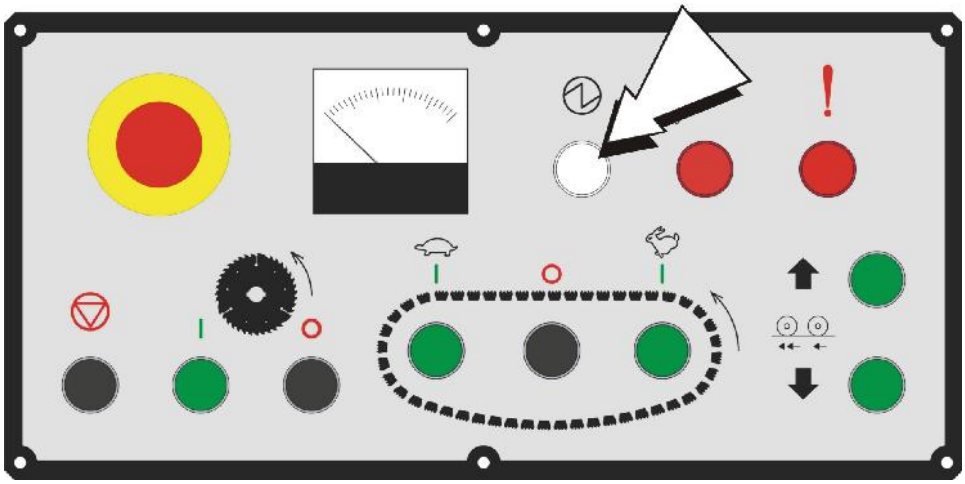
◎ A suitable breaker should be installed in the cable that between the main power supply and the machine so that the power supply to the machine may be turned off when not in use.

◎ **Check and ensure ground wiring in order to protect the operator from electric shock.**
(The machine MUST be with the grounding installation below 10Ω)

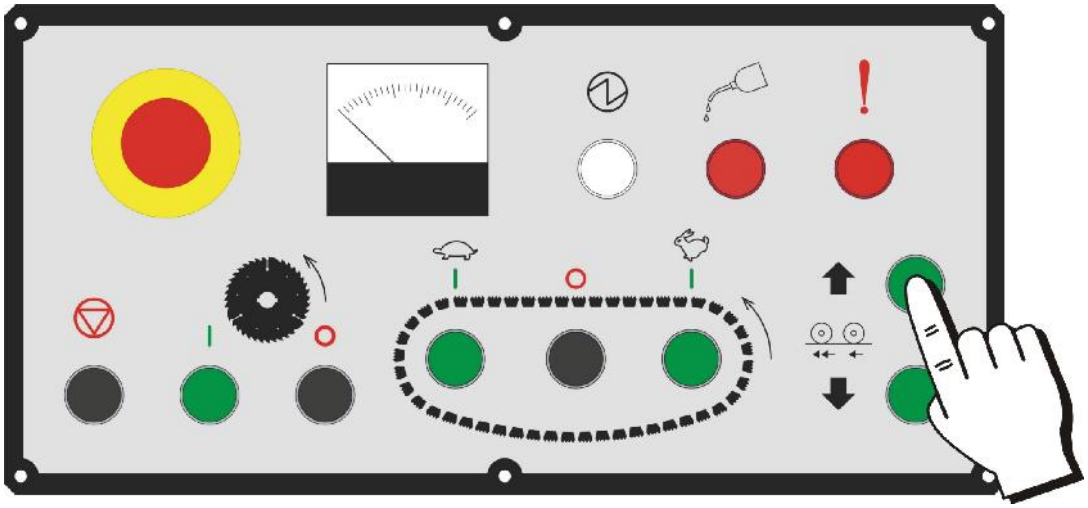
2-5 START-UP TEST

After the machine has been installed by following the steps described above and a check has been made to ensure that there are no obstructions surrounding the machine, the following start-up test should be performed:

1. Be sure the power supply is connected and the power indicator will light up.



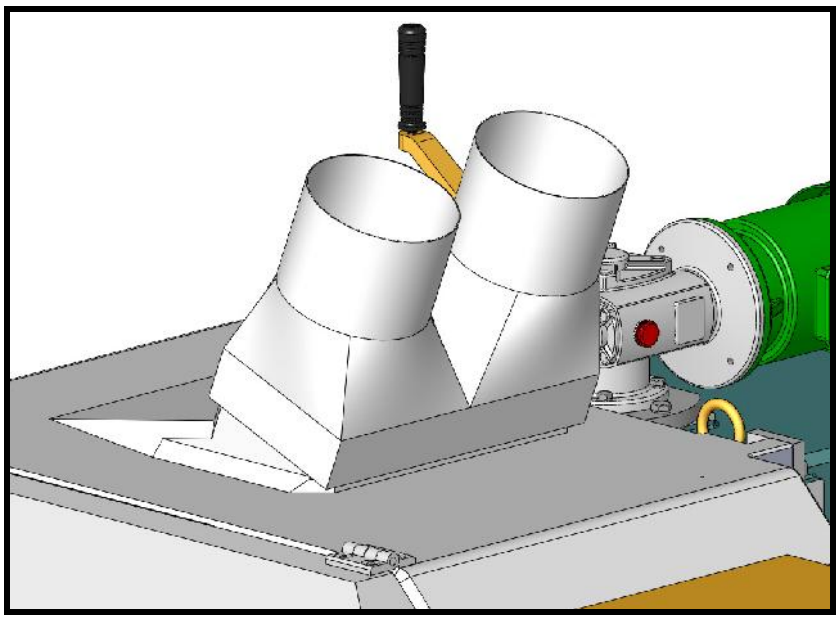
2. Observe the pressure roller housing. If the housing goes up while push the pressure roller housing rising button, it means the power wiring is correct. If the housing goes down while push the rising button, **Shut Off the Power Immediately** to stop the machine. After reversing two (2) phase cables, restart and test run again.



3. When make sure the pressure roller housing and the corresponding rising button and lower button are working correctly, the user can start the machine for operation.

2-6 CONNECTION OF DUST COLLECTING APPARATUS

Use a 6" dia. flexible hose to connect the two Ø150mm dust outlets to the dust collector. The minimum air consumption for one 6" dia. flexible hose can not be less than 1782 m3/hr. The total consumption of this machine can not be less than 3564 m^3/hr.



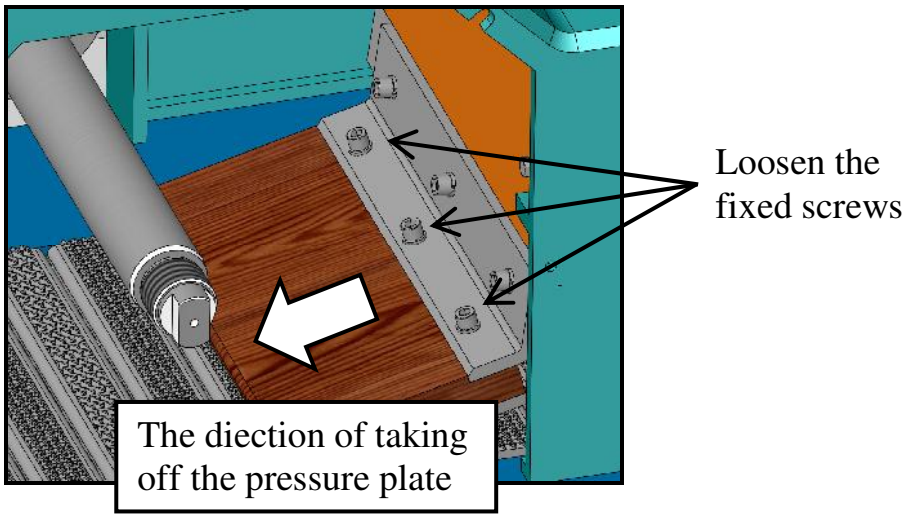
CHAPTER 3: OPERATION

3-1 INSTALL THE PRESSURE PLATE

Choose the type of pressure plate according to the length of material to be cut. When the material is over 600mm long, use the normal short pressure plate. When it is less 600mm long, the machine must install with the optional short-stock cutting device. The installation and adjustment of pressure plate referred to by the Appendix I.

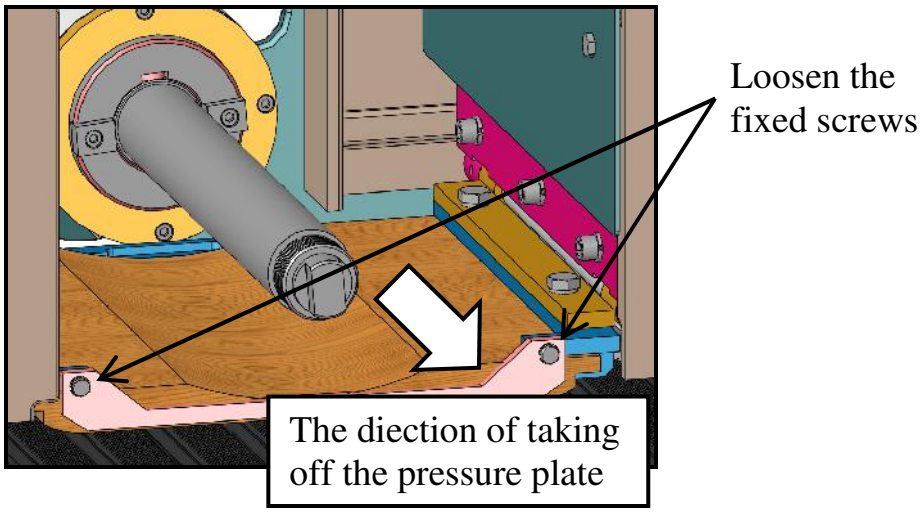
Conventional pressure plate:

To change same type of pressure plate, loose the fixing nut (do not need to take the nuts off completely) then take out or insert the pressure plate. After insert the pressure plate, be sure to lock the nuts to fix it on the bracket.



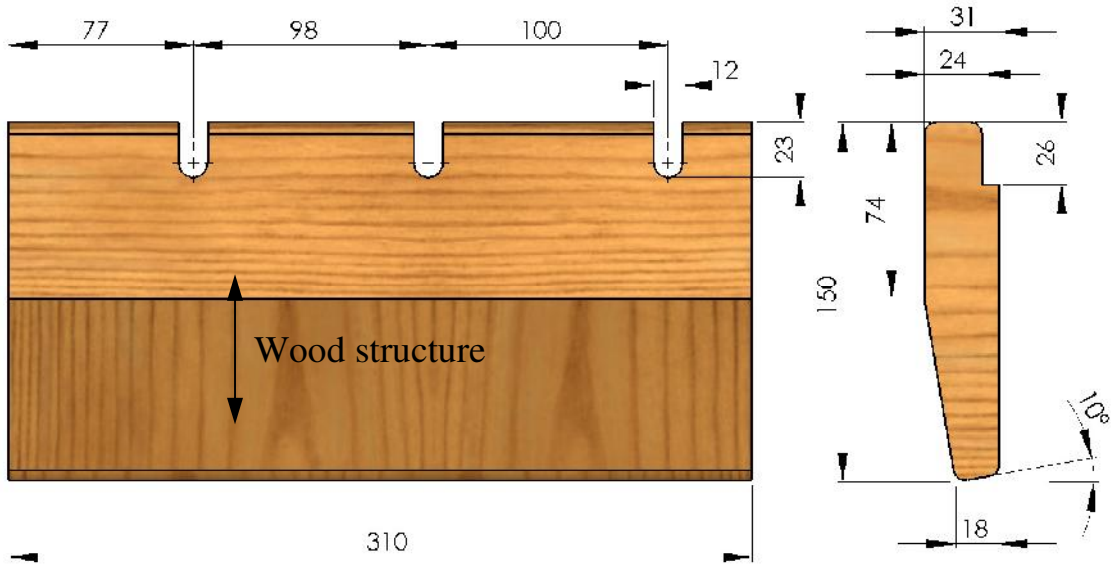
Pressure plate for short or thin stock: (Optional)

To change the pressure plate, loosen and take off these 2 fixed screws then the operator can take out or insert the pressure plate easily. After insert the pressure plate, be sure to lock the screws to fix it on the bracket.

