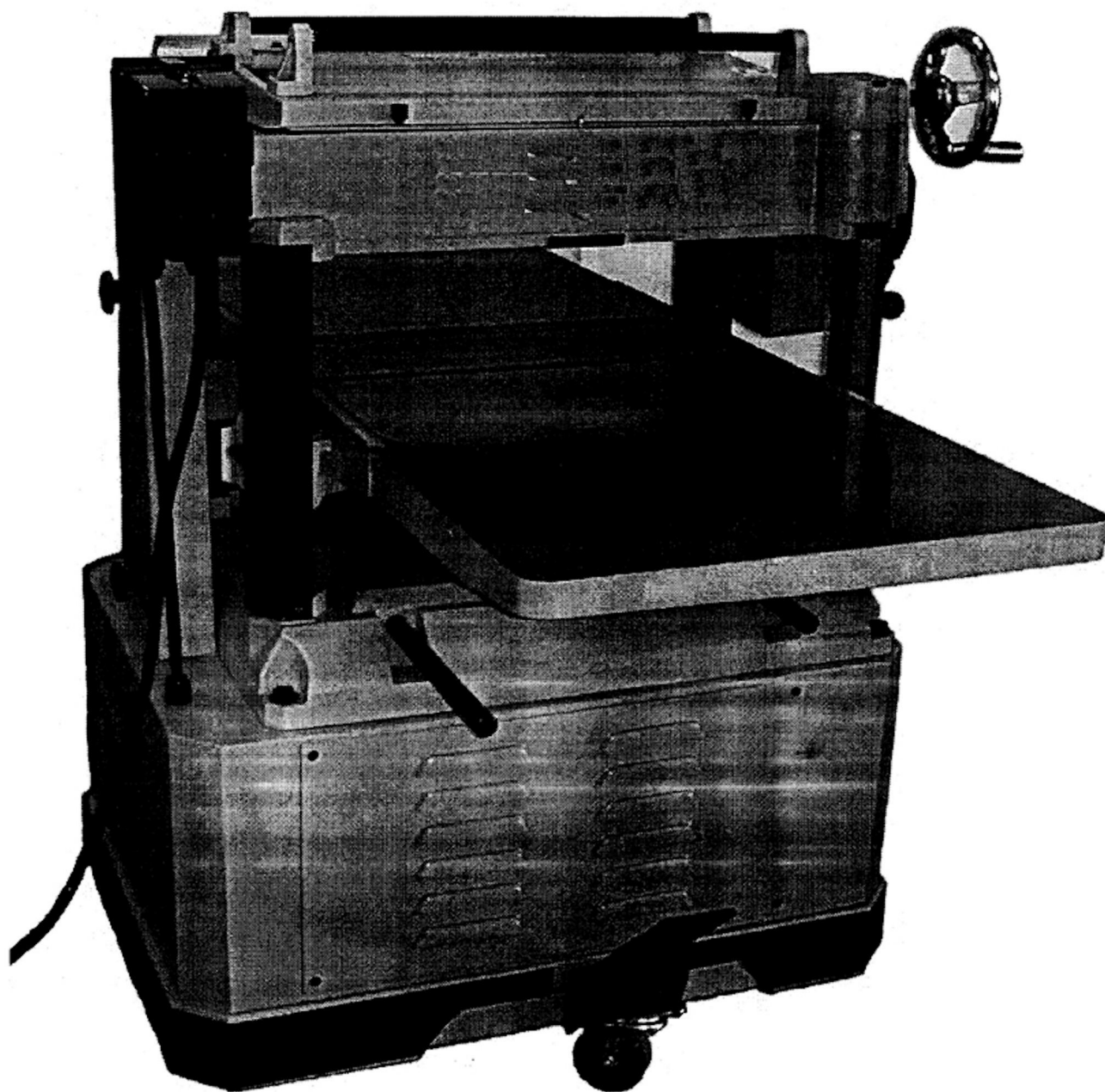


User Manual

Read and understand this manual before using machine.

20" INDUSTRIAL PLANER



Model No.

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INTRODUCTION

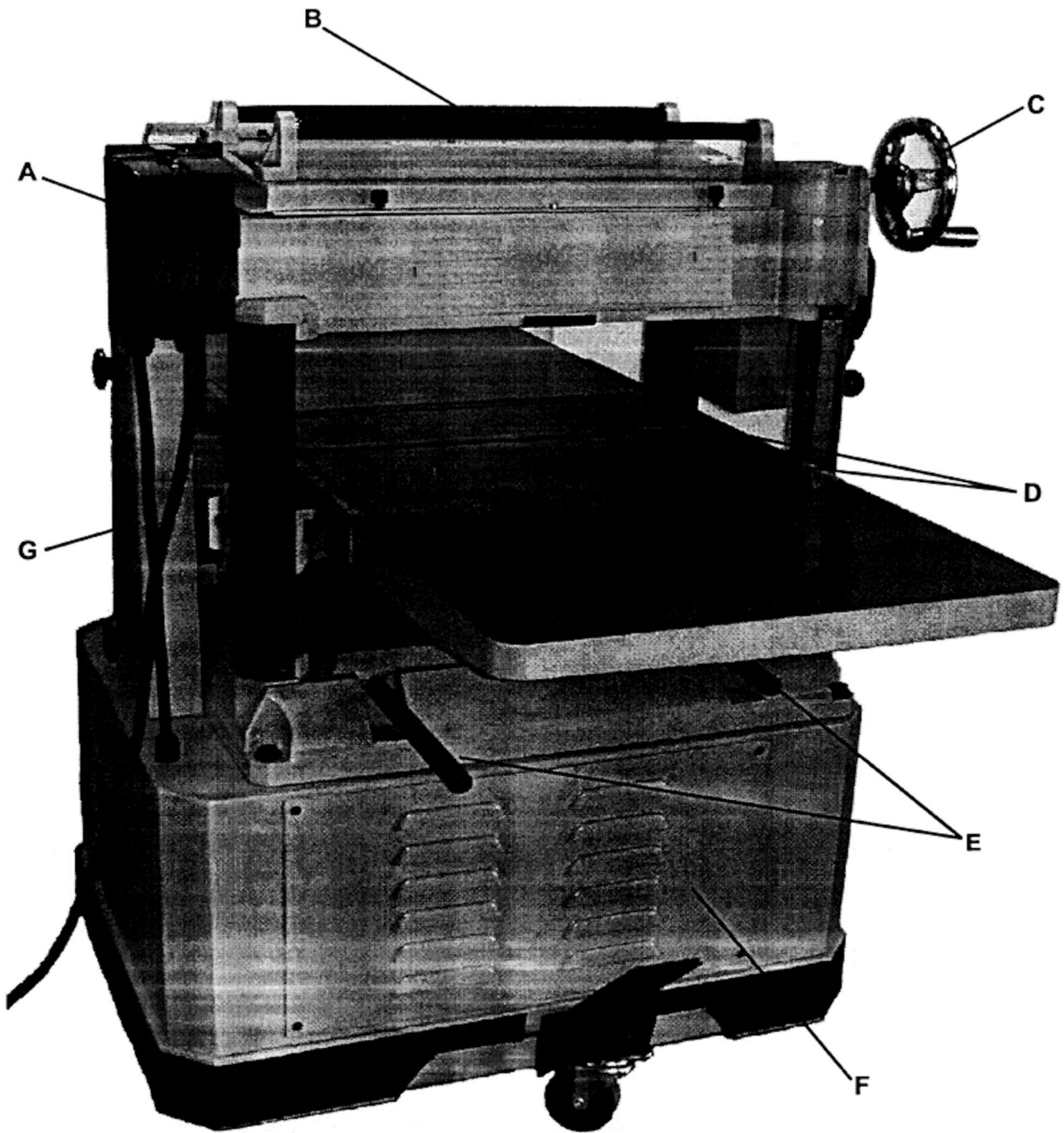
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INTRODUCTION

This user manual is intended for use by anyone working with this machine. It should be kept available for immediate reference so that all operations can be performed with maximum efficiency and safety. Do not attempt to perform maintenance or operate this machine until you have read and understand the information contained in this manual.

This Planer is designed to process wood only. Any other use is forbidden. This machine is not to be modified for any reasons.

FEATURE IDENTIFICATION



- A) Switch
- B) Return Rollers
- C) Table Raise/Lower Handwheel
- D) Bed Rollers
- E) Lifting Handles
- F) Access Panel
- G) Belt Guard

⚠ WARNING

TO AVOID serious injury and damage to the machine, read and follow all Safety and Operating Instructions before assembling and operating this machine.

This manual is not totally comprehensive. It does not and can not convey every possible safety and operational problem which may arise while using this machine. The manual will cover many of the basic and specific safety procedures needed in an industrial environment.

All federal and state laws and any regulations having jurisdiction covering the safety requirements for use of this machine take precedence over the statements in this manual. Users of this machine must adhere to all such regulations.

Below is a list of symbols that are used to attract your attention to possible dangerous conditions.



This is the international safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

Indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.

⚠ WARNING

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

⚠ CAUTION

Indicates a potentially hazardous situation, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices.

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTICE

This symbol is used to alert the user to useful information about proper operation of the machine.

⚠ WARNING



Exposure to the dust created by power sanding, sawing, grinding, drilling and other construction activities may cause serious and permanent respiratory or other injury, including silicosis (a serious lung disease), cancer, and death. Avoid breathing the dust, and avoid prolonged contact with dust. The dust may contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Some examples of these chemicals are:

- Lead from lead-based paints.
- Crystalline silica from bricks, cement and other masonry products.
- Arsenic and chromium from chemically-treated lumber.

Always operate tool in well ventilated area and provide for proper dust removal. Use a dust collection system along with an air filtration system whenever possible. Always use properly fitting NIOSH/OSHA approved respiratory protection appropriate for the dust exposure, and wash exposed areas with soap and water.

1. To avoid serious injury and damage to the machine, read the entire User Manual before assembly and operation of this machine.

⚠ WARNING



2. **ALWAYS** wear eye protection. Any machine can throw debris into the eyes during operations, which could cause severe and permanent eye damage. Everyday eyeglasses are **NOT** safety glasses. **ALWAYS** wear Safety Goggles (that comply with ANSI standard Z87.1) when operating power tools.

▲ WARNING



3. **ALWAYS** wear hearing protection. Plain cotton is not an acceptable protective device. Hearing equipment should comply with ANSI S3.19 Standards.

▲ WARNING



4. **ALWAYS** wear a NIOSH/OSHA approved dust mask to prevent inhaling dangerous dust or airborne particles.

5. **ALWAYS** keep the work area clean, well lit, and organized. **DO NOT** work in an area that has slippery floor surfaces from debris, grease, and wax.
6. **ALWAYS** unplug the machine from the electrical receptacle before making adjustments, changing parts or performing any maintenance.
7. **AVOID ACCIDENTAL STARTING.** Make sure that the power switch is in the "OFF" position before plugging in the power cord to the electrical receptacle.

▲ WARNING



8. **AVOID** a dangerous working environment. **DO NOT** use electrical tools in a damp environment or expose them to rain.

▲ WARNING



9. **CHILDPROOF THE WORKSHOP AREA** by removing switch keys, unplugging tools from the electrical receptacles, and using padlocks.

10. **DO NOT** use electrical tools in the presence of flammable liquids or gasses.

11. **DO NOT FORCE** the machine to perform an operation for which it was not designed. It will do a safer and higher quality job by only performing operations for which the machine was intended.
12. **DO NOT** stand on a machine. Serious injury could result if it tips over or you accidentally contact any moving part.
13. **DO NOT** store anything above or near the machine.
14. **DO NOT** operate any machine or tool if under the influence of drugs or alcohol.
15. **EACH AND EVERY** time, check for damaged parts prior to using any machine. Carefully check all guards to see that they operate properly, are not damaged, and perform their intended functions. Check for alignment, binding or breakage of all moving parts. Any guard or other part that is damaged should be immediately repaired or replaced.
16. Ground all machines. If any machine is supplied with a 3-prong plug, it must be plugged into a 3-contact electrical receptacle. The third prong is used to ground the tool and provide protection against accidental electric shock. **DO NOT** remove the third prong.
17. Keep visitors and children away from any machine. **DO NOT** permit people to be in the immediate work area, especially when the machine is operating.
18. **KEEP** protective guards in place and in working order.
19. **MAINTAIN** your balance. **DO NOT** extend yourself over the tool. Wear oil resistant rubber soled shoes. Keep floor clear of debris, grease, and wax.
20. **MAINTAIN** all machines with care. **ALWAYS KEEP** machine clean and in good working order. **KEEP** all blades and tool bits sharp.
21. **NEVER** leave a machine running, unattended. Turn the power switch to the OFF position. **DO NOT** leave the machine until it has come to a complete stop.
22. **REMOVE ALL MAINTENANCE TOOLS** from the immediate area prior to turning the machine ON.
23. **SECURE** all work. When it is possible, use clamps or jigs to secure the workpiece. This is safer than attempting to hold the workpiece with your hands.
24. **STAY ALERT**, watch what you are doing, and use common sense when operating any machine. **DO NOT** operate any machine tool while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury.

25. **USE ONLY** recommended accessories. Use of incorrect or improper accessories could cause serious injury to the operator and cause damage to the machine. If in doubt, **DO NOT** use it.
26. **THE USE** of extension cords is not recommended for 230V equipment. It is better to arrange the placement of your equipment and the installed wiring to eliminate the need for an extension cord. If an extension cord is necessary, refer to the chart in the **GROUNDING INSTRUCTIONS** section of this manual to determine the minimum gauge for the extension cord. The extension cord must also contain a ground wire and plug pin.
27. Wear proper clothing, **DO NOT** wear loose clothing, gloves, neckties, or jewelry. These items can get caught in the machine during operations and pull the operator into the moving parts. Users must wear a protective cover on their hair, if the hair is long, to prevent it from contacting any moving parts.
28. **SAVE** these instructions and refer to them frequently and use them to instruct other users.
29. Information regarding the safe and proper operation of this tool is also available from the following sources:
 - Power Tool Institute
1300 Summer Avenue
Cleveland, OH 44115-2851
www.powertoolinstitute.org
 - National Safety Council
1121 Spring Lake Drive
Itasca, IL 60143-3201
 - American National Standards Institute
25 West 43rd St, 4th Floor
New York, NY, 10036
ANSI 01.1 Safety Requirements
For Woodworking Machines
WWW.ANSI.ORG
 - U.S. Department of Labor Regulations
OSHA 1910.213 Regulations
WWW.OSHA.GOV

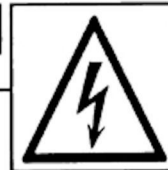
PRODUCT SAFETY

1. Serious personal injury may occur if normal safety precautions are overlooked or ignored. Accidents are frequently caused by lack of familiarity or failure to pay attention. Obtain advice from supervisor, instructor, or another qualified individual who is familiar with this machine and its operations.
2. Every work area is different. Always consider safety first, as it applies to your work area. Use this machine with respect and caution. Failure to do so could result in serious personal injury and damage to the machine.
3. Prevent electrical shock. Follow all electrical and safety codes, including the National Electrical Code (NEC) and the Occupational Safety and Health Regulations (OSHA). All electrical connections and wiring should be made by qualified personnel only.
4. **TO REDUCE** the risk of electrical shock. **DO NOT** use this machine outdoors. **DO NOT** expose to rain. Store indoors in a dry area.
5. **STOP** using this machine, if at any time you experience difficulties in performing any operation. Contact your supervisor, instructor or machine service center immediately.
6. Safety decals are on this machine to warn and direct you to how to protect yourself or visitors from personal injury. These decals **MUST** be maintained so that they are legible. **REPLACE** decals that are not legible.
7. **DO NOT** leave the unit plugged into the electrical outlet. Unplug the unit from the outlet when not in use and before servicing, performing maintenance tasks, or cleaning.
8. **ALWAYS** turn the power switch "OFF" before unplugging the planer.
9. **DO NOT** handle the plug or planer with wet hands.
10. **USE** only accessories as described in this manual. **USE** accessories only recommended by Steel City.
11. **DO NOT** pull the planer by the power cord. **NEVER** allow the power cord to come in contact with sharp edges, hot surfaces, oil or grease.
12. **DO NOT** unplug the planer by pulling on the power cord. **ALWAYS** grasp the plug, not the cord.
13. **REPLACE** a damaged cord immediately. **DO NOT** use a damaged cord or plug. **DO NOT** use if the planer is not operating properly, or has been damaged, left outdoors or has been in contact with water.

▲ WARNING



▲ WARNING



14. **DO NOT** use the planer as a toy. **DO NOT** use near or around children.
15. **ENSURE** that the machine sits firmly on the floor before using. If the machine wobbles or is unstable, correct the problem by using shims or blocks prior to operation.
16. This machine is designed to process **WOOD ONLY**.

▲WARNING



17. **NEVER** position fingers or thumbs near the infeed roller.

18. Long pieces of stock should **ALWAYS** be supported with some type of fixture.
19. **DO NOT** operate planer with dull or damaged blades.
20. **MAKE CERTAIN** that the planer is properly adjusted prior to use.

21. **DO NOT** try and remove excessive amounts of wood in one single pass.
22. **INSPECT** all stock before planing, ensuring that there are no foreign objects embedded in the wood, loose knots, or knots that may become loose during operation.

▲WARNING



23. **DO NOT** attempt to remove jams until power is disconnected and all moving parts have come to a complete stop.

24. **MAKE SURE** that there is adequate operating space on both the infeed and outfeed sides of the planer before operating.
25. **DO NOT** attempt to plane wood that is less than 7" long or less than 1/8-inch thick.

GROUNDING INSTRUCTIONS

▲WARNING



This machine **MUST BE GROUNDED** while in use to protect the operator from electric shock.

In the event of a malfunction or breakdown, **GROUNDING** provides the path of least resistance for electric current and reduces the risk of electric shock. The plug **MUST** be plugged into a matching electrical receptacle that is properly installed and grounded in accordance with **ALL** local codes and ordinances.

If a plug is provided with your machine **DO NOT** modify the plug. If it will not fit your electrical receptacle, have a qualified electrician install the proper connections to meet all electrical codes local and state. All connections must also adhere to all of OSHA mandates.

IMPROPER ELECTRICAL CONNECTION of the equipment-grounding conductor can result in risk of electric shock. The conductor with the green insulation (with or without yellow stripes) is the equipment-grounding conductor. **DO NOT** connect the equipment-grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if you do not completely understand the grounding instructions, or if you are not sure the tool is properly grounded.

