

***Grizzly***  
***Industrial, Inc.*** ®

**15" PLANER**  
**MODEL G1021Z**  
**INSTRUCTION MANUAL**



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JANUARY, 2000 PRINTED IN U.S.A.

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# SECTION 1: SAFETY

## WARNING

### For Your Own Safety Read Instruction Manual Before Operating This Equipment

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words which are intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures.



Indicates an imminently hazardous situation which, if not avoided, WILL 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, MAY result in minor or moderate injury. It may also be used to alert against unsafe practices.

## NOTICE

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

## WARNING

### Safety Instructions For Power Tools

1. **KEEP GUARDS IN PLACE** and in working order.
2. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning on.
3. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents.
4. **DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use power tools in damp or wet locations, or where any flammable or noxious fumes may exist. Keep work area well lighted.
5. **KEEP CHILDREN AND VISITORS AWAY.** All children and visitors should be kept a safe distance from work area.
6. **MAKE WORK SHOP CHILD PROOF** with padlocks, master switches, or by removing starter keys.
7. **DON'T FORCE TOOL.** It will do the job better and safer at the rate for which it was designed.
8. **USE RIGHT TOOL.** Don't force tool or attachment to do a job for which it was not designed.

# WARNING

## Safety Instructions For Power Tools

- 9. USE PROPER EXTENSION CORD.** Make sure your extension cord is in good condition. Conductor size should be in accordance with the chart below. The amperage rating should be listed on the motor or tool nameplate. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Your extension cord must also contain a ground wire and plug pin. Always repair or replace extension cords if they become damaged.

Minimum Gauge for Extension Cords

AMP RATING	LENGTH		
	25ft	50ft	100ft
0-6	18	16	16
7-10	18	16	14
11-12	16	16	14
13-16	14	12	12
17-20	12	12	10
21-30	10	10	No

- 10. WEAR PROPER APPAREL.** Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
- 11. ALWAYS USE SAFETY GLASSES.** Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
- 12. SECURE WORK.** Use clamps or a vise to hold work when practical. It's safer than using your hand and frees both hands to operate tool.

- 13. DON'T OVERREACH.** Keep proper footing and balance at all times.
- 14. MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- 15. DISCONNECT TOOLS** before servicing and changing accessories, such as blades, bits, cutters, and the like.
- 16. REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure switch is in off position before plugging in.
- 17. USE RECOMMENDED ACCESSORIES.** Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury.
- 18. CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
- 19. NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.** Don't leave tool until it comes to a complete stop.

## **WARNING**

# Additional Safety Instructions For Planers

1. Ensure that the machine sits firmly on the floor before use. Any “wobbles” must be corrected by shimming or blocking before operation.
2. This machine is not designed to process any other material except wood.
3. Never position fingers or thumbs near the infeed roller.
4. Long stock should always be fully supported by some type of support fixture.
5. Do not operate planer with dull or damaged knives.
6. Ensure that the planer is properly adjusted before using.
7. Do not remove excessive amounts of wood in a single pass.
8. Inspect your stock before planing. Reject stock with defects and foreign material.
9. Do not attempt to remove jams until power is disconnected and all moving parts have come to a complete stop.
10. Provide adequate infeed and outfeed space for operating the planer.
11. Do not plane wood less than 12" long and ¼" thick.
12. Do not plane lumber with loose knots or knots that may become loose during planing.

## **WARNING**

Like all power tools, there is danger associated with the Model G1021Z 15" Planer. Use the tool with respect and caution to lessen the possibility of mechanical damage or operator injury. If normal safety precautions are overlooked or ignored. Serious personal injury may occur.

## **CAUTION**

No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment or poor work results.

