



OPERATOR'S MANUAL



MULTI-FUNCTION WOODWORKING TABLE MODEL: MF-4005

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CINCINNATI PRECISION MACHINERY 513-860-4133



THANK YOU & WARRANTY

Thank you for your purchase of a machine from Baileigh Industrial. We hope that you find it productive and useful to you for a long time to come.

Inspection & Acceptance. Buyer shall inspect all Goods within ten (10) days after receipt thereof. Buyer's payment shall constitute final acceptance of the Goods and shall act as a waiver of the Buyer's rights to inspect or reject the goods unless otherwise agreed. If Buyer rejects any merchandise, Buyer must first obtain a Returned Goods Authorization ("RGA") number before returning any goods to Seller. Goods returned without a RGA will be refused. Seller will not be responsible for any freight costs, damages to goods, or any other costs or liabilities pertaining to goods returned without a RGA. Seller shall have the right to substitute a conforming tender. Buyer will be responsible for all freight costs to and from Buyer and repackaging costs, if any, if Buyer refuses to accept shipment. If Goods are returned in unsalable condition, Buyer shall be responsible for full value of the Goods. Buyer may not return any special order Goods. Any Goods returned hereunder shall be subject to a restocking fee equal to 30% of the invoice price.

Specifications. Seller may, at its option, make changes in the designs, specifications or components of the Goods to improve the safety of such Goods, or if in Seller's judgment, such changes will be beneficial to their operation or use. Buyer may not make any changes in the specifications for the Goods unless Seller approves of such changes in writing, in which event Seller may impose additional charges to implement such changes.

Limited Warranty. Seller warrants to the original end-user that the Goods manufactured or provided by Seller under this Agreement shall be free of defects in material or workmanship for a period of twelve (12) months from the date of purchase, provided that the Goods are installed, used, and maintained in accordance with any instruction manual or technical guidelines provided by the Seller or supplied with the Goods, if applicable. The original end-user must give written notice to Seller of any suspected defect in the Goods prior to the expiration of the warranty period. The original end-user must also obtain a RGA from Seller prior to returning any Goods to Seller for warranty service under this paragraph. Seller will not accept any responsibility for Goods returned without a RGA. The original end-user shall be responsible for all costs and expenses associated with returning the Goods to Seller for warranty service. In the event of a defect, Seller, at its sole option, shall repair or replace the defective Goods or refund to the original end-user the purchase price for such defective Goods. Goods are not eligible for replacement or return after a period of 30 days from date of receipt. The foregoing warranty is Seller's sole obligation, and the original end-user's exclusive remedy, with regard to any defective Goods. This limited warranty does not apply to: (a) die sets, tooling, and saw blades; (b) periodic or routine maintenance and setup, (c) repair or replacement of the Goods due to normal wear and tear, (d) defects or damage to the Goods resulting from misuse, abuse, neglect, or accidents, (e) defects or damage to the Goods resulting from improper or unauthorized alterations, modifications, or changes; and (f) any Goods that has not been installed and/or maintained in accordance with the instruction manual or technical guidelines provided by Seller.

EXCLUSION OF OTHER WARRANTIES. THE FOREGOING LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. ANY AND ALL OTHER EXPRESS, STATUTORY OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. NO WARRANTY IS MADE WHICH EXTENDS BEYOND THAT WHICH IS EXPRESSLY CONTAINED HEREIN.

Limitation of Liability. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER OR ANY OTHER PARTY FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR DOWN TIME) ARISING FROM OR IN MANNER CONNECTED WITH THE GOODS, ANY BREACH BY SELLER OR ITS AGENTS OF THIS AGREEMENT, OR ANY OTHER CAUSE WHATSOEVER, WHETHER BASED ON CONTRACT, TORT OR ANY OTHER THEORY OF LIABILITY. BUYER'S REMEDY WITH RESPECT TO ANY CLAIM ARISING UNDER THIS AGREEMENT IS STRICTLY LIMITED TO NO MORE THAN THE AMOUNT PAID BY THE BUYER FOR THE GOODS.



Force Majeure. Seller shall not be responsible for any delay in the delivery of, or failure to deliver, Goods due to causes beyond Seller's reasonable control including, without limitation, acts of God, acts of war or terrorism, enemy actions, hostilities, strikes, labor difficulties, embargoes, non-delivery or late delivery of materials, parts and equipment or transportation delays not caused by the fault of Seller, delays caused by civil authorities, governmental regulations or orders, fire, lightening, natural disasters or any other cause beyond Seller's reasonable control. In the event of any such delay, performance will be postponed by such length of time as may be reasonably necessary to compensate for the delay.

Installation. If Buyer purchases any Goods that require installation, Buyer shall, at its expense, make all arrangements and connections necessary to install and operate the Goods. Buyer shall install the Goods in accordance with any Seller instructions and shall indemnify Seller against any and all damages, demands, suits, causes of action, claims and expenses (including actual attorneys' fees and costs) arising directly or indirectly out of Buyer's failure to properly install the Goods.

Work By Others; Safety Devices. Unless agreed to in writing by Seller, Seller has no responsibility for labor or work performed by Buyer or others, of any nature, relating to design, manufacture, fabrication, use, installation or provision of Goods. Buyer is solely responsible for furnishing, and requiring its employees and customers to use all safety devices, guards and safe operating procedures required by law and/or as set forth in manuals and instruction sheets furnished by Seller. Buyer is responsible for consulting all operator's manuals, ANSI or comparable safety standards, OSHA regulations and other sources of safety standards and regulations applicable to the use and operation of the Goods.

Remedies. Each of the rights and remedies of Seller under this Agreement is cumulative and in addition to any other or further remedies provided under this Agreement or at law or equity.

Attorney's Fees. In the event legal action is necessary to recover monies due from Buyer or to enforce any provision of this Agreement, Buyer shall be liable to Seller for all costs and expenses associated therewith, including Seller's actual attorneys' fees and costs.

Governing Law/Venue. This Agreement shall be construed and governed under the laws of the State of Wisconsin, without application of conflict of law principles. Each party agrees that all actions or proceedings arising out of or in connection with this Agreement shall be commenced, tried, and litigated only in the state courts sitting in Manitowoc County, Wisconsin or the u.s. Federal Court for the Eastern District of Wisconsin. Each party waives any right it may have to assert the doctrine of "forum non conveniens" or to object to venue to the extent that any proceeding is brought in accordance with this section. Each party consents to and waives any objection to the exercise of personal jurisdiction over it by courts described in this section. Each party waives to the fullest extent permitted by applicable law the right to a trial by jury.

Summary of Return Policy.

- 10 Day acceptance period from date of delivery. Damage claims and order discrepancies will not be accepted after this time.
- You must obtain a Baileigh issued RGA number PRIOR to returning any materials.
- Returned materials must be received at Baileigh in new condition and in original packaging.
- Altered items are not eligible for return.
- Buyer is responsible for all shipping charges.
- A 30% re-stocking fee applies to all returns.

Baileigh Industrial makes every effort to ensure that our posted specifications, images, pricing and product availability are as correct and timely as possible. We apologize for any discrepancies that may occur. Baileigh Industrial reserves the right to make any and all changes deemed necessary in the course of business including but not limited to pricing, product specifications, quantities, and product availability.

For Customer Service & Technical Support:

Please contact one of our knowledgeable Sales and Service team members at:
(920) 684-4990 or e-mail us at sales@baileighindustrial.com



INTRODUCTION

The quality and reliability of the components assembled on a Baileigh Industrial machine guarantee near perfect functioning, free from problems, even under the most demanding working conditions. However if a situation arises, refer to the manual first. If a solution cannot be found, contact the distributor where you purchased our product. Make sure you have the serial number and production year of the machine (stamped on the nameplate). For replacement parts refer to the assembly numbers on the parts list drawings.

Our technical staff will do their best to help you get your machine back in working order.

In this manual you will find: (when applicable)

- Safety procedures
- Correct installation guidelines
- Description of the functional parts of the machine
- Capacity charts
- Set-up and start-up instructions
- Machine operation
- Scheduled maintenance
- Parts lists

GENERAL NOTES

After receiving your equipment remove the protective container. Do a complete visual inspection, and if damage is noted, **photograph it for insurance claims** and contact your carrier at once, requesting inspection. Also contact Baileigh Industrial and inform them of the unexpected occurrence. Temporarily suspend installation.

Take necessary precautions while loading / unloading or moving the machine to avoid any injuries.

Your machine is designed and manufactured to work smoothly and efficiently. Following proper maintenance instructions will help ensure this. Try and use original spare parts, whenever possible, and most importantly; **DO NOT** overload the machine or make any unauthorized modifications.



Note: This symbol refers to useful information throughout the manual.



IMPORTANT

PLEASE READ THIS OPERATORS MANUAL CAREFULLY

It contains important safety information, instructions, and necessary operating procedures. The continual observance of these procedures will help increase your production and extend the life of the equipment.



SAFETY INSTRUCTIONS

LEARN TO RECOGNIZE SAFETY INFORMATION

This is the safety alert symbol. When you see this symbol on your machine or in this manual, **BE ALERT TO THE POTENTIAL FOR PERSONAL INJURY!**

Follow recommended precautions and safe operating practices.

UNDERSTAND SIGNAL WORDS

A signal word – **DANGER**, **WARNING**, or **CAUTION** is used with the safety alert symbol. **DANGER** identifies a hazard or unsafe practice that will result in severe **Injury or Death**.

Safety signs with signal word **DANGER** or **WARNING** are typically near specific hazards.

General precautions are listed on **CAUTION** safety signs. **CAUTION** also calls attention to safety messages in this manual.



DANGER



WARNING



CAUTION

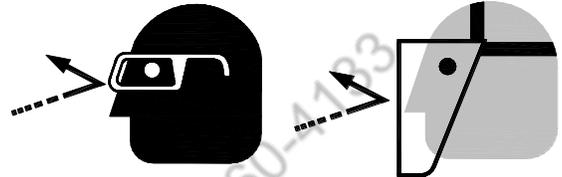


SAVE THESE INSTRUCTIONS.
Refer to them often and use them to instruct others.



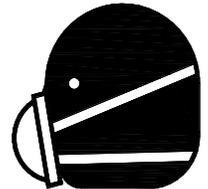
PROTECT EYES

Wear safety glasses or suitable eye protection when working on or around machinery.



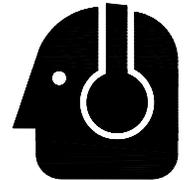
DUST HAZARD

Wear appropriate dust mask. Dust created while using machinery can cause cancer, birth defects, and long term respiratory damage. Be aware of the dust hazards associated with all types of materials.



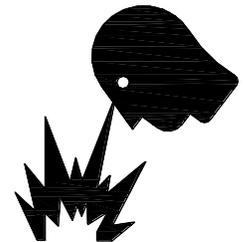
PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear suitable hearing protective devices such as ear muffs or earplugs to protect against objectionable or uncomfortable loud noises.



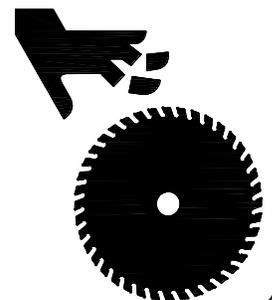
DUST PARTICLES AND IGNITION SOURCES

DO NOT operate the table saw in areas where explosion risks are high. Such areas include locations near pilot lights, open flames, or other ignition sources.



ROTATING BLADE HAZARD

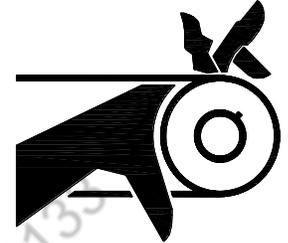
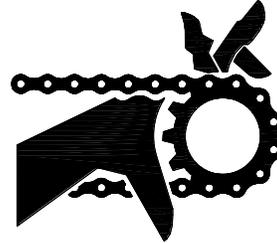
Moving saw blade may result in loss of fingers or limb. **DO NOT** operate with guard removed. Follow lockout/tagout procedures before servicing.





BEWARE OF PINCH POINTS

Keep hands and fingers clear of all potential pinch points. These include sprockets and chains along with belts and pulleys.



BLADE HAZARD

Keep hands and fingers away from the rotating knife blades. These rotating knives can be extremely dangerous if you do not follow proper safety procedures. **NEVER place hands closer than 3" (76mm) to the rotating cutting knives.**



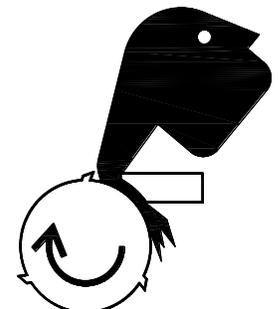
CUTTING HAZARD

Keep hands and fingers away from the rotating shaper cutters. These rotating cutters can be extremely dangerous if you do not follow proper safety procedures. **NEVER place hands directly over or in front of the cutter. Keep hand at least 6" (150mm) from the shaper cutter while operating.**



ENTANGLEMENT HAZARD – ROTATING SHAFT

Contain long hair, **DO NOT** wear jewelry or loose fitting clothing, and **DO NOT** wear gloves.





ROTATING SPINDLE ABRASIONS

DO NOT place hands or fingers near, or in contact with sanding spindle during operation.



BEWARE OF PIERCING POINTS

Drill bits are very sharp and can quickly pierce your fingers and hands. Always wear heavy leather gloves when handling these tools.



HIGH VOLTAGE

USE CAUTION IN HIGH VOLTAGE AREAS. DO NOT assume the power to be off.
(FOLLOW PROPER LOCKOUT PROCEDURES)



SAFETY PRECAUTIONS



Wood working can be dangerous if safe and proper operating procedures are not followed. As with all machinery, there are certain hazards involved with the operation of the product. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result.

Safety equipment such as guards, push sticks, hold-downs, feather boards, goggles, dust masks and hearing protection can reduce your potential for injury. But even the best guard won't make up for poor judgment, carelessness or inattention. **Always use common sense** and exercise **caution** in the workshop. If a procedure feels dangerous, don't try it.

REMEMBER: Your personal safety is your responsibility.



WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY



SAFETY PRECAUTIONS (cont.)



1. **FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING THE MACHINE.** Learn the machine's application and limitations as well as the specific hazards.
2. **Only trained and qualified personnel should operate this machine.**
3. **Make sure guards are in place and in proper working order before operating machinery.**
4. **Keep work area clean.** Cluttered areas invite injuries.
5. **DO NOT** bypass or defeat any safety interlock systems.
6. Know the location of the **ON - OFF** switch and the **"E" - STOP** button.
7. **Overloading machine.** By overloading the machine you may cause injury from flying parts. **DO NOT** exceed the specified machine capacities.
8. **Dress appropriate. DO NOT** wear loose fitting clothing or jewelry as they can be caught in moving machine parts. Protective clothing and steel toe shoes are recommended when using machinery. Wear a restrictive hair covering to contain long hair.
9. **Use eye and ear protection.** Always wear ISO approved impact safety goggles.
10. **Respirator Use.** Always use a mask or respirator approved for wood dust when using this machine to reduce the risk of respiratory problems.
11. **Do not overreach.** Maintain proper footing and balance at all times. **DO NOT** reach over or across a running machine.
12. **Operator Position.** If kickback occurs, the blade will eject the piece part into the path of the operator. **NEVER** stand in-line with the cutting path of the blade during operation.
13. **Awkward Positions.** Avoid awkward hand and body positions where a sudden slip could cause your hands or body to contact the spinning blade.
14. **Stay alert.** Watch what you are doing and use common sense. **DO NOT** operate any tool or machine when you are tired.
15. **Keep visitors a safe distance from the work area.**
16. **Keep children away.** Children must never be allowed in the work area. **DO NOT** let them handle machines, tools, or extension cords.
17. **DO NOT operate machine if under the influence of alcohol or drugs.** Read warning labels on prescriptions. If there is any doubt, **DO NOT** operate the machine.
18. **DO NOT** touch live electrical components or parts.
19. **Inspect power and control cables periodically.** Replace if damaged or bare wires are exposed. **Bare wiring can kill!**



SAFETY PRECAUTIONS (cont.)



20. **Be Sure** all equipment is properly installed and grounded according to national, state, and local codes. If machine is equipped with a three-prong plug, it should be plugged into a three-hole electrical receptacle. If an adapter is used to accommodate a two-prong receptacle, the adapter plug must be attached to a known ground.
21. **Maintain machine in top condition.** Keep clean for best and safest performance. Follow instructions for lubricating and changing accessories.
22. **Reduce the risk of unintentional starting.** Make sure switch is in “OFF” position before plugging in power cord.
23. **Never leave machine running unattended. TURN POWER OFF.** Don't leave machine until it comes to a complete stop.
24. **Make sure machine is disconnected from power supply** while motor is being mounted, connected or reconnected.
25. **Using Correct Materials.** Using materials other than natural wood fiber can result in serious personal injury and machine damage.
26. **Warning:** The dust generated by certain woods and wood products can be injurious to your health. Always operate machinery in well ventilated areas and provide for proper dust removal. Use wood dust collection systems whenever possible.
27. **Kickback.** Become familiar with the term “**Kickback**” before operating this jointer/planer. Kickback occurs when the piece part is thrown off the table by the force of the cutter head. Always use push blocks and wear safety glasses to reduce the likelihood for serious injury.
28. **Kickback Zone.** The path directly behind the end of the in-feed table is referred to as the “Kickback zone”. **NEVER** stand or allow others to stand in this area while the machine is running. Position yourself to one side of the machine while the jointer/planer is running.
29. **Using Quality Stock.** Inspect the stock over carefully that you intend to joint or plane. **NEVER** joint or plane a board that has knots, staples, or nails in it. **DO NOT** joint or plane a piece of stock if you have any doubts about its structural integrity.
30. **Remove any adjusting tools.** Before operating the machine, make sure any adjusting tools have been removed.
31. **Support the piece part.** Supporting the piece part adequately while cutting, is crucial to making safe cuts and avoiding possible operator injury.
32. **Proper cutting.** While cutting, always keep the piece part moving towards the out-feed table until it has completely passed over the cutterhead. **NEVER** back the piece part toward the in-feed table.



SAFETY PRECAUTIONS (cont.)



33. **Dull / Damaged Knives.** Use only sharp, undamaged knives to avoid unnecessary kickback of the piece part. Dull and damaged knives will also affect cut quality.
34. **Maximum Cutting Depth.** The maximum cutting depth for one pass is 1/8" (3.2mm). **Never** set the machine to cut deeper than this in one pass.
35. **Grain Direction.** There is an increased chance of kickback when jointing or planing end grain or against the grain. This could also produce chatter and excessive chip out of the material.
36. **Observe work area conditions. DO NOT** use machines or power tools in damp or wet locations. Do not expose to rain. Keep work area well lighted. **DO NOT** use electrically powered tools in the presence of flammable gases or liquids.
37. **Cutterhead Alignment.** Keep the top edge of the out-feed table aligned with the cutterhead knife at top dead center (TDC). This will help to avoid kickback and possible operator injuries.
38. **Chisels and Bits.** Chisels or bits that come loose from the machine during operation can cause serious personal injury. Make sure chisel and bit are not worn or damaged prior to securing to machine and turning on power.
39. **Operating Speed.** Always operate this machine at the appropriate speed for the chisel and bit size you are using and the material that you are mortising.
40. **Hand Protection. Blades,** chisels, and bits are sharp and can quickly cut or pierce your hand. Always wear heavy leather gloves when handling these items. The blades, chisels, and bits may become very hot during operation. Always allow the cutting tools to cool down before handling.
41. **Clearing Chips and Debris.** Chips and dust build-up can present an injury hazard and affect the cut. Turn the machine OFF, allow the tooling to cool, and vacuum away the debris.
42. **Mounting Piece Parts.** Piece parts that move during the mortising operation can bind the chisel and bit, causing personal injury or machine damage. Always make sure the piece part is properly secured to the table.
43. **Feeding the Piece Part. ALWAYS** feed the piece part against the rotation of the cutter. **NEVER** force materials through the shaper. Excessive force against the shaper cutter will cause dangerous kickback conditions and can result in poor cuts.
44. **Hand Positioning. NEVER** place hands directly over or in front of the shaper cutter. **ALWAYS** keep hand at least 6" (150mm) away from the shaper cutter while operating.
45. **Stock Condition. ALWAYS** inspect stock for staples, nails, knots, and other imperfections that could become projectiles or cause kickback resulting in serious bodily harm. Warped stock should be run through a jointer before you run it through the shaper.



SAFETY PRECAUTIONS (cont.)



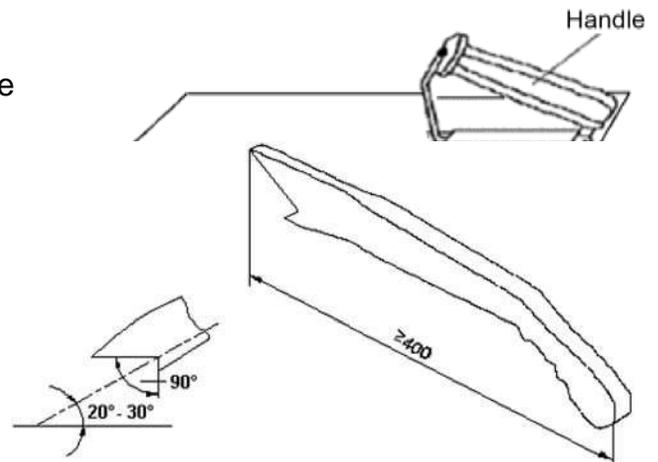
46. **Blind Cut When Possible.** Blind cuts keep the shaper cutter on the underside of the piece part and provide a distance guard for the operator.
47. **Check for damaged parts.** Before using any tool or machine, carefully check any part that appears damaged. Check for binding of moving parts that may affect proper machine operation.
48. **Sanding Direction. NEVER** sand pointed or tapered stock with the point facing the feed direction, which could cause the piece part to be thrown from the machine.
49. **Depth of Cut. NEVER** remove too much material in one pass. Several light passes are safer and produce a better finish on the piece part.
50. **Securing Nuts and Knobs. NEVER** operate the shaper without the second locking nut in place over the spindle nut. **ALWAYS** make sure that the shaper cutters, fence, and spindle elevator knob have been properly tightened before running the machine.
51. **DO NOT Perform Any Operation Freehand.** Use the fence for straight shaping, the miter gauge for end shaping, and a starting pin and collar for curve shaping.
52. **Cutter Height.** Keep any unused portion of the shaper cutter below the surface of the table.
53. **Sand Appropriate Material.** Only use this spindle shaper sander for natural wood stock. It is **NOT** recommended to sand particle board, plastics, laminates, medium-density fiber board (MDF), metal, glass, ceramics, or products containing asbestos or lead paint. Some of these materials contain hazardous dust and will shorten the life span of the sanding spindle.
54. **Blade Height.** Adjust the blade to the correct height above the piece part so it does not kickback toward the operator causing injury.
55. **Reaching Over Saw Blade. NEVER** reach behind or over the blade with either hand while the saw is operating. If kickback of a piece part were to occur, you could amputate your hands, arms, or fingers.
56. **Blade Guard / Riving Knife.** To reduce the risk of kickback, always use the riving knife and blade guard. Make sure they are properly installed during cutting operations.
57. **Dado and Rabbet Operations.** Dado and Rabbeting operations require that the blade guard be removed. Be aware of your personal safety while the guard is off, and replace the blade guard after these operations are completed.
58. **Crosscutting Operations.** Remove the rip fence whenever using the miter gauge to crosscut a piece part.
59. **Damaged Saw Blades.** A damaged saw blade can cause kickback. If in doubt as to the condition of the blade, **DO NOT** use it.



SAFETY PRECAUTIONS (cont.)



60. **Check for damaged parts.** Before using any tool or machine, carefully check any part that appears damaged. Check for binding of moving parts that may affect proper machine operation.
61. **Removing Piece Parts.** Before removing cut-offs, always turn the saw **OFF**, and wait for the blade to stop turning, to avoid contact with a moving blade.
62. **Control of the Piece Part.** If the piece part should unexpectedly move or bind the blade, kickback could occur. Make sure the piece part is supported by either the rip fence or the crosscut fence. **NEVER** back a piece part out of a cut.
63. **Saw Appropriate Material.** Only use this saw for natural wood stock and wood stock products such as particle board, plastics, laminates, and medium-density fiber board (MDF). **DO NOT** try and cut metal, glass, ceramics, or products containing asbestos or lead paint. Some of these materials contain hazardous dust and can cause severe respiratory problems.
64. **Supporting Piece Part.** Provide adequate support to the sides and rear of the saw table for material that is extra wide and long.
65. **Push Blocks.** Push blocks or push sticks should be used in situations where it is necessary to push the piece part against the fence. Such as when ripping narrow stock, where there is a risk of your hands and fingers contacting the rotating blade, resulting in **serious personal injury**, or when surface planing. **DO NOT** pass your hands directly over the cutterhead without using a push block.
66. A push block and/or a push stick must be used if the workpieces is less than 5" (127mm) to prevent your hands from getting too close to the saw blade. Push block must be used to cut narrow workpieces and, when necessary, to push the workpiece against the fence, a push block can be easily made by the operator.





EMERGENCY STOP

The multi-function table has two emergency stop (E-Stop) buttons. One is located on the front of the machine on the main control panel. The second e-stop is located on the back of the machine just to the left of the Slotter table.

In the event of incorrect operation or dangerous conditions, the machine can be stopped immediately by pressing the **E-Stop Button**. Twist the button to unlock and reset the emergency stop button. Resetting the e-stop will not start the machine.

SAFETY: SPECIFIC RULES

READ THE MANUAL. Know the limitations and hazards in using the shaper. One SAFETY rule decal and one DANGER decal are placed on each machine as reminders of good safety practice.

SHORT STOCK. Never shape stock less than 12 inches in length without special fixtures. Where practical, shape longer stock and cut to size.

12 INCH RULE. When shaping, never allow your hands to come closer than 12 inches to the cutters.

HAND SAFETY. Never pass the hands directly over, or in front of, the cutters. As one hand approaches the 12 inch radius point, remove it (or the push stick) in an arc motion and reposition hands 12 inches beyond the cutters (Figure 1).

BLIND CUT. When blind cutting, the workpiece is positioned on top of the template. This keeps the cutter(s) cutting only the underside of the workpiece and providing a "distance" guard for the operator.

STOCK FEED. Stock opposite to the direction of the cutter rotation. Never back stock out of the cutter once the cut has been started. Instead, pull the stock straight back away from cutter and begin the cut again (Figure 2).

CUTTER CLEARANCE. With the power disconnected, always revolve the spindle by hand with any new setup to insure proper clearance with the cutters. At the same time, check to be sure the cutter head is turning in the correct direction.

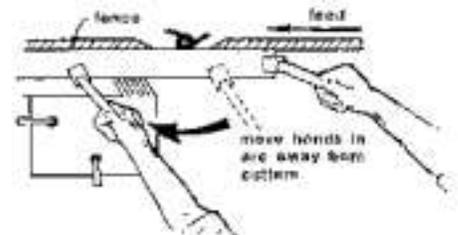
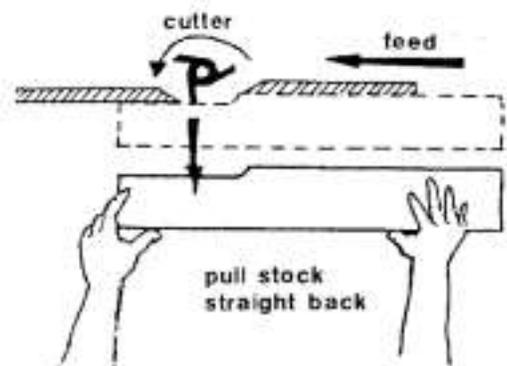


FIGURE 1





TOOL MAINTENANCE. Clean and sharp tools give safer and better performance. Dull tools can cause kickbacks and excessive chatter. Before making a cut, always check the condition and adjustment of the tools. Never use a tool that is not balanced and rated for the selected RPM.

SAFETY LOCK NUT. Never operate the shaper without the safety locking nut and spacer located on top of the spindle nut (Figure 3). The lock nut has left hand threads. This left hand lock nut prevents the spindle nut from coming loose when the spindle is run in a counterclockwise direction.

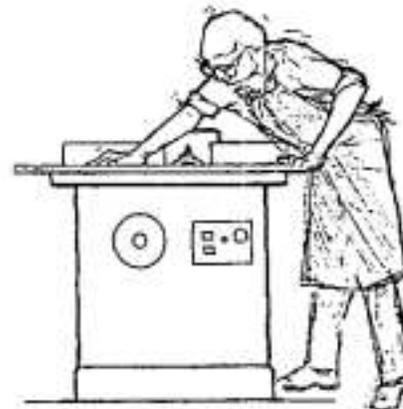
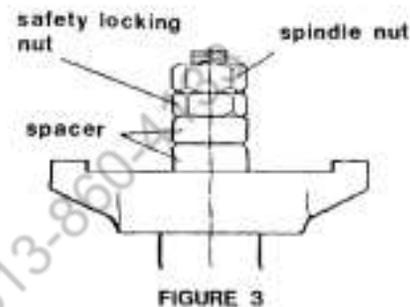
SPINDLE SPEED. Do not operate tools at speeds higher than rated by the manufacturer.

CUTTER SELECTION. Use only those cutters designed to be used on the machine, and mount only safety type cutters on the spindle.

STOCK CONDITION. The danger of kicked back stock can occur when the stock has knots, holes, or foreign objects such as nails. Warped or in – wind stock should first be jointed on one surface before attempting to use it on the shaper.

JOB COMPLETION. The operator should never leave the work station for any reason without turning off the shaper and waiting for the spindle to come to a complete stop. When the operation is complete, the operator should clean up the shaper and work area. Never clean the shaper with the power “ON” and never use the hands to clear sawdust and debris – use a brush.

DO NOT REACH over shaper. There is danger of kickback which can pull the hand back into the cutter. Use push sticks to assist in pushing the work through. See Figure 4.





MACHINE NOISE

Noise Level

According to EN848-1/ISO3746 (The uncertainty K = 2 dB)

- Peak sound pressure level operator position all operations < 130 dB(C);
- Uncertainty factor all operations 2 dB;

From the above measured results, this machine present a little hearing or noise hazard to operator, the operator is required to wear ear protection whenever possible during operation and conform to the local safety regulations.

JOINTER OPERATION DECLARED NOISE EMISSION VALUES **in accordance with ISO 7960.**

	Idling	Operating
Declared A-weighted Sound Power Level Lward, in dB re 1 pW.	83.5	99.7
Declared A-weighted Emission Sound Pressure Level, lpAd, in dB re 20 µPa, at the operator's position.	76.0	90.3
Values determined according to specific test code ISO 3744.		

PLANER OPERATION DECLARED NOISE EMISSION VALUES **in accordance with ISO 7960.**

	Idling	Operating
Declared A-weighted Sound Power Level Lward, in dB re 1 pW.	81.7	98.3
Declared A-weighted Emission Sound Pressure Level, lpAd, in dB re 20 µPa, at the operator's position.	72.8	78.5
Values determined according to specific test code ISO 3744.		

SPINDLE MOULDING OPERATION DECLARED NOISE EMISSION VALUES **in accordance with ISO 7960.**

	Idling	Operating
Declared A-weighted Sound Power Level Lward, in dB re 1 pW.	95.3	98.1
Declared A-weighted Emission Sound Pressure Level, lpAd, in dB re 20 µPa, at the operator's position.	87.8	90.3
Values determined according to specific test code ISO 3744.		



CIRCULAR SAW OPERATION DECLARED NOISE EMISSION VALUES
in accordance with ISO 7960.

	Idling	Operating
Declared A-weighted Sound Power Level Lward, in dB re 1 pW.	81.3	102.1
Declared A-weighted Emission Sound Pressure Level, IpAd, in dB re 20 µPa, at the operator's position.	75.1	90.8
Values determined according to specific test code ISO 3744.		

MORTISING

For the mortising element the noise level is not relevant.

Noise Range

The figures quoted are emission levels and are not necessarily safe working levels. Whilst there is a correlation between the emission and exposure levels, this cannot be used reliably to determine whether or not further precautions are required. Factors that influence the actual level of exposure of the workforce include characteristics of the work room, the other sources of noise, etc. i.e. the number of machines and other adjacent processes.

This information will enable the user of the machine to make a better evaluation of the hazard and risk.

If the environmental noise level exceeds the permissible value, the customer is required to adopt addition noise control measures.



SPECIFICATIONS

Electrical Power	220V Single Phase
Motor(s)	3@ 2.7hp (2.0kw) 220V, 1ph, 12A (each)
Width	63" (1600mm)
Height	35" (889mm)
Length	87" (2210mm)
Weight (lbs)	1200lbs. (544.3kg)
Jointer/Planer Cutterhead	
Cutterhead Diameter	2.75" (70mm)
RPM	5700
Number of Knives	3
Knife Dimensions	15.75" x .787" x .118" (400 x 20 x 3mm)
Jointer	
Jointer Working Table	15.75" x 71" (400 x 1803mm)
Jointer Maximum Table Adjustment	5/32" (3.9mm)
Planer	
Planer Working Table	15.75" x 30" (400 x 760mm)
Planer Feed Speed	23 fpm (7mpm)
Planer Maximum Working Height	8.66" (220mm)
Planer Minimum Working Height	5/32" (3.9mm)
Planer Maximum Cutting Depth	5/32" (3.9mm)
Table Saw	
Table Saw Working Table	12.8" X 87" (326 x 1112mm)
Table Saw Blade Diameter	12" (305mm)
Table Saw RPM	4500
Table Saw Arbor	1-1/2" (30mm)
Table Saw Cutting Height @ 90°	3.93" (100mm)
Table Saw Cutting Height @ 45°	2.95" (75mm)
Table Saw Scoring Blade RPM	7000
Table Saw Scoring Blade Diameter	3.5" (90mm)
Table Saw Scoring Blade Arbor	7/8" (22mm)
Slotter	
Slotter Working Table	9.8" x 20" (249 x 508mm)
Slotter Longitudinal Stroke	8" (203mm)
Slotter Vertical Stroke	3.5" (89mm)



Slotter Transversal Stroke	3.7" (94mm)
Slotter Maximum Chisel	5/8" (15.8mm)
Slotter RPM	5700
Shaper	
Shaper Working Table	12.8" x 43.75" (326 x 1112mm)
Shaper Speeds	4
Shaper RPM	2000/3100/4400/7000
Shaper Shaft Diameter	1-1/8" (30mm)
Shaper Spindle Length	4.13" (105mm)
Shaper Shaft Vertical Stroke	4.5" (114mm)
Shaper Maximum Tool Diameter	7" (178mm)

TECHNICAL SUPPORT

Our technical support department can be reached at 920.684.4990, and asking for the support desk for purchased machines. Tech Support handles questions on machine setup, schematics, warranty issues, and individual parts needs: (other than die sets and blades).

For specific application needs or future machine purchases contact the Sales Department at: sales@baileighindustrial.com, Phone: 920.684.4990, or Fax: 920.684.3944.



Note: *The photos illustrations using in this manual are representative only and may not depict the actual color, labeling or accessories and may be intended to illustrate technique only.*



Note: *The specifications and dimensions presented here are subject to change without prior notice due to improvements of our products.*



TRANSPORTING AND LIFTING

⚠ CAUTION: Lifting and carrying operations should be carried out by skilled workers, such as a truck operator, crane operator, etc. If a crane is used to lift the machine, attach the lifting chain carefully, making sure the machine is well balanced. Choose a location that will keep the machine free from vibration and dust from other machinery. Keep in mind that having a large clearance area around the machine is important for safe and efficient working conditions.

Follow these guidelines when lifting:

- Always lift and carry the machine with straps on each end for balance.
- Use a straps capable of lifting 1.5 to 2 times the weight of the machine.
- Take proper precautions for handling and lifting.
- Check if the load is properly balanced by lifting it an inch or two.
- Lift the machine, avoiding sudden accelerations or quick changes of direction.
- Locate the machine where it is to be installed, and lower slowly until it touches the floor.

Use Lift Truck To Transport Machine

- Place the wooden crate in the middle of the forks and keep at least 2" (50.8mm) distance between the front of the forks and the wooden crate to avoid the case collapsing and secure safe transport.
- The lift truck must be able to lift at least 1.5 – 2 times the machines gross weight.
- Make sure the machine is balanced. While transporting, avoid rough or jerky motion, and maintain at least 6 ft. (2m) safe clearance zone around the transport area.
- The machine is equipped with the slots that are specially designed for transport of lift truck and manual (electric) trolley. Check the slot opening before lifting to verify that no internal components such as wires or hoses have come loose and could be pinched during a lift.

Use Gantry Or Crane To Move Machine

- When lifting, verify that the lifting straps are long enough to maintain a full spread toward the outer edges of the machine as well as toward the lift hook to allow the straps to lift as straight as possible.
- DO NOT allow the lifting straps to pinch or bend lite weight components.
- Protect the lifting straps from sharp edges and corners that may wear or cut on the lifting straps.



