



Busy Bee Tools

25" Planer 15 HP, 3-Phase Professional Planer

BBPL25



User's Manual



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v1.0



Section 1: General Shop Safety Guidelines

Notice: Safety First! The paramount concern in operating this equipment is safety. It is imperative to adhere strictly to the following instructions. Neglecting any of the listed guidelines may lead to risks such as electric shock, fire hazards, or severe personal injury.

This tool is specifically designed for certain applications. We emphasize the importance of refraining from modifying or repurposing the tool for any other use beyond its designated application. If you have inquiries regarding its appropriate application, refrain from using the tool until you have communicated with us and received our guidance. Please refer to the below safety symbols



Implies an imminently hazardous situation, which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

Please Note that this manual has instructions and processes to help you maintain and prolong the life of your machine please perform all the recommended cleaning and maintaining processes diligently.



This manual serves as an indispensable source of critical safety instructions pertaining to the correct setup, operation, maintenance, and servicing of this machine/tool. It is of paramount importance that you not only retain this document but also reference it regularly. Furthermore, use it to educate and inform other individuals operating this equipment. Neglecting to thoroughly read, comprehend, and adhere to the directives contained within this manual could result in severe consequences, including fire hazards or life-threatening personal injuries such as amputations, electrocution, or even fatalities.

The owner of this machine/tool assumes complete responsibility for ensuring its safe utilization. This responsibility encompasses, but is not restricted to, the following:

1. Proper Installation: Ensure the machine/tool is installed in a secure and safe environment.
2. Personnel Training: Conduct comprehensive training for all personnel authorized to operate the equipment.
3. Usage Authorization: Authorize individuals to use the machine/tool only after ensuring their competence.
4. Inspection and Maintenance: Regularly inspect and maintain the equipment to guarantee its continued safe operation.
5. Manual Availability: Make this manual readily available and ensure that all relevant individuals understand its content.
6. Safety Devices: Implement and maintain all prescribed safety devices.
7. Tool Integrity: Ensure the integrity of cutting/sanding/grinding tools.
8. Personal Protective Equipment (PPE): Enforce the usage of appropriate personal protective equipment.

It is crucial to recognize that the manufacturer cannot be held responsible for any injuries or property damage resulting from negligence, inadequate training, unauthorized machine modifications, or improper use. It is incumbent upon the owner and operators to exercise utmost diligence and care in the safe operation of this equipment. Your commitment to safety is paramount, and it is essential to mitigate any risks associated with its usage.



It is crucial to be aware that certain dust generated during power sanding, sawing, grinding, drilling, and various construction activities may contain chemicals recognized by the State of California to have the potential to cause cancer, birth defects, or other reproductive harm. Examples of these chemicals include:

- Lead, typically found in lead-based paints.
- Crystalline silica, which can be present in materials like bricks, cement, and other masonry products.
- Arsenic and chromium, originating from chemically treated lumber.

The level of risk associated with exposure to these chemicals can vary, depending on the frequency of engagement in such activities. To mitigate your exposure to these chemicals and safeguard your well-being, consider the following precautions:

1. **Work in a Well-Ventilated Area:** Perform your tasks in an environment that is adequately ventilated. Proper ventilation helps disperse harmful particles and reduces the concentration of airborne contaminants.
2. **Utilize Approved Safety Equipment:** Employ approved safety equipment specifically designed for the task at hand. Dust masks engineered to filter out microscopic particles are particularly effective in safeguarding your respiratory health.

By adhering to these safety measures, you can significantly reduce the potential risks associated with exposure to these chemicals and ensure a safer work environment for yourself and those around you. Prioritizing safety and responsible handling of materials is essential in all construction activities.



Section 2: Introduction	5	Section 11: Control Panel Operations & Programming	23
Contact Us	5	Parameter setting chart	29
General Machine Information	6	Sensor Calibration	33
Controls and Components	7	Set Parameters	34
Machine Data Sheet	8	Parameter Lock and Open	34
		M15S Specifications	35
Section 4: Safety	9	Section 12: Troubleshooting	36
General Shop Safety Instructions	9	Planing operation problems	36
General Machine Safety	9	Mechanical & Electrical problems	36
Planer Specific Safety Instructions	10		
Section 5: Power Supply Requirements	10	Section 13: Electrical Diagram	39
Circuit Requirements and Motor Information	10		
Grounding	11	Section 14: Machine Diagrams	40
Extension Cords	11	Cutterhead Assembly	41
Section 6: Set-up instructions	11	Table Assembly	42
Tools Needed	11	Left-side Column	43
Unboxing the Machine	11	Right-side Support and control panel	44
Hardware Packing List	12	Lower Cabinet & Motor Assembly	45
Initial Clean up	12	Gearbox Assembly	46
Machine Placement and Floor Mounting	13	Parts list	47
First Run	13		
		Sectopn 15: Warranty and Return Policy	56
Section 7: Operations	14		
Overview	14		
Inspecting the first workpiece	15		
Section 8: Adjustments & Fine Tuning	16		
Section 9: Test Cutting & Troubleshooting	20		
Section 10: Maintenance	21		
Cleaning Procedures	21		
Lubrication	22		



Section 2: Introduction

It is with distinct honor and excitement that we present to you the BBPL25, a premier addition to our esteemed line of precision woodworking equipment. At Busy Bee Tools, we are committed to engineering excellence, and this machine exemplifies our dedication to providing craftsmen with superior tools for their trade.

This manual has been meticulously crafted to guide you through the setup, safe operation, and maintenance of your new BBPL25. By following the detailed instructions and recommendations contained within these pages, you can anticipate many years of dependable and satisfying performance. This commitment to quality underscores Busy Bee Tools' promise of enhancing customer satisfaction through innovation and reliability.

Included within this manual are precise specifications, illustrations, and photographs that represent the BBPL25 in its current configuration. Please note, that in our pursuit of continual improvement and to exceed industry standards, Busy Bee Tools reserves the right to make enhancements to this model without prior notice.

For your convenience, we continuously update all our product manuals which are available on our website at www.busybeetools.com. We encourage you to visit this site regularly to download the latest updates and ensure that you are always informed about the best practices for operating and maintaining your machine. At Busy Bee Tools, your safety and satisfaction are our utmost priority, and we are dedicated to ensuring that your experience with the BBPL25 is exceptional.

Welcome to the Busy Bee Tools family, where craftsmanship meets innovation.

Contact Us

In case you require additional assistance or have any further questions, please do not hesitate to reach out to our dedicated Customer Service and Technical Support Department at:

Busy Bee Tools Head Office
130 Great Gulf Drive
Concord ON, L4K 5W1

Or at any of our stores across Canada.

Visit our website for the latest deals and for more information. Call us Toll Free: 1-800-461-2879.

Email us at: cs@busybeetools.com

Our team of experts is here to provide you with the guidance and support you need to ensure the safe and efficient operation of your machine. Your satisfaction and safety are our top priorities, and we are committed to assisting you in any way we can.



General Machine Information

Machine Identification

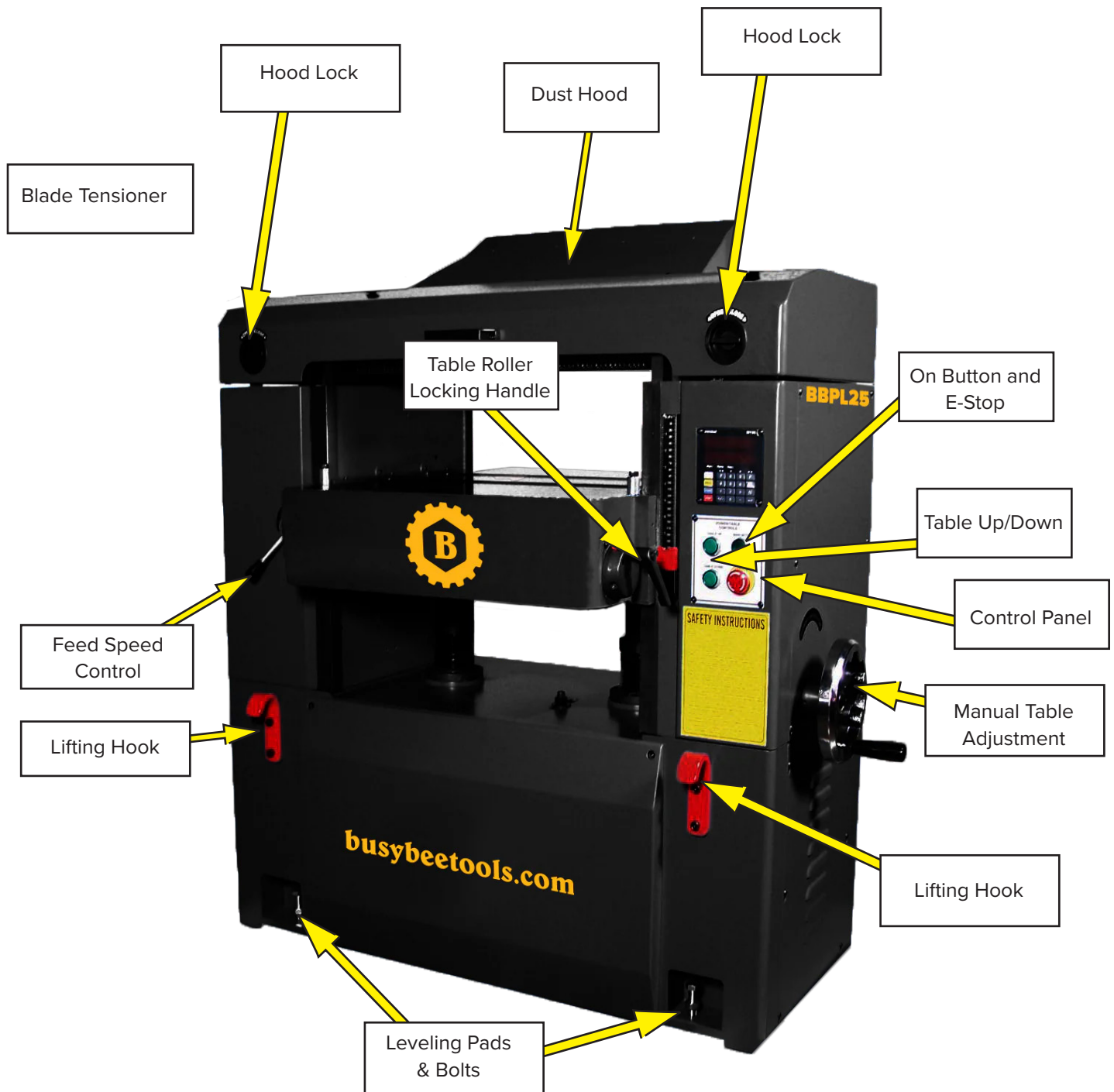


Figure 1: Machine Identification

Controls and Components

- On Push Button.
- E-Stop Mushroom button.
- Table UP button.
- Table DOWN Button.
- M15S digital thickness control Keypad and controls and display.

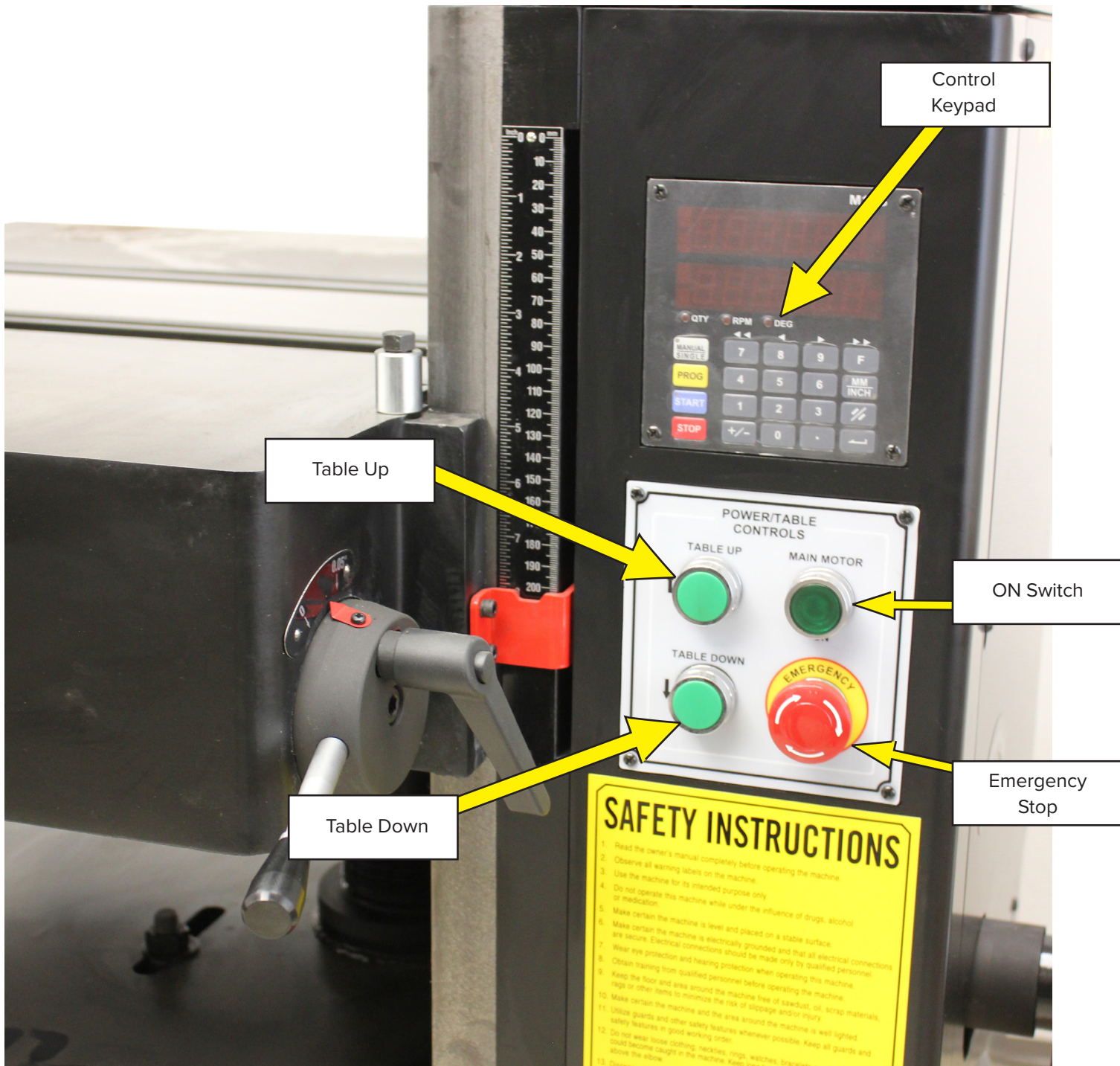


Figure 2: Control Panel

Machine Data Sheet

Model Number.....	BBPPL25
Motor.....	15HP, 3-PH, 240V, /460v, (38/19 Amps)
Table elevation Motor.....	1/2HP 3-PH
Minimum Circuit requirements for 240V	50 AMP
Cutterhead Style.....	6 Row Helical
Number of Inserts.....	174 four-sided, carbide
Cutterhead diameter.....	3-3/8"
Infeed Roller Diameter.....	3"
Outfeed roller diameter.....	3-5/16"
Maximum Stock Width.....	25"
Maximum Depth of Cut.....	1/4" for up to 11-3/4" wide and 1/8" from 11-3/4" to 25"
Minimum Stock Thickness.....	1/8" Manual 15/64" Automatic
Maximum Stock Thickness	9-1/4"
Minimum Length of workpiece.....	10"
Feed Speed.....	20, 25 and 30FPM
Cutterhead speed.....	4800 RPM
Table Size.....	26" x 32"
Table Support.....	2 columns
Steel Outfeed Roller Diameter.....	3" (x2)
Bed Rollers.....	2, adjustable
Dust port size.....	5"
Dust Collection Requirement.....	900 CFM
Footprint.....	47-1/2" L x 21" W
Shipping Dimensions.....	46"L x 23"W x 56"H
Shipping G.W.....	840 KG
Net Weight.....	786 KG

Features:

- 15 HP powerful TEFC motor
- 25" Width capacity
- Digital control panel for precise thickness settings
- Power assisted table for quick, accurate adjustments
- Helical cutterhead with 4-sided carbide inserts
- 3/16" maximum depth of cut
- 20, 25 and 30 FPM variable speed
- Minikol M15S Digital read out and control pad.
- Integrated dust port



Section 4: Safety

General Shop Safety instructions

Your safety is of utmost importance. Prior to starting the assembly of this machine, it is imperative that you thoroughly read the instruction manual. Safety symbols and signal words have been incorporated into this manual to draw your attention to potentially hazardous conditions and to convey the significance of the safety messages. It is essential to remember that these safety messages alone cannot eliminate danger and should not replace the implementation of proper accident prevention measures.

(Minor or Moderate Injury): This symbol indicates a potentially hazardous situation that, if not avoided, MAY result in minor or moderate injury. It may also serve as a warning against unsafe practices.

Warning Symbol (Death or Serious Injury): The warning symbol signifies a potentially hazardous situation that, if not avoided, COULD result in death or severe injury.

Danger Symbol (Imminent Death or Serious Injury): The danger symbol is used to indicate an imminently hazardous situation that, if not avoided, WILL result in death or serious injury.

In addition to these symbols, you will also come across a notice symbol, which is employed to alert the user to valuable information regarding the proper operation of the machine. By diligently adhering to these safety symbols and heeding the information in this manual, you can significantly enhance your safety while operating the equipment.

General Machine Safety

1. Thoroughly Review the Entire Manual Before Operating Machinery: It is crucial to read and understand the complete manual before commencing any machinery operations. Machinery can pose severe injury hazards to individuals who lack proper training and familiarity with its operation.
2. Always utilize CSA Approved Safety Glasses During Machinery Operation: For your safety, it is imperative to wear safety glasses that meet ANSI (American National Standards Institute) standards when using machinery. Conventional eyeglasses are not equipped with impact-resistant lenses and should not be considered a substitute for proper safety glasses.
3. Always Wear a CSA Approved Respirator When Operating Dust-Producing Machinery: When operating machinery that generates dust, it is essential to wear a respirator that has been approved by NIOSH (National Institute for Occupational Safety and Health). Wood dust is classified as a carcinogen and can lead to cancer and severe respiratory illnesses. Your respiratory protection is paramount to your health and safety.
4. Utilize Hearing Protection When Operating Machinery: Always wear hearing protection when operating machinery. Prolonged exposure to machinery noise can result in permanent hearing damage, and protecting your hearing is vital for your long-term well-being.
5. Adhere to Proper Apparel Guidelines: Avoid wearing loose clothing, gloves, neckties, rings, or jewelry that could potentially become entangled in moving parts of the machinery. Additionally, wear a protective hair covering to confine long hair and ensure you have non-slip footwear to prevent accidents.
6. Do Not Operate Machinery When Fatigued, or Under the Influence of Substances: Never operate machinery when you are tired, or if you are under the influence of drugs or alcohol. It is crucial to be always mentally alert when running machinery to maintain your safety and the safety of those around you.
7. Authorize Trained and Supervised Personnel Only: Permit only individuals who have received proper training and supervision to operate machinery. Ensure that operational instructions are not only safe but also clearly understood by those using the equipment.
8. Keep Children and Visitors at a Safe Distance: Maintain a safe distance between all children and visitors and the work area where machinery is in use.
9. Secure Your Workshop for Child Safety: Take measures to childproof your workshop, including the use of padlocks, main switches, and the removal of start switch keys to prevent unauthorized use by children.
10. Never Leave Machinery Running Unattended: It is essential never to leave machinery unattended while it is still running. Turn off the power and allow all moving parts to come to a complete stop before leaving the machine unattended.
11. Avoid Dangerous Environments: Refrain from using machinery in locations that are damp, wet, or where flammable or noxious fumes may be present. Always ensure a safe operating environment.
12. Maintain a Clean and Well-Lit Work Area: Keep your work area clean and well-lit to prevent accidents. Clutter and dark shadows can pose significant safety risks.
13. Disconnect from Power Source Before Servicing: Always disconnect the machinery from the power source before servicing it. Ensure the switch is in the OFF position before reconnecting.
14. Maintain Machinery with Care: To ensure the best and safest performance, maintain your machinery with

care. Keep blades sharp and clean and follow the manufacturer's instructions for lubrication and changing accessories.