## **WARNING**

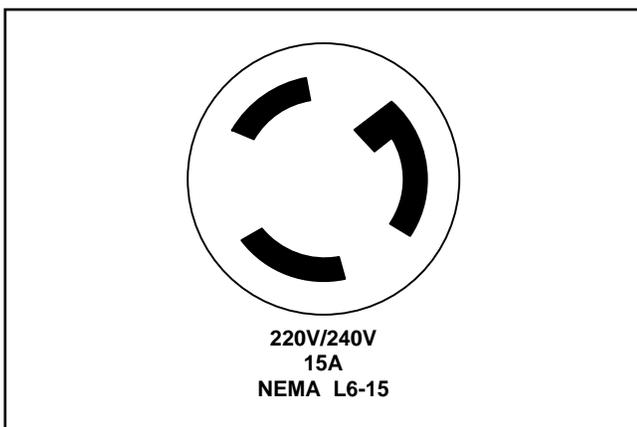
Operation of this equipment has the potential to propel debris into the air which can cause eye injury. Always wear safety glasses or goggles when operating equipment. Everyday glasses or reading glasses only have impact resistant lenses, they are not safety glasses. Be certain the safety glasses you wear meet the appropriate standards of the American National Standards Institute (ANSI).

# SECTION 2: CIRCUIT REQUIREMENTS

## 220V Operation

The G1021Z Planer motor is wired to operate at 220V only. A cordset without a 220V plug is included with the Model G1021Z. Plugs and receptacles can be purchased at your local hardware store or home center. Contact your local electrical contractor if uncertain about connecting to a 220V circuit.

When operating at 220V, we recommend using a NEMA-style 6-15 plug and outlet as depicted in **Figure 1**. You may also “hard-wire” the planer directly to your panel, provided you place a disconnect switch near the machine. Check the electrical codes in your area for specifics on wiring requirements.



**Figure 1.** NEMA 6-15 220V/15A connector.

## Fusing

Under normal load, the Model G1021Z draws about 12 amps. We recommend a 15-amp circuit or a 20-amp slow-blow fuse. A circuit rated any higher will not adequately protect the motor.

Equipment returned to us for service that shows evidence of being over-fused will be repaired or replaced totally at the customer's expense, regardless of the present warranty status.

G1021Z 15" Planer

## Grounding

In the event of an electrical short, grounding reduces the risk of electric shock by providing a path of least resistance to disperse electric current. This tool is equipped with a power cord having an equipment-grounding conductor. The outlet must be properly installed and grounded in accordance with all local codes and ordinances.

### **WARNING**

**This equipment must be grounded.** Please ensure that this machine is continuously grounded from the motor to the machine frame and then to a known ground. Verify that any existing electrical outlet and circuit you intend to plug into is actually grounded. If it is not, it will be necessary to run a separate 12 A.W.G. copper grounding wire from the outlet to a known ground. Under no circumstances should the grounding pin from any three-pronged plug be removed. **Serious personal injury may occur.**

## Extension Cords

We do not recommend the use of extension cords on 220V equipment. It is much better to arrange the placement of your equipment and the installed wiring to eliminate the need for extension cords. Should it be necessary to use an extension make sure the cord is rated Hard Service (grade S) or better. Refer to the chart in Section 1: Safety Instructions to determine the minimum gauge for the extension cord. The extension cord must also contain a ground wire and plug pin. Always repair or replace extension cords when they become worn or damaged.



# SECTION 3: GENERAL INFORMATION

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## Commentary

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We are proud to offer the Grizzly Model G1021Z 15" Planer. The Model G1021Z is part of a growing Grizzly family of fine woodworking machinery. When used according to the guidelines set forth in this manual, you can expect years of trouble-free, enjoyable operation and proof of Grizzly's commitment to customer satisfaction.

The Model G1021Z is intended for home and professional use. The G1021Z features a 3 HP, 220V single-phase motor with an easy Off magnetic power switch, jack screw and/or spring loaded knife setting, triple belt drive, large side-mounted handwheel and a solid one-piece cabinet stand.

A number of optional accessories for the Model G1021Z are available through the Grizzly catalog. They include a heavy-duty mobile base, roller stands, replacement knives and Planer Pal® planer jigs, which are invaluable when setting up or adjusting your planer's cutting knives.

We are also pleased to provide this manual with the Model G1021Z. It was written to guide you through assembly, review safety considerations, and cover general operating procedures. It represents our effort to produce the best documentation possible. If you have any comments regarding this manual, please write to us at the address below:

Grizzly Industrial, Inc.  
c/o Technical Documentation  
P.O. Box 2069  
Bellingham, WA 98227-2069

Most importantly, we stand behind our machines. If you have any service questions or parts requests, please call or write us at the location listed below.