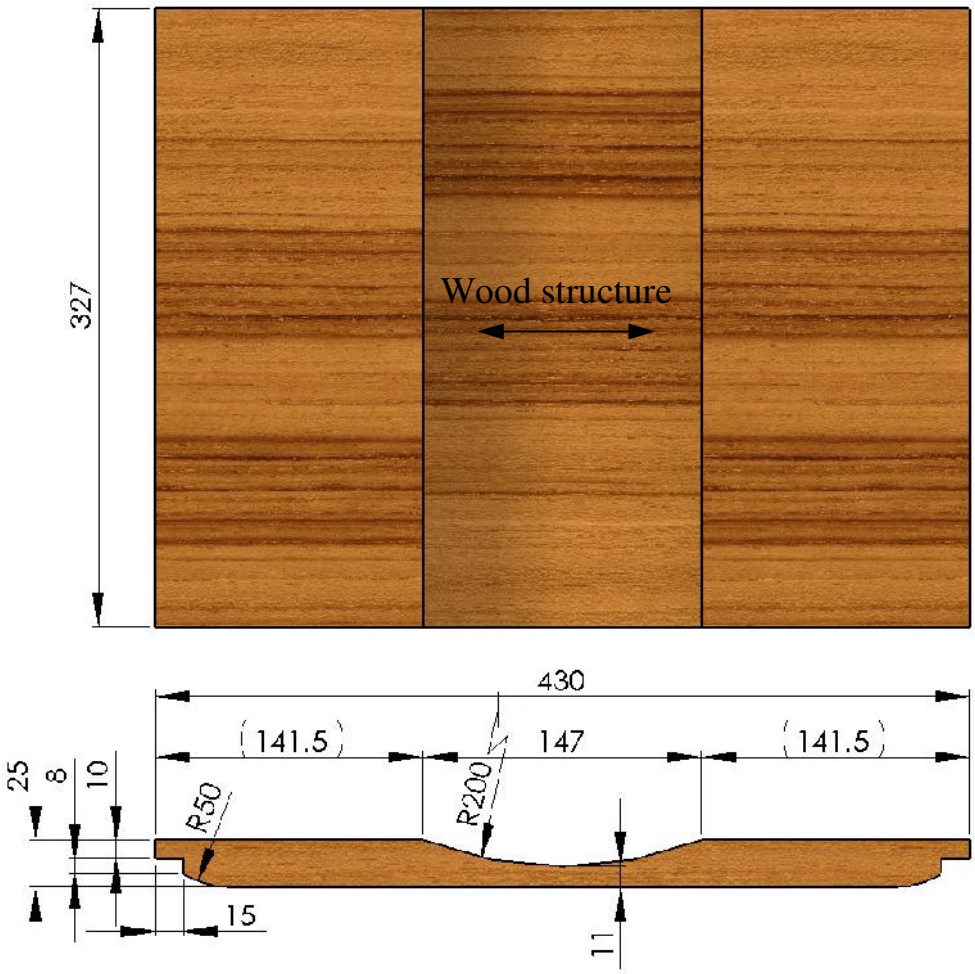


The pressure plate must be made of solid and complete wood according the following diagram:

◎ Conventional pressure plate:



◎ Pressure plate for short or thin stock: (Optional)



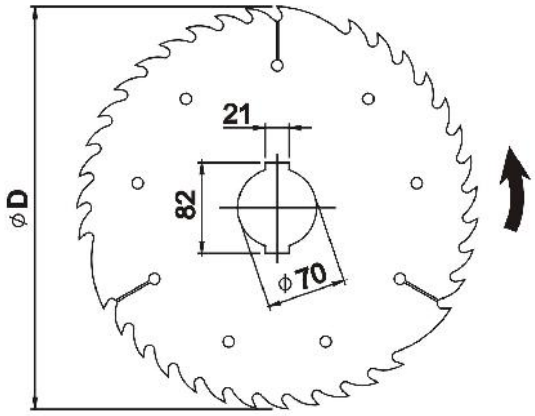
3-2 INSTALLING AND REMOVING BLADES

There are 2 methods to install or replace the saw blades of the sleeve on the arbor:

1. When saw sleeve is not fixed on the saw arbor:

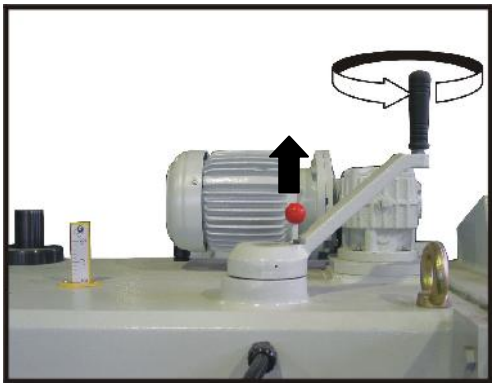
(1) Stand the saw sleeve on the table, then put on proper spacers & saw blades according the cutting-size requested. Be sure to clean the both sides of spacers & saw blades before you put them on the sleeve. Also! Make certain that the saw blades are in the same diameter and installed with the saw teeth pointing in the same direction (as the figure shown below), then tighten the locknut of the saw sleeve.

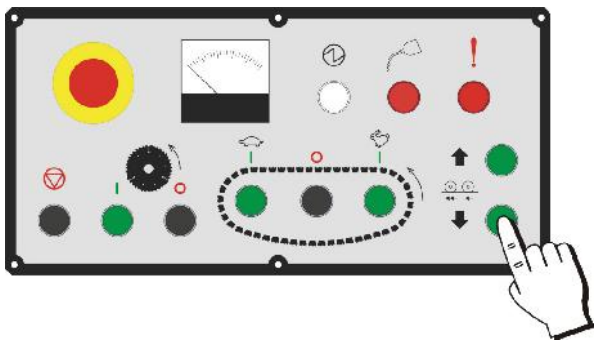
D = 203mm (8")
254mm (10")
305mm (12")
356mm (14")



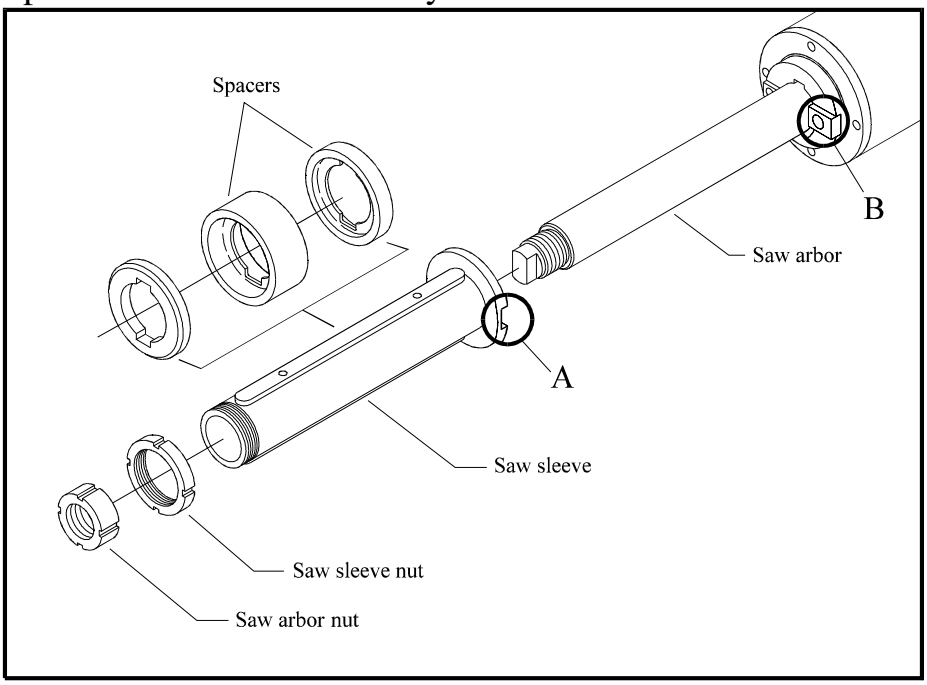
(2) Clean the contact faces of saw sleeve and saw arbor, the inner side of the sleeve and the surface of the saw arbor by clean cloth. Any wood chips or foreign substances (objects) sticks on them will cause sway and vibration when the saw blades are running. These sway and vibration will make the sawn wood not precise. Further more cause the defect of machines accuracy.

(3) Turn upward the lock pin of the saw arbor lifting handle and set it to the position of releasing the handle. Raise the saw arbor to the limit by turning the saw arbor elevating handle in a clockwise direction. Then, set the lock pin to the nearest hole to make the saw blade fix on the highest position. Press the pressure rollers lower button to lower the pressure rollers in order to get enough space for install saw blades and sleeve assembly on the saw arbor.

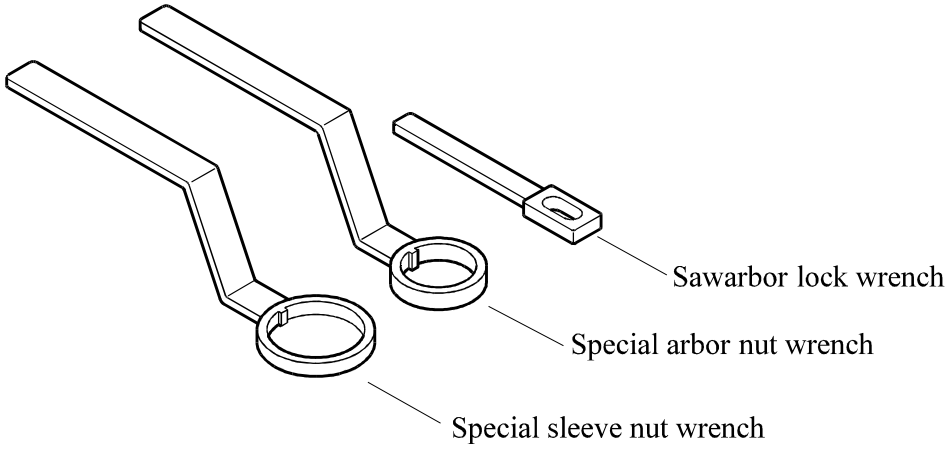


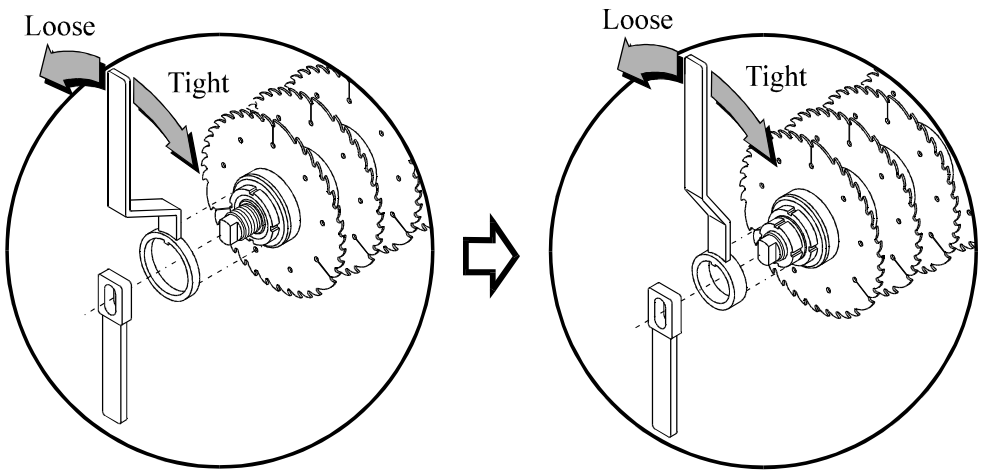


(4) Be sure to make the convex part (B in the following picture) of the rear of the saw arbor inserts to the groove (A in the following picture) of the saw sleeve, when put the saw sleeve assembly on the saw arbor.