UNPACKING

This multi-function table is shipped complete in one crate with component parts packaged in, around and under the main table. Inspect the entire for the components to be installed onto and complete the machine. Remove the multi-function table from the shipping cartons. Check for damage and ensure all parts are intact. Any damage should be reported immediately to your distributor and shipping agent. Before assembling, read the manual thoroughly, familiarizing yourself with correct assembly and maintenance procedures and proper safety precautions.

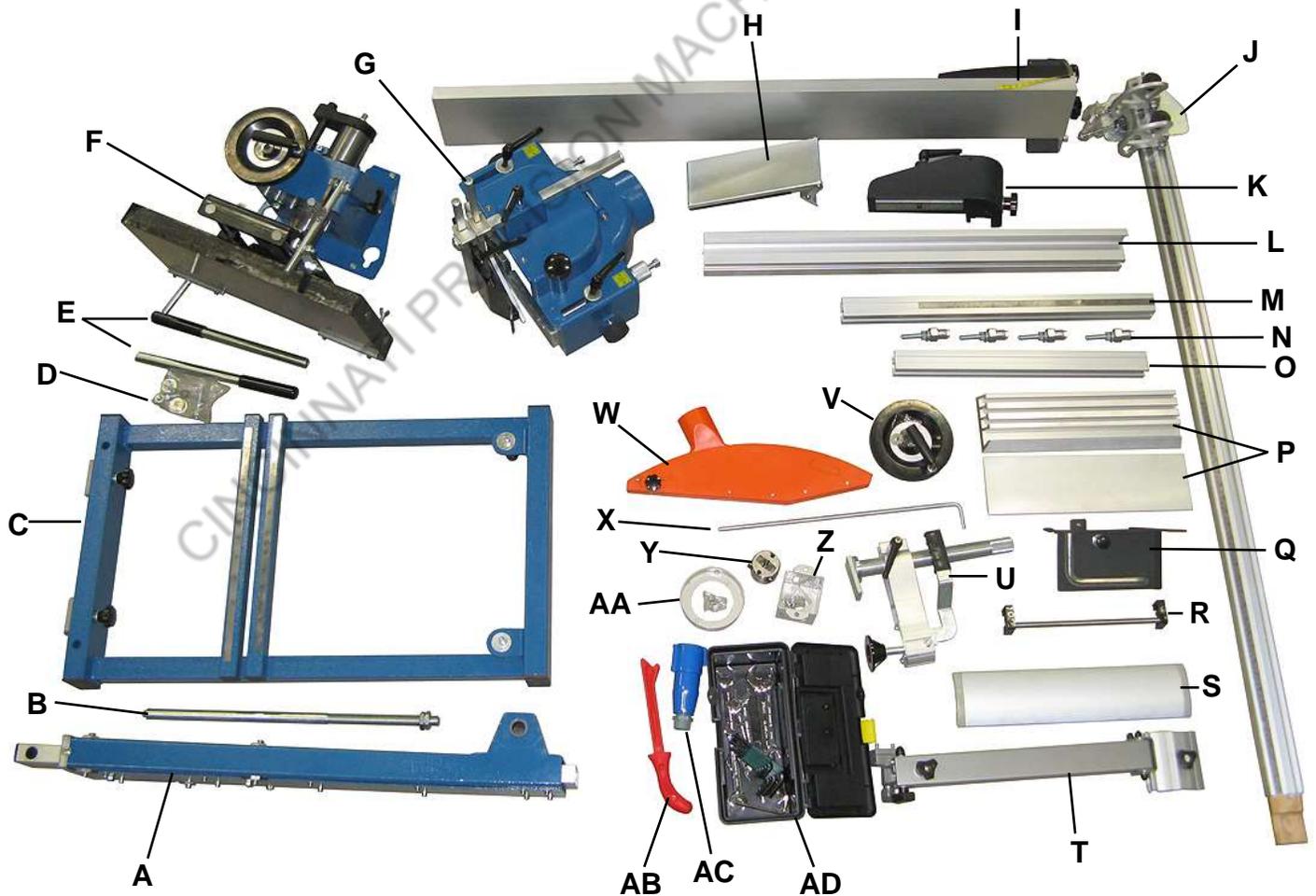
Package Contents



	Main Table Assembly	P	Shaper Fences
A	Crosscut Table Swing/Support Arm	Q	Slide Table Handle and Stop Assembly
B	Crosscut Table Support Post	R	Jointer Knife Height Gauge
C	Crosscut Table	S	Jointer Guard/Guide
D	Slotter Table Hardware	T	Jointer Guard/Guide Mounting Arm



E	Slotter Hnadles	U	Material Clamp Assembly
F	Slotter Table Assembly	V	Saw Tilt Hand Wheel and Mounting Hardware
G	Shaper Hood and Guard Assembly	W	Saw Blade Guard
H	Jointer Planer Sheild	X	Scoring Saw Arbor Retaining Pin
I	Jointer Fence and Scale Tape	Y	Slotter Chuck
J	Crosscut Fence with Adjustable Stops	Z	Slotter Chuck Guard
K	Rip Fence Mount	AA	Dust Hose Adaptor
L	Rip Fence	AB	Push Stick
M	Rip Fence Rail with Scale	AC	Power Supply Plug
N	Rail Mounting Adjustment Bolts	AD	Tool Box
O	Jointer Fence Rail		Openend Wrench Set Allen Wrench Set





Cleaning

Your machine may be shipped with a rustproof waxy oil coating and grease on the exposed unpainted metal surfaces. To remove this protective coating, use a degreaser or solvent cleaner. For a more thorough cleaning, some parts will occasionally have to be removed. **DO NOT USE** acetone or brake cleaner as they may damage painted surfaces. Follow manufacturer's label instructions when using any type of cleaning product. After cleaning, wipe unpainted metal surfaces with a light coating of quality oil or grease for protection.

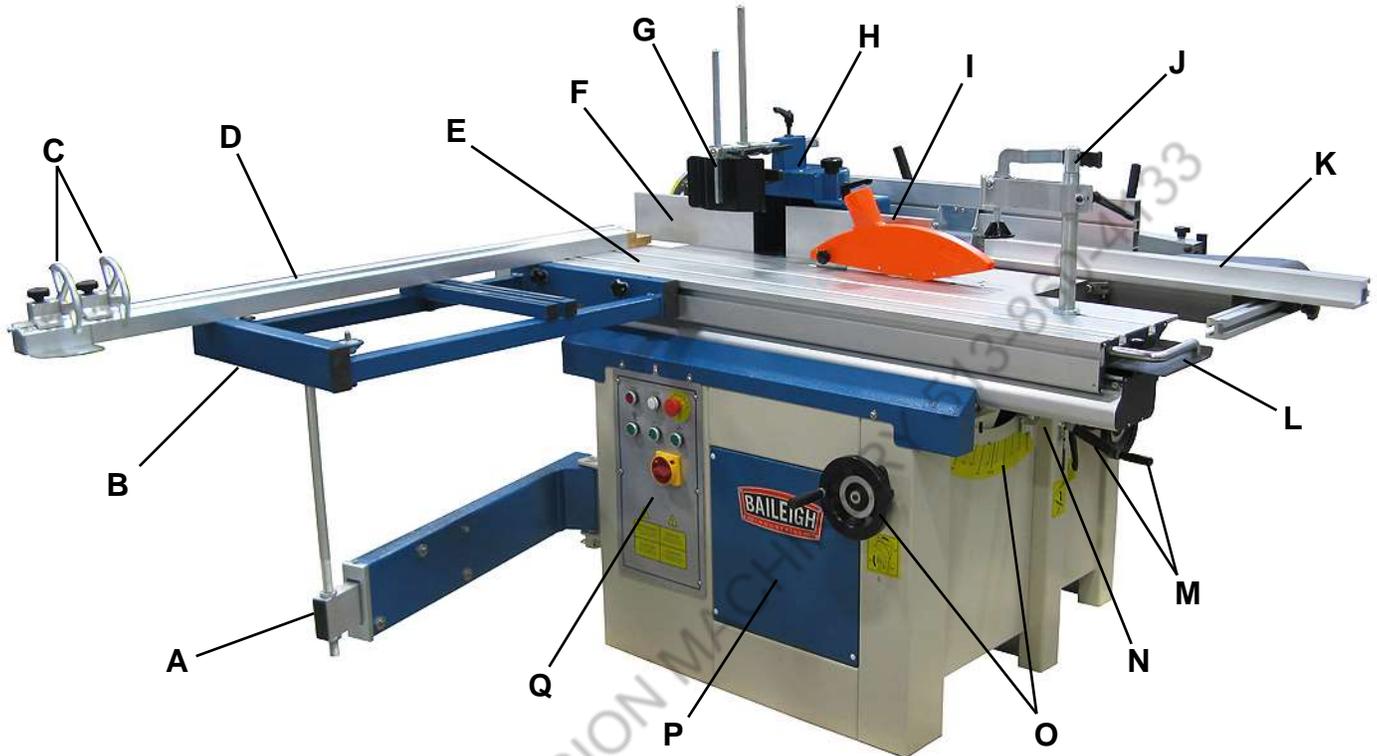
⚠ WARNING: DO NOT USE gasoline or other petroleum products to clean the machine. They have low flash points and can explode or cause fire.

⚠ CAUTION: When using cleaning solvents work in a well ventilated area. Many cleaning solvents are toxic if inhaled.

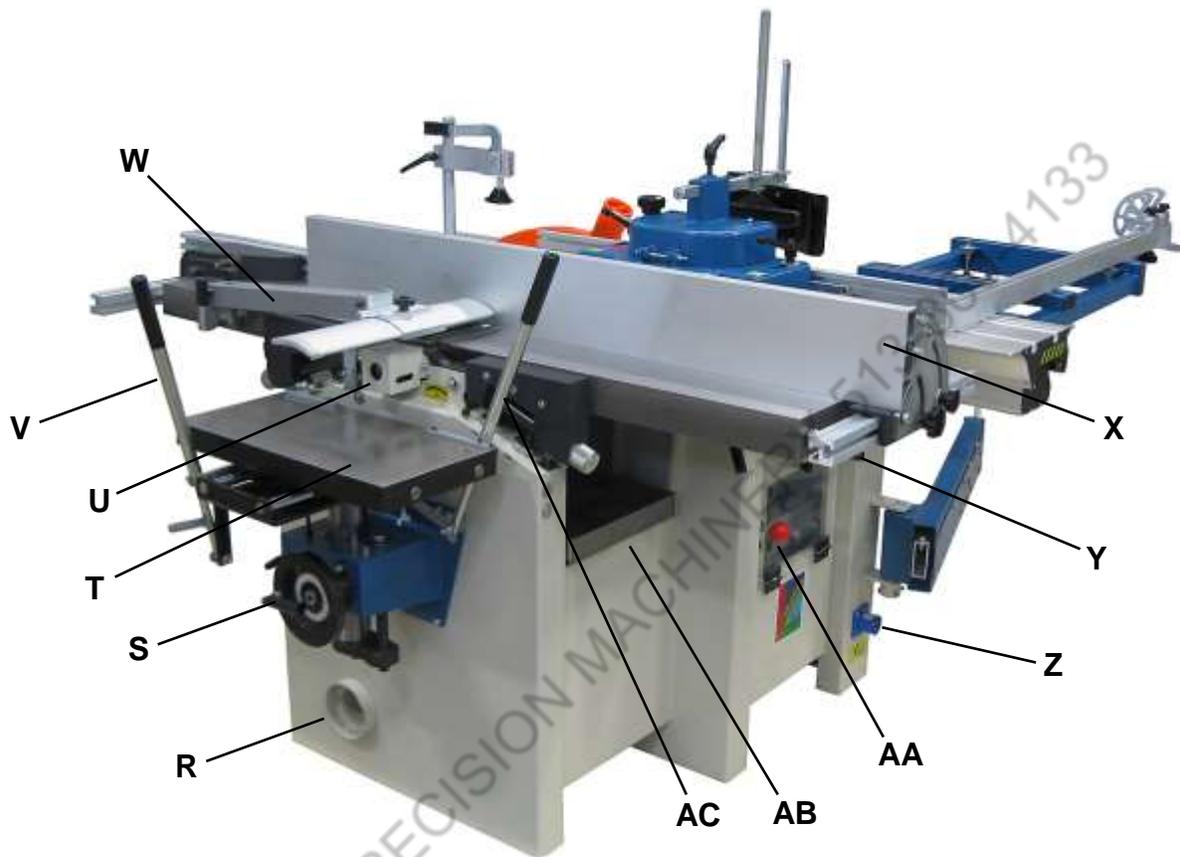




GETTING TO KNOW YOUR MACHINE



A.	Crosscut Table Swing/Support Arm
B.	Crosscut Table
C.	Position Stops – Moveable
D.	Cross Cut/Miter Scale Fence
E.	Slide Table
F.	Shaper Fence
G.	Shaper Guard
H.	Shaper Hood Assembly
I.	Saw Blade Guard
J.	Material Clamp
K.	Rip Fence
L.	Slide Table Handle and Lock Assembly
M.	Planer Adjustments, Feed Rolls and Height Adjustment
N.	Table Saw Blade Height Adjustment
O.	Table Saw Tilt Hand Wheel and Tilt Scale
P.	Access Panel
Q.	Control Panel



R.	Dust Port
S.	Slotter Height Adjustment Hand Wheel
T.	Slotter Table
U.	Slotter Chuck
V.	Slotter Feed Handle
W.	Jointer Guard/Guide
X.	Jointer Fence
Y.	Shaper Spondle Height Adjustment Hand Wheel
Z.	Power Input Recepticle
AA.	Shaper Speed Change Access
AB.	Planer Outfeed Table
AC.	Slotter Lateral Feed Handle



INSTALLATION

IMPORTANT:

Consider the following when looking for a suitable location to place the machine:

- Overall weight of the machine.
- Weight of material being processed.
- Sizes of material to be processed through the machine.
- Space needed for auxiliary stands, work tables, or other machinery.
- Clearance from walls and other obstacles.
- Maintain an adequate working area around the machine for safety.
- Have the work area well illuminated with proper lighting.
- Keep the floor free of oil and make sure it is not slippery.
- Remove scrap and waste materials regularly, and make sure the work area is free from obstructing objects.

It is important to maintain free area around the machine, which is required for the working place. If any long material is machined, it is necessary to have a sufficient room in front of the machine as well behind it in the places of material input and output.

Before beginning assembly, take note of the following precautions and suggestions.

- The machine is bolted to the pallet. Before attempting any of the assembly procedures remove all of the loose parts and hardware from the inside of the machine and unbolt the machine from the pallet.
- **FLOOR:** This tool distributes a large amount of weight over a small area. Make certain that the floor is capable of supporting both the weight of the machine and the operator. The floor should also be a level surface. If the unit wobbles or rocks once in place, be sure to eliminate by using shims.
- **WORKING CLEARANCES:** Take into consideration the size of the material to be processed. Make sure that you allow enough space for you to operate the machine freely.
- **OUTLET PLACEMENT:** Outlets should be located close enough to the machine so that the power cord or extension cord is not in an area where it would cause a tripping hazard. Be sure to observe all electrical codes if installing new circuits and/or outlets.

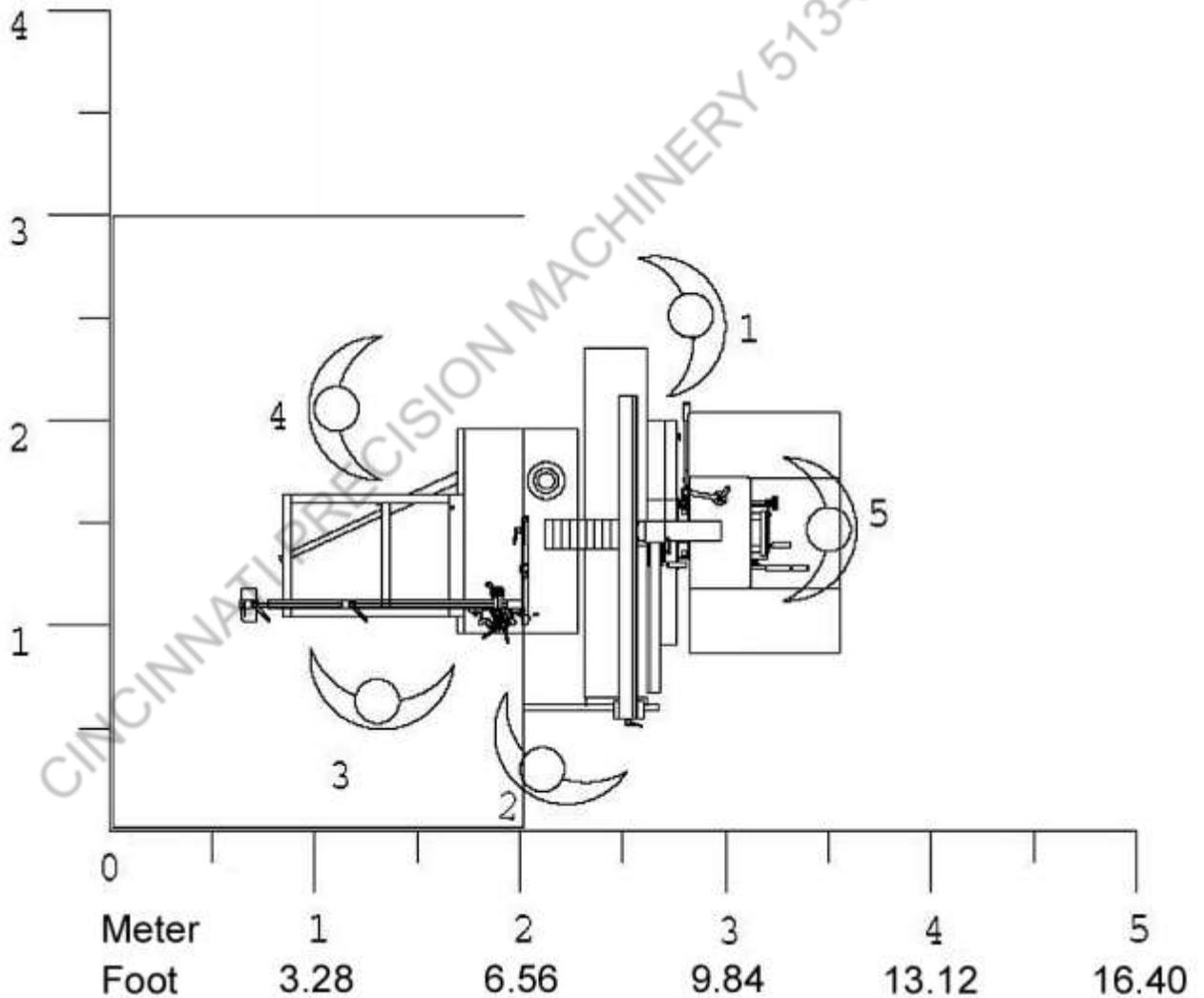
 **WARNING:** Before operating; make sure it is positioned firmly on a solid work surface. If it tips over on you, it could cause severe injury or death.



Clearance Dimensions

The following diagram illustrates the minimum recommended space to work around the Multi-Function Table. Additional space may be required depending upon your specific operation. The positions indicated represent the typical operator position for each of the five work stations.

- 1 – Jointer
- 2 – Planer
- 3 – Saw
- 4 – Shaper
- 5 – Slotter





ASSEMBLY

Once the table has been properly located, levelled, and safe working space has been provided, the table may be assembled. This procedure will describe the assembly and installation of all the components and safety equipment for this machine. Not all components will be installed for every operation. For example, the shaper hood will be removed when the saw is in operation. It is the operator's responsibility to have the proper equipment installed for the workstation that will be used. Likewise, it is the operator's responsibility to remove those components that will interfere with the workstation that is being operated.

Under NO circumstance should the knives, blades, or tools of a workstation be unguarded while operating any other workstation.

⚠ WARNING: For your own safety, **DO NOT** connect the machine to the power source until the machine is completely assembled and you read and understand the entire instruction manual.

Slide Table Lock Install

1. Remove the four screws from the end of the slide table.
2. Remove the screw from the lock plate.
3. Position the lock plate onto the end of the slide table and install the five screws into the positions removed.
4. Verify that the slots in the lock plate do not block the T-slots on the slide table.
5. Release the lock pin and lock the slide table in the centered position for the remainder of the assembly.



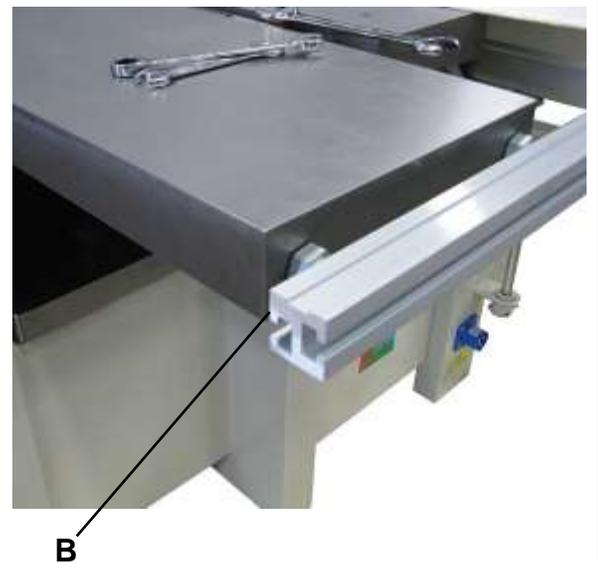
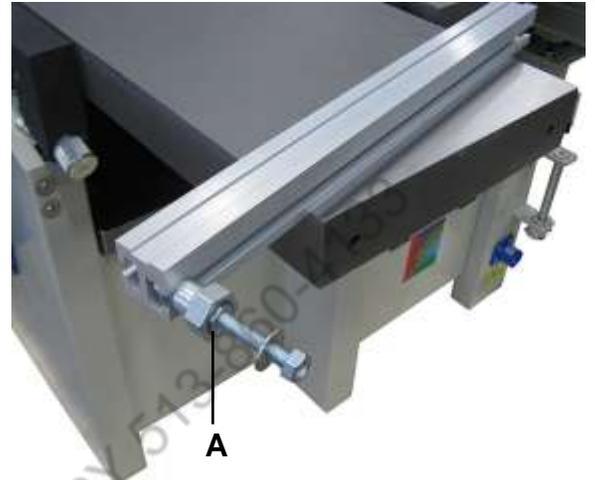
Fence Rail Install

There are two fence rails to be installed on the table. From the front of the machine, the shorter rail mounts on the left end of the jointer table (jointer infeed) to support the jointer fence. The longer rail with the scale will mount on the right end of the jointer table (jointer outfeed) to support the saw rip fence.

The mounting and adjustment for the two rails is similar with only the final dimension adjustment being different.



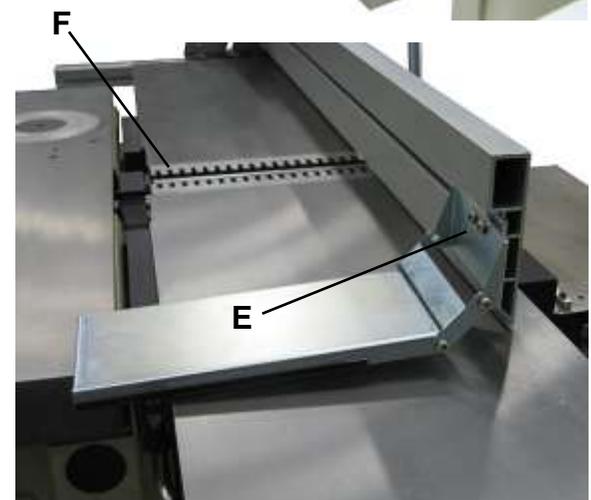
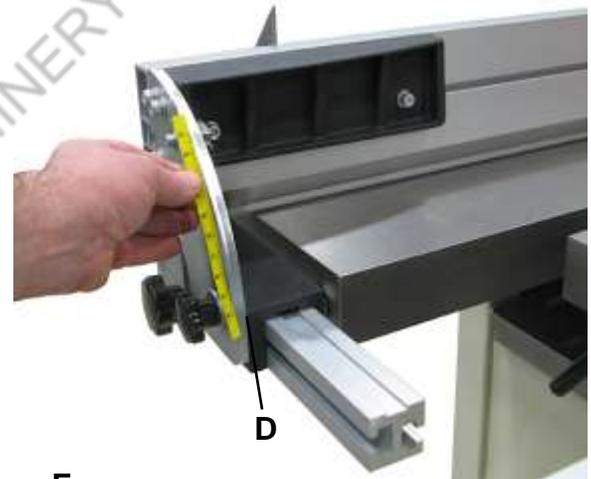
1. Locate the four mounting adjustment bolts. This bolt assembly consists of an M10 x 60 bolt, 3 M10 washers, 2 M10 nuts, and an adjusting nut.
2. Loosen the M10 nuts and adjusting nut enough to allow the head of the bolt and 1 washer to slide into the T-slot on the fence rail.
3. Slide the bolt head and washer into a T-slot and hand tighten the adjusting nut to the fence rail to hold the bolt in position.
4. Hand tighten 1 M10 nut (A) (A.K.A. hidden nut) into the countersunk opening of the adjusting nut and then loosen that nut 1/2 turn. This is the adjustment preset. **Do not allow the hidden nut to move on the bolt for the remainder of the installation unless specifically instructed to do so.**
5. Loosen the adjusting nut from the rail and remove the bolt assembly.
6. Once the assembly is removed from the rail, turn the adjusting bolt toward the bolt head to expose the hidden nut.
7. Remove the other M10 nut and washer and install the bolt into the mounting hole on the end of the jointer table.
8. From the inside of the table install the washer and the M10 nut onto the bolt and tighten the bolt assembly by tightening the inner M10 nut.
9. Repeat this procedure for the remaining 3 bolt assemblies.
10. With the bolt assemblies secured to the table, move the adjusting bolt toward the table to allow the bolt head and washer to slide into the T-slot on the fence rail.
11. Install the fence rail onto the bolts with wider T-slot offset (B) and the scale groove to the top.





Jointer Fence Specific

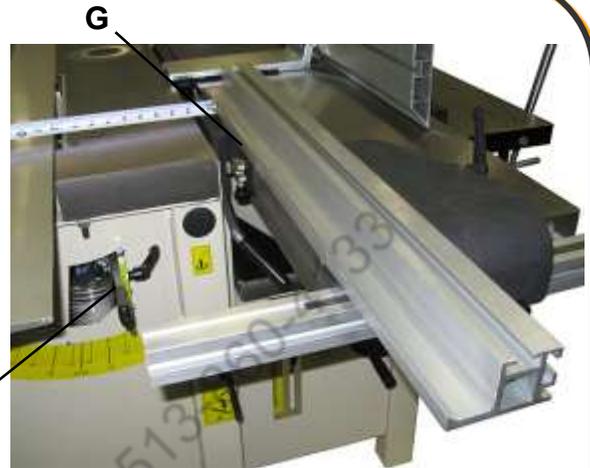
1. Position the rail to extend 1" (25.4mm) to the left of the table and tighten the adjusting nuts to the rail to secure the rail.
2. Install the jointer fence onto the rail and place a square against the fence and the table. Loosen the tilt lock knob (C) as needed to tilt the fence to 90° of the table.
3. Clean the edge of the tilt plate and install the scale so that the 90° mark is aligned with the edge (D) of the mounting slide block.
4. Loosen the screws (E) on the blade guard and slide the guard into the T-slot on the back of the jointer fence.
5. Position the guard evenly over the jointer blade (F) and secure the guard in position.





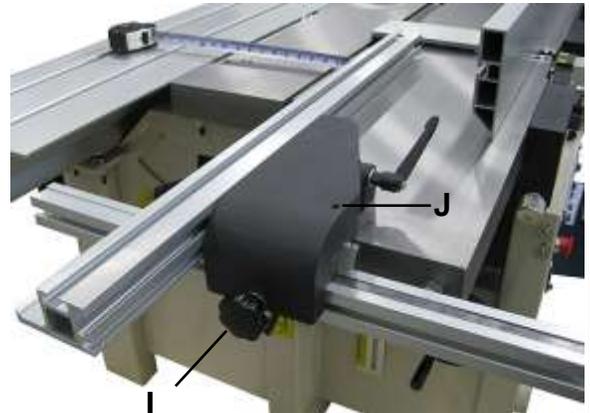
Rip Fence Specific

1. Position the rail so that it is approximately centered on the bolts.
2. Tighten the adjusting nuts to the rail to just enough so that the rail does not slide on the bolt heads.
3. Install the rip fence onto the rail.
4. Position the rip fence so that the fence is flush with the mounting table (G). The fence should be parallel with the mounting table.
5. If the fence is not parallel to the table, the adjustment is made by lengthening one of the mounting bolts as needed to move the fence into a parallel plain. This is accomplished by trial by loosening the inner M10 nut on the mounting bolt and turning the hidden M10 nut as needed to bring the fence to parallel. Then tighten the inner M10 nut and recheck the fence.
6. Once the fence is made parallel, the rail can be slid on the bolts to adjust the scale.



Note: *The scale is a relative indicator and its accuracy will be determined by how well you install and adjust the fence rail, and the indicator arrow on the fence mount. The fence is shown in the flat position, the scale will change whenever the fence is placed in the up position.*

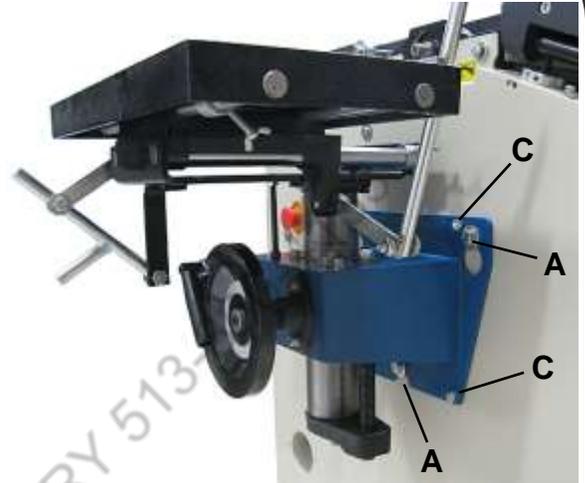
7. Loosen the blade height lock and raise the blade arbor to full height (H).
8. Measure and record the distance from the fence to the closest edge of the riving.
9. Loosen the rail adjusting nut (I) just enough to slide the rail to align the fence pointer to the scale at the measurement noted earlier.
10. Tighten the adjusting nuts and recheck that the fence is still parallel to the table edge.
11. After the table is fully assembled and ready for operation, the pointer can be adjusted to fine tune the scale based upon an actual cut of a board.
12. To fine tune the scale, set the fence to allow for a cut that is 10" wide.
13. When the cut is complete and the saw safety shut down, measure and note the board cut dimension.
14. Loosen the set screw (J) on the fence mount and adjust the pointer to point at the noted dimension. Then hold the pointer in position and tighten the set screw.





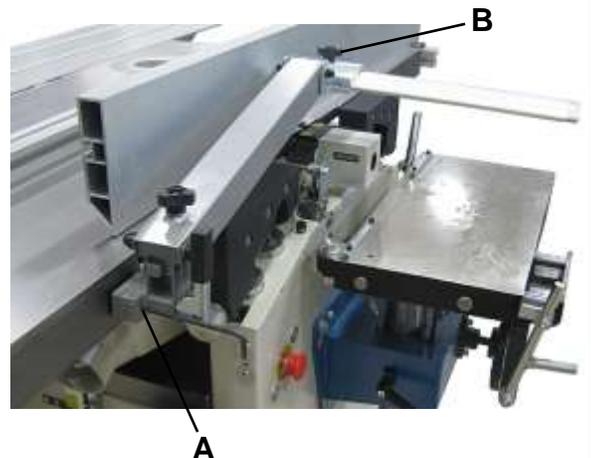
Slotter Installation

1. Install the three mounting bolts and washers (A) packaged with the Slotter table into the back cabinet wall about three turns.
2. Using an assistant, lift the slotter table assembly onto the mounting bolts through the key slots on the table mounting plate.
3. Snug the mounting bolts to hold the table in position.
4. Install the slotter chuck onto the spindle. This is a left turn thread.
5. Square the table to the spindle by adjusting the four adjustment screws (C). This adjustment must be made for both the horizontal and vertical axis.
6. When the table has been squared to the spindle, tighten the three mounting bolts.
7. Install the Slotter chuck guard.



Jointer Guide/Guard Installation

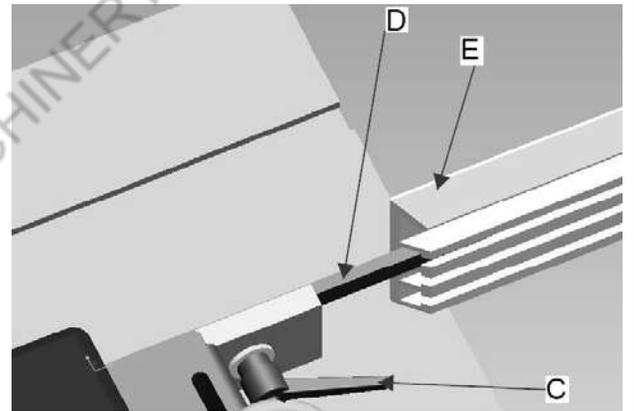
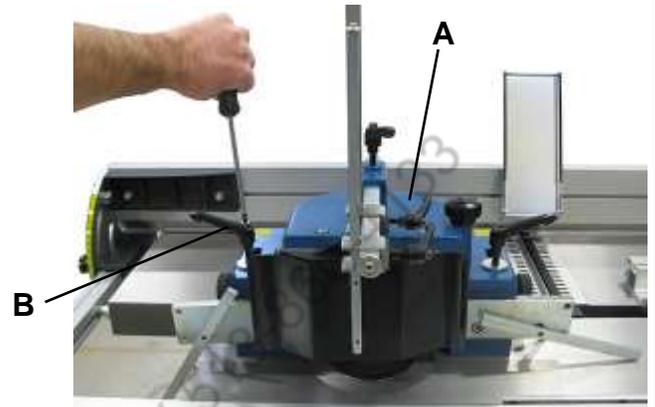
1. Fasten the guard arm against the back edge of the jointer outfeed table using the two preinstalled screws (A) into the tapped holes.
2. Install the guard into the guard arm and snug into position with the hand knob (B).





Shaper Hood Installation

1. Position the hood assembly (A) on the saw table over the spindle inserts.
2. Align the lock screws into the threaded mounting holes.
3. Lift the locking handle (B) and use a screwdriver to tighten the screws to the table. The locking handle may then be used to loosen and tighten the hood for adjusting the hood position.
4. Attach the two fences (E) onto the slide/clamp bar (D) with the mitered edge of the fence toward the spindle.
5. Tighten the lock handle (C) to hold the fences in position.



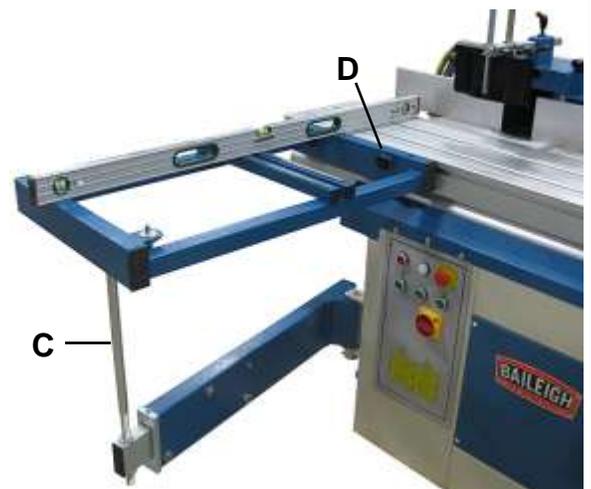
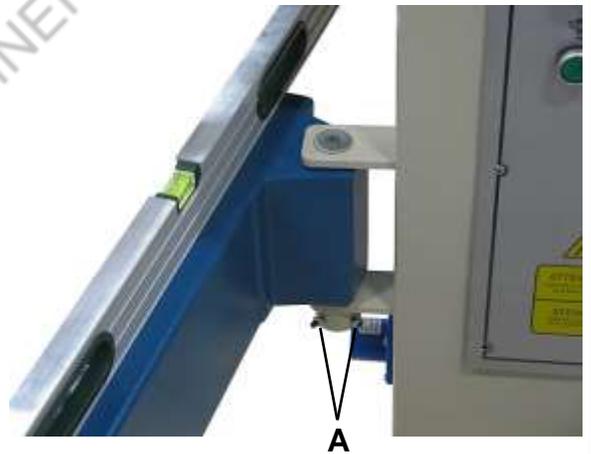
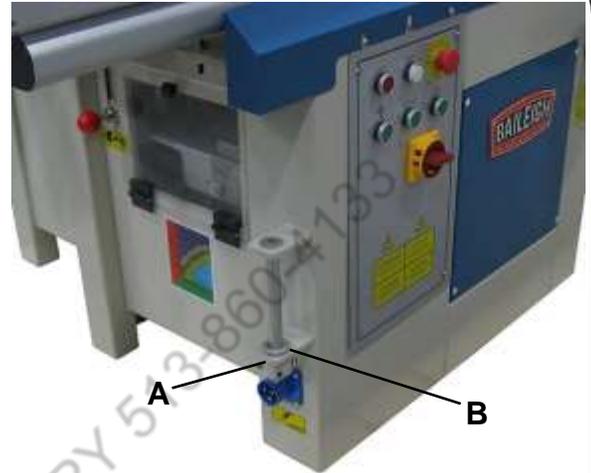
Note: The fence and hood lock handles are spring loaded and can be adjusted by pulling out on the handle and repositioning on the shaft.