Grizzly Industrial, Inc.

2406 Reach Road

Williamsport, PA 17701

Phone: (570) 326-3806

Fax: (800) 438-5901

E-Mail: techsupport@grizzlyindustrial.com

Web Site: <http://www.grizzly.com>

The specifications, drawings, and photographs illustrated in this manual represent the Model G1021Z as supplied when the manual was prepared. However, owing to Grizzly's policy of continuous improvement, changes may be made at any time with no obligation on the part of Grizzly. Whenever possible, though, we send manual updates to all owners of a particular tool or machine. Should you receive one, we urge you to insert the new information with the old and keep it for reference.

### CAUTION

To operate this, or any power tool, safely and efficiently, it is essential to become as familiar with its characteristics as possible. The time you invest before you begin to use your Model G1021Z will be time well spent. **DO NOT** operate this machine until you are completely familiar with the contents of this manual. Make sure you read and understand all of the safety procedures. If you do not understand something, **DO NOT** operate the machine.



# Unpacking

The planer is shipped from the factory in a carefully packed crate. If you find the machine to be damaged after you've signed for delivery and the truck and driver are already gone, you will need to file a freight claim with the carrier. Save the containers and all packing materials for inspection by the carrier or their agent. Without the packing materials, filing a freight claim can be difficult. If you need advice regarding this situation, please call us immediately.

## WARNING

The G1021Z is a heavy machine with a 540 lb. shipping weight. DO NOT over-exert yourself while unpacking or moving your machine – get assistance. In the event that your planer must be moved up or down a flight of stairs, be sure that the stairs are capable of supporting the combined weight of people and the machine. Failure to use care while assembling or moving could result in serious personal injury.



## NOTICE

A full parts list and breakdown can be found toward the end of this manual. For easier assembly, or to identify missing parts, please refer to the detailed illustrations at the end of the manual.

# Parts Inventory

After all the parts have been removed from the container, you should have:

Planer Unit on Stand	
Dust Port	
Roller Extensions (2)	
Dust Port Mounting Hardware	
Cap Screw M6 - 1.0 x 12	3
Lock Washer M6	3
Hex Bolts M6 - 1.0 x 12	3
Hex Nuts M6 - 1.0	3
Washers M6	6
Roller Extension Mounting Hardware Bag	
Hex Bolts M8 -1.25 x 20	6
Flat Washers 8mm	6
Setscrews M8 - 1.25 x 12	6
Depth Handwheel Hardware	
Handle	1
Hex Nut M10 - 1.25	1
Flat Washer 10mm	1
Scale (Hi - Lo)	1
Key	1
Knife Setting Jig	
Knife Setting Jig Rod	1
Knife Setting Jig Brackets	2
E-clips	4
Tool Kit	
Allen® Wrench 3mm	1
Allen® Wrench 4mm	1
Allen® Wrench 5mm	1
Allen® Wrench 6mm	1
Open End Wrench 8-10mm	1
Open End Wrench 12-14mm	1

In the event that any parts are missing, we will be happy to replace them. Contact our Customer Service number for assistance. If any non-proprietary parts such as nuts, bolts or washers are missing, we will be happy to replace these too, but for the sake of expediency, these items can be obtained at your local hardware store.



# Clean Up

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The unpainted surfaces are coated with a waxy oil to protect them from corrosion during shipment. Remove this protective coating with a solvent cleaner or citrus-based degreaser. Avoid chlorine-based solvents as they may damage painted surfaces should they come in contact. Always follow the usage instructions on the product you choose for clean up.

## WARNING

Follow the safety rules listed below when working with solvents.

1. Read and follow all directions and warnings on the solvent label.
2. Work only in a well ventilated area.
3. Do not work near any type of open flame (e.g., pilot lights, kerosene heaters, and so on).
4. DO NOT smoke while working with flammable material.
5. Paper towels from the cleaning process are extremely combustible. Dispose of waste towels so they do not create a fire hazard.