(5) Use the following three special wrenches to lock saw sleeve nut and saw arbor nut.





2. When the saw sleeve is fixed on the saw arbor:

If the saw blades are stayed between the pressure plate, firstly you must lift up the saw arbor and then lower the pressure rollers unit to make the saw blades leave the pressure plate. The saw blades can then be taken out.

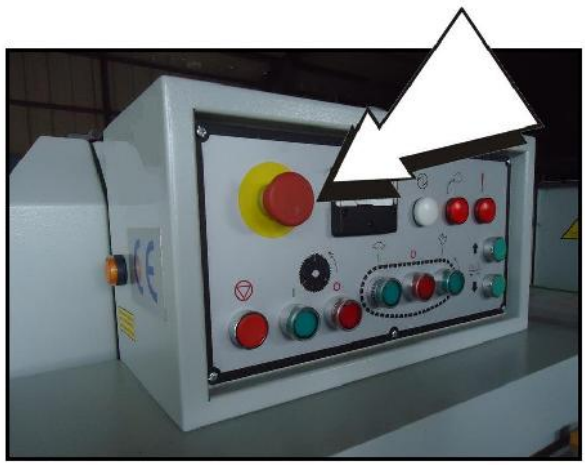
(1) Make the saw blades leave the pressure plate by following the step (3) of the first method, then use the special saw arbor nut wrench, the special sleeve nut wrench and saw arbor lock wrench to release the nuts of the saw arbor and the saw sleeve. After that, the saw blades and spacers can be taken off.

(2) Before installing the new saw blades and spacers on the sleeve, make sure to clean up the surfaces of them. Also, make certain that the saw blades are in the same size and installed with sawteeth pointing in the same direction.

(3) Tighten the nuts of the saw sleeve and the saw arbor by following the step (5) of the first method.

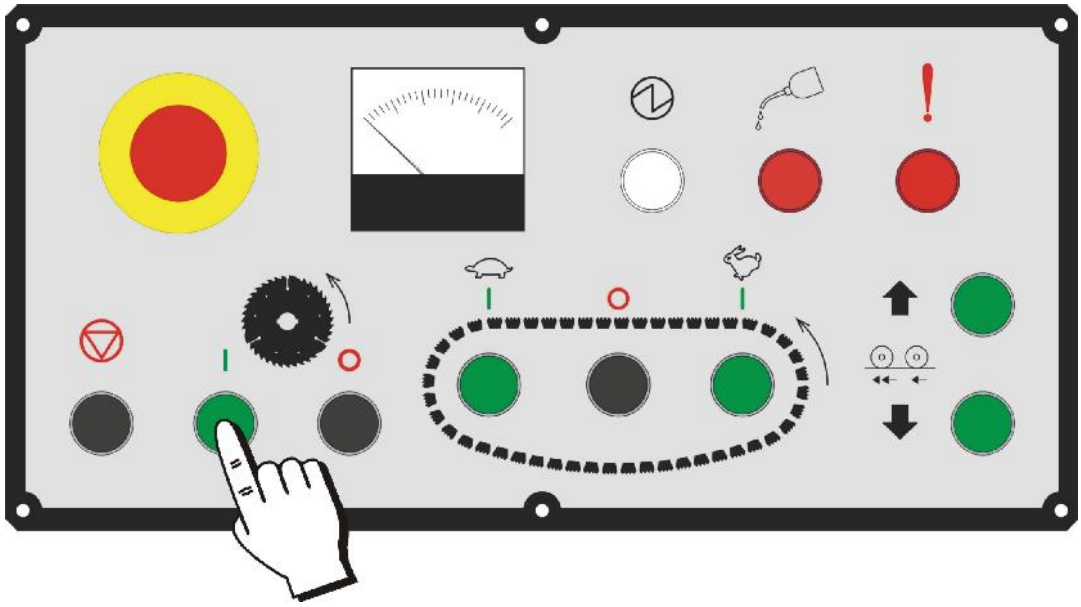
3-3 CHECKING SAFETY DEVICES

Make sure the power supply is turned on, and the emergent STOP buttons are not be pressed (as indicated by the arrows).



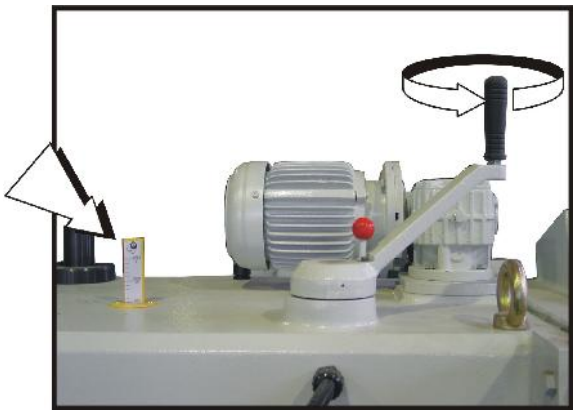
3-4 STARTING THE BLADES

Start the saw blades by pressing the saw blades START button.



3-5 FIXING THE SAW ARBOR IN POSITION

After the pressure plate and saw blades sleeve assembly have been installed completely, start the saw blades to let the saw arbor rotate. Turn the “saw arbor elevating handle” slowly in a counter-clockwise direction until the saw blade diameter indicator shows the scale of saw blades diameter. (e.g. when use 12"diameter saw blades, adjust the indicator to the scale of 12”). After positioned, be sure to insert the “fixed pin of saw arbor elevating handle” to the nearest fixed hole.



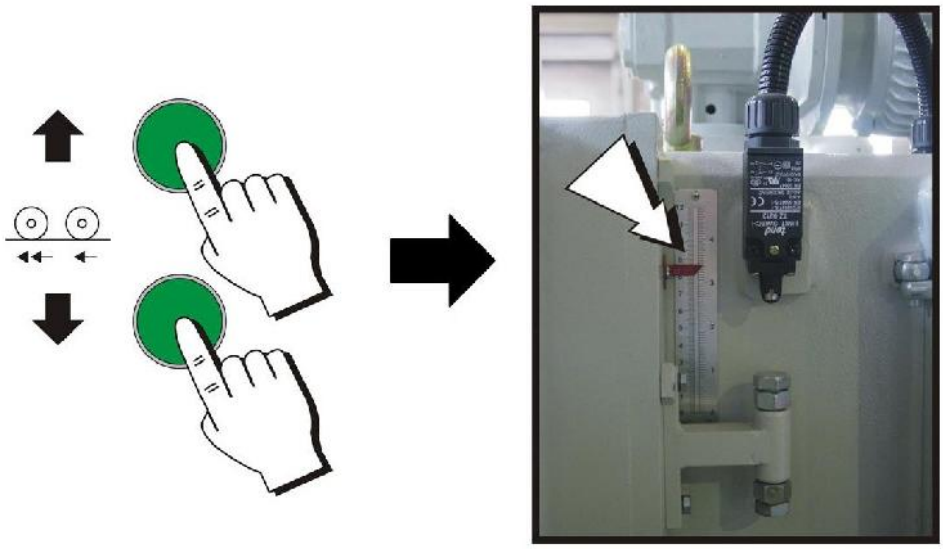
3-6 ADJUSTING THE HEIGHT OF THE PRESSURE ROLLERS

Adjust the pressure rollers (housing) by keeping on pressing the pressure rollers UP or DOWN button until the desired height is reached. The height of pressure rollers pointed on the scale should be less 2~3mm than the real thickness of the wood to be cut.

E.g. If the thickness of wood to be cut is 100mm, the height of pressure rollers should be adjusted to the position of the scale indicating 97~98mm. (To prevent screws of pressure plate from being broken when the wood is in irregular shape, the height of pressure rollers should be raised to the position of the scale indicating 110mm, then lower to 97~98mm.)

Notice:

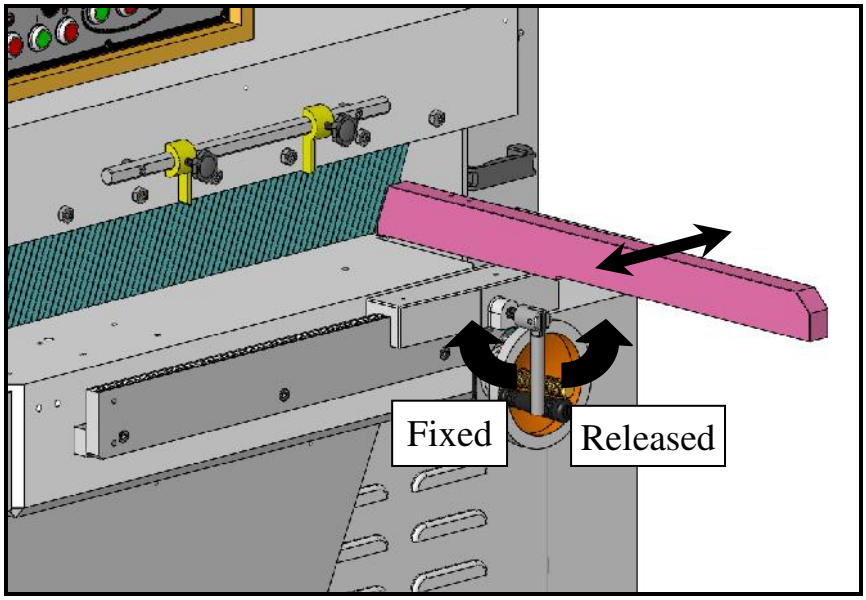
When the thickness of the same wood piece is not even or over-bent, it will cause the feeding not smoothly and make the pressure springs being damaged easily. Therefore, the tolerance of thickness and the bend has to be within±3mm.



3-7 ADJUST RIP FENCE POSITION

The rip fence is positioned by a “lock handle”. Release the fence by turning the handle counter-clockwise thus it can move left or right freely. When make sure the fence position, turn the handle clockwise to fix the fence on position.

It is necessary to keep a distance between the fence and the first saw blade. This distance varies with the condition of timber edge. The larger the irregular edge, the larger the distance is.