CINCINNATI PRECISION MACHINERY



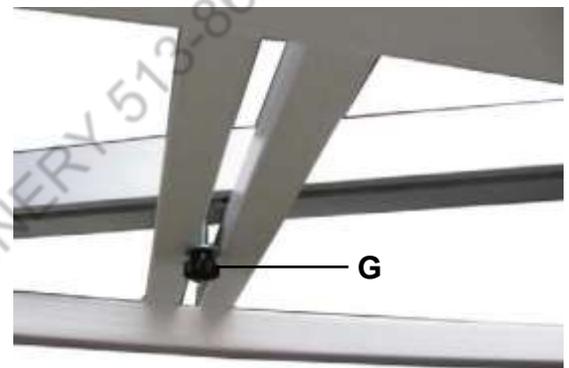
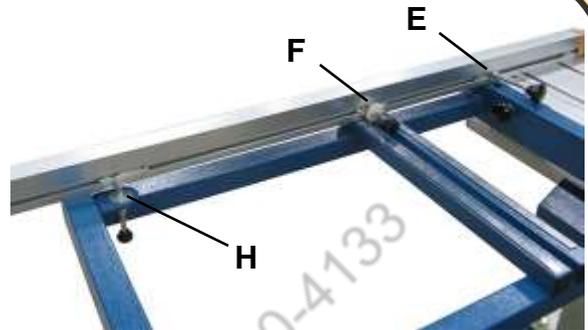
Crosscut Table Installation

1. Loosen the four lock nuts and set screws (A) on the pivot pin and remove the pivot pin.
2. Position the swing arm hinge between the pivot plates with the spacer washer (B) under the swing arm and install the pivot pin.
3. Level the swing arm using the four set screws (A) at the bottom of the pivot pin. Be sure that the level rests flat on the top surface of the swing arm and that you check the arm through its full pivot range.
4. When the arm is level, hold the set screws in position and tighten the lock nuts.
5. Loosely install the support post (C) into the end of the swing arm.
6. Loosen the two lock knobs (D) and slide the crosscut table T-blocks into the T-slots on the slide table so that the table is 5" – 6" (127 - 152mm) onto the slide table and hand tighten the lock knobs.
7. Position the support post into the retaining hole on the underside of the crosscut table.
8. Place a level across the crosscut table and onto the slide table.
9. Adjust the support post so that the crosscut table is flat to the slide table, and tighten the support post to the swing arm.



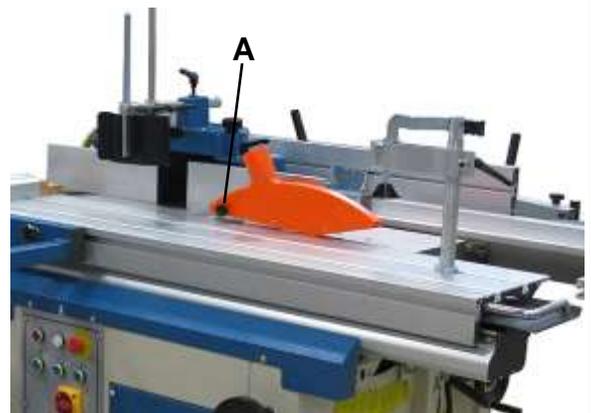


10. Install the crosscut fence onto the crosscut table. The crosscut fence mounts in either the edge of the table.
11. Insert the pivot pin (E) into the table and loosely install the retaining bolts.
12. Place the nylon shoulder spacer (F) on the top of the center rails.
13. Position the fence over the spacer and align the T-nut in the fence with the spacer and install the retaining bolt (G) from the bottom up to secure the fence to the table.
14. Loosen the center bolt to swing the fence to the desired cut angle using the degree scale to indicate the relative angle of cut.
15. Swing the fence to the 0° position to lock (H) the fence for making square cuts.



Blade Guard/Hood Installation

1. On the right side of the machine, loosen the lock knob and lift the height adjustment handle to raise the blade to full height. Tighten the lock knob.
2. Remove the retaining knob (A) from the guard.
3. Place the guard onto the riving knife, aligning the holes and secure the guard to the riving knife using the retaining knob.





ELECTRICAL

⚠ CAUTION: HAVE ELECTRICAL UTILITIES CONNECTED TO MACHINE BY A CERTIFIED ELECTRICIAN!

Check if the available power supply is the same as listed on the machine nameplate.

⚠ WARNING: Make sure the grounding wire (green) is properly connected to avoid electric shock. DO NOT switch the position of the green grounding wire if any electrical plug wires are switched during hookup.

Connections

- A separate electrical circuit should be used for your tools. If an extension cord is used, use only 3-wire extension cords, which have grounding type plugs and receptacles, which accept the tool's plug. Before connecting the motor to the power line, make sure the switch is in the "OFF" position and be sure that the electric current is of the same characteristics as indicated on the tool.
- All line connections shall make good contact. Running on low voltage will damage the motor.
- In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

⚠ WARNING: In all cases, make certain the receptacle in question is properly grounded. If you are not sure, have a qualified electrician check the receptacle.

- Improper connection of the equipment-grounding conductor can result in risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.
- Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.
- Use only 3-wire extension cords that have grounding type plugs and receptacles that accept the tool's plug.
- Repair or replace damaged or worn cord immediately.



Power Supply Connection

1. Verify that the voltage of the machine conforms to your supply voltage.
2. Use the plug provided to connect power to the machine. The plug allows for easy connection and disconnection to positively remove power from the machine when adjusting, servicing, changing tooling, changing operation locations etc..
3. Provide enough length for the plug cord so as to allow for the cord to be repositioned as needed to reduce any possible trip hazard when working at the various work stations around the machine.
4. Unplug the machine whenever the machine is not being used to perform an actual cut.
5. Connect three power wires to terminal verifying that the ground is properly connected.





OPERATION OVERVIEW

Control Panel

The control panel is equipped with the following devices:

A. Off Push Button – Press this button to turn off the motor in operation. The red button will illuminate while the motor brake is in operation. When the red lamp turns off (automatically) the motor may be started again if desired.

B. Power Indicator Lamp – This lamp will illuminate when any one of the three motors is in operation.

C. Emergency Stop Push Button – Pressing this push button will stop all machine functions. Twist to reset.

D. Shaper Motor Start Push Button – Press this push button to start and run the shaper motor. The button will illuminate while the motor is running.

E. Saw Motor Start Push Button – Press this push button to start and run the saw motor. The button will illuminate while the motor is running.

F. Jointer/Planer/Slotter Motor Start Push Button

– Press this push button to start and run the motor which turns the horizontal spindle used for the Jointer, Planer, and the Slotter. The button will illuminate while the motor is running.

G. Main Disconnect Switch – This switch turns On or Off the main power to the machine.





Machine Start

⚠ WARNING: Before starting the machine, check if the positions of the tools and safety guards are correct. Never operate any work station with any guards or covers removed missing or damaged. It could cause severe injury or death.

Proceed as follows to start the machine once the workstation is set for safe operation:

- Connect the power cord.
- Turn the main switch to the "I" (on) position.
- Press the button for the desired working position.
- Move to the workplace according to the type of machining.

Machine Stop

There are two ways to stop the motor:

Stop at end of work process:

- Press the stop button.
- Turn the main switch to the "0" (off) position).
- If changing tooling, making adjustments or machine will not be used for an extended period of time, unplug the power cord.

Emergency Stop

The multi-function table has two emergency stop (E-Stop) buttons. One is located on the front of the machine on the main control panel. The second e-stop is located on the back of the machine just to the left of the Slotter table.

In the event of incorrect operation or dangerous conditions, the machine can be stopped immediately by pressing the **E-Stop Button**. Twist the button to unlock and reset the emergency stop button. Resetting the e-stop will not start the machine.



OPERATIONAL SAFETY CHECK



IMPORTANT: Perform these safety checks at least twice every week to ensure proper and secure emergency and interlock switch function.

Emergency Stop Switch Check

1. Connect to power, start the main saw blade and the scoring saw to make the machine run.
2. Push each emergency stop of machine and check if the saw blade and the scoring saw completely stop within 7 seconds.
3. With the emergency stop switch depressed, operate the machine to see if it starts.
 - If the machine does not start the system is operating normally.
 - If the machine starts, the emergency stop is not operating properly, immediately stop operation. Have someone trained in electrical circuits inspect and test the system and possibly replace the emergency stop switch.

Safety Connection Switch Check

1. Connect to power to the saw. Open the safety door (i.e. saw blade's guard and service door) at the back of the machine.
2. Operate the machine. The machine should not operate.
3. Close the safety door and operate the machine again. The machine should operate.
 - If machine works as described, the safety connection switch is normal.
 - If machine does not work as described, the safety connection switch or wiring has failed and need immediate repair or replacement.

Brake Check

1. While the saw blade and the scoring saw are running, push the saw stop switch or the emergency stop switch.
2. The saw blade and the scoring saw should completely stop within 7 seconds.
3. If the brake time exceeds 7 seconds, immediately stop operating the machine and repair the blade brake system.



Safety Precautions before Operations

The operation of power tools involves a certain amount of hazard for the operator. Before attempting regular work we recommend you get the feel of operations using scrap lumber to check settings. Read entire instructions before you start to cut workpiece.

Always pay attention to safety precautions to avoid personal injury.

⚠ CAUTION: Always wear proper eye protection with side shields or a face shield, safety footwear, dust mask, and possibly heavy gloves to protect from, chips, dust, burrs, and slivers.

⚠ WARNING: Never operate any work station with any guards or covers removed missing or damaged. It could cause severe injury or death. Check that the blade(s) and or knives are secure and tight before operating the machine.

The purpose of this overview is to provide the novice machine operator with a basic understanding of how the machine is used during operation, so the machine controls and components discussed later in this manual are easier to understand. Due to the generic nature of this overview, it is not intended to be an instructional guide. To learn more about specific operations, read this entire manual and seek additional training from experienced machine operators. Do additional research outside of this manual by reading "how-to" books, trade magazines, or websites.

To complete a typical operation, the operator will:

1. Examines the workpiece to make sure it is suitable for cutting operation to be performed.
2. Adjusts the machine table(s), fence, and or blade, as necessary, to the correct position for the desired cut.
3. Checks the outfeed side of the machine for proper support and to make sure the workpiece can safely pass all the way through the blade without interference.
4. Puts on required safety equipment such as safety glasses (and/or full face shield), hearing protection and if needed a respirator.
5. Locates push sticks/blocks if needed.
6. Starts the correct motor for the operation.
7. Feed the workpiece all the way through the blade while maintaining firm pressure on the workpiece against the table and/or fence, while keeping hands and fingers out of the blade/knife path.
8. Stops the motor immediately after the cut is complete.



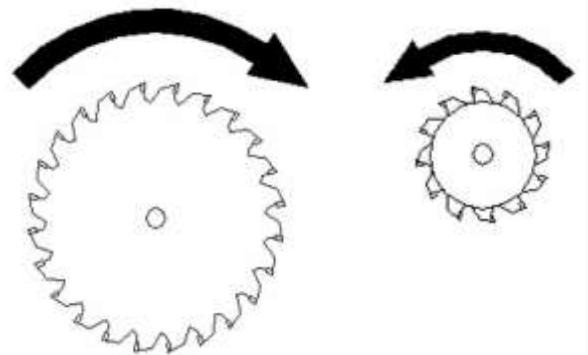
CHANGE MAIN SAW BLADE

⚠ WARNING: Blades are dangerously sharp. Use extreme caution when working with or around the blade. Wear proper safety protection such as heavy gloves.

Turn the power switch “OFF” and unplug the power cord from its power source when changing the saw blade.

When replacing blades, check the thickness stamped onto the riving knife. You must select a blade with a kerf width larger than the thickness of the riving knife. Thinner blades may cause the workpiece to bind during cutting.

1. Disconnect and lockout power to the saw!
2. Push the sliding table fully to the left.
3. Remove the screw securing the inner blade guard and open the blade guard.
4. Raise the saw blade to its highest position.
5. Loosen the arbor nut (clockwise, left turn thread), and remove the flange and saw blade.
6. Clean the flange and arbor before installing a new saw blade.
7. Install the saw blade making sure that the blade teeth are facing the correct direction.
8. Install the flange and nut. Tighten the flange nut to 21.7 lb/ft (300kg/cm).
9. Lower the blade to the lowest position and close and secure the inner blade guard.



Important: The main saw blade flange nut must be torqued to 21.7 lb/ft (300kg/cm).

⚠ CAUTION: After changing a saw blade, always check that the Riving knife and Blade Guard are correctly set!



RIVING KNIFE

⚠ WARNING: Before setting the riving knife, verify that it matches the saw blade diameter and body thickness. Always disconnect power at the mainpower switch prior to setting the riving knife to prevent unintended machine start up.

The riving knife is a metal plate that prevents the newly cut workpiece from pinching the backside of the blade and causing kickback. It also acts as a barrier behind the blade to reduce the risk of hands being pulled into the blade if kickback occurs.

The riving knife mounts below the blade's highest point of rotation so that it can remain installed for non- through cuts.

The riving knife must be kept within the range of 3 – 8 mm. For that reason, a 10" blade is required for operations that use a riving knife.

The machine is delivered as standard with the following riving knives.

MF-3005	250 ~ 240/2.5 specification:	
	Saw blade diameter	10"~9.5" (250~240mm).
	Saw blade basic body thickness up to maximum:	2.5mm.

Diameter range and thickness are both engraved on the side of the riving knife.

The thickness of the riving knife was selected so that they match the commercially available saw blade thickness in the respective diameter range. Use only the correct riving knife.

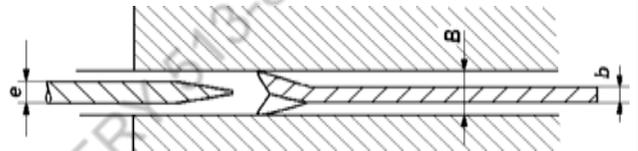


RIVING KNIFE ADJUSTMENT

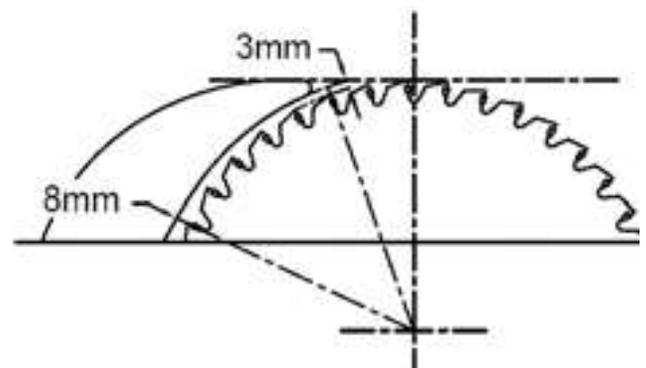
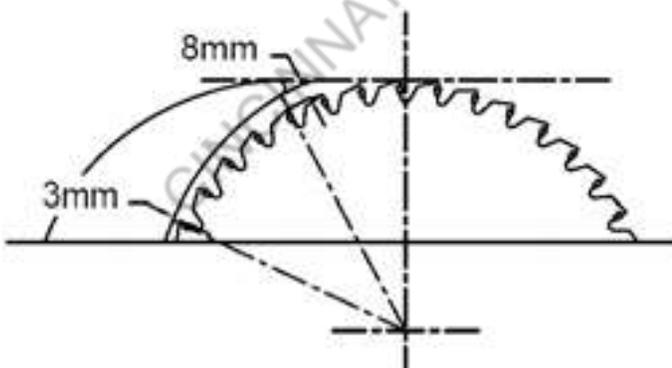
To ensure that the riving knife works safely, it **MUST** be aligned with and correctly adjusted to the blade. Check and adjust the riving knife alignment as needed.

1. Disconnect and lockout power to the saw!
2. Open the saw blade guard.
3. Place a straightedge against the blade and the spreader. When properly aligned, the spreader/riving knife will be in the "alignment zone," as shown, and will be parallel with the blade.

- e Riving Knife Thickness
- b Saw Blade Thickness
- B Blade Kerf (width of saw blade cut)



4. Loosen the retaining bolt on the riving knife base just enough to allow the riving knife to move.
5. Check that the riving knife is flat.
6. Adjust the riving knife so that the clearance between the knife and the blade is between 1/8" and 5/16" (3mm and 8mm) at any point along the length of the knife.
7. After adjustment of the riving knife is completed, tighten the retaining bolt on the riving knife base.

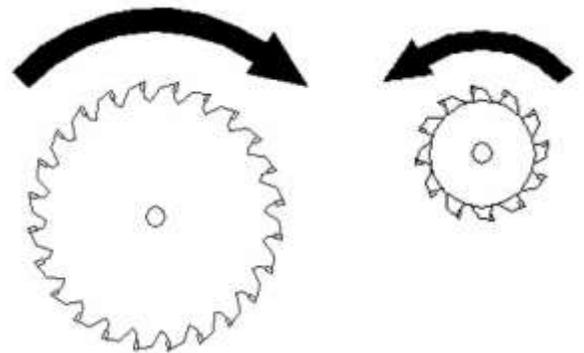




CHANGE SCORING SAW BLADE

⚠ WARNING: Blades are dangerously sharp. Use extreme caution when working with or around the blade. Wear proper safety protection such as heavy gloves. Turn the power switch “OFF” and unplug the power cord from its power source when changing the saw blade.

1. Disconnect and lockout power to the saw!
2. Push the sliding table fully to the left.
3. Remove the screw securing the inner blade guard and open the blade guard.
4. Loosen the arbor nut (counter-clockwise, right turn thread), and remove the flange and saw blade.
5. Clean the flange and arbor before installing a new saw blade.
6. Install the saw blade making sure that the blade teeth are facing the correct direction.
7. Install the flange and nut. Tighten the flange nut to 20 lb/ft (250kg/cm).
8. Close and secure the inner blade guard.



Important: The scoring saw blade flange nut must be torqued to 20 lb/ft (250kg/cm).



TABLE SAW SET-UP AND ADJUSTMENTS

⚠ WARNING: Turn the power switch “OFF” and unplug the power cord when setting up and adjusting the machine for any operation.

⚠ IMPORTANT: Plan your cut. This means that you will disassemble the other workstations as needed to clear the table for saw operation. It is your responsibility to remove the tools, accessories, guides, and materials from the other workstations that may interfere with the operation of the work station being used. In this case the table saw.

Main Saw Adjustment

⚠ CAUTION: To limit your exposure to the blade never set the blade height more than 1/4" higher than the thickness of the board.

The blade height adjustment lever is located on the right side of the saw. The lock screw allows you to lock the lever and secure the blade at the desired height.

To raise or lower the blade:

1. Loosen the blade height lock knob by turning counter-clockwise.
2. To raise the blade: Lift the lever.
To lower the blade: Lower the lever.
3. Use the scale to set the relative height or to repeat a height setting.
4. With the blade set to the desired height, tighten the lock knob by turning clockwise to lock the blade.



NOTE: Before tilting the saw at 45° or at 90°, lower the scoring blade so as to avoid any interference.

The blade tilt (bevel) adjustment handwheel is located on the front of the saw. The bevel locking knob is located on the handwheel shaft just behind the handwheel. This allows the user to lock the tilting mechanism and secure the blade at the desired angle.



To change the angle of the blade:

1. Loosen the bevel locking knob by turning it counter-clockwise.
2. Turn the handwheel left or right as required to set the blade to the desired angle. The blade can be tilted to the left anywhere from 0° (90° to the table) to 45°.
3. Use the indicator scale on the side of the cabinet to set the tilt angle.
4. With the blade tilted to the desired angle, tighten the lock knob to lock the tilting mechanism and secure the blade.

Scoring Saw Adjustment

1. Release the set screw located in access hole (A).
2. Align the scoring saw laterally (side to side) with the main saw by placing a straight edge along the main blade and scoring blade.
3. Adjust the cam screw located in access hole (B) so that the scoring blade is on the same plane as the main blade.
4. The scoring saw height should be adjusted when the blades are at the 0° position.
5. Adjust the scoring saw blade height through access hole (C) so that the blade is either below the table when not being used, or cutting at not more than 3/64" (1.1mm).
6. When all the adjustments are finished, tighten the set screw (A).



NOTE: The function of the scoring blade is to avoid splinters. Therefore the scoring blade must be adjusted and positioned so as to cut not more than 3/64" (1.1mm) in depth.



TABLE SAW OPERATION

 **WARNING:** Keep the blade guard installed and in the down position. Failure to do this could result in serious personal injury or death. Never reach in towards the blade while the blade is still spinning! Whenever a cut is completed, turn off the saw and wait for the blade to come to a complete stop before reaching in to remove the workpiece or the waste material. Failure to follow this warning could result in accidental contact with rotating blade, causing lacerations or amputation.

 **WARNING:** Serious injury can be caused by kickback. Kickback is a high-speed ejection of stock from the table saw toward an operator. The operator or bystanders may be struck by flying stock, or the operator's hands can be pulled into the blade during the kickback.



NOTE: When cutting faced panels, the scorer should be used to avoid possible chipping. For other cutting, lower the scoring saw completely below the table surface.

 **CAUTION:** Whenever using the scorer, always be very careful as its direction of rotation corresponds to the workpiece's forward movement.

Panel Cutting

1. Set the crosscut fence to the angle desired and secure it in position.
2. Set the dimension for the cut on the crosscut fence by setting the stop plate.
3. Move the slide table completely to the right, then loosen the crosscut table and slide it to the right as far as possible and tighten the table to the slide table.
4. Slide the table assembly past the blade to verify that it will complete the cut.
5. Recheck the angle and length dimensions on the crosscut fence.
6. Place the material on the table with a square edge against the fence and the stop block.
7. Use the material clamp to help hold the material to the table.
8. If equipped, start the dust collection system.
9. Verify the blade is clear and start the saw blade.



10. Feed the material all the way through the blade while maintaining firm pressure on the material against the table and fence, and keeping hands and fingers out of the blade path and away from the blade.
11. Stop the saw immediately after the cut is complete.



NOTE: *The feed rate of a cut will vary depending on several factors. This will include but not be limited to; Material type and thickness, sharpness of the blade. Avoid slow feed rates or stops during the cuts as this may cause burning on the material as well a possible kickback issues. Too fast a feed rate may overload the motor and electrical circuits.*

Rip Cutting

Ripping is the operation of making a lengthwise cut through a board. The rip fence is used to position and guide the workstock. One edge of the workstock rides against the rip fence while the flat side of the board rest on the table.

Since the workstock is pushed along the fence, it must have a straight edge and make solid contact with the table.



NOTE: *Use the push stick supplied with the machine to push the workpiece through the cut.*

The saw guard must be used. The guard is mounted on a riving knife to prevent the saw kerf from closing. This will reduce the change of a kick back.

- Always use the blade guard and splitter assembly when cutting wood. It has anti-kickback fingers and a splitter to prevent the saw “kerf” (the slit cut by the blade) from closing and binding the blade, which can overload and/or stall the motor or cause the blade to lift and eject the workpiece towards the front of the saw at very high speeds. The blade guard keeps your fingers away from the blade and also reduces the amount of sawdust flying free.
- While certain operations require the removal of the blade guard and splitter assembly, it should always be replaced for regular cutting.
- If the work to be ripped is narrow, it is safer to use a push stick, rather than the hands, to feed it into the blade. A push stick is provided and additional push sticks with non-slip grippers can be purchased, but shop-made push sticks works just as well. When ripping extremely narrow stock that may not clear the width of the blade guard, or very thin material such as paneling, which may slip between the underside of the fence and the table surface, a strip of wood as an auxiliary guide can be attached to the fence.



Ripping

1. Prevent Kickback, and take the necessary precautions to reduce the likelihood of kickback.
2. If using natural wood, joint one long edge of the workpiece on a jointer. This provides a flat, consistent surface that can slide along the fence, which minimizes chances of the workpiece moving during the cut, and reduces the risk of kickback.
3. Disconnect and lockout power to the saw!
4. Verify that the blade guard and spreader are installed.
5. Set the fence to the desired width of cut on the scale.
6. Adjust the blade height so the highest saw tooth extends no more than 1/4" above the workpiece.
7. Set up safety devices such as featherboards or other anti-kickback devices.
8. Rotate the blade to make sure it does not come into contact with any of the safety devices.
9. Connect the saw to the power source, turn it ON, and allow it to reach full speed.



Note: *The jointed edge of the workpiece must slide against the fence during the cutting operation.*

10. Advance the workstock using push sticks as needed, through the saw blade holding it down and against the fence until the workpiece is completely beyond the saw blade. Avoid standing in the line of the saw cut when ripping.
11. When the cut is complete, the workstock will either stay on the table, tilt up slightly and be caught by the rear end of the guard or slide off the table to the floor. Alternately, the feed can continue to the end of the table, after which the workstock is lifted and brought back along the outside edge of the fence. The waste stock remains on the table and is not touched with the hands until the saw is stopped and the blade comes to a complete stop. This will allow for safe removal.

Mitre Ripping

Miter ripping is performed the same as ripping but with the saw blade set to an angle not perpendicular with the table surface. To tilt the blade to the left, anywhere between 0° and 45°. This is used most often when cutting bevels, compound miters or chamfers. After changing the bevel angle verify the alignment of the guard and splitter; make sure there is clearance with the saw blade.

Ripping Small Work Pieces

Do not attempt rip cuts if the work piece is too small, as this will oblige you to place your hands too close to the blade and put you at serious risk of injury. When ripping narrower widths; use a push block or a push stick in order to avoid placing hands near the blade.



SLOTTER SET-UP AND ADJUSTMENT

⚠ WARNING: Turn the power switch “OFF” and unplug the power cord when setting up and adjusting the machine for any operation.

⚠ IMPORTANT: Plan your cut. This means that you will disassemble the other workstations as needed to clear the table and area for slotter operation. It is your responsibility to remove the tools, accessories, guides, and materials from the other workstations that may interfere with the operation of the work station being used. In this case the slotter.

Bit Installation and Removal

⚠ WARNING: NEVER leave a bit in the chuck when operating the other work stations of the machine, especially the jointer or planer. The free spinning bit could cause serious injury from ejection or entanglement.

The machine is equipped with a chuck attached to a fixed spindle with a maximum bit size of 5/8” (16mm) to create blind and passing holes and slots.

1. Disconnect and lockout power to the machine!
2. Rotate the spindle to align the chuck locking screw with the access slots on the side of the chuck guard.
3. Use an allen key to loosen the chuck teeth to accept the bit to be installed.
4. Tighten and secure the bit into the chuck.
5. Remove the allen key.



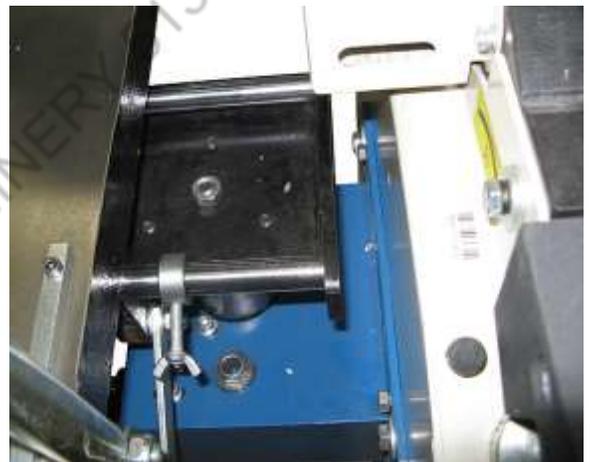


Slotter Table Set-up and Adjustment

1. Disconnect and lockout power to the machine!
2. Position the jointer fence as close to the table edge near the slotter chuck as possible to completely cover the jointer spindle and knives.

⚠ WARNING: NEVER leave the jointer knives uncovered when using the spindle to perform slotting/drilling operations. The exposed knives pose an extreme risk of amputation.

3. Swing the jointer bridge guard away from the slotter table.
4. Install the desired bit.
5. Install the material clamp onto the slotter table.
6. Set the table height and lock it in position.
7. Set the depth stop collar to create either a blind or a passing hole. Depth stop collar shown. Side stops are similar and located under the table.
8. Set the table travel stop collars to limit the travel distance side to side.



IMPORTANT: Avoid clamping directly over the area the hole or slot will be created as the clamping pressure may cause the material to bind on the bit, or crush the material as the material for the slot is removed.

9. Position the material on the table so that the table will be able to travel the entire width of the desired slot. If the slot will be longer than the amount of table travel then the material will need to be repositioned. Plan ahead so that the clamp will not be directly over the slot already created. This could cause loose clamping as well as damage to the workpiece.
10. Clamp the material securely in position.



SLOTTER OPERATION

1. Install the desired bit and set the table as needed to provide travel, clearance, and stops for the desired hole or slot.
2. Clamp the material securely to the table. If additional support is needed for larger material, the supports must allow for the material to travel in all directions and not cause the material to bind on the bit.
3. Verify that the jointer knives are fully guarded.
4. Connect the machine to the power source, turn it ON, and allow it to reach full speed.
5. Feed the material onto the bit to create the first hole.
6. Fully retract the bit from the material when the depth has been reached.
7. Move the table left or right so that at least half of the bit is positioned over the material to create the next hole that will connect to the previous hole.
8. Feed the material onto the bit to create the next hole. Feed this and the remaining holes at a slower rate so that the bit does not bend and break. This will damage the material and cause a safety issue with potential flying debris.
9. Stop the slotter spindle immediately after the final hole is complete.
10. **ALWAYS** remove the bit from the slotter chuck when the operation is complete. **NEVER** work at another work station with a bit installed in the slotter chuck.





CUTTERHEAD CARE AND ADJUSTMENT

Jointer and Planer

⚠ WARNING: Knife inserts are dangerously sharp. Use extreme caution when working with or around the knife inserts. Set the knives no more than .015 inches above the body of the cutterhead to minimize the hazard of kickback and severe personal injury.

1. Disconnect and lockout power to the machine!
2. When installing new knives remove only one knife at a time. Clean the knife slot and install the new knife. Adjust and lock the new knife into the cutterhead before proceeding to next knife.
3. To remove the old knives, loosen gib locking bolts and remove gib and jack screws, knife, and spring strip.
4. Clean the all the components including the knife slot thoroughly.

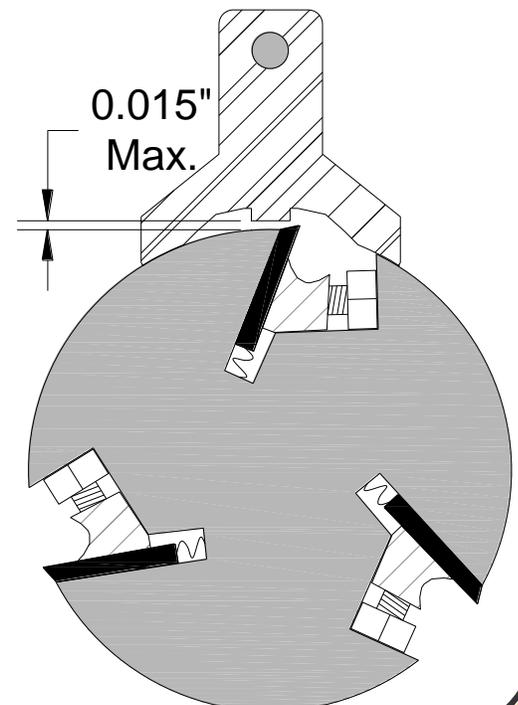
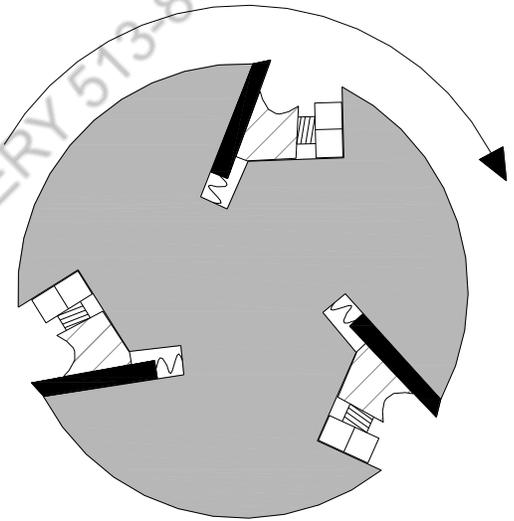


IMPORTANT: Pay close attention to the direction of rotation. The blade must be installed with the cutting edge toward the direction of rotation.

5. Insert the spring strip into the slot and sandwich knife and gib together and drop into knife slot. Be certain that the back of the knife is resting on the spring strip.
6. Align the knife with the edges of the cutterhead. The knife should not extend past the end of the cutterhead.
7. Snug the two outside gib locking screws.

SETTING BLADES USING KNIFE GAUGE

8. The knife blades need to be set within the cutterhead so that they are the exact same height above the cutterhead and parallel to the cutterhead.
9. Place the knife gauge on the cutterhead so that the outer legs contact the cutterhead and the center leg contacts the highest point of the blade.

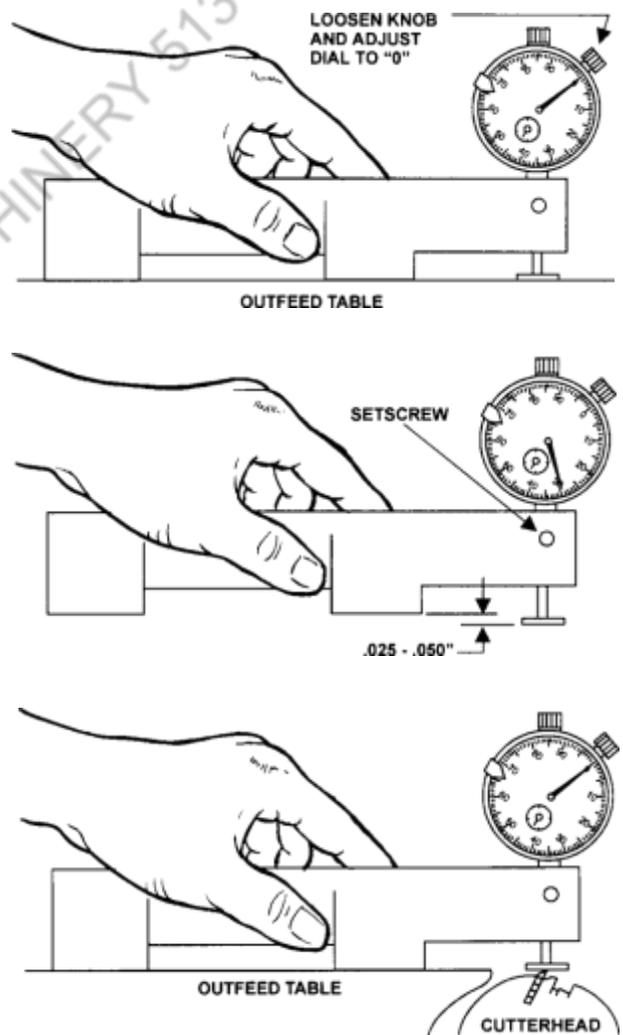




10. Loosen the outer gib locking screws just enough to allow the blade to move up or down as needed to create contact at all 6 contact points (3 on each end).
11. With the knife held in position work from the center out to tighten the gib locking screws in two steps. First light pressure, then firmly the second time verifying that the blade has not moved.
12. Repeat this entire procedure for each blade.

SETTING BLADES USING DIAL INDICATOR

1. If you have a dial indicator, place it on the outfeed table and "0" the indicator as shown.
2. Lift the gauge off the outfeed table to see how far below the bottom of the gauge the indicator travels. The indicator should read between .025" and .050".
3. If the indicator reads outside of this range, loosen the set screw in the side of the gauge and adjust the indicator so that it will read within the range above. Zero the indicator.
4. Repeat this process until indicator reads within the .025" to .050" range. Always zero the indicator before each use.
5. Now place it on the outfeed table to the rear of the cutterhead with the flat indicator point over the cutterhead.
6. Insert a hex wrench into the jack screw and rock the cutterhead back and forth.
7. Watch the pointer on the knife-setting gauge. The pointer will begin moving toward "0". When the pointer reaches "0", it is parallel with the outfeed table.
8. Move the gauge to the front of the cutterhead and repeat the above procedure.
9. This adjusting process puts the knife into the knife slot with the tip parallel and flush with the outfeed table. Once the correct knife height has been established, secure the gib locking screws. Begin with the center screw to prevent buckling or uneven knives.
10. If a knife setting gauge is not available, use a standard shop scale.