PLUGS/RECEPTACLES

▲WARNING



- Electrocution or fire could result if this machine is not grounded properly or if the electrical configuration does not comply with local and state electrical codes.
- **MAKE CERTAIN** the machine is disconnected from power source before starting any electrical work.
- **MAKE SURE** the circuit breaker does not exceed the rating of the plug and receptacle.

The motor supplied with your machine is a 240 volt, 60 hertz, single phase motor. Never connect the green or ground wire to a live terminal

A machine with a 240 volt plug should only be connected to an outlet having the same configuration as the plug.

EXTENSION CORDS

▲WARNING



To reduce the risk of fire or electrical shock, use the proper gauge of extension cord. When using an extension cord, be sure to use one heavy enough to carry the current your machine will draw.

The smaller the gauge-number, the larger the diameter of the extension cord is. If in doubt of the proper size of an extension cord, use a shorter and thicker cord. An undersized cord will cause a drop in line voltage resulting in a loss of power and overheating.

▲CAUTION

USE ONLY a 3-wire extension cord that has a 3-prong grounding plug and a 3-pole receptacle that accepts the machine's plug. s

If you are using an extension cord outdoors, be sure it is marked with the suffix "W-A" ("W" in Canada) to indicate that it is acceptable for outdoor use.

Make certain the extension cord is properly sized, and in good electrical condition. Always replace a worn or damaged extension cord immediately or have it repaired by a qualified person before using it.

Protect your extension cords from sharp objects, excessive heat, and damp or wet areas.

MINIMUM RECOMMENDED GAUGE FOR EXTENSION CORDS (AWG)

240 VOLT OPERATION ONLY			
	25' LONG	50' LONG	100' LONG
0 to 6 Amps	16 AWG	16 AWG	14 AWG
6 to 8 Amps	16 AWG	16 AWG	12 AWG
8 to 12 Amps	14 AWG	14 AWG	10 AWG
12 to 15 Amps	12 AWG	12 AWG	10 AWG
15 to 20 Amps	10 AWG	10 AWG	Not recommended

UNPACKING & INVENTORY

⚠ WARNING

- The machine is heavy; a forklift or overhead lift are required to lift the machine.
- Use a safety strap to avoid tip over when lifting machine.

Check shipping carton and machine for damage before unpacking. Carefully remove packaging materials, parts and machine from shipping carton. Always check for and remove protective shipping materials around motors and moving parts. Lay out all parts on a clean work surface.

Remove any protective materials and coatings from all of the parts and the planer. The protective coatings can be removed by spraying WD-40 on them and wiping it

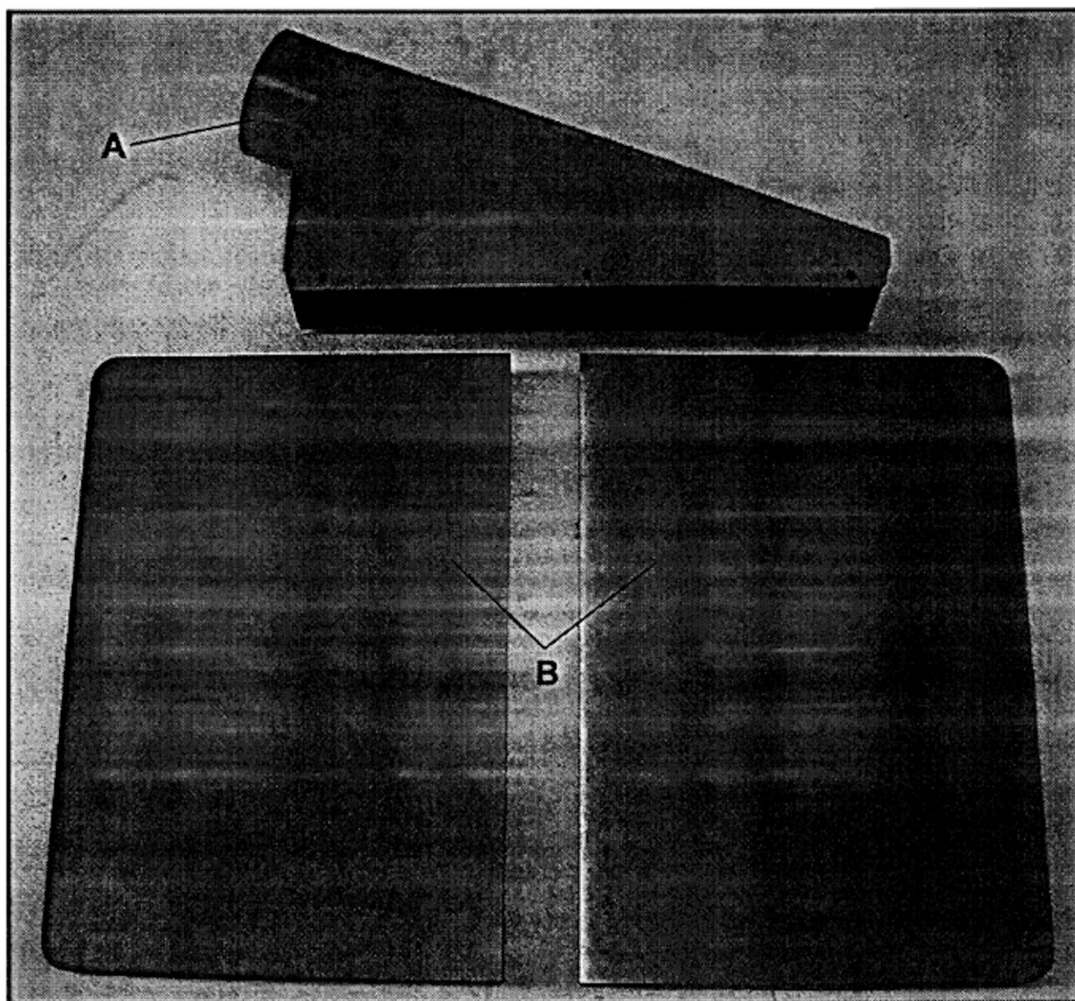
off with a soft cloth. This may need redone several times before all of the protective coatings are removed completely.

After cleaning, apply a good quality paste wax to any unpainted surfaces. Make sure to buff out the wax before assembly.

Compare the items to inventory figures; verify that all items are accounted for before discarding the shipping box.

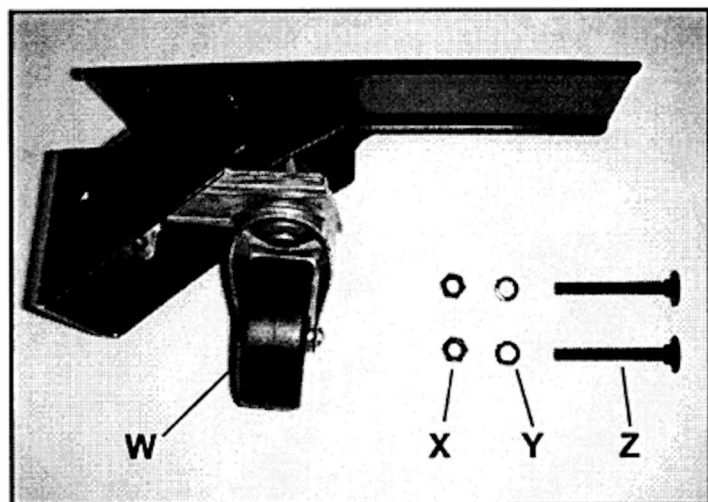
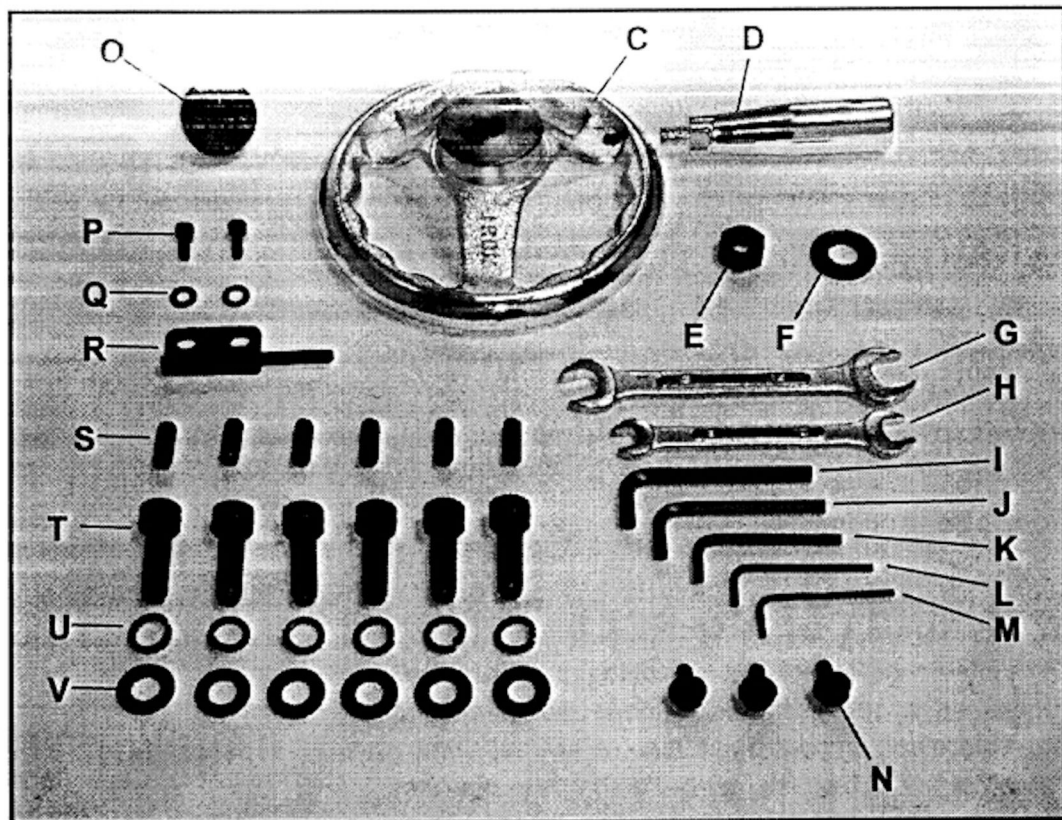
⚠ WARNING

If any parts are missing, do not attempt to plug in the power cord and turn "ON" the machine. The machine should only be turned "ON" after all the parts have been obtained and installed correctly.

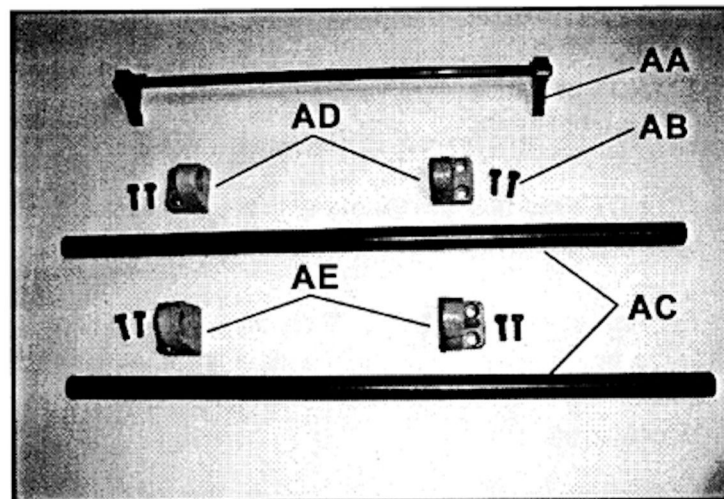


- A) Dust Chute
- B) Extension Wings

- (C) Handwheel
- (D) Handle
- (E) M12 Hex Nut
- (F) 13 x 28 x 3t Flat Washer
- (G) 12-14mm Open End Wrench
- (H) 8-10mm Open End Wrench
- (I) 6mm Allen Wrench
- (J) 5mm Allen Wrench
- (K) 4mm Allen Wrench
- (L) 3mm Allen Wrench
- (M) 2.5mm Allen Wrench
- (N) M6 x 12mm Hex Head Serrated Screw
- (O) Knob
- (P) M5 x 12mm Hex Soc Hd Screw
- (Q) 5.2x12x2t Flat Washer
- (R) Hinge Bracket Right
- (S) M8 x 20mm Hex Soc Set Screw
- (T) M10 x 30mm Hex Soc Hd Screw
- (U) M10 Lock Washer
- (V) 10.2x21x2t Flat Washer



- (W) Locking Foot Pedal
- (X) M8 Hex Nut
- (Y) M8 Lock Washer
- (Z) M8 x 65mm Carriage Hd Screw



- (AA) Knife Setting Jig
- (AB) M6 x 16mm Hex Soc Hd Screw
- (AC) Roller
- (AD) Rear Roller Bracket
- (AE) Front Roller Bracket

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

▲ CAUTION

FLOOR

This tool distributes a large amount of weight over a small area. Most commercial floors are appropriate for this unit, however, in residential use, flooring may need added reinforcement to accommodate the weight of the machine and operator.

WORKING CLEARANCES

Take into consideration the size of the material to be processed, space for auxiliary stands, work benches, etc. before setting up this machine. Make sure that you allow enough space for your machine to operate freely.

OUTLET PLACEMENT

Outlets should be located close enough to the machine so that the power cord or extension cord is not in an area where it would cause a tripping hazard. Be sure to observe all electrical codes if installing new circuits and or outlets.

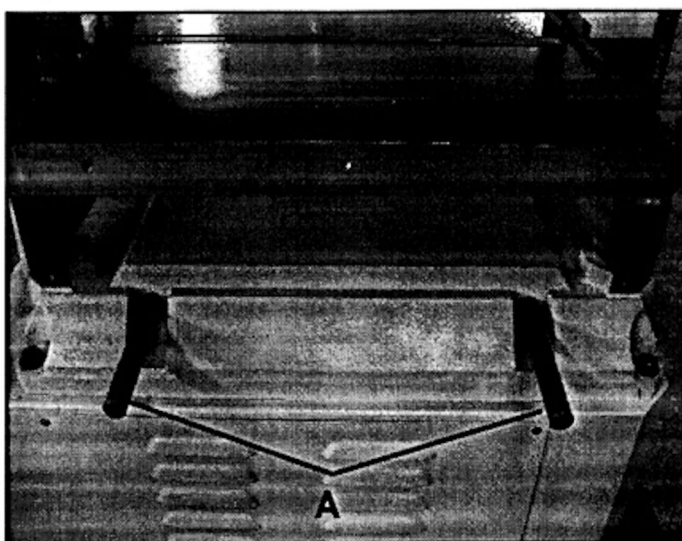
▲ WARNING

1. **DO NOT** assemble the Planer until you are sure the tool is not plugged in.
2. **DO NOT** assemble the Planer until you are sure the power switch is in the OFF position
3. For your own safety, **DO NOT** connect the machine to the power source until the machine is completely assembled and you read and understand the entire User Manual.

▲ WARNING

This planer is a very heavy piece of equipment. To assist with moving the unit, this Planer contains lifting handles (A) that slide out from the base of the planer head. SEE FIG 1. These handles can be used as lifting points using a forklift or overhead lift. Attempting to lift this unit without the proper equipment or adequate assistance could result in a serious injury.

Fig. 1

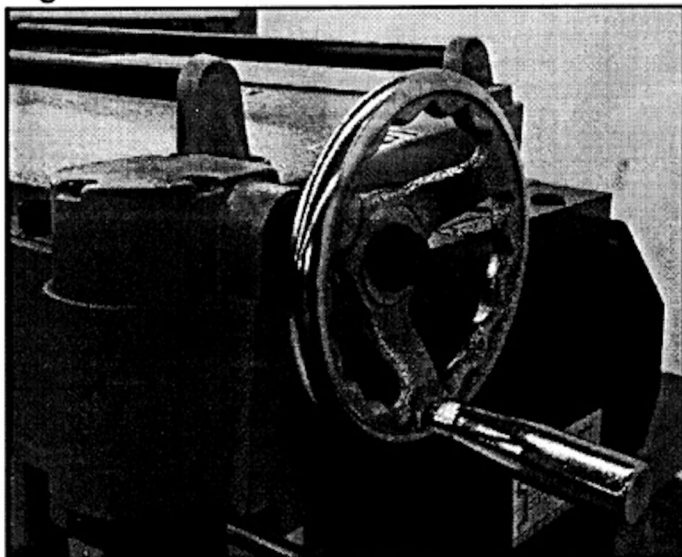


HANDWHEEL

The purpose of the handwheel is for raising and lowering the planer table

1. Locate the handwheel shaft at the front right corner of the planer.
2. Insert key (Key is taped to shaft) into the keyway on the handle shaft.
3. Line up the notch in the handwheel with the key and slide the handwheel onto the handle shaft.
4. Secure the handwheel using one M12 hex nut and one M12 flat washer provided. SEE FIG 2.
5. Screw handle into the threaded hole on the handwheel.

Fig. 2

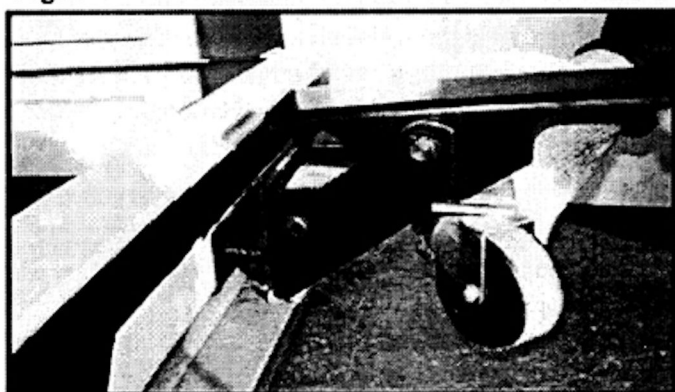


LOCKING FOOT PEDAL

Note: Assembled the locking foot pedal assembly on to the planer before remove the planer from metal pallet

1. Loosen 4 of M6 x 10mm pan head screws remove the cabinet front cover for assembly the locking foot Pedal
2. Use 2 of (Z)M8 x 65mm carriage head screws assembly the foot pedal on to tube mounting holes which on the front below position of cabinet
3. Assembly both M8 lock washers and tighten the M8 hex nuts. Replace the cabinet front cover. SEE FIG 3.