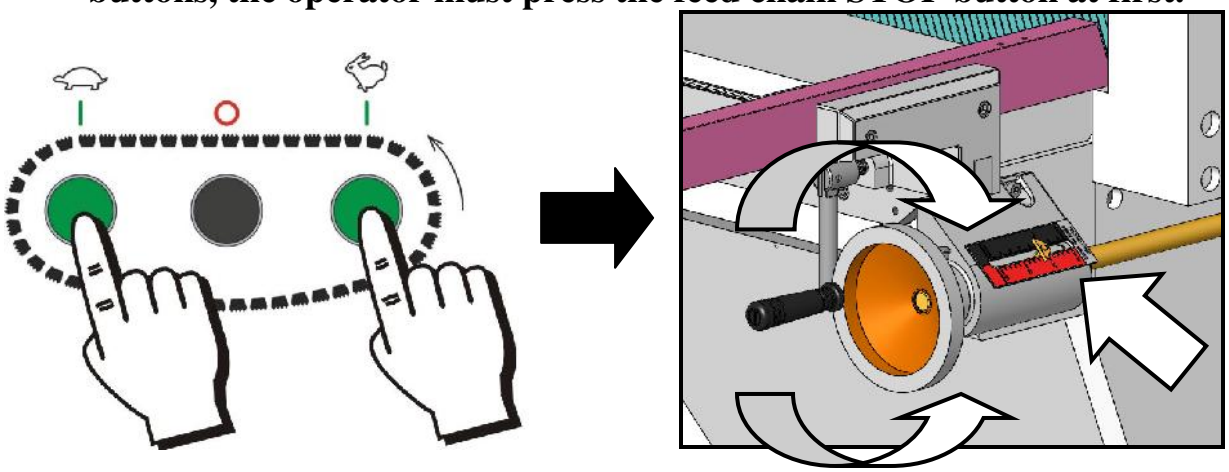


3-8 STARTING THE CATERPILLAR CHAIN

MANUAL FEED SPEED ADJUSTMENT:

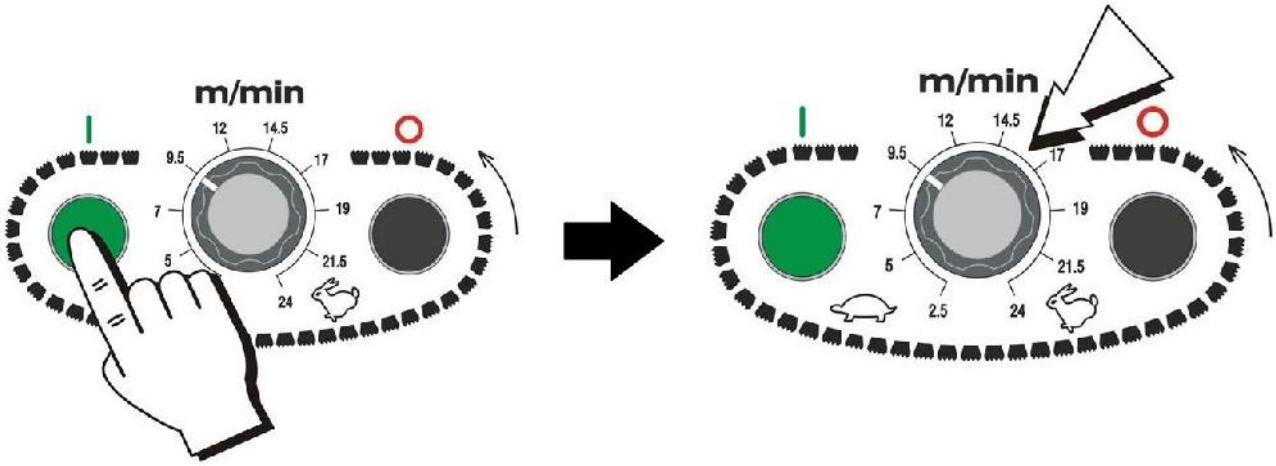
Press the feed chain start button-low speed ("turtle" figures 7.5~15 m/min) or the feed chain start button-high speed ("rabbit" figures 15~30m/min) to make the feed chain move, according to the material and the thickness of the wood, the request on how smooth of cutting face, the sharpness and the number of the blades. Also, adjust the speed-changing handwheel to get a proper feed speed.

☞ **To switch over between Low speed and High speed feed chain start buttons, the operator must press the feed chain STOP button at first.**



EQUIPPED W/ ELECTRICAL AMPERAGE DISPLAY:

Press the caterpillar chain start button to make the caterpillar chain move and adjust the feed speed adjusting button. To adjust the feed speed according to the indication of the pointer with a range of 2.5~24 m/min.



3-9 INPUT OF MATERIAL

◎ To get a precise straight-line ripping, the thickness of wood of four sides should be the same. Badly bent and deformed wood and wood of thickness greater than 120mm should not used.

◎ To ensure the pressure rollers has a firm grip, the wood of length shorter than 300mm should not be used.

◎ Place the wood on the table top. The side of the wood should be abutted against the fence and then push it between the feed chain and the pressure rollers to begin sawing. The operator should let go of the wood as soon as it has been pushed into the machine. Even if the wood is not entering the machine perfectly straight, the operator should NEVER attempt to straighten it with his hands.

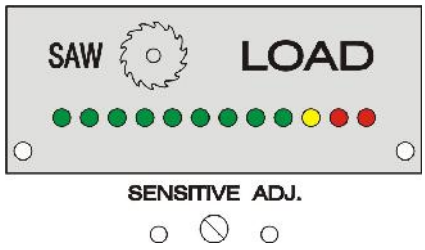
◎ Check the ampere meter all the time when ripping the wood to understand the load of the saw arbor motor. Use the feed speed-changing wheel to adjust to the optimum feed speed. Refer to the table for the suitable voltage and horse power on the following table.

saw arbor motor	**220 V**	**380 V**	**415 V**	**440 V**
40 HP	100 A	60 A	55 A	50 A
50 HP	125 A	75 A	66 A	62 A
60 HP	150 A	85 A	80 A	74 A

➢ The amperage shown on the control panel can not exceed the value of the above table stated.

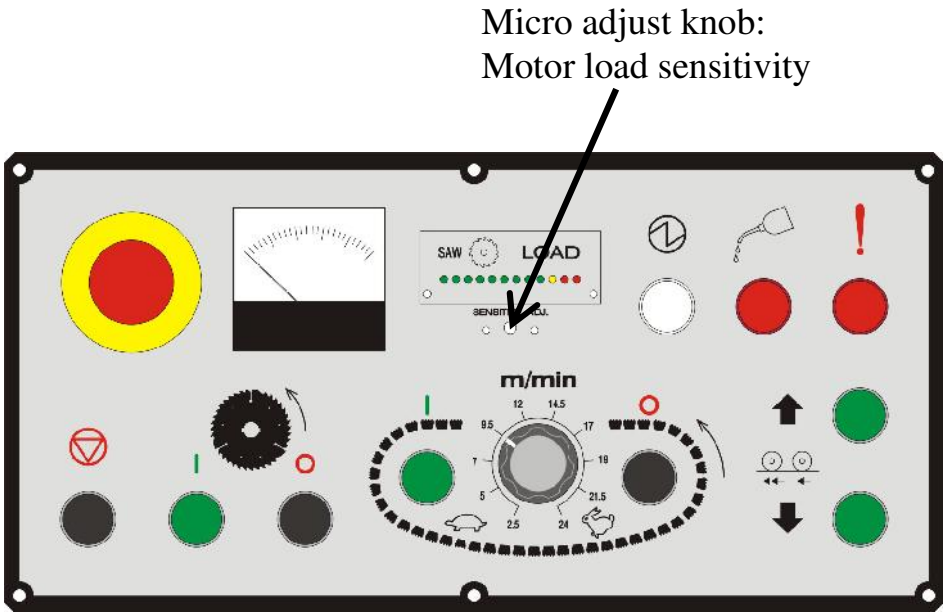
OPTION:

◎ If the machine is fitted with “electrical amperage display” (Optional device), the operator has to notice the lighting situation of the motor-load indication lamp on the control panel all the time when ripping wood. The green lamp means the machine is within the range of normal load (the more the lamps light up, the more load the machine gets). The yellow lamp means the machine is near the limit of overload (at this time, the feed chain will slow down automatically). The red lamp means the machine is overload (at the moment, the feed chain will stop automatically).



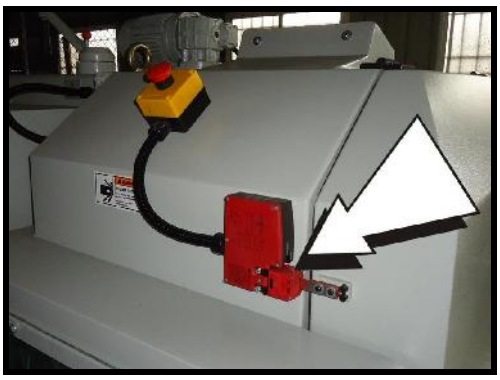
◎ According to the quantity and the sharpness of saw blades, feed speed and the smooth demand on the ripping surface, the operator can adjust the sensitivity micro-adjustment button of motor-load to a proper position (to increase the sensitivity by turning it in a clockwise direction; to reduce the sensitivity by turning it in a counter-clockwise direction; the range of mirco-adjustment from the direction of eight clock to four clock). If the sensitivity is adjusted to be too sharp, the feed chain will often stop easily; if it is adjusted to be too dull, this device can not perform the protection function of the feed chain auto-slowdown. After used the machine for a period of time, if the indication lamp is often in the postion of close to yellow lamp or red lamp, it means the workload is overloaded. There are 3 ways to solve:

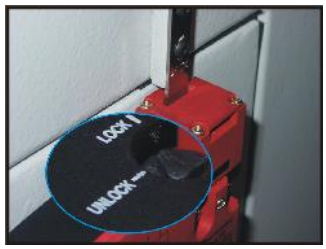
1. The saw blades are worn, must replace with new saw blades.
2. Slow down the feed speed.
3. Reduce the quantity of saw blades.



3-10 SAFETY DEVICE FOR SAW ARBOR

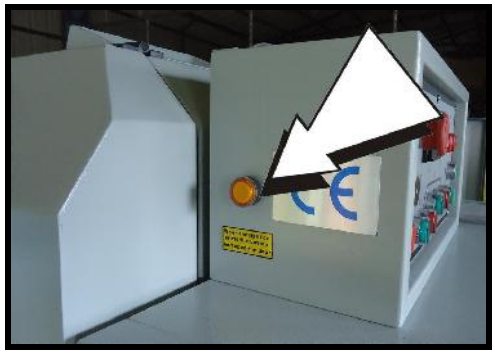
This machine has equipped with a safety device which allows the Saw Arbor Cover be opened only when the saw arbor stops completely. When the Saw Arbor starts, it starts the LOCK switch at the same time, and the Saw Arbor Cover can not be opened as well. This can prevent the operator from the danger that results from the running saw arbor while opening the cover



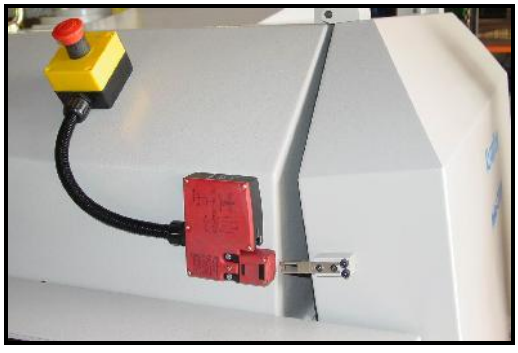


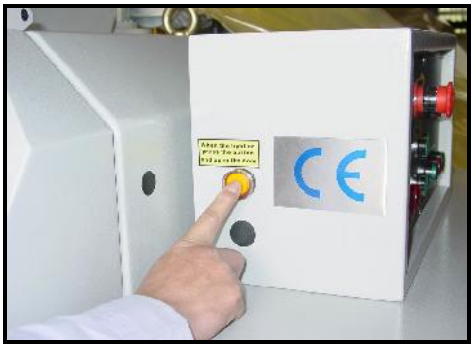
How to operate:

1. Push the Emergency Stop Switch or Saw Blade Stop Button during saw arbor running. At this moment, the sensor will detect the saw arbor running. After the saw arbor stops completely, the indicator lamp will be on.