## CAUTION

Many of the solvents commonly used to clean machinery can be highly flammable, and toxic when inhaled or ingested. Always work in well-ventilated areas far from potential ignition sources when dealing with solvents. Use care when disposing of waste rags and towels to be sure they do not create fire or environmental hazards. Keep children and animals safely away when cleaning and assembling this machine.



# Site Considerations

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## FLOOR LOAD

Your G1021Z Planer represents a large weight load in a small footprint. Most commercial floors are suitable for the Model G1021Z. Some residential floors may require additional support to accommodate both machine and operator.

## WORKING CLEARANCES

Working clearances can be thought of as the distances between machines and obstacles that allow safe operation of every machine without limitation. Consider existing and anticipated machine needs, size of material to be processed through each machine, and space for auxiliary stands and/or work tables. Also consider the relative position of each machine to one another for efficient material handling. Be sure to allow yourself sufficient room to safely run your machines in any foreseeable operation.

## LIGHTING AND OUTLETS

Lighting should be bright enough to eliminate shadow and prevent eye strain. Electrical circuits should be dedicated or large enough to handle combined motor amp loads. Outlets should be located near each machine so power or extension cords are not obstructing high-traffic areas. Be sure to observe local electrical codes for proper installation of new lighting, outlets, or circuits.

## CAUTION

Make your shop “child safe”. Ensure that your workplace is inaccessible to youngsters by closing and locking all entrances when you are away. Never allow visitors in your shop when assembling, adjusting or operating equipment.



# SECTION 4: ASSEMBLY

## Overview

The G1021Z Planer requires very little assembly when you receive it. There are just a few easy assembly steps to get the machine ready for your shop. The machine should be properly adjusted from the factory, however should you desire to check the various settings, the following section will detail the proper adjustment procedures.

This planer unit is very heavy, approximately 480 lbs. There are lifting handles which slide out of the base of the planer head (**Figure 2**) which can be used to move the unit. These can be used as lifting points using an overhead lift, block and tackle or a forklift, or if you have three other friends who are each willing to grab a handle!

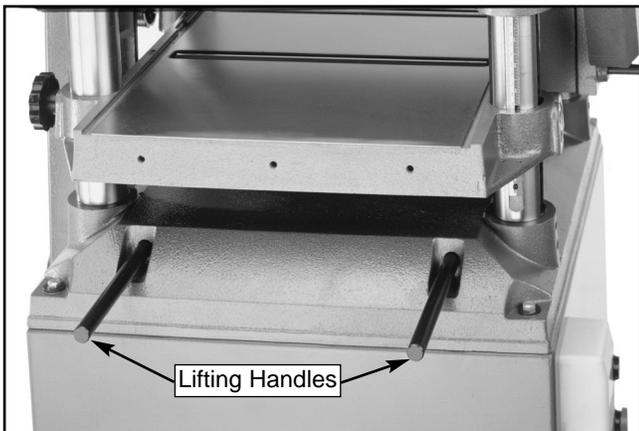


Figure 2. Location of lifting handles.

### **⚠ CAUTION**

This planer is heavy and awkward to move. We recommend that you use the proper equipment to put the planer into position in your shop or on a mobile base. Lifting without proper equipment or ample assistance could result in serious injury.



## Handwheel

The handwheel is used to raise and lower the planer table.

### TO MOUNT THE HANDWHEEL:

1. The handwheel shaft is at the front right corner of the planer. Insert the key into the keyway on the shaft, then line up the notch on the handwheel bore with the key. Slide the handwheel onto the shaft.
2. Slide the direction scale over the keyed shaft so it sits on the center face of the handwheel. **See Figure 3.**
3. Secure the handwheel with the 10mm - 1.25 hex nut and washer provided.
4. Attach the handle to the outer edge of the handwheel. The handle threads into the hole on the handwheel.



Figure 3. Handwheel attachment.



# Speed Change Knob

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Thread the black plastic knob onto the speed change shaft located on the right hand side of the machine. **See Figure 4.** Note that speed changes should only be done with the motor running. See the Operations section.