Fig. 3

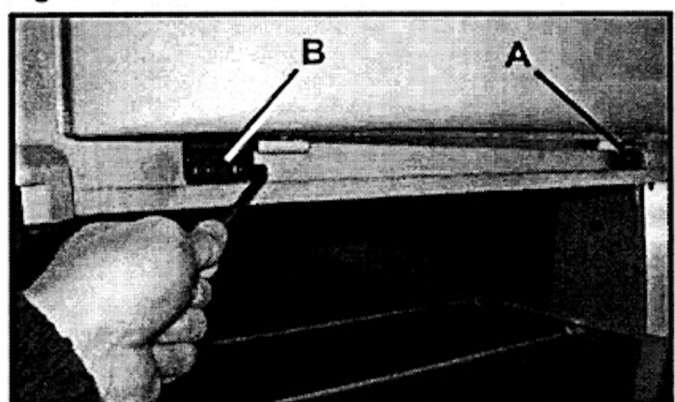


DUST CHUTE

This planer features a 4-in dust chute for use with a dust collection system.

1. Assembly the dust chute on to the left hinge bracket(A) which assembled on the back of left side of cutter head casting. SEE FIG4.
2. Assembly the right hinge bracket(B) on the right side of dust port.
3. Use a 4 mm allen wrench to tighten both of 2 M5x 12 mm hex soc screws and M5 washers to secure the right hinge bracket.
4. Unbolt the upper cover from the planer to allow access to the screw holes. Fig.417A

Fig. 4



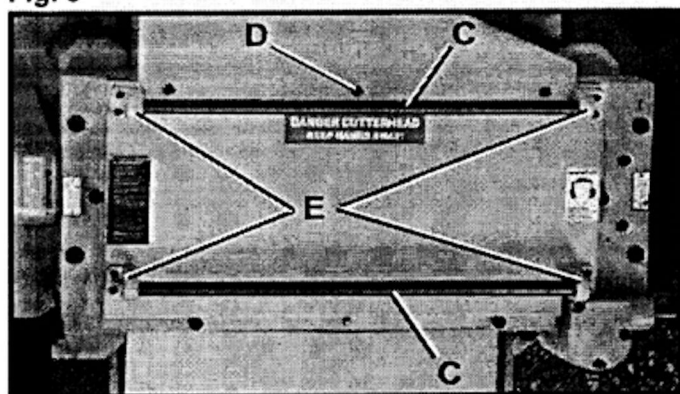
5. To attach the dust chute, mount the dust chute above the upper cover on the planer.

6. Line up the 3 holes on the top of the dust chute with the 3 holes on the upper cover and fasten with three M6 x 12mm hex head serrated screws(D) SEE FIG 5.

7. Use three M6 x 12mm hex head serrated Screws and fasten the dust chute to the body of the planer.

8. Rebolt the upper cover to the planer.

Fig. 5



9. Assembly the either side of both front / rear roller bracket(E) and do not securing the screws. Note: The front roller bracket should be assembled on the front side of upper cover and rear roller bracket should be on the rear side.

10. Assembly both rollers on to the roller bracket then the other side of roller bracket and tighten all the screws.

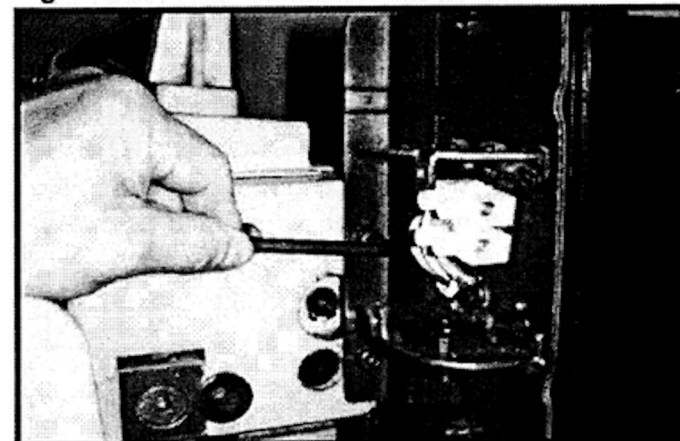
11. Spin rollers (C) by hand to insure that they move freely

SWITCH BRACKET ASSEMBLY

1. Find the hardware of 2 M6 x 16mm hex soc head screws and M6 lock washer for assembly the switch bracket on the left hand side of cutter head casting.

2. Use 5mm allen wrench and tighten the 2 of M6 x 16mm hex soc screws. SEE FIG6.

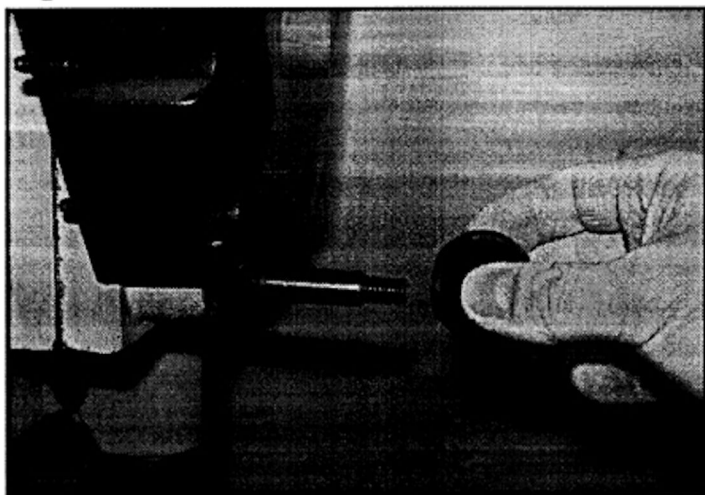
Fig. 4



GEARBOX SHAFT KNOB ASSEMBLY

Assembly the knob on to the shaft as Fig 7 showed.

Fig. 7

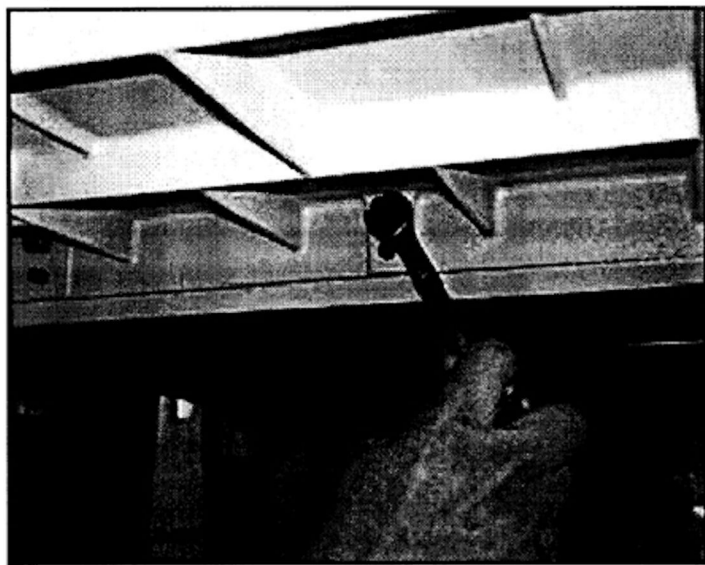


EXTENSION TABLES

The extension tables support the workpiece as it enters and exits the planer.

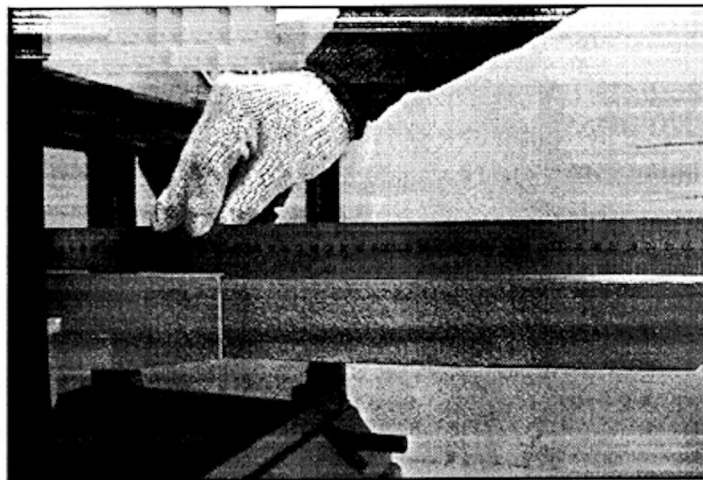
1. To mount the extension tables, thread three M8 x 20mm set screws into the bottom holes of the extension table. Only screw them in about 1/3 of the way for now.
2. Using three M8 x 25mm hex head mounting bolts, mount one extension table to the main table. **SEE FIG 8.**

Fig. 8



3. Place a straight edge on the main table so that it lies flat on the table and extends out over the extension table. **SEE FIG 9.**

Fig. 9



4. Adjust the three set screws until edge of the extension table that is the furthest away from the main table is even with the straight edge. Please note that it may take several combinations of loosening and/or tightening the set screws and mounting bolts to get the extension table level with the main table.
5. Repeat steps 1-4 to attach the other extension table to the other side of the main table.

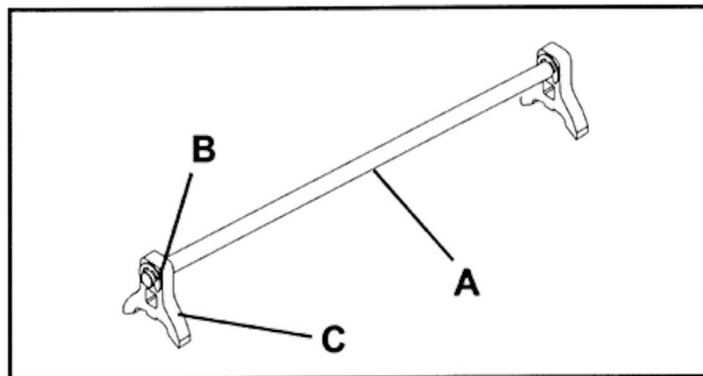
KNIFE SETTING JIG

The knife setting jig provides a convenient way to make setting the knives quick and simple.

1. To assemble the knife setting jig, snap one of the e clips (B) over the notch on one end of the knife setting rod (A).
2. Slide both of the knife setting jig brackets (C) onto the rod.
3. Snap on the other e clip to the opposite end of the rod. **SEE FIG 10.**

Note : Planer knives are extremely sharp. Please use extra caution when your hands are near the blades.

Fig. 10



ADJUSTMENTS

Some of the adjustments covered in this section have already been made at the factory. It is still a good idea to familiarize yourself with all of the following procedures so that you have a solid understanding of the planer operation.

TABLE PARALLELISM ADJUSTMENT

To make adjustments to the table, it is necessary to make a gauge block.

When constructing this block, be sure to use a hardwood such as oak or maple. **DO NOT** use standard 2 x 4 material. A diagram for this block is located near the end of the manual.

NOTICE: A substitute for this gauge block would be to use a magnetic dial indicator. Anywhere it calls for use of the gauge block in this section, you may substitute with the dial indicator.

▲WARNING

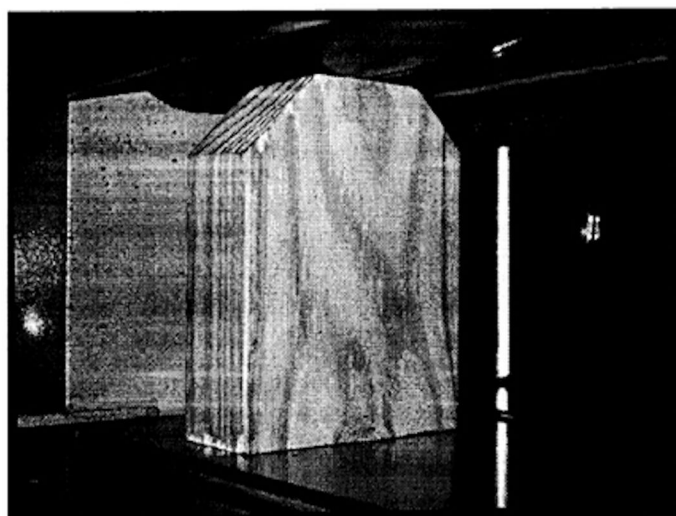
DO NOT make adjustments while the planer is running. Make certain that the switch is in the off position and that the machine is disconnected from the power source.

▲CAUTION

Planer knives are extremely sharp. Please use extra caution when your hands are near the blades.

1. Having the table parallel to the cutterhead is essential for planing stock perfectly square. Check this by placing the gauge block that you have constructed under the left end of the cutterhead.
2. Turn the handwheel clockwise to raise the table so that the block barely touches the left side of the body of the cutterhead. **NOTE:** Make sure that the block is actually touching the body of the cutterhead and not the knives. **SEE FIG 11.**
3. Slide the block to the right taking note of any gaps between the top of the block and the bottom of the cutterhead body. Measure any of these gaps with a feeler gauge.
4. When moving the block from left to right, if the block wedges tightly between the cutterhead and the table, repeat steps 2 and 3, but start from the right side of the cutterhead body and slide the block to the left.

Fig. 11



5. Referring back to your measurements with the feeler gauge, if the gap difference from one side to the other is .004" or less, no adjustment will be necessary.

If the gap is greater than .004", but less than .016", proceed to step 6.

If the gap is greater than 0.016", refer to the **ADJUSTING CHAIN DRIVE** section in the **ADJUSTMENTS** section of the manual.

6. For gap differences between .005" and .016", determine which side of the table needs to be raised to fix the gap.
7. Loosen both sets of screws for each column on the side that needs adjusted.
8. Pull up or push down on the table in the direction that it needs to move, hold in position and retighten the screws.
9. Repeat these steps until the variance is .004" or less.

CHAIN ADJUSTMENTS

▲WARNING

MAKE CERTAIN THAT THE SAW IS DISCONNECTED FROM THE POWER SOURCE.

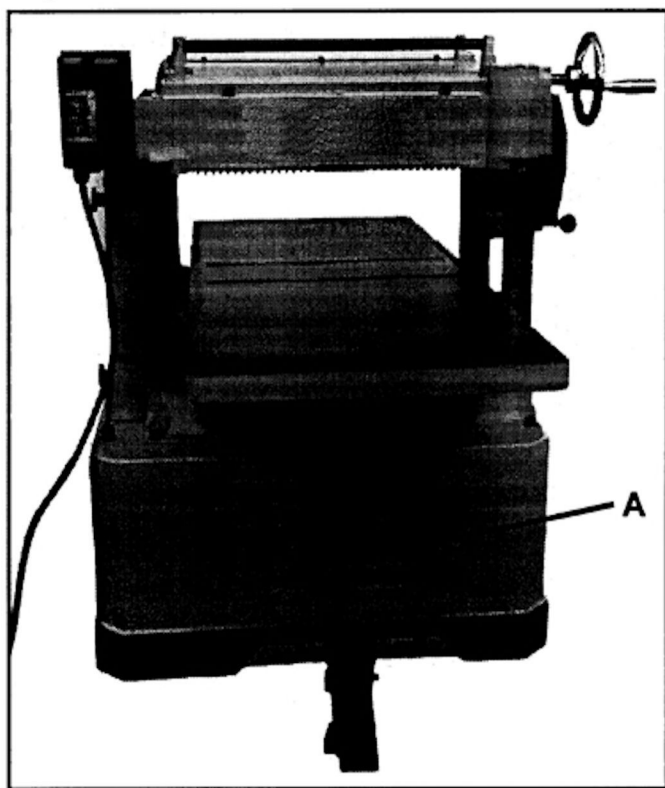
The chain drive in your planer transfers movement from the hand wheel driven column to the three other support columns. The chain drive may require an adjustment to remove slack as the chain stretches over time, or as part of table leveling procedures.

CHAIN TENSION

To adjust Chain Tension:

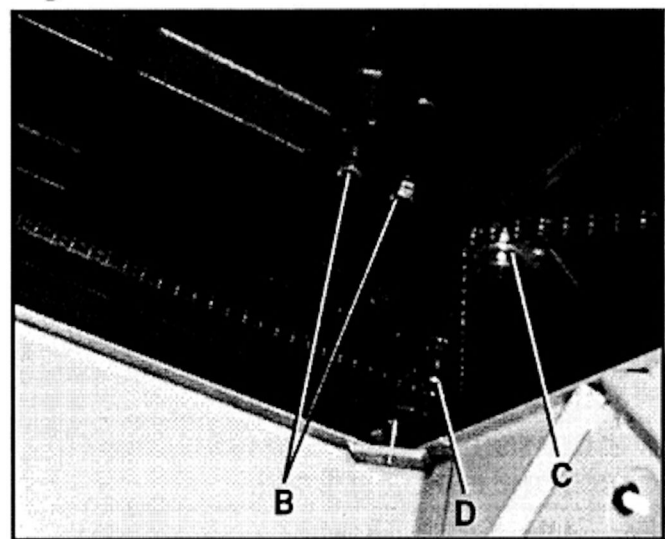
1. Remove the access panel (A) on the stand.
SEE FIG 12.

Fig. 12



2. Loosen the two hex head bolts (B) that fasten the idler sprocket (C) to the base and move the idler sprocket until excess slack in the chain has been eliminated. **SEE FIG 13.**

Fig. 13



3. Retighten the two hex head bolts.
4. Replace access panel.

ADJUSTING CHAIN DRIVE

Notice: The following steps should only be done **AFTER** you have gone through the **TABLE PARALLELISM ADJUSTMENT** section of this manual and the measurements you attained from that section are greater than .016".

▲WARNING

MAKE CERTAIN THAT THE SAW IS DISCONNECTED FROM THE POWER SOURCE.

1. Remove the panel (A) to gain access to the chain drive assembly. **SEE FIG 12.**
2. Loosen two hex head bolts (B) that fasten the idler sprocket (C) to the base until you can turn each corner sprocket (D) independently. One of the corner sprockets is shown in **Fig 13.**

Notice: If the chain drive is loosened too much, it will fall off all of the sprockets. Replacing a chain that has come off the sprockets is a very tedious process. Make sure to loosen the idler pulley just enough to allow you to be able to turn the corner sprockets.

3. Each tooth on a corner sprocket represents .016" of vertical movement as it turns.
4. Whichever end of the table is too high, turn the sprockets at that end of the table clockwise to lower the table. For example if the back end of the table is too high, the back two sprockets would need to be rotated clockwise to lower the back side of the table. If the right end of the table is too high, the right two sprockets would be rotated clockwise to lower the right side, etc.

Notice: Make certain, as you turn the sprockets, to keep an accurate tooth count to ensure that the table is lowered equally on a specific side.

