

Operations Manual



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EM 12

End Matcher

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

INTRODUCTION

The END MATCHER is a pneumatically operated machine developed specifically for automatic cutting of grooves across the end of timber and floorboards in particular. The machine is universally renowned for the repetitive clean cut across the ends of the timber and the speed that the unit is capable of.

The END MATCHER has been developed over 20 years to meet the needs of the timber industry and contains many unique features that allows easy access for tool changes and complies with today's rigorous safety compliance requirements.

Each machine has been individually tested in the factory and undergoes an extensive pre-despatch check to ensure that you receive the machine to the standard required.

The machine has been designed to provide a reliable and dependable Machine Tool with excellent performance. We know the working quality of the machine will confirm that you have made a good choice by selecting the END MATCHER for your factory.

The manual contains the following sections for Instructions on how best to use the equipment.

- Operating Instructions
- Parts and Assembly Drawings
- Electrical Diagrams
- Pneumatic Diagrams
- Optional Equipment
- Control Box Manual

In order to have a better understanding of the operating procedures, obtain maximum benefits from the machine and to minimize the maintenance of the equipment, please have the operators and engineers read the "User Manual" thoroughly and carefully before operating the machine.



ALL OPERATORS AND SERVICE PERSONNEL MUST READ THE ENTIRE MANUAL BEFORE OPERATING THE MACHINE.

SPECIFICATION :

MODEL		EM-10	EM-12
ELECTRICAL:	SUPPLY	380~415/400-480V, 3PH, 50/60HZ	
	CONTROL	24VDC	
	CONNECTED LOAD	9.2KW.	
MOTOR:	CUTTER HEADS	2 x 5.5KW(7.5HP), 3PH.	
	FEED	0.75KW(1.0HP), 3PH	
	CUTTER DRIVE	0.37KW(0.5HP), 3PH	
CAPACITY:	WIDTH(mm)	MIN.=40 MAX.=250	MIN.=40 MAX.=300
	THICKNESS(mm)	MIN.=10 MAX.=35	
	MIN. BOARD LENGTH	270mm	
	MAX. REC. WEIGHT	15kg	
	MAX. LENGTH	Unlimited	
	FEED SPEED	90m/min.	
	PROCESSING SPEED	24m/min. – based on 2.0m boards.	
OTHER DATA:	CLAMPING	Clamps on top and side	
	CUTTING SPINDLES	40mm diameter	
	CUTTER HEADS	TCT disposable tipd	
	CONTROLS	MANUAL or AUTOMATIC	
	AIR SERVICE UNIT	Norgren	
	AIR CONSUMPTION	12 C.F.M.	
DIMENSIONS(mm)		L 1500 W 1220 H 1300	L 1500 W 1220 H 1300

WARRANTY AND ACCEPTANCE

WARRANTIES:

- (a) CANTEK AMERICA INC. warrants to the original end-user of this machine, that the machine is free of defects in materials and workmanship, appearing within 12 months after the date of purchase. If any covered defect is discovered during the warranty period, Cantek America will repair or (at its option) replace the affected parts. Such repair or replacement shall be the sole liability and the sole remedy of the purchaser, in connection with a defect in this machine, and all shipping and handling charges associated with any such repair or replacement shall be paid by the purchaser.
- (b) If during the warranty period, it appears that this machine contains a defect covered by this warranty, contact the dealer from which you purchased the machine.
- (c) This warranty does not cover machine failure attributable to anything other than a defect in materials and workmanship, including but not limited to machine failure caused by improper operation or care, improper installation, abuse, misuse, alteration, accident or damage from improper shipping or servicing. Ordinary wear and tear shall not be deemed a defect in workmanship or materials. No employee, agent, dealer or distributor is authorised to extend or expand the coverage of this warranty.
- (d) Costs involved for the removal and or re-installation of any faulty component(s) or complete equipment would be at the expense of the buyer with no claim to Cantek America .
- (e) Proprietary items such as transmission equipment, electrical devices, pneumatic equipment, bearings, pulleys, belts and chain would not be covered by the above warranty but covered under the warranty offered (if any) to Cantek America by the proprietary equipment manufacturer.
- (f) This warranty is conditional upon there being no modifications to the machine without the express authorisation in writing by Cantek America. This includes the addition of control devices for external machinery.
- (h) The following data is to be entered and a copy supplied to Cantek America within seven (7) days of the machine commencing operation in the plant.

SAFETY PROCEDURES AND CONSIDERATIONS:

To ensure safe working conditions, persons operating and assisting with the operation of this machine must ensure that they read and fully understand the instructions given within this manual and have received sufficient training in the use of the machine and the safety aspects to be observed.

Note: Persons under the age of 18 years must not operate the machine except during the course of training under the supervision of a trained operator.

(A) POINTS TO NOTE BEFORE OPERATING OR ASSISTING WITH THE OPERATION OF THE MACHINE.

- (1) You have read and understand the operation and safety aspects of the machine and been checked out by a qualified supervisor.
- (2) The machine is supplied with full safe guarding. The machine shall not be operated unless the safe guardings are in position and functional.
- (3) Cutters/Blades are the correct type, suitable for the machine and working conditions, rotate in the correct direction of cut, are sharp and correctly fitted.
- (4) Correct spindle and speeds are selected for the cutter equipment and working conditions.
- (5) Loose clothing is either removed or securely fastened back and jewellery removed.
- (6) Adequate working space and lighting is provided.
- (7) All dust extraction equipment is switched on, properly adjusted and working adequately.
- (8) The machine is securely installed. (Refer to installation section of this manual).
- (9) The machine should only be used for cutting wood or materials with physical and technological characteristics similar to wood, and for which the chip or particle process is similar.
- (10) Only use tooling that complies with the specification described in the manual.

(B) DURING MACHINING

- (1) Wear suitable protective clothing e.g. approved eye protection, ear protectors and dust masks. Gloves shall be worn when handling tooling.
- (2) Stop the machine using the emergency stop or at the mains isolator before making adjustments, cleaning or carrying out maintenance.
- (3) Keep the floor area around the machine clean and free from wood refuse. Do not allow the floor around the machine to become slippery.
- (4) Stop the machine and report immediately to a person in authority any actual or potential malfunction or operator hazard. Do not attempt to repair or rectify the machine unless qualified to do so.
- (5) The operator must visually observe the operation of the machine on a regular basis while the machine is turned on.
- (6) Never by-pass interlocks.

WARNING:

Failure to observe correct operating procedures prior to and during operation this machine can result in severe injury.

DO NOT attempt to operate the machine while under the influence of anything that can reduce your alertness.

TRANSPORT

The Cantek America End Matcher is a precision machine and great care must be taken during loading, unloading, and placing into position. The machine can be lifted using a forklift or crane. The weight is about 1050 Kg. Ensure the Endprofiler is properly secured and balanced before lifting.



BEFORE LIFTING THE MACHINE, ENSURE THERE ARE NO CABLES OR AIR LINES HANGING DOWN, WHICH COULD BE CRUSHED BY THE TINES.

INSTALLATION

1. The machine should be installed on a stable and level floor. It can be bolted to the floor if required.
2. Dust extraction - 1 x Horizontal takeoff about 975mm above the floor
Diameter = 150mm (6") Flow = at least 3,500 cfm
3. Air supply - Pressure should be 7 Bar, the machine regulates to 6 Bar.
Electrical - 3 phase 415V.

SAFETY PRECAUTIONS.



EVERY EFFORT HAS BEEN MADE TO SAFE GUARD THE OPERATOR FROM INJURY UNDER NORMAL OPERATING CONDITIONS. PLEASE READ THE FOLLOWING GENERAL RULES BEFORE OPERATING THE MACHINE.

1. All operators and maintenance personnel must thoroughly read and understand this manual before operating the machine.
2. Do not operate the machine unless ALL safety guards have been replaced.
3. Do not operate the machine unless eye protection is worn at all times
4. Maintenance and repair of electrical and pneumatic controls as well as tooling changes, should be carried out by qualified personnel - It is the responsibility of the owner of the machine to ensure that his personnel are qualified.
5. ALWAYS turn off the power and the air supply before carrying out tool changes or maintenance work.
6. Keep hands clear of moving parts at ALL times.
7. If any abnormal problem or abnormal condition arises during operation, stop the machine immediately and report to a supervisor.
DO NOT turn the machine on again until the problem has been rectified by qualified personnel.
8. The machine should never be left under power when not in operation or unattended.
9. Regularly check the tooling for defects and wear to ensure safe and accurate machine operation.

COMPONENTS

A. CONTROLS:

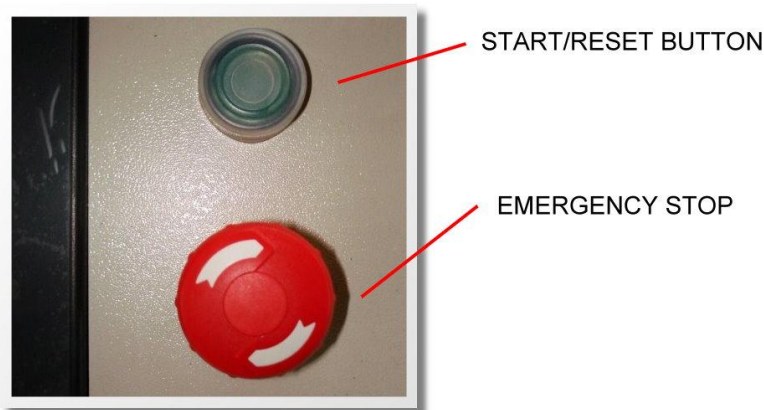


Fig. 1 Emergency Stop Location and Controls

Once the emergency stop button is pressed, the machine becomes inoperable until it is released again—twist the button to release.

The Start/Reset button is used to reset the machine or to start the machine, this depends on the mode and state the machine is in.



Fig. 2 Automatic/Manual controls - Touchscreen

The machine can be operated in Automatic mode (used for processing) or in Manual mode (used for setting up). Refer to “Touchscreen Manual” for more information



Fig. 3 Electrical Isolating Switch

The Control Box door cannot be opened unless the isolating switch is turned off.

Even when the isolating switch is off, the Control Box must remain locked at all times except when a qualified electrician is doing maintenance. The machine must not be left on over night.

B.MATERIAL THICKNESS ADJUSTMENT

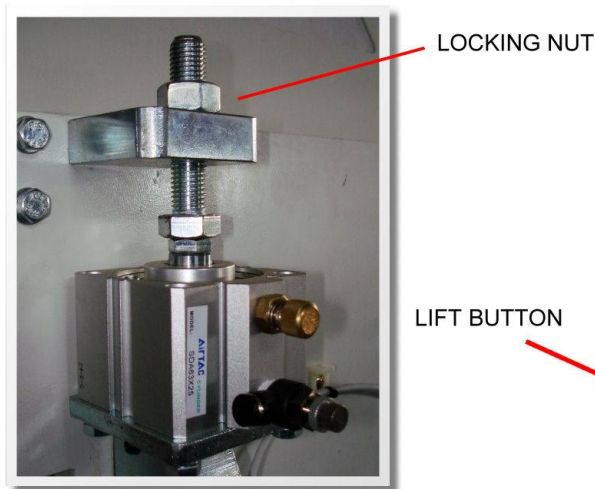


Fig. 4 Height Adjustment for Feed Roller Plate

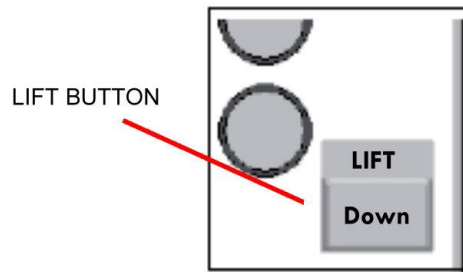


Fig.5 Lift button for Feed Roller Plate

The vertical/roller plate is mounted on two cylinders, refer to Fig. 4, which allows for the plate to be lifted up if a splinter, bowed board, or something else has jammed up the machine. If a jam occurs, stop the feed rollers and put the machine into manual mode. While in manual mode press the Lift button, refer to Fig. 5 and also the “Touchscreen Manual”. The button will toggle between displaying Up or Down, depending on the position of the vertical plate.