**Figure 4.** Installing speed change knob.



# Extension Rollers

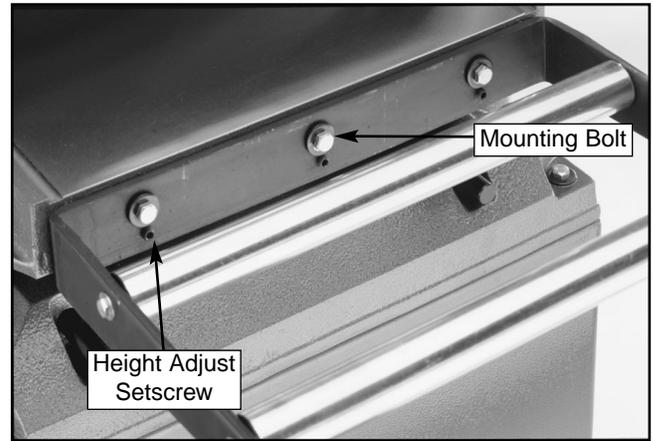
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The infeed and outfeed extension rollers support the work as it goes through the machine.

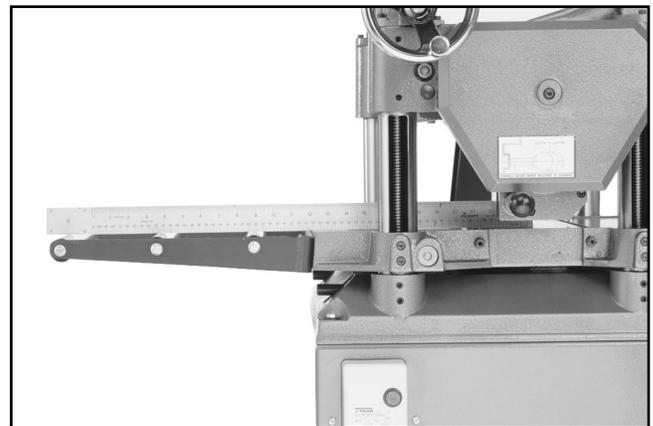
## TO MOUNT THE EXTENSION ROLLERS:

1. Thread three (3) 8mm setscrews into the mounting bracket of the extension rollers. The setscrew holes are located just below the mounting holes. Just start them into the holes for now.
2. Use three (3) hex bolts and washers to mount the extension rollers. **See Figure 5.** Make sure the roller assembly is oriented as shown in **Figure 6.**
3. Position a straightedge on the table bed, so it lays on the table and suspends over the extension rollers. **See Figure 6.**



**Figure 5.** Extension roller attachment points.

4. Move the edge of the mounting bracket which is closest to the table bed up or down until the first roller is even with the straight-edge. Tighten the mounting bolts just enough to hold that position. Now adjust the three setscrews until the roller which is furthest out is even with the straightedge. It may require various combinations of loosening and/or tightening the setscrews and bolts to level the extension rollers with the table.
5. Repeat steps 3-4 for the other extension roller assembly.



**Figure 6.** Checking extension roller height.



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# Dust Port

The G1021Z Planer features a 4" dust port for use with a dust collection system. If you will not be using a dust collection system with this planer, do not attach this dust port!

## TO ATTACH THE DUST PORT:

1. Fit the dust port over the planer upper cover. Line up the mounting holes. Three holes go through the upper cover, and three holes on the flange line up with three threaded holes on the back of the planer head.
2. Use three (3) M6 - 1.0 x 12mm hex bolts and nuts and lock washers to secure the dust port to the planer upper cover. **See Figure 7.** It will be necessary to reach inside the port opening with a wrench to hold the nut to tighten the hex bolts.
3. Use three M6 - 1.0 x 12mm cap screws and flat washers to secure the dust port to the planer body.

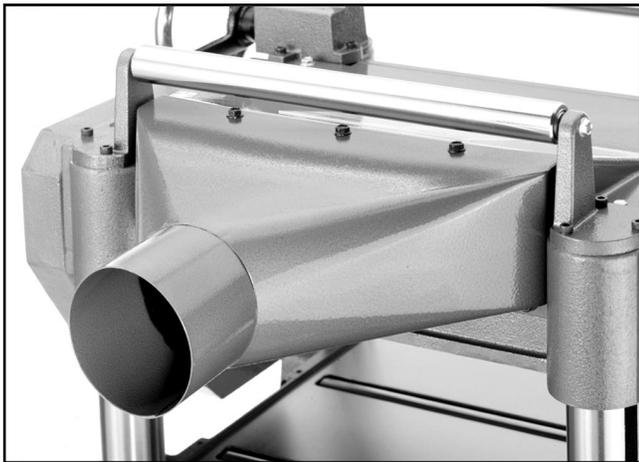


Figure 7. Dust port assembly.