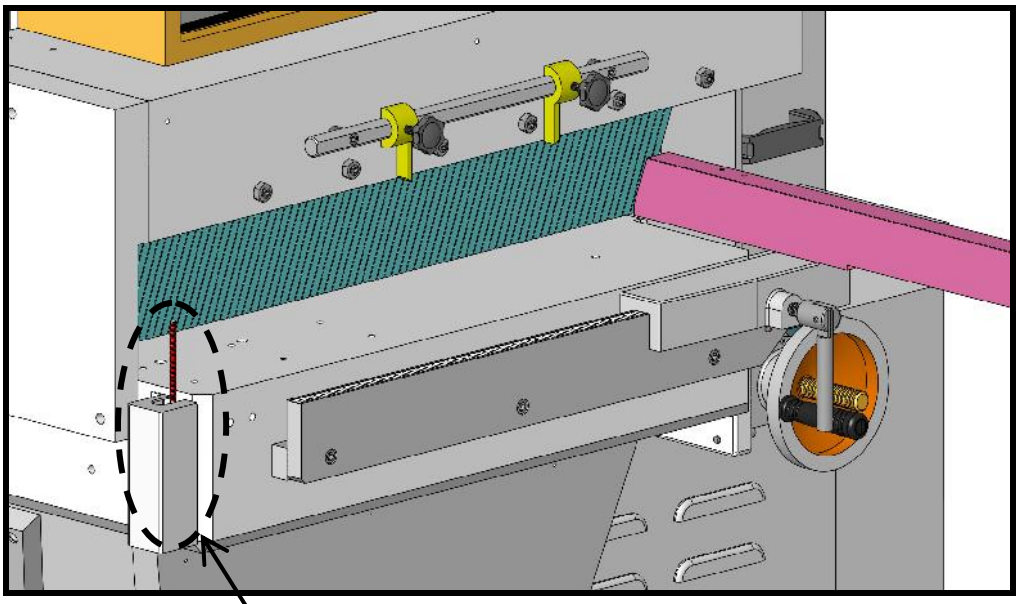
2. When the indicator lamp is on, it means the saw arbor stops completely. Be sure to press the indicator button and the other hand to open the door at the same time until the pin takes off the lock. (Then, the operator can open the door completely without pressing the indicator button).





3-11 MATERIAL WIDTH LIMIT DEVICE

This machine assembled with width limit device. When the material width is larger than 570mm, it will activate the width limit switch and the conveyor will stop immediately to avoid the material hits the guard.



Widrh limit switch

CHAPTER 4: MAINTENANCE

Must disconnect the power of the machine from the power source before doing any maintenance. The operator must obey the following rules to avoid any serious injury.

4-1 CLEANING

Regular cleaning of all machine parts and the surrounding environment means greater operating safety and a prolonged machine's life. The correct procedures for cleaning your machine are:

◎ Regularly remove sawdust from the feed chain by using a compressed-air gun, because the sawdust on the feed chain will suck lubricant. If the feed chain slide on phenolic rails without enough lubrication, it will cause serious wear on feed chain. The operator must clean up the sawdust on every chain link completely.

◎ Open “feed chain safety cover”, you can see clearly there are one clean brush and six lubricating inlets for feed chain. They are the important components to protect and prolong the lifespans of feed chain and rails. The saw dust can not accumulate on the clean brush and lubricating inlets. Especially the lubricating inlets will be stuck with sawdust easily and make the lubricant can not fall on the feed chain. In case the feed chain and rails are not lubricated properly for a period of time, these two expensive parts will be worn away very quickly.

◎ The wood should be cleared of any foreign objects such as metal, sand and soil etc… before ripping. Those objects will also damage the feed chain and phenolic rails.

◎ Pay attention to the dust extracting apparatus all the time to ensure the maximum efficiency is being maintained.

◎ At the same time as performing the machine's regular lubrication checks, clean away dust and saw dust from all parts of the machine.

◎ The operator must make a maintenance registered book. Do the time maintenance exactly to protect the machine.

◎ Be sure to grind the saw blades after every 8~16 working hours. The grind timing is determined by the thickness, quality(solid or soft) and species of timber and feed speed.

4-2 LUBRICATION

Regular lubrication is essential to maintain the long life and optimum performance of the machine. The following inspections should be performed at the time intervals specified and lubrication administered as required.

Every day:

◎ Check the oil level in the feed chain lubrication tank each day before use and fill it up if necessary. If the lubricant insufficient indicator lights up during operation, the machine will be shut off automatically. Please add the required oil immediately. When pouring oil into the tank, care must be taken not to allow any impurities objects to get inside.

◎ Everyday, lubrication should be administered to the elevating tracks befor working. Pour the oil on the surfaces of the both elevating tracks, 1c.c for one time.

◎ We suggest using the following lubricants:

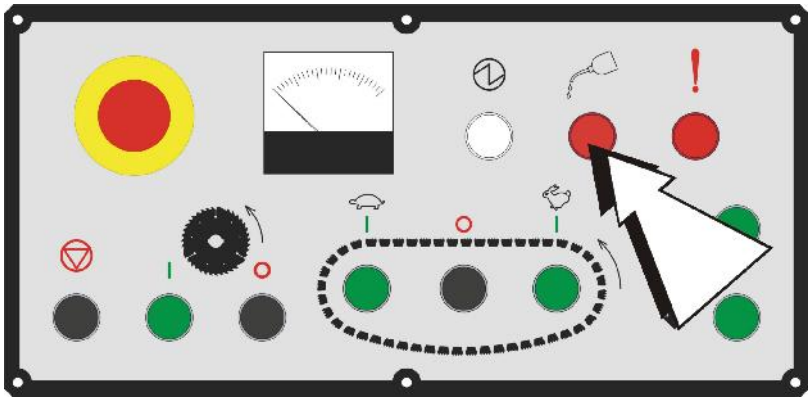
Name		Lubricant
ISO specification		VG-68
Viscosity cst@ 40℃		68
Brand	Mobil	Vectra No.2
	ESSO	Febis K68
	SHELL	Tonna T68

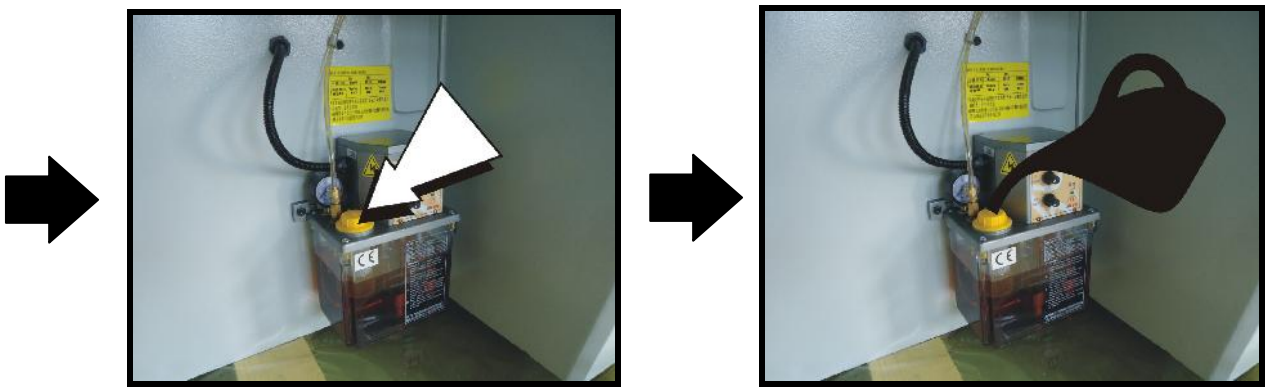
※ **The storage of lubricant must take care of clearance. Never use the polluted lubricant.**

※ **Prohibit from using recycled oil.**

※ **Be sure to use the good quality of lubricant to ensure an effective lubrication on the machine running. We suggest using the lubricant offered by the machine manufacturer or its agents.**

◎ Firstly, take off the oil cover as the arrow pointed, pour lubricant for 80% full. Be careful not to let the lubricant over flow, otherwise, the oil tank will be stuck with impurities like sawdust powder dust, etc…





Every 2400-2500 working hours:

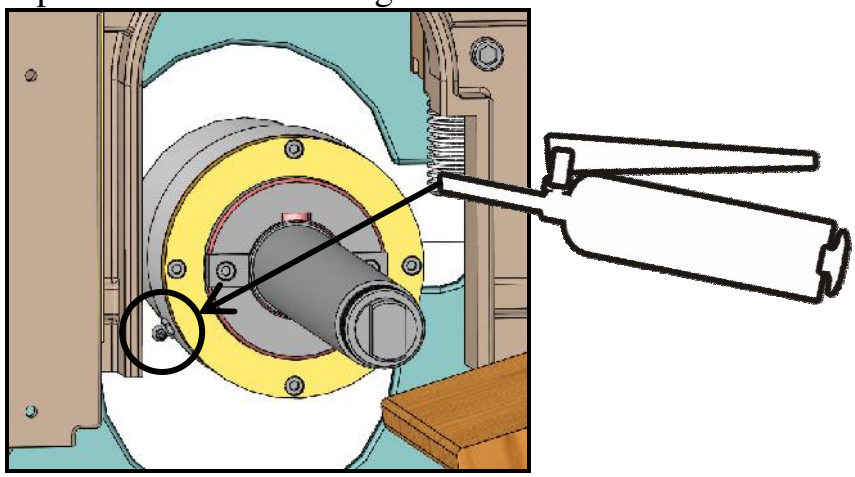
◎ After every 2400-2500 working hours, should use a grease gun add grease to the bearings of saw arbors. Before adding grease, the outlet of grease gun should be cleaned completely to avoid impurities entering the bearings with grease.