15. **Verify Guards Are in Place and Functional:** Before using machinery, confirm that all safety guards are in place and functioning correctly. Never operate machinery if guards are missing or not working as intended. Your safety relies on the proper functioning of these guards.
16. **Remove Adjusting Keys and Wrenches:** Prior to turning on the machinery, it's essential to cultivate the habit of checking for adjusting keys and wrenches and ensuring they are removed. Leaving such tools in place can result in accidents.
17. **Inspect for Damaged Parts Before Use:** Before using the machinery, conduct a thorough inspection for damaged parts. Check for any issues such as binding or misalignment of parts, broken components, improperly mounted parts, loose bolts, or any other conditions that might impact the safe operation of the machine. Any damaged parts should be promptly repaired or replaced.
18. **Utilize Recommended Accessories:** Consult the instruction manual to identify the recommended accessories for your machinery. Using improper accessories can pose a risk of injury, so it is essential to adhere to the manufacturer's recommendations.
19. **Avoid Forcing Machinery:** Operate the machinery at the speed for which it was designed and avoid forcing it beyond its intended capabilities.
20. **Secure the Workpiece:** Whenever possible, use clamps or a vise to secure the workpiece. A properly secured workpiece not only protects your hands but also allows you to use both hands to operate the machine safely.
21. **Avoid Overreaching:** always Maintain proper footing and balance. Overreaching can compromise your stability and pose a risk of accidents.
22. **Beware of Workpiece Ejection:** Be aware that certain machines may eject the workpiece toward the operator. Take precautions and avoid conditions that could lead to workpiece "kickback."
23. **Lock Mobile Bases (If Used) Before Operation:** If your machinery is equipped with mobile bases, ensure they are locked securely before operating the equipment. This prevents unintended movement during use.
24. **Understand Dust Hazards:** Recognize that some dust types can be hazardous to respiratory systems, both for people and animals, particularly fine dust particles. Familiarize yourself with the hazards associated with the specific type of dust you will be exposed to and always wear a respirator approved for that specific type of dust to protect your respiratory health.

Planer Specific Safety Instructions

1. Do Not use the planer if you are too tired, hungry, sad, mad, or dehydrated. Never work while under the influence of drugs, alcohol, or any medication that creates drowsiness or impaired thinking.
2. Prior to starting the machine, make sure that there are no tools, or loose items on and around the machine, also clear the path around the machine.
3. Verify that all the guards are secure and in place before turning the machine on. Inspect the planer before turning it on to ensure no parts are loose or broken.
4. Hands must be at least 100mm away from the cutterhead.
5. Inspect the workpiece before planing.
6. Never reach under the cutterhead while the machine is running.
7. Never plane a workpiece that is shorter than the distance between the infeed and the outfeed rollers.
8. Never force a workpiece under the cutterhead, allow the machine to dictate the feed speed.
9. Never stand in front of the workpiece while it is exiting the planer.
10. Always have a push stick ready in case you need to push the workpiece into the machine.
11. Never leave the machine unattended while it is running.
12. Always plane with the grain.
13. Place warped boards side against the table.
14. When planing long boards use the help of a second person.

Section 5: Power Supply Requirements

Circuit Requirements and Motor Information



WARNING

Electrocution or fire could result if this machine is NOT grounded correctly. Or if the electrical configuration does not comply with your local codes.

The main motor at 15 HP 3-phase motor Draws 37/18.5 Amps at 230 Volts and a frequency of 60Hz and 3420 RPM. A secondary motor to control the table

movement at ½ HP 3-phase motor draws 2/1 Amps 230 Volts and a frequency of 60Hz and 1720 RPM.

For optimal safety and performance, we strongly recommend the use of a dedicated circuit and breaker for this machine. It is imperative that you connect your machine to a grounded circuit that is rated for the specified amperage as outlined below. It is essential to note that you should never replace a circuit breaker on an existing circuit with one of higher amperage without seeking guidance



from a qualified electrician to ensure compliance with local wiring codes.

If you have any doubts regarding the wiring codes applicable in your area or if you intend to connect your machine to a shared circuit, it is highly advisable to consult a qualified electrician for professional guidance and assistance.

Circuit Breaker Requirement.....60 Amps

By adhering to these electrical requirements and consulting with a qualified electrician when needed, you can ensure both the safety and efficient operation of your machine.

The recommended plug and receptacle are NEMA 18-60P plug and NEMA 18-60R receptacle



Figure 3: 3-phase Plug and Receptacle.

Grounding

Grounding plays a critical role in minimizing the risk of electric shock in the event of an electrical short. It is essential to ensure that the grounding wire within the power cord is correctly and securely connected to the grounding prong on the plug. Additionally, the electrical outlet used must be professionally installed and grounded to effectively provide this safety feature.

All electrical connections must be established in strict accordance with the local electrical codes and ordinances governing your area. By adhering to these grounding guidelines and local regulations, you can significantly enhance the safety of your electrical system and reduce the risk of electric shock hazards.

Extension Cords

The use of extension cords is prohibited. It is recommended to pre-plan the placement of your equipment and the installation of wiring in a manner that eliminates the necessity for extension cords. This is a powerful machine, and it draws high current therefore, the use of an extension cord will create a major safety issue.

By adhering to these guidelines and seeking professional

assistance when necessary, you can maintain the safety and effectiveness of your equipment.

Section 6: Set-up instructions

Tools Needed

To successfully complete the setup process for your machine, please note that the following items are required but not included with your purchase:

- Forklift rated for the weight of this machine or higher (780KG minimum).
- Wrenches 11/13, 17/19, 22/24 mm (included with the machine).
- Torx screwdriver (included with the machine).
- Allen key set (included with the machine).
- Flat screwdriver (included with the machine).

These essential items will contribute to a safe and efficient setup of your machine. Please ensure you have these on hand before proceeding with the installation. Your safety, and the effectiveness of your setup are our top priorities.

Uncrating the Machine

We take great care to ensure that the Model BBPL25 is securely packed before it leaves our warehouse. In the rare event that you notice any damage to the machine after signing for delivery, you must take immediate action. Please call our Customer Service team at 1-800-461-2879 for guidance on how to proceed.

Warning: The equipment used to lift this machine must be rated at a capacity equal or above the weight of this planer. Failure to comply may cause severe injury.

It's crucial to retain both the crate and all the packing materials in case they need to be inspected by the carrier or their representative. This precaution will greatly facilitate the process of filing a freight claim, should that become necessary.

Once you have thoroughly assessed the condition of your shipment and are entirely satisfied, we recommend conducting an inventory of the contents. Your satisfaction and confidence in the received product are of paramount importance to us.

Hardware Packing List

Within the crate you'll find 2 boxes; here are the contents:

Box 1:

- 4 Leveling pads.
- 4 Allen keys.
- 4 Open end wrenches.
- 4 Leveling bolts and nuts.
- 4 Lifting hooks and nuts (installed).
- 1 Knob for handwheel.
- 1 Handwheel (part D).
- 1 Handwheel knob (part E).
- 1 Screw-on handle (part C).

Box 2:

- 1 dust chute.
- 8 hex head screws M6-1.00X10mm.
- 8 Flat washers M6.

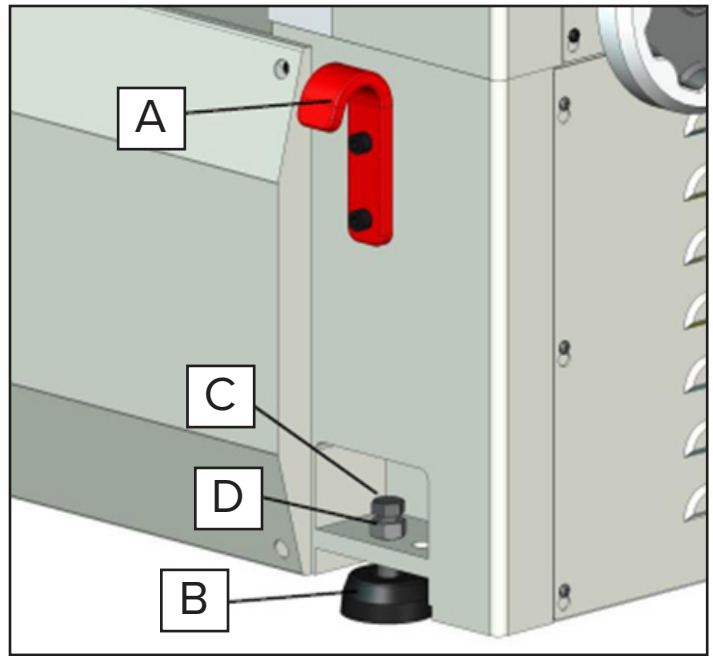


Figure 5: Lifting Hooks and Leveling Pads.



Figure 4: Accessories and Dust Hood.

Machine Placement and Floor Mounting.

Prepare the site where you are planning to place the machine. Make sure the site is clean, and the floor is level. Use a forklift or any other lifting device as long as it is rated to manage the weight of this planer, **this machine is heavy so practice caution when moving it at all times.** This machine's footprint is 55" wide and 35" deep. You must allow ample space around the machine for proper clearance when using it.

Before you move the machine into position make sure that:

1. The lifting hooks are installed and tightened properly.
2. The leveling bolts and nuts are installed in place.
3. Install the leveling pads under the four corners of the planer

Unpacking and Initial Clean up

Carefully and slowly, remove all the fasteners of the crate and expose the machine then remove all the plastic protective wraps. In the crate you will find 2 boxes. Please open these boxes and check inventory against the above packing lists. If your parts are complete, the next step is to move on to placement of the machine and the initial cleanup. This machine comes with a substantial layer of oils and grease to prevent oxidation while in transport and storage.

First, after deciding the location the machine is going to be placed in, thread the leveling bolts and nuts (C/D, Figure 5) into the pre-drilled holes located at the four corners of the planer base. Ensure that the planer is placed on a smooth, level surface. Position the leveling pads (B, Figure 5) beneath each corner of the planer.

Thoroughly clean all rust-protected surfaces using a commercial solvent. Avoid using acetone, gasoline, lacquer thinner, or any flammable or paint-damaging solvents. After cleaning, apply WD-40 or a 20W machine oil to the cleaned unpainted surfaces only.

Now we are ready to move the machine into position. Lift the planer using the forklift and bring it into position, once the machine is in place use a level and place it on the table. Now manipulate the bolts until you achieve a perfect leveled surface on the table, then tighten the hex nuts against the base to prevent the bolts from changing position.

Figure 6: Machine's Footprint and measurements.



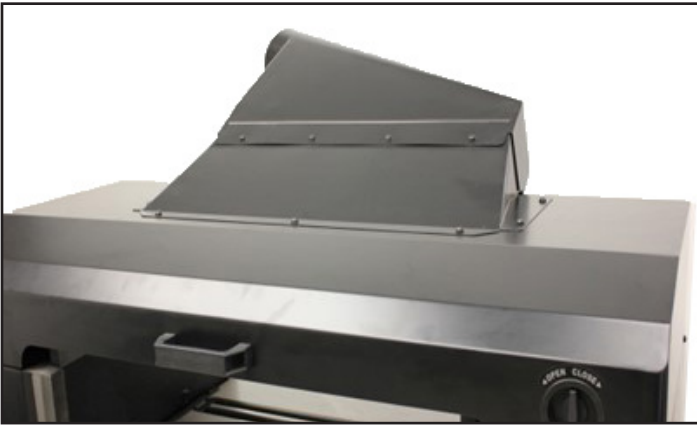


Figure 6: Installing the Dust Hood.

Machine Assembly

This planer comes fully assembled with the exception of the dust chute, the table roller handle, and the handwheel. Install the dust chute using the 8 screws provided in the same box, see figure 4.

For the dust hood, please use the screws, and the flat washers to install the dust hood.

As for the handwheel D just insert it on its shaft and screw the cap screw E in until tight. Thread and tighten the table roller handle C on the table roller hub tightly, see figure 7 (D,E and C).

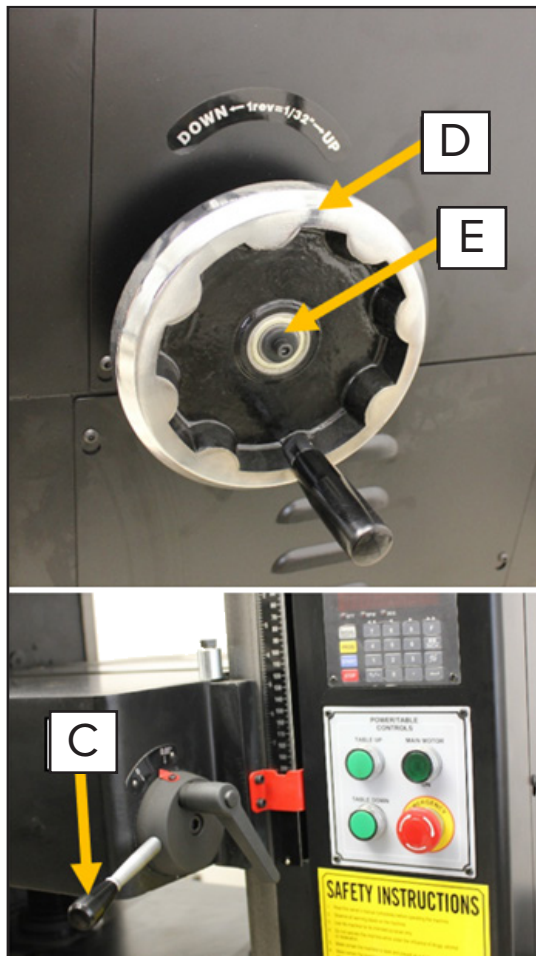


Figure 7: Installing the Handwheel and the Handle.

Electrical Connection

Employ the help of a certified electrician to connect this planer to the electric power. This is a 3-phase 240Volt 60Amps machine therefore to connect it to a power source, proper wire gauge, plug and receptacle must be used. Ensure that your power supply voltage matches the specifications on the motor plate of the machine.

1. Disconnect the power source prior to wiring the machine.
2. Use the help of a professional electrician to wire this machine.
3. Remove the screws securing the cover of the connection box.
4. Insert the power cable through the strain relief and connect the wires to the appropriate terminals.
5. Reinstall the connection box cover.
6. After wiring is complete, tape all power box joints to prevent dust intrusion.

Dust Collection

The minimum CFM (cubic Feet per Minute) suction for this machine is 900 CFM. Always make sure to start the dust collector before starting the machine.

First Run

Now that the machine is assembled and connected to the power source it is time to start it for the first time. Please follow the steps below to run the machine for the first time: Remove all loose tools and material from the machine and make sure it is completely clear.

- Press the ON button and listen carefully to the machine's noise, is it normal? Notice any unusual noises such as grinding rattling etc.
- Turn the feed speed control lever and see if the speed changes accordingly.
- Turn the table level handwheel and notice how smooth it is to operate.
- Push the table up and table down buttons to test if they are operational.
- Push the E-STOP button to test if it functions properly.
- Let it run for few minutes then turn it OFF.

Once the test is successful, your new planer is ready to be used.

Section 7: Operations Overview

Planing is a simple two step operation, feed the wood into the machine and remove it from the opposite end. Please adhere to the maximum depth of cut while planing. This may have a significant impact on the outcome as well as it may have a key role in the longevity of the machine. Always follow the recommended measurements provided in this manual.

In this section we will cover over inspecting the work piece, the features of this machine and how to operate it properly; the correct operation of this machine is crucial to follow the following guidelines.

Raising and Lowering the Table

Turn the handwheel (D) figure 7 clockwise to raise the table and counterclockwise to lower it manually. One revolution is equal to 1/32" or 0.03". Note the handwheel is spring loaded you must push it in and turn until the pin engages the dents only then the table will move up or down.

Another option to raise or lower the table is by using the two green push buttons on the main panel.

Planer Operation Guidelines

1. Inspect Lumber:

- Check for twisting, foreign or embedded objects such as nails, staples, gravel etc. Do not use lumber with such flaws.
- Be aware that wood stacked on concrete may have small stone or concrete particles embedded in its surface.

2. Feeding Lumber:

- Use the full width of the planer. Alternate between the left, right, and center positions when feeding lumber to prolong the cutterhead inserts sharpness.

3. Preparation:

- Remove all glue from joined boards before planing.
- Plane only natural wood fibers. Do not plane wood composites.

4. Feeding Direction:

- Always plane with the grain. Do not feed end-cut or end-grain lumber into the planer.

5. Defective Lumber:

- Avoid using boards with knots, splits, cross-grain, or other visible defects as they can damage the machine and pose safety risks.

6. Work Area:

- Maintain a clear work area to ensure safe and efficient operation.

7. Moisture Content:

- Do not plane wood with more than 20% moisture content or wood exposed to rain or snow. High moisture

content can lead to poor planing results, excessive wear on the cutterhead inserts and motor, and increased risk of rust and corrosion.

8. Table Height:

- Use the table height lock knob during operation to ensure consistent and accurate results.

9. Stock Preparation:

- Rectify any cupped or warped stock on a jointer before planing.

•

For any issues with the end result please read the troubleshooting section for further instructions and information regarding the quality of the planed workpiece.

Planing

Thickness planing is employed to reduce a workpiece with one surface already planed to a desired thickness. Here is how to use the planer effectively:

Squaring a Workpiece Procedure Example:

1. This step involves utilizing the jointer to flatten the surface of the first side of the workpiece.
2. Subsequently, after surfacing side 1, the workpiece is rotated 90° to align side 1 against the fence. Side 2 is then jointed flat. This operation results in two sides of the workpiece being perpendicular to each other.
3. Moving on to step 3, the planer is employed to run the workpiece with side 1 placed flat against the planer bed (down). This positioning facilitates the cutting of side 3, ensuring its parallelism to side 1.
4. In step 4, side 2 is positioned flat against the planer bed (down), resulting in, side 4 being planed flat and parallel to side 2.

Upon completion of these steps, the workpiece achieves squareness and will have our flattened surfaces and four edges perpendicular to each other.

NOTE: Workpiece dimensions for planing:

- Length: minimum 24"; for lumber over 60", utilize roller supports.
- Width: maximum 22".
- Maximum thickness: 9-1/2"
- Thickness: minimum 1/4".
- Depth of Cut: maximum 1/8" only with soft types of wood, although multiple cuts of 1/16" or less produce better finish results. Keep in mind that the wood's hardness plays a significant role in determining the depth of cut i.e., for softer woods you can go up to 3/16" depth while for harder woods you must stay under 1/8" deep.



1. To feed the workpiece into the machine, assume the proper operating position. Stand slightly offset to one side of the feed opening to avoid potential kick-back. Do not push the lumber once the infeed roller is engaged. Allow the infeed roller to move the workpiece into the planer at its own pace.
2. To remove the workpiece from the machine, position yourself offset to one side of the outfeed opening. Do not pull the lumber as it exits the machine. Let the outfeed roller move the workpiece out of the planer at its own pace but provide support to the lumber as it extends beyond the extension rollers, if necessary. For extremely long workpieces it is advisable to add a roller extension to support the workpiece.
3. Set the planing thickness by measuring your board's thickness and adjusting the planer accordingly, either to this measurement or 1/8" under this measurement. It's crucial to avoid removing an excessive amount of stock (over 1/16") during the initial pass to prevent damage to the planer. Repeated passes through the planer will gradually achieve the final desired board thickness. A shallow depth of cut with multiple passes will result in a cleaner final surface for your workpiece. Please note that one revolution of the thickness handwheel is equivalent to 1/16" in depth of cut.
4. Feed boards slowly and directly into the planer (DO NOT FORCE OR PUSH the Workpiece). The infeed and outfeed rollers will automatically guide the boards through the planer. Forcing the workpiece in the machine will result in poor finish and may have a negative effect on the final result.
 - Ensure that workpieces are guided straight into and through the planer. The cutting action of the cutterhead may attempt to turn a board being surfaced, so slight control of the board may be necessary. Do not push the board forward; let the planer's rollers automatically move the board through the machine.
5. Remove the board from the planer. Refer to Step 2; DO NOT PULL the lumber as it exits the machine. Allow the outfeed roller to move the workpiece out of the planer at its own rate but provide support to the lumber as it extends beyond the extension rollers, if necessary.
 - Ensure there are no loose knots, nails, staples, dirt, or foreign objects in the wood to be planed.
 - Plane wood in the same direction as the grain, avoiding planing across the grain or end grain.
 - Avoid planing boards shorter than 24"; shorter boards should be planed end to end with other boards to prevent kick-back and snipe.
 - Provide additional support for boards longer than 60" to prevent tipping, which can cause snipe on exit.