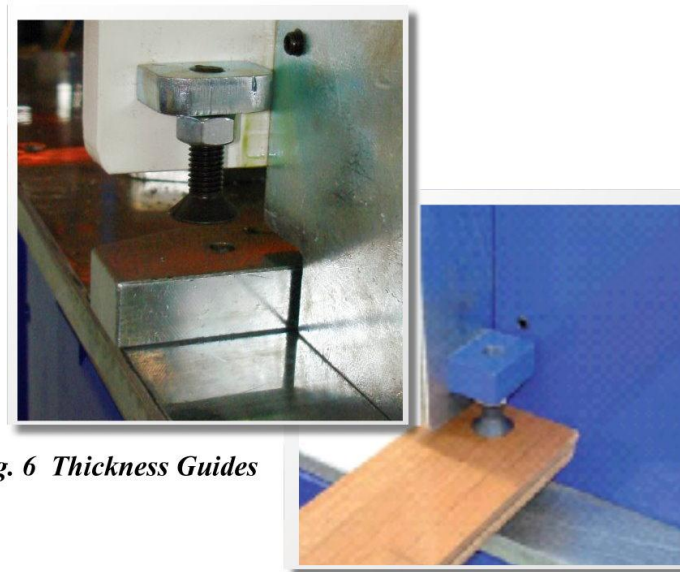


Fig. 6 Thickness Guides

When changing thicknesses the Thickness guides can be used to assist with setting the Feed Roller height. Raise the vertical plate using the Lift button on the touchscreen then place a piece of offcut under the Thickness Guides, refer to Fig. 6. With the offcut under both ends, lower the vertical plate down so the stops are resting on the Thickness guides. Now adjust the jacking bolts on the lift cylinders. Remove the pieces of offcut board. Ensure both ends of the machine are set correctly.



THE HEIGHT OF THE ROLLERS MUST BE SET CORRECTLY, ON BOTH SIDES OF THE MACHINE, FOR **EVERY JOB, OTHERWISE PERMANENT DAMAGE MAY BE CAUSED TO THE FEED SYSTEM.**

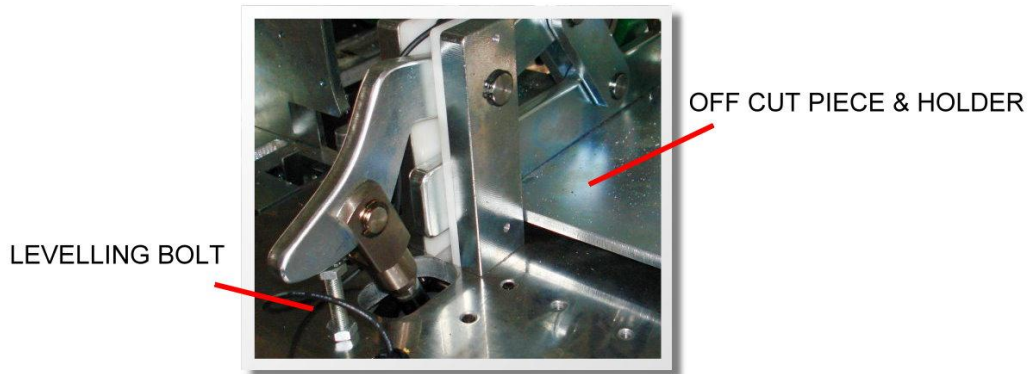


Fig. 7 Clamp Levelling

Once the board thickness changes, the levelling bolts will have to be adjusted. The levelling bolts are designed to ensure the clamp plate is level (horizontal) when in the retracted position. To check if the clamp plate is level, retract the clamp and the gap between the table and clamp plate should be the same at the front and rear (parallel). If it is not, adjust the levelling bolt until the plate is level.

When the board thickness changes, replace the piece of off-cut with the new board under the offcut holder, refer to Fig.7. This off-cut piece assists with clamp stabilisation and improves clamping force at the front edge of the board.

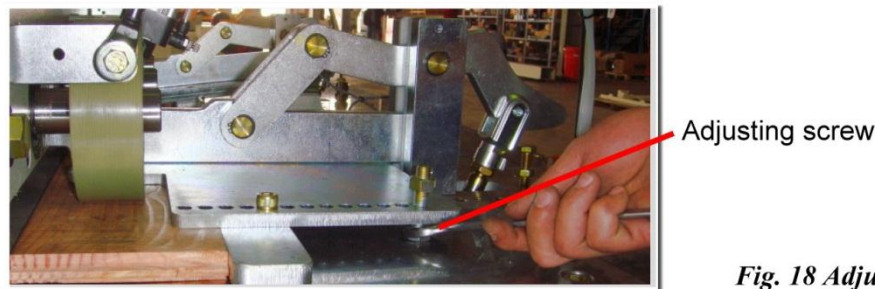


Fig. 18 Adjusting screw

! ENSURE CLAMP PLATE IS LEVEL WHEN IN THE RETRACTED (UP) POSITION, OTHERWISE THE PLATE CAN RUB ON THE FEED ROLLERS OR JAM UP THE BOARDS.

C.MATERIAL WIDTH ADJUSTMENT:

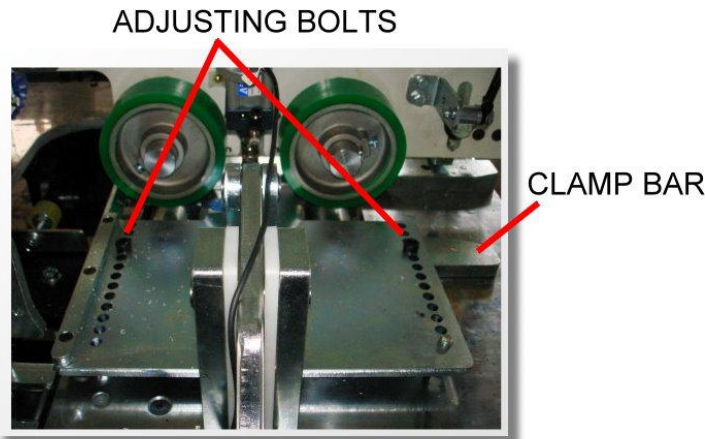


Fig. 8 Clamp Bar Adjustments

Material width adjustment is done by moving the clamp bar to the appropriate set of adjusting bolt holes. The holes are at 15 mm increments.

NOTE: For boards <19mm thick, replace clamp bar with the thinner one supplied, designed for boards between 10-19mm thick. Refer to section “Part and Assembly Drawings” for further instructions.

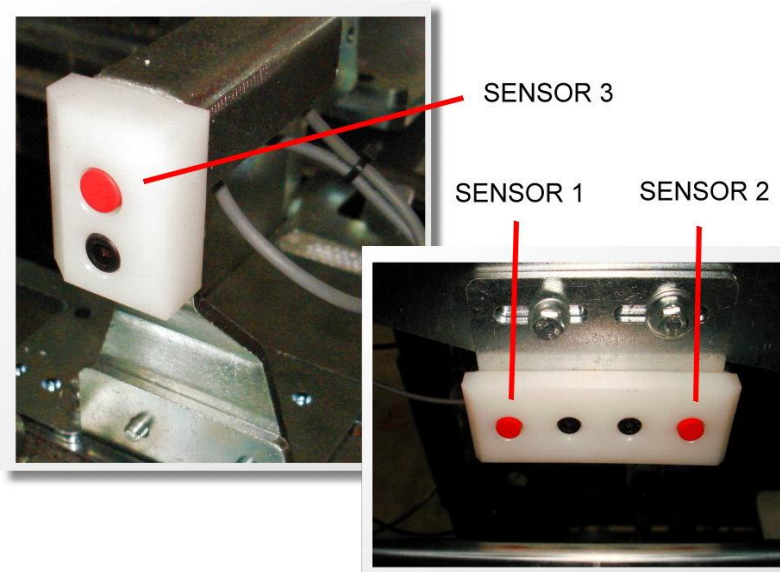


Fig. 9 Cutter Platform inductive sensors

Sensor 1 (CUT HOME PROX.) sets the cutter retract stop (home) position, while sensor 2 (CUT SPEED PROX.) determines where the cutter travel slows down to an arbitrary speed when returning home at full speed, they are factory set and can not be adjusted - located under the top plate at the back of the machine.

Sensor 3 (CUT END PROX.) however, determines the cutter end point, and is automatically adjusted with the board clamp guide. Minor adjustments can be obtained by moving the sensor plate to the desired position.



REMEMBER TO MOVE THE CENTRE BOARD GUIDE WHEN MAKING WIDTH ADJUSTMENTS, FAILURE TO DO SO MAY CAUSE A JAM UP AND EVEN MACHINE DAMAGE.

D.CUTTING ADJUSTMENTS:

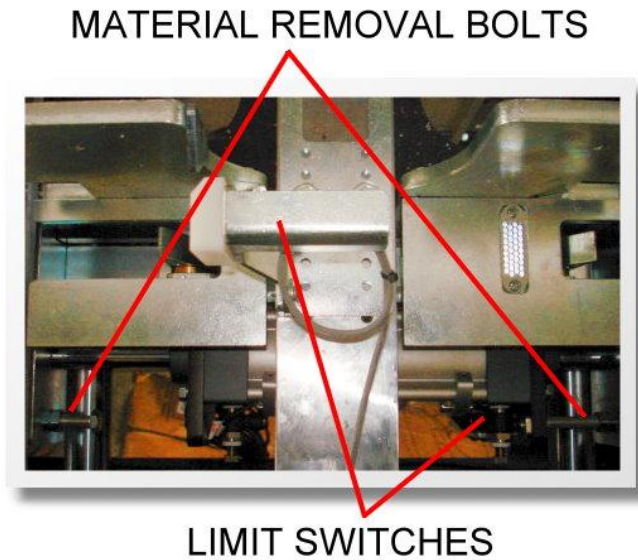


Fig. 10 Controlling the size of material cut.

The amount of material removed with each cut can be controlled by the material adjusting bolts on the pusher stop mechanism. When these bolts are adjusted, the limit switches on the air cylinders should be checked (cannot be seen, but arrows point to the position on the cylinder).

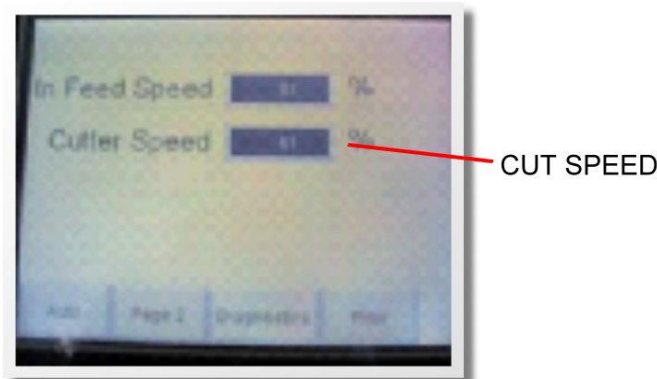


Fig. 11 Adjusting the cut speed

The speed of the cut can be adjusted at anytime via the Touchscreen, refer to “Touchscreen Manual”. The speed is displayed as a percentage and has a range of 10-100%.

E.FEED SYSTEM:

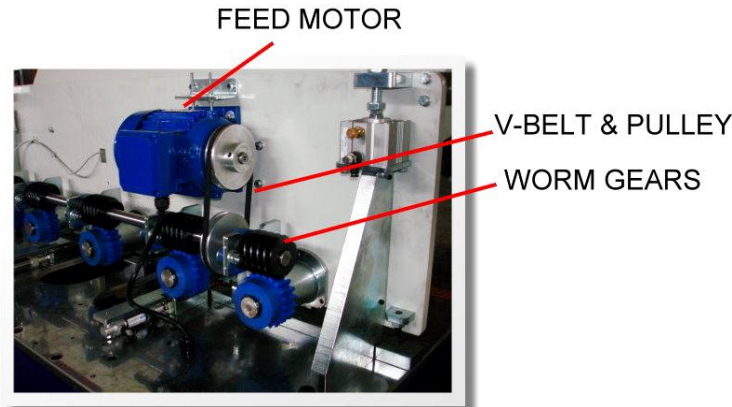


Fig. 12 Worm gear drive

The Feed is driven by a 0.75kW 3 phase motor, and the connecting belt is an A-24 V-belt. For a more comprehensive illustration of the feed system, refer to drawings 300-03V and 300-04V.

The feed system is a lubrication free drive system which requires minimum maintenance. The worm wheels are a wearing component and should be checked regularly for wear, and if wear is present, they might need to be changed.