5. Recheck Table Parallelism using your gauge block. Once the tolerance is less than .016", replace access cover and refer back to the **TABLE PARALLELISM ADJUSTMENT** section in the **ADJUSTMENT** section of this manual.

KNIFE INSPECTION

▲ CAUTION

Planer knives are extremely sharp. Please use extra caution when your hands are near the blades.

The Planer knives are set at the factory using jack screws. Springs are also included with your planer which may be used instead of the jack screws, depending on your preference. These springs are installed beneath the knives.

You can leave the springs in place as it will not affect the adjustments if they are not removed.

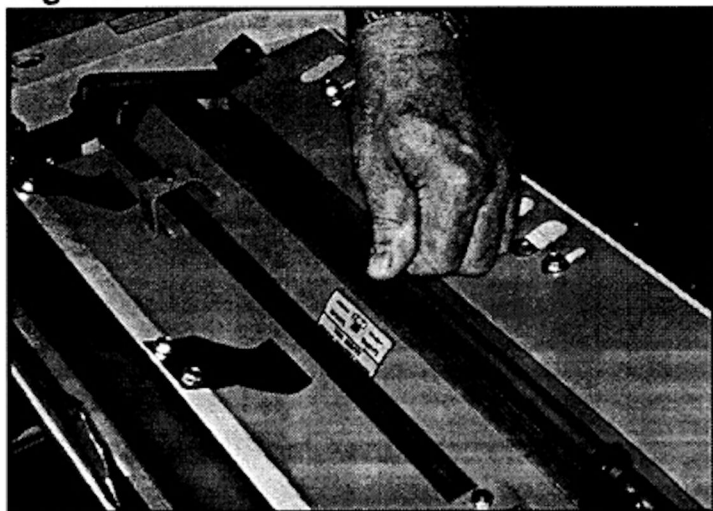
If you prefer to use the spring adjustment method, you will need to remove each knife, remove the jack screws, leave the two springs under each knife and replace the knife. Follow the steps below if using the spring adjustment method.

▲ WARNING

MAKE CERTAIN THAT THE SAW IS DISCONNECTED FROM THE POWER SOURCE.

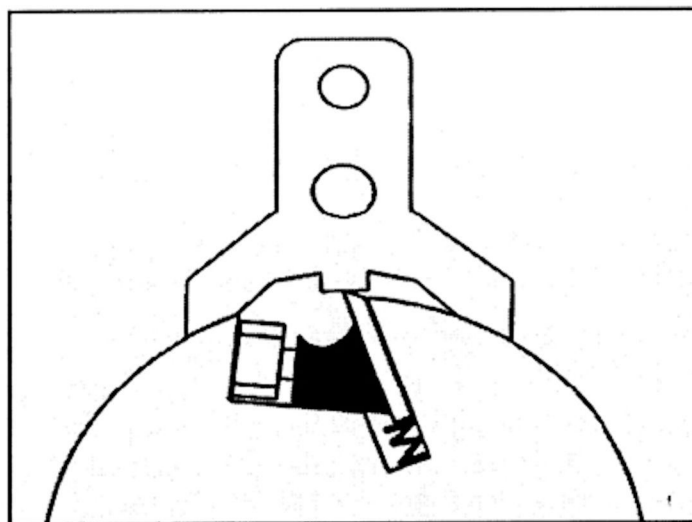
1. Move the hinged dust port and upper cover assembly to expose the cutterhead. **SEE FIG 14.**

Fig. 14



2. Remove the belt guard. Turn the cutterhead (using the pulley) until the first knife is top dead center.
3. Using the knife setting gauge, check the knife height. The jig should sit with both feet on the cutterhead. **SEE FIG 15.** If the knife is properly adjusted, the contact point at the center of the gauge should just touch the tip of the knife. If the knife does not make contact, or if the knife is high enough to cause the legs of the gauge not to set on the cutterhead, the knives will need adjusted. Be sure to inspect all 4 knives in the same manner.

Fig. 15

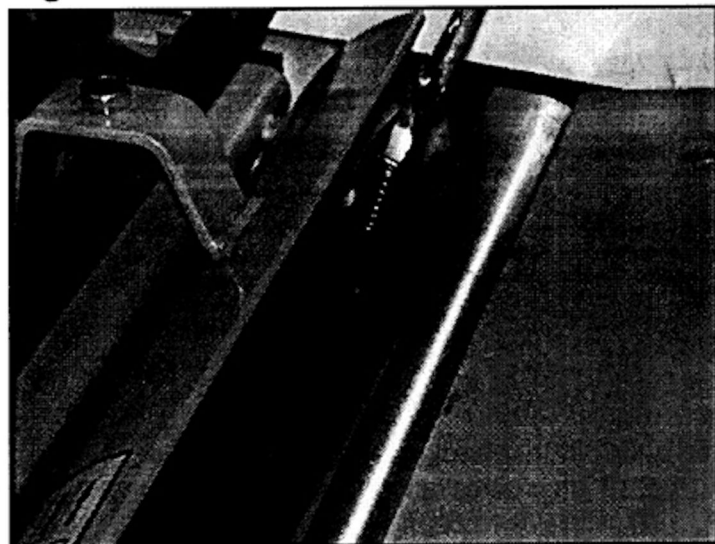


The planer knives will need to be adjusted periodically and ultimately will need to be removed to be sharpened. Adjustments should be as precise as possible with tolerances within .002" - .003". This will help prolong the sharpness of the knife edges. Improperly adjusted knives can cause an imbalance condition in the cutter-head and shorten bearing life, as well as produce sub-standard results.

4. Loosen the gib bolts by turning them clockwise until the knife is loose in the slot.
5. Carefully remove the knife.
6. Unscrew the jack screws completely from the threaded hole and remove.
7. Be sure that there is one spring in each of the two holes in the bottom of the knife slot. **SEE FIG 16.**

NOTICE: The springs **DO NOT** go into the threaded hole where the jack screws were installed.

Fig. 16

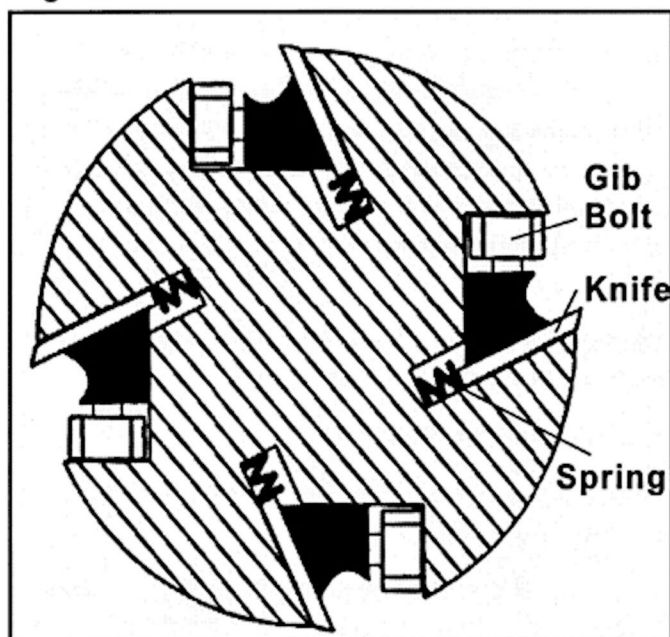


KNIFE ADJUSTMENT

The knives are locked in the cutterhead with wedge type gibs and gib bolts. Springs located under the knives assist in setting the knife height. Jack screws under the knives allow fine tuning to help out in the setting process.

1. **MAKE CERTAIN THE MACHINE IS DISCONNECTED FROM THE POWER SOURCE.**
2. Move hinged upper cover assembly to expose the cutterhead.
3. Loosen the gib bolts until the knife is loose in the slot. The gib bolts turn clockwise to loosen and counterclockwise to tighten. **SEE FIG 17.**

Fig. 17

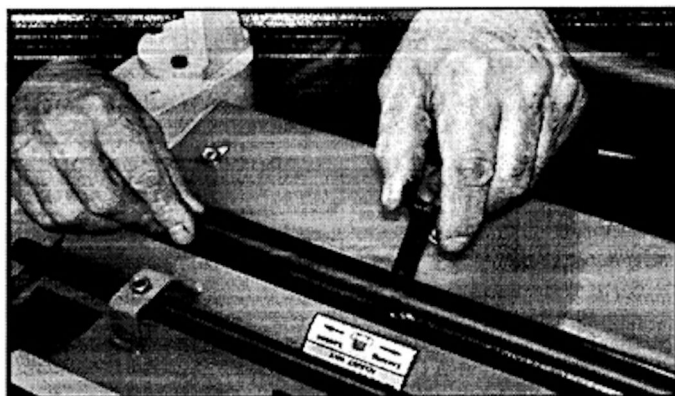


4. Place the knife setting jig over the knife on the cutterhead as shown in Fig 18. The feet of the jig should be securely planted on the cutterhead, making sure the gauge rod remains parallel to the cutterhead. **SEE FIG 18.**
5. Lower the jack screws as low as possible.
6. Maintain a steady pressure on the knife setting jig while retightening the gib bolts. The springs in the cutterhead will push up on the knife allowing for proper alignment of the knives.
7. Once gib bolts are tightened, raise jack screws until they just touch the bottom of the knife. You should feel resistance when the jack screw touches the bottom of the knife.

NOTICE: When making adjustments to the planer knives, all four knives must be adjusted the same.

DO NOT adjust one knife without adjusting the others as this can result in knife damage, poor performance and possible injury to the operator.

Fig. 18



CHIP BREAKER

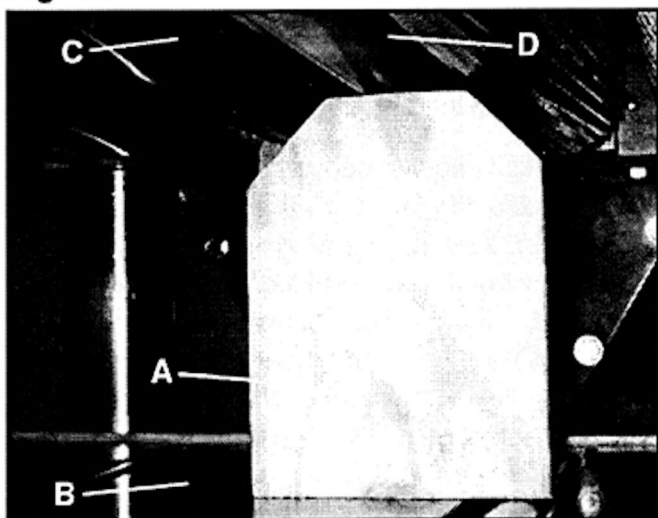
The chip breaker is located on the top side of the planer and it extends down around the front of the cutterhead. The purpose of the chip breaker is to prevent deep gouging, also known as tear-out, as the knives do their job. It works by breaking up the woodchips as they are being cut by the knives. The chip breaker also deflects and shoots out the woodchips away from the surface of the board and out the planer.

▲WARNING

DO NOT make adjustments while the planer is running. Make certain that the switch is in the off position and that the machine is disconnected from the power source.

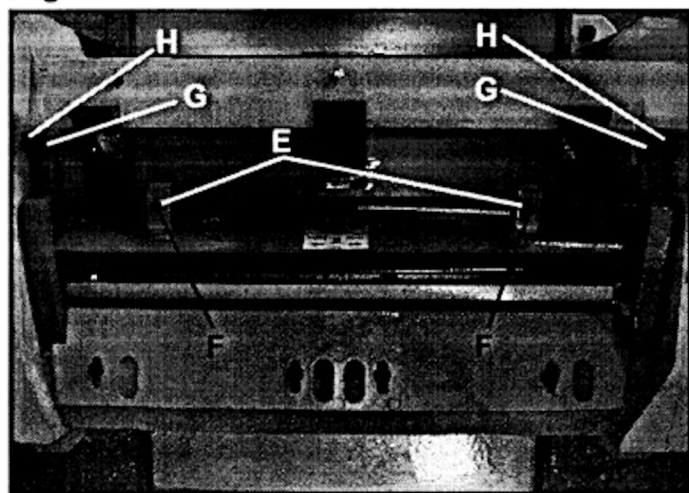
1. Open the hinged upper cover assembly and lower the table.
2. Make sure that the knives are properly adjusted.
3. Place the gauge block (A) on the table (B) directly under the cutterhead (C). **SEE FIG 19.**
4. Rotate the cutterhead until one of the knives are at its lowest point.
5. Using a .040" feeler gauge between the gauge block and the cutterhead, raise the table until the knife just touches the feeler gauge.

Fig. 19



- Remove your feeler gauge and slide the gauge block under one side of the chip breaker (D). The chip breaker should just touch the top of the gauge block.
- Slide the gauge block to the opposite side of the chip breaker, checking it the same way.
- If any adjustment is necessary, loosen the locknuts (E) and turn the setscrews (F). Stop turning when the chip breaker just touches the top of the gauge block. **SEE FIG 20.**

Fig. 20



- Retighten both lock nuts and replace hinged dust hood.

PRESSURE BAR

The pressure bar, like the chip breaker, controls lumber as it passes under the cutterhead. The pressure bar helps to keep the lumber from lifting after it has been planed. Incorrect positioning of the pressure bar can result in a number of undesirable results such as snipe or chatter marks. Setting the pressure bar too low can also place excess load on the motor. To adjust the pressure bar:

▲WARNING

MAKE CERTAIN THAT THE SAW IS DISCONNECTED FROM THE POWER SOURCE.

- Remove the hinged top cover and dust chute assembly.
- Place the gauge block (A) on the table (B) directly under the cutterhead (C). **SEE FIG 19.**
- Rotate the cutterhead until one of the knives are at its lowest point.
- Loosen both locknuts (G) **SEE FIG 20.**
- Place Gauge block under the center of the pressure bar and adjust both of the setscrews (H) until the pressure bar just touches the tip of the block.
- Once the bar is set, retighten both of the locknuts and replace top cover and dust chute.

FEED ROLLER HEIGHT

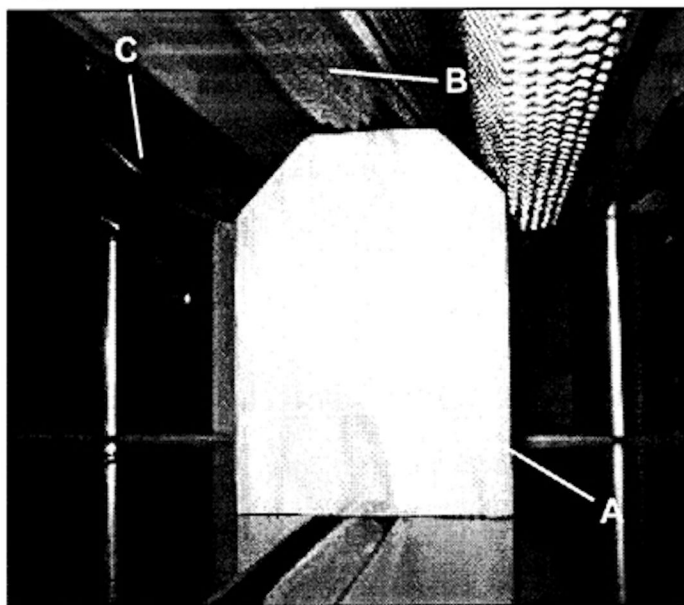
The infeed and outfeed rollers are responsible for moving the workpiece through the machine and pressing the workpiece flat against the main table.

▲WARNING

MAKE CERTAIN THAT THE SAW IS DISCONNECTED FROM THE POWER SOURCE.

- Lower the table so the gauge block (A) fits under one side of the infeed roller (B).
- Raise the table until the gauge block just barely touches one side of the infeed roller. **SEE FIG 21.**

Fig. 21

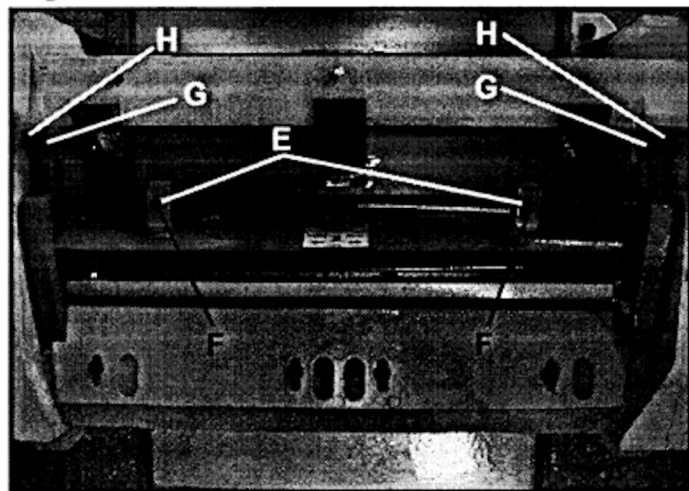


- Push the gauge block through so that it is under the edge of one of the knives.
- Turn the cutterhead (C) by hand using the pulley until one of the knives are in its lowest position.
- Using a feeler gauge, check the clearance between the top of the gauge block and the edge of the knife. Clearance should be .040".
- Repeat steps 1-5 for the opposite side of the roller.
- Repeat this same process for the outfeed roller, if any adjustment is necessary continue on to step 8.
- Remove the gear box cover to access the roller adjustments on the drive chain side on the planer. One socket head cap screw holds the drive chain cover in place.

NOTE: There are two metal guard plates bolted to the backside of the gear box cover. It may be necessary to remove one of these guards in order to remove the gear box cover.

- Remove your feeler gauge and slide the gauge block under one side of the chip breaker (D). The chip breaker should just touch the top of the gauge block.
- Slide the gauge block to the opposite side of the chip breaker, checking it the same way.
- If any adjustment is necessary, loosen the locknuts (E) and turn the setscrews (F). Stop turning when the chip breaker just touches the top of the gauge block. **SEE FIG 20.**

Fig. 20



- Retighten both lock nuts and replace hinged dust hood.

PRESSURE BAR

The pressure bar, like the chip breaker, controls lumber as it passes under the cutterhead. The pressure bar helps to keep the lumber from lifting after it has been planed. Incorrect positioning of the pressure bar can result in a number of undesirable results such as snipe or chatter marks. Setting the pressure bar too low can also place excess load on the motor. To adjust the pressure bar:

▲WARNING

MAKE CERTAIN THAT THE SAW IS DISCONNECTED FROM THE POWER SOURCE.