Inspecting the first workpiece

When selecting stock for jointing or planing, adhere to the following guidelines:

- **Avoid Large or Loose Knots:** Do not process stock containing large or loose knots, as these could dislodge during cutting operations, resulting in operator injury or damage to the workpiece.
- **Grain Direction:** Do not joint or surface-plane against the grain direction, as this increases the risk of kickback and tear-out.
- **Cutting with the Grain:** Joint and surface-plane with the grain for a better finish and increased safety.
- **Wood Selection:** Only cut natural wood with the machine, avoiding materials such as MDF, particle board, plywood, laminates, metals, glass, stone, tile, products with lead-based paint, or those containing asbestos, as using the machine on these materials may lead to injury or machine damage.
- **Glue Removal:** Scrape off all glue deposits from the workpiece before jointing or planing, as glue residues can impair cutterhead performance.
- **Foreign Objects:** Ensure the workpiece is free of foreign objects such as dirt, nails, staples, rocks, or other debris, which could damage the cutterhead or pose a fire hazard.
- **Wood Moisture Content:** Verify that all stock has an appropriate moisture content, as wood with moisture levels exceeding 20% can accelerate wear on the cutters, resulting in subpar cutting.
- To ensure safe and effective machine operation, it is imperative that your workpiece meets or exceeds the minimum dimensions outlined below before proceeding with any machining operation. Failure to adhere to these specifications may lead to workpiece breakage or kickback during operation, posing a risk of injury to the operator and potential damage to the machine.

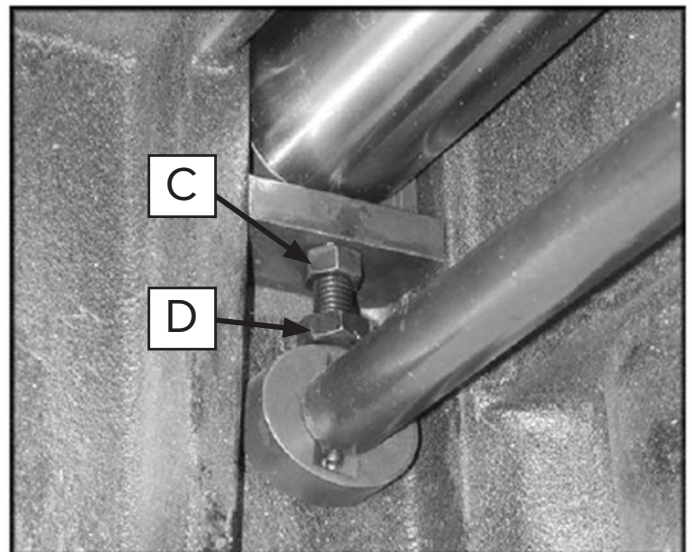


Figure 8: Adjusting the Table Rollers.

How to Square a Workpiece

1. Utilize a jointer to ensure that surface side 1 is flat.
 2. Following the surfacing of side 1, rotate the workpiece by 90°, aligning side 1 against the fence. Proceed to flatten side 2 using the jointer. This action results in two perpendicular sides.
 3. At this point use the planer to process the workpiece, positioning side 1 flat against the planer bed. Subsequently, side 3 can be machined to achieve parallelism with side 1.
 4. Orient side 2 flat against the planer bed to facilitate the planing of side 4, ensuring its flatness and parallel alignment with side 2.
 5. Upon completion of these steps, the workpiece achieves a square profile, featuring four flattened surfaces and four edges with perpendicular alignment.
- Utilize the full length of the cutterhead inserts by running boards through the planer at various positions along the width of the bed. Planing only in the center or through one side of the planer will quickly dull the knives in that area.
 - For thickness planing stock with non-parallel surfaces, use suitable feeding aids such as fitting templates.

Section 8: Adjustments and Fine Tuning

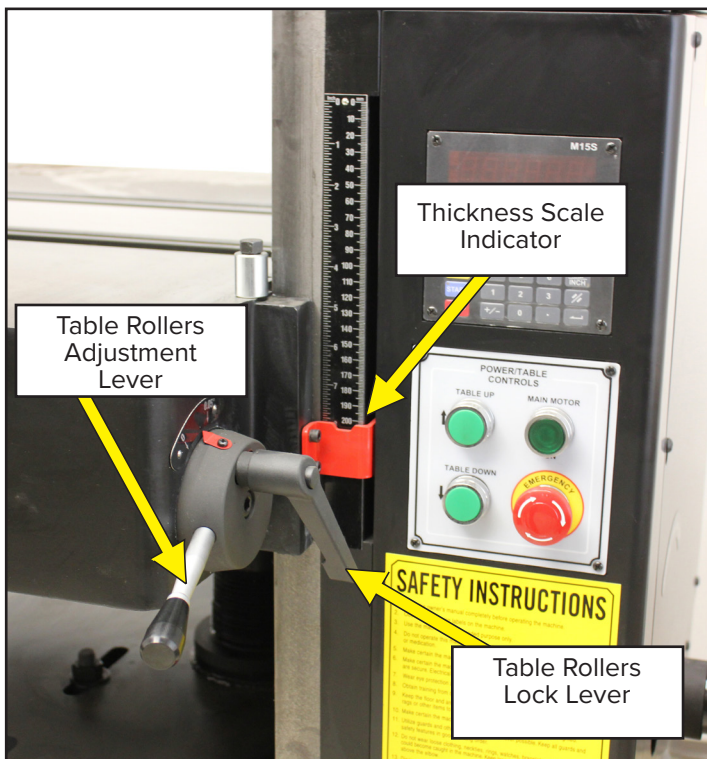


Figure 9: Control Panel.

Adjusting the thickness scale

It is important to make sure that the thickness scale is accurate, this will ensure that your workpiece is always at the desired thickness. To achieve this please follow the steps below:

1. Run a piece of wood through the planer and measure its thickness with a caliper.
2. Adjust the red pointer next to the switch panel see figure 9 by loosening the screw that holds it in place and move it to match your measurements.
3. Note: this measurement should be the same as the digital readout measurement as well.

Adjusting the Table rollers

To Adjust the table rollers' height, loosen the lock lever that locks handle C in figure 9 and turn the hand lever C to move the table rollers up or down, then tighten the lock lever to secure your position.

Changing the Feed Rate

The feed rate handle Figure 10 (S) located on the right-hand side of the table see figure . This planer has three different speeds 20, 25, and 30 feet per minute. To adjust the speed turn the lever figure , until it clicks into place. Change the speed while the machine is running.

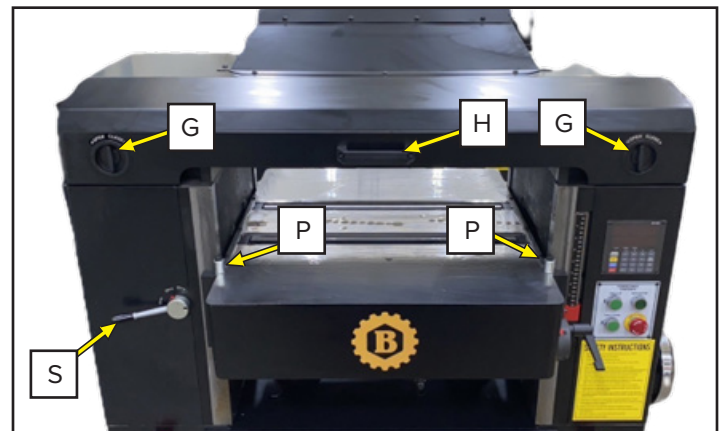


Figure 10: Changing the feed rate

Table Stop

The socket head cap screws Figure 10(P) located at the left and right ends of the table are in place to prevent you from running the table into the cutterhead and inserts.

DO NOT remove them otherwise your warranty will be void.

Opening the Hood

To open the hood first, make sure that the machine is OFF, and the power is disconnected. Secondly, turn both left and right locks Figure 10 (G) to the unlock position then use Handle (H) to lift the hood.

Turning and Replacing the Cutterhead Inserts

Periodically, you need to inspect all the inserts and make sure they are not chipped, Broken or dull. These inserts are 4-sided so, you can turn them 3 times before discarding them. To do so, you need to first disconnect the machine from the power source, then with the aid of a T20 Torx wrench or you can use with an impact driver. Loosen the screw and turn the insert 90° to the next side.

Please make sure to pay attention to the inserts they are extremely sharp and can cause injury.

breaker, pressure bar, and outfeed rollers.

Use a wooden block, or a 1,2,3 blocks to gauge, along with a 0.02" feeler gauge, can be used to calibrate the planer as outlined in (Figure 11) above.

For specific planing applications, the setup may need to be modified based on the type of stock and cutterhead being used, as an alternative configuration may yield better results for your particular operation.

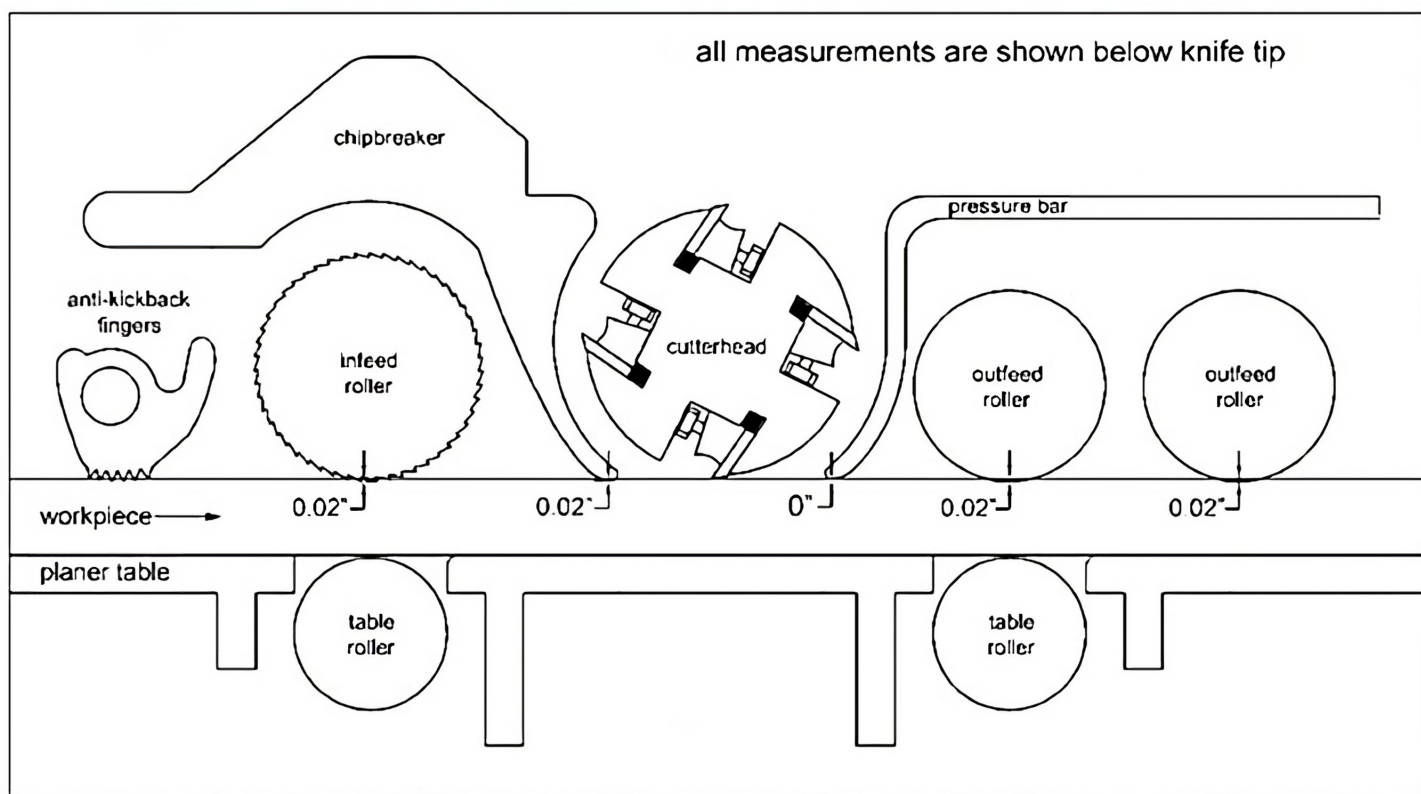


Figure 11: The Proper set up for the cutterhead assembly

Setup the Feed Roller, Chip breaker, and the pressure bar

Always disconnect the machine from the power source prior to maintaining the machine, failing to do so may cause serious harm.

The planer is pre-configured at the factory and should not require any adjustments.

However, if adjustments are needed, refer to the following sections for instructions on setting the infeed roller, chip

Anti-Kickback Finger

Anti-kickback fingers are designed to prevent stock from being ejected from the machine towards the operator. Ensure the fingers remain clean and free of sawdust, pitch, and other debris to maintain proper functionality.

Infeed Roller Adjustment

The infeed roller should be adjusted to 0.02" below the lowest point of the knife. Before making any adjustments, ensure that the inserts are properly installed.

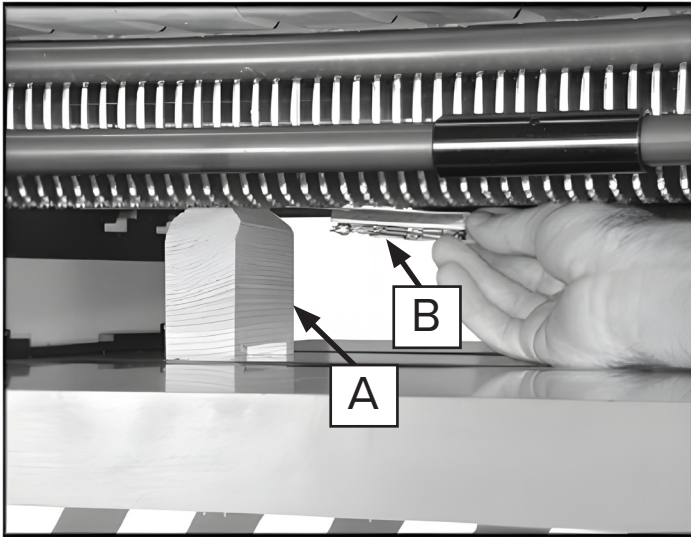


Figure 12: Infeed Roller Adjustment.

1. Disconnect the machine from the power source.
2. Position a hardwood gauge (A Fig 12) beneath a knife in the cutterhead. Place a 0.02" feeler gauge (B, Fig 12) on top of the wood gauge, then raise the table until the feeler gauge contacts the knife at its lowest position.
3. Remove the feeler gauge and position the wood gauge under the left side of the infeed roller. The top of the wood gauge should just touch the infeed roller. If it does not, loosen the jam nut (C, Fig) and adjust the screw (D, Fig) to raise or lower the infeed roller until it contacts the wood gauge. Repeat this process for the opposite side of the infeed roller

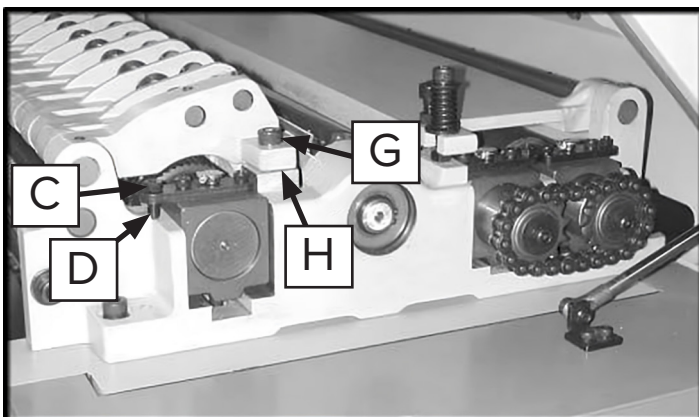


Figure 13: Infeed Roller adjustment.

Adjustment of the Chip Breaker

The chip breaker should be adjusted to 0.02" below the lowest point of the inserts

1. Disconnect the machine from the power source.
2. Place a hardwood gauge (A, Figure) under the inserts in the cutterhead. Position a 0.02" feeler gauge (B, Figure) on top of the wood block, then raise the table until the feeler gauge contacts the inserts at its lowest point.
Figure 14: Chip Breaker Adjustment
3. Remove the feeler gauge and position the wood gauge (E, Figure) under the left side of the chip breaker (F, Figure 14). The top of the wood gauge should just touch the chip breaker. If it does not, remove the socket head cap screw (G, Figure 13) and the washer (H, Figure 13), or replace them with a shim of the correct thickness to adjust the height of the chip breaker until it contacts the wood gauge. Repeat this process for the opposite side of the chip breaker.

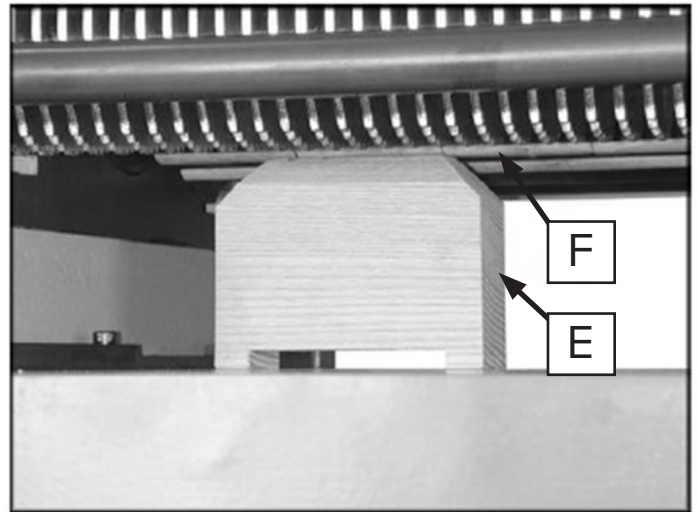


Figure 14: Chip breaker adjustment

Adjusting the Pressure Bar

The pressure bar should be set level with the lowest point of the knife.

1. Disconnect the machine from the power source.
2. Place a hardwood gauge beneath a knife in the cutterhead, then raise the table until the wood gauge contacts the knife at its lowest point.
3. Position the wood gauge (A, Figure) under the left side of the pressure bar (B, Figure). The top of the gauge should just touch the pressure bar. If it does not, loosen the jam nut (C, Figure) and adjust the screw (D, Figure) to raise or lower the pressure bar until it contacts the wood gauge.

Repeat this procedure on the opposite side of the pressure bar.

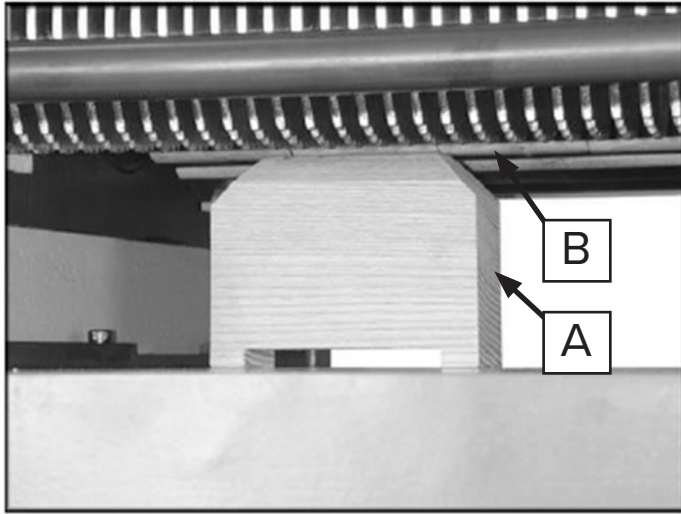


Figure 15: Pressure Bar Adjustment

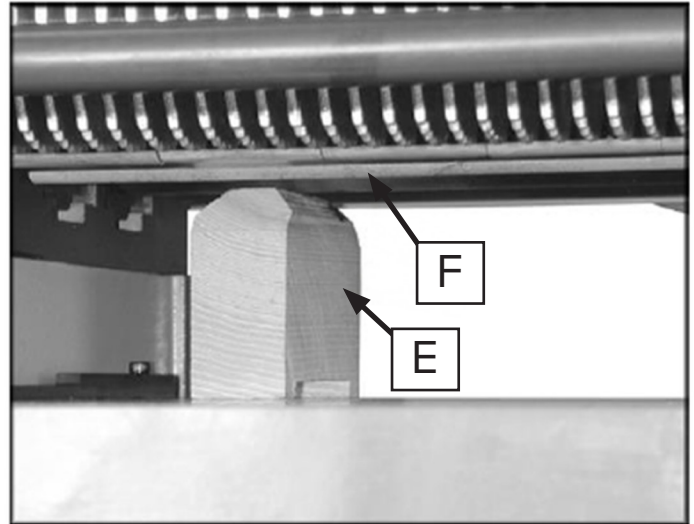


Figure 17: Block position under the Outfeed Roller

Adjusting the outfeed Rollers

The outfeed rollers should be set 0.02" below the lowest point of the knife. Ensure the knives are properly set.