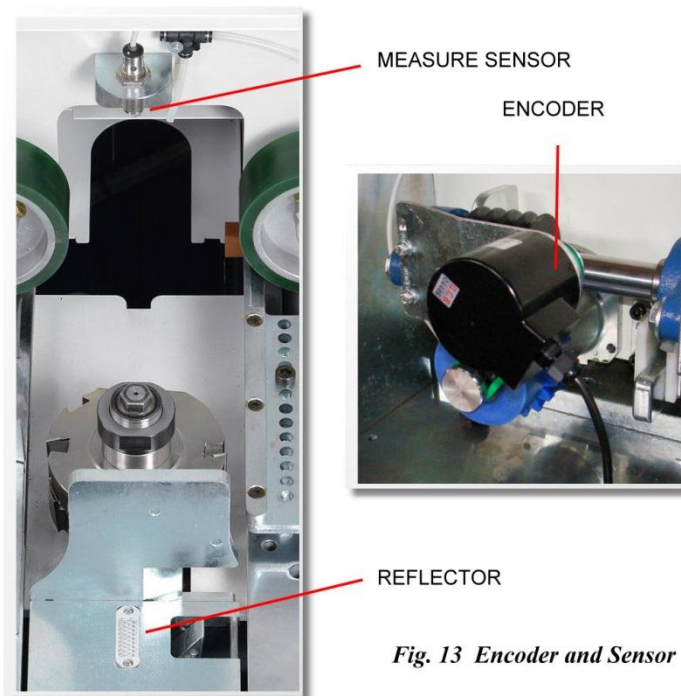


Fig. 13 Encoder and Sensor

Once the leading edge of the board passes under the sensor (MEASURE PROX.), the sensor indicator light should come on, the counter begins measuring the board length until the trailing edge comes off the sensor. Once the sensor goes off there is a time delay until the rear clamps activate and clamp the board, refer to the section “Operating Instructions” section and the “Touchscreen Manual” for timer adjustments.

The sensor is a photoelectric proximity switch which reflects a beam off the reflector, once the beam is broken the signal is obtained.

NOTE: The cleaning of the reflector is very important to obtaining a reliable signal, the cleaning of the reflector should be incorporated into the maintenance schedule.

F. Sensors System:

Sometimes the sensors will be loosened during shipment or movement. And it sometimes will make the setup go wrong and reflect on the PLC. Please check sensors first if the PLC does not work rightly.

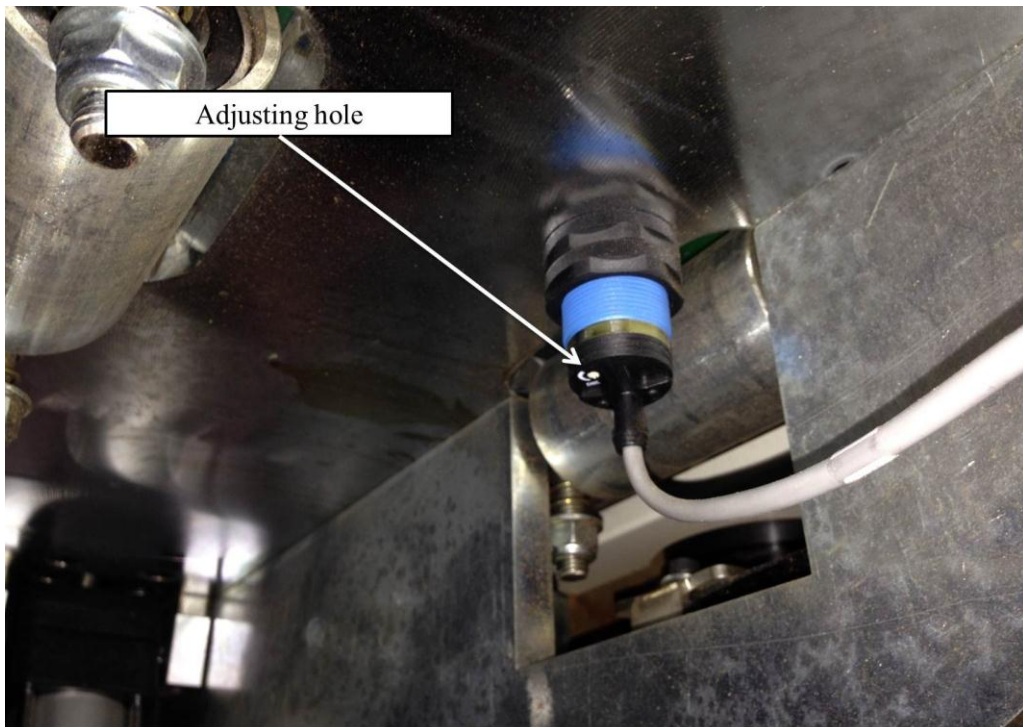


Fig. 14 Sensors under working table

The light of this sensor will only shine when working pieces passes. If the light is keeping shining, please adjust via the hole for its sensitivity.

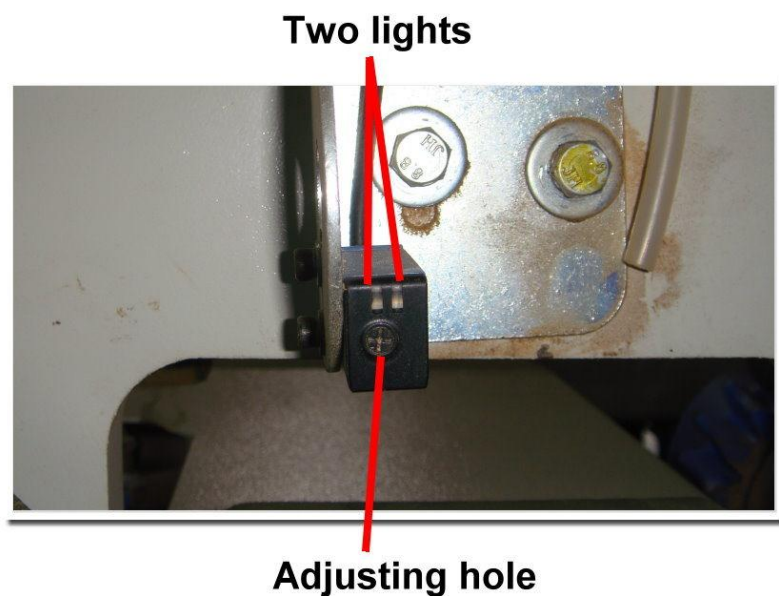


Fig. 15 The sensor above the feeding roller

In a normal state, one light will keep shining and another will only shine when working piece passes. If both two are keeping shining, please adjust via the hole.

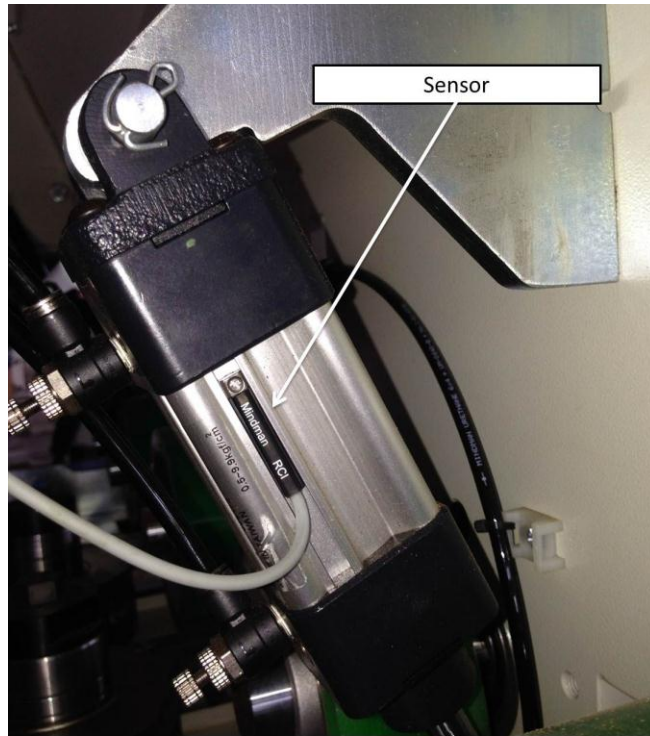


Fig. 16 The sensor on the clamp

In a normal state, the light of sensor will always shine but go out when pressing the working piece. Please adjust the screw if it does not work rightly.

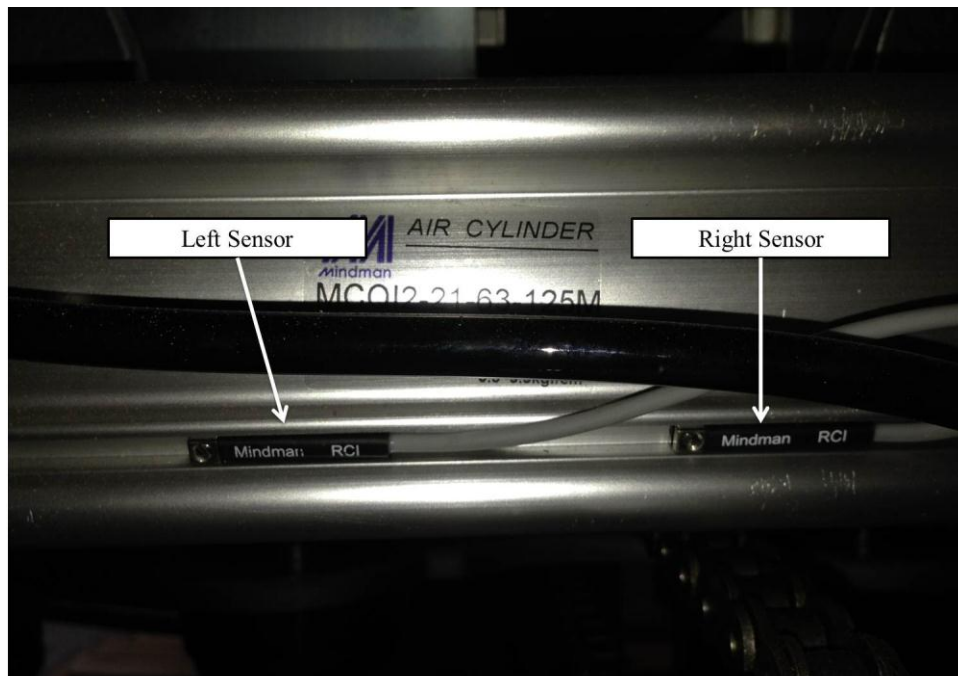


Fig. 17 The sensor on the cylinder

When the cylinder is moving, there is a route for the light of sensor's shining. The left sensor is supposed to be set up in the middle of this shining route, and the right sensor is supposed to be set up in the right side of this shining route. The left light will shine when the cylinder touches the right side. The right light will shine when the cylinder touches the left side.

OPERATING INSTRUCTIONS

OPERATING SEQUENCE:

The first board enters the machine and passes over the wood infeed sensor, activating the Infeed Clamp delay timer - the timer should be set so the board just makes it to the stop (to prevent the rollers rubbing) but doesn't clamp too early. This timer should be factory set but can be changed in the Touchscreen, refer to "Touchscreen Manual". Once the timer expires the infeed clamp operates and the board is clamped ready for processing. The cutting cycle starts and returns when complete.

The infeed and outfeed clamps release, the board will then feed through. When the leading edge of the board goes under the measure sensor, the counting begins. When the trailing edge leaves the sensor, counting stops and the Outfeed Clamp Delay timer is started. The second board is positioned by timing the board to stop in the range of the pusher, this timer is adjusted in the Touchscreen as well.

When the next board is introduced, the pusher will position the rear board and the cutting cycle is repeated.

The feed rollers are in continuous motion. The drive is produced by spring loaded bottom table rollers which push the board against the top feed rollers when the clamps are released.

TIMING:

The timing is an integral part of the machine operation and can be set to provide a smooth and efficient cut. Any adjustments to the timing should be done in small steps, testing the adjustment after each step. The causes for timer adjustments are;

- If the front rollers are rubbing on the board, decrease the infeed timer
- If the board is not reaching the front stop, then the infeed timer has to be increased.
- If the board fails to reach the push area, then the outfeed timer has to be increased.
- If the board runs past the push area, then the outfeed timer has to be decreased.