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# Knife Setting Jig

The knife setting jig has been provided to make knife setting quick and easy. **See Figure 8.**

## TO ASSEMBLE THE KNIFE SETTING JIG:

1. Snap one of the E-clips over the notch on one end of the knife setting rod.
2. Slide the cast aluminum knife setting jig brackets onto the rod.
3. Snap the other E-clip onto the notch at the other end of the knife setting jig rod.

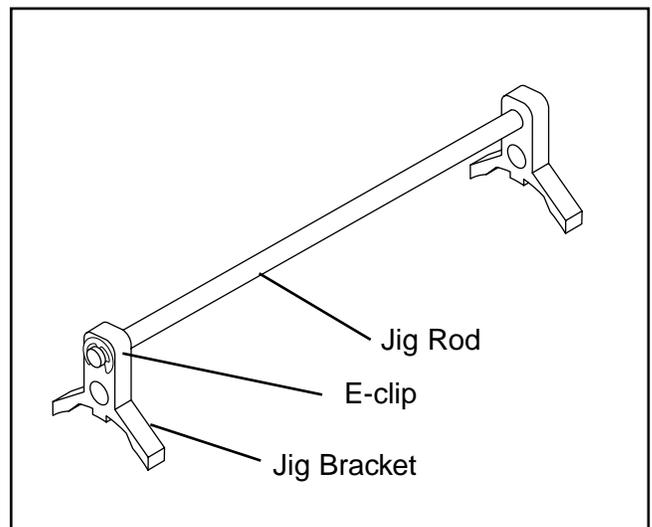


Figure 8. Knife setting jig components.

## CAUTION

Planer knives are dangerously sharp. Use extreme caution when working near cutting surfaces. Failure to exercise care while working near knives could result in severe personal injury.



# SECTION 5: ADJUSTMENTS

## Overview

Once assembly has been completed, your G1021Z 15" Planer requires just a few adjustments to ready it for use in your shop.

Many adjustments have already been made at the factory, yet we recommend you familiarize yourself with all of the following procedures to gain a better understanding of the Planer's construction and operation.

General control and adjustment locations are shown in **Figure 9**:

- A. The switch is thermally protected and magnetically controlled and features push buttons to turn the planer on and off.
- B. The handwheel raises and lowers the table and controls the depth of cut. Turning the handwheel clockwise raises the table and counter-clockwise lowers the table.
- C. The bed rollers ease stock movement through the planer and are adjustable.
- D. The three position feed rate change knob shifts planer feed speed from neutral to 16 and 20 feet per minute.
- E. The table lock knob secures the table in a fixed position.
- F. Extra large ball bearing return rollers
- G. Removable belt guard.

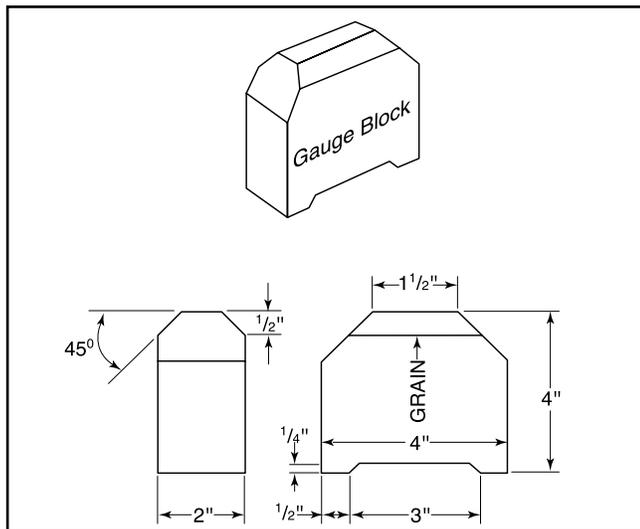


**Figure 9.** Overview of planer adjustment controls.

# Gauge Block

Before attempting any table adjustments, you will need to construct a gauge block. **See Figure 10.** A larger gauge block diagram is also included at the end of the manual for your convenience. Precision adjustments later on require accuracy when milling the gauge block. **Do not** use common 2x4 material. Use maple or similar type of hardwood.