1. Disconnect the machine from the power source.
2. Position a hardwood gauge (A, Figure) under a knife in the cutterhead. Place a 0.02" feeler gauge (B, Figure) on top of the wood block and raise the table until the feeler gauge contacts the insert at its lowest point.

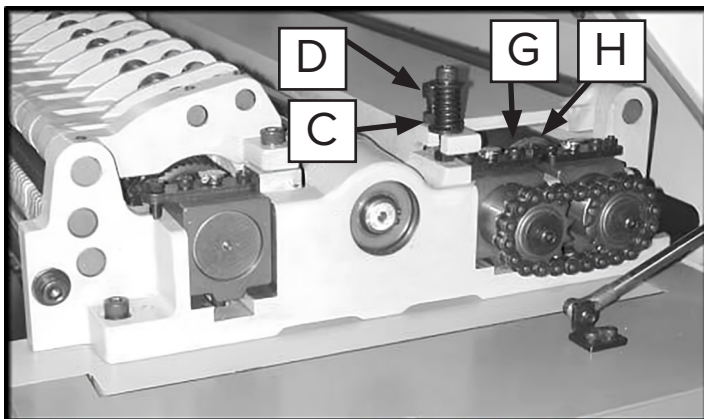


Figure 16: Adjustment screws for Pressure bar and outfeed Rollers

3. Remove the feeler gauge and place the wood block (E, Figure) under the left side of the outfeed roller (F, Figure). The top of the wood gauge should just touch the outfeed roller. If it does not, loosen the jam nut (G, Figure) and adjust the screw (H, Figure) to raise or lower the outfeed roller until it contacts the wood gauge. Repeat this process for the opposite side of the outfeed roller.
4. Repeat the procedure for the second outfeed roller.

Adjusting the Table Gibs

Adjust the gibs (D, Figure) by loosening the hex nuts (E, Figure) and turning the gib screws (F, Figure) until they lightly contact the ways (G, Figure). Ensure a 0.005" feeler gauge can fit between the gib and the way.

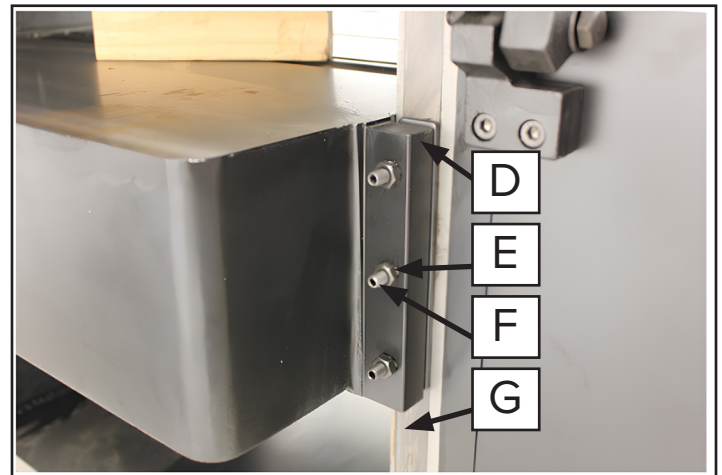


Figure 18: Table Gib Adjustment.

Adjusting the V-Belts

The cutterhead is driven by three V-belts (A, Figure), while the infeed and outfeed rollers are powered by a single V-belt (B, Figure). Belt tension is set at the factory, but if the belts have stretched and require adjustment, follow these steps:

1. Disconnect the machine from the power source.
Figure 19: V-Belt Adjustments.
2. Open the lower rear and lower left-hand side panels. Loosen the four adjustment nuts (C, Figure) and move the motor plate up or down to adjust the belt tension. Once the adjustment is complete, tighten the nuts against the motor plate.

3. The belts are properly tensioned when moderate finger pressure can deflect the V-belts approximately 1/4" to 3/8" midway between the pulleys.

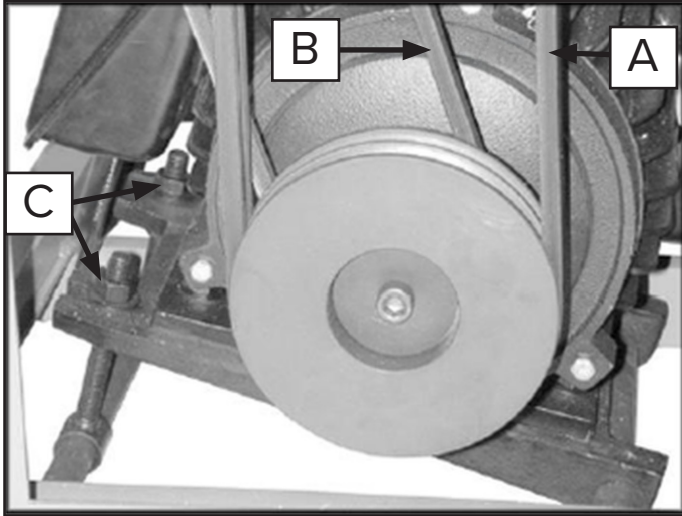


Figure 19: V-Belt Adjustments.

Adjusting the Table Rollers

The table rollers are pre-set at the factory and should not require adjustment. If adjustment becomes necessary, follow these steps:

1. Place a straight edge (A, Figure) across the table, positioned over the roller (B, Figure).
2. Raise the rollers until they contact the straight edge, then lock the handle. The pointer should be set to "0". If it is not, adjust the pointer to align with zero. Note: Spin the roller by hand to ensure contact with the straight edge.
3. Move the straight edge to the opposite side of the bed roller and check that the roller just contacts the straight edge. If not, loosen the hex nut (C, Figure) and adjust the hex cap bolt (D, Figure) to raise or lower the bed roller until it just contacts the straight edge.

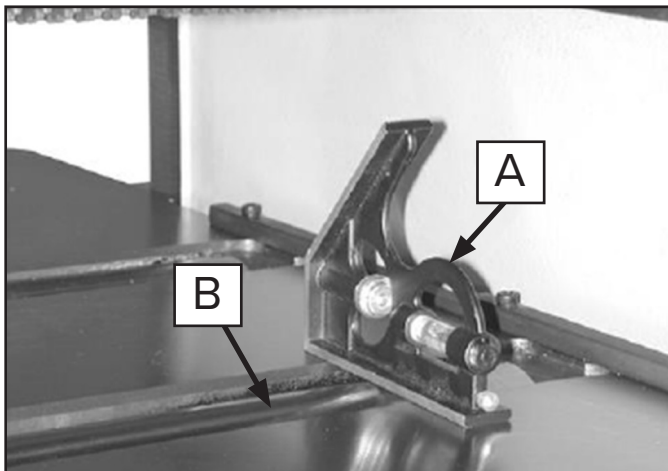


Figure 20: Table Rollers Adjustments.

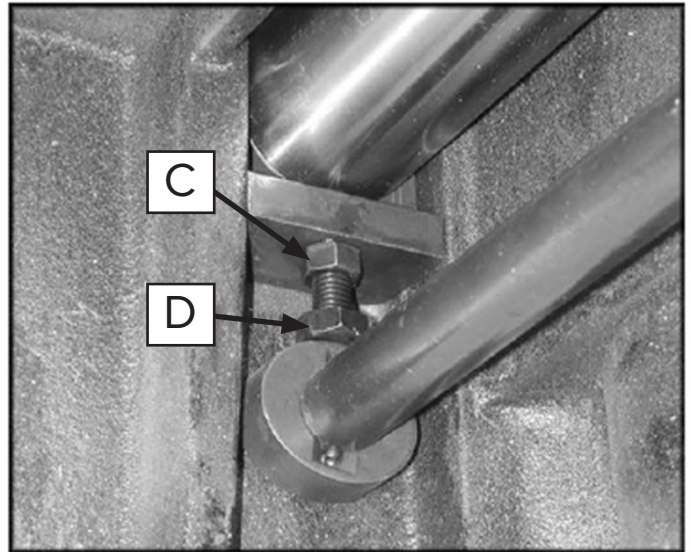


Figure 21: Table Rollers Adjustments.

Section 9: Test Cutting and Troubleshooting

Initial Setup

Using a piece of semi-finished stock, configure the machine for a 1/16" (1.59 mm) deep cut, with the quick-set table roller set to zero. Start the machine and stand to one side while feeding the stock into the planer.

Safety Warning: Never stand directly behind the stock or allow others to do so. Do not bend down to observe the feeding process, as kickback can cause serious or fatal injuries.

The infeed roller should engage the material, guiding it beneath the chip breaker and cutterhead. If the material passes through without resistance, inspect the finished cut for any imperfections. Developing the skill to identify board defects can save significant time in adjusting the planer for optimal performance.

Common Problems and Remedies

Feed Restriction

Feed restrictions may arise from table rollers set too low for roughing or an inadequately adjusted pressure bar. Typically, about 90% of feed restrictions are due to the pressure bar being too low. As knife inserts wear, raise the pressure bar equally on both sides. A common indication of knife wear is the material hesitating after exiting the corrugated infeed roller.

Action: Disconnect the machine from power and adjust the pressure bar. When restarted, the material should feed smoothly.

Note: Never adjust the pressure bar while the machine is powered on.

Feed restriction may also occur due to pitch buildup on the table. Ensure the table surface is clean; dusting with talc can facilitate smoother feeding and reduce pitch accumulation.

Clip Marks

Clip marks appearing 6" (152 mm) from each end of the board indicate that the pressure bar is too high. Adjust both right and left-hand screws (see Figure) uniformly, making 1/4 turn clockwise or less, and take another 1/16" (1.59 mm) deep cut. Re-inspect the board, continuing the operate-adjust cycle until clip marks are eliminated. If feeding ceases, back off slightly on both adjusting screws for smooth feeding and secure the adjustments with the jam nuts.

Snipe

Noticeable snipe at both ends of the material suggests that the table rollers are set too high, resulting in a lift during passage through the machine. This is more pronounced on the trailing end and often occurs with rough lumber.

Action: Ensure table rollers are elevated for rough or resaw lumber and remember to lower them when surfacing the opposite side.

Chatter

Chatter marks typically occur on thinner materials. When even at their lowest position, the table rollers may still be too high.

Solution: Use a slave board or create an auxiliary table from Formica countertop material, ensuring it remains stationary over the planer table.

Tapers

A taper across the board's width (see Figure 19) indicates that the table is not parallel to the cutterhead. First, check that all knife inserts are correctly installed. If they are, adjust the table as outlined in the "Table Adjustments" section (page).

Twisting

If the material twists while being fed, either the table rollers, pressure bar, or outfeed roller may be misaligned.

Halted Feeding

If the infeed roller engages the stock, the chip breaker lifts, but the workpiece halts when the knives contact it, the pressure bar is likely too low.

Action: Re-set the pressure bar as described in previous section.

Section 10: Maintenance

Periodic Inspections

Regular inspections are essential to ensure the machine is functioning correctly. Check the following:

Adjustments: Verify that all machine adjustments are within specifications.

Fasteners: Ensure all screws are tight to prevent operational issues.

Belts: Inspect belts for wear and condition; replace if necessary.

Dust Accumulation: Ensure that dust has not built up in electrical enclosures, which could pose fire risks or affect machine performance.

Electrical Connections: Look for any loose or worn electrical connections to prevent failures.

Accumulation of sawdust and debris can lead to inaccurate planing. Therefore, **periodic cleaning is mandatory** for maintaining accurate performance.

The planer is equipped with three limit switches: one that activates when the hood is open, and two for raising and lowering the table to prevent excessive travel. Ensure these switches are kept clean and free of debris by periodically blowing them out with an air hose.

Cleaning Procedures

- Clean close-fitting components, such as the link plates below the table and the platforms on the cutterhead that seat the knife inserts, using a rag or brush with a non-flammable solvent.

Caution: Exercise caution when working with or around the cutterhead. Remove resin and other build-up from feed rollers and the table with a non-flammable solvent to maintain performance.



Lubrication

Gearbox Lubrication

1. Change the gearbox oil at least once a year.
2. To drain the oil, remove the drain plug (A, Figure) and collect the oil in an appropriate container.
3. After draining, replace the drain plug and fill the gearbox with 60-90 weight gear oil through the fill hole (B, Figure).
4. Regularly check the sight glass (C, Figure) and top off the oil as needed.

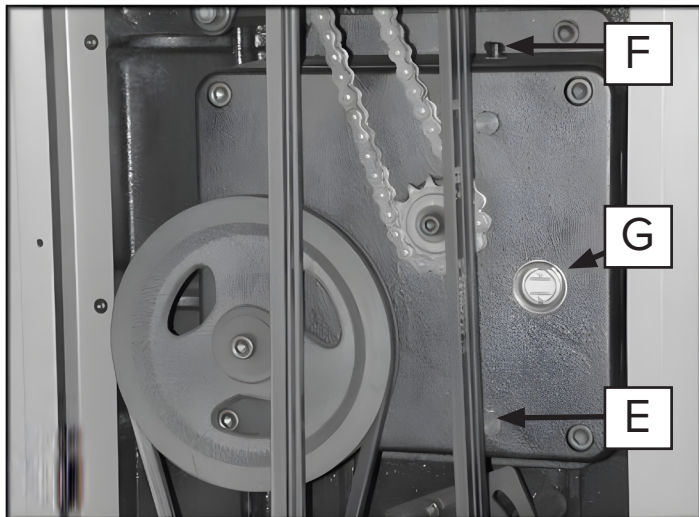


Figure 22: Gearbox Oil change.

Chain Lubrication

1. For roller chains operating at medium to slow speeds, clean the chain by wiping it with a cloth.
2. If there is a significant buildup of dust, dirt, or wood shavings, use an oiled cloth to lightly lubricate the chains, but do not pour oil directly onto the chain.

Note: Over-oiling can attract dust and shavings, leading to increased wear and premature chain replacement.

Oiling the Infeed/Outfeed Rollers

Add a few drops of medium weight oil to the six oil cups (A, Figure) weekly

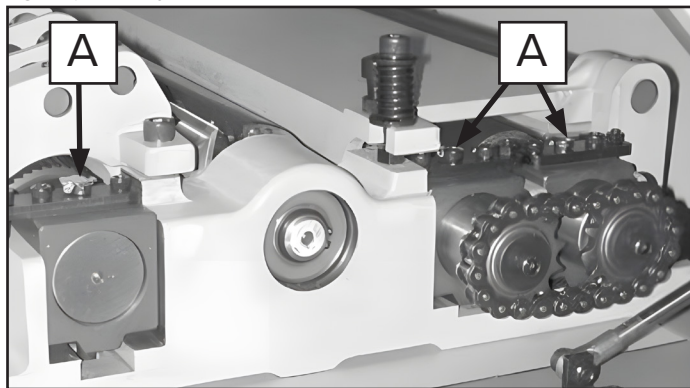


Figure 23: Infeed/Outfeed Oil Cups

Cutterhead and Feed Roller Bearings

The bearings on the cutterhead and feed rollers are factory lubricated and sealed, requiring no additional lubrication or maintenance.

Lubricating the Two Table Elevation Screws

Lubricate the two table elevation screws (B, Figure) as necessary. To do this, raise the table and remove the two screws securing the top of the accordion cover (C, Figure). Pull down the cover and apply a light layer of grease to the elevating screws, as shown in Figure . Additionally, use an oiled cloth to wipe the ways (D, Figure) on a weekly basis to ensure proper maintenance.

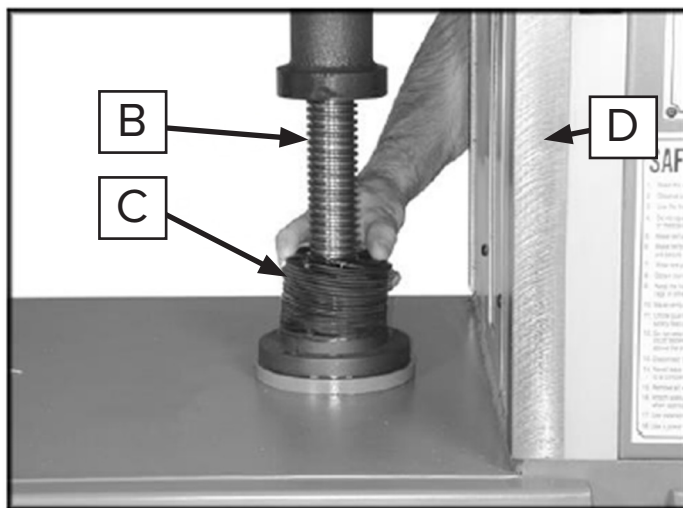


Figure 24: Lubricating the Table Elevation Screws.

Section 11: Control Panel Operations and Programming

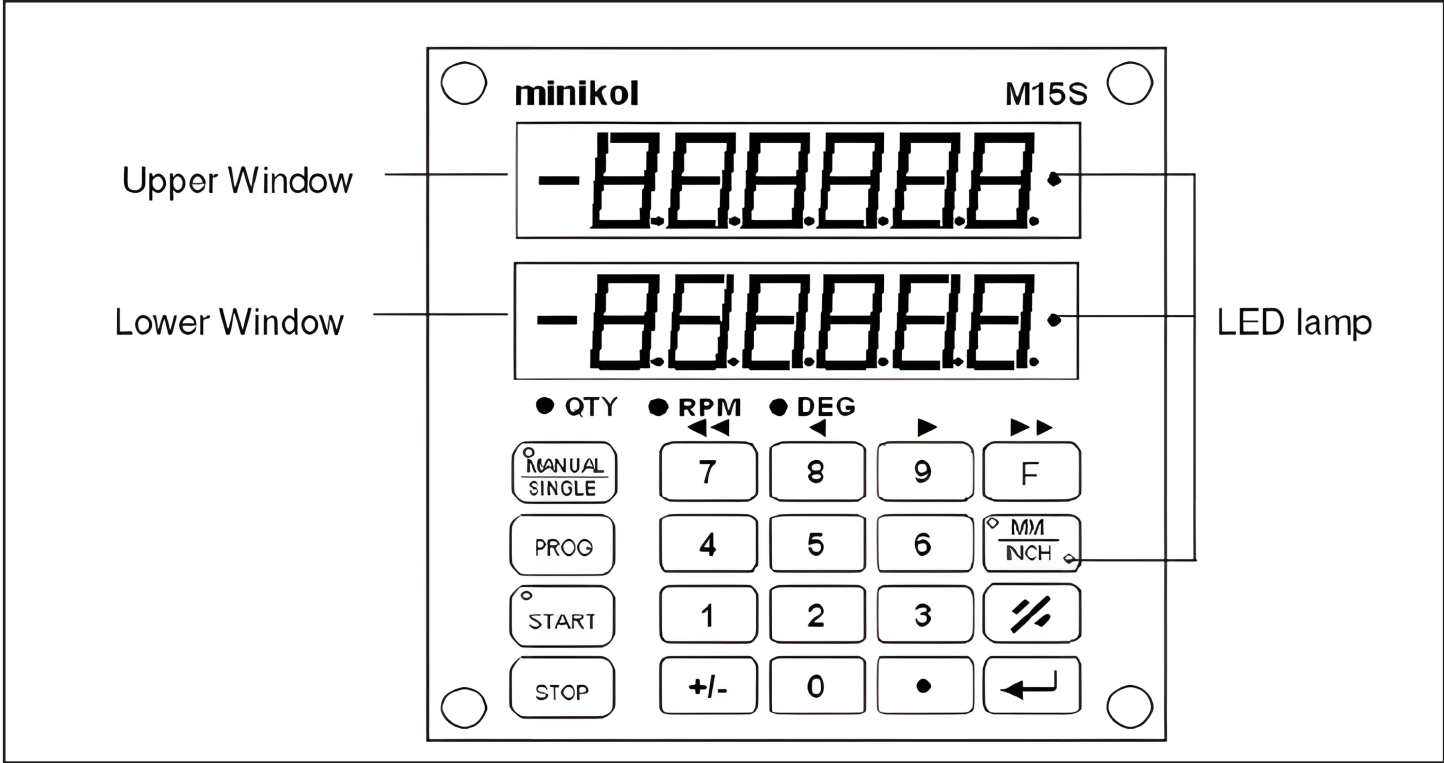


Figure 25: M15S Keypad.