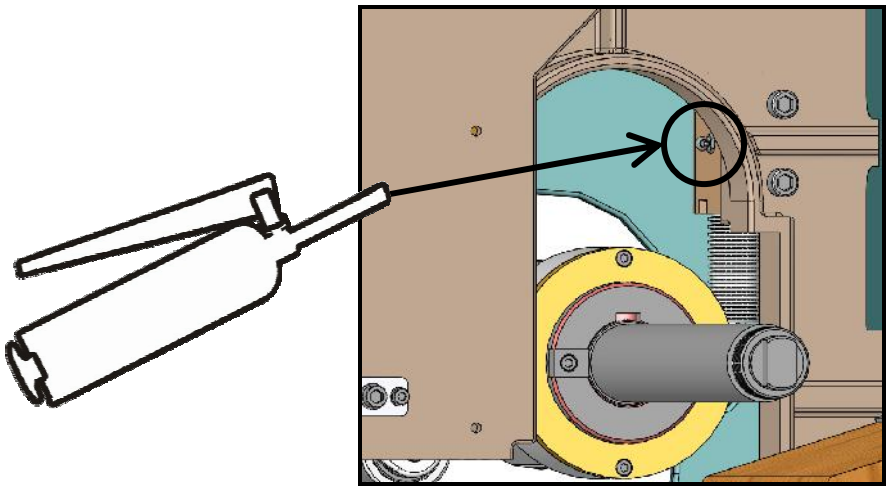
◎ We suggest using the following grease:

Name		Grease
Use for		Bearing
Viscosiyt cst@ 40℃		NLGI NO.2
Brand	SKF	LGLT2
	Mobil	Mobillux 2
	ESSO	Estan No.2
	SHELL	Alvania No.2
	LUBCON	TURMOGREASE LC 252

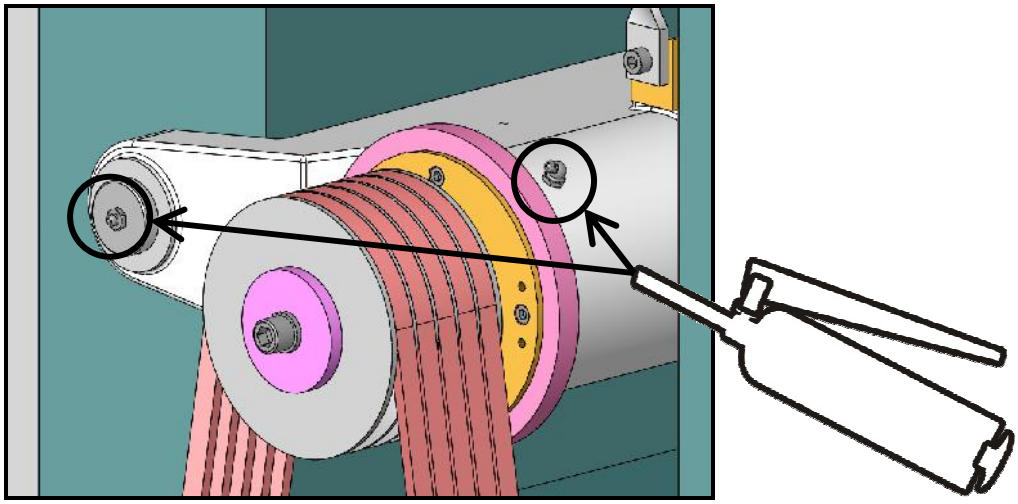
◎ The inlets for adding grease are shown in the diagrams below:

1. Open the door of saw arbor. There are two grease inlets located on the upper of outer shell of saw arbor. Also, there is a grease inlet on the elevating nut of pressure rollers housing.

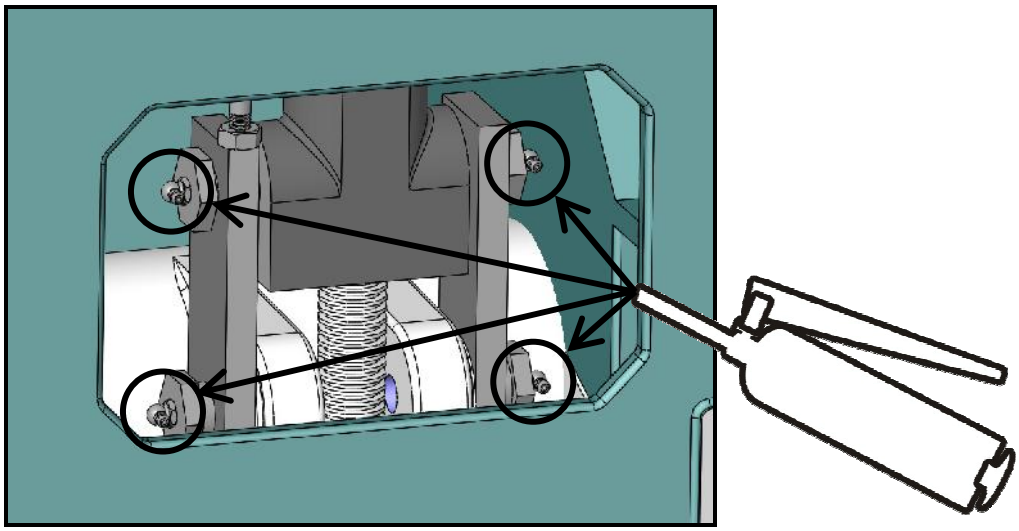




2. Open the back door of the machine base. There is one grease inlet located on the outer shell of saw arbor beside the pulley, and one located on the pivot of saw arbor.



3. Open the feed motor cover, there are 4 grease inlets on the elevating nut of saw arbor.



Grease Lubrication:

Note the following precautions whenever using grease lubrication.

◎ Select the proper grease. For examples of the main types of grease used for machine tool bearings, see Table 4-2.1.
◎ Make sure the grease replenishment amount and locations are correct. A greasing amount of 10 to 20% of the bearing internal space volume is recommended for high-speed roller bearings. Note, however, that 40 to 50% is recommended for a ball screw support bearing (open type).
◎ Over-greasing can result I very high temperatures and large power loss due to agitation. For information about internal space volume of bearings, see Table 4-2.2.
◎ For an example illustrating the difference in bearing temperature increase due to lubrication method, see Figure 4-2.1.

Table 4-2.1 Main Grease Used for Machine Tool Bearings

Grease brand	Manufacturer	Base oil	Thickener	Recommended operation temperature range °C	Main applications
LGLT2	SKF	PAO	Lithium	-50 ~ +110	Ball Screw Support Bearings
TURMO GREASE LC 252	LUBCON	SHC	Lithium - Calcium	-45 ~ +120	Ball Screw Support Bearings
ISOFLEX NBU15	NOK KLUBER	Ester Oil	Barium composite	-40 ~ +130	Spindle Bearing
ISOFLEX LDS18 Special A	NOK KLUBER	Ester Oil	Lithium	-60 ~ +130	Spindle Bearing
Multemp LRL No.3	Kyodo Yushi	Polyol Ester Oil	Lithium	-50 ~ +150	Spindle Bearing
Alvania Grease S No.2	Showa Shell Oil	Mineral Oil	Lithium	-25 ~ +120	Ball Screw Support Bearings
Multemp PS No.2	Kyodo Yushi	Diester Oil + Hydrocarbon Oil	Lithium	-55 ~ +130	Ball Screw Support Bearings

Table 4-2.2 Bearing Internal Space Volume

1. Internal space volume of angular contact ball bearings and cylindrical roller bearings

Unit: cc/each

Bore diameter number	Bore diameter (mm)	Series						
		7900C 7900AC	7000C 7000AC	7200C 7200AC	BNH000	TAH TBH	NN3000	NNU4900
00	10	0.44	0.9	1.2				
01	12	0.49	1.0	1.7				
02	15	0.68	1.4	2.2				
03	17	0.68	1.7	3.0				
04	20	1.5	2.9	4.7				
05	25	1.9	3.4	5.3			3.6	
06	30	2.2	4.8	8.2			5.9	
07	35	3.0	6.4	10.3	5.6		7.5	
08	40	5.2	7.8	13.0	7.2		9.5	
09	45	5.7	10.2	15.4	9.0		12.8	
10	50	6.2	10.7	18.6	9.7	8.0	13.8	
11	55		15.9	25.9	14.0	12.0	19.6	
12	60		17.0	33.2	15.0	13.0	20.7	
13	65		18.2	39.1	16.0	14.0	21.8	
14	70		27.7	45.2	22.0	19.0	30.4	
15	75		28.7	49.4	23.0	20.0	32.9	
16	80		32.1	59.0	30.0	27.0	46.3	
17	85		36.3	73.5	31.0	28.0	62.9	
18	90		49.2	93.1	40.0	38.0	62.9	
19	95		53.0	117	42.0	40.0	64.5	
20	100		55.1	135	43	41	67.3	49.5
21	105				54.0	52.0	91.8	57.9
22	110				66.0	65.0	114	59.6
24	120				71.0	70.0	126	86.4
26	130				108	105	178	102
28	140				114	111	195	114
30	150				138	139	235	195
32	160				174	167	288	199
34	170				227	225	374	209
36	180						508	281
38	190						530	296
40	200						684	448

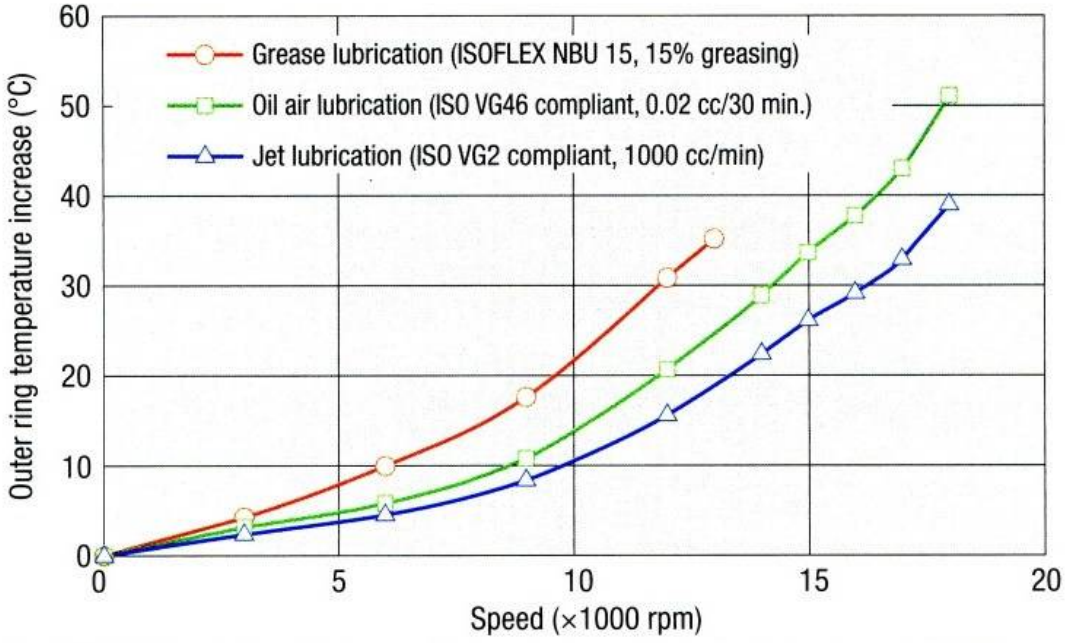
2. Ball Screw Support Bearing (TAB Series) Internal Space Volume

Bearing no.	Internal space volume[cc/each]
15TAB04	3.8
17TAB04	3.8
20TAB04	3.8
25TAB06	4.8
30TAB06	4.8
35TAB07	5.8
40TAB07	5.8
40TAB09	14
45TAB07	6.5
45TAB10	15
50TAB10	16
55TAB10	16
55TAB12	19
60TAB12	19