11. Stand the scale on its edge on the outfeed table; the scale should extend over the cutterhead.
12. Using the above method, raise knife until it just touches the scale at the high point of the cutterhead arc.

JOINTING KNIVES

After extended use it will be necessary to sharpen the knives on the cutterhead assembly so that all three knives protrude exactly the same height above the cutterhead.

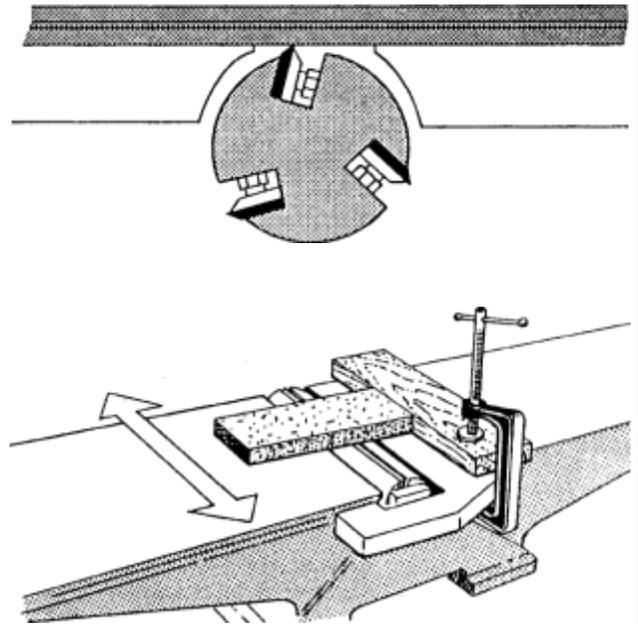


WARNING: Disconnect machine from power source.

Use approved eye protection whenever sharpening blades.

Knife inserts are dangerously sharp. Use extreme caution when working with or around the knife inserts.

1. Disconnect and lockout power to the machine!
2. Remove the cutterhead guard.
3. Place a metal straightedge across both tables, and make sure both tables are set to the exact height of the high point of the knives.
4. Clamp a block of wood across the infeed table in order to block the end of a fine India stone or oilstone during the jointing operation. This helps to prevent kickback of the stone.
5. Turn machine on.
6. Keeping hands well clear of the cutterhead, place the stone into position, and slide the oilstone back and forth across both tables until the knives are lightly jointed.
7. TURN MACHINE OFF and visually inspect each knife. If only the high knife has been touched, lower the OUTFEED table 0.003 inches and continue the sharpening process until all three knives have been touched by the stone.
8. Replace cutterhead guard.





JOINTER TABLES SET-UP AND ADJUSTMENT

⚠ WARNING: Turn the power switch “OFF” and unplug the power cord when setting up and adjusting the machine for any operation.

⚠ IMPORTANT: Plan your cut. This means that you will disassemble the other workstations as needed to clear the table and area for jointer operation. It is your responsibility to remove the tools, accessories, guides, and materials from the other workstations that may interfere with the operation of the work station being used. In this case the jointer.

Jointing

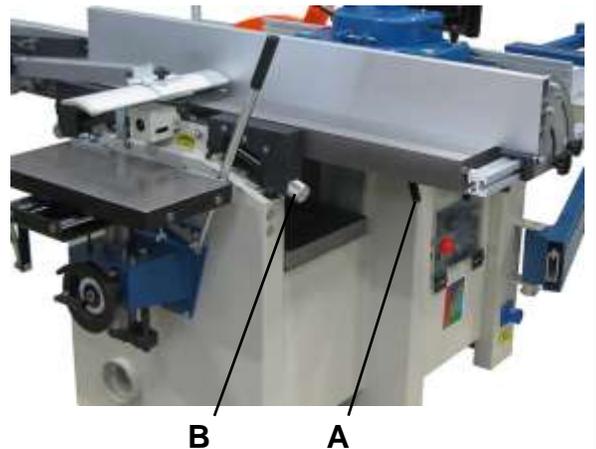
In order to craft a good woodworking project, it is necessary to have a square piece of wood to start with. The way to do this is with a jointer. You need one straight edge and one flat face. After you have these, you can plane to thickness and rip to width and the resulting piece will be square and true on all four sides. At this point you can begin building your project.

Table Adjustment



Note: Infeed table shown, outfeed table similar.

1. Unlock the table lock rod (A) to allow the table to move freely.
2. Adjust the height of the infeed table using the adjustment knob (B) on the end of the table hinge.
3. When the table height has been set, lock the table lock rod (A) to secure the table in position.
4. The outfeed table adjusts in the same manner.



Depth of Cut

Depth of cut is determined by the height of the infeed table relative to the high point of the knives on the cutterhead.

When facing the width of a board (as opposed to the edge of a board), **NEVER** attempt to take off more than 1/64" with each pass.

The depth of cut is indicated by the scale located jointer frame at the cutterhead.

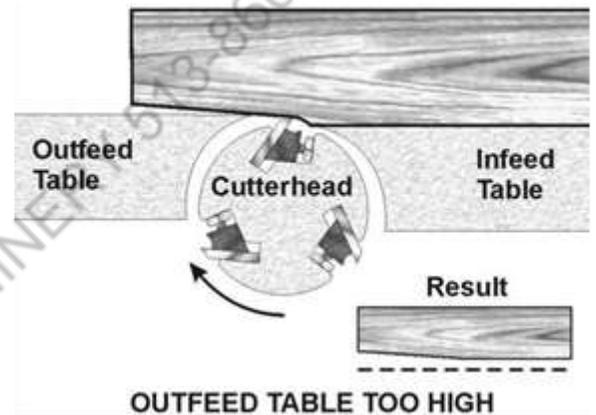


Determining Correct Table Height

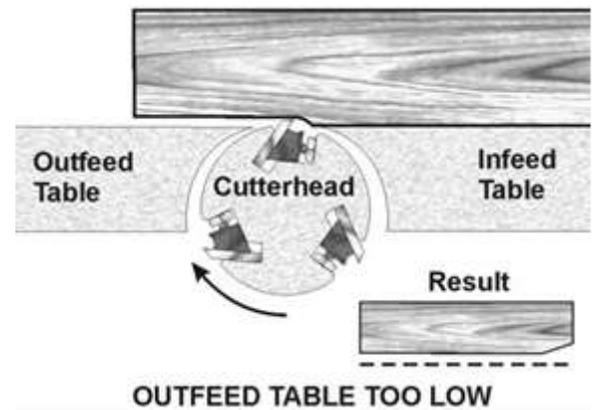
When you receive the jointer, the knives have been pre-set at the factory. However, the height and parallelism of the knives with the outfeed table should be checked, and any needed adjustments made, before putting the jointer into operation.

The outfeed table and cutterhead knives are correctly adjusted when all three blades are parallel to the outfeed table and all three blades are set at the same height in the cutterhead.

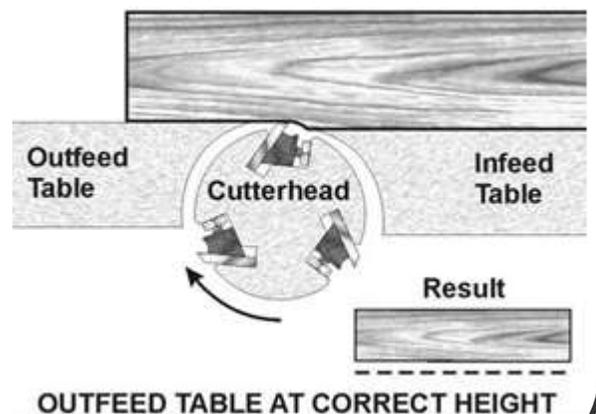
Outfeed Table Too High – If the outfeed table is too high, a curved finished surface results.



Outfeed Table Too Low – If the outfeed table is too low, the work will have a gouge, or snipe, at the end of the cut.



Outfeed Table At Correct Setting – This illustrates the correct setting of outfeed table level with the knives. The workpiece will rest firmly on both tables with no open space under the finished cut.



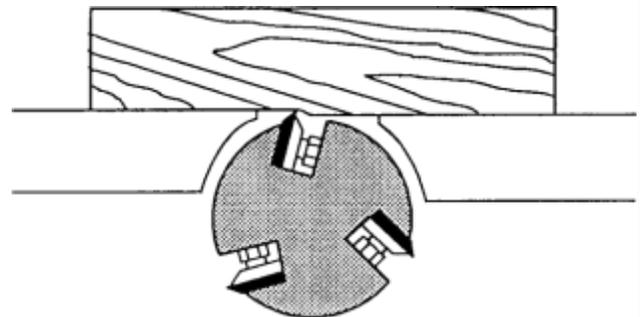
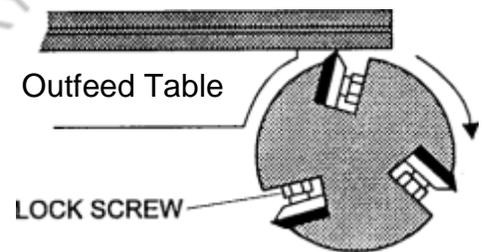


OUTFEED TABLE SETTING

The outfeed table must be set exactly level with the knives at the highest point of their revolution. Knives must also be parallel to the outfeed table.

⚠ WARNING: Knife inserts are dangerously sharp. Use extreme caution when working with or around the knife inserts. Set the knives no more than .015 inches above the body of the cutterhead to minimize the hazard of kickback and severe personal injury.

1. Disconnect and lockout power to the machine!
2. Place a steel straightedge on outfeed table and extend it over the cutterhead.
3. Rotate the cutterhead by hand. If a knife is too low or too high at either end, lightly loosen the two lock screws in the knife.
4. Move the knife until it barely scrapes the straightedge, and tighten the lock screws securely. Make sure each knife does not extend more than 0.015 inches beyond the cutterhead.
5. For a final check, set the infeed table for no more than a 1/64" cut.
6. Turn on machine and run a piece of wood over the cutterhead for 6 to 8 inches. The stock should rest firmly on both tables with no space under the finished cut.



NEVER attempt to take off more than 1/64" in each pass when making outfeed table adjustments.



JOINTER OPERATION

WARNING:

- Read, Understand and Follow all safety instructions listed in this manual.
- Always wear proper safety equipment such as safety glasses and face shield.
- Keep hands, fingers and all body parts away from the cutting blades and all rotating parts.
- Use push blocks to feed material across the cutting blades Never allow your hands closer than 3" (76.2mm) to the cutting blades.
- Never operate the jointer without the cutter head guard in place and functioning perfectly.

FAILURE TO FOLLOW ALL SAFETY INSTRUCTION MAY CAUSE SEVERE INJURY.

Before making any cuts on the stock, make a few practice cuts by raising the infeed table to "0" and with the power disconnected. This will help you become acquainted with the feel of jointer operations.



Important: *If you are inexperienced at jointing, use scrap pieces of lumber to check settings and get the feel of operations before attempting regular work.*

Check the following before operating the jointer:

- Outfeed table must be set level with the high point of the knives.
- Stabilize long workpieces by using an assistant, or roller stands set level with the outfeed or infeed table surface.
- The fence should be adjusted to create minimum exposure to the cutterhead during the jointing operation.
- Fence adjusted for minimum exposure of cutterhead, and locked at desired angle.
- The cutterhead guard must be in place and operating properly (except when rabbeting).
- Infeed table set for desired depth of cut.
- Stand away from the cutterhead and turn the machine on for a few moments. Listen for any odd noises, rubbings, vibrations, etc. Correct such problems before attempting operations on the jointer.
- Carefully check your workpiece for knots, holes, staples or any foreign material that might damage knives or pose a risk of kickback. Also check the workpiece for grain orientation.

Jointing Short or Thin Work

When jointing short or thin work pieces, use a push block to eliminate all danger to the hands.



Hand Safety and Placement

Never pass the hands directly over the cutter knife. As one hand approaches the knives remove it from the stock in an arc motion and place it back on the stock in a position beyond the cutter knife.



When feeding the work piece, pressure is applied not only toward the cutterhead but against the fence and down to the table as well. At the start of the cut, the left hand holds the material down and toward the fence while the right hand pushes toward the cutterhead. As the material crosses the cutterhead the left hand comes up and over to continue the pressure, but now on the outfeed table. As the right hand approaches the cutterhead it is time to move it up and over the cutterhead in the same fashion as the left in all the while continuing pressure as stated above.

Planing on the Jointer

1. Using the left hand, with the guard resting on the out-feed table, adjust the guard horizontally up to the fence and then lift the guard to adjust accommodate the thickness of the workpiece.
2. Push the workpiece with the right hand only a little under the guard and let the guard rest upon the workpiece.
3. With hands flat on the workpiece, push forward on the infeed table and then glide over the guard with one hand after the other. As soon as possible, continue pushing the workpiece forward with both hands on the outfeed table.





Edging

1. Place the workpiece against the fence and move it with the right hand forward to about the front edge of the infeed table.
2. With the left hand, bring the guard up to the workpiece. The guard should rest upon the outfeed table.
3. Press the workpiece, with the left hand, against the fence and the outfeed table. Move the workpiece forward at a smooth and steady speed with the right hand.



Bevelling

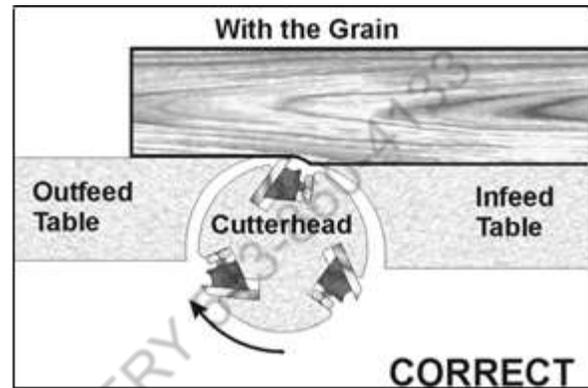
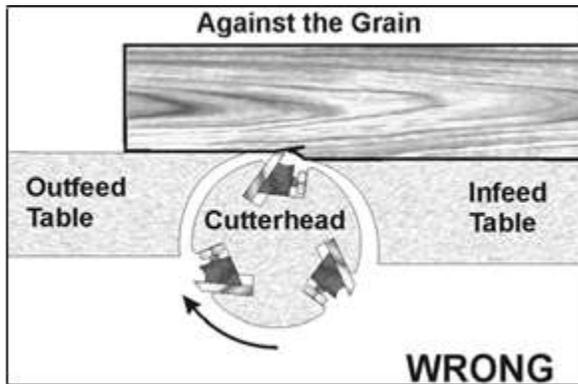
To cut a bevel, lock the fence at the required angle and run the work piece across the knives while keeping it firmly against the fence and tables. Several passes may be necessary to achieve the desired result.





Direction of Grain

Avoid feeding work into the jointer against the grain. This may result in chipped and splintered edges. Feed with the grain to obtain a smooth surface.



CINCINNATI PRECISION MACHINERY 513-266-8133



PLANER SET-UP AND ADJUSTMENT

⚠ WARNING: Turn the power switch “OFF” and unplug the power cord when setting up and adjusting the machine for any operation.

⚠ IMPORTANT: Plan your cut. This means that you will disassemble the other workstations as needed to clear the table and area for planer operation. It is your responsibility to remove the tools, accessories, guides, and materials from the other workstations that may interfere with the operation of the work station being used. In this case the planer.

1. Disconnect and lockout power to the machine!
2. If installed, remove the feed handles and the material clamp from the slotter table.
3. If installed, remove the rip fence from the rip fence rail.
4. Remove the jointer fence.
5. Release the jointer bridge guard lock and rotate the guard until it rest on the rip fence rail.
6. Release the two jointer table lock pins and lift the infeed and outfeed table to open the planer workstation.
7. Lift and rotate the chip hood from the storage position to the operating position until the hood latches into position.
8. Attach the dust collection hose (optional) to the hood.
9. Check the anti-kickback fingers for damage and proper operation. Make sure that they are in good working condition, for example, the contact faces have no damage, and that they fall freely under their own weight, etc.
10. Release the lock knob and turn the handwheel to adjust the table height to the desired material thickness using the scale as an indicator. A maximum of 5/32” (4mm) can be removed at each pass.
11. When the desire setting is reached, tighten the lock knob.
12. Lift the roller engagement lever to operate the feed rollers. Disengage the rollers when other workstations are in use.





BASIC PLANER OPERATION

⚠ CAUTION: Always wear proper eye protection with side shields, face shield, safety footwear, and leather gloves to protect from, chips, dust, burrs, and slivers.

1. Put on safety glasses and a respirator, and secure loose clothing and long hair.
2. Unless your workpiece is very flat, surface plane the workpiece on a jointer until it is flat. Having the face flat will ensure that it sits flat on the planer table during operation.
3. Adjust the table elevation to slightly lower than your workpiece height (approximately 1/32" – 1/16" [0.8-1.6mm]). A cut at this depth will usually take off the high spots.
4. Start the machine by pressing the CUTTERHEAD MOTOR switch on the control panel.
5. Place the flat side of the workpiece down on the table, and feed the workpiece through the planer, making sure not to stand directly in front or behind the workpiece to avoid kick-back injury.

If the cut is too heavy and bogs down the planer:

- a. Turn the planer OFF immediately by pressing the red EMERGENCY STOP button on the power/table control.
 - b. Allow the planer to come to a complete stop.
 - c. Lower the table and remove the workpiece and repeat Steps 3 – 5 setting the table to give a thinner cut.
6. Measure your workpiece thickness and adjust the table elevation as necessary to take a lighter or heavier pass, depending on your needs. For most wood types, 1/8" (3.1mm) per pass is a good cutting depth. A 5/32" (4mm) cut is the maximum depth that any cut should be made.

Operation Tips

- Inspect lumber for defects, warping, cupping, twisting, and for foreign objects (nails, staples, imbedded gravel, etc.). If you have any question about the quality of your lumber, do not use it. Remember, wood stacked on a concrete floor can have small pieces of stone or concrete pressed into the surface.
- Use the full width of the planer. When feeding lumber into the planer, alternate between the left, the right, and the middle. Your cutters will remain sharp much longer.
- Scrape all glue from workpiece before planing.
- Plane ONLY natural wood fiber. DO NOT plane MDF, plywood, laminates, or other synthetic products.
- Plane WITH the grain. Never feed end-cut or end-grained lumber into your planer.



- Do not plane boards with loose or large knots, splits, cross grain or other obvious blemishes or defects. These can damage the machine and pose a safety risk to the operator.
- Keep your work area clear.
- When planing long stock, get assistance to receive the workpiece from the outfeed table.
- Avoid planing wood with high water content. Wood with more than 20% moisture content or wood exposed to excessive moisture (such as rain or snow), will plane poorly and cause excessive wear to the cutters and motor. Excess moisture can also hasten rust and corrosion of the planer and/or individual components.

CINCINNATI PRECISION MACHINERY 513-860-1111



SPINDLE SHAPER SET-UP AND ADJUSTMENT

⚠ WARNING: Turn the power switch “OFF” and unplug the power cord when setting up and adjusting the machine for any operation.

⚠ IMPORTANT: Plan your cut. This means that you will disassembly the other workstations as needed to clear the table and area for shaper operation. It is your responsibility to remove the tools, accessories, guides, and materials from the other workstations that may interfere with the operation of the work station being used. In this case the shaper.

Raising and Lowering the Spindle

1. The Spindle can be raised or lowered by turning the handwheel on the side of the machine above the speed change access door.
2. To raise the spindle height, turn the handwheel clockwise.
3. To lower the spindle height, turn the handwheel counterclockwise.

Installing Shaper Blade

⚠ WARNING: Blades are dangerously sharp. Use extreme caution when working with or around the blade. Wear proper safety protection such as heavy gloves.

1. Disconnect and lockout power to the saw!
2. Use the handwheel to lift the shaper spindle to maximum height.
3. Rotate the spindle and engage the spindle lock on the side of the machine.
4. Remove or install as needed the table inserts around the spindle. ALWAYS use the smallest insert that will not interfere with the shaping operation.



IMPORTANT: Do not assemble cutters with a diameter larger than 7” (180mm).



5. Remove the spindle nut from the top of the spindle.



IMPORTANT: The shaper spindle turns in a counterclockwise direction. Make sure the cutters are installed in the correct direction for this rotation. With the cutter installed as shown, feed the workpiece from right-to-left.

6. Remove the spacers and place the cutters on the spindle using the spacers to place the cutter at the desired height.
7. Place the spacers as needed between cutters if more than one is being used.
8. Install and tighten the spindle nut.
9. Disengage the spindle lock and position the lock in the storage pin so that it does not accidentally engage.
10. Set the spindle to the desired height.
11. Rotate the spindle by hand while checking for any interference with any part of the inserts, guard, or fence.

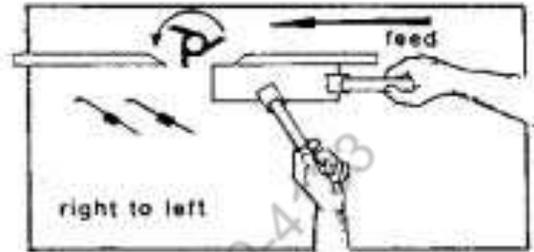


FIGURE 10

Speed Changes and Belt Tension

This spindle moulder is equipped with a special high speed V-belt. It is designed to withstand the vibration and sudden shock loads associated with the operation of a shaper. Belt tensioning is always performed when changing the belt position on the sheaves, and may need to be checked and adjusted if the speed has not been changed for a long period or if the machine has been out of service for any length of time.

1. Disconnect and lockout power to the machine!
2. Use the spindle height adjustment handwheel to position the motor in the middle of the door opening.
3. Loosen the adjustment bolts and slide the motor toward the spindle to loosen the belt. DO NOT take the bolts out.
4. Move the belt up or down to the set of pulley sheaves that will provide the desired spindle speed.



Note: For proper operation the V-belt must be on a matched set of pulleys so that the belt will run on a horizontal plane.





5. Hold the belt on the sheaves and using the rod supplied; apply moderate pressure on the slide bracket to tension the belt. This should not bend the rod.
6. Tighten the adjustment bolts.
7. Close and secure the access cover.

Adjustment of Router Hood and Guides

1. Position the hood on the worktable and adjust the fences to allow the cutter to cut no more than 1/16" deep. Take two or more cuts if the final cut is deeper than 1/16".
2. Adjust the fences to be parallel with each other.
3. Adjust the down pressure guide to place light down pressure on the material while allowing the material to slide freely.
4. Adjust the spring guide to place light inward pressure on the material while allowing the material to slide freely.



Note: Check that the guides do not interfere with the cutter. For correct machining, the guides must be as close as possible to the milling cutter without contacting or interfering with the cutter.

5. Remove the sample material and setup the spindle as needed.



Fence Positioning

The two faces of the fence are independent of one another and can be set at different positions to allow for different shaping tasks.

1. Loosen lock lever.
2. Adjust the position of the fence by turning the adjustment knob.
3. When the fence is in the desired position, retighten the lock lever.
4. Repeat this process for the other side of the fence, if necessary.



Fence Alignment

Before using the shaper, it is important to make sure that the two fence faces are parallel. Use the following steps to ensure the parallelism of the two fence halves.

1. Use a straight edge that is long enough to span the length of the entire fence and position it up against both fence halves.



Note: Before placing the straight edge up against the fence. Make certain that the fence lock knobs are securely tightened.

2. Adjust the fence faces so that they are as close as possible to the same parallel position.
3. If the fence faces are not parallel, place shims between the back of fence piece and the face fence mount, with some trial and error shim adjusting, parallel fence faces can be achieved.

SHAPER OPERATION



WARNING: This machine was designed only for straight work (profiling).

This machine does not have the proper safety ; for other different operations (e.g. shaping, tenonig, stopped work, curved work, etc.) it is necessary to contact the manufacturer about correctly safety devices.



CAUTION: Always wear proper eye protection with side shields, face shield, safety footwear, and leather gloves to protect from , chips, dust, burrs, and slivers.

PROTECTION. Take every precaution to protect yourself, others around you, and the machine itself from improper use.

CARELESS ACTS. Give the work you are doing your undivided attention. Looking around, talking to someone, and horseplay are careless acts that can result in serious injury.

This section give instructions on the basic operations of this shaper. It is in no way comprehensive of every shaper or application. It is strongly recommended that you read books, trade magazines, or get formal training to maximize the potential of your shaper and to minimize the risks of injury, or damage to equipment or work stock.



Using the Fence

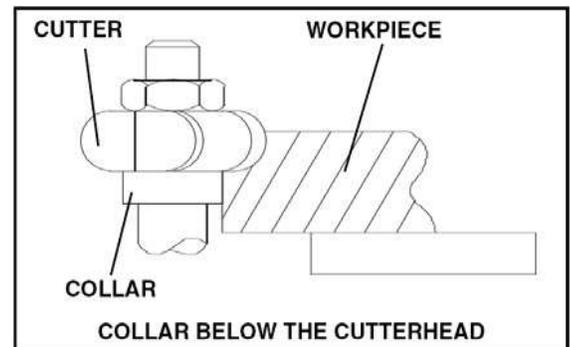
1. If performing a cut where a portion of the workpiece is not touched by the cutterhead, both sides of the fence will be set at the same depth.
2. When performing a cut where the entire edge of the workpiece is removed, the fence must be positioned differently. If the fence halves are kept in line, once the workpiece passes through the cutterhead, the shaped edge would no longer be supported against the fence. To prevent this, the outfeed side of the fence must be positioned further out to compensate for the material being removed. Advance the outfeed side of the fence until it contacts the shaped edge of the workpiece.
3. If using a miter gauge, the infeed side of the fence **MUST** be parallel with the miter slot. Also make certain that the outfeed side of the fence is positioned out of the way so that it does not contact the workpiece after it passes through the cutterhead.

Using Collars

When shaping workpieces that have irregular shapes, it is essential to use a collar. There are three basic types setup for the collar. Each setup has advantages and disadvantages.

Below the Cutter

The advantage of the collar being positioned below the cutter is that the user can see the progress of the cut. While this method provides a good view of the cut being made, the disadvantage is that any lifting of the workpiece, even slightly, will cause the cutter to gouge the wood and ruin the workpiece.



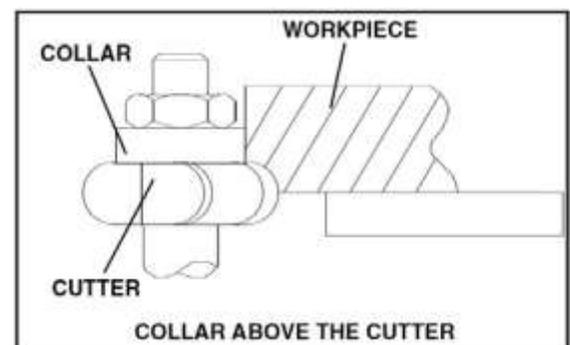
Above the Cutter

This type of setup is the safest of the three and produces the most consistent results.

Two advantages of this setup are:

4. The cut will not be affected by slight variations in the thickness of the workpiece
5. The workpiece will not be gouged if you accidentally lift it off the table. If the workpiece lifts off the table, simply run it through the cutter again to produce a finished cut

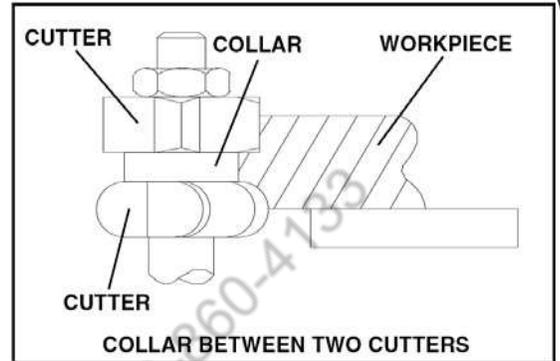
The only disadvantage of this type of setup is that the user will not be able to see the cut being made as it will be on the underside of the workpiece.





Between two Cutters

The advantage of this setup is that you can make two profile cuts in a single pass so it is frequently used when both edges of the workpiece are to be shaped. The disadvantage with this method, like the “Below the Cutter” method, is that any accidental lifting of the workpiece will cause gouging and ruin the workpiece.



GRAIN DIRECTION

Plan to shape the work piece in the same direction as the grain when possible. Some open grain woods (such as redwood, fir, and oak) will leave a rough, or slightly splintered edge when cut against the grain.



DANGER:

Deep cuts require excessive horsepower and pushing force to control the cut. Deep cuts can also cause the wood to splinter or split and may lead to lost control or personal injury.

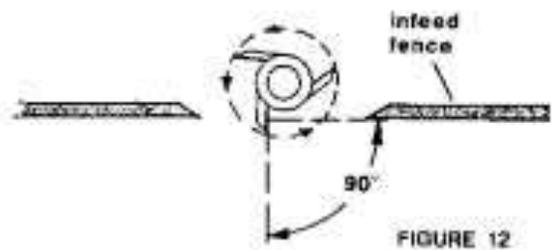
Pre-cut the stock on the band saw whenever possible to 1/16" of finished size. When an edge finish is unsatisfactory. Take two or more cuts with the final cut no more than 1/16" deep.

In the case of shaping across the grain, the trailing board edge will often splinter. To correct this, the best solution is to make the board 1/4" oversize in width, shape the board, and simply trim off the excess material.

STRAIGHT EDGE SHAPING

Straightedge shaping is always performed with the work piece against the fence.

1. Disconnect and lockout power to the machine!
2. Check to see that the fence faces are parallel, properly in line or offset if necessary, and securely tightened.
3. Rotate the cutters and inspect for clearance.
4. Position the leading face of a cutterhead blade at 90 degrees to the in feed fence face.
5. Position the workpiece against the in feed fence and adjust the spindle to the desired height of the cut. At the same time, check the desired depth of cut with the blade in the 90 degree position as shown in figure 12.





Depth Of Cut

The depth of cut is the distance from the outside circumference edge of the collar (which the work rides against) to the outside edge of the cutter. The depth of cut is determined by the position of the fence relative to the cutterhead and / or by the use of shaper collars.

6. Take a trial cut on a piece of scrap of the same thickness as work piece.



Note: Only a short cut is necessary to determine if the profile, depth, and height of cut is correct.

7. Make adjustments as required and continue to shape using the work piece.

Material Feed

With the cutter installed as shown, feed the workpiece from right-to-left.

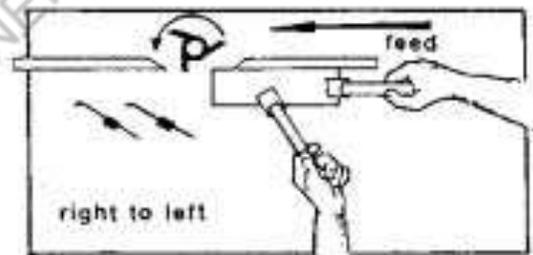


FIGURE 10

Edge Shaping: Long Boards

When edge shaping long boards, the work piece must be at least 12 inches long.

1. Use the hold-ins and hold-downs as shown in figure 13 to firmly hold the work piece down and against the fence. If work piece is too wide for the hold-ins to be used, clamp a scrap board to the table to substitute for the hold-ins.
2. Check the rotation of the cutter. Be sure to feed workpiece against rotation of the cutter.
3. Feed the workpiece slowly and steadily with firm, even pressure to make a smooth cut.

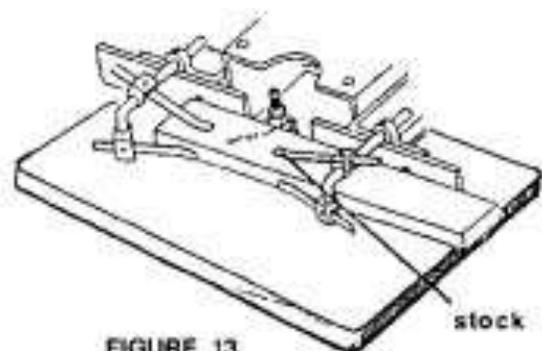


FIGURE 13



Note: The rate of feed depends on depth of cut and experience of operator.



Edge Shaping: Short Boards

When edge shaping short boards, never attempt to hand guide any stock less than 12 inches long, or narrower than 3 inches without the use of a special guide as shown in Figure 14.

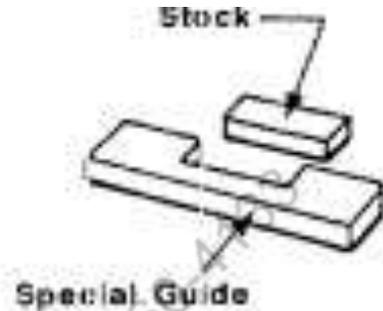


FIGURE 14

End Shaping

⚠ WARNING: End shaping a narrow workpiece without a special guide could result in the workpiece rocking into the cutterhead causing minor, or major, personal injury.

When end shaping narrow stock, it is important that at least one half of the workpiece end be in contact with either the infeed or outfeed fence as shown in Figure 15.

Use a guide similar to the one shown in Figure 15 which tightly clamps the scrap piece to the workpiece and provides the necessary width.

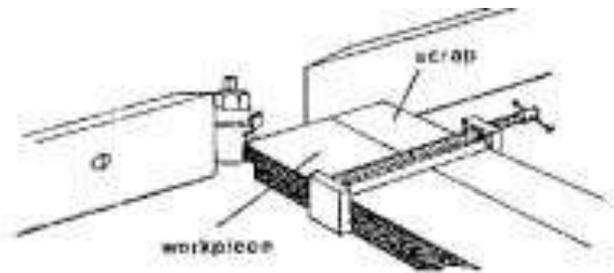


FIGURE 15

Shaping All Sides

Because cross grain shaping is more likely to create chipping out end splinters on some woods, it is good practice to first shape the cross-grain sides. Any chipping that does occur is taken care of by the with-grain cuts, as shown in Figure 16.

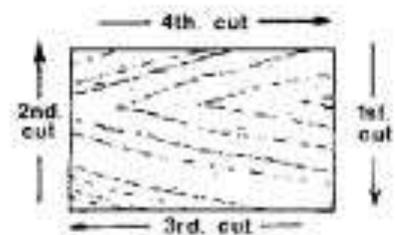


FIGURE 16



On-Edge Shaping

If the shaper fence does not firmly support wide stock, use the existing bolts in the fence to attach a special rigid high fence as shown in Figure 17.



Note: Be sure the bolt holes are countersunk in the special fence.

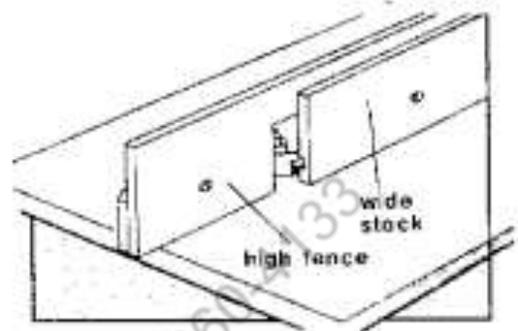


FIGURE 17

Straightline Bevel Edge Shaping

To perform a bevel edge cut, the infeed edge of the jig is placed against the infeed fence and clamped to the table, as shown in Figure 18.

The outfeed fence is moved forward as necessary to compensate for the cut.

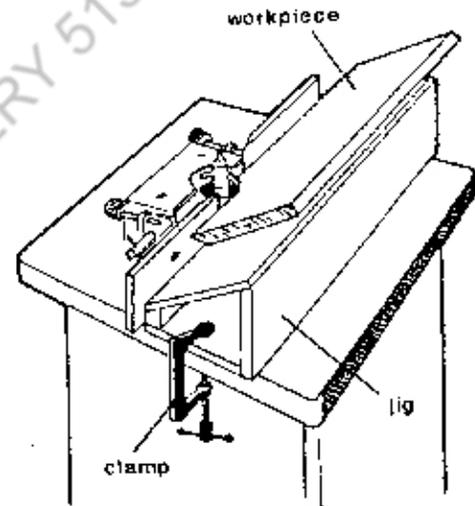


FIGURE 18

Special Cuts

The illustrations in this section shown the profile, or section, views made by the cutter(s). The most efficient cutters are carbide tipped to ensure clean and long-term cutting. Small cutters may be solid carbide, and some use inserts. Since there are such a wide variety of choices, the operator is limited only by his experience and imagination.

Stacked Cutters

In addition, a variety of interesting and timesaving cuts can be made in a single setup by stacking the cutters as shown in Figure 33. When the operator stacks the cutters, extra care should be taken to see that all parts are clean, free of nicks and flaws, and perfectly balanced in the stacked position.