LED / KEY	Description	KEY	Description	KEY	Description
Upper Window	Target value		Manual / Single mode		Parameter
Upper LED	Target value LED		Program		mm / inch
Lower Window	Current value		Active		Clear / Return
Lower LED	Current value LED		Stop / Cancel		Confirm / Enter
0 ~ 9	Number keys		+ / -		Decimal

Note: Display : LED on / blinks

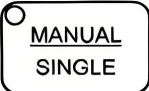
Function


1. One or two speed positioning
2. Manual/single mode
3. 10 sets single program
4. 10 sets tool offsets
5. Quick program/ fine adjustments
6. Inch/mm conversion
7. Resolution: 0.1mm/ 0.05mm/ 0.01mm
8. Correct zero point
9. Display: RPM speed
10. Protection for tool/ motor fault
11. Battery life 2.5 years
12. Self-diagnosis


Introduction

The Minikol M15S system operates in two primary modes: MANUAL and SINGLE.

In MANUAL mode, the operator adjusts the table height using the M15S Controller keypad. Conversely, in SINGLE mode, pressing the “Table Up” or “Table Down” buttons on the planer’s main control panel automatically moves the table to a predefined position.

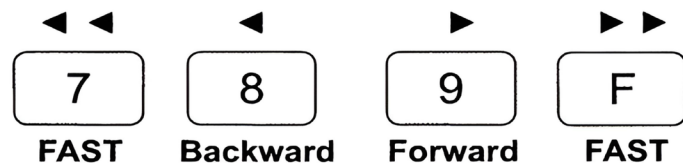
Press  to choose between Manual mode or Single mode.

If  the LED light is On the Manual mode is engaged.

When  the LED light is OFF the Single mode is engaged.

Manual Mode

Keyboard Functions



For planer table operations, the “Fast Forward” and “Fast Backward” keys function is similar to the “Forward” and “Backward” keys.

Pressing the “Forward” key lowers the planer table, which can also be done using the “Table Down” button on the planer. Similarly, pressing the “Backward” key raises the table, achievable via the “Table Up” button.

In Manual Mode, the planer table continues to move as long as a key is pressed and held, stopping immediately when the key is released. This mode is suitable for manual

positioning and adjustment tasks.

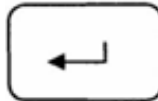
Single Mode


In Single Mode, the device automatically positions the table to the programmed target. To initiate this, press and hold the “Table Up” or “Table Down” button on the planer. The table will move to the target position and stop automatically once the adjustment is complete. After the table has reached the target, release the button.

Setting the Target Value

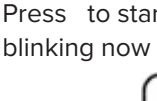
Step 1: Press  (Target window LED will start blinking).

Step 2: Enter the target value using the keypad.

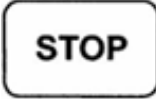
Step 3: Press  to complete.

 LED light will start blinking, the keypad is ready to start positioning.

Start/Stop/Cancel

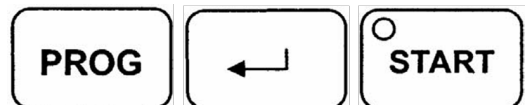
Press  to start the table’s positioning, the LED light will stop blinking now and it’ll remain ON during the process.

Press the  button to cancel the table’s process, the LED light is now OFF.

When the  button is pressed while the table’s positioning is in progress, the process is interrupted, and the machine will stop. The LED light is OFF.



To restart the positioning process Press



To program another target value, press enter a new value then



Example:

Assuming:


- The current display value is 100.00mm
- The real value on the display is 100.00mm

To change this to new value of 22.25mm

Step 1: press **PROG** the LED light on the target

window will start blinking.


The display will appear as below

1 0 0.0 0 	Target value
1 0 0.0 0	Current value


Step 2: Enter the new desired value (22.25mm)


2	2	.	2	5
---	---	---	---	---

The display will show

2 0.2 5 	Target value
1 0 0.0 0	Current value

Step 3: Press  to finish.

 **START** LED light will start blinking, the keypad is ready to start positioning.

Press  **START** to start the positioning or press

STOP to cancel.

Fast Program (10 pre-sets)

To streamline access to frequently used positions, such as various board thicknesses, the keys 0 through 9 can be preconfigured with corresponding target values. Pressing any of these keys will automatically load its preset target value, allowing you to initiate positioning immediately.

Entering and setting the pre-set Values


Step 1: Press **F** **5** **5** 

Step 2: Choose a key between 0 and 9.

Step 3: Enter the target value.



Step 4: Press  to confirm your selection.



Follow the same process for entering the second pre-set target.




Press  to exit.

Example: the pre-set program 0 is 10.00mm; the program 1 is 20.00mm.

Step 1: press **F** **5** **5** 

ProG  Step 2: Press **0**
 this key will select program 0.

ProG **1**  Step 3: Press **1** **0** **.** **0** **0**
10  this is the value.

ProG  Step 4: Press 
 This will complete the process.

Step 5: Press **1** this is the key to select the next target value to program.

Step 6: Press **2** **0** **.** **0** **0** this'll be the assigned target value for program 1.

Step 7: Press  to complete the process.

These values will be saved as a pre-set value of your choice. Repeat the process as in the above example to pre-set all the other positions according to your most used values.

Execution:

Step 1: Enter single mode  The LED light is OFF.

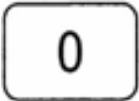
Step 2: Press any key between 0-9 to choose your DESIRED per-set value the LED light is now Blinking; the

machine is ready to start.


Example:

Program 0 is 10.00mm and program 1 is 20.00 mm.

Step 1: In Single Mode  The LED light is OFF.


Step 2: Press  For program 0.

Now you will see the pre-set value you programed in this position appearing (i.e. 10.00mm).

 The LED light will start blinking, the program is ready.

Press  to begin positioning the table.

Open and close Pre-set program

 The first step is to be sure that the machine is in SINGLE mode; the LED light in OFF.

Step 1: Press    

The display will show 

Step 2: Press  And then 

The current value displayed:-----,  Closed.

The LED display started. 

Step 3: Press  to close




Note: to close other keys follow steps 2 and 3.

Select counting Direction

This function gives you the control over which way you prefer the counting of the table movement.

Do you prefer ascending count or descending count down? You can choose which ever way you prefer.

Follow the step below to set the system up:

Step 1: Press   

The display will show 

This is the default setting.

Step 2: press  to change this setting.

“-dir” numbers will decrease as the table rises this is in accordance with the scale on the planer.

“dir-“ the number will increase as the table rises this is in the opposite direction from the scale.

Step 3: Press  to confirm your selection or

press  to clear.

Selecting Positioning Mode

Step 1: Press   

Step 2: Press  to select one of the following:

- a. ---||--- in both directions.
- b. ---| Left.
- c. |--- Right.

Step 3: Press  to confirm your selection or

press  to cancel.

Setting the software's limits (Hi and Low)

The system includes High and Low software limits. If the table position exceeds these limits, an error message will appear on the screen.

To set the low-end limit press



To set the hi-end limit press



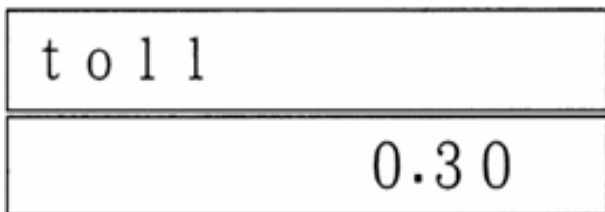
Tolerance Setting

A tolerance setting defines how accurate the positioning is.

Step 1: Press



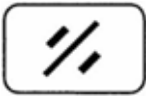
The display will show the following:



0.30 is the default tolerance.

Step 2: enter the desired value for tolerance.

Step 3: Press  to confirm

or press  to cancel.

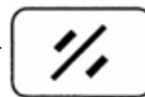
Setting the Low-Speed Limit

This function sets the threshold for speed levels deemed abnormal for the machine.

If the Controller initiates table movement up or down and detects that the table either does not move or moves at a speed below the defined threshold, the machine will stop, and an error message will be displayed. This is a safety feature that protects the machine from permanent damage.



Press to clear

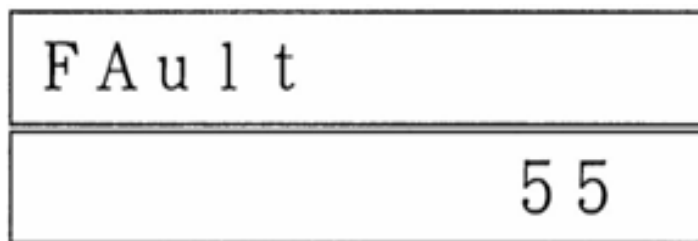


To set the low-speed limit follow the below instructions:

Step 1: Press



The display will show the default setting



In the case you'd like to change the limit to another limit you desire:

Step 2: enter a new limit using any number between 0 and 99.

0: machine limit is disabled.

1: very low limit.

.

.

.

99: high limit.

Step 3: Press  to confirm

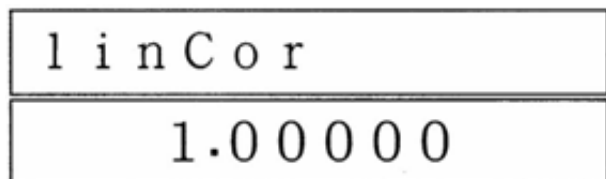
or press  to cancel.

Linear Correction Setup

Please note that the linear correction setup must be done in metric not in imperial. This will ensure the accuracy of the table's movement readings.

Step 1: Press    

The display will show the default setting



Step 2: Enter any desired value between 0.0001 and 9.9999

Step 3: Press  to confirm

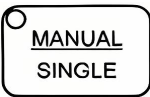
or press  to cancel.

Parameter setting (lock/unlock) Mode

In this function you can choose any parameter to be locked or unlocked. If a parameter is locked, the machine used cannot change the value unless they have access to the password. In the table below all parameters are listed.

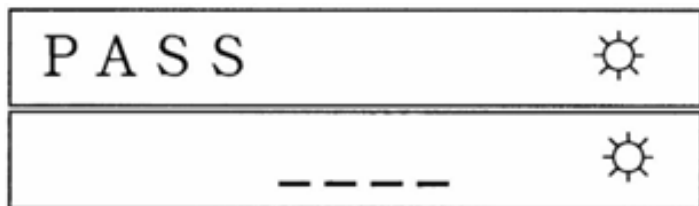
Parameter	Display	Description	Default	Remarks
0	CHAnGE	Load datum value	0	
1	dir	Select counting direction (+ / -)	-dir	
2	OriGin	Load origin	0.00mm	
3	OffS-	Set tool diameter	0.00mm	
4	POSdir	Positioning mode	--4	
5	SPEEd	One or two speed positioning	1sp	
9	LoAd 0	Load tool diameter	0.00	
10	Lo-End	- Software limit	-50.00mm	
11	Hi-End	+ Software limit	1000.00m	
m				
15	InPOS	Positioning output time	0.15ms	
17	toll	Tolerance	0.30mm	
19	FAult	Low speed limit	55	
20	LinCOR	Linear correction	1.00000	
30	PASS	Parameter lock/unlock		
33	SOurCE	Software version		
55	PrOG-	Fast program		
90	rES	Resolution	0.01mm	
99	GO....	Sensor calibration		



Step 1: Select single mode  the LED light is OFF.

Step 2: Press    

The display will prompt you to enter the password



Step 3: Enter your password



Step 3: Use  to scroll through the different parameters.

i.e. dir, OriGin, FAUU, inPos, etc. See the table in the previous page for parameters information.

Step 4: Press  to either lock or unlock the

selected parameter.

ON: Lock
OFF: Unlock

Step 3: Press  to confirm

or press  to cancel.

How to Check the Software Version

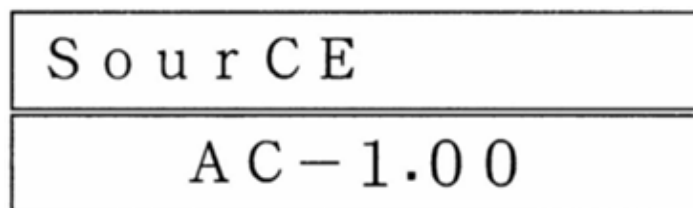
Follow the instructions to verify the software version of the M15S program.

Step 1: Press



The bottom display window (real value window) you'll be

able to see the version of the program.



Step 2: Press  to confirm

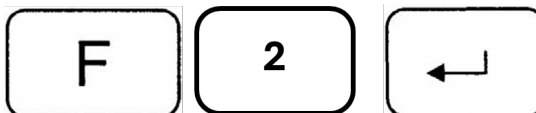
or press  to cancel.

Calibrating and Loading the Datum Value

The real value represents the distance between the machine table and the cutterhead, with the cutterhead serving as the machine's zero point. Directly moving the planer table to this exact point is often difficult or impossible. Instead, the zero point should be determined by either placing a gauge between the table and the cutterhead knife insert or by planing a test board and measuring its thickness with calipers. Once identified, program this real value into the Controller using the following steps.

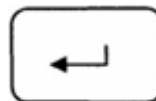
Now that you've done some test runs and you have a measurement of the final result, you can do the following

Step 1:



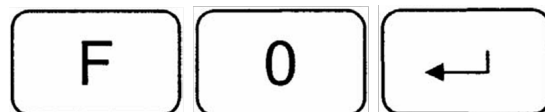
Step 2: Enter your final test result.

Step 3: Press

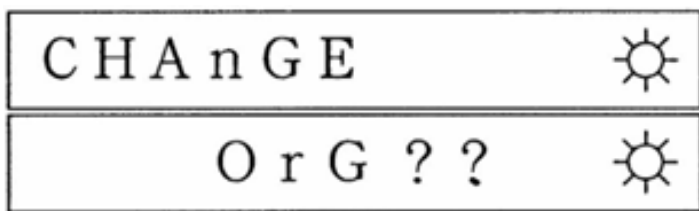


Load the real value

Step 1: press



The display will show



Step 2: Press  to confirm

or press  to cancel.

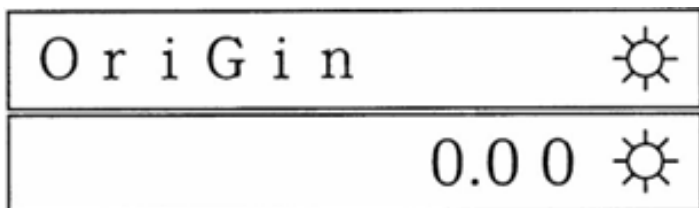
Example:

In this example the current value is 10.00 mm whereas the actual value measured is 10.50mm.

Step 1: Press



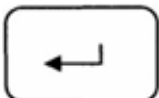
The display will show the origin point



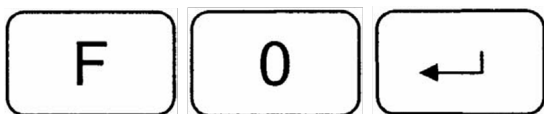
Step 2: Press



Step 3: Press



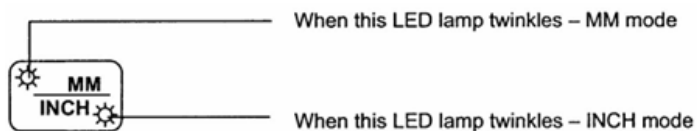
Step 4: Press



The origin point is now setup.

Conversion from metric to imperial

The dedicated mm/inch key enables an instant switch between millimeters and inches. The LEDs on the key indicate the selected unit. Changing between MM and INCHES does not affect the control functions of the machine.



Setting the Resolution

Step 1: Press



Step 2: Use



Step 2: Press  to confirm

or press  to cancel.

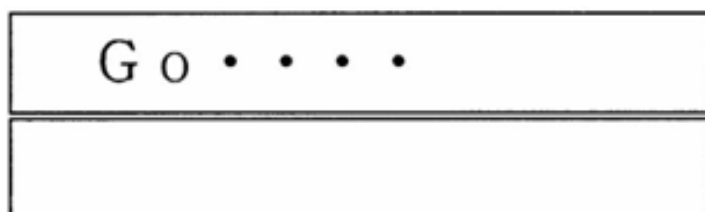
Auto Calibration

In this mode M15S will automatically calibrate the table; please follow the steps below

Step 1: Press



The display will look like this



Step 2: Use



to move the planer's table until M15s terminates the calibration automatically and then it'll restart, now the calibration is done.

Some Essential Troubleshooting Tips

Motor Wiring Issues

The "Change rSt" message appears when the Controller detects movement in the incorrect direction. For instance, if the Controller activates the outputs to move the table upward but the table moves downward instead, this message will be triggered. This issue is typically caused by incorrect wiring of the three-phase motor.

When the display is showing



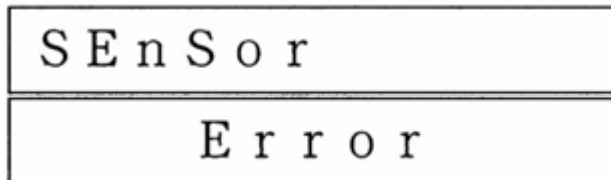
In order to clear this error press



The wiring of the motor's wiring must be checked and changed if necessary.

Sensor Issues

When the display is showing the following message



1. No sensor/ sensor defective.
2. The 9-pin connector is loose.
3. The wire is broken/damaged.
4. The gap between the sensor and the reflective tape is too large.

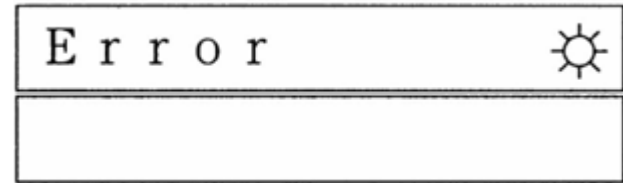
By the process of elimination check the sensor, the sensor's cable and connector, if all are well and functioning the last possible fault is the gap between the sensor and the

reflective tape is too large.

Incorrect Operation of the machine

When the operator isn't operating the machine correctly, a safety feature is put in place to prevent the destruction or breakdown of the machine.

The display will show



In order to clear this error press



Time to Change the Battery of M15S keypad

When the display shows this message



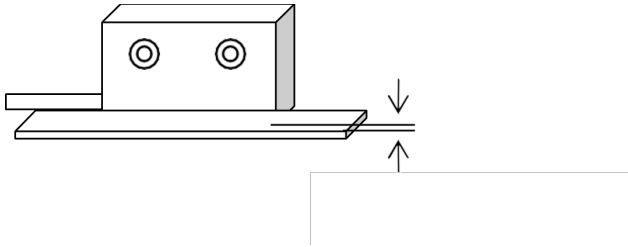
This message appears after power-on and indicates a discharged battery. The C-type battery **MUST** be replaced to restore the device's operation. Follow these steps to replace the battery:

1. Open the top right-side panel of the planer to access the rear of the Controller.
2. **Turn off the power**, ensuring the table remains stationary during this process. Replace the battery, then turn the power back on. The device will resume normal operation.



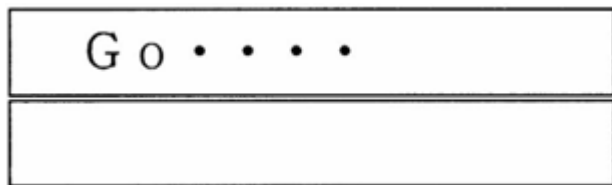
Sensor Calibration

A. Description: For better accuracy, please execute calibration immediately after installed sensor each time.



Step 1. Fix sensor, keep 1mm gap from tape
(RECOMMENDED).

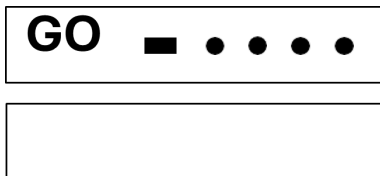
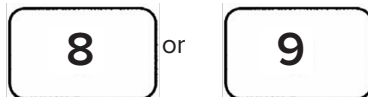
Gap sensor-tape



Step 2. Press



Step 3. Press and hold to start.



Note: Moving the slider at low speed, Required distance around 120mm (Moving GO ●●●●●)

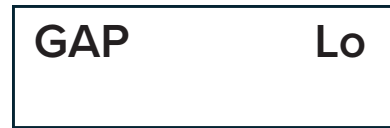
Display: **GO_._...** (Detecting)

Display: **GO_._._..** (Almost Complete)

When completed calibration, LED display will flash and show.