Using a magnetic dial indicator is a good alternative to constructing a gauge block. Use the dial indicator whenever the instructions call for use of the gauge block and/or feeler gauge. Refer to the current Grizzly catalog for dial indicators.



**Figure 10.** Guide block specifications.

## **! WARNING**

**DO NOT** make adjustments while the planer is running. Ensure that the switch is off, power is disconnected and moving parts have stopped before making adjustments. Failure to comply could result in serious injury or electrical shock hazard.



# Table Adjustment

To plane stock perfectly square, it is important that the table is parallel to the cutterhead.

## **TO CHECK TABLE PARALLELISM:**

1. Place the gauge block on the table under one end of the cutterhead.
2. Turn the handwheel to raise the table until the block barely touches the cutterhead body. **The block should not be touching the knives.** See Figure 11.
3. Slide the block toward the opposite side of the cutterhead. Use a feeler gauge to measure the width of the gap, if any, between the top of the block and the bottom of the cutterhead. If there is a gap, make a note, reading the distance from the feeler gauge.
4. If the block wedges tightly between the table and cutterhead when shifting from one side to the other, repeat steps 1 through 3 above, but start from the opposite end of the cutterhead.



**Figure 11.** Guide block indicates parallelism.

If the gap difference from one side to the other is equal to or less than 0.004", no further adjustment is necessary.

# Notes

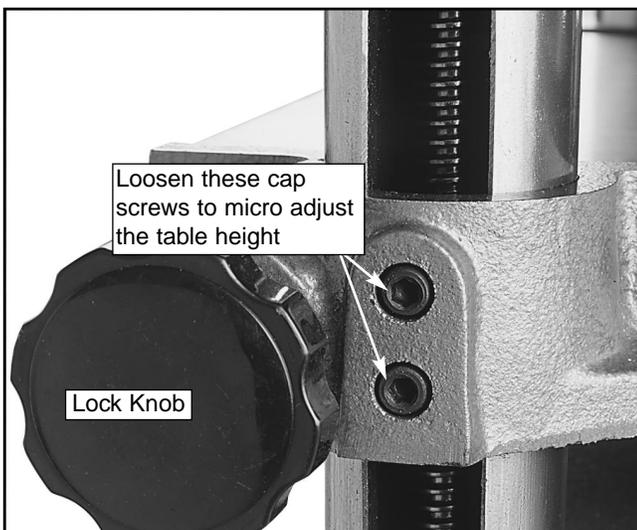
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If the gap difference from one side to the other is greater than 0.004", but less than 0.016", go to step 5.

If the gap difference from one side to the other is greater than 0.016", the table raising chain under the planer base will need to be adjusted. Please call our Customer Service number for chain adjustment instructions.

To adjust for gap differences of less than 0.016":

5. Determine which side of the table must be raised to correct the gap.
6. Locate the two cap screws in the table casting for each of the columns. **See Figure 12.** Loosen both sets of cap screws for each column on the side you wish to adjust.
7. Push down or pull up the table in the desired direction. Hold the table in position and retighten the cap screws.
8. Recheck the table to cutterhead parallelism again. Repeat steps 1 through 7 until the deviation is less than 0.004".