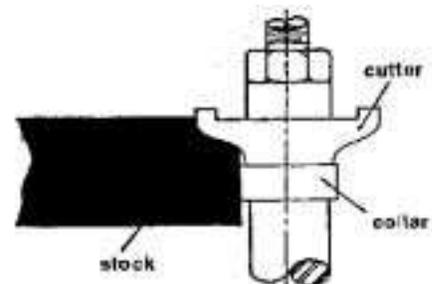


FIGURE 33



Sash and Door Shaping

Shaping a door still requires two operations. Figure 33 shows the sash cut for the first operation.

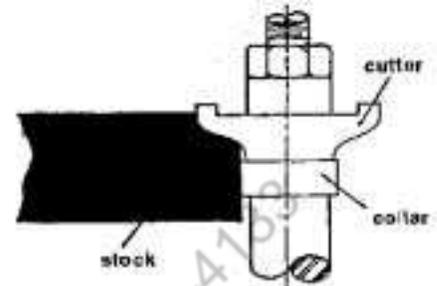


FIGURE 33

Figure 34 shows the stock flipped over and the sash cutter used with a 1/4" groove cutter to complete the cut.

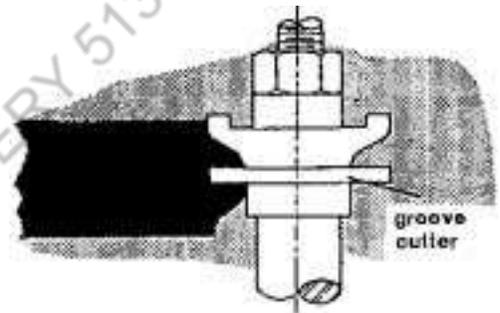


FIGURE 34

Figure 35 shows the first shaping cut with the sash cutter for the matching door stile sash.

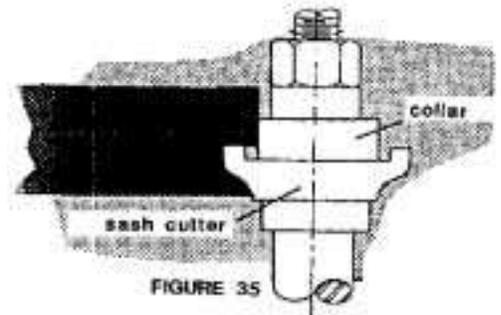


FIGURE 35

Figure 36 shows the same cut with the stock flipped.

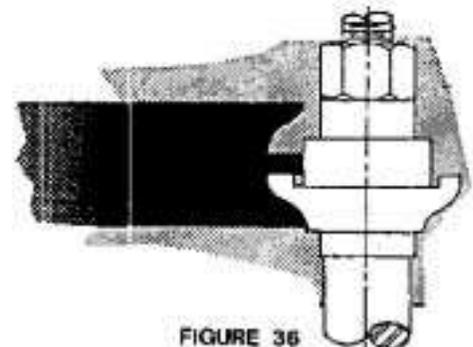


FIGURE 36



Figure 37 shows the first shaping out for a window-sash stile utilizing a sash cutter, collar, collar, and a 1/2" groove cutter.

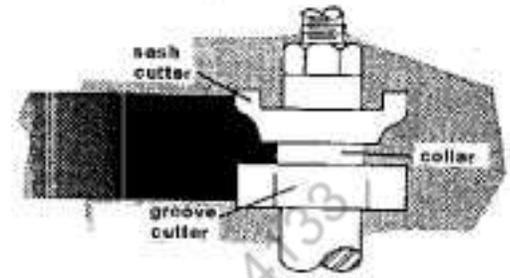


FIGURE 37

Figure 38 shows both cuts required for a window-sash rail end. The first operation at top is a rabbet cut made with a groove cutter. The second operation is performed with a stub spindle and butt head screw.

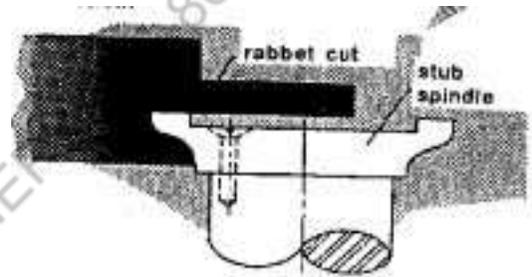


FIGURE 38

Butt Joints

All butt type joints require both workpieces to be perfectly square and straight-edged.

Glue Butt Joint: To perform a glue butt joint, both fences are kept in-line and adjusted for a depth of cut as shown in Figure 39.

The cuts on both workpieces are part-edge cuts which do not reduce the stock width during the cutting procedure. When shaping the two workpieces, one is fed top-side up; the other is fed bottom-side up.



FIGURE 39

Tongued Joint : Similar to the glue joint, both fences are kept in-line for the tongued joint and adjusted for a 1/4" depth of cut with no reduction in stock width. With this joint, however, both workpieces are fed with the same side up as shown in Figure 40.



FIGURE 40

As shown in Figure 41, the leaf workpiece is shaped with a drop Leaf Bead cutter; the table workpiece is shaped with a Drop Leaf Cove cutter. With this type joint, the whole edge of both workpieces is shaped, same side up, and allowance made for a 1/16" reduction in width. Adjust the infeed fence to reduce the workpiece width by 1/16", and adjust the outfeed fence to compensate for stock removed.



FIGURE 41



DUST COLLECTION

The multi-function machine is equipped with several dust collection ports. The dust collector is optional and sold separately.

Before the machine is used to cut workpiece, make sure the dust collector work as designed.



Note: *The minimum required air speed at the end of flexible tube is 20 m/sec. The minimum required air volume of the machine is 750 m³/hr. (43,000~49,000 cu. ft./hr.). Use antistatic and electrically conductive hoses only.*

Three 4.75" (120mm) dust-collecting outlets and one 3" (76mm) dust-collection outlet are available on the machine to assist with dust removal. The saw guard has a 3" (76mm) diameter connection port. The cabinet base, shaper hood, and planer hood have 4.75" (120mm) diameter connection ports. Each can be connected as needed to a dust collector as needed using the proper flexible hose.



IMPORTANT: *Use care and planning when attaching and routing flexible hose for dust collection. DO NOT create a trip hazard or a interference of the work station when routing the hose(s).*

Saw

For sawing work it is necessary to connect two connection outlets. The first one in the upper sawblade guard 3" (76mm) diameter, and the second on the back of the machine cabinet 4.75" (120mm) diameter.

Slotter

For slotting work it is necessary to connect one connection outlet on the back of the machine cabinet 4.75" (120mm) diameter.

Shaper

For shaping work it is necessary to connect one connection to the back of the shaper hood 4.75" (120mm) diameter.

Planer

For planing work it is necessary to connect two connections outlets 4.75" (120mm) diameter. One on the planer hood and one on the back of the machine cabinet.

Jointer

For jointer work it is necessary to connect one connection outlet on the back of the machine cabinet 4.75" (120mm) diameter.



PUSH BLOCKS

Your machine is shipped with a pus stick. Push blocks are optional items that may be obtained commercially or easily constructed.

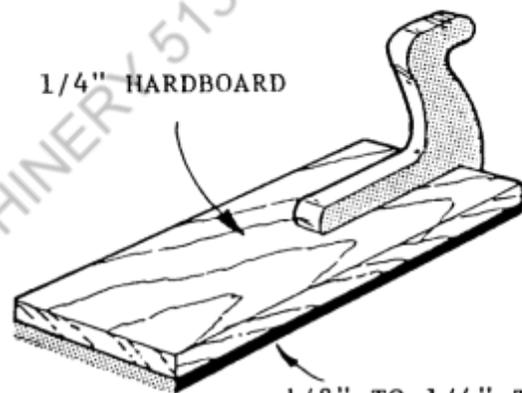
Push blocks are simple, yet necessary tools to assist the operator especially when jointing thin or short stock.

Illustrated are three types of push blocks commonly used in woodworking.

Push blocks are intended to keep hands and fingers away from cutting blade(s) while providing the ability to feed material through the cutting blade(s). These two items are of equal and important consideration when building or buying push blocks.

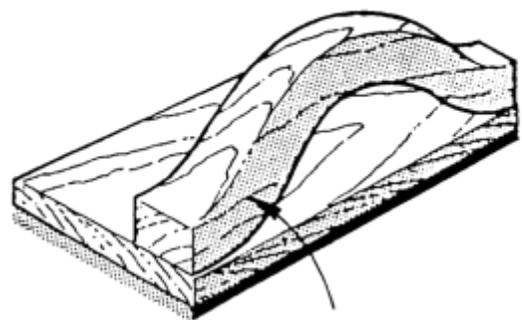
Push Blocks should:

- Maintain the 3" (76.2mm) rule by keeping hands at least 3" (76.2mm) from the cutting Blade(s).
- Provide stops for fingers should they slip during use.
- Feel comfortable in your hand(s).
- Have a notch or dowels to assist in holding the material to prevent kick-back.
- Provide enough surface to hold the material against the cutting blade(s).
- Be made of quality material that will not crack or splinter when it contacts the cutting blade(s).
- Be made of material that will not mar or scratch work material.
- Make the overall use of your machine safer.



1/4" HARDBOARD

1/8" TO 1/4" THICK
SOFT RUBBER
KEEP SURFACE CLEAN
AND FREE OF GRIT.



WOOD DOOR HANDLE OR
SHAPE FROM 1-1/4" STOCK

Because applications vary and push blocks are intended to come in contact with the cutting blade on occasion, have several push blocks available for your application(s).



MAINTENANCE

⚠ WARNING: Make sure the electrical disconnect is **OFF** before working on the machine. Maintenance should be performed on a regular basis following proper safety precautions.

This machine requires very little maintenance other than minor lubrication and cleaning. The following sections detail what will need to be done in order to assure continued operation of your multi-function machine. Proper maintenance can increase the life expectancy of your machine.

- Check daily for any unsafe conditions and fix immediately.
- Check that all nuts and bolts are properly tightened.
- On a weekly basis clean the machine and the area around it.
- Apply rust inhibitive lubricant to all non-painted surfaces.
- Inspect/test the ON/OFF switch before each use. Do not operate this machine with a damaged switch - replace a damaged switch immediately.
- Inspect the blades and knives for damage or chipped teeth before each use. Replace a damaged or chipped blades or knives immediately. Never operate this machine with damaged or chipped blade or knives.
- Keep the tables clean and free of dust, pitch or glue. An occasional light coating of paste wax can be use to protect the cast-iron surface.
- Occasionally open the cabinet and brush off and vacuum out accumulated dust from inside the cabinet and on the machine adjustment gears and on or around the motor.
- Periodically inspect the power cord for damage. To minimize the risk of electric shock or fire, never operate the saw with a damaged power cord. Replace a damaged power cord at the first sign of damage.
- To minimize airborne dust particles periodically inspect all dust collection fittings – re-tighten as needed.
- Check the drive belt for tightness. It should be snug but not overly tight.
- Use a mill file to remove any nicks or dings from the infeed or outfeed tables.
- Verify that the spreader/riving knife is aligned with the blade.

Cleaning

Cleaning the saw is relatively easy. Vacuum excess wood chips and sawdust, and wipe off the remaining dust with a dry cloth. If any resin has built up, use a resin dissolving cleaner to remove it.

After cleaning, treat all unpainted cast iron and steel with a non-staining lubricant.

Occasionally it will become necessary to clean the internal parts with more than a vacuum. To do this, remove the table top and clean the internal parts with resin/pitch dissolver or mineral spirits and a stiff wire brush or steel wool.



Make sure the internal workings are dry before using the saw again, so that wood dust will not accumulate. If any essential lubrication is removed during cleaning, re-lubricate those areas.

Lubrication

This machine has sealed lubricated bearings in the motor housing and the arbor assembly, they will not require any additional lubrication. Use a wire brush to clean off the gears and trunnions and apply a white lithium grease to keep them lubricated.

It is essential to clean components before lubricating them because dust and chips build up on lubricated components and make them hard to move. Simply adding more grease to them will not yield smooth moving components.

REPLACEMENT AND TIGHTENING OF BELTS

Cutterhead Belt

- Loosen the 3 screws and shift the position of the motor support in order to tighten the belts.
- Set the 3 screws.
- If the belts are broken, replace them (image of the engine support with plane missing).

Table Saw and Scoring Saws Belt

- Loosen the 2 screws of the stretcher, rotate motor support up to tighten the screws.
- If the belts are broken, replace them.
- Disassemble the blade, the carter, act on tension screw to tighten the engraver belt.
- In order to replace it, loosen the spring levering on the blade pulley, install the belt in reverse order of removal.



Spindle-Moulder Belt

- Open the router door.
- Release the lever and move the motor to tighten the belt.
- In case of wear, replace the belt.
- Once the adjustment is correct, tighten the lever.





Blade Care

⚠ WARNING: Blades are extremely sharp! Use caution when cleaning or changing. Failure to comply may cause serious injury!

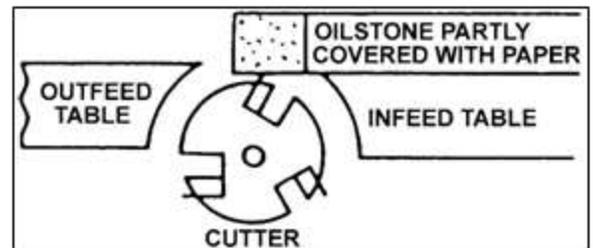
When gum and pitch collect on the blades, carefully remove with a strong solvent. Failure to remove gum and pitch build up may result in excessive friction, blade wear, and overheating.

When blades become dull, touch up blades. See Sharpening the Knives.

Sharpening the Knives

⚠ WARNING: Blades are extremely sharp! Use caution when handling. Failure to comply may cause serious injury!

1. Disconnect the machine from the power source.
2. Remove the blade guard and belt cover.
3. To protect the infeed table from scratches, partially cover the sharpening stone with paper.
4. Lay the stone on the infeed table.
5. Lower the infeed table and turn the cutterhead by turning the cutterhead pulley. The infeed table height is set properly when the stone's surface is flush with the knife bevel.
6. Keep the cutterhead from rotating by grasping the cutterhead pulley while sliding the stone back and forth across the table.
7. Take the same amount of passes for all three blades.



When the blades have been sharpened and still are not cutting efficiently, trying to touch up the blades further will only cause the formation of a second beveled edge. When this starts to happen, it is time to replace blades with another set. It is recommended to keep a second set of blades on hand so that they may be installed while the first set is being professionally sharpened.



TROUBLESHOOTING

⚠ WARNING: Disconnect machine from the power source before attempting any troubleshooting.

The machine does not start or stops during work

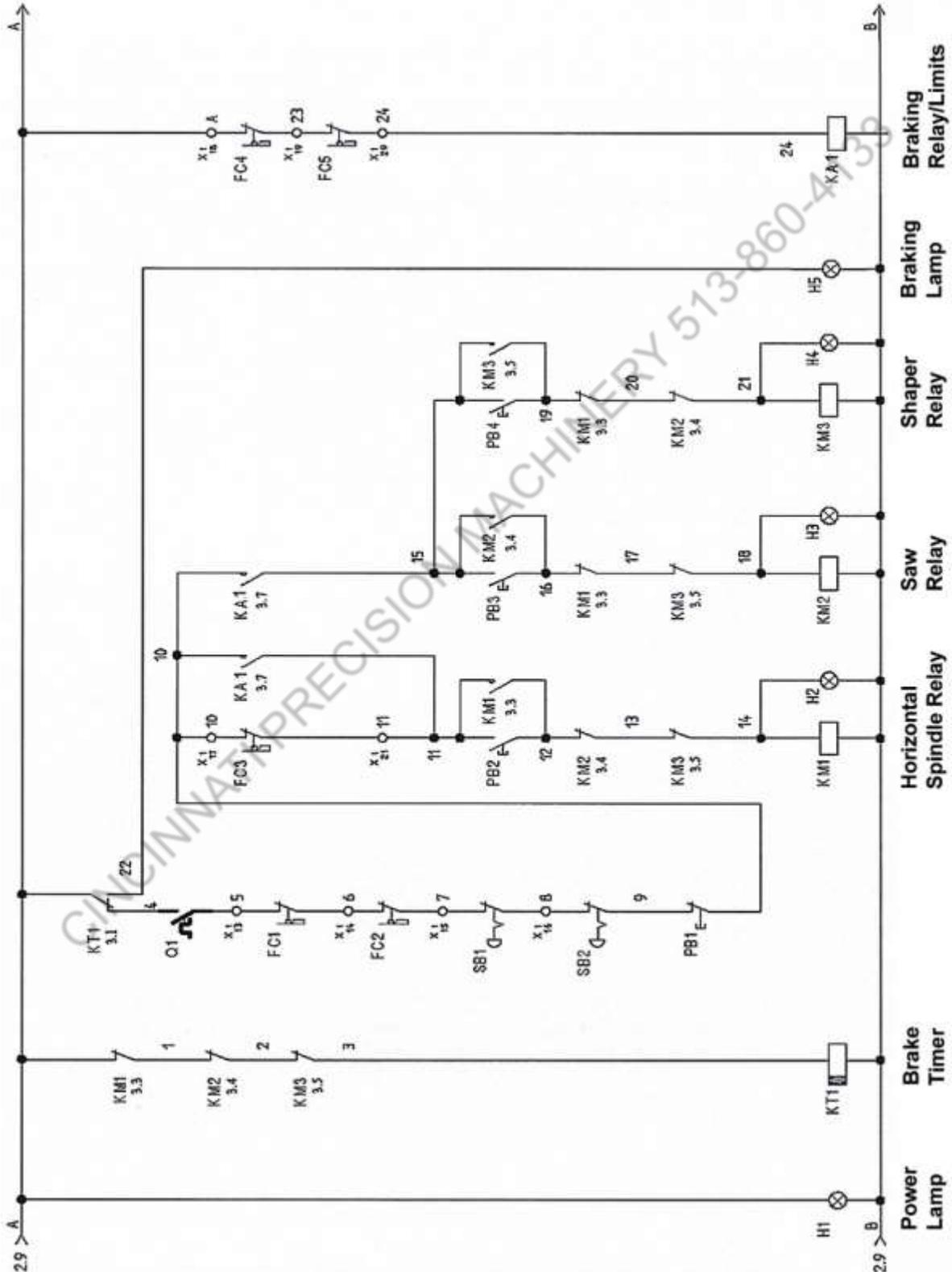
CAUSES	REMEDIES
Motor will not start (any function)	Is stop button illuminated? Brake time delay is active. Wait time delay to cycle and then start the motor. Limit switch out of adjustment. There are 5 limit switches on the machine. Check that all limit switches engaged.
Loss of power supply	Check plug connection Check electrical connections. Check specific circuit
Fuses burnt out.	Check the fuses and make sure they are not damaged. Replace if necessary (the fuses are inside the panel).
Emergency push button pressed.	Turn the emergency push button clockwise to disconnect it.
Main switch switched on because of: <ul style="list-style-type: none"> excessive electrical input caused by incorrect use of the machine; section of cable insufficient for motor power; voltage drop caused by excessive length of supply cable; short circuit in the electrical components. 	To resolve these problems, let the machine cool down and then restart it.
Safety microswitch switched on.	Check the correct position of the protection devices equipped with safety microswitches.

Motor operates, the tool stops when in contact with the workpiece

CAUSES	REMEDIES
The motor belt is loose or damaged.	Tighten or replace the belt.



ELECTRICAL DIAGRAM SHEET B



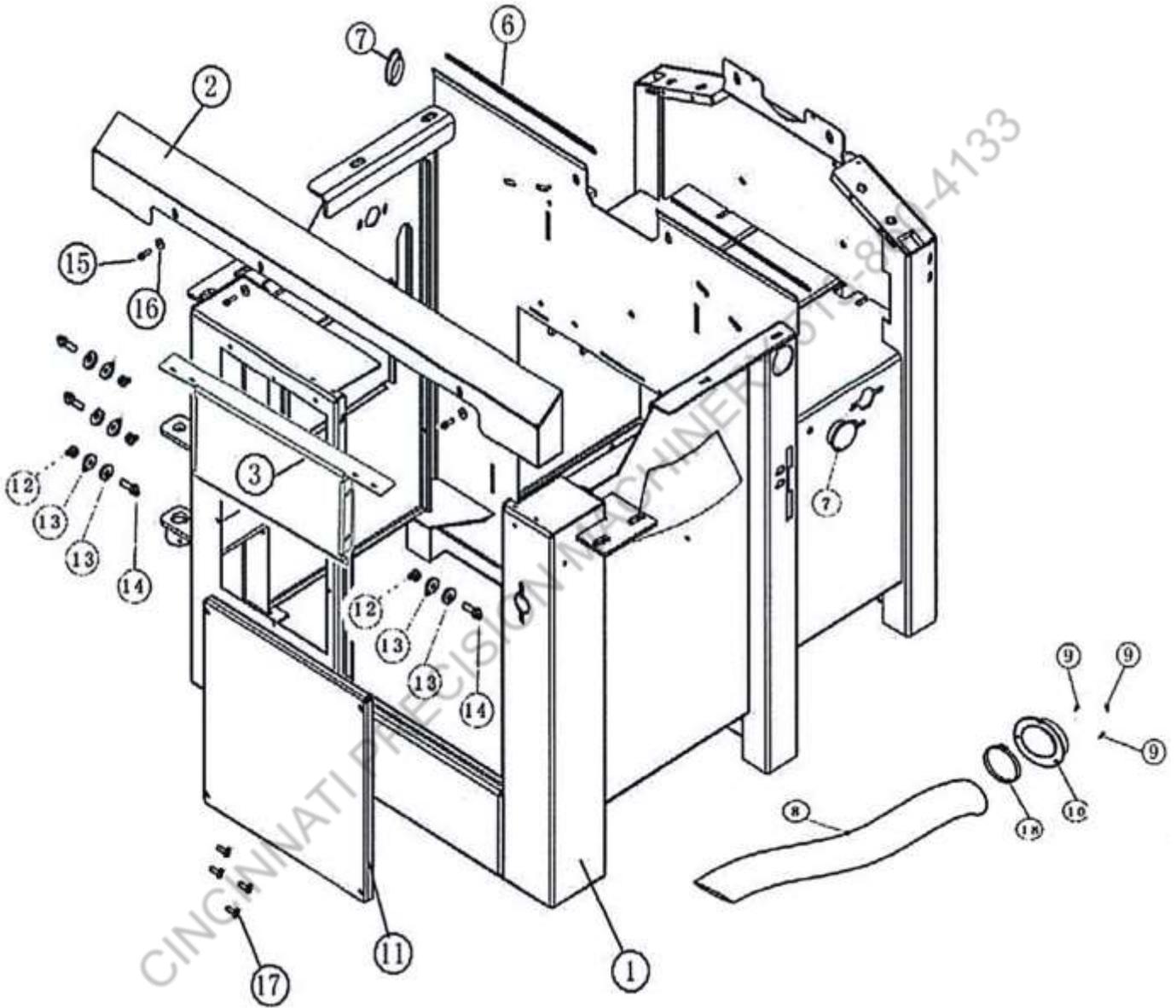


Electrical Components

Code	Function	Type
S1	Disconnect Switch	3P - 20A
Q1	Breaker, Motor Protection	3P -14A-20A
Q2	Breaker, Transformer Input	2P- 3A
Q3	Breaker, Transformer Output	2P- 3A
T1	Transformer	400/110V- 100VA
M1	Motor, Jointer, Planer, Slotter	3P - 400V - 2,2KW/3,0KW - 2800 rpm
M2	Motor, Table Saw	3P - 400V - 2,2KW/3,0KW - 2800 rpm
M3	Motor, Shaper	3P - 400V - 2,2KW/3,0KW - 2800 rpm
H1	Power indicator warning light	Diam. 22 - 110V white
KT1	Timer braking and start delay	timer OFF delay
FC1	Limit switch on front cover	AZ8122 1NO + 1NC
FC2	Limit on blade guard	AZ8112 1NO + 1NC
FC3	Limit of cap thickness	AZ8112 1NO + 1NC
FC4	Limit on plan thread left	AZ8112 1NO + 1NC
FC5	Limit on plan thread right	AZ8112 1NO + 1NC
SB1	Emergency Stop Button, Back	Mushroom, Mechanical Detent - diam. 22
SB2	Emergency Stop Button, Control Panel	Mushroom, Mechanical Detent - diam. 22
PB1	Stop Push Button	Diam. 22 – Red Lamp
PB2	Planer Start Push Button	Diam. 22 – Green Lamp
KM1	Motor Contactor, Planer	110V Coil – contact: 3P, 2NO + 3NC, 12A
H2	Indicator Lamp, Planer	Diam. 22 - PB2 - 110V Green
PB3	Saw Start Push Button	Diam. 22 – Green Lamp
KM2	Motor Contactor, Saw	110V Coil – contact: 3P, 2NO + 3NC, 12 ^a
H3	Indicator Lamp, Saw	Diam. 22 – PB3 - 110V Green
PB4	Shaper Start Push Button	Diam. 22 – Green Lamp
KM3	Motor Contactor, Shaper	110V Coil – contact: 3P, 2NO + 3NC, 12A
H4	Indicator Lamp, Shaper	Diam. 22 – PB4 - 110V Green
H5	Indicator Lamp, Brake	Diam. 22 – PB1 - 110V Red
KA1	DC Brake Relay	110V Coil - contact: 4+4 NO



CABINET PARTS DIAGRAMS





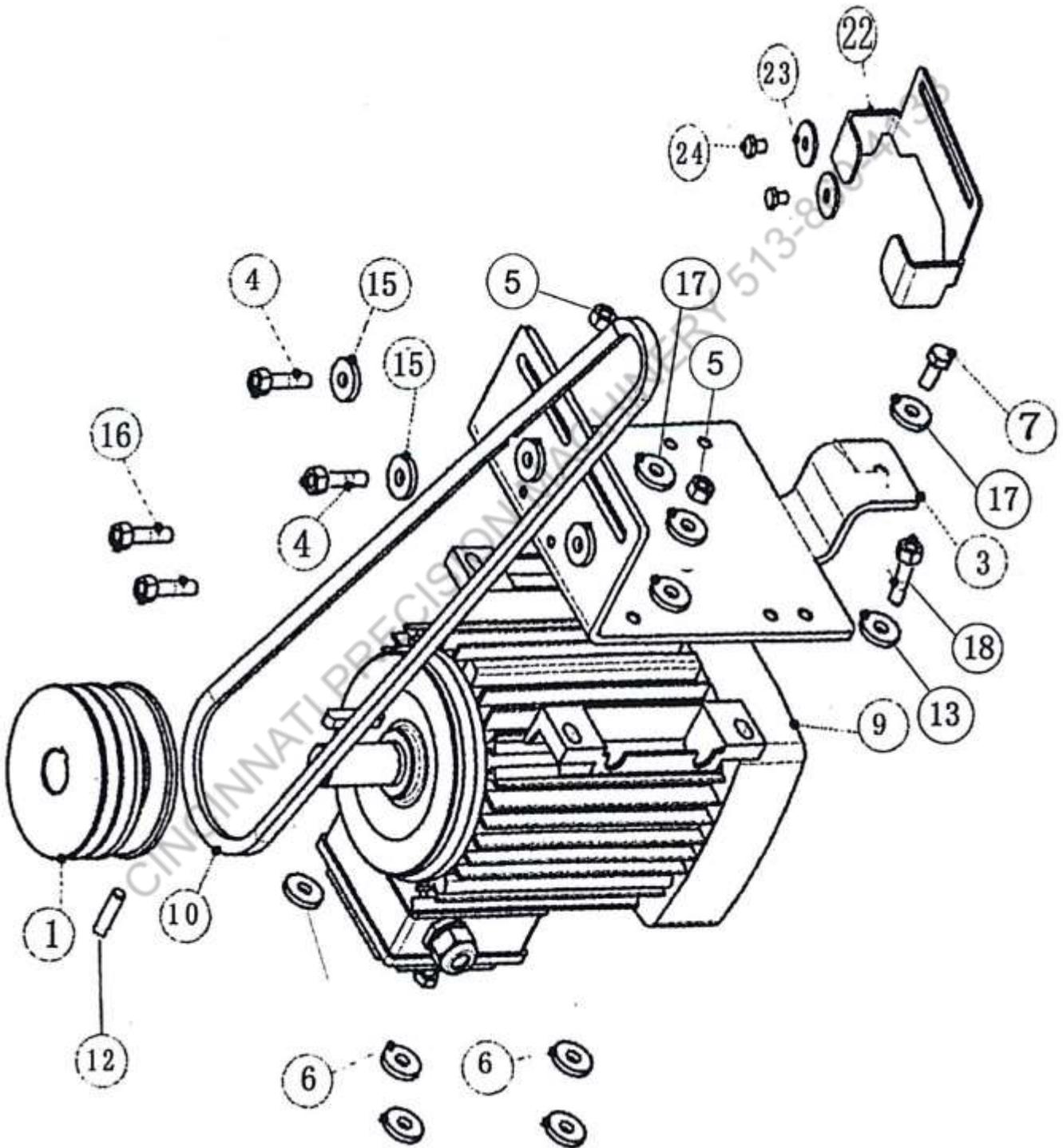
Cabinet Parts List

Item	Description	Qty.
1	Base	1
2	Front Cover	1
3	Front Cover Sheet	1
6	Rubber Strip 10.5 x 8 x 362(L), 331(R)	2
7	Plug 60 x 0.50 x 19.5	2
8	Dust Tube 80 x 1280mm	1
9	Screw M6 x 10-10.9	3
10	Suction Port Adaptor	1
11	Access Cover	1
12	Hex Nut M6	4
13	Flat Washer M6	8
14	Screw M6 x 20	4
15	Screw M8 x 20	3
16	Flat Washer M8	6
17	Screw M5 x 20	4

CINCINNATI PRECISION MACHINERY 513-860-4133



CUTTER HEAD DRIVE PARTS DIAGRAM - A





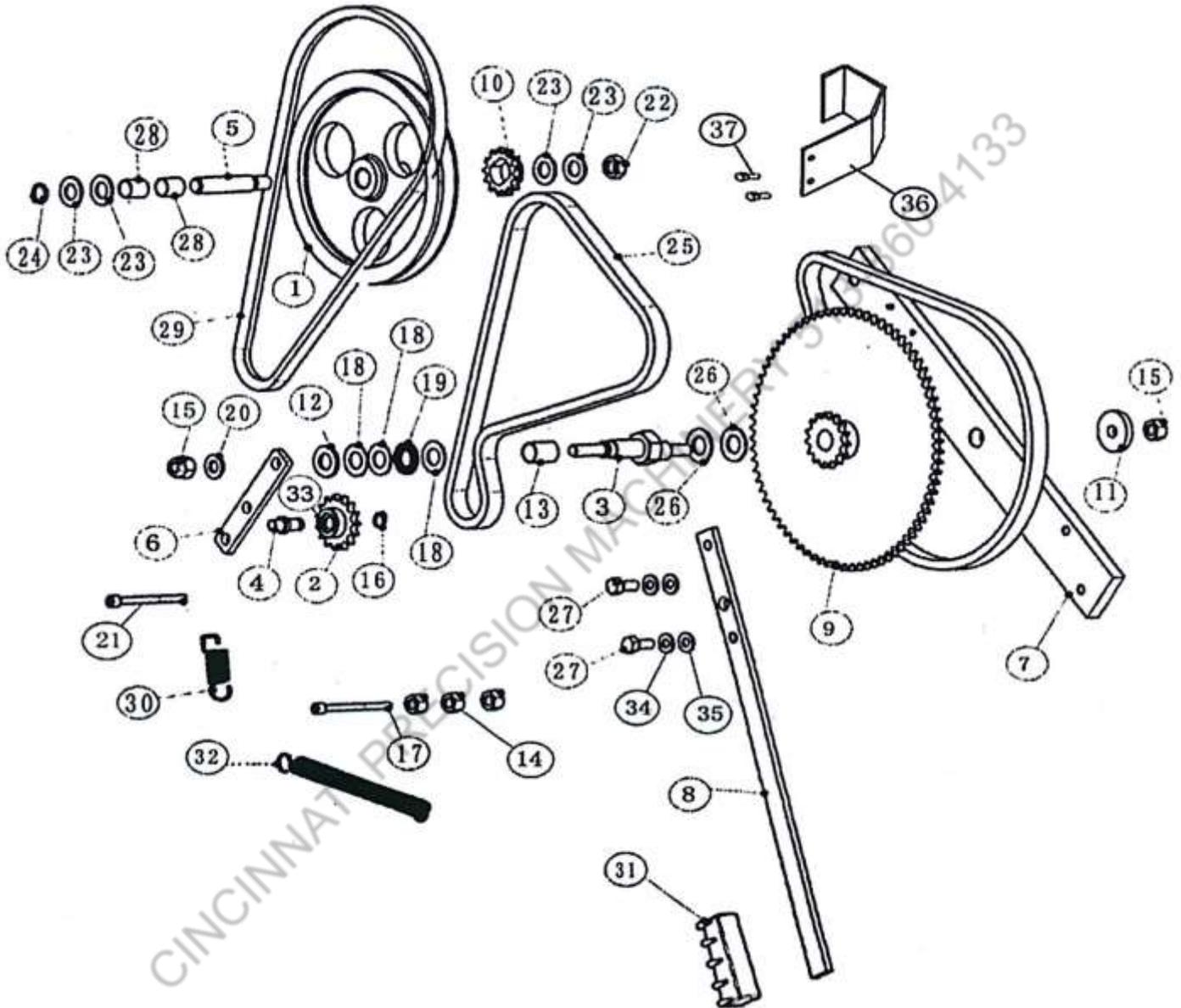
Cutter Head Drive Parts List - A

Item	Description	Qty.
1	Motor Pulley, D.100 L.65.5	1
3	Motor Mounting Bracket	1
4	Screw M6 x 16	2
5	Hex Nut M8	2
6	Flat Washer M10	4
7	Screw M8 x 20	1
9	Motor, 2.7hp (2.0kw) 220V, 1ph, 12A	1
10	Belt, 1190 (3v-470)	2
12	Set Screw M8 x 10	1
13	Flat Washer M10	4
14	Hex Nut M10	4
15	Flat Washer M6	4
16	Screw M8 x 25	2
17	Lock Washer M8 x 25	5
18	Screw M10 x 35	4
22	Belt Guide	1
23	Lock Washer M6	2
24	Screw M6 x 10	2

CINCINNATI PRECISION MACHINERY 513-860-4133



CUTTER HEAD DRIVE PARTS DIAGRAM - B



Cutter Head Drive Parts List - B

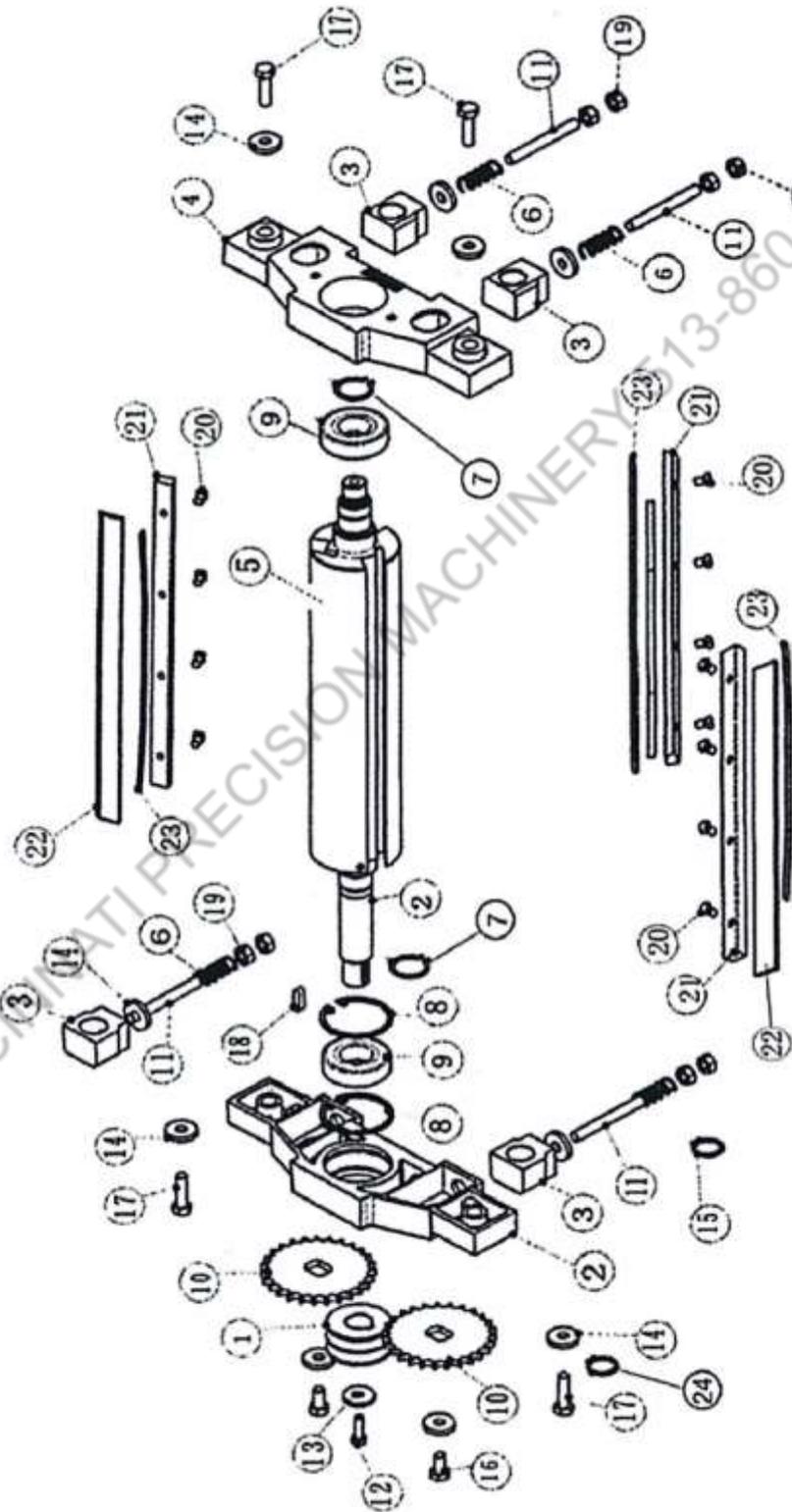
Item	Description	Qty.
1	Drive Pulley, D.190 L.35	1
2	Tensioner Sprocket with Bushing, Z 15	1
3	Eccentric Shaft	1