B. Troubleshooting of calibration:

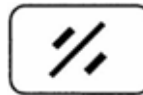


a. Display: GAP LO

Possible cause: The gap is too narrow

Excluding: Please enlarge the gap.

Press



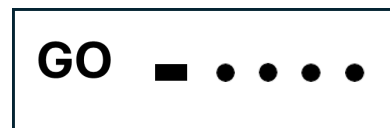
and follow step 2 again



b. Display: GAP Hi

Possible cause: The gap is too big.

Excluding: Please narrow the gap and press calibration again.



c. Display: **GO** or

GO_.... or

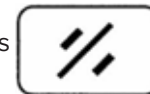
GO_._.

Possible cause: The gap too large.

Excluding: Adjust gap.



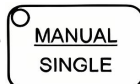
d. During calibration press



to exit.

Set Parameter

Step 1. Select single mode



LED lamp off.

100.00
100.00

Step 2. Press



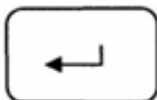
then enter parameter #,

example parameter 2, press



F	2	
100.00		

Step 3. Press

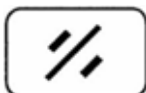


target value display OriGin(Lond parameter)

OriGin
100.00

Note: Refer to set parameter or page 12.

Note: Press



to exit.

Parameter Lock and Open

Description: Needless functions can open or close, to prevent client's unsuitable operation to cause the fault.

100.00
100.00

Step 1. Select single mode



LED lamp off

PASS

Step 2. Press



target value display "PASS"

blinking, current value display: ---- blinking

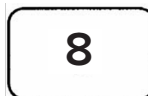
dir	
on	

Step 3. Press

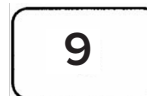


into the on/off set parameter

Note: Press



or



(dir/ OriGin/ FAULT/ inPos)

dir	
on	

Step 4. Press



setting on/off

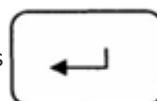
Example: Frame display "dir off" indicates

±direction parameter open.

Frame display: "dir on" indicates

±direction Parameter close.

Press



to setting and exit.



M15S Specifications

Feature	Specification	Information
Power Supply	24VDC 50mA	C-Type Batter
Display	15mm LED - 6 Digits – 2 Lines	
Output	4 Digital outputs	AC250V/ 7Amp
AC110V/ 7Amp		
DC24V/ 20Amp		
Input	4 Digital inputs	24VDC
Operation control	20-button keyboard	
Travel Speed	1.5 m/s	
System accuracy	$\pm (0.025+0.02L)\text{mm}$	
Where L is in meter		
Repeatability	0.01	
Temperature range	Operational 0 + 50°C	Storage -20 + 70°C
Humidity	Maximum humidity 95% rF	Condensation is not allowed



Section 12: Troubleshooting

Planing operations problems

Trouble	Probable Cause	Remedy
Snipe.	Table rollers not set properly.	Adjust table rollers to proper height.
	Inadequate support of long boards.	Support long boards with a roller stand.
	Uneven feed roller pressure front to back.	Adjust feed roller tension.
	Dull knife inserts.	Rotate or replace knife inserts.
	Lumber not butted properly.	Butt end-to-end each piece of stock as they pass through.
Fuzzy grain.	Planing wood with a high moisture content.	Remove high moisture content from wood by drying or use different stock.
	Dull knife inserts.	Rotate or replace knife inserts.
Torn grain.	Too heavy a cut.	Adjust proper depth of cut.
	Knife inserts cutting against grain.	Try to cut with the grain for finish cut.
	Dull knife inserts.	Rotate or replace knife inserts.
Rough/raised grain.	Dull knife inserts.	Rotate or replace knife inserts.
	Excessive depth of cut.	Decrease cutting depth.
	Moisture content too high.	Remove high moisture content from wood by drying or use different stock.
Rounded, glossy surface.	Dull knife inserts.	Rotate or replace knife inserts.
Poor feeding of lumber.	Inadequate feed roller pressure.	Adjust feed roller tension. If proper tension cannot be achieved, replace feed rollers.
	Planer bed rough or dirty.	Clean off pitch and residue; apply light coat of paste wax to planer bed.
	V-belts are slipping.	Check V-belt tension and make any needed adjustments.
	Surface of feed rollers has been worn too smooth.	Lightly roughen the feed roller surface with sandpaper.



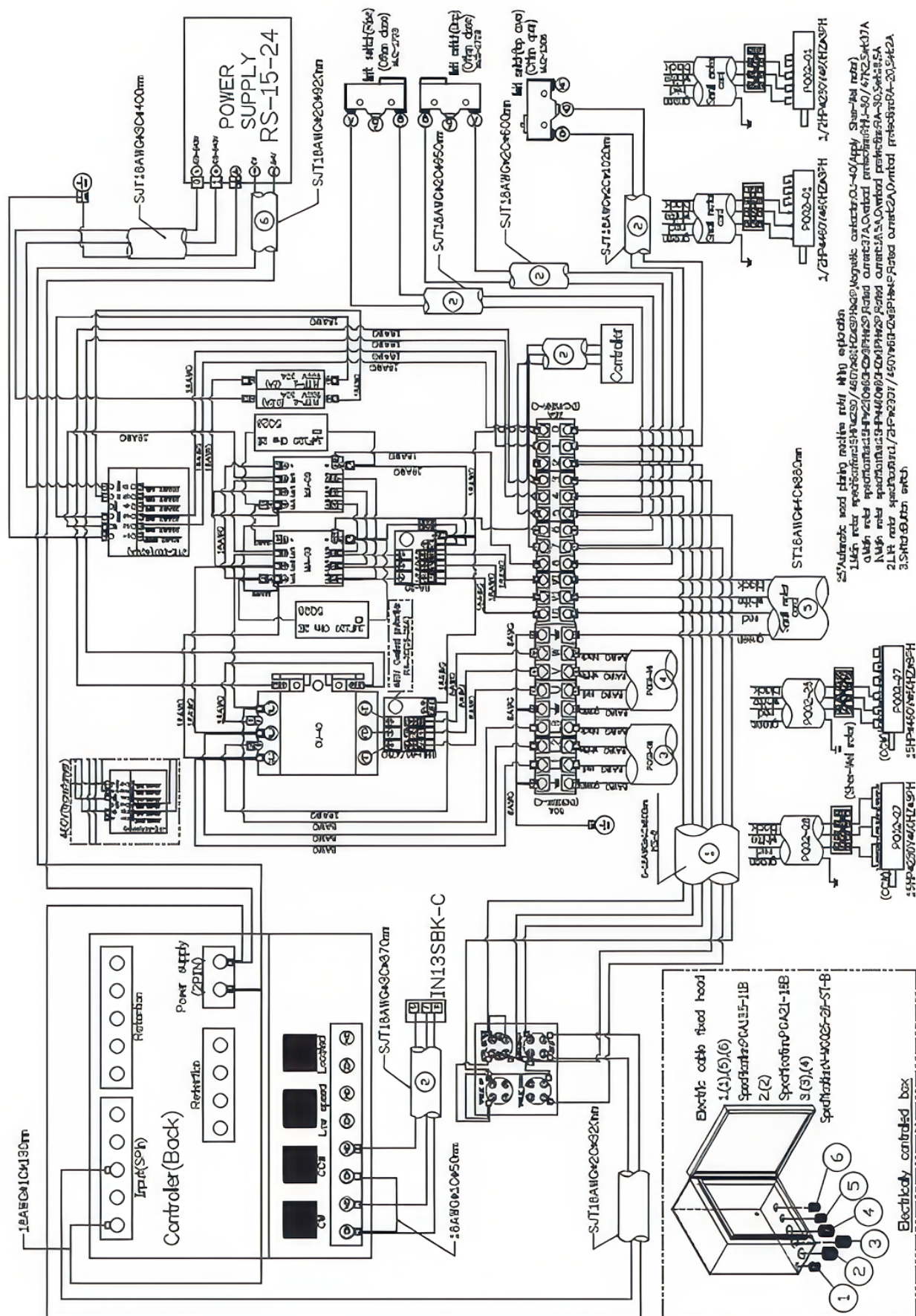
Mechanical and Electrical Problems

Trouble	Probable Cause	Remedy
Uneven depth of cut side to side.	Knife inserts not set correctly.	Make sure knife inserts are set correctly and securely in cutterhead.
	Planer table not level with cutterhead.	Level the table.
Board thickness does not match depth of cut scale.	Depth of cut scale is incorrect.	Adjust depth of cut scale. Use LED control panel for greater precision.
Chain is jumping.	Inadequate chain tension.	Adjust chain tension.
	Sprockets misaligned.	Align sprockets.
	Sprockets worn.	Replace sprockets.
Machine will not start/restart or repeatedly trips circuit breaker or blows fuses.	No incoming power.	Verify machine is connected to power.
	Stop button is still engaged.	Rotate stop button to disengage.
	Overload automatic reset has not reset.	When the planer overloads on the circuit breaker built into the motor starter, it takes time for the machine to cool down before restart. Allow machine to adequately cool before attempting restart. If problem persists, check amp setting on the motor starter inside the electrical box.
	Planer frequently trips.	One cause of overload trips which are not electrical in nature is too deep a cut. The solution is to take a lighter cut. If too deep a cut is not the problem, check the amp setting on the overload relay. Match the full load amps on the motor as noted on the motor plate. If amp setting is correct, then there is probably a loose electrical lead or a failed component. See items below.
	Building circuit breaker trips or fuse blows.	Verify that planer is on a circuit of correct size. If circuit size is correct, there is probably a loose electrical lead. Check amp setting on motor starter.
	Loose electrical connections.	Go through all of the electrical connections on the planer including motor connections, verifying the tightness of each. Look for any signs of electrical arcing which is a sure indicator of loose connections or circuit overload.



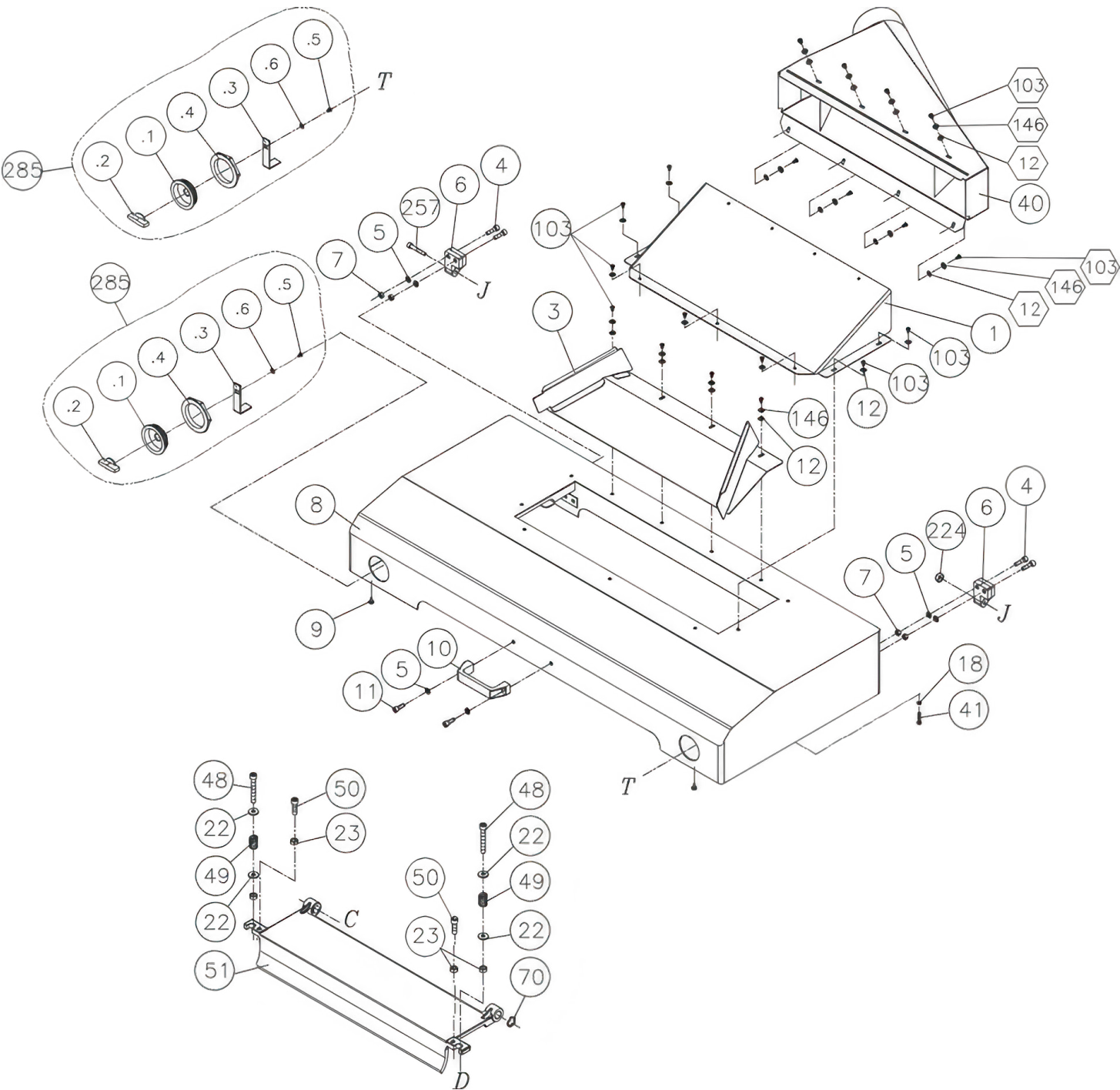
Trouble	Probable Cause	Remedy
Machine will not start/restart or repeatedly trips circuit breaker or blows fuses.	Motor starter failure.	Examine motor starter for burned or failed components. If damage is found, replace motor starter. If motor starter looks okay but is still suspect, you have two options: have a qualified electrician test the motor starter for function or purchase a new starter and establish if that was the problem on changeout. If you have access to a voltmeter, you can separate a starter failure from a motor failure by first, verifying incoming voltage at 220 ± 20 and second, checking the voltage between starter and motor at 220 ± 20 . If incoming voltage is incorrect, you have a power supply problem. If voltage between starter and motor is incorrect, you have a starter problem. If voltage between starter and motor is correct, you have a motor problem.
	Motor failure.	If electric motor is suspect, you have two options: Have a qualified electrician test the motor for function or remove the motor and take it to a quality electrical motor repair shop and have it tested.
	Miswiring of the machine.	Double check to confirm all electrical connections are correct. Refer to appropriate wiring diagrams to make any needed corrections.
	Switch failure.	If a start, stop, or table movement switch is suspect, you have two options: Have a qualified electrical test the switch for function, or purchase a new switch and establish it that was the problem on changeout.
Planer does not come up to speed.	Low current.	Contact a qualified electrician.

Section 13: Electrical Diagram



Section 14: Machine Diagrams and Parts List

Cutterhead Cover and Dust Hood

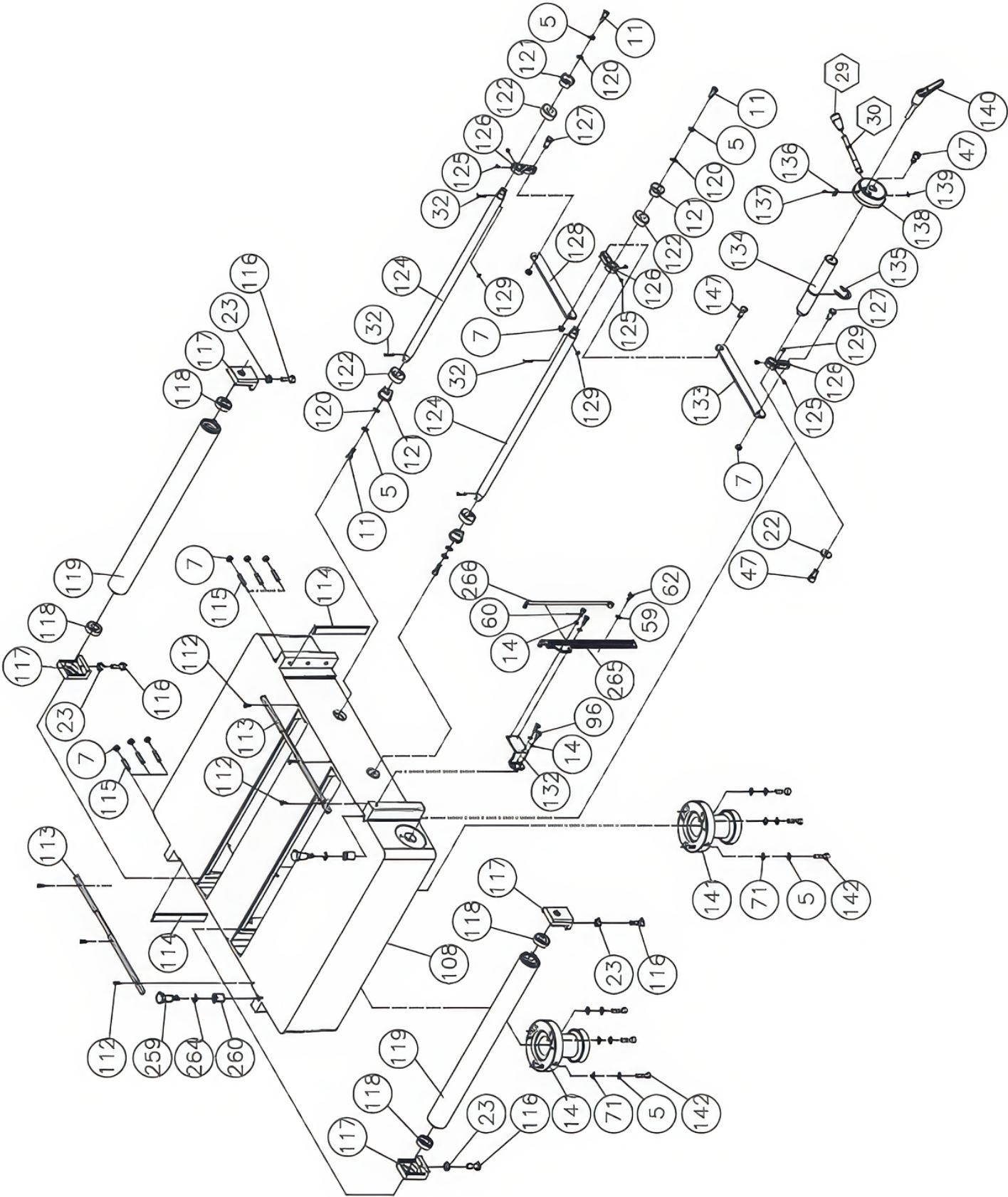


Cutterhead Assembly

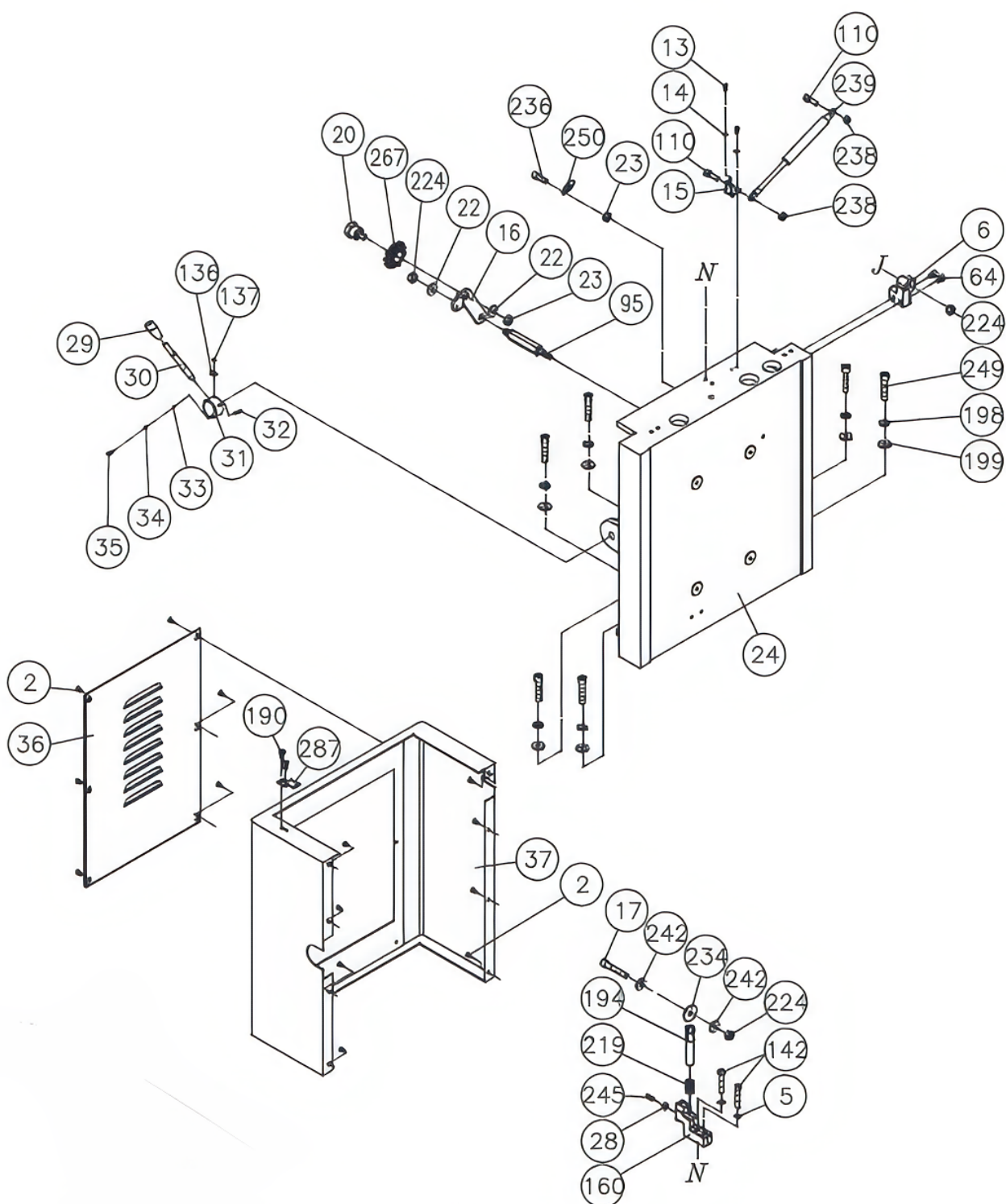


Please note that this machine is equipped with a helical cutter head Part number 58-2* in the diagram.