- Remove the hinged top cover and dust chute assembly.
- Place the gauge block (A) on the table (B) directly under the cutterhead (C). **SEE FIG 19.**
- Rotate the cutterhead until one of the knives are at its lowest point.
- Loosen both locknuts (G) **SEE FIG 20.**
- Place Gauge block under the center of the pressure bar and adjust both of the setscrews (H) until the pressure bar just touches the tip of the block.
- Once the bar is set, retighten both of the locknuts and replace top cover and dust chute.

FEED ROLLER HEIGHT

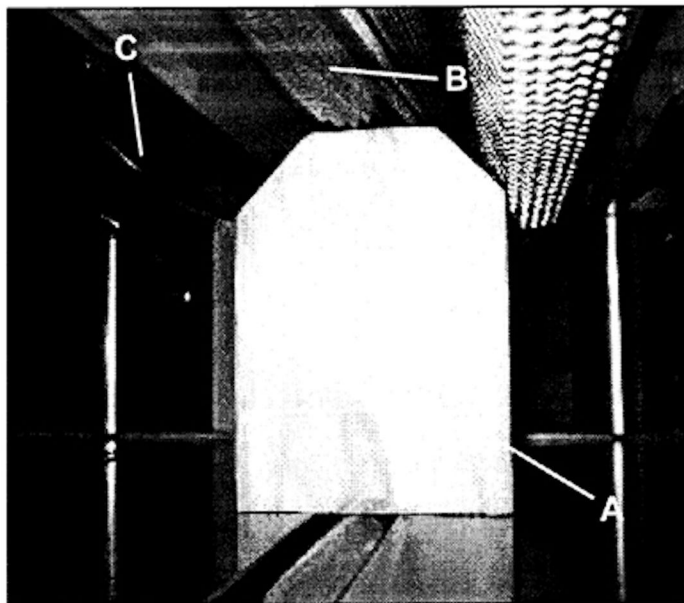
The infeed and outfeed rollers are responsible for moving the workpiece through the machine and pressing the workpiece flat against the main table.

▲WARNING

MAKE CERTAIN THAT THE SAW IS DISCONNECTED FROM THE POWER SOURCE.

- Lower the table so the gauge block (A) fits under one side of the infeed roller (B).
- Raise the table until the gauge block just barely touches one side of the infeed roller. **SEE FIG 21.**

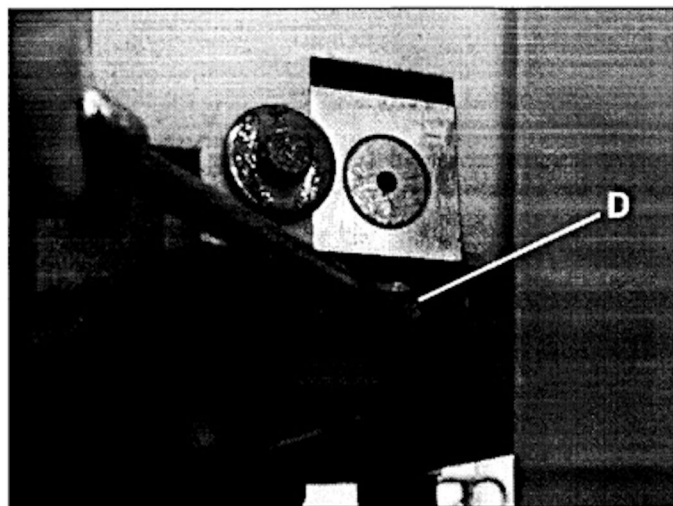
Fig. 21



- Push the gauge block through so that it is under the edge of one of the knives.
- Turn the cutterhead (C) by hand using the pulley until one of the knives are in its lowest position.
- Using a feeler gauge, check the clearance between the top of the gauge block and the edge of the knife. Clearance should be .040".
- Repeat steps 1-5 for the opposite side of the roller.
- Repeat this same process for the outfeed roller, if any adjustment is necessary continue on to step 8.
- Remove the gear box cover to access the roller adjustments on the drive chain side on the planer. One socket head cap screw holds the drive chain cover in place.

NOTE: There are two metal guard plates bolted to the backside of the gear box cover. It may be necessary to remove one of these guards in order to remove the gear box cover.

Fig. 22



- Loosen the roller adjustment check nuts (D) to change the height of the roller. **SEE FIG 22.**
- When the roller is set in the correct position, re-tighten the check nuts from step 9.
- Recheck roller height and repeat steps 8-10 if necessary.

FEED ROLLER PRESSURE

Infeed and outfeed roller pressure is an important aspect of any planer. When the workpiece is fed through the planer, the correct amount of pressure will help ensure that the board does not slip (too little pressure) or does not jam (too much pressure).

NOTICE: Excessive pressure may damage workpiece. It's important to note that different lumber will require varying amounts of pressure, so you may have to experiment with different settings. While some rough cut lumber will go through the planer with little trouble at one pressure setting. Other pieces may have some more difficulty.

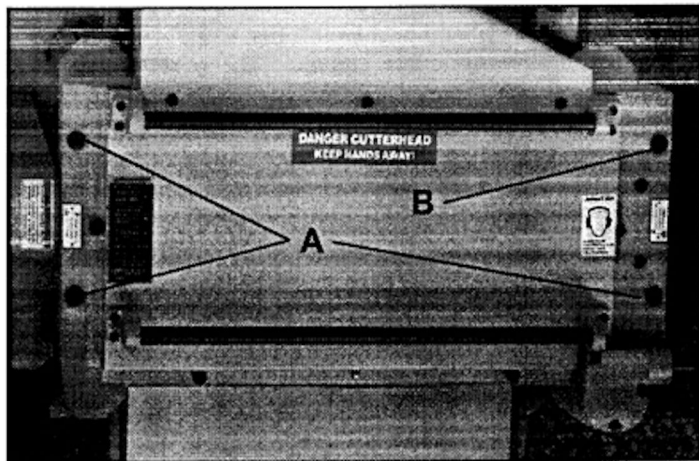
NOTICE: Adjusting the roller pressure does not affect height.

▲WARNING

MAKE CERTAIN THAT THE SAW IS DISCONNECTED FROM THE POWER SOURCE.

- Before adjusting roller pressure, ensure that the knives and feed rollers are set correctly.
- Unscrew the four large pressure set screws (A and B) on the top of the planer body. **SEE FIG 23.**

Fig. 23



- Remove the springs that are in the holes left by the set screws and check for any dirt or grit, cleaning off any dirt and replace springs.
- Screw the three regular pressure set screws (A) back in until they are flush with the top of the head casting.
- Screw in the light pressure set screw (B) until it is about 1/4" above the head casting. The reason this screw is not tightened as much as the other three is that the feed chain helps apply the needed tension to this side of the outfeed roller.
- Tightening the set screws down further will **INCREASE** roller pressure, while backing them off will **DECREASE** roller pressure.

BED ROLLERS

The bed rollers aid the movement of the workpiece through the planer. The height of these rollers will vary depending on the types of wood. For rough stock, the rollers should be set slightly higher to keep the lumber from dragging along the bed. For smooth lumber, the rollers should be set just above the surface of the table.

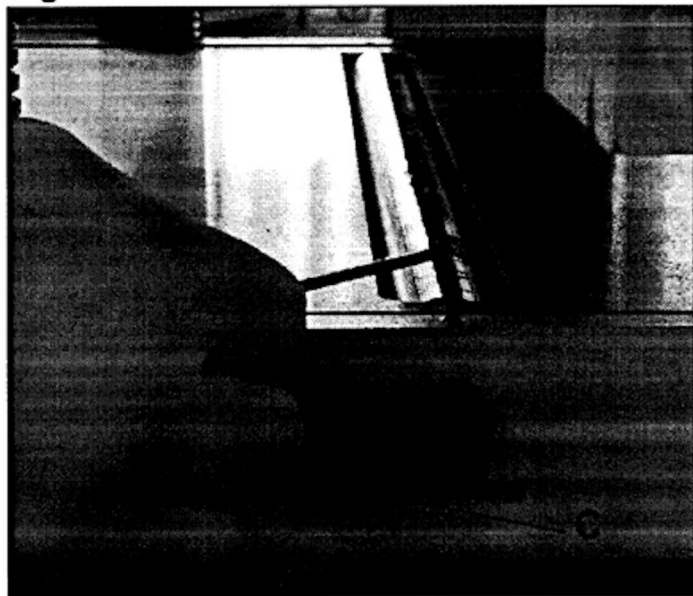
▲WARNING

MAKE CERTAIN THAT THE SAW IS DISCONNECTED FROM THE POWER SOURCE.

- Lay a straight edge across both of the table rollers.
- Using a feeler gauge, measure the clearance between the bottom of the straight edge and the table. Make sure to measure in several places.
- If measurement is between .002" and .005", the clearance is acceptable. If you do not have a measurement of .002" to .005" go to step 4.
- Loosen the set screws located on both sides of each roller.

5. Hold the adjusting plate (C), turn the eccentric shafts to adjust the roller height up or down as shown in SEE FIG 24.

Fig. 24



6. Repeat steps 1-5 until clearance is .002" to .005".
7. Retighten all set screws.
8. Spin rollers by hand to ensure that they move freely.

CHIP DEFLECTOR

The chip deflector (A) is the plastic plate under the top cover that keeps woodchips from falling onto the outfeed roller. SEE FIG 25.

▲WARNING

MAKE CERTAIN THAT THE SAW IS DISCONNECTED FROM THE POWER SOURCE.

1. The beveled edge of the deflector should be about 1/8"-1/4" from the knife edge. Check this by carefully rotating the cutterhead by hand to gauge the distance between the chip deflector and the knives.

▲CAUTION

If the chip deflector is set too close to the knives, the rotating cutterhead may pull it in and destroy it.

2. If adjustment is necessary, loosen the four deflector mounting bolts.

Fig. 25



3. Make sure the beveled edge of the deflector faces the cutterhead.
4. Move the deflector until the edge is approximately 1/8"-1/4" from the edge of the knives.
5. Push down on the deflector with a wooden stick and spin the cutterhead by hand to ensure that it does not contact the knives.

▲CAUTION

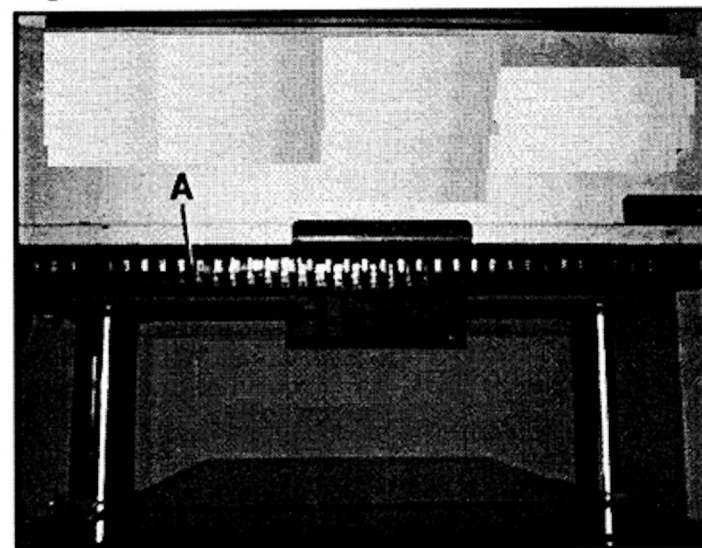
Planer knives are extremely sharp. Please use extra caution when your hands are near the blades.

6. Retighten the chip deflector mounting bolts and remount the upper cover and dust port to the planer.

ANTI-KICKBACK FINGERS

Anti-kickback fingers (A) are an added safety feature on this planer. They are suspended from a rod that hangs across the front of the cutterhead casting. These fingers should be inspected regularly, ensuring that they swing freely and easily. SEE FIG 26.

Fig. 26



▲WARNING

DO NOT apply any oil or other lubricant to the antikickback fingers as this can attract dust and restrict the free movement of the fingers. This could result in damage to the planer, the workpiece, or even serious injury to the operator or others in the work area. DO NOT attempt to use the planer if the antikickback fingers are not functioning properly.

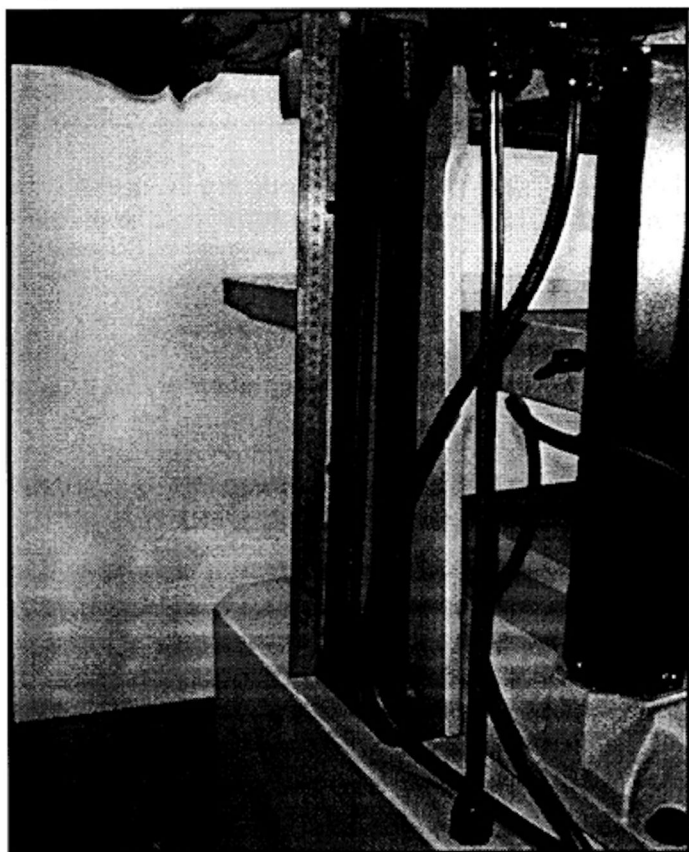
PULLEYS

▲WARNING

MAKE CERTAIN THE MACHINE IS DISCONNECTED FROM THE POWER SOURCE

1. To inspect pulleys, place a steel ruler or other type of straight edge across face of the pulleys to check the alignment. If the ruler crosses them evenly, the pulleys are aligned correctly. SEE FIG 27.

Fig. 27



2. If pulleys are out of alignment, loosen the bolts (B) the pulley can be adjusted as well as moving the motor mount bracket. SEE FIG 28.
3. Adjust the motor position until the pulleys are aligned.
4. Retighten all bolts.

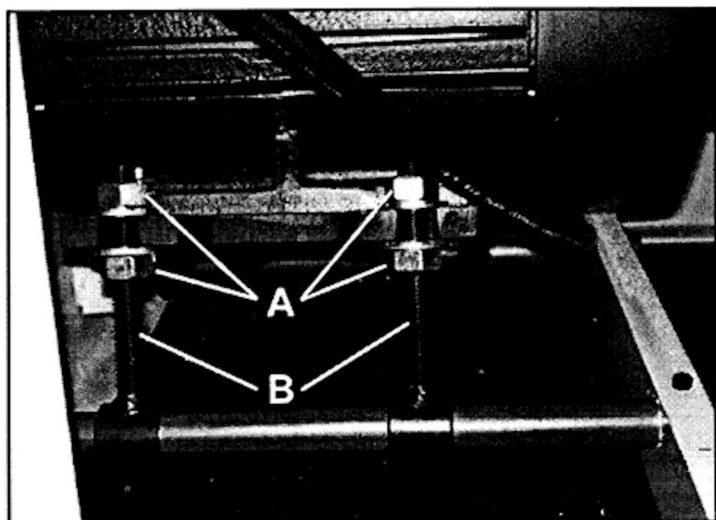
BELTS

▲WARNING

MAKE CERTAIN THAT THE SAW IS DISCONNECTED FROM THE POWER SOURCE.

1. If the belt is too loose, remove the belt guard using the two threaded knobs.
2. To check belt tension, squeeze the Belts at their midpoint with moderate finger pressure. You should be able to deflect each belt no more than 3/4".
3. Remove the panel at the back of the machine stand to access the motor assembly.
4. The motor pivots on a platform suspended at one end by two threaded adjustment bolts. Adjust the locknuts (A) up or down the shafts until the desired belt deflection is achieved. SEE FIG 28.

Fig. 28



GEAR BOX

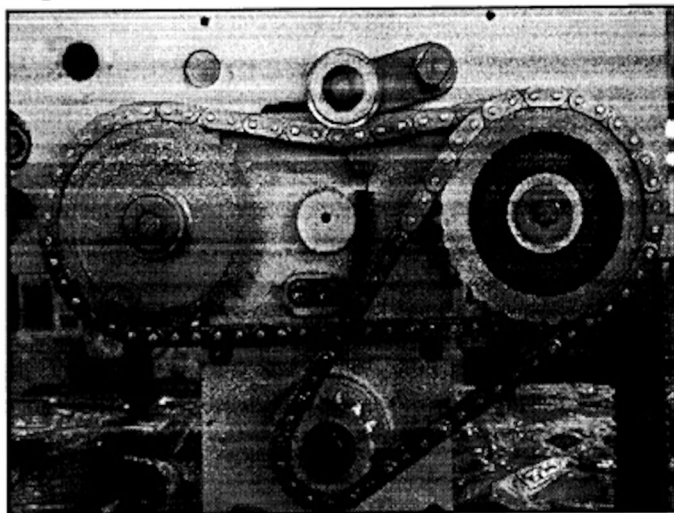
The gearbox is located just behind the handwheel on the right side of the planer. The gearbox transfers power from the belt driven cutterhead to the power feed rollers. It has a two speed transmission that is controlled by a lever on the right side of the planer. When it is engaged, the power feed rollers will move the workpiece through the planer at either 16 ft/ min or 30 ft/min. The center position on the lever is neutral.

1. To inspect gearbox, loosen the socket head cap screw on the gearbox cover.
2. Pull the cover off the roll pins that hold it in place

NOTE: There are two metal guard plates bolted to the backside of the gear box cover. It may be necessary to remove one of these guards in order to remove the gear box cover.

3. Inspect the bolts that hold the sprockets in place
4. Check the drive chains to make sure that the retaining clips are in place. **SEE FIG 29.**

Fig. 29



OPERATIONS

▲WARNING

This planer is a very powerful woodworking machine designed and built for professional use. Because of this, the machine should be operated with significant care and caution. Failure to do so could result in severe injury to the operator or others in the work area. Be sure to read this entire manual for all safety precautions before operating this machine.