CUTTING STROKE & SPEED:

The cutting stroke is adjusted automatically when the board guide clamp is moved, but minor adjustment is possible to fine-tune the stroke and maximise the speed of operation. Adjustment is done by moving the sensor plate to the desired position (refer to Fig. 9). The cutting stroke should be set so that the cutters just pass the component before returning.

The speed can be adjusted for the cut only, the retract speed is factory set and cannot be altered. Refer to the "Touchscreen Manual".

REPLACEMENT PARTS

CUTTER TIPS:

Once the initial Endmatch sizes have been set, it is normally not necessary to remove the cutter heads to change the tips. Simply switch the machine to MANUAL and bring the cutter heads forward, so that the cutters can be easily accessed to change or rotate the tips.



BEFORE TOUCHING THE CUTTER HEADS, ENSURE THE MACHINE IS ELECTRICALLY AND PNEUMATICALLY ISOLATED BY A QUALIFIED PERSON.

BACKUP BLOCKS:

Changing the backup blocks can be done by loosening the hex head bolt on the holders, easiest access is obtained if the backup blocks are extended (machine must be in MANUAL mode to bring the blocks out).

NOTE: Backup blocks are best changed with the cutters retracted.

Once the canvas Bakelite block has been changed, it is necessary to make a cut with the cutters, across the face of each backup block. Cutters can be started in MANUAL mode by holding down the start button and bringing the cutters forward manually, as required.

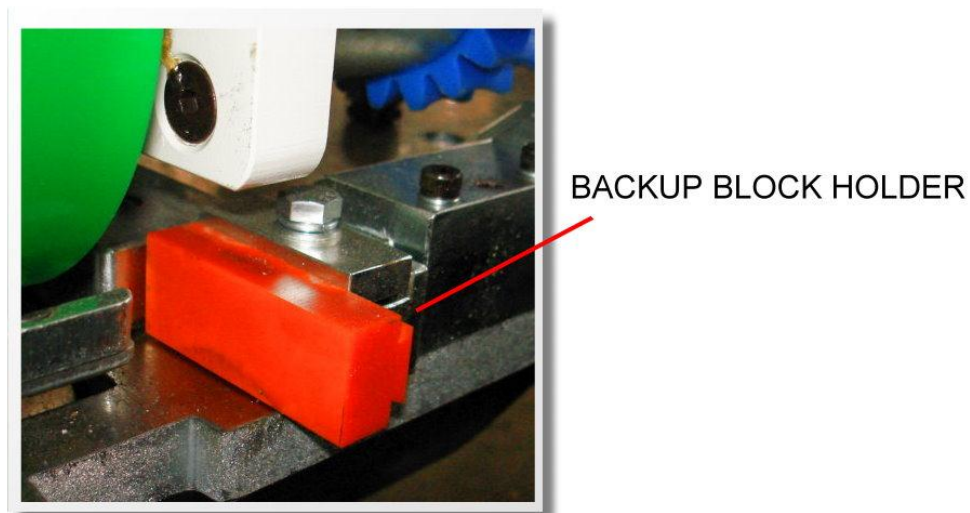


Fig. 14 Backup Block

MAINTENANCE

The maintenance of any machine is a vital ingredient to ensuring the longevity and performance of the machine. A maintenance schedule should be developed and followed by a qualified person, or someone who has been trained to perform such tasks. The maintenance schedule should include the following aspects;

- Clean machine at regular intervals and keep as free from dust as possible.
- Check cutter drive chain and replace when required - removing links is not good practice as sprockets will be subject to increased wear.
- Check motor drive belts regularly and tension if squealing noises are heard during startup.
- Keep electrical cabinet door closed and free from dust.
- Check and clean, if required, any dust build up on sensors.
- Drain pneumatic water separator regularly.

It is suggested that a regular maintenance check is carried out once a week. This is just a guide, and if excessive dust, water, or wear is present, the maintenance check should be carried out more regularly.

COMMON COMPONENTS

CUTTER SPINDLES:

DRIVE BELTS	SPZ 800 (60hZ) or SPZ 875 (50Hz)
BEARINGS	6010 ZZ
SPINDLE NUTS	40 mm X 1,5 mm pitch
	Compatible with Weinig.

CUTTER CARRIAGE:

BEARINGS	40mm LINEAR BEARING
IMPACT PAD	POLYURETHANE IMPACT PAD
CUTTER DRIVE	1/2" BS CHAIN

FEED SYSTEM:

FEED ROLLERS	POLYURETHANE 140 X 50 X 35 mm
	Compatible with Weinig or Wadkin
FEED SPINDLE BEARING	6007 2RS
WORM SHAFT BEARING	25mm FLANGED BEARING, UCFL205
FEED BELT	A23 BELT

CHIP BREAKERS(BACKUP BLOCKS):

BREAKER PAD	CANVAS BAKELITE PAD
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SENSORS

WOOD PROX	CM30-16BPP-KC1 CAPACITIVE SENSOR
GUARD PROX	RE300-DA03P SAFETY SENSOR
MEASURE PROX	VL18-4P3140 REFLEX SWITCH
REFLECTOR	PL20A REFLECTOR
CUTTER PLATFORM	IM12-04NPS-ZC1 INDUCTIVE PROXIMITY
STRAIGHT CABLE	33552 M12F 4PN ST 5M PU NLD (PVC) CABLE
RIGHT ANGLE CABLE	33394 M12F 4PN RA 5M PU NLD (PVC) CABLE

For a full list of components and part numbers, refer to section "MACHINE DIAGRAM AND PARTS LIST".

OPERATION INTRUCTIONS OF SPIRAL CUTTERHEAD

A. THE ADVANTAGE OF THE DISOPSABLE AND GRIND ABLE SPIRAL CUTTER:

With high strength, low noise, heavy duty cutting, low horsepower, long life and low cost. Grinding one side, four sides of edge can be use. If the edge is broken by the debris, then change to another edge.

B. THE ANALYSIS OF ABRASIOM RATE OF BLADES:

Spindle Speed (RPM)	Kind of Wood	1 Edge 8hrs per day		4 Edges		Noise (HZ)	Feed Rate(M)
		LSB1	LSB2	LSB1	LSB2		
5000	HARDWOODS OR ORDINARY WOODS	14~20	24~34	56~80	96~136	50~58	12~17
6000		12~16	20~37	48~64	80~148	60~65	14~20
7500		9~13	15~21	36~52	60~84	75~80	14~24
9000		8~12	14~20	32~48	56~80	80~92	16~30
7500	PLYWOOD, FIBERBOARD, GLUEDBOARD	3~5	5~9	12~20	20~36	75~87	12~20
9000		2~4	3~7	8~16	12~28	80~91	14~20

C. HOW TO INSTALL THE BLADE:

Because the blade is very sharp, you should wear gloves to handle it. Use an air gun to thoroughly clean the cutter and blade. If blade is used, you can use kerosene, diesel oil or cleaner to clean the blade. The surface of screw has nylok, it can prevent slide and damage, and it can extend the life when it use yellow oil. Insert blade in groove may cause blade to break or blade cutting not level for the smooth cut then the screw use yellow oil, and turn round the screw with your hand to cutter head final use air screw driver to tighter the screw. Please reference B1~B6.

D. HOW TO REMOVE THE BLADE:

Use air screw driver with 6KG ~6.2KG and down-clock wise to loosen the screw.

SPIRAL CUTTER GRAPH EXPLANATION:

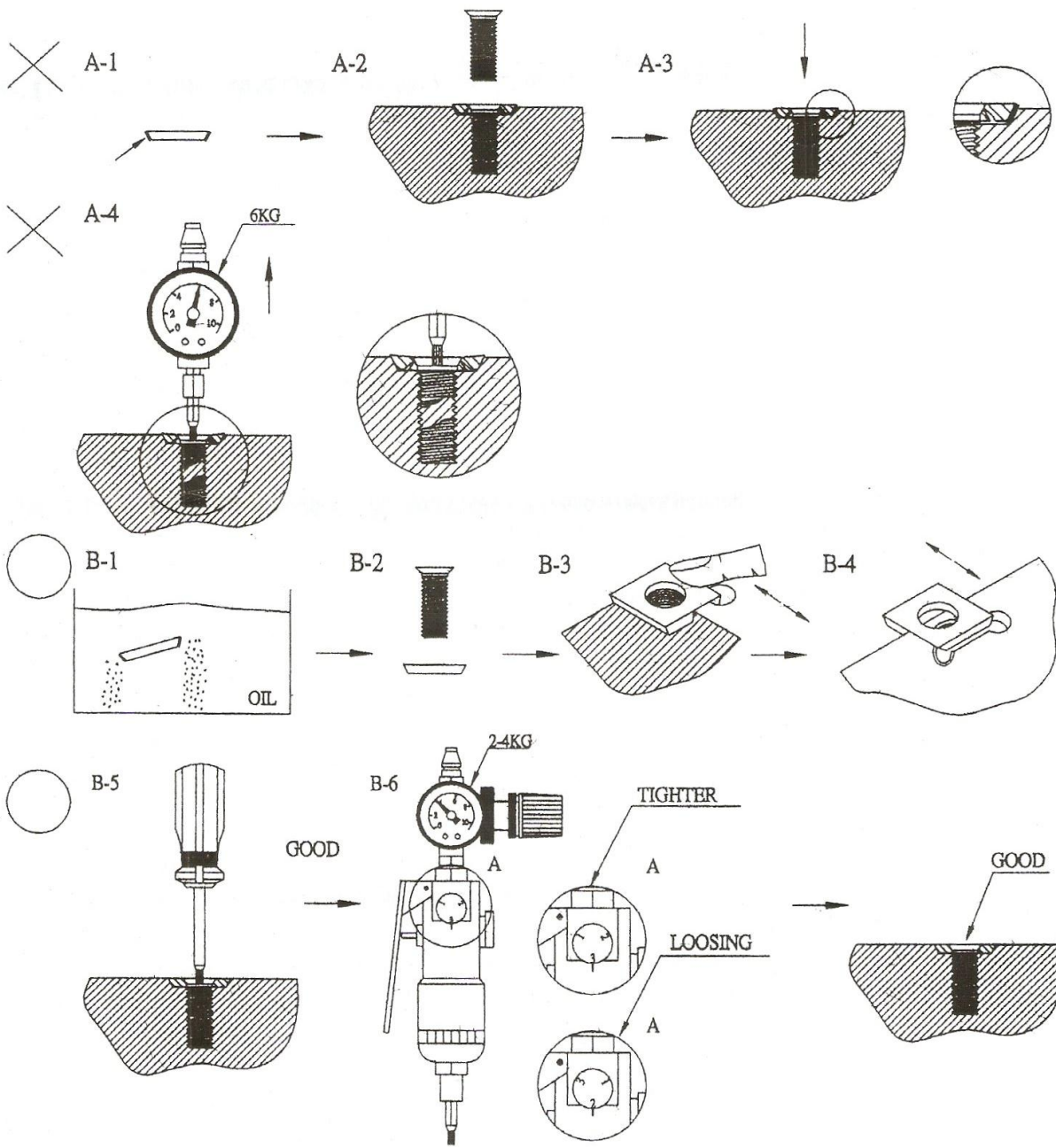
A1~A5 The knives has dirty and incorrect combination would make it rift.

A-4 If air screw driver lock lower 6KG cause knife trough seals of wood chip from chink pressure to knives broken.

A-5 The wrench pressure up to 6KG, it will cause blade or screw broken, this is due to the T.C. blade is the hardest, so when cutting very high speed, the screw instead of blade cutter head have unusual voice or shake when cutting and cause cutting balance is nor well, please stopped to insect the machine.

B1~B6 CORRECT COMBINATION METHOD”

1. Loosing the pressure and adjust pressure to 6KG air screw driver.
2. Adjusting speed regulator with 3.
3. Combination blades with B1~B6.