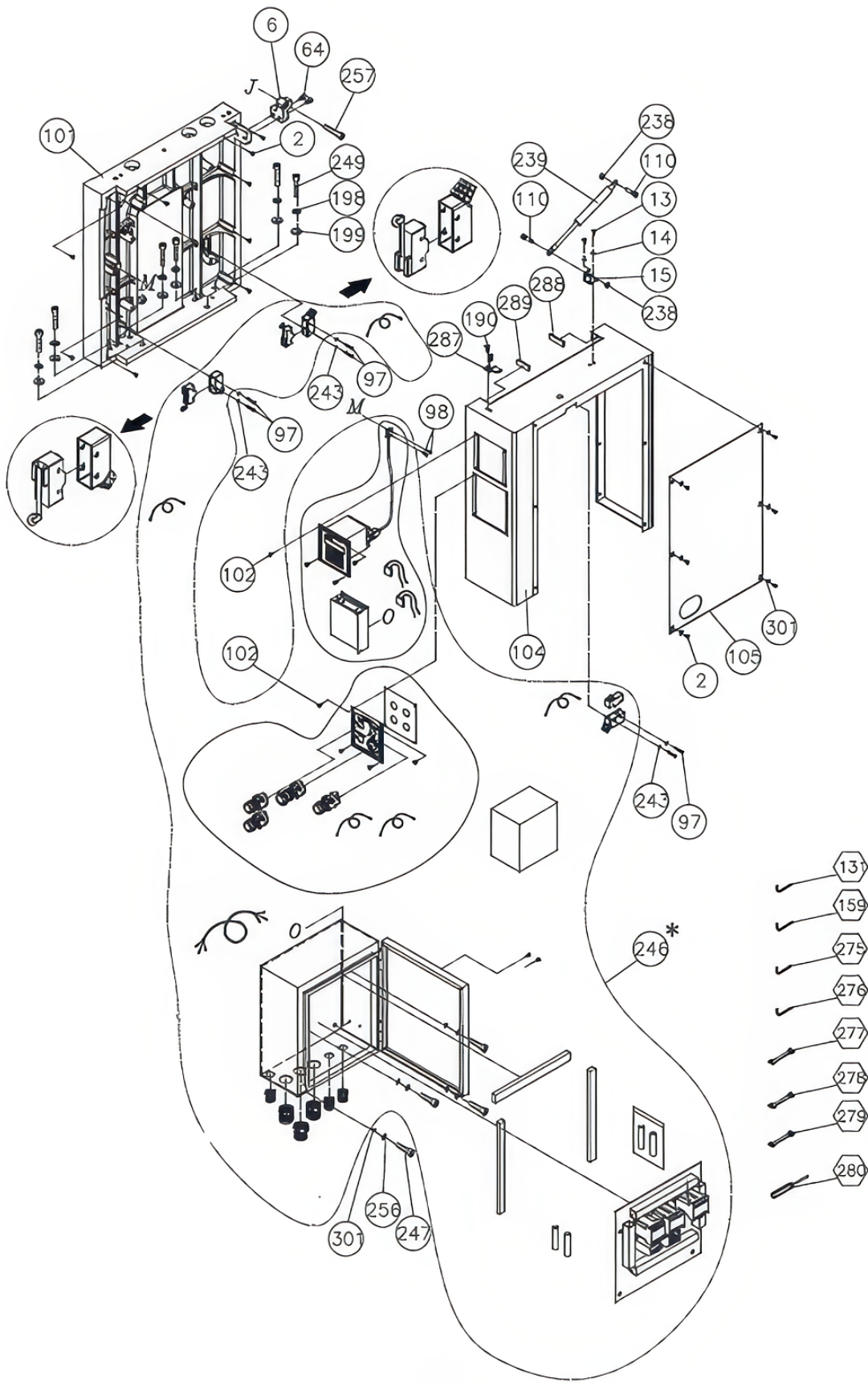
Table Assembly



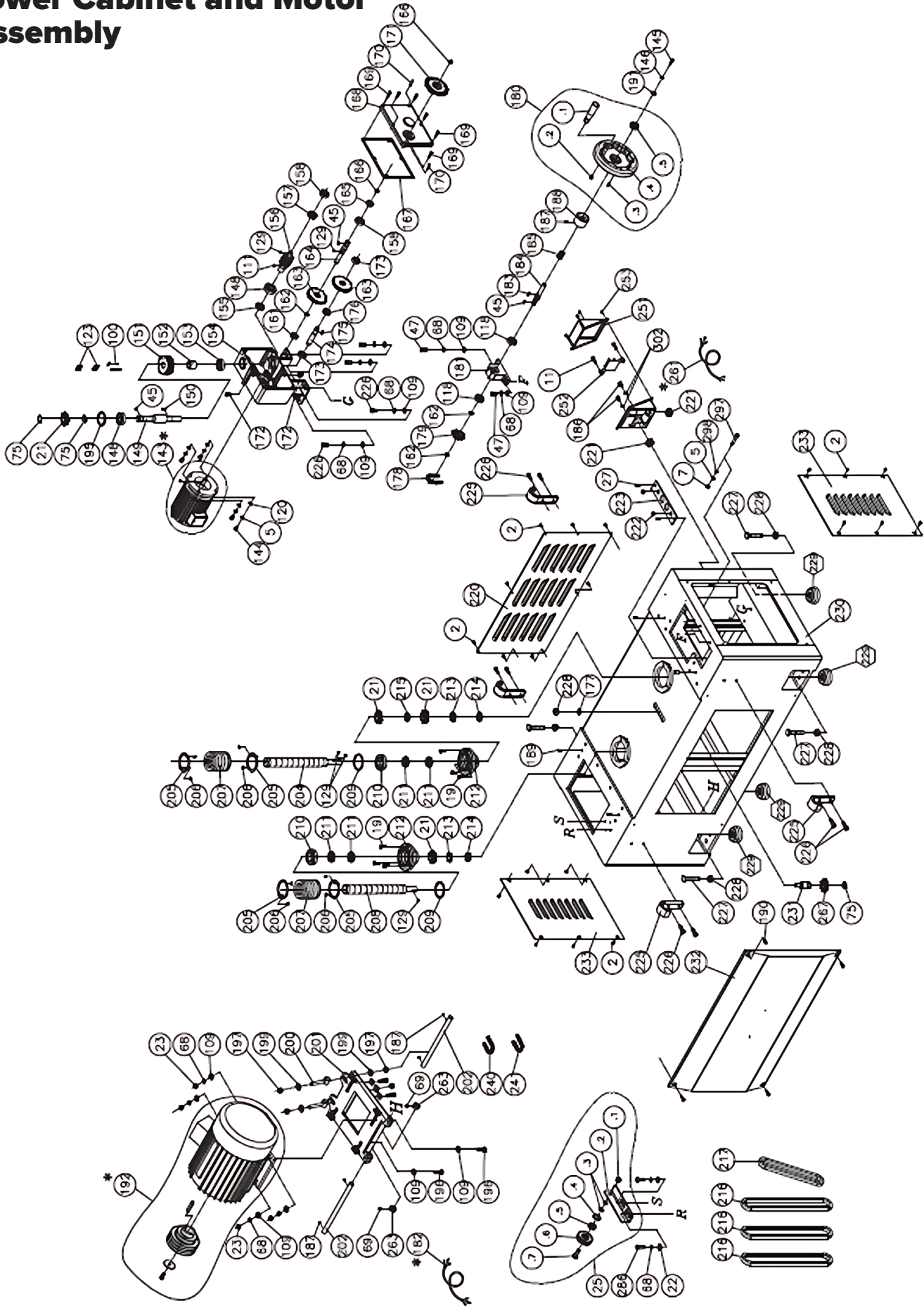
Left-Side support Column



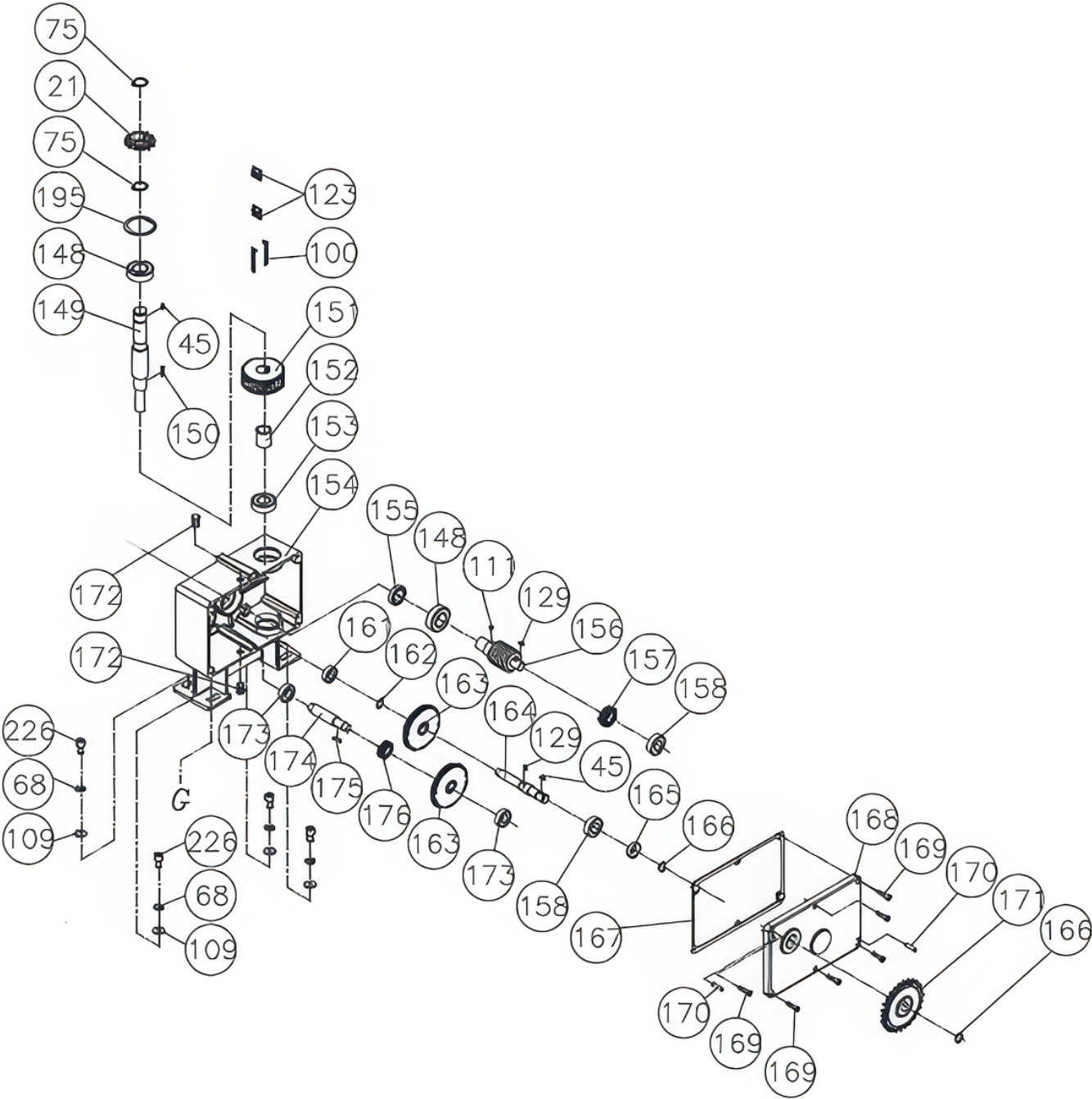
Right-Side Support Column and Control Panel



Lower Cabinet and Motor Assembly



Gearbox Assembly



Parts List

Key	MFG	Model	Description	Qty
1	171398-000	PBBPL2501	DUST HOOD	1
2	000801-101	ZRHSM610010	ROUNDHEAD HEX SCREW M6*1.0P*10	49
3	171393-000	PBBPL2503	CHIP PLATE	1
4	000104-110	ZCHSM812530	Screw - Cap M8*1.25P*30	4
5	006305-100	ZSWM8.212.4	Washer - Spring 8.2*15.4	23
6	050320-000	PBBPL2506	BRACKET	4
7	008006-100	ZHXNM812500	NUT - HEX M8*1.25P(13B*6.5H)	14
8	171559-000	PBBPL2508	TOP COVER	1
9	340007-615	PBBPL2509	BLOCK	2
10	250123-615	PBBPL2510	HANDLE	1
11	000104-108	ZCHSM812525	Screw - Cap M8*1.25P*25	8
12	006001-022	ZFWM6.3-13-1	WASHER - FLAT 6.3*13*1.0t	19
13	000102-104	ZCHSM808012	Screw - Cap M5*0.8P*12	4
14	006302-100	ZSWM5.19.3	Washer - Spring 5.1*9.3	8
15	170893-901	PBBPL2515	PACKING	2
16	170501-904	PBBPL2516	IDLE BRACKET	1
17	000105-104	ZCHSM508035	Screw - Cap M10-1.5*35	5
18	008004-100	ZHXNM50800	NUT - HEX M5*0.8P(8B*4H)	1
19	000104-106	ZCHSM812520	Screw - Cap M8*1.25P*20	8
20	290040-901	PBBPL2520	IDLE FIXING SHAFT	1
21	380259-000	PBBPL2521	SPROCKET	6
22	006001-071	ZFWM10253t	WASHER - FLAT 10*25*3.0t	17
23	008007-100	ZHXNM101500	NUT - HEX M10-1.5(17B*8H)	20
24	050580-000	PBBPL2524	LEFT SUPPORT PLATE	1
25	921333-001	PBBPL2525	BELT IDLER ASSY	1
0.1	008308-100	ZNYNM101500	HEX LOCK NUT M10-1.5(17B*12H)	1
0.2	171709-902	PBBPL2525.2	BRACKET	1
0.3	006001-069	ZFWM10203t	WASHER - FLAT 10*20*3.0t	2
0.4	010101-000	ZCRGRTW3000	RETAINING RING RTW-30	1
0.5	030105-002	ZBRG6200ZZ0	BALL BEARING 6200ZZ	1
0.6	380458-902	PBBPL2525.6	BELT IDLER	1
0.7	000105-104	ZCHSM1015035	Screw - Cap M10-1.5*35	1
27	000103-106	ZCHSM610016	Screw - Cap M6*1.0P*16	2
28	008005-100	ZHXNM6100	NUT - HEX M6*1.0P(10B*5H)	7
29	250054-615	PBBPL2529	KNOB	2
30	360414-910	PBBPL2530	HANDEL SHAFT	2
31	380225-910	PBBPL2531	SHAFT BASE	1
32	011003-104	ZSPP5250000	SPRING PIN 5*25	5
33	017002-000	ZBAL6.00000	BALL 6mm	1
34	280018-000	PBBPL2534	SPRING	1



Key	MFG	Model	Description	Qty
35	000204-103	ZSTSM812512	SET SCREW M8*1.25P*12	1
36	170895-000	PBBPL2536	LEFT SIDE COVER	1
37	171560-000	PBBPL2537	SIDE COVER - LEFT	1
39	000203-109	ZSTSM610030	SET SCREW M6*1.0P*30	6
40	170510-000	PBBPL2540	DUST CHUTE	1
41	000001-103	ZHXSM508025	HEX. SCREW M5*0.8P*25	1
42	173879-902	PBBPL2542	ADJUST BOLCK	6
43	051267-902	PBBPL2543	BUSHING	6
44	360196-000	PBBPL2544	OUTFEED ROLLER	1
45	012003-003	ZKEY5-5-12	KEY 5 X 5 X 12	5
46	170002-901	PBBPL2546	WASHER	3
47	000105-101	ZCHSM1012520	Screw - Cap M10-1.5*20	10
48	000105-109	ZCHSM1015075	Screw - Cap M10-1.5*75	2
49	280056-901	PBBPL2549	COMPRESSED SPRING	2
50	000105-105	ZCHSM1015040	Screw - Cap M10-1.5*40	3
51	050455-000	PBBPL2551	PRESSURE PLATE - REAR	1
52	070019-902	PBBPL2552	SPROCKET	2
54	360189-000	PBBPL2554	OUTFEED ROLLER	1
55	030202-002	PBBPL2555	BALL BEARING 6007	2
56	030219-002	PBBPL2556	BALL BEARING 6210	2
57	012005-003	ZKEY8-7-3500	KEY 8*7*35	2
58-2	922090-001	PBBPL2558-2	HELICAL CUTTERHEAD ASSY 6 SLOTS	1
58-2.1	922088-001	PBBPL2558-2.1	HELICAL CUTTERHEAD	1
58-2.2	040702-000	PBBPL2558-2.2	TORX SCREW DRIVER CR-V T-25 Accessories	2
58-2.3	038201-101	ZTXS10-32050	TORX SCREW #10-32NF X 1/2" Accessories	10
58-2.4	921955-001	PBBPL2558-2.4	KNIFE INSERT	1
59	006701-100	ZWWM600000	WAVE WASHER WW-6	1
60	002603-101	ZCHSM508010	CAP LOCKING SCREW M5*0.8P*10	2
61	250352-615	PBBPL2561	RUBBER PIN	144
62	290055-901	PBBPL2562	TORX SCREW	1
64	000104-111	ZCHSM812535	Screw - Cap M8*1.25P*35	4
65	006001-084	ZFWM11533t	WASHER - FLAT 11*53*3.0t	1
66	050464-902	PBBPL2566	CUTTER HEAD PULLEY	1
67	190151-902	PBBPL2567	BUSHING	1
68	006307-100	ZSWM1018.80	Washer - Spring 10.2*18.5	22
69	000204-102	ZSYSM812510	SET SCREW M8*1.25P*10	14
70	006712-100	ZWW6001000	WAVE WASHER BWW-6001	1
71	006001-056	ZSWM800000	WASHER - FLAT M8	6
72	050881-000	PBBPL2572	CUTTERHEAD BASE-LEFT	1
73	360624-902	PBBPL2573	FIXING SHAFT	2