Item	Description	Qty.
4	Pinion Pin, D.15 L.25	1
5	Pulley Pin, L.83 x D14	1
6	Plate, Front Door 20 x 5 x L.115	1
7	Transmission Lever	1
8	Lever Plate, 20 x 5 x L.418	1
9	Sprocket w/welded Pinion Z76 x Z13	1
10	Sprocket, Z13 3/8" x 7/32", ASOLA20H7 x 25	1
11	Washer 10 x 30 x 2	1
12	Washer 15 x 28 x 2.5 UNI6592 DIN125A	2
13	Du Bushing, MB16-20DU	1
14	Hex Nut M6	3
15	Hex Nut M10	6
16	Retaining Ring, D10 UNI7435	1
17	Screw Socket Head, M6 x 60, UNI5931	1
18	Thrust Washer, AS15/28 Sp=1	3
19	Thrust Bearing, AXK15/28 Sp=2	1
20	Washer, D.10.5 x 21 x 2 UNI6592 DIN125A	3
21	Screw, M10 x 30	1
22	Hex Nut M12	1
23	Bearing Washer, VVC12DU, 14mm	2
24	Retaining Ring, D14 UNI7435	1
25	Chain, 3/8" x 7/32" (92 MC) ISO06B1	2
26	Bearing Washer, VVC14DU, 16mm	2
27	Screw, M8 x 16	2
28	Bushing, MB14-15DU	2
29	Belt SPZ x 912	1
30	Spring Tensioner, DE.15 LT.65	1
31	Handle Grip	1
32	Spring Tensioner, DE.15 L.132	1
33	Bushing, MB10-08DU	1
34	Washer, M8	2
35	Washer, D8 x 25 x 1.5	2
36	Seat, Planer Motor	1
37	Screw, M6 x 12, UNI5739	2



CUTTER HEAD PARTS DIAGRAM



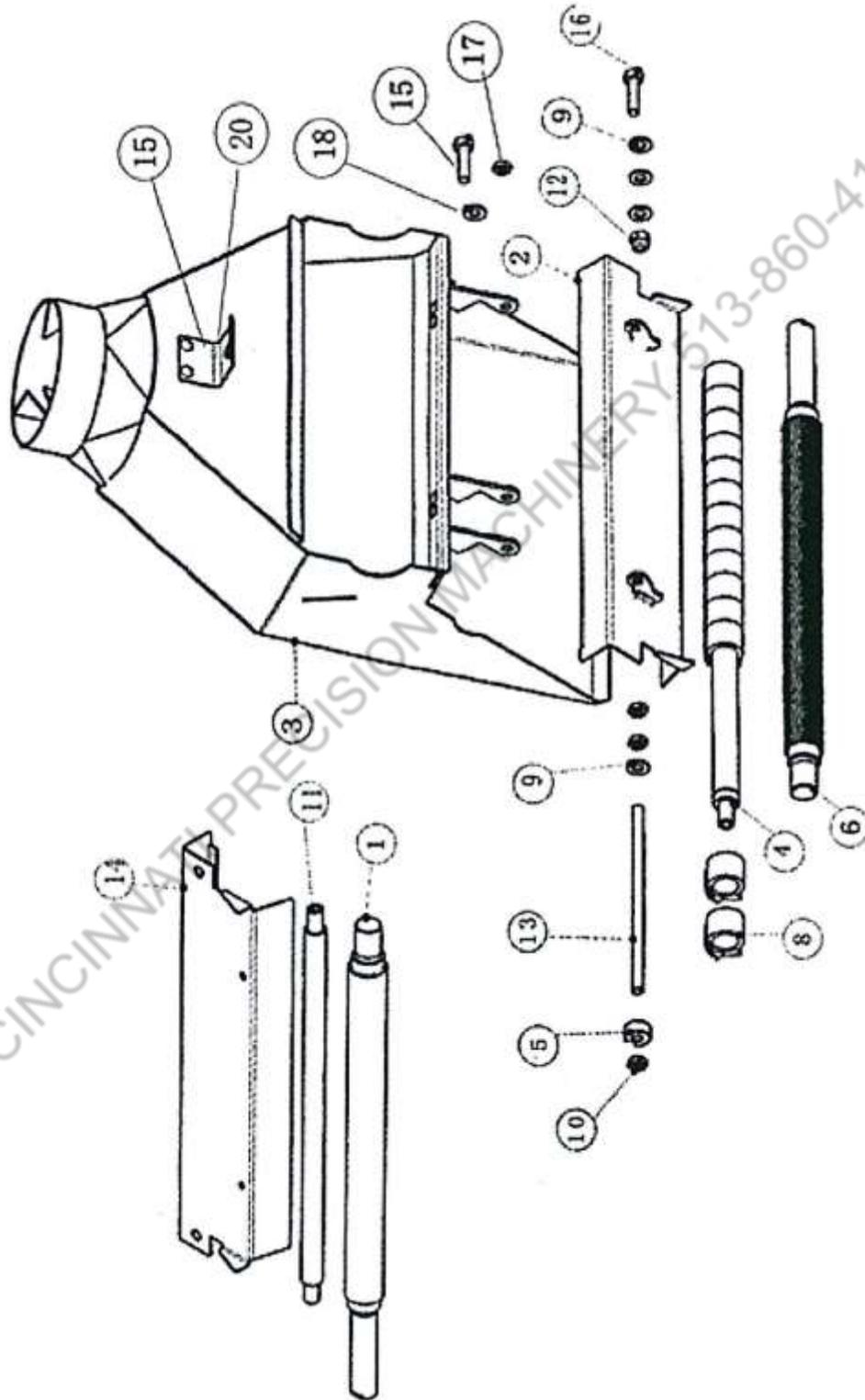


Cutter Head Parts List

Item	Description	Qty.
1	Pulley D.50 L.27	1
5	Cutter Head, SXD.70 L.490	1
3	Adjustment Block	4
4	Shaft Support, Outboard	1
2	Shaft Support, Inboard	1
6	Spring, D.13 L.40	4
7	Retaining Ring, D25 Uni7435	2
8	Retaining Ring, D52 Uni7437	2
9	Bearing 6205-2rs C3 (25 x 52 x 15)	2
10	Sprocket, 3/8" X 7/32", Z27 ASOLA 20H7 x 15	2
11	Threaded Rod M8 X 1.25 L.73	4
12	Screw M6 x 20 Uni5739	1
13	Washer, D8 x 25 x 1.5	3
14	Washer, D8 x 22 x 1.5	12
15	Retaining Ring, D20 Uni7435	2
16	Screw, M8 x 16 Uni5733	2
17	Screw, M8 x 30 UNI5739	4
18	Key, 6 x 6 x 20	1
19	Nut M8	8
20	Square Head Screw, M6 x 8 (Jack Screws)	15
21	Gib, Lock Knife, L.300	3
22	Knife 300 x 20 x 3	3
23	Spring For Knives 5 x 1 x 246	3
24	Washer, M8	4



PLANER HOOD AND FEED PARTS DIAGRAM



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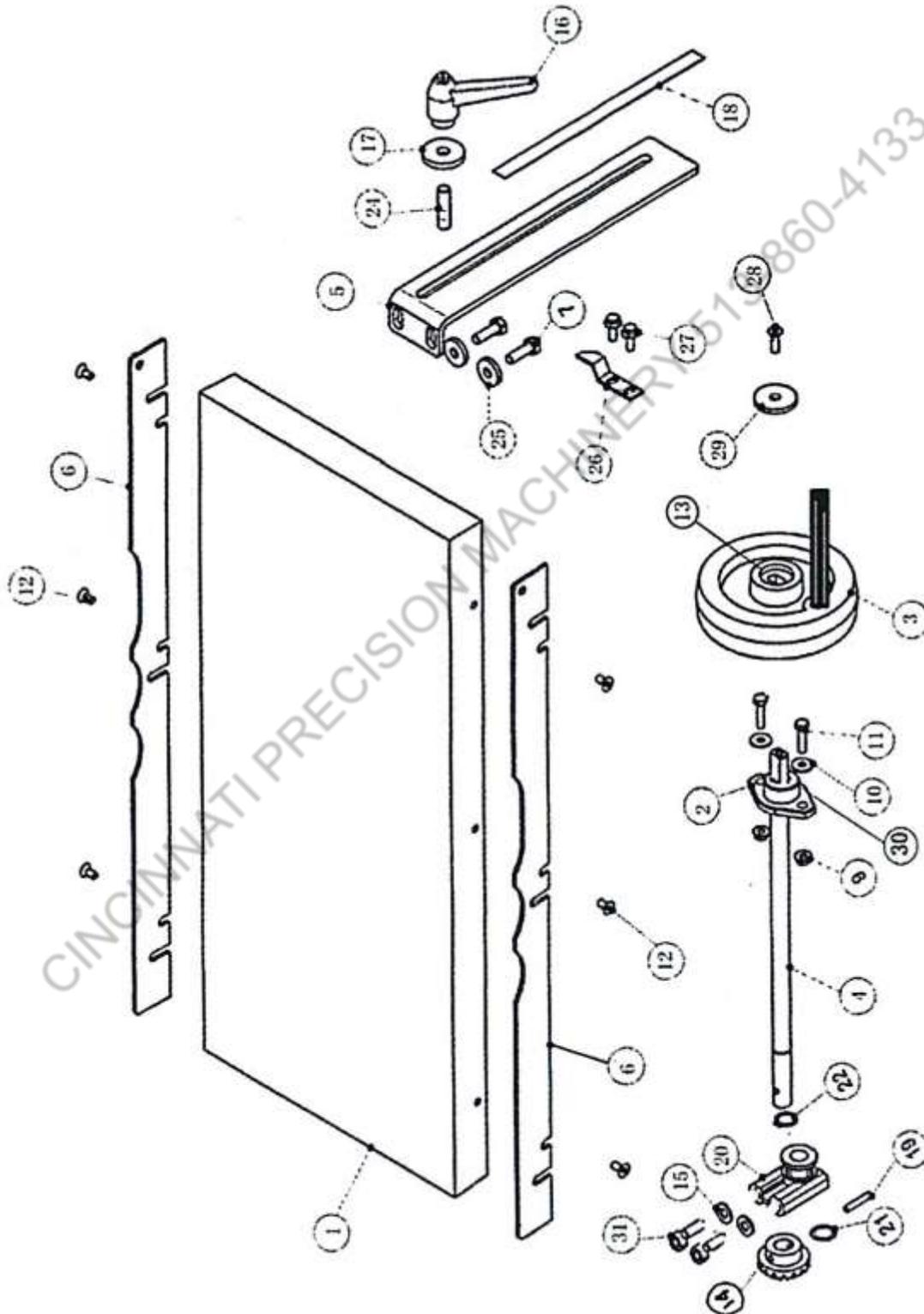


Planer Hood and Feed Parts Diagram

Item	Description	Qty.
1	Roller Smooth, D.32 L.428.7	1
2	Roller Cover, 358 x 80 x 50	1
3	Hood, 476 x 311 x 123	1
4	Nose Bar, D.20 L.362	1
5	Cam, D.20 L.10	1
6	Roller Toothed, D.30 L.429	1
8	Anti-Kickback Fingers	14
9	Washer, D8.4 x 17 x 1.6 Uni6592 Din125a	4
10	Hex Nut M8	1
11	Nose Bar, W.360 D.17	4
12	Nylock Nut, M8	1
13	Threaded Rod, M8 x 1.25 L.170	1
14	Roller Cover, 358 x 149 x 1.5	1
15	Screw, M4 x 10	6
16	Screw, M8 x 30	1
17	Nut M4	6
18	Washer M4	6
19	Screw, M5 x 10	1
20	Closing Spring	1



PLANER TABLE PARTS DIAGRAM



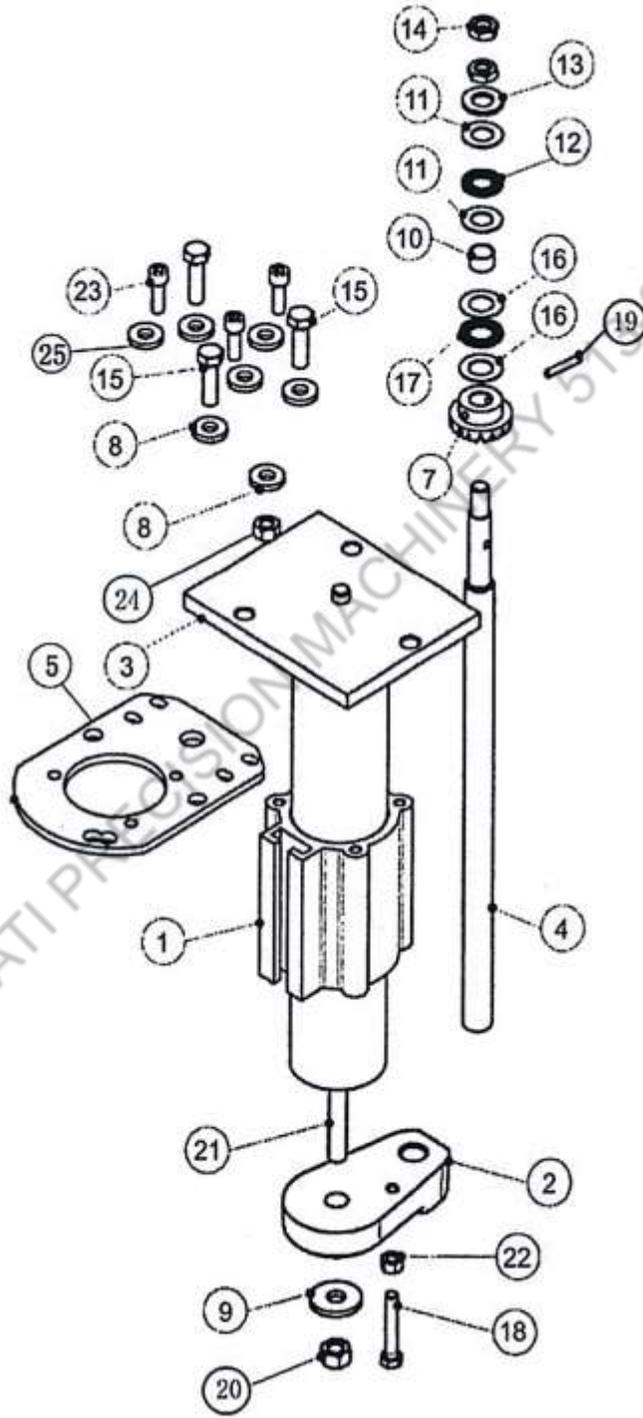


Planer Table Parts List

Item	Description	Qty.
1	Planer Table, 403 x 760 x 40	1
2	Adjustment Shaft Mounting Block	1
3	Hand Wheel	1
4	Adjustment Shaft, L.413 D.15	1
5	Height Guage Bracket, 341 x 60 x 6	1
6	Guide Plate, 758 x 41 x 3	2
7	Screw M8x20 Socket Head	2
9	Nut, Galvanized, M6	2
10	Washer, D.6 x 18 x 1.5	4
11	Screw M6x20 Socket Head	2
12	Screw M6x16	6
13	Key, 4x16	1
14	Bevel Gear, Mod 2.5 R = 1/1 Z16 Sint	1
15	Washer, D.8.4 x 17 x 1.6	2
16	Handle Snap-M10	1
17	Washer, D.10 x 36 x 2	2
18	Scale Decal	1
19	Spring Pin 5x30	1
20	Mounting Block	1
21	Spacer Ring	1
22	Retaining Ring, D15 Uni7435	1
24	Spacer	1
25	Washer, D.8 x 24 x 4	2
26	Index Marker, 70 x 15 x 2.5	1
27	Screw, M6x16	2
28	Screw, M6x20	1
29	Washer, D.6 x 1.5 x 16	1
30	Screw, M8x30	1
31	Screw, M8x25	2
32	Bushing, MB15x10DU	1



PLANER TABLE LIFT PARTS DIAGRAM



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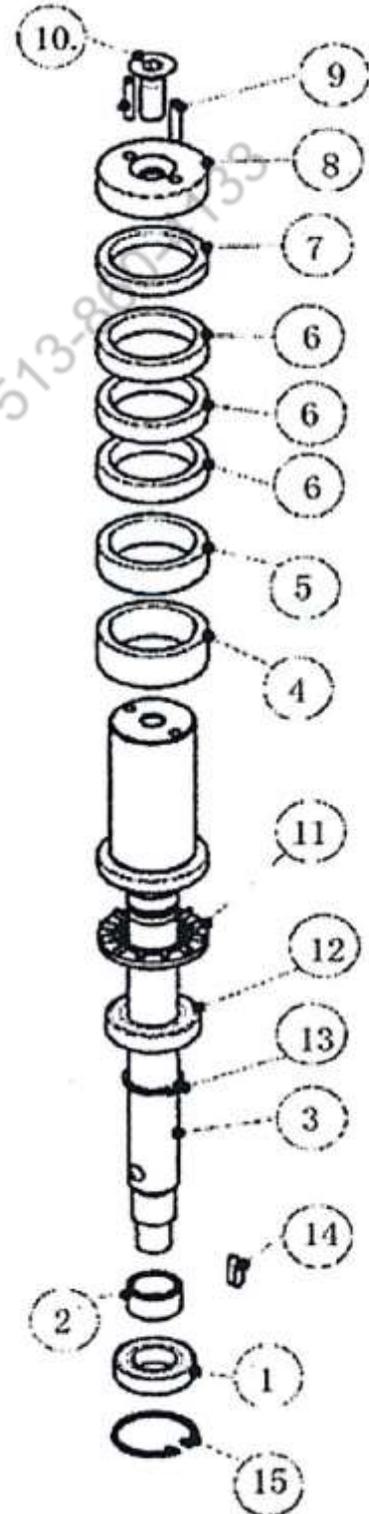


Planer Table Lift Parts List

1	Collar	1
2	Nut Lifting, 0.165x110x30	1
3	Cylinder, D.100 L.421.5	1
4	Lifting Screw 20x5 TPN L.460	1
5	Plate, 165 x 216.5 x 6	1
7	Bevel Gear, Mod 2. R = 1/1 Z16 SINT	1
8	Washer, D.10 x 24 x 4	7
9	Washer, D.12 x 36 x 2	2
10	Bushing DU 1.00 8.15 MB	1
11	Thrust Washer, AS 15/28 SP=1	2
12	Thrust Bearing, AXK 17/30 SP=2	1
13	Washer, D.15 x 28 x 2.5	2
14	Hex Nut M12	2
15	Screw, M10x20	3
16	Thrust Washer, AS 17-30 SP=0.8	2
17	Thrust Bearing, AXK 17-30 SP=2	1
18	Screw M8x50	1
19	Spring Pin 5x30	1
20	Hex Nut M12	2
21	Threaded Rod M12x1.75 L.505	1
22	Hex Nut M8	3
23	Screw, M8x25	3
24	Hex Nut M10	3
25	Washer, D8 x 25 x 1.5	3



SHAPER SPINDLE PARTS DIAGRAM

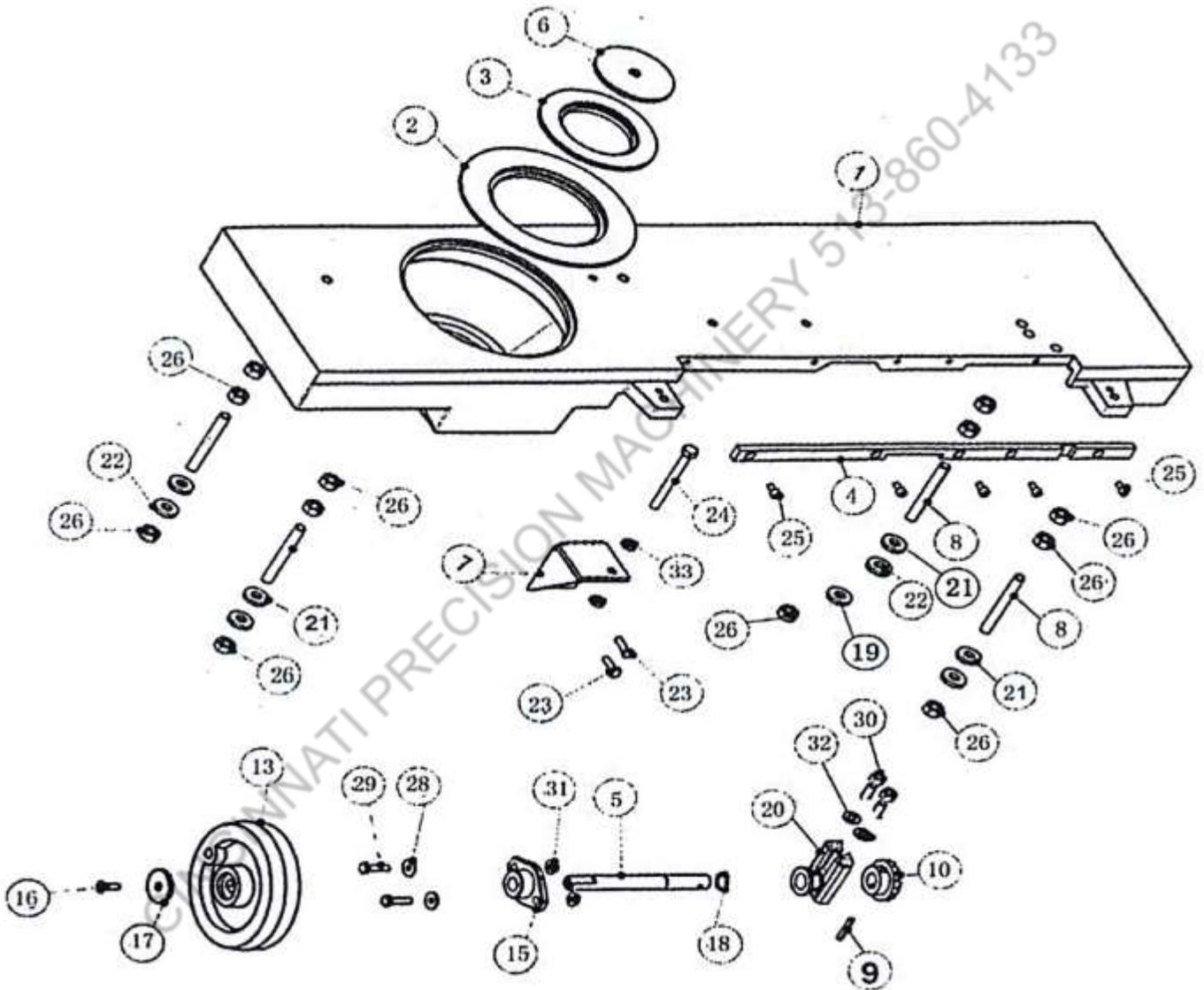


Shaper Spindle Parts List

Item	Description	Qty.
1	Bearing 6005 2RS (25 x 47 x 12)	1
2	Shaft Ring, D.32 L.16.5	1
3	Spindel, D.30 L.418	1
4	Ring Router, D.49.5 G.25 DI.30	1
5	Ring Router, D.49.5 H.20 DI.30	1
6	Ring Router, D.19.5 H.15 DI.30	3
7	Ring Router, D.49.5 H.10 DI.30	1
8	Retaining Collar, D.49.5 L.18 F.30	1
9	Parallel Pin, 4 x 20	2
10	Screw, M14x40 Uni5933	1
11	Thrust Bearing	1
12	Bearing, 6006 2RS (30 x 55 x 13)	1
13	Retaining Ring, D30 Uni7435	1
14	Key, 6 x 6 x 20	1
15	Retaining Ring, D47 Uni7437	1



SHAPER TABLE PARTS DIAGRAM



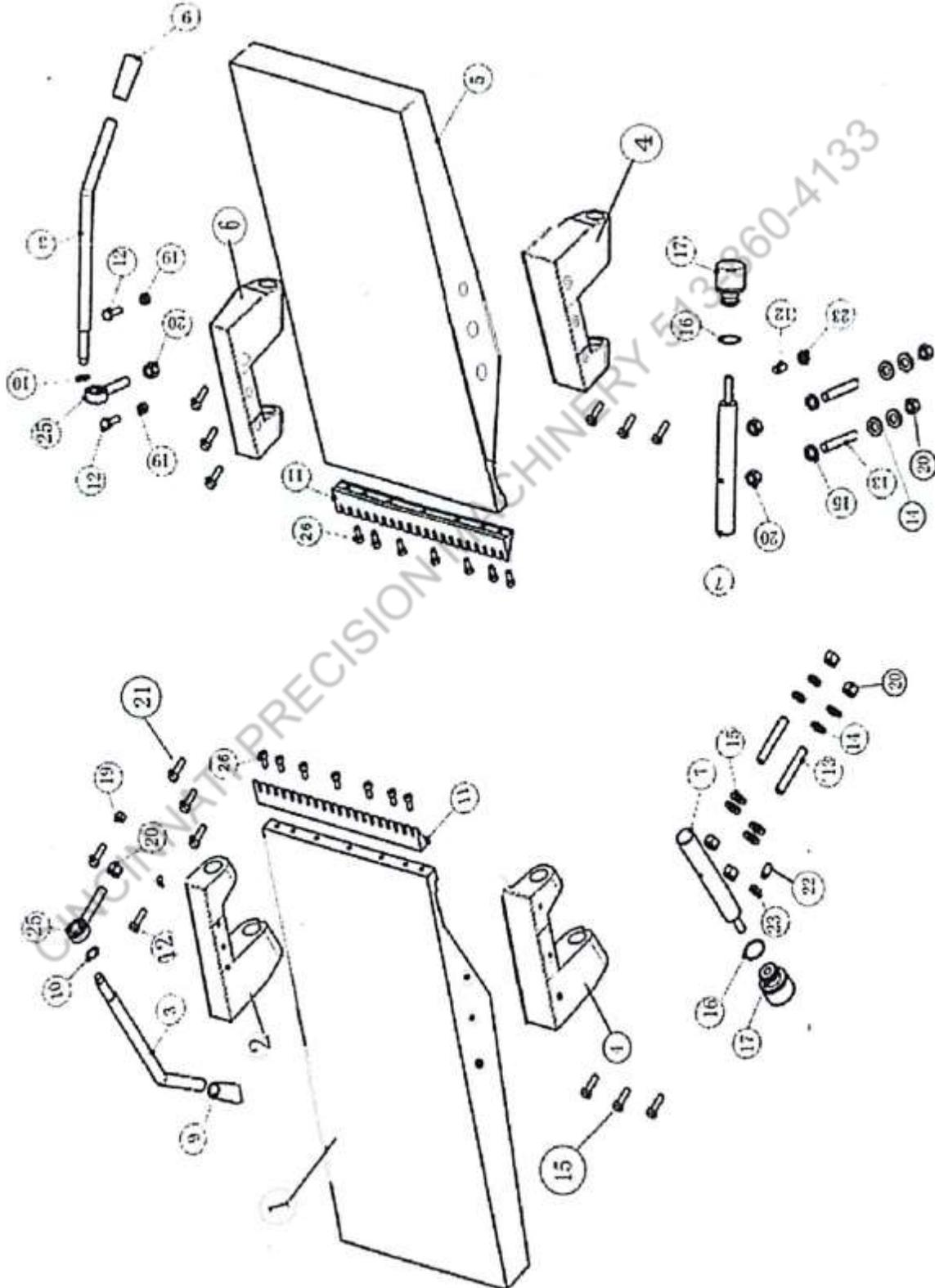


Shaper Table Parts List

Item	Description	Qty.
1	Router Table, 1000 x 220 x 95	1
2	Insert Ring, D.210 L.10	1
3	Insert Ring, D.120	1
4	Saw Guide Insert, 15 x 8 L454.5	1
5	Shaft, D.15 L.160	1
6	Cover Insert, D.80 SP.4	1
7	Bracket, 122 x 104 x 5	1
8	Threaded Rod M10 x 1.5 L.85	4
9	Spring Pin 5 x 30	1
10	Bevel Gear, Mod2.5 R=1/1 Z16 SINT	2
13	Hand Wheel, D.130	1
15	Support Post, F.15	1
16	Screw M6 x 20 Uni5933	1
17	Washer, D.8 x 36 x 4	1
18	Retaining Ring, D15 Uni7435	1
19	Washer, D10 x 20 x 1.5	4
20	Mounting Block,	1
21	Washer, D12 x 37 x 2.5	4
22	Washer, D.10 x 30 x 1.5	4
23	Screw, M6x20 Uni5739	2
24	Screw, M8x100 Uni5739	1
25	Screw, M5x8 Uni5931	5
26	Hex Nut M10	12
28	Washer, D.6 x 18 x 1.5	2
29	Screw, M6x20 Uni5739	2
30	Socket Head M8x25	2
31	Nylock Nut M6	2
32	Washer, D.8.4 x 17 x 1.6 Uni6592 Din125A	2
33	Nylock Nut M8	2



JOINTER TABLE PARTS DIAGRAM



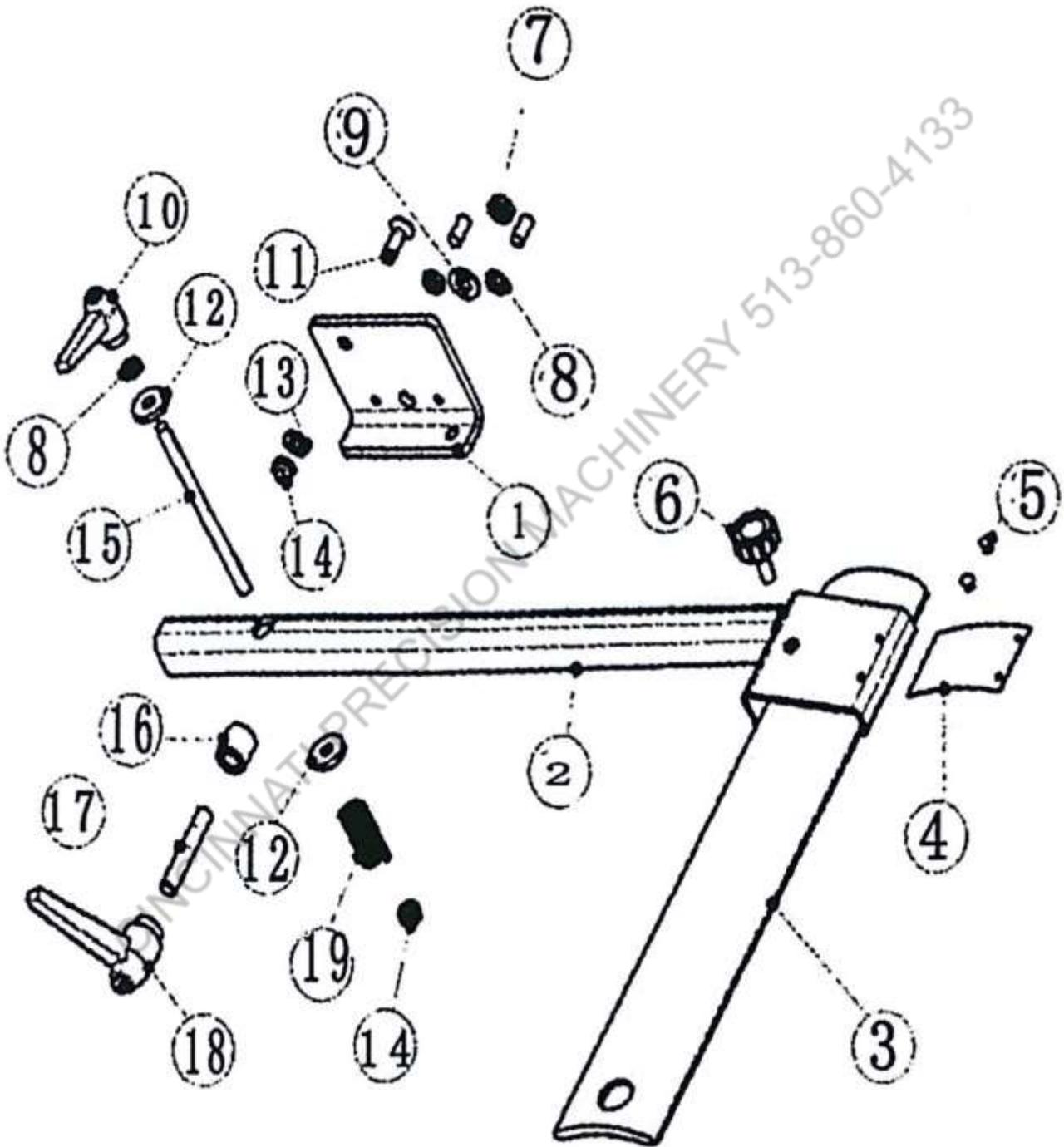


Jointer Table Parts List

Item	Description	Qty.
1	Outfeed Table	1
2	Lock Block, Outfeed Table	1
3	Cammed Locking Lever, D.16 L.362	2
4	Hinge/Adjusting Block	2
5	Infeed Table	1
6	Lock Block, Infeed Table	1
7	Hinge/Adjusting Pin	2
9	Handle Grip	2
10	Retaining Ring, D13 Uni7435	2
11	Comb, L=305mm	2
12	Screw Support Slide Closure Plans	4
13	Height Adjstment Stud, M12x1.75 L.80	4
14	Washer, D12 x 36 x 2.5 Uni6592	8
15	Screw, M10x50 Uni5931	6
16	Spacer Ring, 25 x 40 x 0.3	2
17	Adjustment Knob	2
19	Hex Nut M8	4
20	Hex Nut M12	12
21	Screw, M10x25 Uni5931	6
22	Set Screw, M10x30 Uni5911	2
23	Hex Nut M10	2
25	Cam Pivot Stud	2



BRIDGE GUARD PARTS DIAGRAM





Bridge Guard Parts List

Item	Description	Qty.
1	Lower Plate, 100 x 99 x 6	1
2	Bridge Arm, 585 x 80 x 25	1
3	Guard	1
4	Spring, 75 x 50 x 0.5	1
5	Rivet, 3.9 x 9	2
6	Knob M8x20	1
7	Hex Nut M10	2
8	Hex Nut M8	2
9	Washer, D.10.5 x 21 x 2 Uni6592	1
10	Handle Snap M8 Femm.R.63	1
11	Screw M8x25 Uni5933	1
12	Washer, D.8 x 24 x 4	1
13	Washer, D.8.4 x 17 x 1.6 Uni6592	1
14	Nylock Nut M8	2
15	Threaded Rod, M8x1.25 L.130.	1
16	Spacer. Nylon L.20 D.22 F.10	1
17	Stud M10 L.60 (33.14.13)	1
18	Handle Snap M8 Femm.R.83	1
19	Pressure Spring, De.18.5 DI.13.5 L.70	1