PLANER SUMMARY

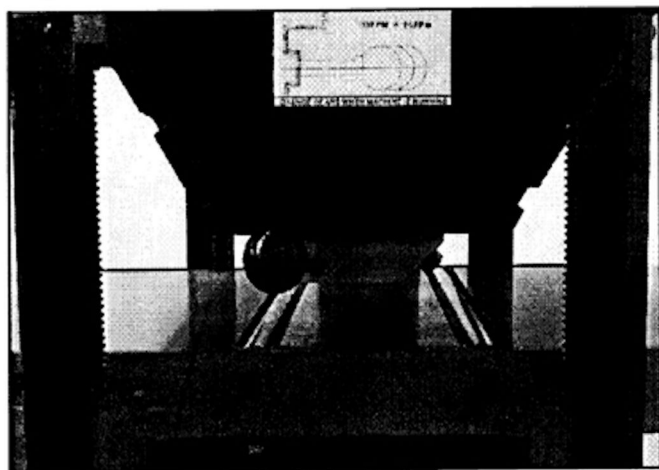
1. Examine all lumber carefully for defects such as twisting, warping, knots, splits, crossgrain, and foreign objects such as nails, staples, etc before running it through the planer. If you are unsure about the quality of the wood, **DO NOT USE IT !!!**
2. Use the full width of the planer. Alternate between the left, right, and center when feeding lumber through the planer. Doing so will help extend the life of your blades.
3. Be sure to clean off all glue of joined boards before planing.
4. This planer is designed for natural wood only. **DO NOT** use any composites, laminates, particle board, plywood, or plastics in the planer.
5. **ALWAYS** plane with the grain of the wood. **NEVER** feed end cut or end grained lumber through the planer.
6. When making multiple passes through the planer on long stock, use the stock return rollers located on top of the machine to move the workpiece over to the infeed side of the table.
7. Wood that has a high moisture content (greater than 20%) or wood exposed to rain or snow will plane poorly and cause excessive wear to the knives, and accelerate rust and corrosion.

8. This manual does not cover every aspect of planing wood. You should research alternative publications for more specific requirements. This type of follow up will help provide with a better understanding of the planing process as well as alert you to several precautions to take that may or may not be listed in this manual.

POWER FEED

The power feed feature two different feed rates, 16FPM (feet per minute) and 30FPM. **WHILE THE MACHINE IS RUNNING**, moving the knob one direction produces the 16FPM setting while moving the other direction produces the 30FPM setting. There is also a central position for the knob, which is neutral. **SEE FIG 30.**

Fig. 30



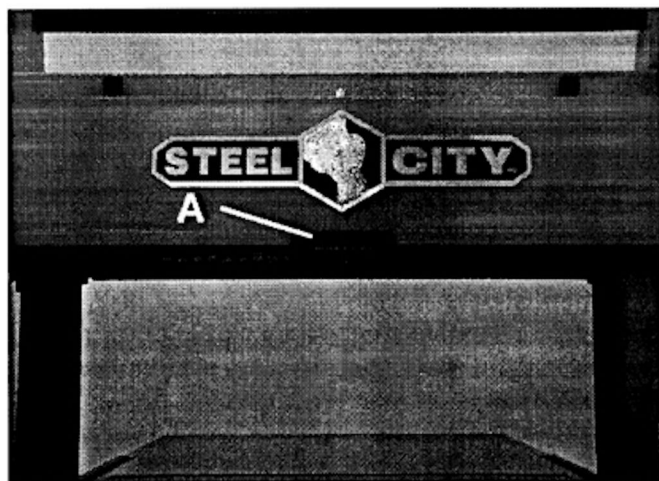
▲CAUTION

The feed rate should be set **ONLY** while planer is running, and **BEFORE** the workpiece is inserted into the planer. **DO NOT** attempt to change speeds after the cutting operation has started.

DEPTH LIMITER

This planer is equipped with a depth limiter (A), located at the bottom of the cutterhead casting, which controls the maximum depth of cut to 1/8". **SEE FIG 31.** With the limiter installed, you will not be able to cut more than 1/8" in a single pass. While it is possible to plane as much as 1/8" at a time, it is not recommended. Taking more shallow passes will improve the quality of your work as well as extend the life of your planer.

Fig. 31

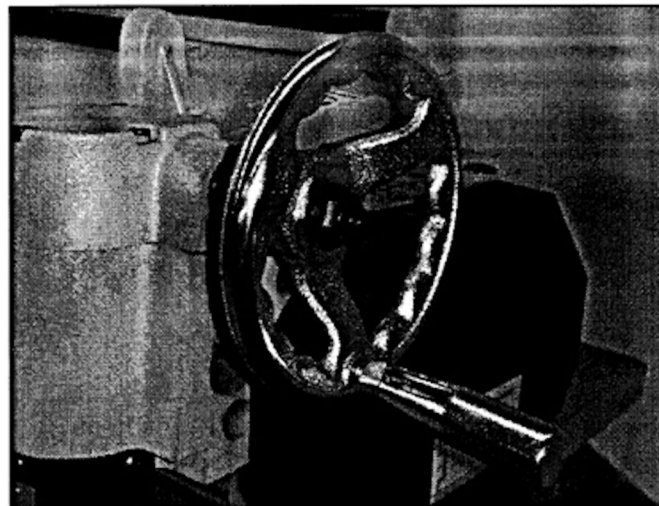


NOTICE: To avoid mechanical damage to the planer, do not remove the depth limiter.

HANDLE WHEEL

Turning the handwheel clockwise will raise the main table while turning it counterclockwise will lower the table. Crank the handwheel to raise or lower the table according to the desired workpiece thickness. **SEE FIG 32.**

Fig. 32



TRIAL RUN

Once all the assembly is complete and the adjustments are complete, it's time for a test run.

1. Turn on the power supply
2. Press the start button. Keep your hand near the switch, ready to shut the machine down quickly in case anything does not sound right or if there appears to be a problem.
3. The planer should run smoothly with little to no vibration or rubbing noises. If any strange noise is noticed, shut down machine and recheck all adjustments.

▲WARNING

Do not attempt to make adjustments while the machine is running. Make certain the machine is disconnected from the power source and the machine has come to a complete stop.

▲WARNING



ALWAYS wear eye protection. Any machine can throw debris into the eyes during operations which could cause severe and permanent eye damage, Everyday eyeglasses are **NOT** safety glasses. **ALWAYS** wear Safety Goggles(that comply with ANSI standard Z87.1)when operating power tools.

GENERAL

Make a habit of inspecting your planer each time you use it. Check the following conditions and repair or replace as necessary.

1. Worn Switch
2. Damaged cords and/or plugs
3. Damaged belts
4. Loose bolts
5. Any other condition that could hamper the safe operation of the machine

TABLE

The table and other non-painted surfaces on the planer should be protected against rust. Be sure to wipe the table clean after every use. This will help prevent moisture from the wood condensing on the bare metal table. It is also a good idea to use a paste wax on the bare metal surfaces. This will help keep moisture from the table and hence help keep it from rusting. Over time, some rust may still develop on the table. To get rid of the rust, use some WD-40 and a fine steel wool.

KNIVES

Make sure that your knives are sharp and properly adjusted before each use. The sharpness and proper setting of the knives is essential to good planing. Refer back to the section on knives in this manual for detailed instructions.

LUBRICATION

BEARINGS

Your planer is equipped with factory sealed bearings requiring no lubrication during its lifetime. If the bearing should fail, the planer will produce a pronounced rumble that will get even louder under load. If it is allowed to get worse, overheating can occur and eventually the bearing can seize up, possibly causing damage to other parts of the machine.

WORM GEAR

The worm gear should be inspected monthly and lubricated with a white lithium grease as needed. Remove the worm gear box to inspect. See parts diagram for location.

CHAIN

The table height adjustment chain should be inspected regularly and lubricated as needed. Lubricate with a general purpose grease.

GEAR BOX

Gear box oil should be drained after the first 20 hours of operation. Replace with 80W-90 gear oil for use in room temperature shops and 50W gear oil for unheated winter shops. Inspect levels periodically and change yearly for occasional use, more frequently with heavy use.

To inspect oil level,

1. Using the short end of a hex wrench, dip the wrench inside the fill hole and rotate so the long end of the wrench is parallel to the table.
2. Remove the wrench. If the end of the hex wrench is coated with oil, then the gearbox level is okay.
3. If the end of the hex wrench is not coated with oil, then you need to add more oil.
4. Remove gear box cover. For information on removing gear box cover, refer to the gear box section in the ADJUSTMENTS section of this manual, page 26.
5. Replace fill plug when finished.

DRIVE CHAIN

The drive chain should be inspected and lubricated monthly using a general purpose grease.

FEED ROLLER

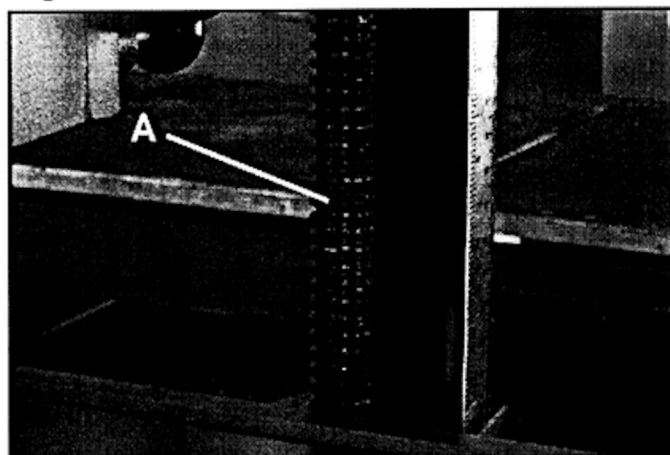
The infeed / outfeed pressure setscrews double as the lubrication ports for the rollers. Add 1-2 drops of light machine oil to all ports before every use. Daily lubrication of feed rollers is **CRUCIAL** to the operation of the planer. Lubricate before start up.

LEAD SCREWS

The four lead screws (A) should be lubricated with general purpose grease at least one a week.

SEE FIG 33.

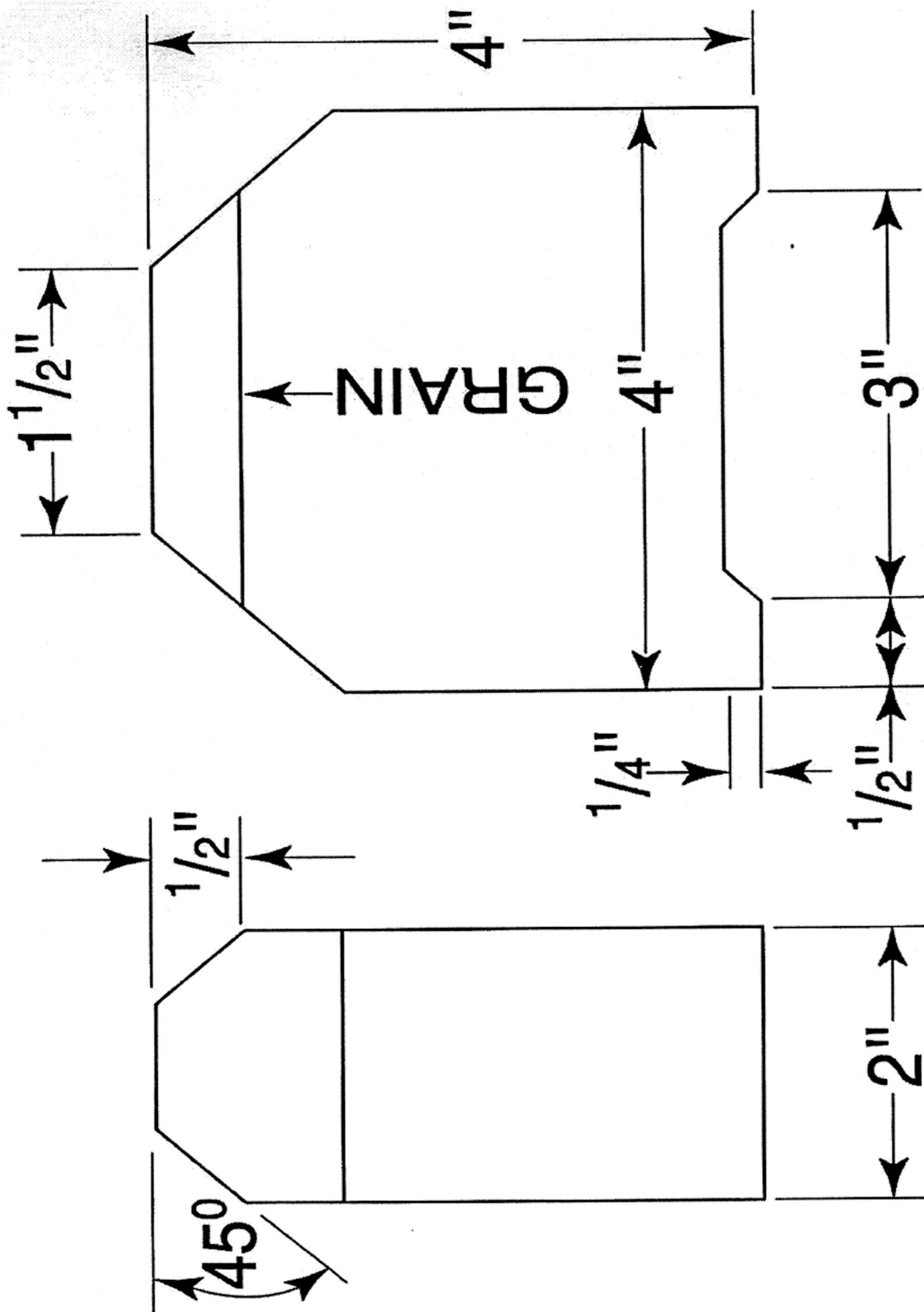
Fig. 33



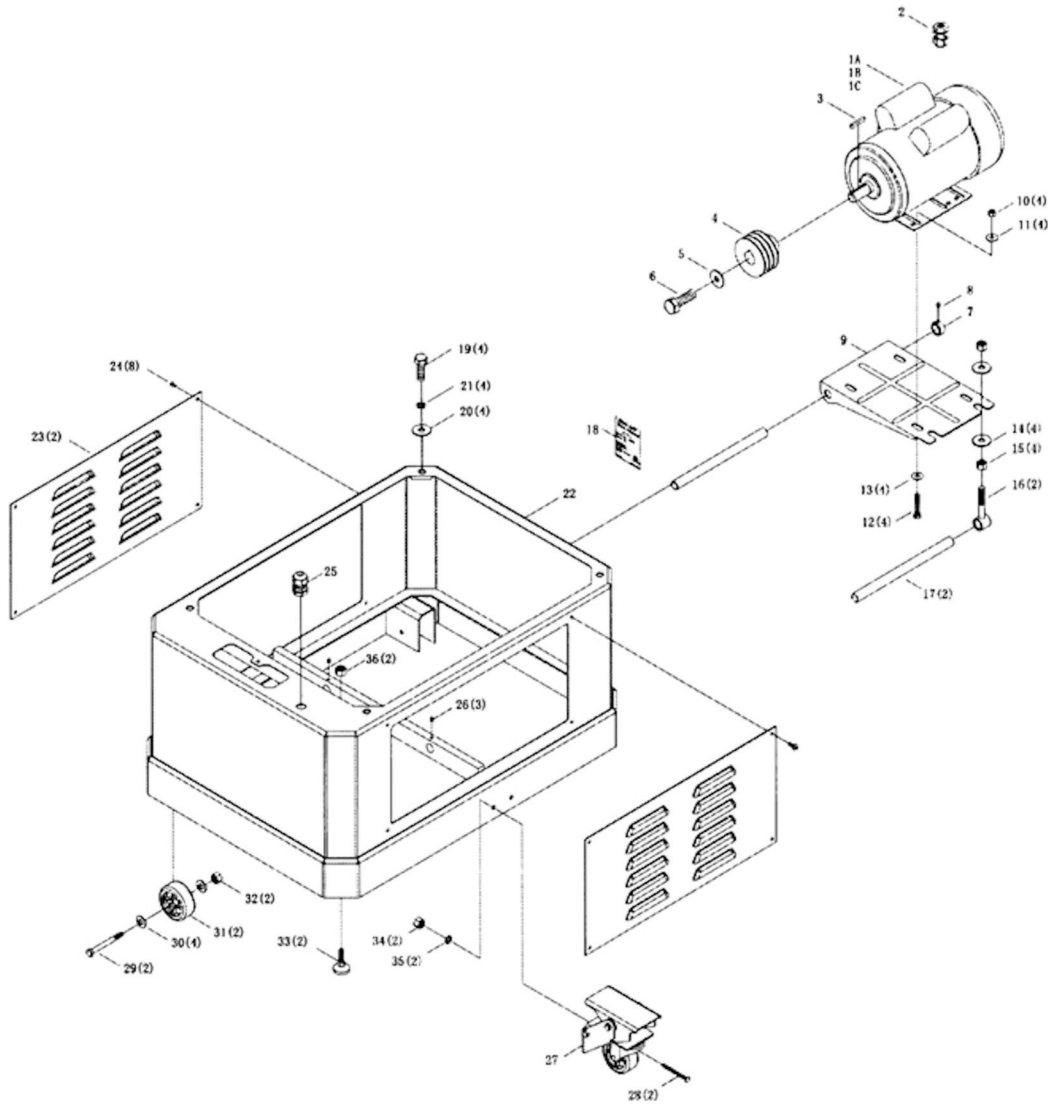
TROUBLESHOOTING GUIDE

This section covers the most common processing problems encountered in planing and what to do about them. Do not make any adjustments until planer is unplugged and moving parts have come to a complete stop. See the section on Wood Characteristics for additional troubleshooting information.