E. NOTE:

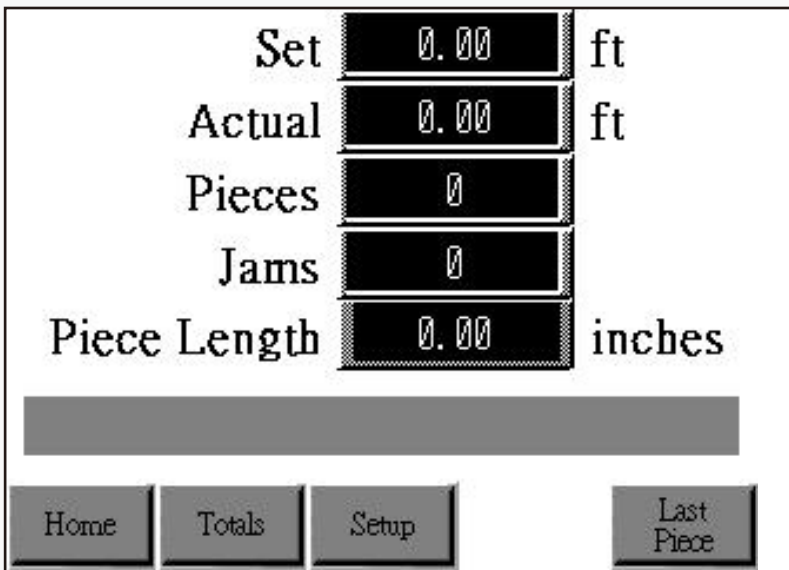
1. The running speed of cutter is high and designed to heavy and fast cutting. So it is very important to keep the completeness of whole cutter. Never slash or crash the cutterhead, or it will lose its balance, make the cutterhead sway and effect the cutting result.
2. The normal woodworking knives are less hardness and they may easily get cracked. If the knives got crack, it will cause the resistance and tear the wood piece easily. So it is important to keep the completeness of knives, please stop using the cracked knives immediately after finding the defects.
3. When locking the knives, please keep the groove and knives clean, if it is stocked with saw dust or dirt, there will be a gap between knives and groove. In this case we can't lock the knives closely and when pressurize the knives it will easily cause the break of knives.

TOUCH SCREEN MANUAL

HOME PAGE DISPLAY

1.  Key :

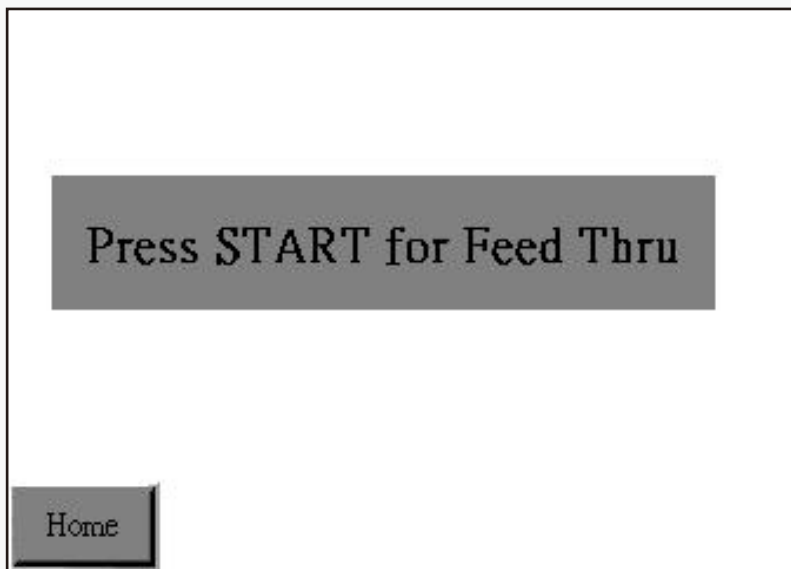
Press this key for entering into automatic operation mode.



HOME PAGE DISPLAY

2.  **Key :**

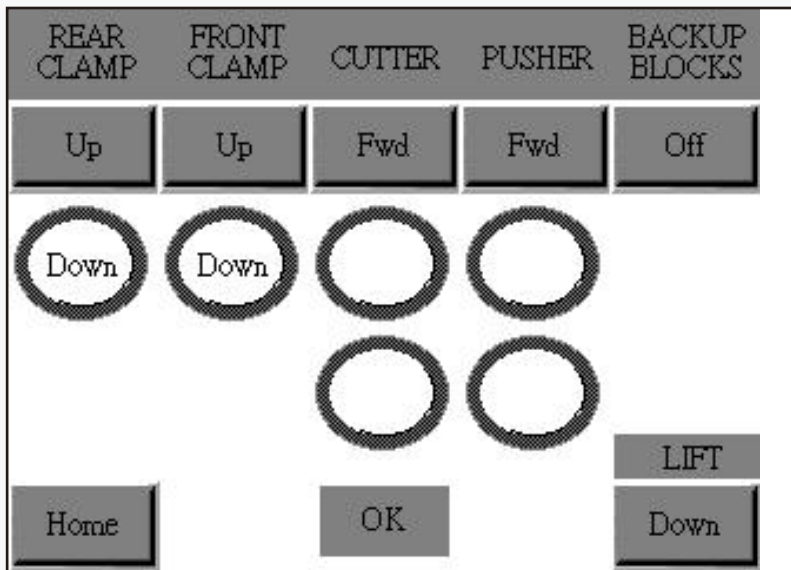
Press this key for entering into feed through mode. This function is used when wood jam occurs.



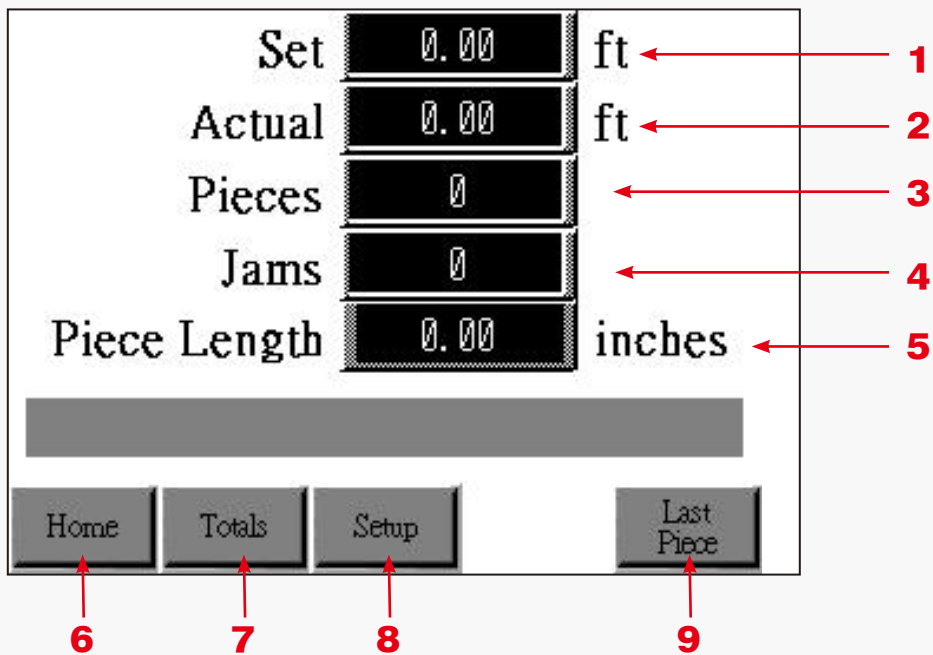
HOME PAGE DISPLAY

3.  **Key :**

Press this key for entering into manual operation mode.



LENGTH SETTING DISPLAY



Press the "Auto" key on the home page display, then the screen will show a length setting display as above.

This display allows the operator to set total length of cut and displays the current length conditions.

LENGTH SETTING DISPLAY

1. Set **ft**

- (1) The operator may set his desired total length of cut.
- (2) Once the setting total length reaches, the machine will stop and the buzzer sounds to notify the operator.
- (3) To set the total length of cut, press the numeric column "set ft" for displaying a numeric keypad window. The operator may set his desired total length of cut through this numeric keypad window.



NUMERIC KEYPAD WINDOW

- (4) Length unit: ft.

LENGTH SETTING DISPLAY

2. Actual **ft.**

- (1) This column displays the actual length has been cut up to now from the beginning of operation.
- (2) This column only provides display. The value shown on this column can't be set. However, reset value (zero setting) is allowed.
- (3) To set zero on this column, press the numeric column "Actual ft" for displaying a numeric keypad window. The operator may reset the value shown on this column through the numeric keypad window.
- (4) Length unit:ft


LENGTH SETTING DISPLAY

3. Pieces

- (1) This column displays the total pieces of wood has been cut up to now from the begining of operation.
- (2) This column only provides display. The value shown on this column can't be set. However, reset value (zero setting) is allowed.
- (3) To set zero on this column, press the numeric column "Pieces " for displaying a numeric keypad window. The operator may reset the value shown on this column through the numeric keypad window.

LENGTH SETTING DISPLAY

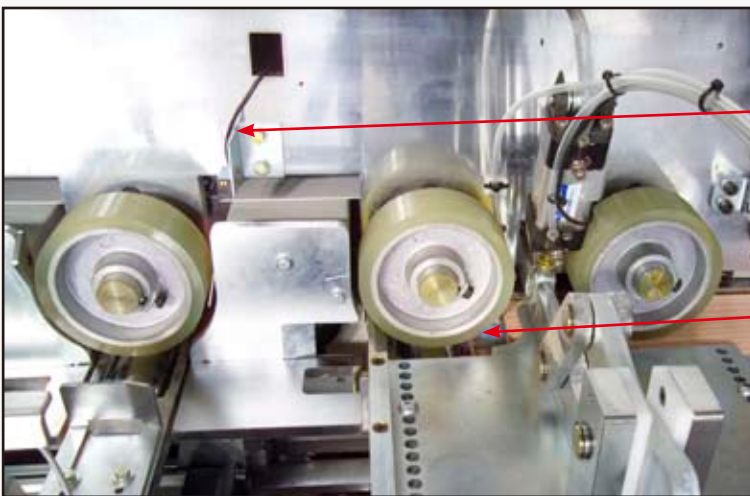
4. Jams

- (1) This column displays times of wood jamming up to now during the machine has been operated.
- (2) The column only provides display. The value shown on this column can be reset (zero setting).
- (3) To set zero on this column, press the numeric column "Jams  " for displaying a numeric keypad window. The operator may reset the value shown on this column through the numeric keypad window.

LENGTH SETTING DISPLAY

5. Piece Length inches

- (1) This column displays length of each piece of wood.
- (2) Wood length is measured by an encoder.
- (3) When the front end of wood moves to the sensor (2) position and the sensor is sensed, the encoder will start to count the wood length.
- (4) When the tail end of wood moves to the sensor (2) position and the sensor is sensed, wood length counting is finished.
- (5) The wood length is displayed on the "Piece Length inches".



- (6) Wood length unit:inch

LENGTH SETTING DISPLAY

6. Home



Press this key for displaying the home page display.

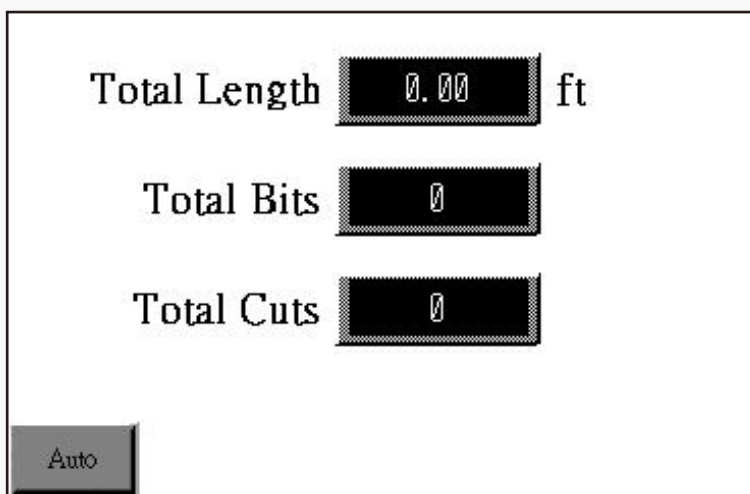


HOME PAGE DISPLAY

7. Totals



Press this key for displaying the "**Totals**" display, shown as below.