Key	MFG	Model	Description	Qty
74	360629-902	PBBPL2574	PRESSURE PLATE SHAFT	2
75	010011-000	ZCRGSTW-25	RETAINING RING STW-25	3
76	380470-902	PBBPL2576	COLLER	2
77	012005-006	ZKEY8-7-1600	KEY 8*7*16	1
78	360506-000	PBBPL2578	FIXING SHAFT	1
79	190051-902	PBBPL2579	SHAFT	1
80	130052-903	PBBPL2580	INFEED ROLLER	24
81	050880-000	PBBPL2581	CUTTERHEAD BASE - RIGHT	1
82	170512-901	PBBPL2582	PACKING	12
83	360408-902	PBBPL2583	FIXING SHAFT	6
84	280055-901	PBBPL2584	SPRING	6
85	050462-000	PBBPL2585	PRESSURE PLATE BASE - LEFT	1
87	050305-000	PBBPL2587	PRESSURE PLATE - FRONT	11
88	280053-000	PBBPL2588	SPRING	11
89	050463-000	PBBPL2589	PRESSURE PLATE BASE - RIGHT	1
90	360627-902	PBBPL2590	FIXING SHAFT	2
91	360632-902	PBBPL2591	FIXING SHAFT	2
92	250160-615	PBBPL2592	SPACER	79
93	172281-905	PBBPL2593	ANTI-KICK BACK	70
94	010107-000	ZCRGRTW4700	RETAINING RING RTW-47	6
95	380388-902	PBBPL2595	HEX SCREW	1
96	000102-103	ZCHSM508010	Screw - Cap M5*0.8P*10	2
97	000302-210	ZRHSM407030	ROUND HD SCREW M4*0.7P*30	6
98	000301-204	ZRHSM508015	ROUND HD SCREW M5*0.8P*15	2
100	021002-000	ZWCPALT-250	WIRE CLIP ALT-250M	2
101	050575-000	PBBPL25101	RIGHT SUPPORT PLATE	1
102	000302-103	ZRHSM407010	ROUND HD SCREW M4*0.7P*10	8
103	002501-102	ZRHSM610012	ROUND HEAD TAPPING SCREW M6*1.0P*12L	19
104	171561-000	PBBPL25104	SIDE COVER - RIGHT	1
105	171401-000	PBBPL25105	RIGHT SIDE COVER	1
106	016001-000	PBBPL25106	CHAIN #40*24P	1
107	920667-001	PBBPL25107	GEAR BOX ASSY	1
107.1	000105-101	ZCHSM1015020	Screw - Cap M10-1.5*20	5
107.2	006001-071	ZFWM10253t	WASHER - FLAT 10*25*3.0t	1
107.3	050324-902	PBBPL25107.3	PULLEY	1
107.4	000104-106	ZCHSM812520	Screw - Cap M8*1.25P*20	1
107.5	006001-056	ZFWM8232t	WASHER - FLAT 8.5*23*2.0t	1
107.6	320310-902	PBBPL25107.6	SPROCKET	1
107.7	011106-101	ZSPP8180000	PIN 8*18	2
107.8	050467-008	PBBPL25107.8	GEAR BOX COVER	1
107.9	340050-000	PBBPL25107.9	GEARBOX GASKET	1



Key	MFG	Model	Description	Qty
107.10	012003-005	ZKEY5-5-1600	KEY 5*5*16	1
107.1	012003-002	ZKEY5-5-1000	KEY 5*5*10	4
107.1	043605-000	PBBPL2510712	OIL SEAL TC24*40*7	1
107.1	030208-002	ZBRG6204ZZ00	BALL BEARING 6204ZZ	2
107.1	320208-000	PBBPL2510714	GEAR	2
107.2	010007-000	PBBPL2510715	RETAINING RING STW-16	4
107.2	030205-002	PBBPL2510716	BALL BEARING 6201	6
107.2	043603-000	PBBPL2510717	OIL SEAL TC20*40*7	1
107.2	010011-000	PBBPL2510718	RETAINING RING STW-25	1
107.2	012005-010	PBBPL2510719	KEY 8*7*72	1
107.20	360649-000	PBBPL2510720	SHAFT	1
107.2	320246-000	PBBPL2510721	GEAR	1
107.2	360646-000	PBBPL2510722	SHAFT	1
107.2	320209-000	PBBPL2510723	GEAR	2
107.2	012003-007	PBBPL2510724	KEY 5*5*20	2
107.3	360647-000	PBBPL2510725	GEAR SHAFT	1
107.3	043001-000	PBBPL2510726	OIL LENS 29	1
107.3	320249-000	PBBPL2510727	GEAR	1
107.3	360648-000	PBBPL2510728	GEAR SHAFT	1
107.3	320210-000	PBBPL2510729	GEAR	1
107.30	320211-000	PBBPL2510730	GEAR	1
107.3	070020-000	PBBPL2510731	SHIFT BLOCK	1
107.3	011002-107	PBBPL2510732	SPRING PIN 4*22	1
107.3	050216-000	PBBPL2510733	STAND ARM	1
107.3	010001-000	PBBPL2510734	RETAINING RING STW-10	1
107.4	000203-102	PBBPL2510735	SET SCREW M6*1.0P*8	1
107.4	380124-902	PBBPL2510736	BUSHING	1
107.4	000203-101	PBBPL2510737	SET SCREW M6*1.0P*6	1
107.4	360694-902	PBBPL2510738	SHAFT	1
107.4	050466-008	PBBPL2510739	GEARBOX	1
107.40	043401-000	PBBPL2510740	PLUG PT1/4"-19	2
108	050566-000	PBBPL25108	TABLE	1
109	006001-075	PBBPL25109	WASHER - FLAT 10.3*22*2.0t	14
110	290024-901	PBBPL25110	SHOULDER SCREW	4
111	001903-104	PBBPL25111	SET LOCK SCREW M8*1.25P*10	1
112	000102-105	PBBPL25112	Screw - Cap M5*0.8P*16	6
113	171818-902	PBBPL25113	LEAD PLATE	2
114	170498-901	PBBPL25114	PLATE	2
115	000204-109	PBBPL25115	SET SCREW M8*1.25P*40	6
116	000004-103	PBBPL25116	HEX. SCREW M10-1.5*30	4
117	130049-903	PBBPL25117	ROLLER FIXING BASE	4



Key	MFG	Model	Description	Qty
118	030207-002	PBBPL25118	BALL BEARING 6203	6
119	920669-000	PBBPL25119	ROLLER W/BEARING	2
120	006001-049	PBBPL25120	WASHER - FLAT 8.5*16*2.0t	8
121	360419-901	PBBPL25121	CAM LOCK SHAFT	4
122	130050-000	PBBPL25122	CAM LOCK	4
123	023301-000	PBBPL25123	FIXING PLATE AAM-20	2
124	360636-902	PBBPL25124	KNIFE SETTING GAGE SHAFT	2
125	000202-102	PBBPL25125	SET SCREW M5*0.8P*8	6
126	130048-903	PBBPL25126	CONNECT PLATE	3
127	290016-901	PBBPL25127	SHOULDER SCREW	2
128	170900-902	PBBPL25128	ROD	1
129	012003-002	PBBPL25129	KEY 5*5*10	8
130	010501-000	PBBPL25130	RETAINING RING ISTW-30	6
131	040003-000	PBBPL25131	HEX. WRENCH 3mm	1
132	171396-156	PBBPL25132	POINTER BRACKET	1
133	170899-902	PBBPL25133	ROD	1
134	360420-902	PBBPL25134	FIXING SHAFT	1
135	010211-000	PBBPL25135	RETAINING RING ETW-24	1
136	571986-000	PBBPL25136	POINTER	2
137	000302-101	PBBPL25137	ROUND HD SCREW M4*0.7P*6	2
138	050313-902	PBBPL25138	BRACKET	1
139	000203-102	PBBPL25139	SET SCREW M6*1.0P*8	1
140	230122-000	PBBPL25140	UNIVERSAL HANDLE	1
141	050318-902	PBBPL25141	FIXING SHAFT	2
142	000104-112	PBBPL25142	Screw - Cap M8*1.25P*40	8
143	PQ02-01	PBBPL25143	MOTOR ASSY	
144	000003-105	PBBPL25144	HEX. SCREW M8*1.25P*25	4
145	000103-107	PBBPL25145	Screw - Cap M6*1.0P*20	1
146	006303-100	PBBPL25146	Washer - Spring 6.1*12.3	25
147	290015-901	PBBPL25147	SHOULDER SCREW	1
148	030116-002	PBBPL25148	BALL BEARING 6205	2
149	360642-000	PBBPL25149	WORM SHAFT	1
150	012003-008	PBBPL25150	KEY 5*5*22	1
151	320248-000	PBBPL25151	WORM GEAR	1
152	190085-901	PBBPL25152	BUSHING	1
153	030109-002	PBBPL25153	BALL BEARING 6204	1
154	050461-008	PBBPL25154	WORM GEARBOX	1
155	043607-000	PBBPL25155	OIL SEAL TC25*40*8	1
156	360641-000	PBBPL25156	WORM ROD	1
157	320247-000	PBBPL25157	GEAR	1
158	030108-002	PBBPL25158	BALL BEARING 6203	2



Key	MFG	Model	Description	Qty
159	040004-000	PBBPL25159	HEX. WRENCH 4mm	1
160	050574-008	PBBPL25160	IDEL BRACKET	1
161	030106-002	PBBPL25161	BALL BEARING	1
162	010007-000	PBBPL25162	RETAINING RING STW-16	3
163	320209-000	PBBPL25163	GEAR	2
164	360640-000	PBBPL25164	SHAFT	1
165	043501-000	PBBPL25165	OIL SEAL SC17*30*8	1
166	010008-000	PBBPL25166	RETAINING RING STW-17	2
167	340049-000	PBBPL25167	GEARBOX GASKET	1
168	050459-008	PBBPL25168	GEAR BOX COVER	1
169	000103-108	PBBPL25169	Screw - Cap M6*1.0P*25	6
170	011104-105	PBBPL25170	PIN 6.0*25	2
171	320245-000	PBBPL25171	SPROCKET	1
172	043401-000	PBBPL25172	PLUG PT1/4"-19	2
173	030107-002	PBBPL25173	BALL BEARING 6202	2
174	360643-000	PBBPL25174	GEAR SHAFT	1
175	012003-007	PBBPL25175	KEY 5*5*20	1
176	320208-000	PBBPL25176	GEAR	1
177	006001-101	PBBPL25177	WASHER - FLAT 16*25*1.5t	1
178	016009-000	PBBPL25178	CHAIN #40*58P	2
179	320310-902	PBBPL25179	SPROCKET	1
180	920372-001	PBBPL25180	HANDWHEEL ASSY	1
181	050458-902	PBBPL25181	HANDWHEEL BASE	1
182	PQ02-28	PBBPL25182	MOTOR CORD	
183	012003-004	PBBPL25183	KEY 5*5*15	1
184	360631-000	PBBPL25184	HANDWHEEL SHAFT	1
185	280091-000	PBBPL25185	SPRING	1
186	000104-103	PBBPL25186	Screw - Cap M8*1.25P*12	2
187	000203-106	PBBPL25187	SET SCREW M6*1.0P*16	5
188	380226-902	PBBPL25188	BUSHING	1
189	360413-901	PBBPL25189	FIXING PIN	8
190	000103-102	PBBPL25190	Screw - Cap M6*1.0P*10	8
191	006001-021	PBBPL25191	WASHER - FLAT 6.2*22*3t	1
192	PQ02-27	PBBPL25192	MAIN MOTOR ASSY	
193	032101-002	PBBPL25193	NEEDLE BEARING NA-6906	6
194	360155-902	PBBPL25194	IDLE FIXING SHAFT	1
195	010108-000	PBBPL25195	RETAINING RING RTW-52	1
196	000004-306	PBBPL25196	HEX. SCREW M10-1.5*50	4
197	008009-100	PBBPL25197	NUT - HEX M12*1.75P(19B*1OH)	4
198	006308-100	PBBPL25198	Washer - Spring 12.2*21.6	12
199	006001-091	PBBPL25199	WASHER - FLAT 13*28*3.0t	16



Key	MFG	Model	Description	Qty
200	380249-901	PBBPL25200	MOTOR MOUNT TENSION SHAFT ASSEMBLY	2
201	050368-008	PBBPL25201	MOTOR PLATE	1
202	360270-902	PBBPL25202	MOTOR MOUNTING SHAFT	2
204	360634-000	PBBPL25204	SHAFT	1
205	170481-901	PBBPL25205	FIXING BUSH	4
206	001601-101	PBBPL25206	ROUND HEAD SCREW W/WASHER - FLAT M4*0.7P*8/4*10*0.8t	8
207	250173-615	PBBPL25207	EXPANSION BEND	2
208	360423-000	PBBPL25208	SHAFT	1
209	010110-000	PBBPL25209	RETAINING RING RTW-68	2
210	030203-002	PBBPL25210	BALL BEARING 6008	2
211	031003-001	PBBPL25211	BEARING 51105	4
212	050662-902	PBBPL25212	BUSHING	2
213	006802-100	PBBPL25213	WASHER 25	2
214	008201-100	PBBPL25214	NUT M25*1.5P	2
215	190084-902	PBBPL25215	PACKING	1
216	014106-000	PBBPL25216	V-BELT A81	3
217	014117-000	PBBPL25217	V-BELT A52	1
218	070017-902	PBBPL25218	SPROCKET	1
219	280067-901	PBBPL25219	SPRING	1
220	172297-000	PBBPL25220	COVER- REAR	1
221	021802-000	PBBPL25221	RELIEF BUSHING NB-2430	2
222	021805-000	PBBPL25222	RELIEF BUSHING NB-1216	2
223	170894-008	PBBPL25223	PLATE	1
224	008308-100	PBBPL25224	HEX LOCK NUT M10-1.5(17B*12H)	4
225	170638-156	PBBPL25225	HOOK	4
226	000105-103	PBBPL25226	Screw - Cap M10-1.5*30	14
227	000006-206	PBBPL25227	HEX. SCREW M16*2.0P*55L	4
228	008011-200	PBBPL25228	NUT - HEX- M16*2.0P(24B*13H)	5
229	050314-008	PBBPL25229	FOOT	4
230	172295-000	PBBPL25230	BASE	1
231	360693-902	PBBPL25231	IDEL SHAFT	1
232	172728-000	PBBPL25232	COVER-FRONT	1
233	172296-000	PBBPL25233	COVER- SIDE	2
234	006001-083	PBBPL25234	WASHER - FLAT 11*37*3.0t	2
235	001302-101	PBBPL25235	CAP SCREW M10-1.5*20	1
236	000105-112	PBBPL25236	CHAIN	2
237	016010-000	PBBPL25237	CHAIN #40*74P	1
238	008306-100	PBBPL25238	HEX LOCK NUT M8*1.25P(13B*9H)	4
239	230276-000	PBBPL25239	BUFFER 15kg	2
240	016002-000	PBBPL25240	CHAIN #40*54P	1
259	021102-000	PBBPL22259	CABLE FASTENER ACC-2.5	3



Key	MFG	Model	Description	Qty
241	016012-000	PBBPL25241	CHAIN #40*84P	1
242	006003-079	PBBPL25242	WASHER - FLAT 10.5*19*2.0t	2
243	006001-003	PBBPL25243	WASHER - FLAT 4.3*12*1.0t	6
245	000203-107	PBBPL25245	SET SCREW M6*1.0P*20	1
246	PQ02-02	PBBPL25246	CONTROL BOX ASSY	
247	000103-103	PBBPL25247	Screw - Cap M6*1.0P*12	4
249	000106-102	PBBPL25249	Screw - Cap M12*1.75P*40	12
250	280098-000	PBBPL25250	SPRING	1
251	490126-008	PBBPL25251	EXTERNAL BOX	1
252	490127-000	PBBPL25252	TERMINAL BLOCK	1
253	000303-103	PBBPL25253	ROUND HD SCREW M5*0.8P*10	4
256	006001-034	PBBPL25256	WASHER - FLAT 6.7*16*2.0t	4
257	000004-107	PBBPL25257	HEX. SCREW M10-1.5*70	2
258	001301-101	PBBPL25258	CAP SCREW M8*1.25P*20	1
259	290009-902	PBBPL25259	SHOULDER SCREW	2
260	190002-905	PBBPL25260	FIXING POINT	2
261	PQ02-06	PBBPL25261	POWER CORD	
263	190074-901	PBBPL25263	SPACER	2
264	010205-000	PBBPL25264	RETAINING RING ETW-8	2
265	171399-902	PBBPL25265	BRACKET	1
266	921133-000	PBBPL25266	INDUCTION PLATE	1
267	150001-000	PBBPL25267	IDLE	2
268	000105-107	PBBPL25268	Screw - Cap M10-1.5*50	4
275	040005-000	PBBPL25275	HEX. WRENCH 5mm	1
276	040007-000	PBBPL25276	HEX. WRENCH 8mm	1
277	040204-000	PBBPL25277	WRENCH BOX 12*14	1
278	040206-000	PBBPL25278	WRENCH BOX 17*19	1
279	040207-000	PBBPL25279	WRENCH BOX 22*24	1
280	040401-000	PBBPL25280	SCREW DRIVER	1
283	000201-101	PBBPL25283	SET SCREW M4*0.7P*6	1
285	920664-001	PBBPL25285	LOCK KNOB ASSY	2
286	000105-102	PBBPL25286	Screw - Cap M10-1.5*25	2
287	171151-902	PBBPL25287	FIXING PLATE	2
288	200032-615	PBBPL25288	SPONGE - LONG 40*10*2t	1
289	200033-615	PBBPL25289	SPONGE - SHORT 33*10*2t	1
290	002201-201	PBBPL25290	WOOD SCREW M6*2.6P*24	24
291	010118-000	PBBPL25291	RETAINING RING RTW-90	1
292	010109-000	PBBPL25292	RETAINING RING RTW-62	1
293	380787-902	PBBPL25293	SPACER	1
294	002602-102	PBBPL25294	CAP LOCKING SCREW M6*1.0P*20	12
296	006001-023	PBBPL25296	WASHER - FLAT 6.3*13*2.0t	12



Key	MFG	Model	Description	Qty
297	000003-110	PBBPL25297	HEX. SCREW M8*1.25P*50	1
298	006001-046	PBBPL25298	WASHER - FLAT 8.5*16*1.5t	1
300	044302-301	PBBPL25300	OIL CUP 3/16"	6
301	006503-100	PBBPL25301	TOOTH WASHER 6.4*11(BW-6)	10
302	006504-100	PBBPL25302	TOOTH WASHER 8.4*15(BW-8)	2
303	002604-101	PBBPL25303	CAP LOCKING SCREW M10-1.5*20	1





Busy Bee Tools

BUSY BEE TOOLS 2 YEARS LIMITED WARRANTY

Busy Bee Tools warrants every product to be free from defects in materials and agrees to correct such defects where applicable. This warranty covers **two years** for parts and 90 days for labor (unless specified otherwise), to the original purchaser from the date of purchase but does not apply to malfunctions arising directly or indirectly from misuse, abuse, improper installation or assembly, negligence, accidents, repairs or alterations or lack of maintenance.

Proof of purchase is necessary.

All warranty claims are subject to inspection of such products or part thereof and Busy Bee Tools reserves the right to inspect any returned item before a refund or replacement may be issued.

This warranty shall not apply to consumable products such as blades, bits, belts, cutters, chisels, punches etc.

Busy Bee Tools shall in no event be liable for injuries, accidental or otherwise, death to persons or damage to property or for incidental contingent, special or consequential damages arising from the use of our products.

RETURNS, REPAIRS AND REPLACEMENTS

To return, repair, or replace a Busy Bee Tools product, you must visit the appropriate Busy Bee Tools showroom or call 1-800-461-BUSY.

For replacement parts directly from Busy Bee Tools, for this machine, please call 1-800-461-BUSY (2879), and have your model number and part number & payment option ready.

- All returned merchandise will be subject to a minimum charge of 15% for re-stocking and handling with the following qualifications.
- Returns must be pre-authorized by us in writing.
- We do not accept collect shipments.
- Items returned for warranty purposes must be insured and shipped pre-paid to the nearest warehouse
- Returns must be accompanied with a copy of your original invoice as proof of purchase. Returns must be in an un-used condition and shipped in their original packaging a letter explaining your reason for the return. Incurred shipping and handling charges are not refundable.
- Busy Bee will repair or replace the item at our discretion and subject to our inspection.
- Repaired or replaced items will be returned to you pre-paid by our choice of carriers.
- Busy Bee reserves the right to refuse reimbursement or repairs or replacement if a third party without our prior authorization has carried out repairs to the item.
- Repairs made by Busy Bee Tools are warranted for 30 days on parts and labour.
- Any unforeseen repair charges will be reported to you for acceptance prior to making the repairs.
- The Busy Bee Parts & Service Departments are fully equipped to do repairs on all products purchased from us with the exception of some products that require the return to their authorized repair depots. A Busy Bee representative will provide you with the necessary information to have this done.
- For faster service it is advisable to contact the nearest Busy Bee location for parts availability prior to bringing your product in for repairs.