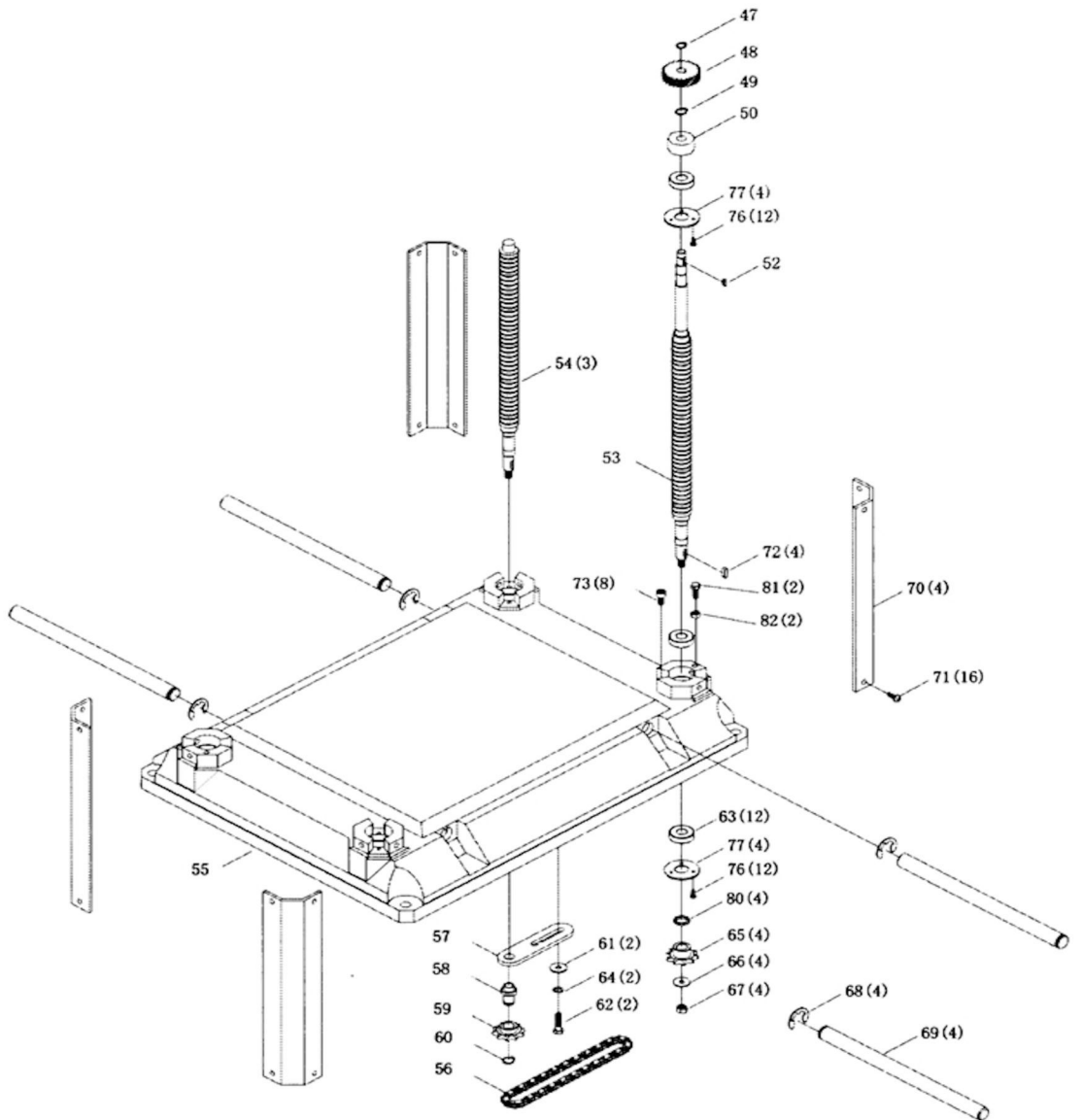
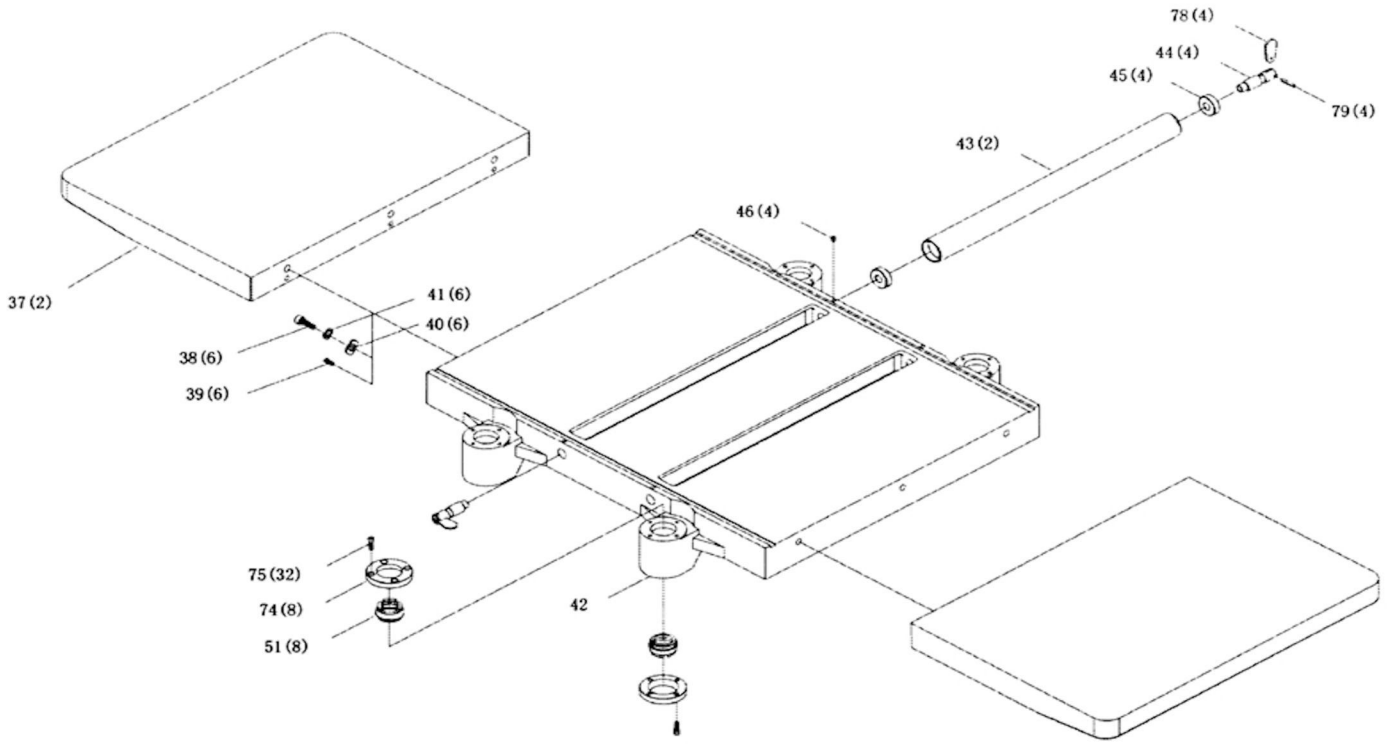
PROBLEM	LIKELY CAUSE(S)	SOLUTION
Motor will not start.	<ol style="list-style-type: none"> 1. Low voltage. 2. Open circuit in motor or loose connections. 	<ol style="list-style-type: none"> 1. Check power line for proper voltage. 2. Inspect all lead connections on motor for loose or open connections.
Motor will not start; fuses or circuit breakers blow.	<ol style="list-style-type: none"> 1. Short circuit in line cord or plug. 2. Short circuit in motor or loose connections. 3. Incorrect fuses or circuit breakers in power line. 	<ol style="list-style-type: none"> 1. Inspect cord or plug for damaged insulation and shorted wires. 2. Inspect all connections on motor for loose or shorted terminals or worn insulation. 3. Install correct fuses or circuit breakers.
Motor overheats.	<ol style="list-style-type: none"> 1. Motor overloaded. 2. Air circulation through the motor restricted. 	<ol style="list-style-type: none"> 1. Reduce load on motor. 2. Clean out motor to provide normal air circulation.
Motor stalls (resulting in blown fuses or tripped circuit).	<ol style="list-style-type: none"> 1. Short circuit in motor or loose connections. 2. Low voltage. 3. Incorrect fuses or circuit breakers in power line. 4. Motor overloaded. 	<ol style="list-style-type: none"> 1. Inspect connections on motor for loose or shorted terminals or worn insulation. 2. Correct the low voltage conditions. 3. Install correct fuses or circuit breakers. 4. Reduce load on motor.
Machine slows when operating.	<ol style="list-style-type: none"> 1. Feed rate too fast. 2. Depth of cut too great. 	<ol style="list-style-type: none"> 1. Change speed. 2. Reduce depth of cut.
Loud, repetitious noise coming from machine.	<ol style="list-style-type: none"> 1. Pulley setscrews or keys are missing or loose. 2. Motor fan is hitting the cover. 3. V-belt is defective. 	<ol style="list-style-type: none"> 1. Inspect keys and setscrews. Replace or tighten if necessary. 2. Tighten fan or shim cover. 3. Replace V-belt.
Machine is loud when cutting. Overheats or bogs down in the cut.	<ol style="list-style-type: none"> 1. Excessive depth of cut. 2. Knives are dull. 	<ol style="list-style-type: none"> 1. Decrease depth of cut. 2. Sharpen knives.
Infeed roller marks are left on the workpiece.	Depth of cut too shallow.	Increase depth of cut.
Outfeed roller marks are left on right side of workpiece.	Too much spring tension on feed roller.	Refer to Feed Roller Pressure section for adjustment.
Cannot control snipe.	Long or heavy board sags as it enters and exits.	Lift up on unsupported end of board as it enters and exits cutterhead.
Machine howls on startup.	Chip deflector too close to the cutterhead.	Move chip deflector back 1/8" to 1/4" from the cutterhead.
Table moves down while cutting.	<ol style="list-style-type: none"> 1. Knives dull. 2. Table locking knobs are loose. 	<ol style="list-style-type: none"> 1. Replace knives. 2. Tighten table locking knobs.



PARTS LIST

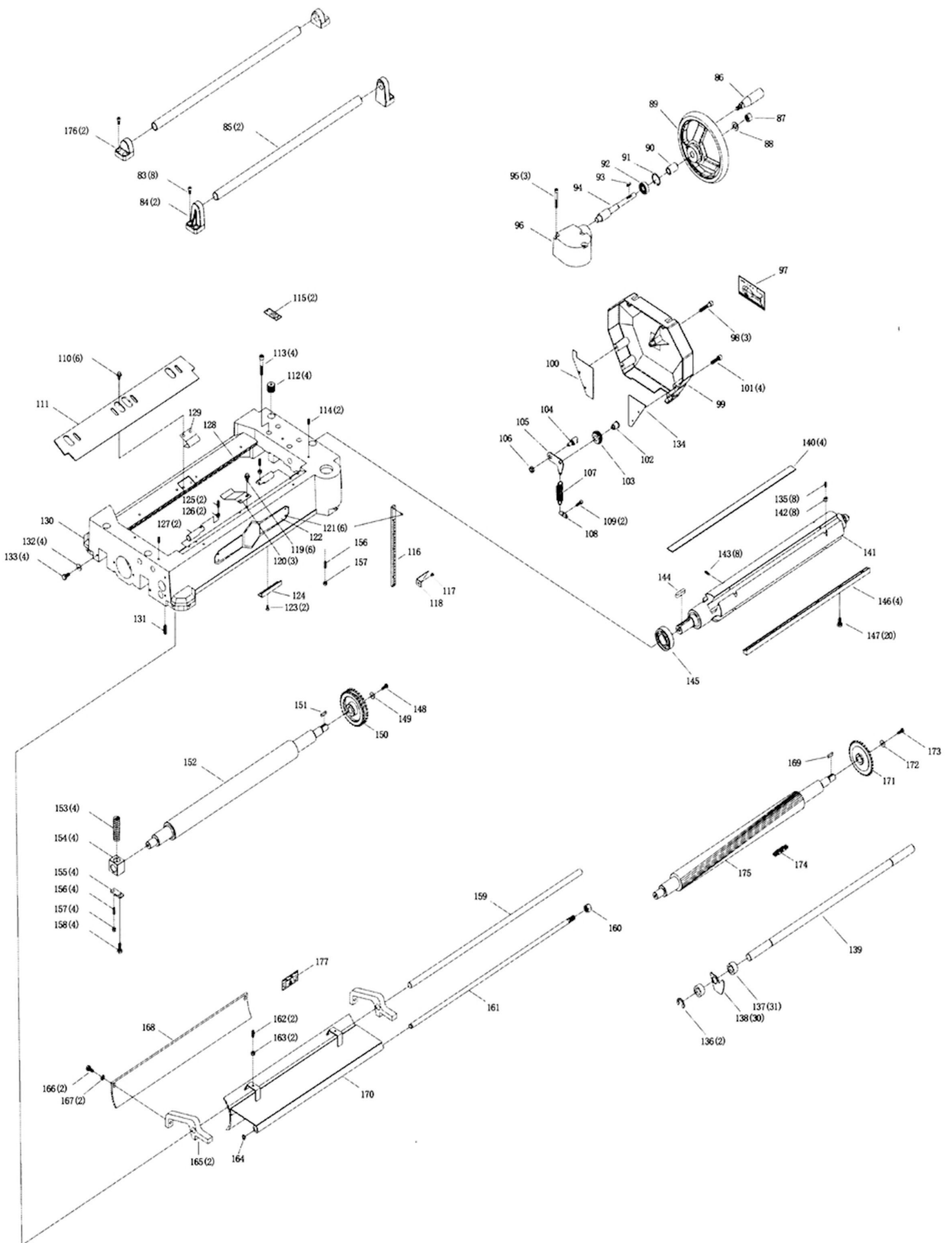


KEY NO.	PART NO.	DESCRIPTION	QTY	KEY NO.	PART NO.	DESCRIPTION	QTY
1A	SC10221	MOTOR 3HP, 220-240V,1PH	1	18	SC76019	SPEC. LABEL	1
1B	SC72008	CAPACITOR 400uf,125V	1	19	SC80108	M12 x 40mm HEX HD SCR	4
1C	SC72009	CAPACITOR 25uF,250V	1	20	OR94007	FLAT WASHER Ø13 x Ø28 x 3mm	4
2	SC71005	STRAIN RELIEF PG13.5	1	21	OR93912	M12 LOCK WASHER	4
3	SC84506	KEY 8 x 7 x 40mm	1	22	SC10225	MOTOR BASE	1
4	SC10222	MOTOR PULLEY	1	23	SC10226	COVER	2
5	SC82107	FLAT WASHER Ø8.5 x Ø30 x 3mm	1	24	OR93930	M6 x 10mm PAN HD SCR	8
6	OR93917	M8 x 20mm HEX HD SCR	1	25	SC71005	STRAIN RELIEF PG13.5	1
7	SC10010	SPACER	1	26	OR90306	M6 x 12mm HEX SOC SET SCR	3
8	OR90306	M6 x 12mm HEX SOC SET SCR	1	27	SC10016	LOCKING FOOT PEDAL	1
9	SC10223	MOTOR MOUNTING PLATE	1	28	SC80701	M8 x 65mm CARRIAGE HD SCR	2
10	OR91501	M8 HEX NUT	4	29	SC80102	M8 x 60mm HEX HD SCR	2
11	SC82105	FLAT WASHER Ø8.3 x Ø22 x 3mm	4	30	SC82106	FLAT WASHER Ø8.5 x Ø16 x 2mm	4
12	OR94348	M8 x 35mm HEX HD SCR	4	31	SC10017	WHEEL	2
13	SC82105	FLAT WASHER Ø8.3 x Ø22 x 3mm	4	32	OR91501	M8 HEX NUT	2
14	OR94007	FLAT WASHER Ø13 x Ø28 x 3mm	4	33	SC10018	MACHINERY PAD	2
15	SC81101	M12 x 1.5 HEX NUT	4	34	OR91501	M8 HEX NUT	2
16	SC10012	MOTOR ADJUSTMENT SHAFT ASSY	2	35	OR91500	M8 LOCK WASHER	2
17	SC10224	SUPPORT SHAFT	2	36	OR90228	M10 HEX NUT	2

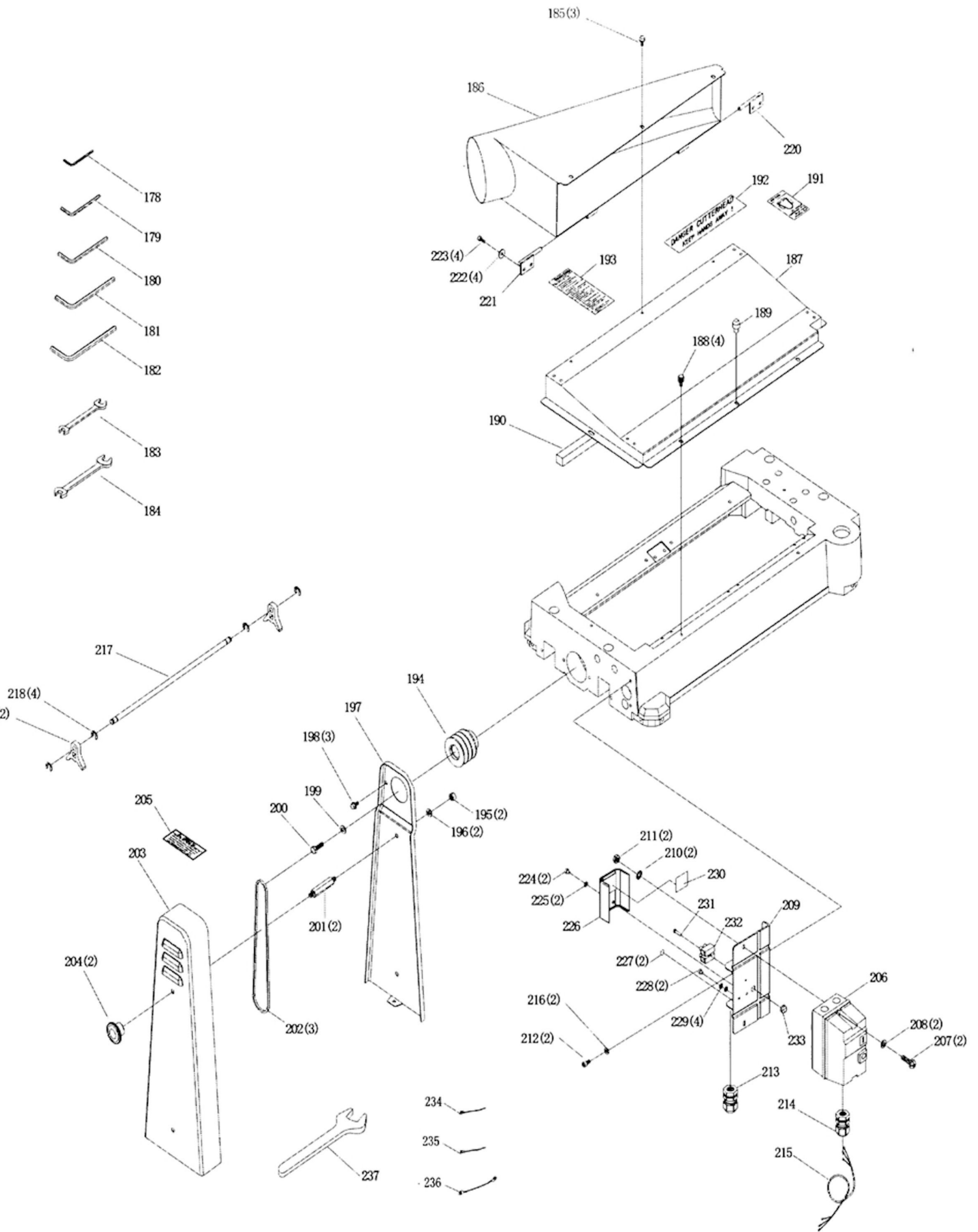


KEY NO.	PART NO.	DESCRIPTION	QTY
37	SC10227	EXTENSION WING	2
38	OR90231	M10 x 30mm HEX SOC HD SCR	6
39	OR91281	M8x20 HEX SOC SET SCR	6
40	SC82109	FLAT WASHER Ø10.2 x Ø21 x 2mm	6
41	OR90227	M10 LOCK WASHER	6
42	SC10228	BED CASTING	1
43	SC10229	BED ROLLER	2
44	SC10230	ECCENTRIC SHAFT	4
45	SC83004	BALL BEARING 608Z	4
46	OR93552	M6 x 8mm HEX SOC SET SCR	4
47	OR90132	RETAINING RING STW-12	1
48	SC10024	WORM	1
49	SC85101	RETAINING RING STW-14	1
50	SC10025	BUSHING	1
51	SC10026	ELEVATION NUT	8
52	SC84501	KEY 4x4x12mm	1
53	SC10231	SCREW POST	1
54	SC10232	SCREW POST	3
55	SC10233	BASE	1
56	SC10234	CHAIN #40-150	1
57	SC10031	CHAIN TENSIONER BRACKET	1
58	SC10032	SPROCKET SHAFT	1
59	SC10033	SPROCKET 10T	1