3. Ball Screw Support Bearing (TAF Series) Internal Space Volume

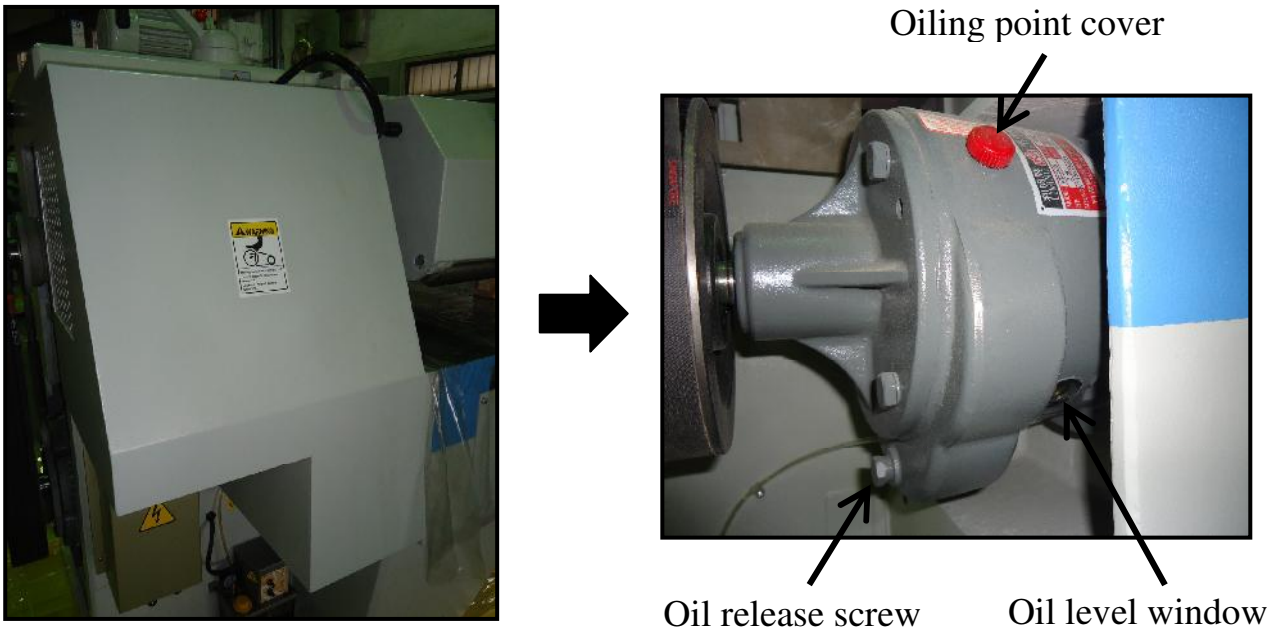
Bearing no.	Internal space volume[cc/each]
25TAF06	9.3
30TAF07	14
35TAF09	26
40TAF09	26
40TAF11	45
45TAF11	45
50TAF11	45
60TAF13	71
60TAF17	150
80TAF17	150
100TAF21	282
120TAF03	473

Figure 4-2.1 Comparison of Temperature Increase Caused by Different Lubrication Methods



Changing the oil for the feed chain reduction gears: (use SAE 90# lubricating oil)

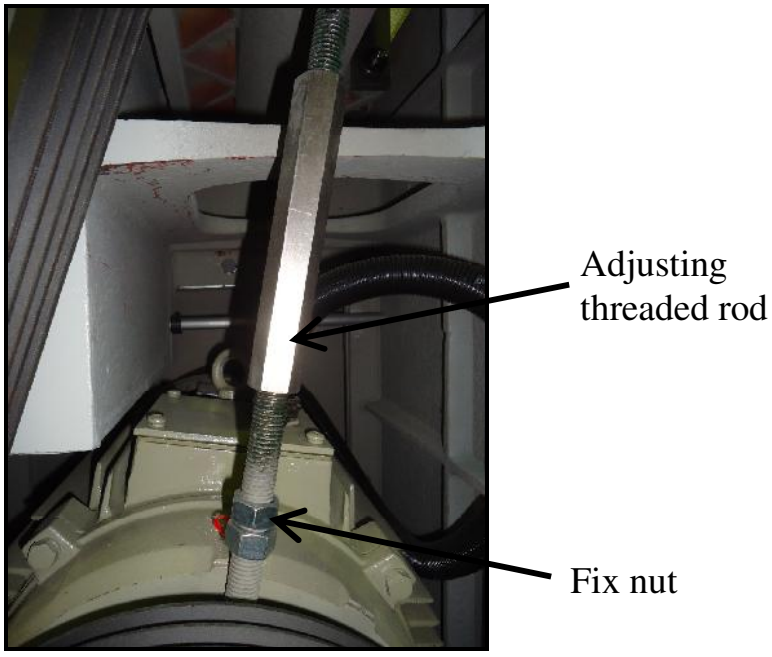
After 300 working hours, the inside of the feed chain speed-reducer should be cleaned and the oil for the gears should be changed. Thereafter, the oil for the gears should be changed after every 2500 working hours. To do this, first remove the protective cover from the feed chain speed-reducer. Then, open the oil inlet cover and turn open the oil release screw. When all the old oil has drained out, close the oil release screw again. Add SAE 90# lubricating oil to the oil inlet until it rises above the oil level window.



4-3 ADJUSTMENT AND REPLACEMENT OF THE SAW ARBOR BELTS

A loosening of the machine's transmission belts will inevitably take place after extended use and cause reduced efficiency. In order to minimize wearing of the belts and the loss of machine's power, the belts should be re-tightened by increasing an appropriate distance between the saw arbor pulley and the motor pulley.

The distance between the saw arbor pulley and the motor pulley is adjusted by a threaded rod (using an adjustable spanner or 26mm open-end wrench as tools). Before adjusting or changing the belts, loosen the fixed nut by turning in a clockwise direction. The threaded rod can then be turned until the desired position is reached (loosen by turning in a clockwise direction, tighten in a counter-clockwise direction). After finish the adjustment, the fixed nut must be tightened again by turning in a counter-clockwise.



New belts should be re-tightened after the first 4 working hours. After 8 working hours they should be re-tightened again. Thereafter, the belts should be inspected and adjusted after every 200 working hours. If the belts show the signs of wear, they should be replaced by new belts of the same brand and from the same production batch. Old and new belts should never be used together.

For the specifications of the saw arbor belts used by this machine, please consult the "SPECIFICATIONS" chapter at the front of this manual.

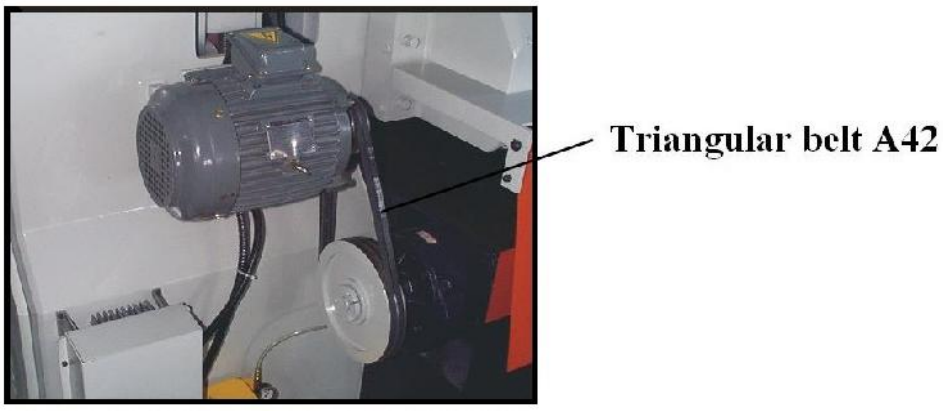
4-4 INSPECTION AND REPLACEMENT OF THE VARIABLE SPEED BELT

If vibrating sounds can be heard emanating from the variable speed pulley, the outer metal cover should be removed and the variable speed pulley should be examined. If the belt shows signs of wearing or splitting, it should be replaced as described below:

1. Start up the caterpillar chain, turn the speed-changing handwheel to its slowest position, and then switch off the power supply.
2. With the power turned off, rotate the speed-changing handwheel to its fastest position.
3. Remove the old belt and replace it with a new triangular belt of specification "1922V403".

Install with electrical amperage display:

With this device, the transmission belts of feed chain use 2 pieces of "Triangular belt A42".

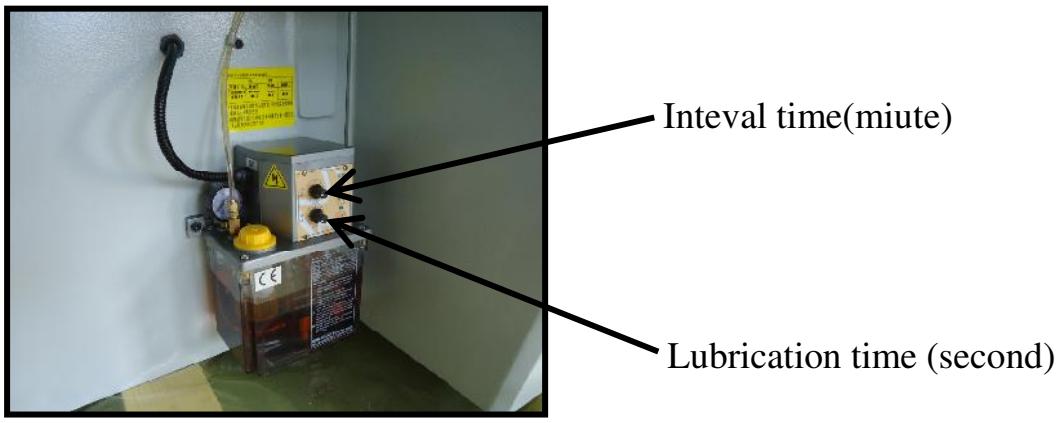


The method of adjustment:

The tension of belts is adjusted by the 3 nuts as shown in the picture (uses 2 pcs of 19mm open-end wrench as tools). The new belts should be re-tightened after the first 4 working hours. After 8 working hours they should be re-tightened again. Thereafter, the belts should be inspected and adjusted after every 200 working hours. If the belts show the signs of wear, they should be replaced by new belts of the same brand and from the same production batch. Old and new belts should never be used together.

4-5 ADJUSTING THE OIL SUPPLY TO THE CATERPILLAR CHAIN

1. There are 2 adjustment knobs on the lubricator. The upper knob is for adjusting the interval time between the two lubrications (minute), the lower knob is for adjusting the lubrication time / per pump (second).
2. The user can adjust oil supply according to operation situation of the machine (the lubricator has been set at “pumping lubricant for 5 seconds every 5 minutes.”