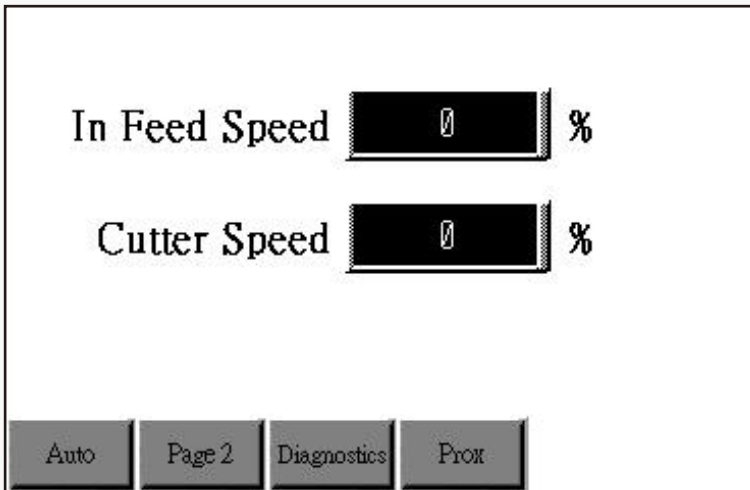


LENGTH SETTING DISPLAY

8. Set up

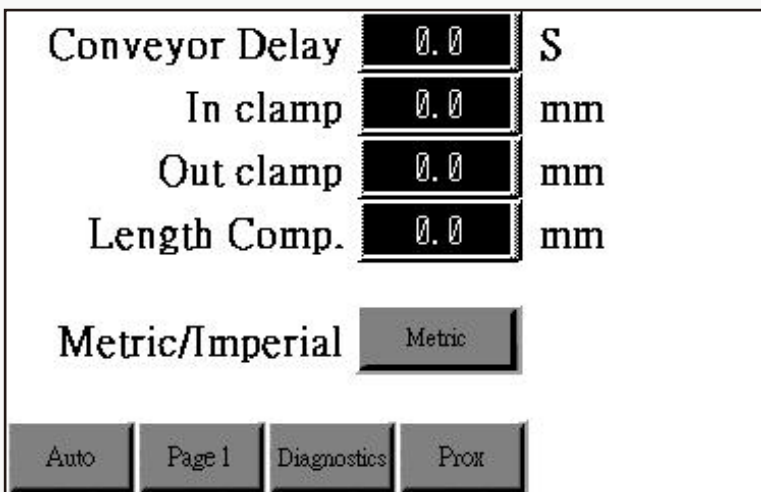


Press the "Setup" key, then a SETTING DISPLAY-PAGE1 will show as below :



SETTING DISPLAY - PAGE 1

- (1) The setting display includes two pages.
- (2) Press the "Page 2" key on the SETTING DISPLAY-PAGE 1, then the screen will display the PAGE 2 shown as below:



SETTING DISPLAY - PAGE 2

LENGTH SETTING DISPLAY

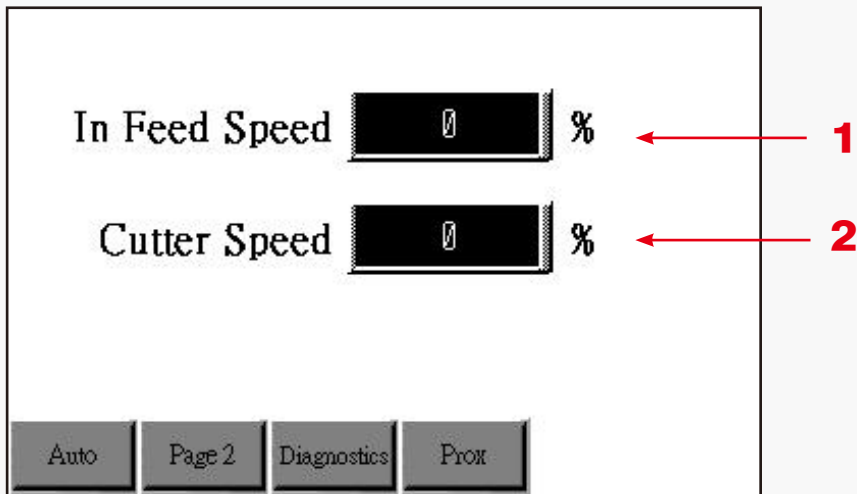
9. Last Piece



- (1) This key is used to perform cutting for the last piece of wood and move it out of the machine.
- (2) This key is effective only when keeping pressing it for 3 seconds.
- (3) When this key is continuously pressed for 3 seconds, motion sequences are:

The rear spindle moves forward for cutting → The rear spindle return to home position after cutting → The last piece of wood moves out of the machine.

SETTING DISPLAY - PAGE 1



Press the "**Setup**" Key on the "**LENGTH SETTING DISPLAY**", then a setting display-page 1 will show as above.

1. In Feed Speed %

(1) This column allows the operator to set feed speed of the feed rollers, according to wood material.

(2) In Feed Speed range can be set is 20%-100%.

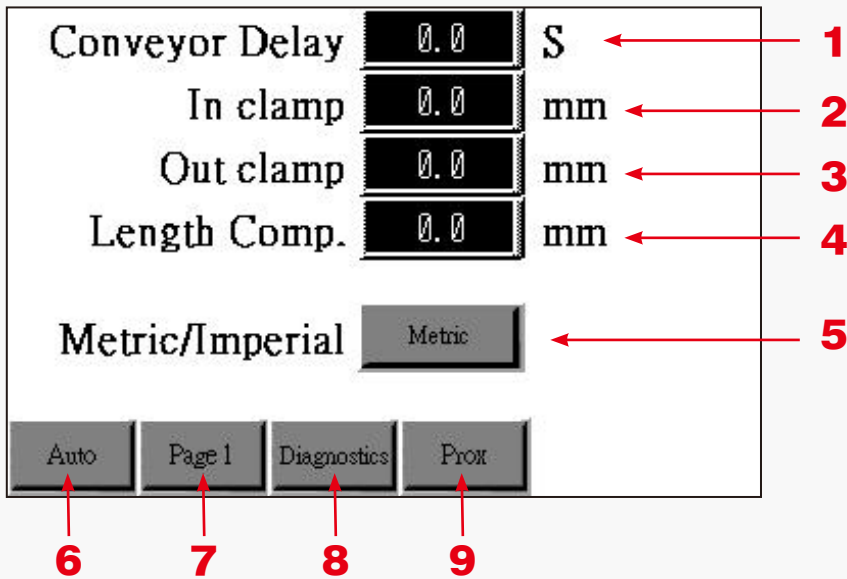
2. Cutter Speed %

(1) This column allows operator to set the cutters moving forward speed.

(2) Note that the cutters return speed is fixed, which can not be adjusted.

(3) Cutter moving forward speed range can be set is 20%-100%.

SETTING DISPLAY - PAGE 2



Press the "**Page 2**" Key on the "**SETTING DISPLAY-PAGE 1**", a "**SETTING DISPLAY-PAGE 2**" will display as above.

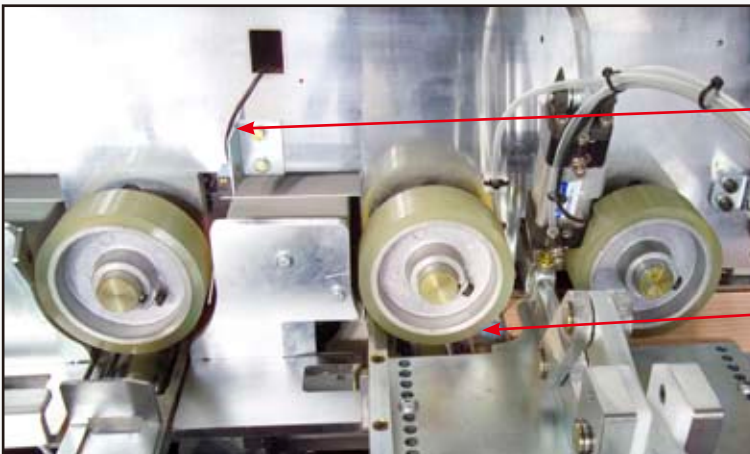
1. Conveyor Delay s

- (1) This key is used for setting the infeed conveyor running start time.
- (2) When the front spindle finish cutting, and returned to its home position. The front clamping plate raises.
- (3) After the conveyor delay time reaches, for example 3 seconds, the infeed conveyor starts running to feed the next wood into the machine.
- (4) Conveyor delay time unit : s (second)

SETTING DISPLAY - PAGE 2

2. In clamp mm

- (1) This key is used to set the distance which the wood will move forward.
When the front edge of wood is detected by the sensor (1) located under the second rubber feed roller, distance calculation starts.
- (2) For example, if you set 100mm, the wood will move 100mm further from the sensor (1).
- (3) When the set distance reaches, the front clamping plate comes down to hold the wood.
- (4) This function is used for the front clamping plate.
- (5) Unit can be set in inch or metric.



SENSOR (2)

SENSOR (1)

3. Out clamp mm

- (1) This key is used to set the distance which the wood will move further.
When the rear edge of wood just leave from the sensor (2), distance calculation starts.
- (2) When the set distance reaches, the rear clamping plate comes down to hold the wood.
- (3) This function is used for the rear clamping plate.
- (4) Unit can be set in inch or metric.

SETTING DISPLAY - PAGE 2

4. Length Comp. inch

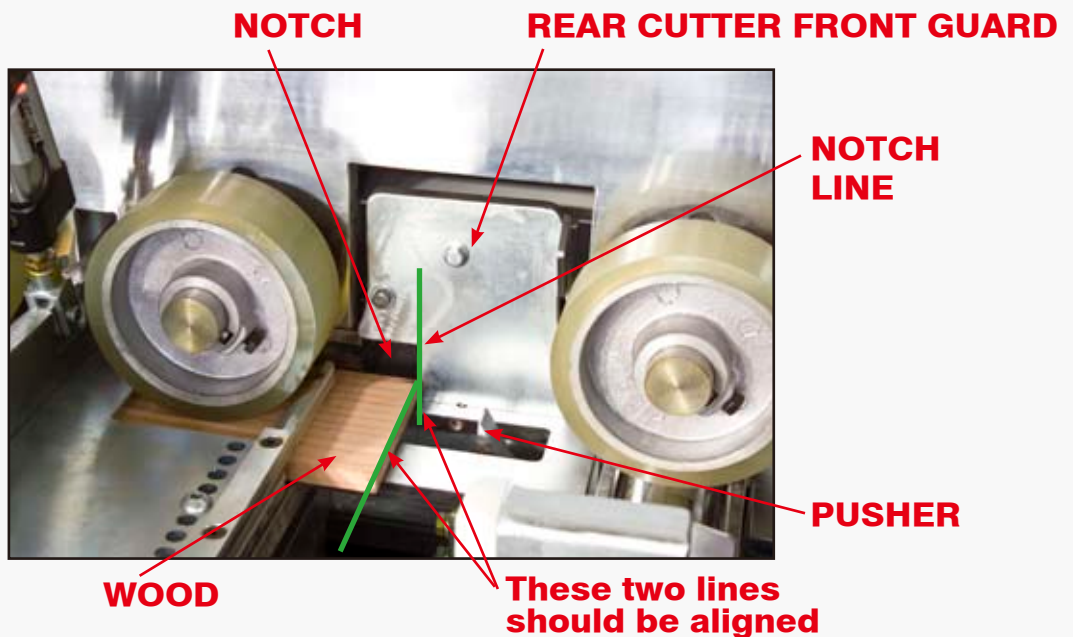
- (1) When you set a value on the Out clamp mm, generally the wood can't move and position at the accurate position as you set. This is caused by some factors, and that's why you need to make length compensation to achieve an accurate positioning of wood.

In general, the higher feed speed of wood, the bigger compensation value is required.

(2) CORRECT POSITIONING OF WOOD

- The correct positioning of wood is the tail end of wood just align with the line of notch of the cutter front guard.


**CORRECT
POSITIONING
OF WOOD**



- The correct positioning of wood means the pusher can just touch the tail end of wood.

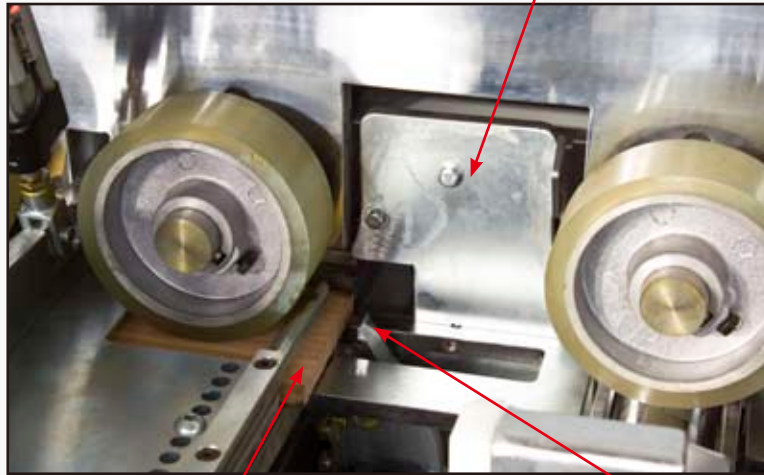
SETTING DISPLAY - PAGE 2

(3) INCORRECT POSITIONING OF WOOD

- This figure shows the wood moves over. In this case, the pusher can't touch the tail end of wood.