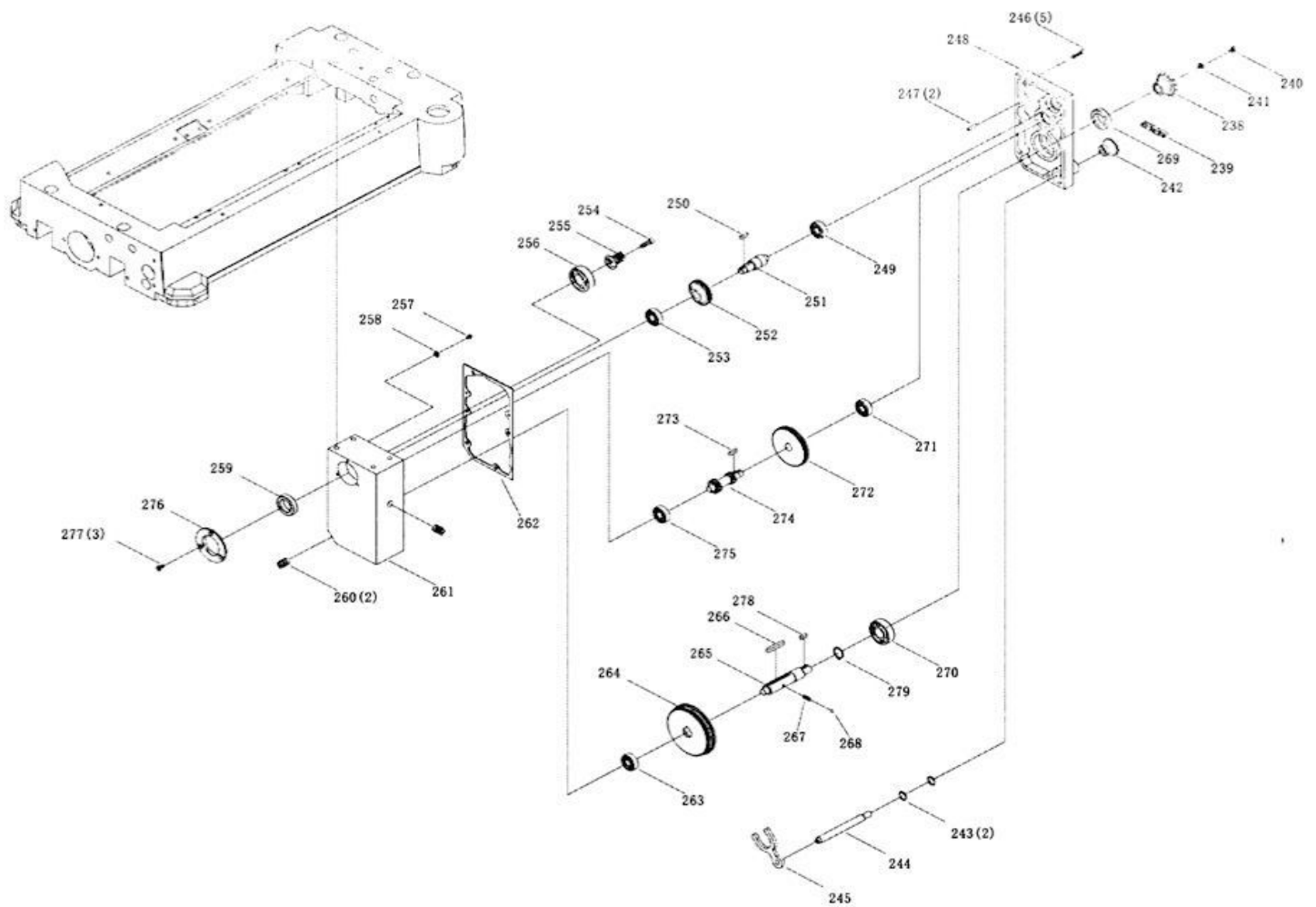
KEY NO.	PART NO.	DESCRIPTION	QTY
60	SC85102	RETAINING RING STW-15	1
61	SC82105	FLAT WASHER Ø8.3 x Ø22 x 3mm	2
62	OR93917	M8 x 20mm HEX HD SCR	2
63	OR95007	BALL BEARING 6003ZZ	12
64	OR91500	M8 LOCK WASHER	2
65	SC10033	SPROCKET 10T	4
66	SC82108	FLAT WASHER Ø10.2 x Ø20 x 2mm	4
67	SC81201	M10 LOCK NUT(8.3B)	4
68	SC85302	E-RING ETW-19	4
69	SC10035	SHAFT	4
70	SC10235	COLUMN SUPPORT	4
71	SC80403	M8x16mm PAN HD SCR	16
72	SC84504	KEY 5x5x16mm	4
73	OR93372	M6 x 12mm HEX SOC HD SCR	8
74	SC10037	ADJUSTING RING	8
75	SC80607	M5 x 12mm HEX SOC HD NYLOCK SCR	32
76	OR93372	M6 x 12mm HEX SOC HD SCR	24
77	SC10038	BEARING RETAINER	8
78	SC10039	ADJUSTING PLATE	4
79	SC84001	SPRING PIN Ø3 x 14	4
80	SC10040	SPACER	4
81	OR92191	M6x25 HEX HD SCR	2
82	OR90235	M6 HEX NUT	2



KEY NO.	PART NO.	DESCRIPTION	QTY	KEY NO.	PART NO.	DESCRIPTION	QTY
83	OR93899	M6x16mm HEX SOC HD SCR	8	131	SC80601	M8 x 16mm HEX SOC SET SCR	1
84	SC10041	FRONT ROLLER BRACKET	2	132	SC82104	FLAT WASHER Ø6.2 x Ø24 x 3mm	4
85	SC10236	ROLLER	2	133	OR90333	M6 x 12mm HEX HD SCR	4
86	Sc10043	HANDLE	1	134	SC10066	SIDE COVER GUARD	1
87	OR94176	M12 HEX NUT	1	135	OR93945	SCR HEX SOC SET M5 X 16mm	8
88	OR94007	FLAT WASHER Ø13xØ28x3mm	1	136	SC85301	E-RING ETW-15	2
89	SC10044	HANDLE WHEEL	1	137	SC10067	SPACER3	1
90	SC10045	SPACER	1	138	SC10068	ANTI-KICKBACK FINGER	30
91	SC85103	RETAINING RING RTW-32	1	139	SC10248	ANTI-KICKBACK SHAFT	1
92	SC83001	BALL BEARING 6201-2RS	1	140	SC10262	KNIFE	4
93	SC84502	KEY 4x4x16mm	1	141	SC10263	CUTTERHEAD	1
94	SC10046	ELEVATING WORM SHAFT	1	142	SC10072	ADJUST SCREW	8
95	SC80202	M6x55mm HEX SOC HD SCR	3	143	SC10073	Ø0.6xØ6x16mm SPRING	8
96	SC10047	WHEEL BRACKET	1	144	SC84506	KEY 8 x 7 x 40mm	1
97	OR71001	GEAR BOX OPERATION LABEL	1	145	SC83003	BALL BEARING 6206-2RS	1
98	OR90847	M5 x 25mm HEX SOC HD SCR	3	146	SC10264	KNIFE LOCKING BAR	4
99	SC10048	SIDE COVER	1	147	SC10075	HEX SCREW	20
100	SC10049	SIDE COVER GUARD	1	148	OR94038	M6x16mm HEX HD SCR	1
101	OR94374	M5 x 10mm HEX SOC HD SCR	4	149	SC82104	FLAT WASHER Ø6.2xØ24x3mm	1
102	SC10050	CHAIN TENSIONER SHAFT	1	150	SC10076	OUTFEED ROLLER SPROCKET	1
103	SC10051	CHAIN TENSIONER	1	151	SC84505	KEY 5x5x20mm	1
104	SC10052	SHAFT	1	152	SC10249	OUTFEED ROLLER	1
105	SC10053	BRACKET	1	153	SC10078	SPRING Ø3.5xØ19.5x70mm	4
106	SC10054	WASHER	1	154	SC10079	BUSHING	4
107	SC10055	SPRING	1	155	SC10080	RETAINER PLATE	4
108	SC10056	SPRING HOOK PLATE	1	156	OR93951	M6x16mm HEX SOC HD SET SCR	5
109	OR93372	M6 x 12mm HEX SOC HD SCR	2	157	OR90235	M6 HEX NUT	5
110	OR94029	M6x12mm HEX HD SERRATED SCR	6	158	OR93918	M8x16mm HEX HD SCR	4
111	SC10237	CHIP DEFLECTOR	1	159	SC10250	SUPPORT SHAFT	1
112	SC10058	SCREW	4	160	OR94176	M12 HEX NUT	1
113	OR90249	M8 x 50mm HEX SOC HD SCR	4	161	SC10251	CHIP BREAKER SHAFT	1
114	OR93951	M6 x 16mm HEX SOC SET SCR	2	162	OR94280	M6 x 20mm HEX SOC SET SCR	2
115	SC76008	OIL LEVEL LABEL	2	163	OR90235	M6 HEX NUT	2
116	SC76020	SCALE	1	164	OR90132	RETAINING RING STW12	1
117	OR90867	M5x10 PAN HD SCR	1	165	SC10083	PRESSURE BAR MOUNT	2
118	SC10059	POINTER	1	166	OR93917	M8x20mm HEX HD SCR	2
119	OR94029	M6 x 12mm HEX HEAD SERRATED SCR	6	167	OR91500	LOCK WASHER M8	2
120	SC10060	SPRING PLATE	3	168	SC10084	PRESSURE BAR	1
121	SC84301	RIVET Ø2x8mm	6	169	SC84505	KEY 5x5x20mm	1
122	OR70484	NAME PLATE	1	170	SC10085	CHIP BREAKER1	1
123	OR90867	M5 x 10mm PAN HD SCR	2	171	SC10086	INFEEED ROLLER SPROCKET 31T1	1
124	SC10061	LIMIT PLATE	1	172	SC82104	FLAT WASHERØ6.2xØ24x3mm1	1
125	OR94280	M6 x 20mm HEX SOC SET SCR	2	173	OR94038	M6x16mm HEX HD SCR1	1
126	OR90235	M6 HEX NUT	2	174	SC10087	CHAIN 06B-671	1
127	SC10062	ADJUSTING SHAFT	2	175	SC10253	INFEEED ROLLER1	1
128	SC10238	CHIP GASKET	1	176	SC10087	REAR ROLLER BRACKET2	2
129	SC10064	SPRING PLATE	1	177	SC76002	BLADE ADJUST LABEL	1
130	SC10239	CUTTER HEAD CASTING	1				



KEY NO.	PART NO.	DESCRIPTION	QTY	KEY NO.	PART NO.	DESCRIPTION	QTY
178	OR90808	WRENCH 2.5mm	1	208	SC82101	FLAT WASHER Ø5.1 x Ø10 x 1mm	2
179	OR90804	WRENCH 3mm	1	209	SC10100	SWITCH MOUNT	1
180	Or90805	WRENCH 4mm	1	210	OR90362	M5 EXT TOOTH WASHER	2
181	OR93547	WRENCH 5mm	1	211	OR90799	M5 HEX NUT	2
182	OR92172	WRENCH 6mm	1	212	OR93899	M6x16mm HEX SOC HD SCR	2
183	OR90908	OPEN END WRENCH 8mm/10mm	1	213	SC71005	STRAIN RELIEF PG13.5	1
184	OR93975	OPEN END WRENCH 12mm/14mm	1	214	SC71005	STRAIN RELIEF PG13.5	1
185	OR94029	M6 x 12mm HEX HD SERRATED SCR	3	215	SC72010	MOTOR CORD	1
186	SC10254	DUST CHUTE	1	216	OR90509	LOCK WASHER M6	2
187	SC10255	DUST HOOD	1	217	SC10101	KNIFE SETTING GAGE SHAFT	1
188	SC10098	KNOB M6x26	4	218	OR94216	E-RING ETW9	4
189	OR72722	PLUNGER	1	219	SC10102	KNIFE SETTING GAGE	2
190	SC10256	CHIP GASKET	1	220	SC10103	PIVOT LEFT	1
191	SC76003	GLASSES/RESPIRATOR LABEL	1	221	SC10104	PIVOT RIGHT	1
192	SC76004	DANGER LABEL	1	222	SC82102	FLAT WASHER Ø5,2xØ12x2mm	4
193	SC76005	WARNING LABEL	1	223	OR90877	M5x12mm HEX SOC HD SCR	4
194	SC10094	CUTTERHEAD PULLEY	1	224	OR94841	M5 x 6mm PAN HEAD SCREW	2
195	OR91501	M8 HEX NUT	2	225	OR90362	M5 EXT TOOTH WASHER	2
196	SC82105	FLAT WASHER Ø8.3 x Ø22 x 3mm	2	226	SC10220	JUNCTION BOX COVER	1
197	SC10257	BELT GUARD REAR	1	227	SC76017	GROUNDING LABEL	2
198	OR94029	M6 x 12mm HEX HD SERRATED SCR	3	228	OR94841	M5x6mm PAN HEAD SCR	2
199	SC82107	FLAT WASHER Ø8.5 x Ø30 x 3mm	1	229	OR90362	M5 EXT TOOTH WASHER	4
200	OR92735	M8x25mm HEX HD SCR	1	230	SC76018	WIRING DIAGRAM	1
201	SC10096	BELT GUARD MOUNT	2	231	OR90264	M4x18mm PAN HD SCR	1
202	SC73002	BELT M57	3	232	SC71004	TERMINAL BLOCK PA16	1
203	SC10257	BELT GUARD REAR	1	233	SC10219	GROMMET	1
204	SC10098	KNOB	2	234	SC72002	WHITE LEAD WIRE	1
205	SC76006	WARNING LABEL	1	235	SC72006	BLACK LEAD WIRE	1
206	SC10258	POWER SWITCH	1	236	SC72007	GROUNDING WIRE	1
207	OR93814	M5 x 20mm PAN HD SCR	2	237	SC10261	33mmWRENCH	1



KEY NO.	PART NO.	DESCRIPTION	QTY
*	SC10105	GEAR BOX ASSY CONST. OF:	1
238	SC10106	SPROCKET 14T	1
239	SC10107	CHAIN 06B-51	1
240	OR93918	M8 x 16mm HEX HD SCR	1
241	SC82105	FLAT WASHER Ø8.3 x Ø22 x 3mm	1
242	SC10108	KNOB	1
243	SC10109	O-RING P9	2
244	SC10110	SHAFT	1
245	SC10111	SHIFTING CLAW	1
246	OR93936	M6 x 25mm HEX SOC HD SCR	5
247	SC84002	PIN Ø5 x 10mm	2
248	SC10112	GEARBOX COVER	1
249	SC83001	BALL BEARING 6201-2RS	1
250	SC84503	KEY 5 x 5 x 14mm	1
251	SC10113	SHAFT	1
252	SC10114	GEAR	1
253	SC83001	BALL BEARING 6201-2RS	1
254	OR93955	M5 x 16mm HEX SOC HD SCR	1
255	SC10115	GEAR	1
256	SC83002	BALL BEARING 6204-2RS	1
257	SC80404	M6x10mm PAN HD SCR	1

KEY NO.	PART NO.	DESCRIPTION	QTY
258	SC82103	FLAT WASHER Ø6.2xØ16x1mm	1
259	SC10116	OIL SEAL FB 25x40x10	1
260	SC10117	PLUG PT 1/4"	2
261	SC10118	GEAR BOX	1
262	SC10119	GEARBOX GASKET	1
263	SC83001	BALL BEARING 6201-2RS	1
264	SC10120	GEARASSEMBLY	1
265	SC10121	SHAFT	1
266	OR93883	KEY 5 x 5 x 50mm	1
267	SC10122	SPRING Ø0,5xØ4,5x21mm	1
268	SC10123	STEEL BALL Ø5	1
269	SC10124	OIL SEAL FB 20x35x7	1
270	SC83002	BALL BEARING 6204-2RS	1
271	SC83001	BALL BEARING 6201-2RS	1
272	SC10125	GEAR	1
273	OR94061	KEY 5 x 5 x 10mm	1
274	SC10126	SHAFT	1
275	SC83001	BALL BEARING 6201-2RS	1
276	SC10127	GEAR BOX COVER	1
277	OR90867	M5 x 10mm PAN HD SCR	3
278	SC84505	KEY 5x5x20mm	1
279	OR94227	RETAINING RING STW-20	1