TABLE SAW PARTS DIAGRAM

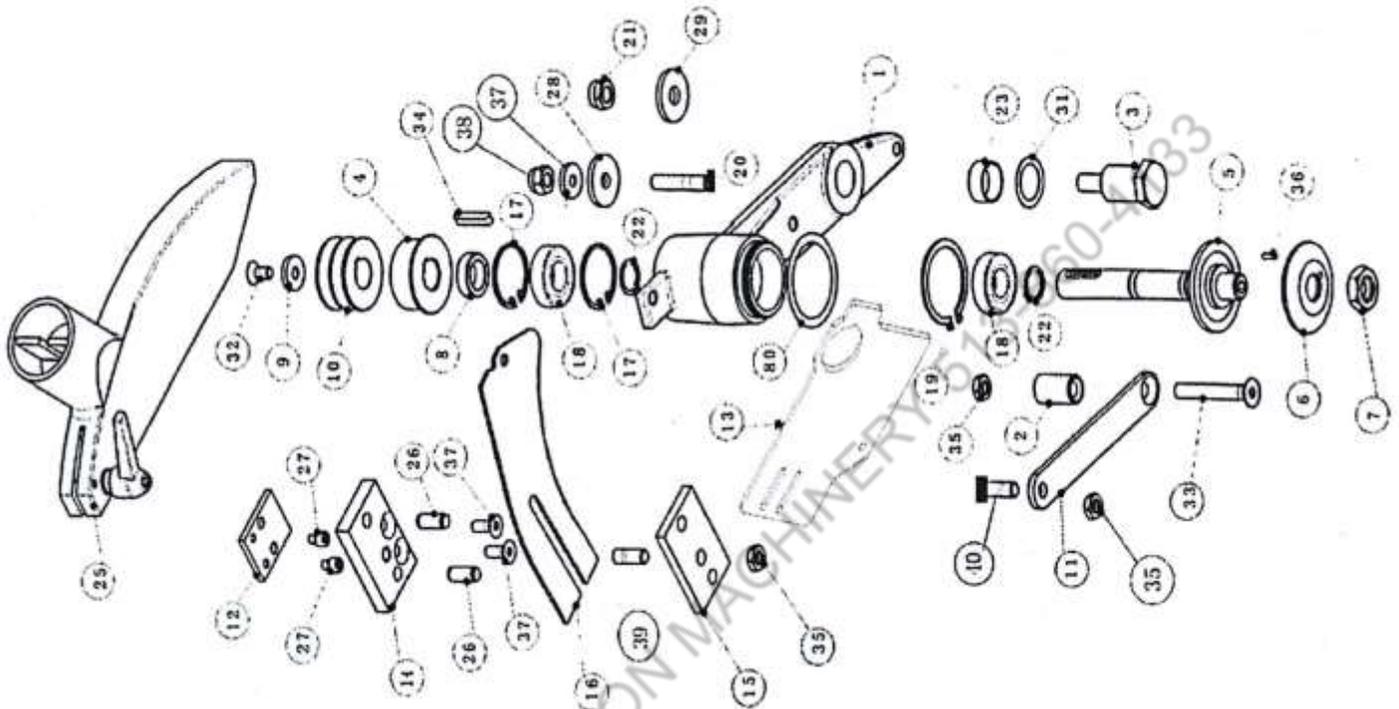


Table Saw Parts List

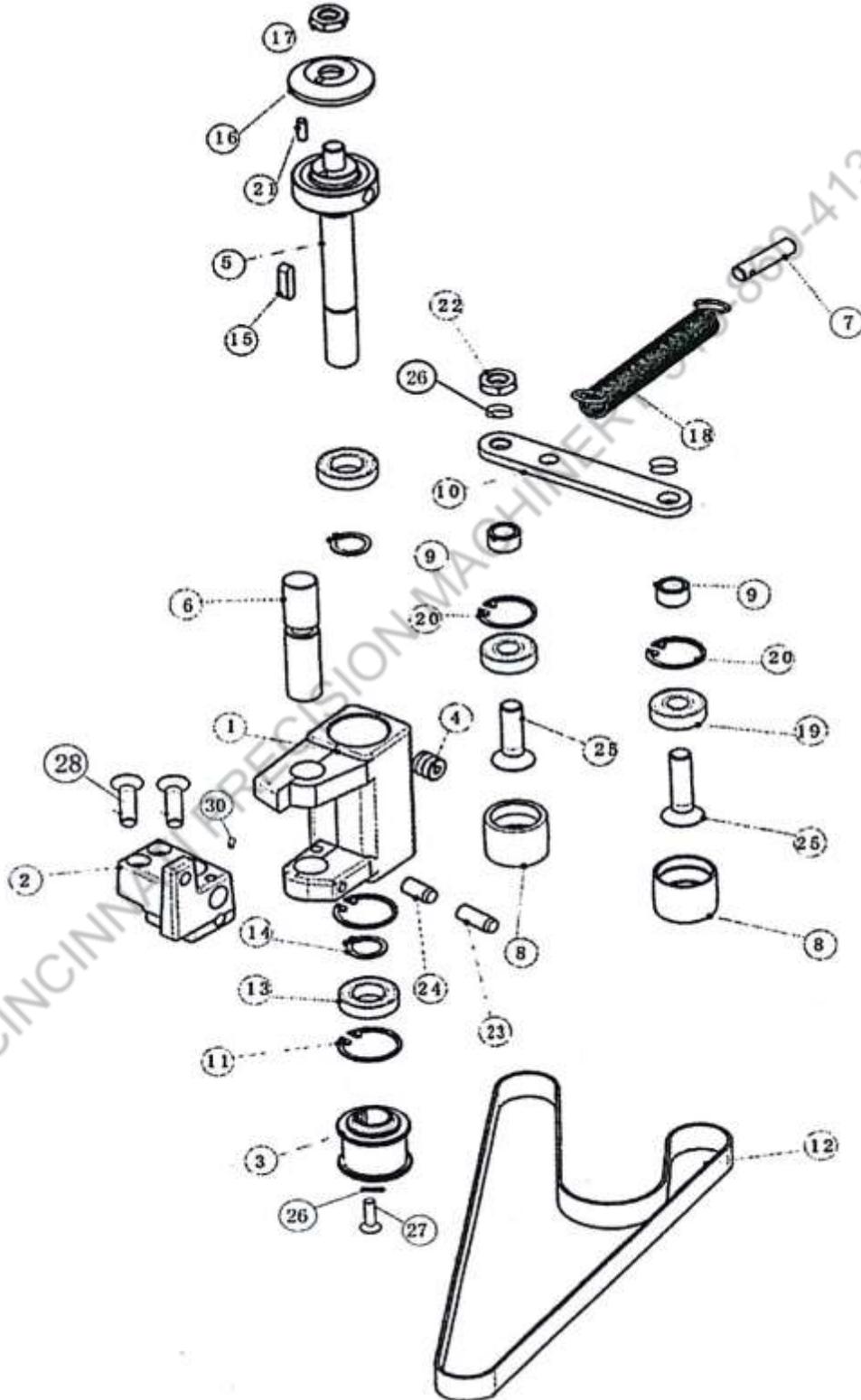
Item	Description	Qty.
1	Saw Arbor Swing Arm	1
2	Spacer D.20 L.35	1
3	Hex Pivot Rod E.30 L.70	1
4	Arbor Support Bushing, D.54 L.22	1
5	Saw Arbor, 62.5 L.166.5	1
6	Flange Washer, D.62.5 L.7.5	1
7	Arbor Nut, E.27 M18x1.5 L.10	1
8	Spacer, D.30 L.9.5 F.20	1
9	Washer, D8 x 25 x 1.5	1
10	Pulley, D.50 L27	1
11	Parallel Support Arm, 185 x 25 x 5	1
12	Rear Plate 50x5 L.39	1



Item	Description	Qty.
13	Plate, 213 x 150 x 5	1
14	Intermediate Plate, 50 x 12 L.78	1
15	Plate External, 50 x 8 L.78	1
16	Riving Knife Divider, 195 x 121 x 3	1
17	Retaining Ring, D42-Uni7437	2
18	Bearing 6004 2RZ (20x42x12)	2
19	Retaining Ring, D52 Uni7435	1
20	Screw, M10x50	1
21	Nylock Nut M12	2
22	Retaining Ring, D20 Uni7435	2
23	Bushing, DU25-12MB	1
24	Panel Steel C72 40x40x0.5	1
25	Blade Guard/Dust Hood	1
26	Parallel Pin 10x25	2
27	Screw M6x10 Socket Head	2
28	Washer, D.10 x 36 x 2	2
29	Washer, D.12 x 36 x 4	2
30	Washer Steel, C70 52 x 65 x 0.1	1
31	Washer Steel, C72 25 x 35 x 0.5	2
32	Screw, M8x16	1
33	Screw, M10x70	1
34	Key, 6 x 6 x 32	1
35	Hex Nut M10	1
36	Spring Pin 4x12	1
37	Shoulder Nut, 10x20	1
38	Lock Nut M10	1
39	Threaded Rod M10x30	1
40	Screw, M10x15	1



SCORING SAW PARTS DIAGRAM



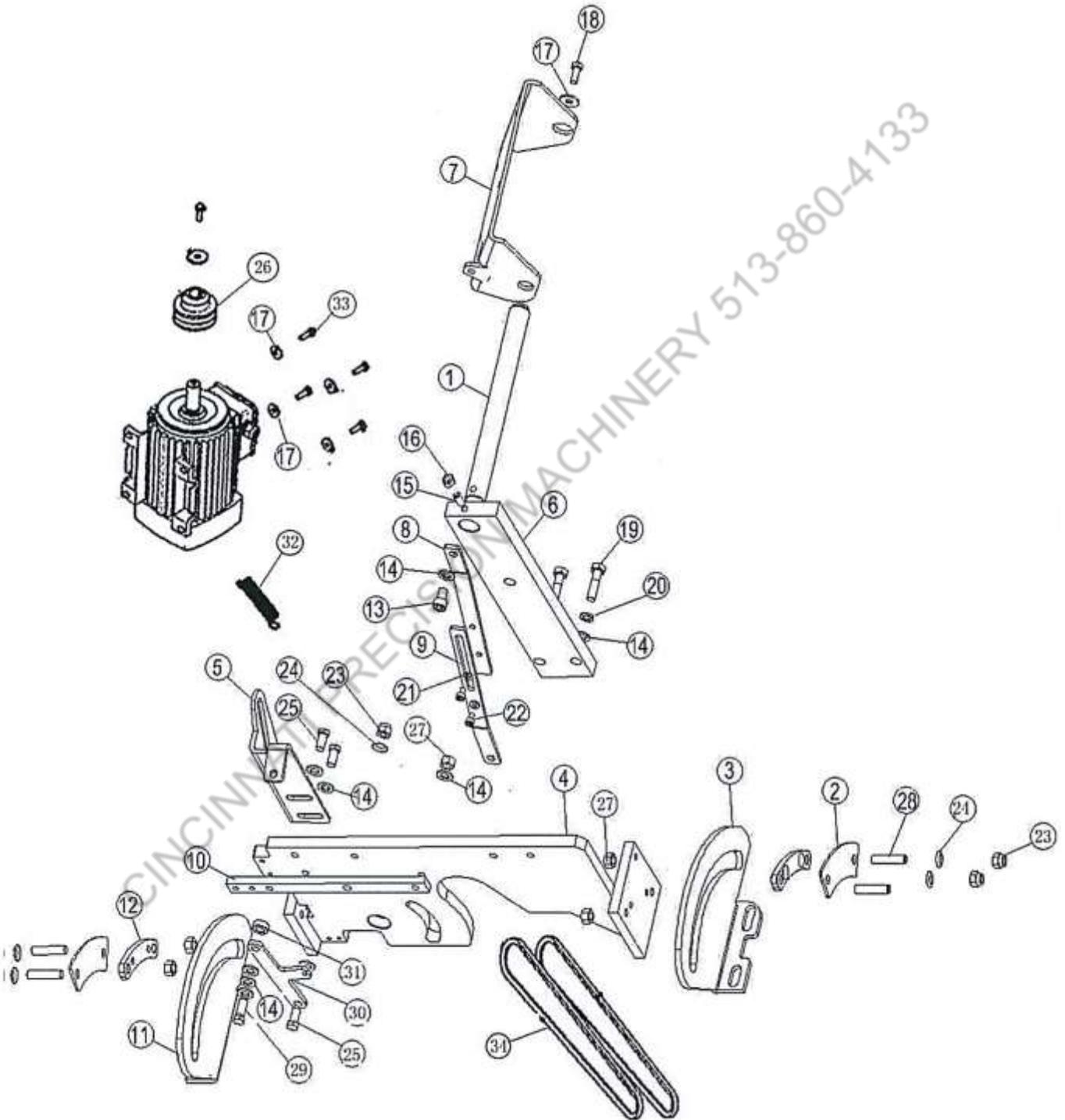


Scoring Saw Parts List

Item	Description	Qty.
1	Shaft Support	1
2	Pivot Block	1
3	Pulley, D34 L30.5	1
4	Eccentric Shift, D12L14.5	1
5	Arbor, D40 L137 (22)	1
6	Pivot Pin, D16 L73	1
7	Spring Anchor Pin	1
8	Idle Pulley, D30L22	2
9	Spacer, D15L9	2
10	Tensioner Bracket, 115 x 20 x 5	1
11	Retaining Ring, D28 Uni7437	2
12	Belt, 15x1, 5x800	1
13	Bearing, 61902 2RS (15x28x7)	2
14	Retaining Ring, D15 Uni7435	1
15	Key, 5 x 5 x 20	1
16	Flange Washer, D40L8	1
17	Nut, M10	1
18	Spring Tensioner, DE15 L132	1
19	Bearing 6000 2RZ (10x26x8)	2
20	Retaining Ring, D26 Uni7437	2
21	Parallel Pin 4x4x12	1
22	Hex Nut M10	1
23	Flat Tip Screw M8x20 Uni5923	1
24	Screw M6x16	1
25	Screw, M10x35	2
26	Washer, D10x20x1.5	4
27	Screw M8x12	1
28	Screw M6x25 Socket Head	2
29	Screw M8x20	1
30	Screw M5x12	1



SAW MOTOR PARTS DIAGRAM



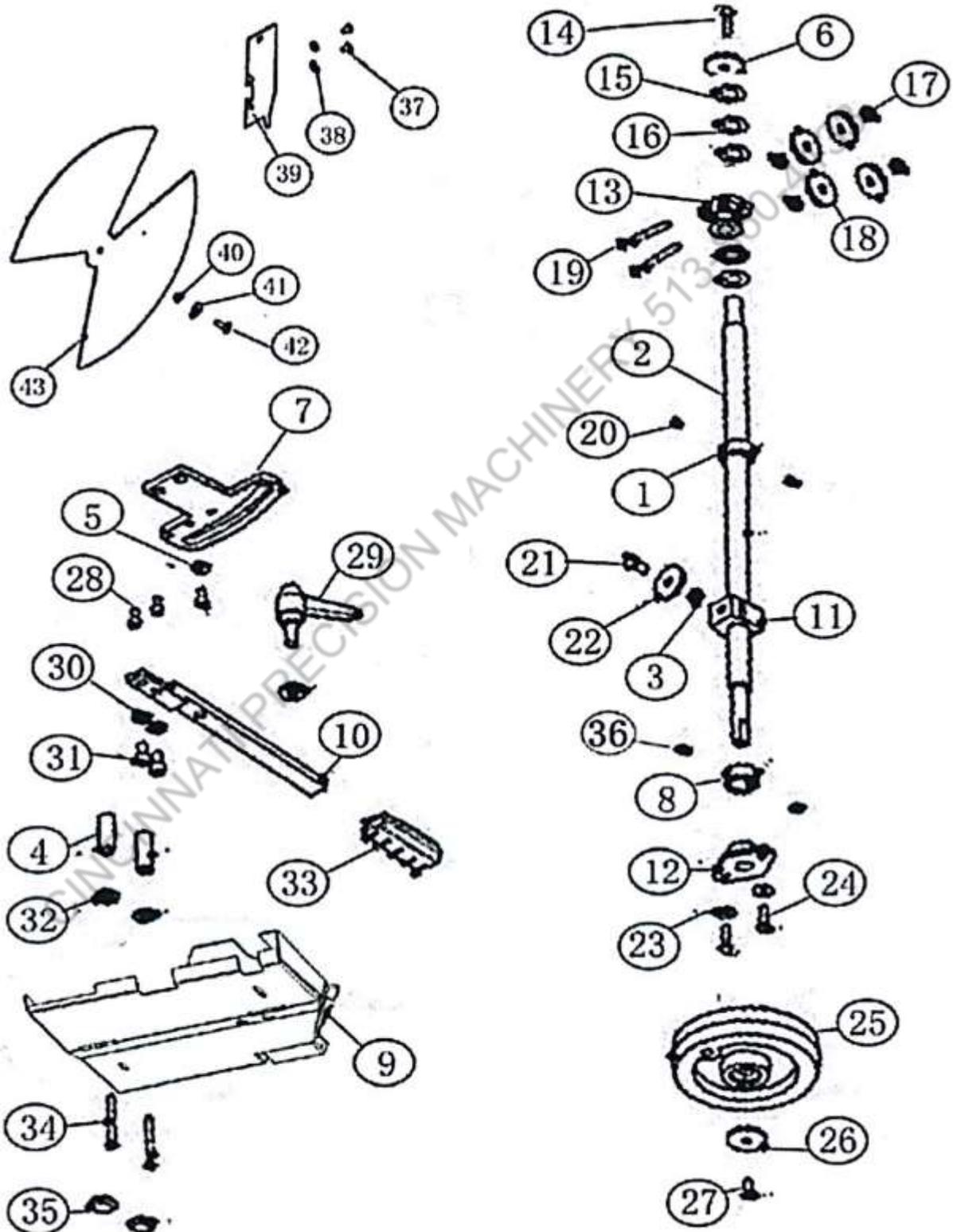


Saw Motor Parts List

Item	Description	Qty.
1	Motor Seat Pivot Pin	1
2	Sector Washer, 121 x 48 x 2	2
3	Guide	1
4	Housing	1
5	Bracket	1
6	Motor Pivot Bracket	1
7	Motor Seat	1
8	Tensioner Bracket	1
9	Bracket Tension	1
10	Lever, Blade	1
11	Incline Saw Guide	1
12	Sector Rotation Guide	2
13	Screw M10x16	1
14	Washer, D.10x24x2	10
15	Screw M8x20	1
16	Nylock Nut M8	1
17	Washer, D8x24x2	5
18	Screw M8x20	1
19	Screw M10x40	2
20	Washer, D.10 Uni6592	2
21	Washer, D6 Uni6593	2
22	Screw M6x10 Socket Head	2
23	Nylock Nut M10H 12.5mm	5
24	Washer, D10	5
25	Screw M10x20	3
26	Motor Pulley D77 L52 F24	1
27	Nylock Nut M10	5
28	Screw M10x45	4
29	Screw M10x25	1
30	Lift Link	1
31	Bushing C20 x 7.5	1
32	Spring D.25 L.135	1
33	Screw 8x25 Uni5739	5
34	Belt 3VX425 (SPZX1077)	2



SAW LIFT AND TILT PARTS DIAGRAM





Saw Lift and Tilt Parts List

Item	Description	Qty.
1	Bushing, D.32 L.10	3
2	Tilt Lead Screw, 20x5 TPN L.553	1
3	Spacer Inclination, D.15 L.5.5	1
4	Spacer. Hood, D.15 F.8.5 L.43	2
5	Bush Tilt Limit, D15x4	1
6	Countersunk Washer	1
7	Sector Gear, 141x112x8	1
8	Bushing, D.32 L.15	3
9	Front Blade Guard	1
10	Blade Lift Lever	1
11	Lead Screw Block, D20x5	1
12	Support Bushing	1
13	Mounting Bushing	1
14	Screw M6x10	1
15	Thrust Washer, AS15/28 SP=1	4
16	Thrust Bearing, AXK15/28 SP=2	2
17	Hex Nut M8	4
18	Washer, D.8x24x1.5	4
19	Screw M8x100	2
20	Screw M6x8	1
21	Screw M8x30	1
22	Washer, D.8x36x4	2
23	Washer, D.6x18x1.5	2
24	Screw M6x20	2
25	Hand Wheel, D160	1
26	Washer, D.8x36x2.5	2
27	Screw M6x20	1
28	Screw M6x12 Socket Head	5
29	Handle, M10x25 R83	1
30	Washer, D.8.4x17x1.6	3
31	Screw M8x16 Socket Head	2
32	Washer, D.10.5x21x2	8
33	Handle Lever 20x10	1

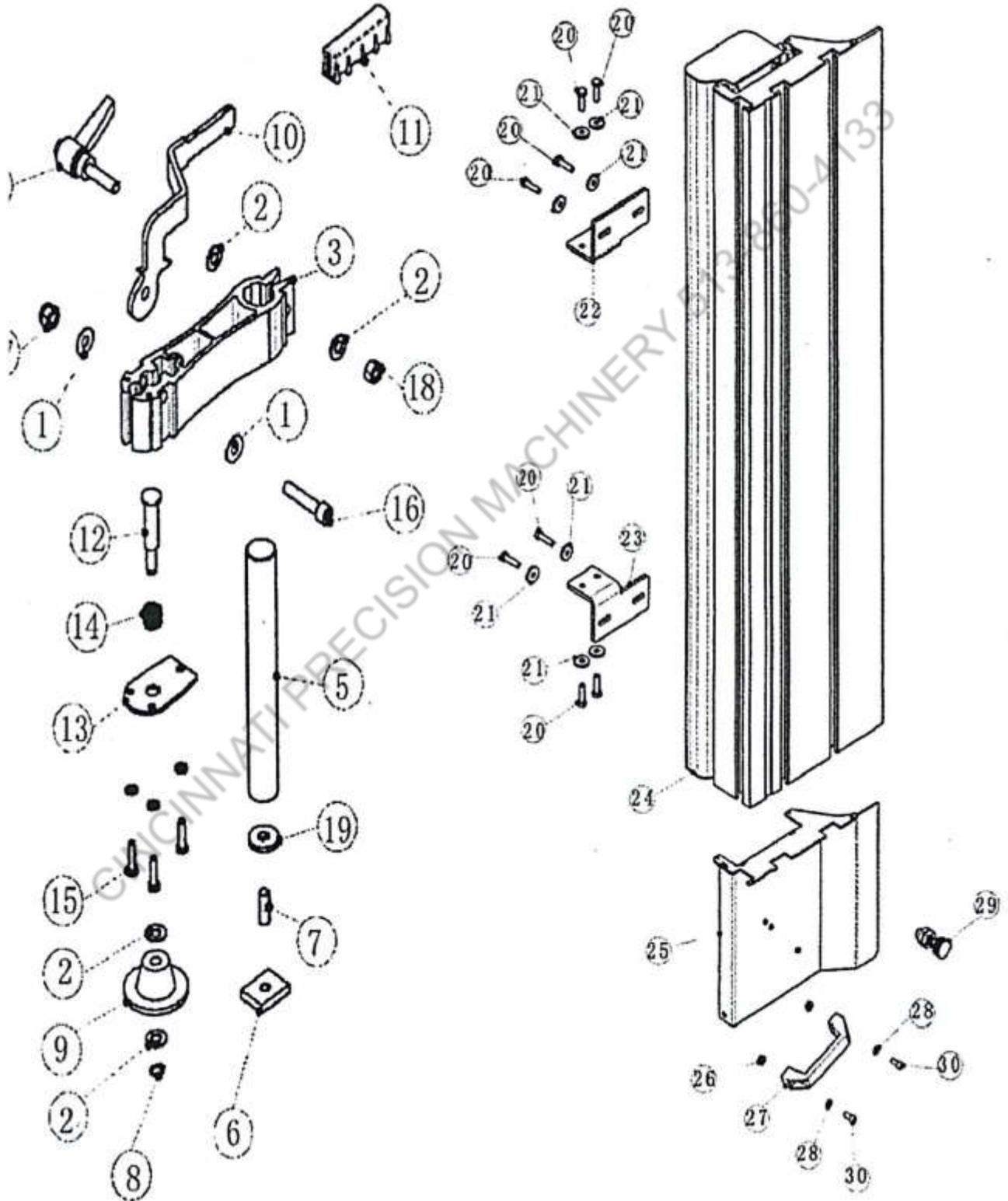


34	Screw M6x60	2
35	Cable D.21 F.16 (C16.02.21)	2
36	Screw M8x8	2
37	Screw M6x10-10.9 Zinc White	2
38	Washer, D.6.4x13x1.6	2
39	Cover	1
40	Nylock Nut M6 H.8.3mm	1
41	Washer, D.6x18x1.5	1
42	Screw M6x20-10.9 Zinc White	1
43	Cover	1

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SAW SLIDING TABLE PARTS DIAGRAM



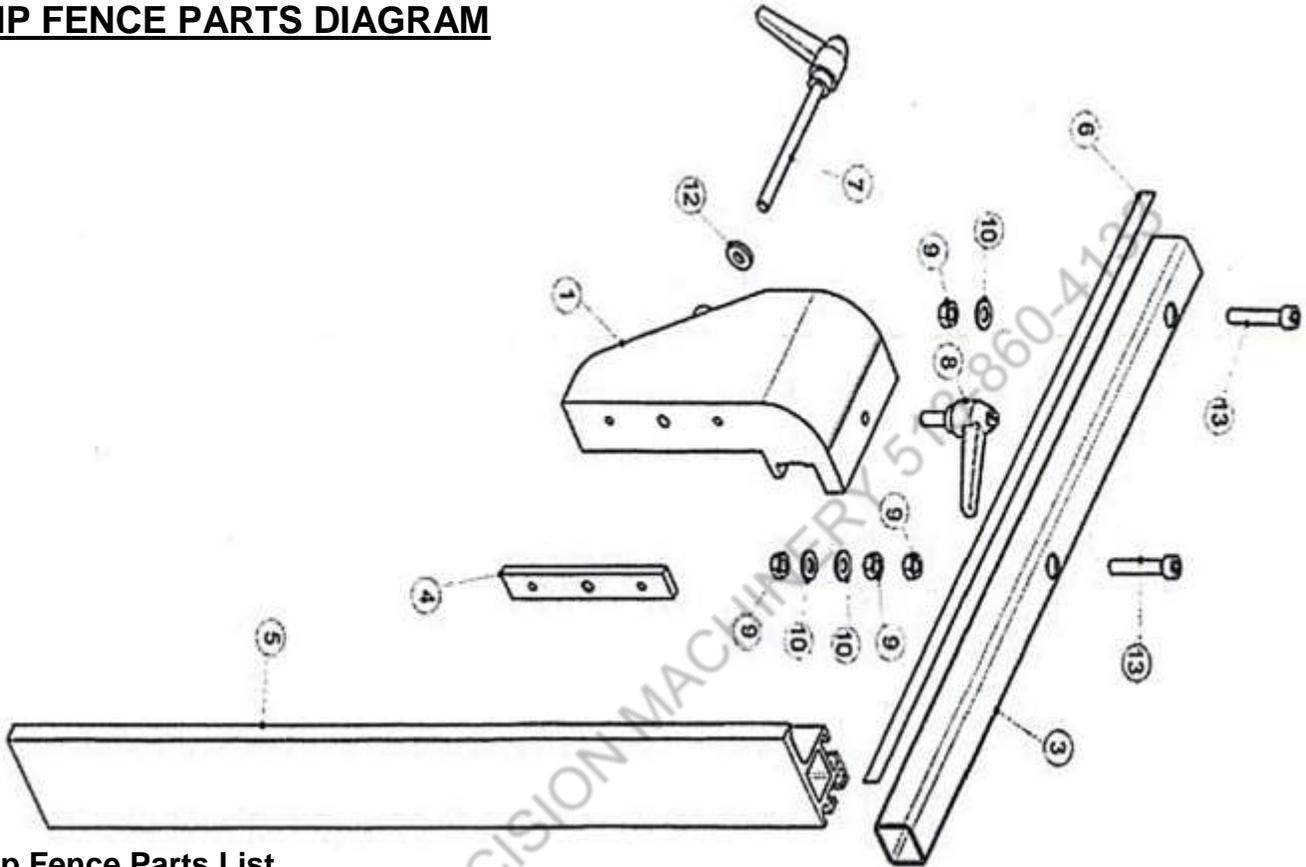


Saw Sliding Table Parts List

Item	Description	Qty.
1	Thrust Washer, 10-24 SP.0.8	2
2	Washer, D.10.5x21x2	4
3	Swing Arm	1
4	Handle Snap M10x40 R.83	1
5	Support Post	1
6	Lock T-Plate, 30 x 8 x 40	1
7	Stud M10 L.30	1
8	Retaining Ring, D10 Uni7435	1
9	Clamping Cup	1
10	Lever Eccentric	1
11	Handle Grip	1
12	Connecting Pin	1
13	Guide Plate	1
14	Spring	1
15	Screw M5.5x25	3
16	Screw M10x50	1
17	Nylock Nut M10H.12.5mm	1
18	Hex Nut M10	1
19	Washer D.32 F.10 L.5	1
20	Screw M8x90	4
21	Washer D.8x24x4	8
22	Screw M6x20	10
23	Carriage Support 120x50x10	2
24	Carriage and Table Assembly	1
25	Handle End Cap	1
26	Nylock Nut Flanged, M6	2
27	Handle	1
28	Washer D.6.4x13x1.6	2
29	Lock Pin Assembly	1
30	Screw M6x16	2



RIP FENCE PARTS DIAGRAM

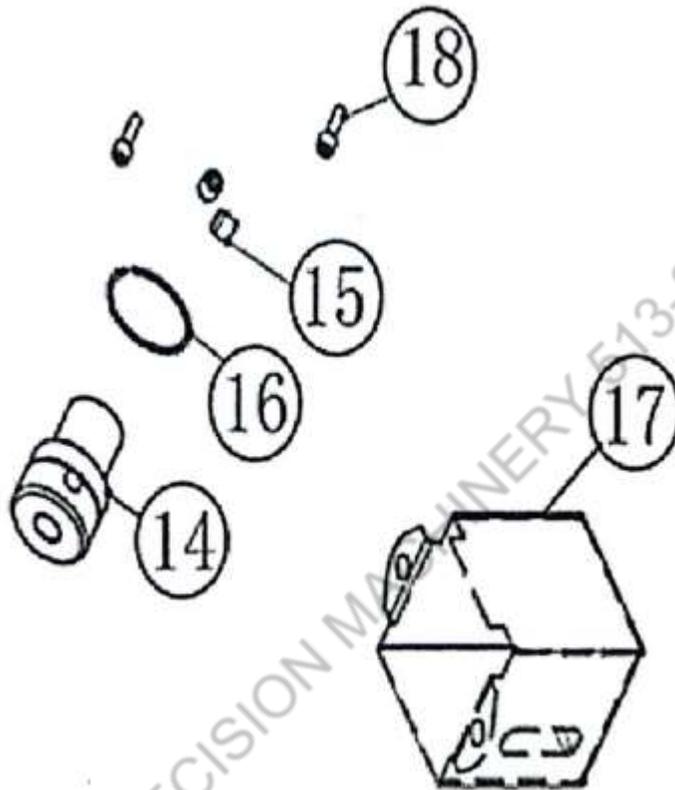


Rip Fence Parts List

Item	Description	Qty.
1	Support Base	1
2	Spring Protection	1
3	Rail Extrusion	1
4	Lock Plate 25x8 L.178	1
5	Fence Extrusion	1
6	Scale	1
7	Handle Snap M10x115 R.83	1
8	Handle Brass Snap M10x40 R83	1
9	Hex Nut M10	6
10	Washer D.10.5x21x2	6
12	Washer D.10x24x4	1
13	Screw M10x60	2
14	Screw M5x8	2
15	Plastic Screw M8x10	1



SLOTTER CHUCK GUARD PARTS DIAGRAM

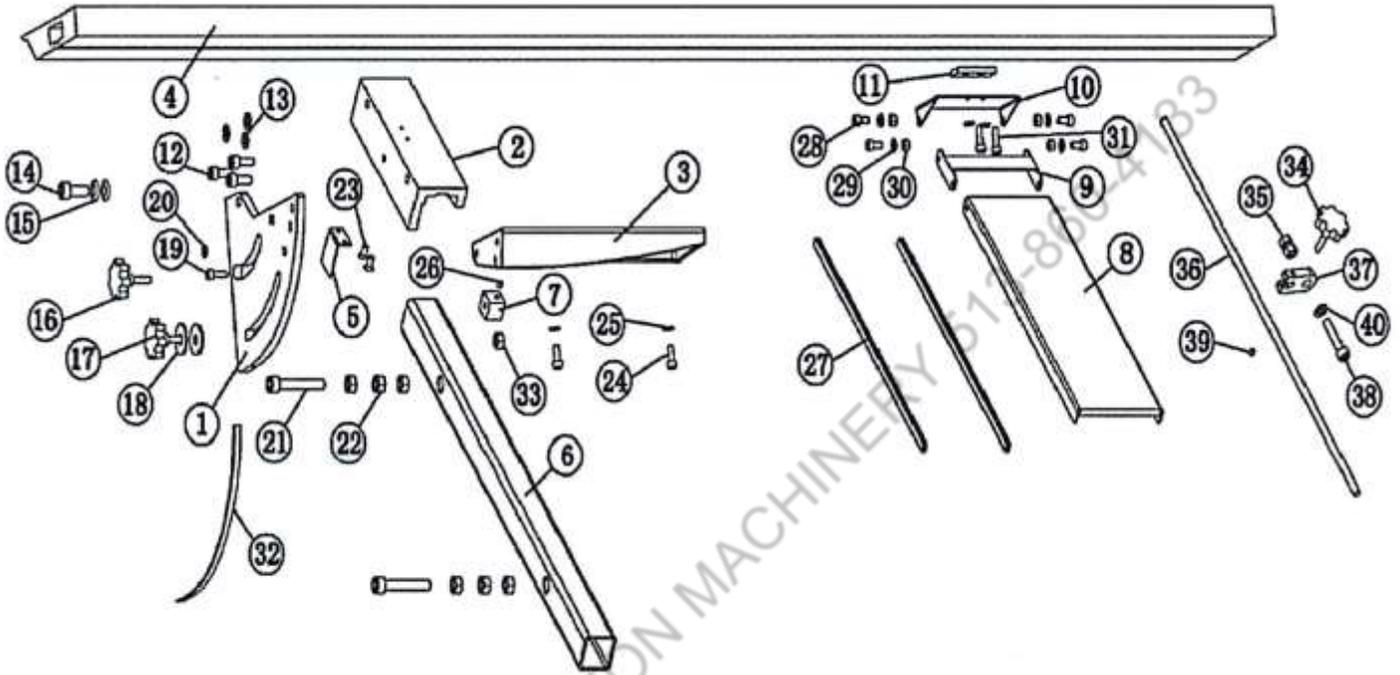


Slotter Chuck Guard Parts List

Item	Description	Qty.
14	Chuck	1
15	Screw M12x16 Flat Tip	2
16	Retaining Ring D50 WR50FAG	1
17	Guard	1
18	Screw M6x20	2



JOINTER FENCE PARTS DIAGRAM



Jointer Fence Parts List

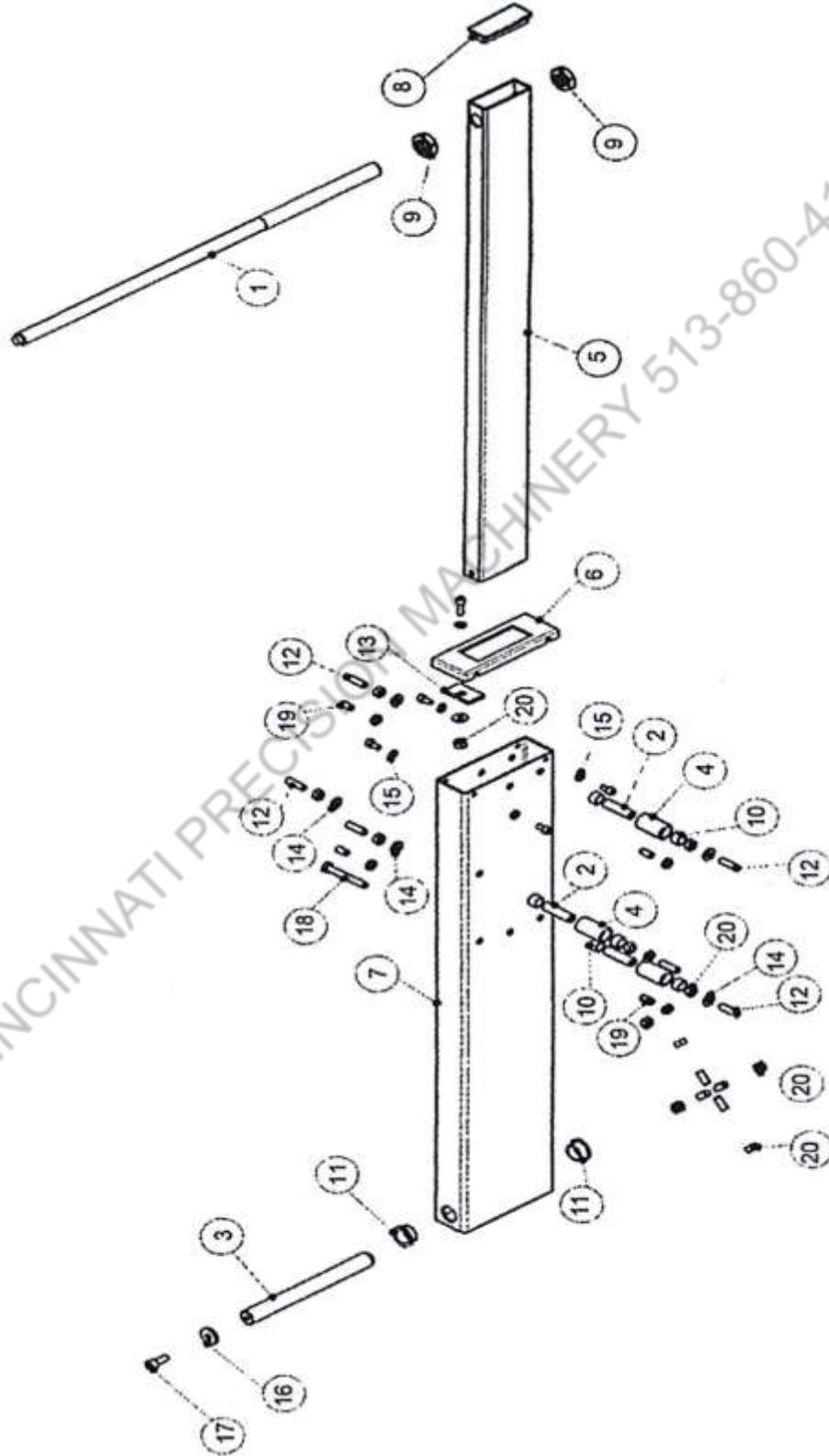
Item	Description	Qty.
1	Tilt Sector	1
2	Mounting Slide Block	1
3	Connector Block	1
4	Fence Extrusion	1
5	Spring Tube	1
6	Rail Extrusion	1
7	Pivot Block	1
8	Cutter Head Guard	1
9	Joint, Guard	1
10	Mounting Joint, Guard	1
11	Mounting Plate	1
12	Screw M8x20 Socket Head	3
13	Washer D8	3