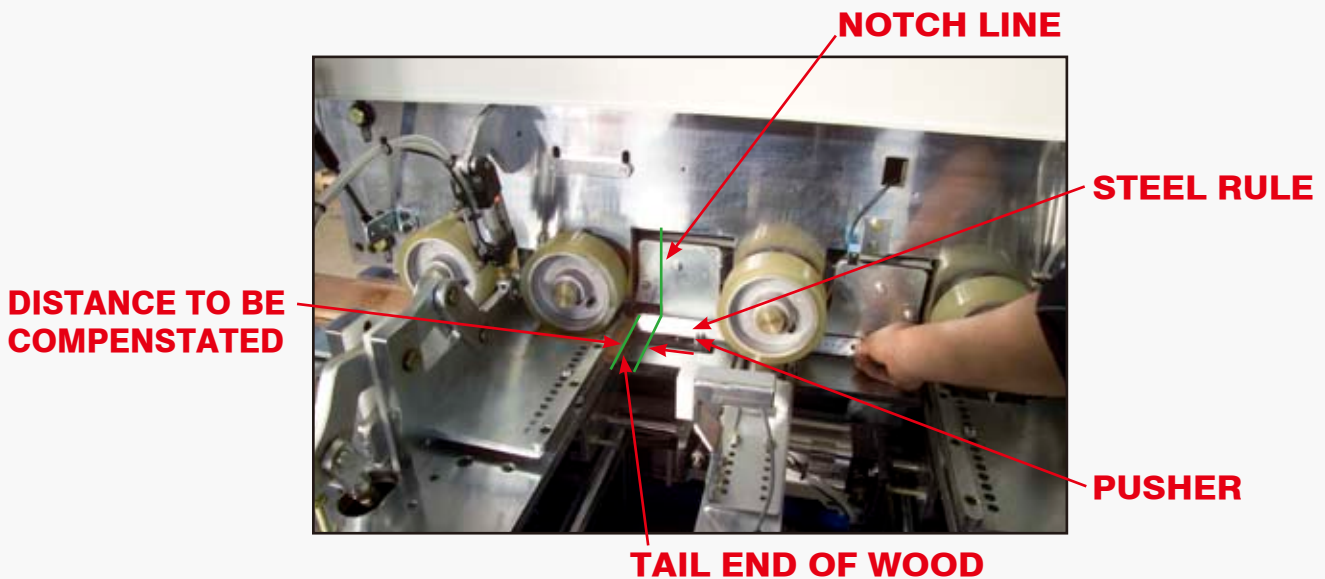


**INCORRECT
POSITIONING
OF WOOD**



WOOD MOVES OVER TAIL END OF WOOD PUSHER

- When this problem occurs, you need to make length compensation.
- Use a steel rule to measure the distance from the tail end of wood to the notch line.



- For example, if the distance measured is 40 mm, then you should input a "-40"(mm) value in the "Length Comp. mm".

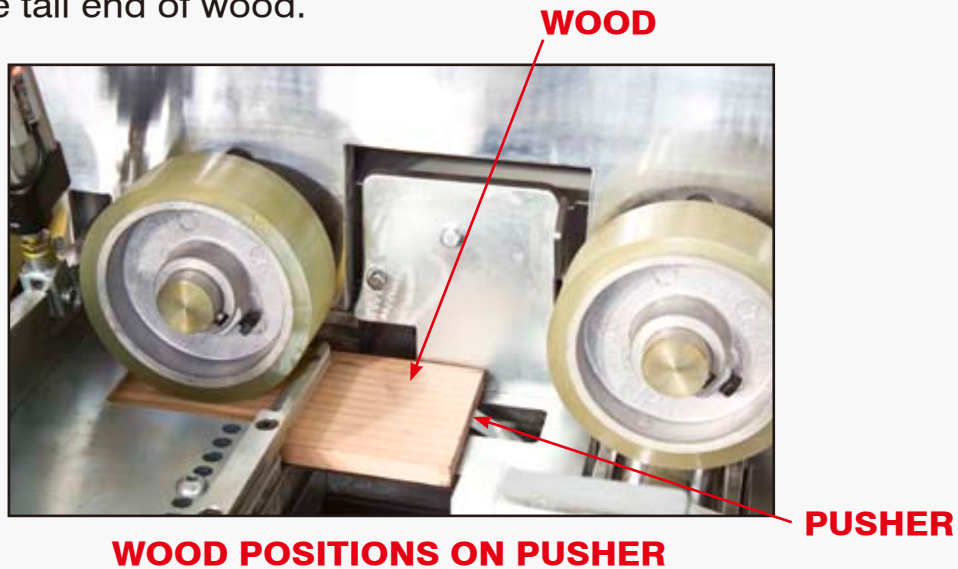
SETTING DISPLAY - PAGE 2

(4) INCORRECT POSITIONING OF WOOD

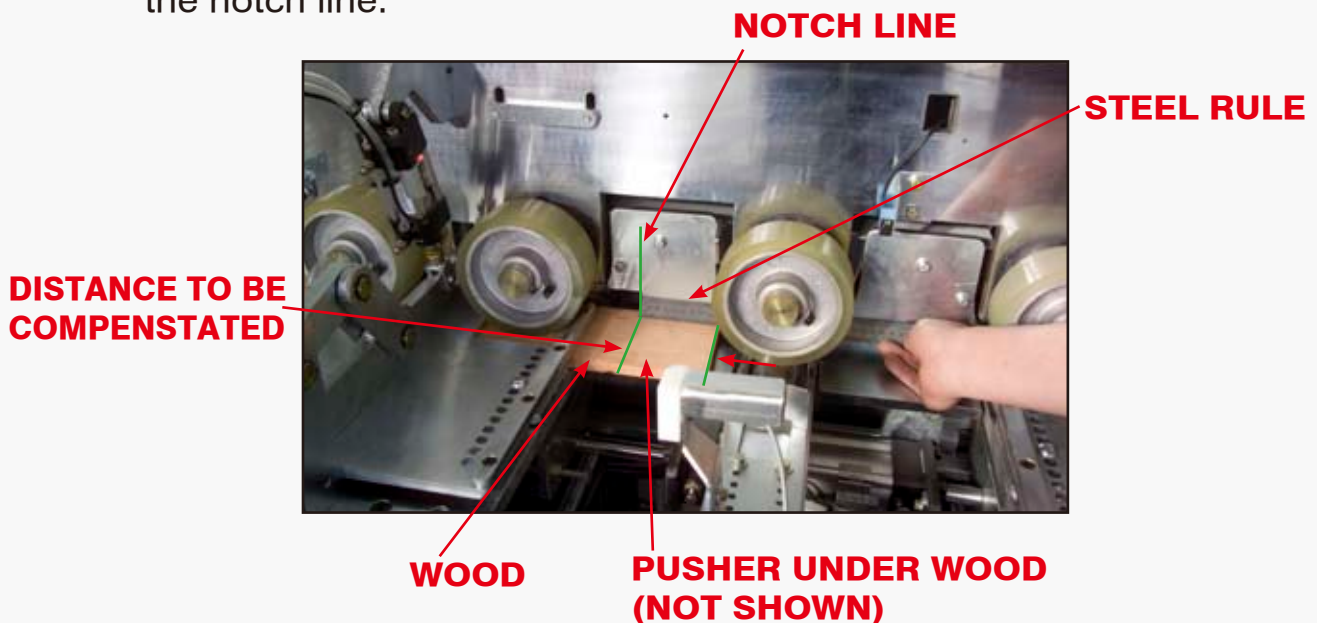
- This figure shows the wood moving distance is insufficient. In this case, the wood positions on the pusher. This causes the pusher can't touch the tail end of wood.



INCORRECT POSITIONING OF WOOD



- When this problem occurs, you need to make length compensation.
- Use a steel rule to measure the distance from the tail end of wood to the notch line.



- For example, if the distance measured is 50 mm, then you should input a "+50"(mm) value in the "Length Comp. mm".

SETTING DISPLAY - PAGE 2

5. Metric/Imperial



This key is used for changing metric and imperial size display.

(1) Press this key one time for metric size display.

(2) Press this key again for inch size display.

SETTING DISPLAY - PAGE 2

6. Auto



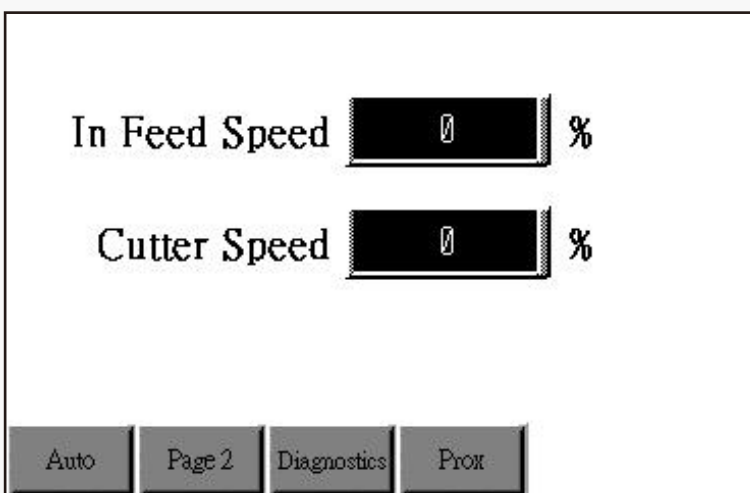
Press this key, then a length setting display (Auto mode) will show as below:



7. Page 1



Press this key for displaying the "SETTING DISPLAY-PAGE1" as below:

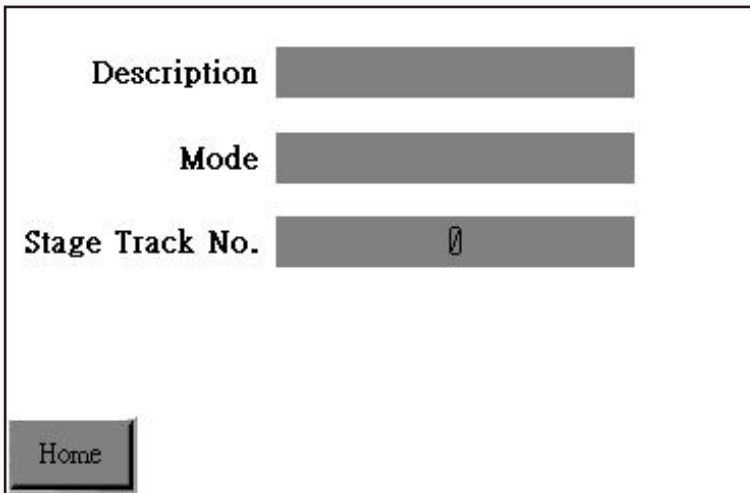


SETTING DISPLAY - PAGE 2

8. Diagnostics



In case a trouble occurs, the operator may press the "Diagnostics" key to show the Diagnostics display as below:

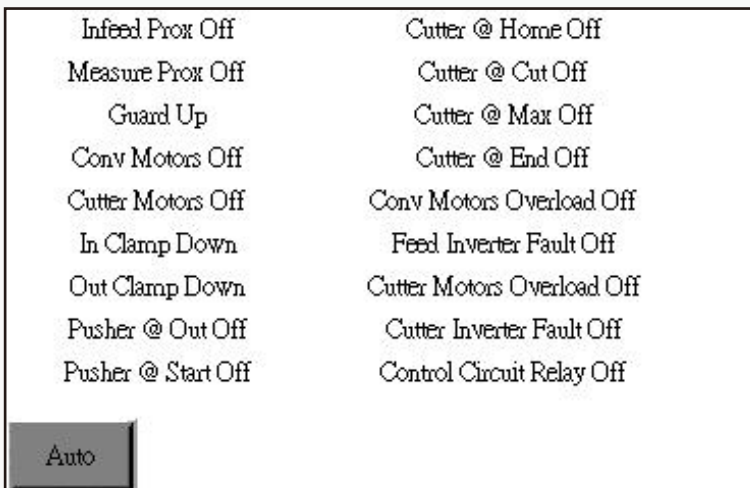


9. Prox

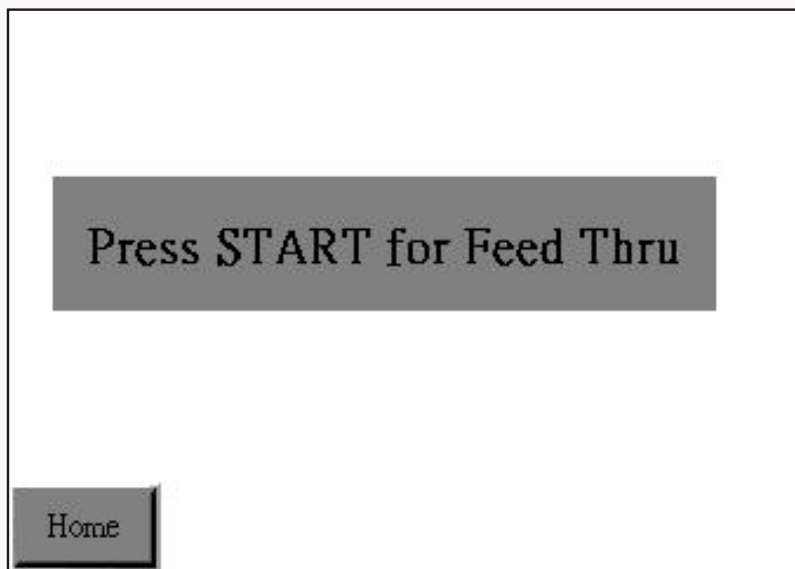


Press the Prox key, a display will show as below:

On the prox. display, the operator may check sensing condition of all proximity sensors on the machine.



FEED THRU DISPLAY

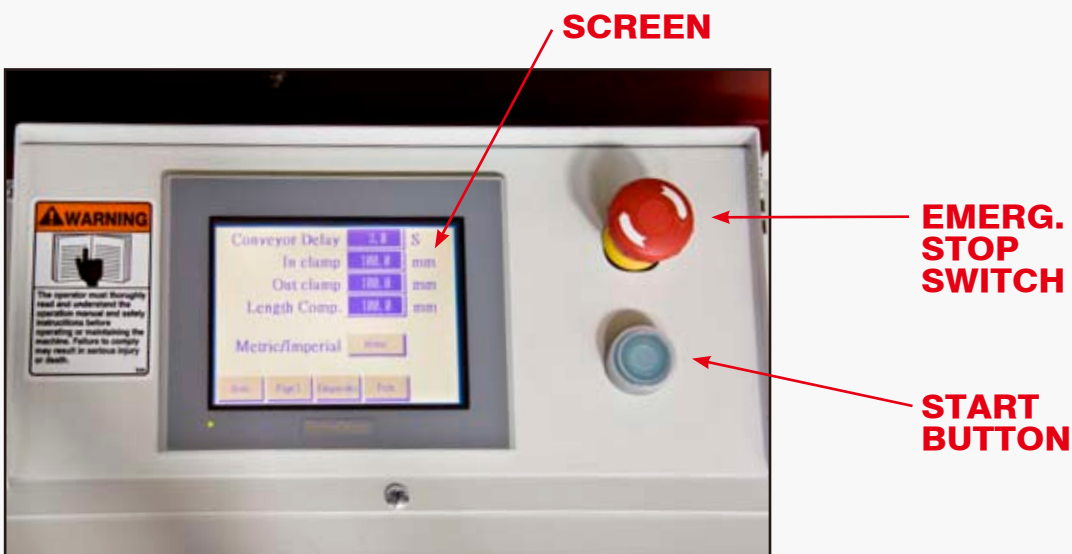


FEED THRU DISPLAY

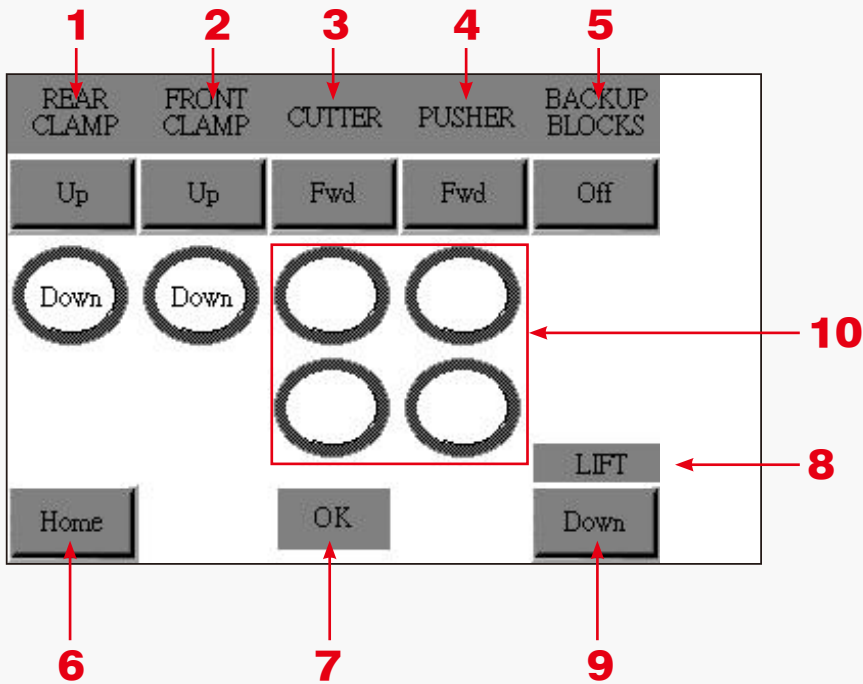
1. Press the "**Feed Thru**" Key on the home page, then the screen will show the "**Feed Thru**" display as below:



2. In case wood jams during operation, and you need to remove the wood. Then the "Feed Thru" function should be applied.
3. In Feed Thru mode, press the "**START**" button, both spindles will return to their original positions. At the same time, the wood will only move forward out of the machine without cutting.


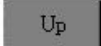



MANUAL MODE DISPLAY



Press the "Manual" key on the home page display, then the screen will show a "Manual Mode" display as above.




1. REAR CLAMP. :

- (1) This key is used for raising and lowering the rear clamp, that releases or holds down the wood.
- (2) Press the  key, the rear clamp will raise up to release wood.
- (3) Press the  Key again, the rear clamp will lower to press the wood. At this time, the  key will light on.


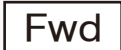


MANUAL MODE DISPLAY

2. FRONT CLAMP

This key is used for raising and lowering the front clamp that releases or holds down the wood.

- (1) Press the  key, the front clamp will raise up to release wood.
- (2) Press the  key again, the front clamp will lower to press the wood. At this time, the  key will light on.





3. CUTTER

- (1) Press the  key, then both cutter spindles move forward. At this time the  key light on.
- (2) Press the  key again, then both cutter spindles move backward to their home positins. At this time, the  key distinguishes.

MANUAL MODE DISPLAY

4. PUSHER



- (1) After tenon has been cut by the front spindle, then the pusher will push the wood to the rear spindle for cutting mortise.
- (2) In manual operation mode, the operator may press  key to enable the pusher to move the wood forward. At this time, the  key light on.
- (3) Press the  again, the pusher will return to its original position, and the  key distinguishes.

5. BACKUP BLOCKS



The backup blocks are used to press the side of wood during cutting, which may prevent tearing of wood.

- (1) Press this key for ON condition, both backup blocks move forward to press the side of wood.
- (2) Press this key again for OFF condition, both backups will return.

6. Home



Press this key for displaying Home Page display.

MANUAL MODE DISPLAY

7. OK



- (1) When this key displays "**ok**", it means the machine is under normal condition and ready for operation.
- (2) In case there is any abnormal condition, this key will display "disable". It means the machine is not ready for operation.

8. LIFT



- (1) This key is effective only in manual operation mode.
- (2) When this key is pressed, all feed rollers and the upper mechanism raises up immediately.

9. Down



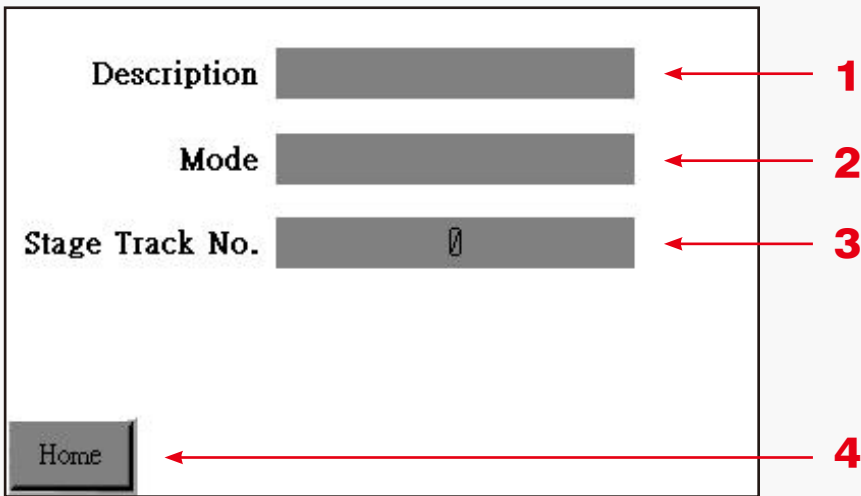
- (1) This key is effective only in manual operation mode.
- (2) When this key is pressed, all feed rollers and the upper mechanism lower immediately.

10.



Motion conditon indication

DIAGNOSTICS DISPLAY



When the Diagnostics key is pressed, the screen will show a diagnostics display as above. The operator may understand the trouble condition through this display.

1. Description

The error message will display on this column.

2. Mode

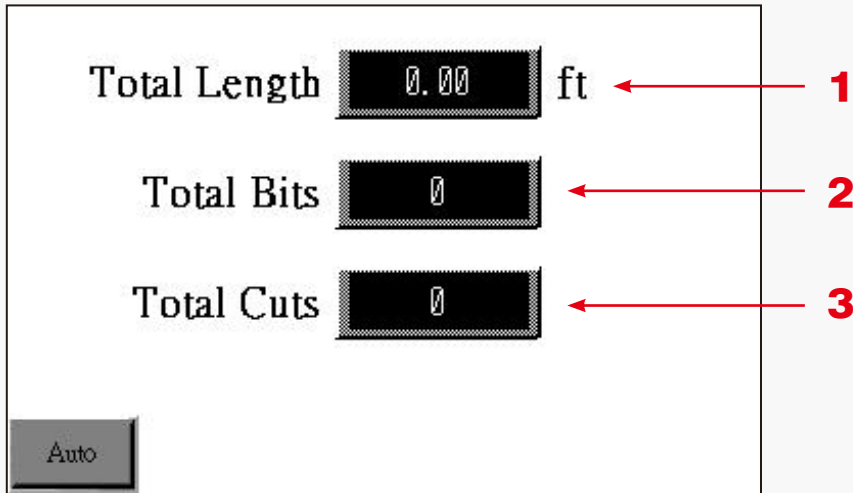
3. Stage Track No.

4. Home

Press this key to return to home page display.

TOTALS DISPLAY

Press the "**Totals**" Key, then a display will show as below:



1. Total Length ft

(1) This column displays the total length of wood has been produced up to now since the machine has been operated.

(2) The value displayed on this column can't be changed but can be reset.

2. Total Bits

(1) This column displays the total clamping times up to now since the machine has been operated.

(2) The value displayed on this column can't be changed but can be reset.

TOTALS DISPLAY

3. Total Cuts

(1) This column displays the total cutting cycles up to now since the machine has been operated.

(2) The value displayed on this column can't be changed but can be reset.

NUMERIC KEYPAD WINDOW



- (1) When you press numeric position on any setting column, this numeric keypad window will appear.
- (2) The operator may use the numeric keypad window to set, change and reset value shown on the displayed value.
- (3) Press your desired numeric keys, then press "**ENT**" key for entering the value.
- (4) Minimum setting value: 0.0
Maximum setting value: 999.9