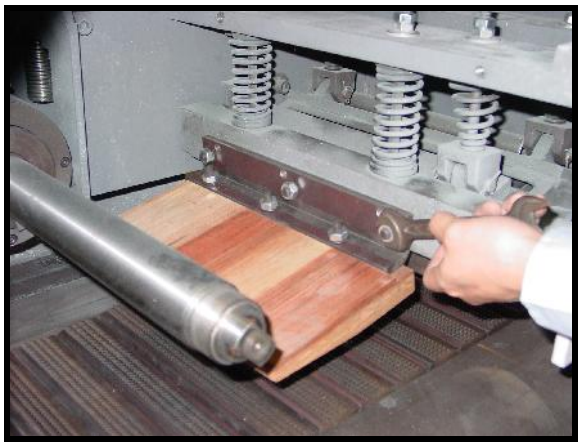


Appendix I: Installation and Adjustment of Pressure Plate

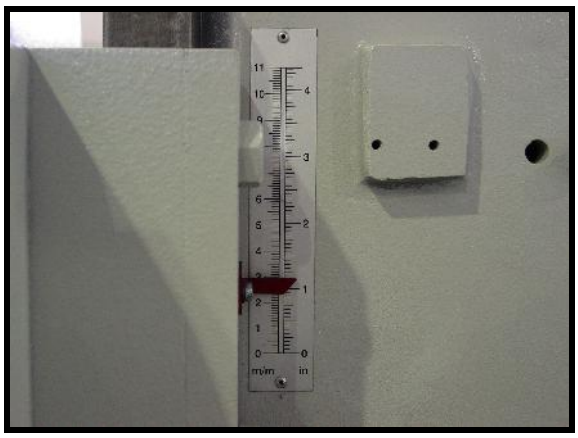
1. Install and adjust the short pressure plate:

(1) Firstly, take off the long pressure plate and the pressure plate fixed support from the housing. [No need to take off the rear mounting bracket of pressure plate (which is one the left side)"]

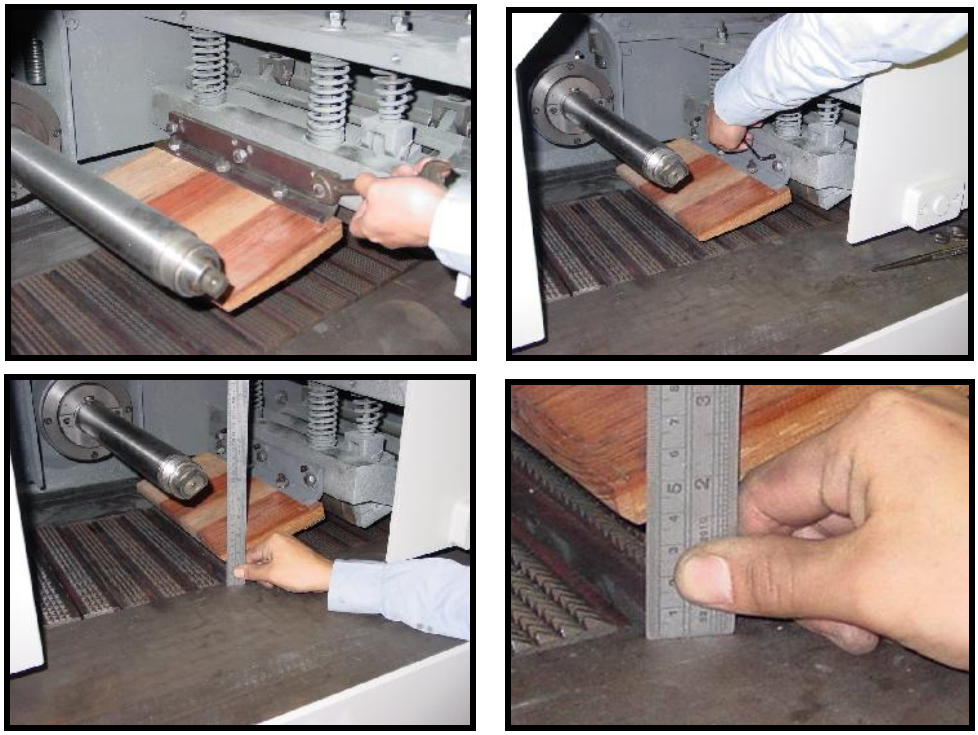
(2) Install the short pressure plate on the pressure roller housing.



(3) Arise the pressure roller housing to 30mm height (see the scale).



(4) Adjust the set screws (total 3 pcs) that locate on the pressure plate fixed support to make the lowest position of the pressure plate to be apart from the machine table for 37mm. (The drop height between the surface of feed chain and machine table is 7 mm.)



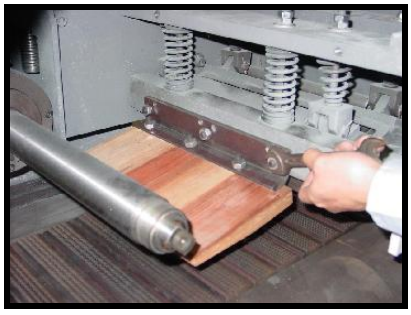
(5) Fasten the set screws and nuts after adjustment to finish the installation.

2. Install and adjust the long pressure plate: (OPTION)

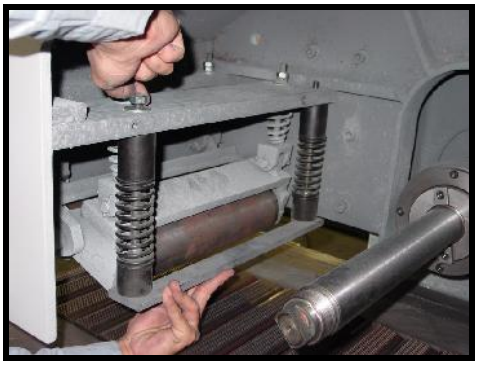
(1) Arise the pressure roller housing to a proper height (80mm).

(2) Take off the left and right shields, and the short pressure plate.

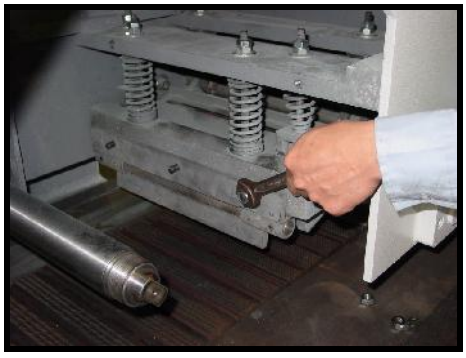




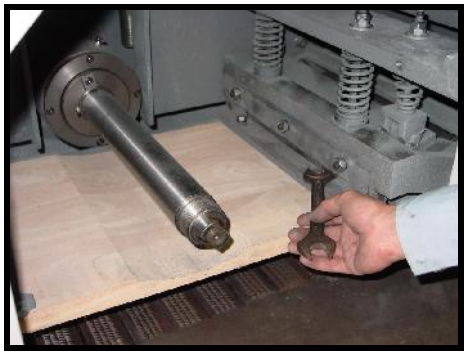

(3) Lock the rear mounting bracket of pressure plate to the pressure roller housing with screws.

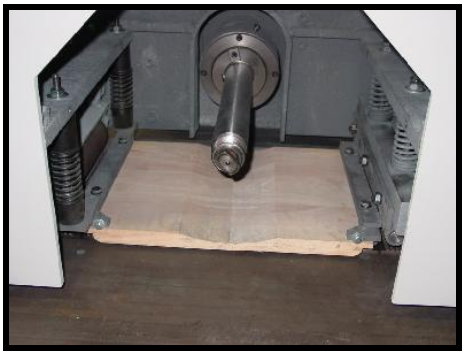
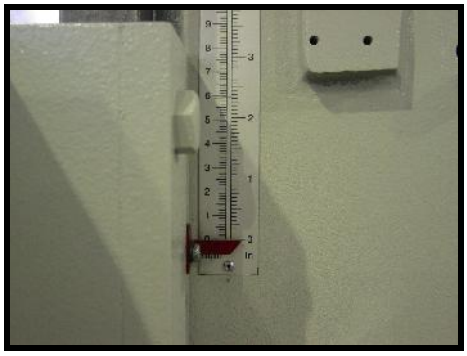
(4) Fasten the pressure plate fixed support to the pressure roller housing.

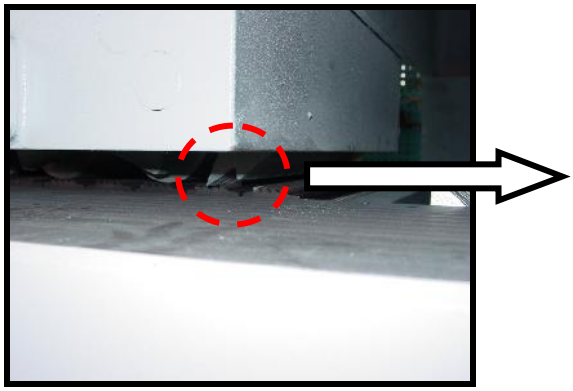



(5) Lock the long pressure plate to both the rear mounting bracket of pressure plate and the pressure plate fixed support.

(6) Descend the pressure roller housing to "zero" position (go home).

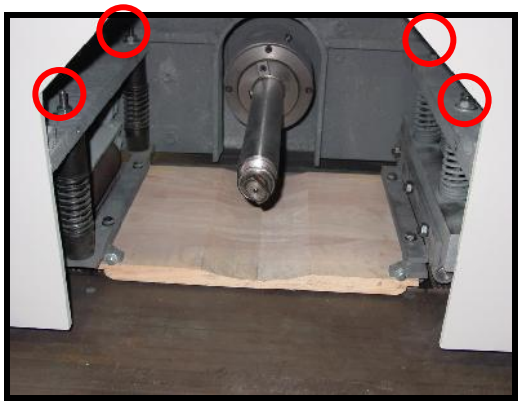



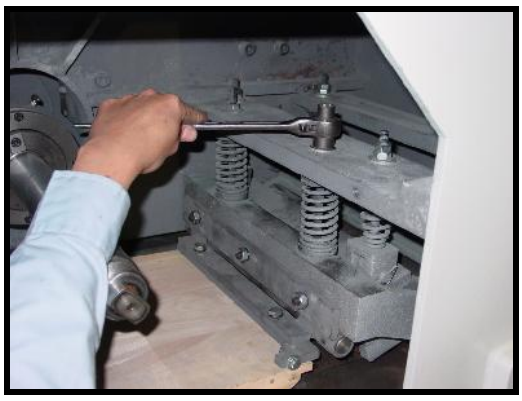


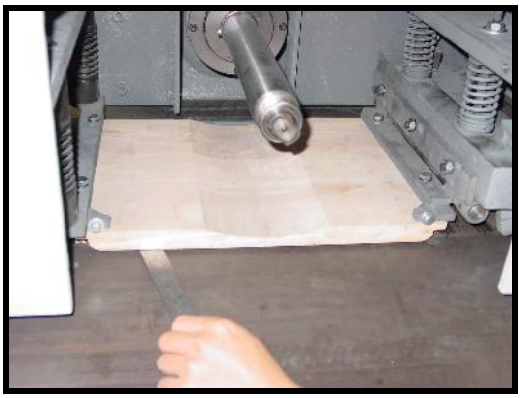
***CAUTION*:** The pressure roller housing can not be descended to go home, while the anti-kickback fingers have inserted into chain block.

(7) Loosen 4 pcs of nuts for the rod of support spring set for the pressure plate.

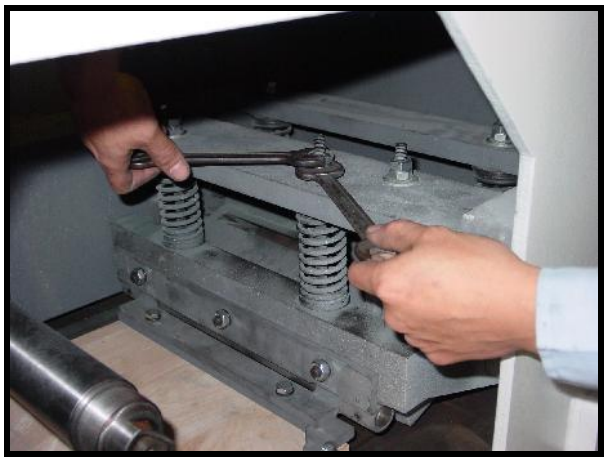
(8) Then, adjust these 4 pcs of nuts until the long pressure plate is away from the surface of feed chain for about 1mm (near to the thickness of a steel ruler).







(9) Fasten the nuts after adjustment, then install left and right shields back to the machine to finish the installation.



The pressure plate must be made of solid and complete wood according the following diagram: (optional)