14	Screw M10x25	1
15	Washers, D10	2
16	Knob D.40 M10x20	1
17	Knob D.40 M10x25	1
18	Washer D10	2
19	Screw M6x20 Socket Head	1
20	Washer D6	1
21	Screw M10x60	2
22	Hex Nut M10	6
23	Screw M4x8	2
24	Screw M6x16 Socket Head	2
25	Washer D6	2
26	Screw M6x20	1
27	Rubber .365mm	2
28	Screw M6x12 Socket Head	4
29	Washer D6	4
30	Hex Nut M6	4
31	Screw M6x20 Socket Head	2
32	Scale, Graduated	1
33	Nut M6	1
34	Knob M6x10 D.40	1
35	Hex Nut M8	2
36	Support Stop Rod	1
37	Holder	1
38	Screw M8x40	1
39	Screw M5x12	1
40	Washer D8	1



CROSSCUT SUPPORT ARM PARTS DIAGRAM



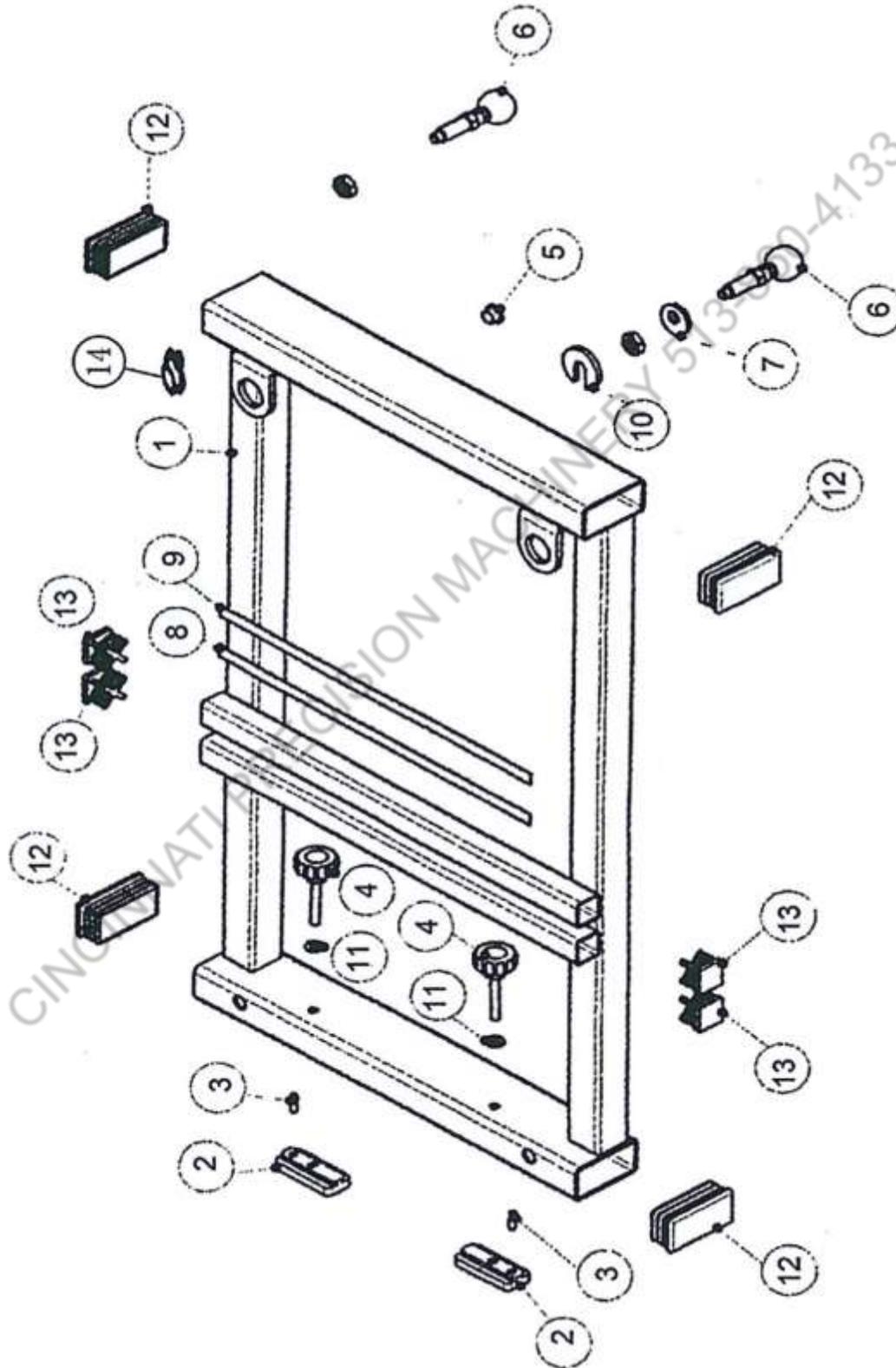


Crosscut Support Arm Parts List

Item	Description	Qty.
1	Adjustable Support Rod	1
2	Eccentric Bearing D12L42.5	3
3	Pivot Pin	1
4	Eccentric Shaft D28L39.5	3
5	Slide Beam 80x30x3 L950	1
6	Slide Beam Wiper	1
7	Swing Beam 150x50x3 L747	1
8	Plug (80x30x3)	1
9	Hex Nut M20	2
10	Case Roller HK12-10	6
11	Bushing Flange 20-11.5-30T	2
12	Screw M8x30	3
13	Stop Plate 150x50x3 (78x28)	1
14	Washer D8, 4x17x1.6	10
15	Washer D64x13x1.6	1
16	Washer D6x24x3	1
17	Screw 6x20	1
18	Screw M8x60	1
19	Worm Head Nylon M8x15IN	4
20	Hex Nut M8H 5mm	4
21	Screw M8x35	3



CROSSCUT TABLE PARTS DIAGRAM





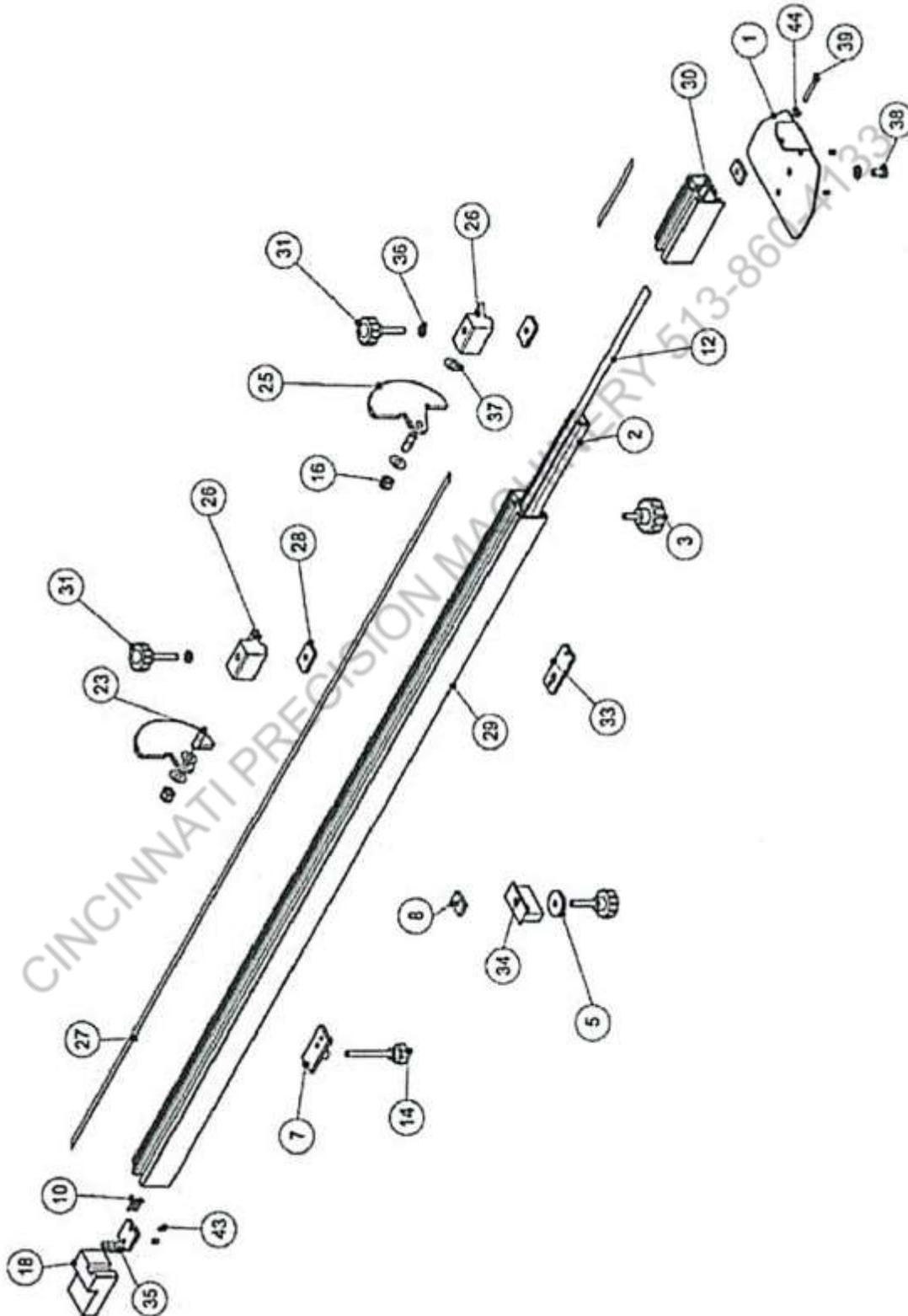
Crosscut Table Parts List

Item	Description	Qty.
1	Crosscut Table Frame	1
2	T-Block	2
3	Parallel Pin 6x20	2
4	Knob, M8x55 D40	2
5	Bushing Flange 12-9 TA-20T	1
6	Lock Pin Assembly	2
7	Eccentric Bushing 034 L7	2
8	Angle Scale 0-45	1
9	Angle Scale 0-45	1
10	Open Washer, 16x36x3	2
11	Washer D8 4x17x1	10
12	Cap 80x40x2	4
13	Cap 30x30x2	4
14	Nylon Washer	1

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CROSSCUT FENCE PARTS DIAGRAM



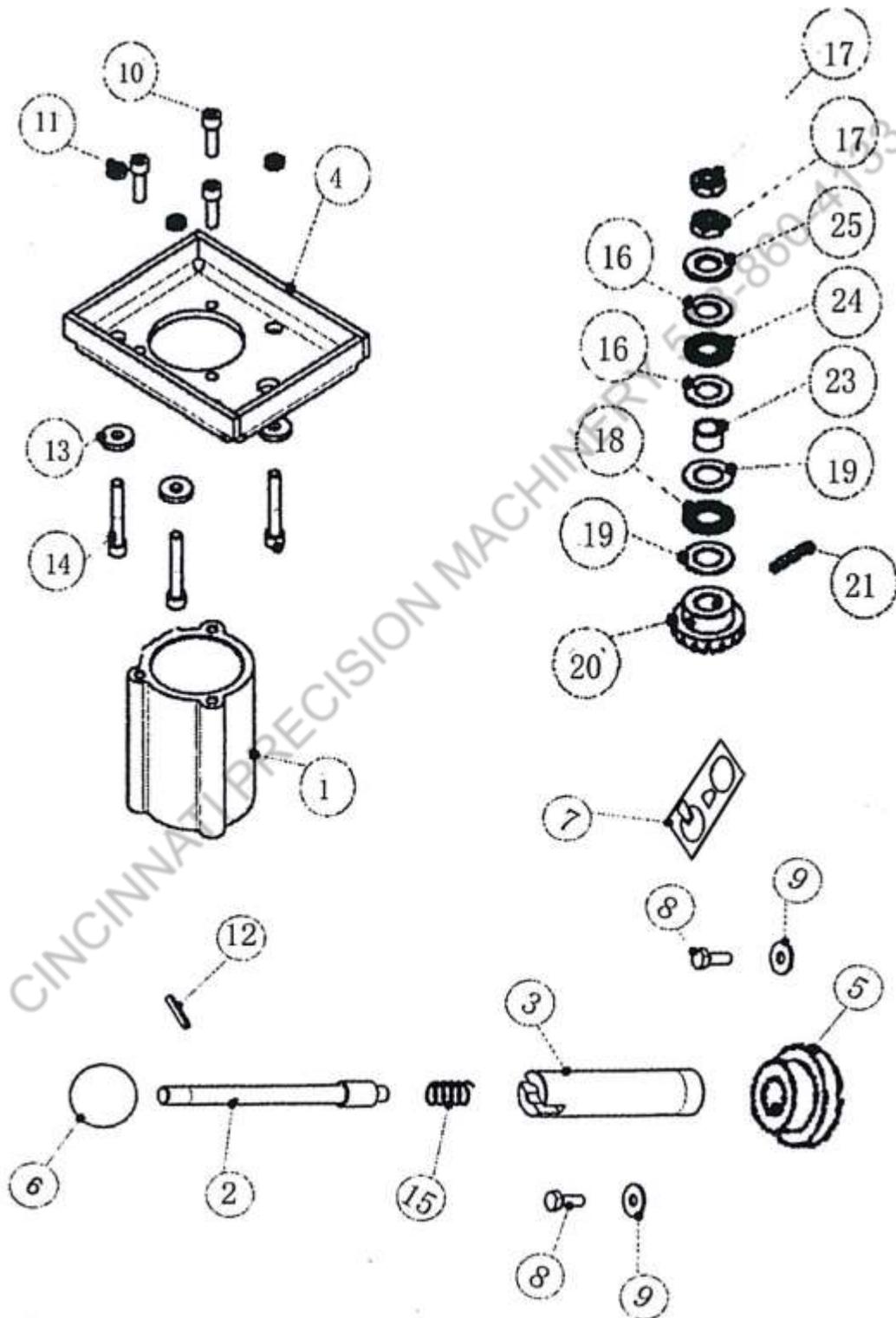


Crosscut Fence Parts List

Item	Description	Qty.
1	End Support 180x170x3	1
2	Crosscut Fence Extension	1
3	Knob M8x25	1
5	Washer 65x30x24.5	1
7	Locking Plate with Pivot Pin	1
8	Locking Plate 28x20x6	1
10	Retaining Clip	1
12	Scale, Fence Extension	1
14	Stud M10 L30	2
16	Nylock Nut M10H10mm	2
18	Wooden Guide Block	1
23	Inboard Positioning Plate	1
25	Outboard Positioning Plate	1
26	Mounting Block	2
27	Scale, Crosscut Fence	1
28	Locking Plate	2
29	Crosscut Fence	1
30	Extension Block	1
31	Knob M8x45	2
33	Fixed Position Locking Plate	1
34	Locking Plate	1
35	Mounting Bracket	1
36	Washer M8	2
38	Screw M8x16	1
39	Screw M5x40	1
43	Flat Tip Screw M6x8	4
44	Screw M6x8	4



SHAPER SPINDLE LOCK PARTS DIAGRAM

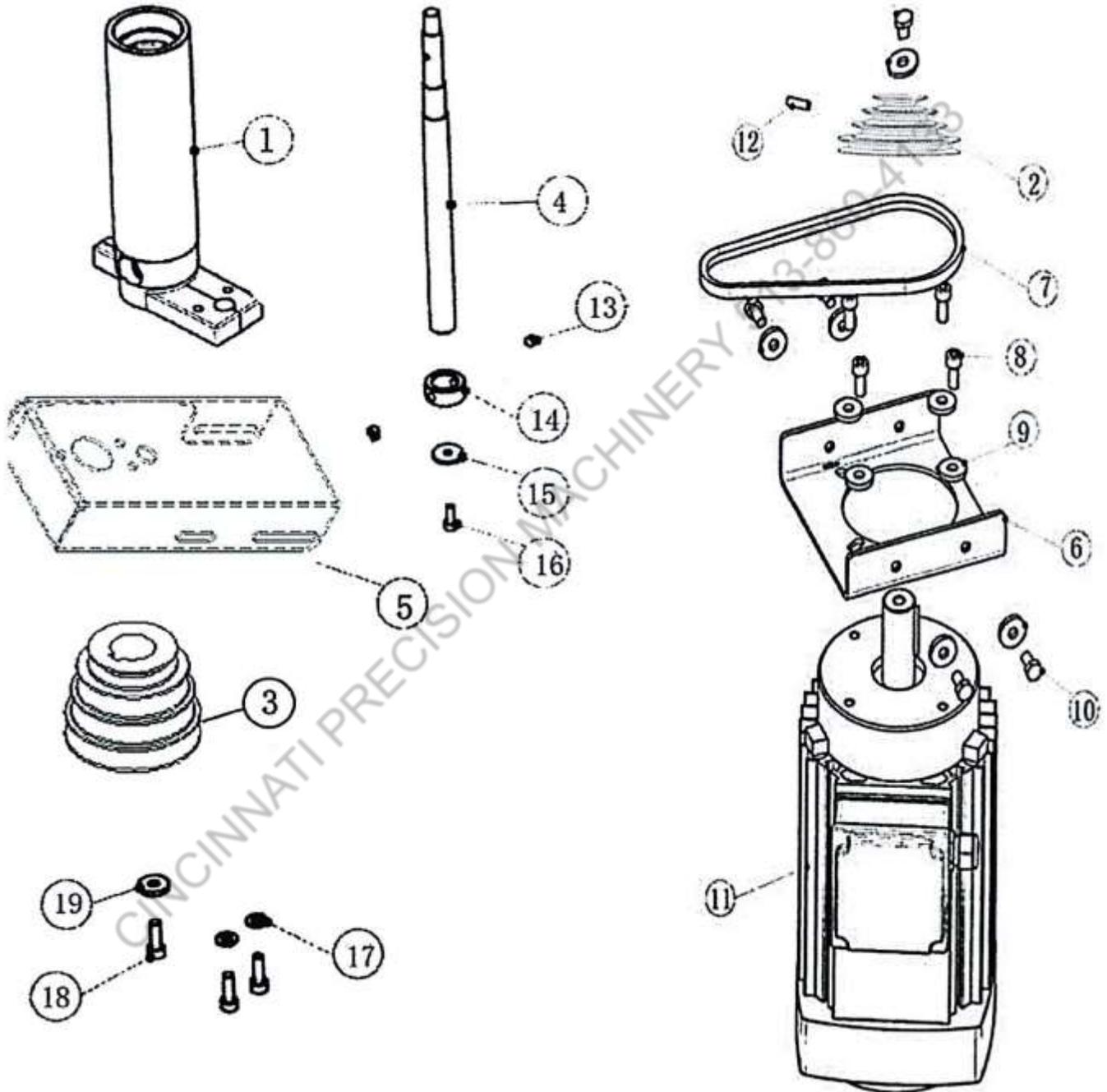




Shaper Spindle Lock Parts List

Item	Description	Qty.
1	Collar	1
2	Spindle Lock Pin	1
3	Ratchet Sleeve	1
4	Mounting Plate	1
5	Nylon Pad	1
6	Knob Round Thread	1
7	Decal	1
8	Screw M6x16	2
9	Washer D6x18x1.5	2
10	Screw M8x25	3
11	Hex Nut M8	3
12	Spring Pin 4x25	1
13	Washer D.8x24x4	4
14	Screw M8x50	4
15	Spring	1
16	Thrust Washer AS15/28 SP1	2
17	Hex Nut M12	2
18	Thrust Bearing AXK17-30 SP2	1
19	Thrust Washer AS17/30 SP0.8	2
20	Bevel Gear Mod2.5 R=1/1 Z16 SINT	1
21	Spring Pin 5 x 30	1
23	Bushing MB15-10DU	1
24	Thrust Bearing AXK15-28 SP2	1
25	Washer D15x28x2.5	1

SHAPER DRIVE PARTS DIAGRAM



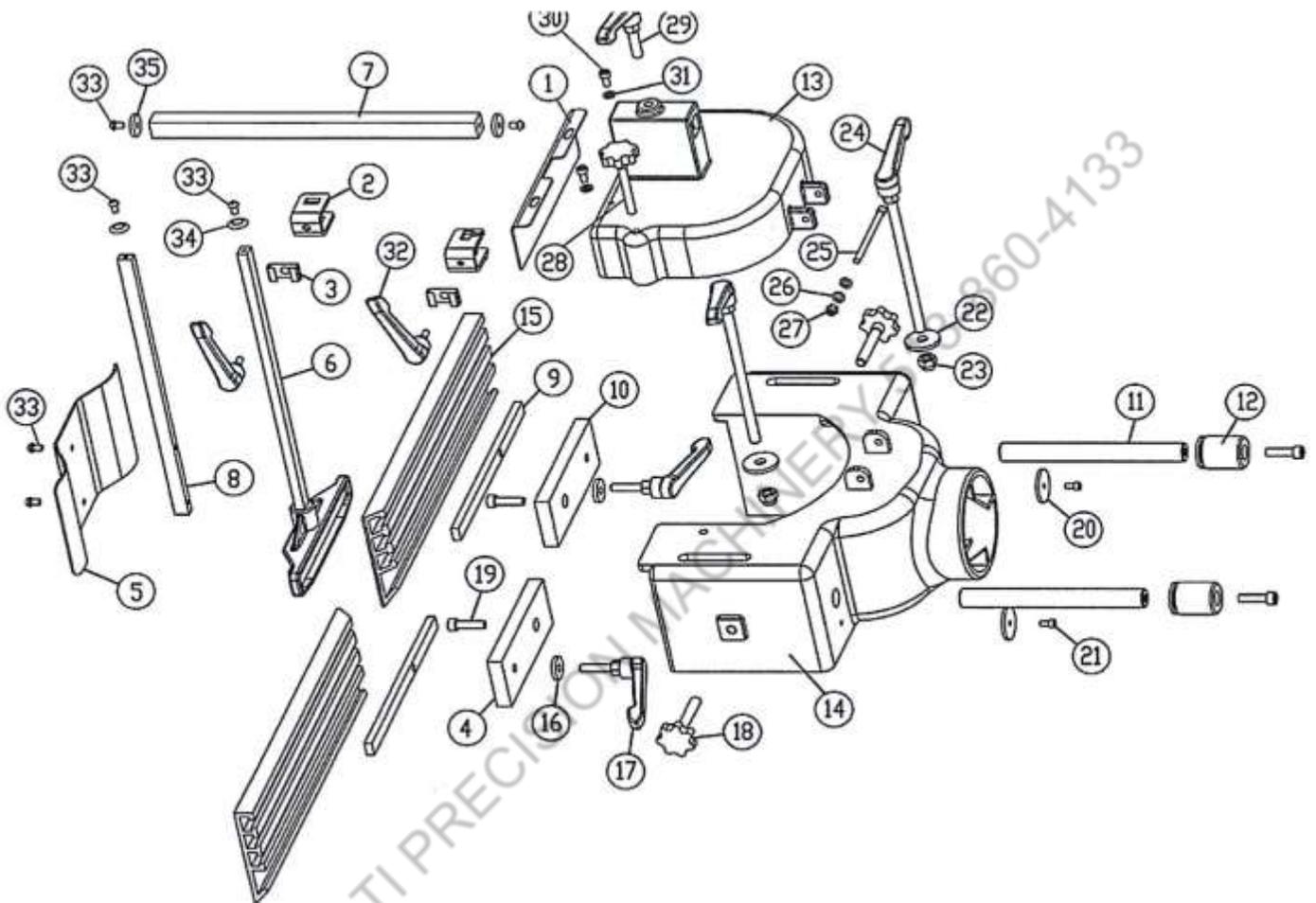


Shaper Drive Parts List

Item	Description	Qty.
1	Cylinder	1
2	Motor Pulley Double Speed	1
3	Double Speed Spindle Pulley	1
4	Screw Lifting 20x2.5 L.320	1
5	Motor Mounting Block	1
6	Motor Mounting Slide Plate	1
8	Screw M8x20 Socket Head	2
9	Washer 0.8x24x4	8
10	Screw M8x25	8
11	Motor, 2.7hp (2.0kw) 220V, 1ph, 12 ^a	1
12	Screw M6x20	2
13	Screw M8x8	2
14	Bushing D.32 L.15	1
17	Washer D.8.4x17x1.6	2
18	Screw M8x25	3
19	Washer 0.8x24x4	4



SHAPER HOOD PARTS DIAGRAM



Shaper Hood Parts List

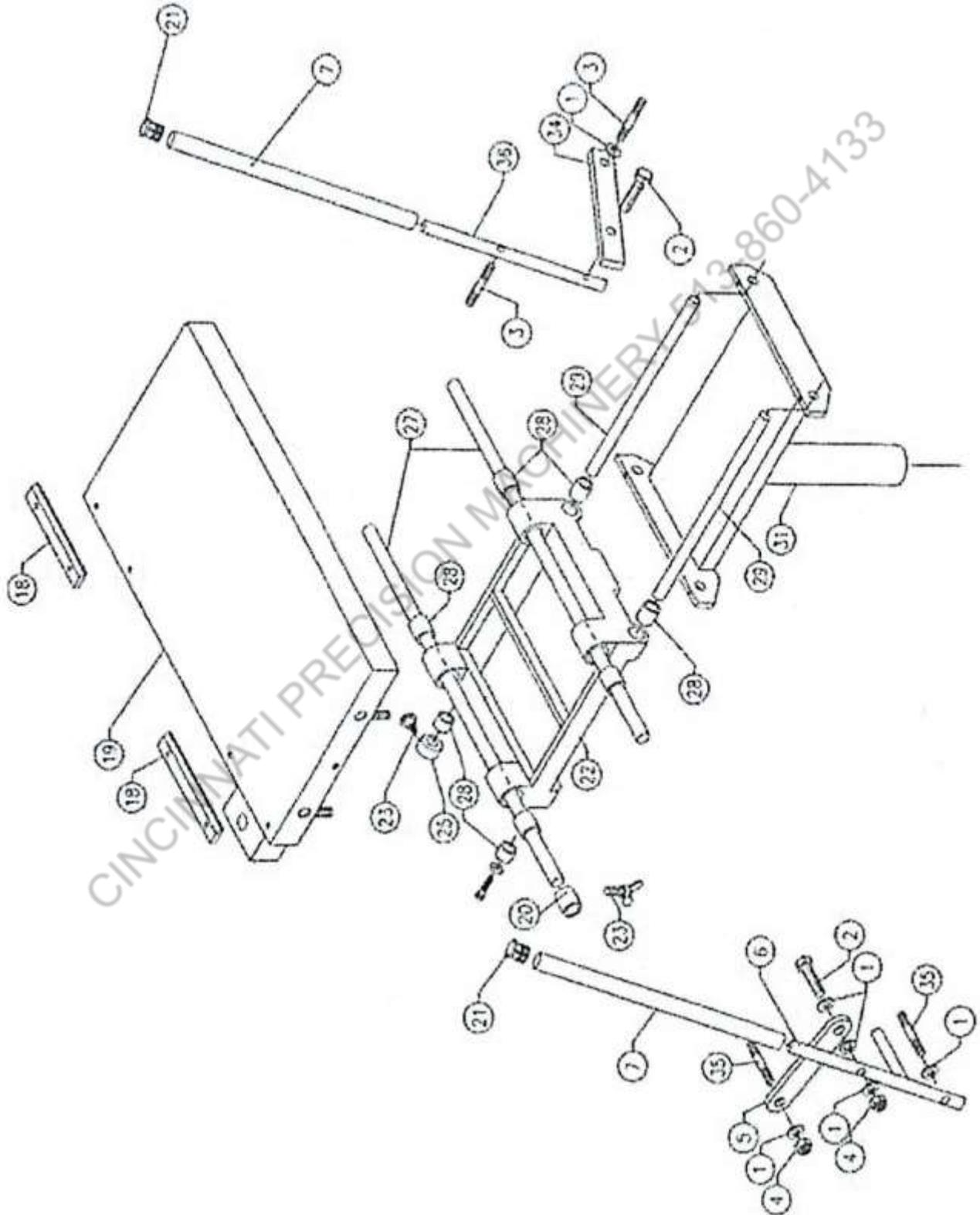
Item	Description	Qty.
1	Front Cover	1
2	Retaining Clamp	2
3	Pressure Plate Attaching	2
4	Mounting Block	2
5	Front Guide	1
6	Top Guide	1
7	Guide Support Bar	1
8	Front Guide Drop Post	1
9	Lock Plate, Fence	2
11	Pin Adjustment Guide	2



12	Thumb Knob Guide	2
13	Upper Hood	1
14	Main Hood	1
15	Fence	2
16	Washer D.8x24x4	2
17	Handle Snap M8x35	2
18	Knob M10x60	2
19	Screw M8x30 Socket Head	2
20	Retaining Washer	2
21	Screw M5x10 Socket Head	2
22	Washer D.10x36x4	2
23	Nylock Hex Nut M10	2
24	Handle Snap M10x170	2
25	Screw M6x100	1
26	Washer D.6	4
27	Lock Nut M10	1
28	Stud M8x60	1
29	Handle Snap M10x35	1
30	Screw M6x12 Socket Head	2
31	Handle Snap M6x16	2
32	Handle Snap M6x10	2
33	Washer D6	2
34	Washer D.7x24x4	2



SLOTTER TABLE PARTS DIAGRAM



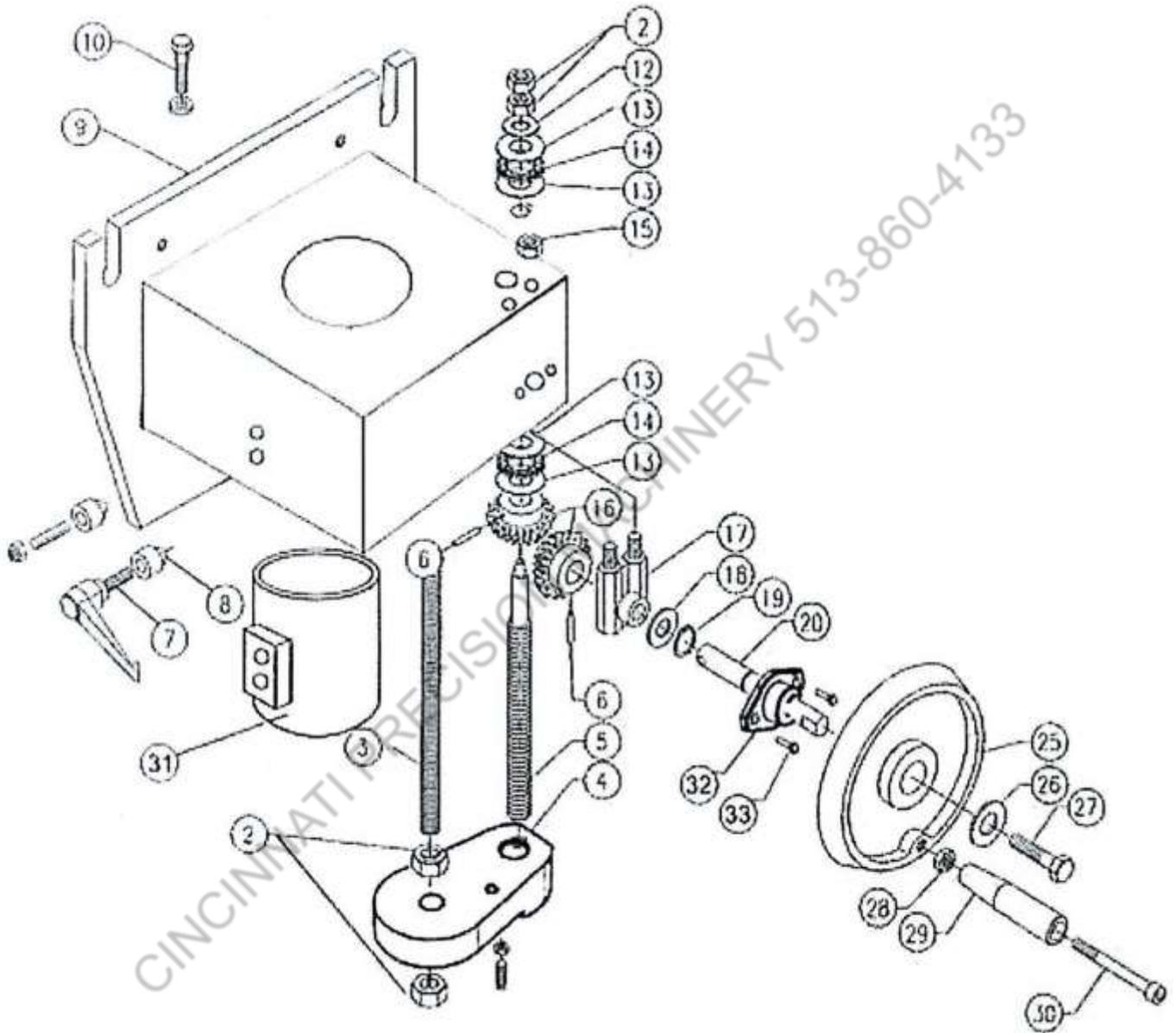


Slotter Table Parts List

Item	Description	Qty.
1	Washer D.10	14
2	Bolt M10x35	2
3	Pivot Stud L42	2
4	Lock Dado	6
5	Feed Lever Link	1
6	Feed Lever	1
7	Feed Lever Handle	2
16	Screw M6x8	8
17	Screw M6x20	4
18	Material Stop	2
19	Slotter Table	1
20	Stop Collar (Width)	2
21	Cap Plug	2
22	Table Slide Frame	1
23	Wing Bolt	3
25	Stop Collar (Depth)	1
27	Slide Rail (Width)	2
29	Slide Rail (Depth)	2
31	Table Base	1
34	Travel Lever Link	1
35	Pivot Stud L35	2
36	Travel Lever	1



SLOTTER MOUNT PARTS DIAGRAM



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Slotter Mount Parts List

Item	Description	Qty.
1	Screw, Nylon M8x16	4
2	Nut M12	5
3	Threaded Rod	1
4	Nut Lifting	1
5	Screw Lift	1
6	Spring Pin D.6	2
7	Handle M10 x 50	1
8	Locating Collar	1
9	Mounting Frame	1
10	Screw M8x130	1
11	Screw M8x20	3
12	Washer Flat D12	1
13	Thrust Washer D15	4
14	Thrust Bearing D15	2
15	Screw M6x20	2
16	Bevel Gear	2
17	Support Post Lift	1
18	Thrust Ring D15	1
19	Retaining Ring D15	1
20	Adjustment Shaft	1
22	Nut M10	1
23	Screw M10x35	1
24	Key 4x12	1
25	Head Wheel D140	1
26	Washer D25-10	1
27	Screw M6x16	1
28	Nut M8	1
29	Handle M10x50	1
30	Screw M8x80	1
31	Support Tube	1
32	Support Post Lift External	1
33	Screw M6x25	2
34	Nut, Flange M6	2



NOTES

CINCINNATI PRECISION MACHINERY 513-860-4133



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