**Figure 12.** Cap screws for column adjustment.

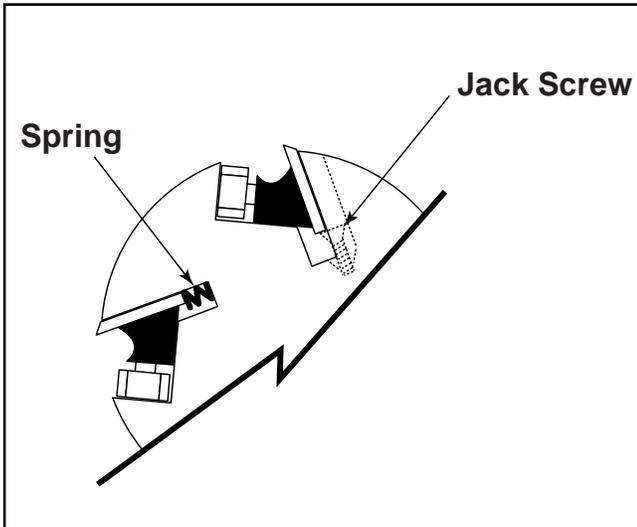


## **!WARNING**

**Planer knives are dangerously sharp. Use extreme caution when inspecting, removing, sharpening, or replacing knives into the cutterhead. Substantial risk of injury!**

# Knife Inspection

The knives are set at the factory using jack screws before shipping. Springs are also included with your machine, installed beneath the knives. These may be used instead of the jack screws depending on your preference. Refer to **Figure 13** for placement of the jack screws or springs.



**Figure 13.** Typical placement of jack screws or springs.

If you decide you prefer to use the spring adjustment method, you need to remove each knife, remove the jack screws, leave the two springs under each knife, and replace the knife.

Loosen the gib bolts until the knife is loose in the slot. The gib bolts turn clockwise to loosen and counterclockwise to tighten (when facing the head of the bolt). Carefully remove the knife. Back the jack screws out completely from the threaded hole and remove. If the springs have become dislodged in the removal process, be sure to place 1 spring in each of the two holes in bottom of the knife slot. The springs do not go into the threaded hole where the jack screws were installed. **See Figure 14.**

When using jack screws, it is not necessary to install the springs. However it will not affect the adjustment if both the springs and jack screws are in place together.



**Figure 14.** Placing springs into knife slots.

The knives of your planer must be periodically adjusted and will ultimately need to be removed for sharpening. Adjustments should be as precise as possible with tolerances within .002"-.003" to prolong the sharpness of the knife edges. Improperly adjusted knives can cause an imbalance condition in the cutterhead and shorten bearing life, as well as produce substandard planing results.

## TO INSPECT THE KNIVES:

1. **UNPLUG THE PLANER!**
2. Remove the dust port and upper cover and cutterhead guard to expose the top of the cutterhead. **See Figure 15.**



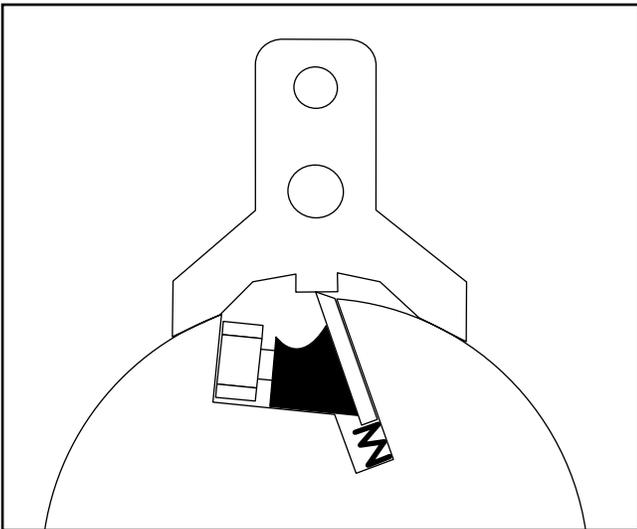
**Figure 15.** Cover Removed, Jig on cutterhead

# Knife Sharpening

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3. Remove the belt guard. Carefully turn the cutterhead (using the pulley) until the first knife is top dead center.
4. Using the knife setting gauge, check the knife height. The jig should sit solidly with both feet on the cutterhead. **See Figure 16.** If the knife is adjusted properly, the contact point at the center of each adjuster should just touch the tip of the knife. If the knife does not make contact, or if the knife causes the adjuster's legs to not seat on the cutterhead, the knives need to be adjusted. It may be helpful to mark the side of the knife with an ink marker to indicate whether it is high or low. This will make the actual adjustment process easier.



**Figure 16.** Proper knife setting jig placement.

Once you have completed inspection on all three knives, you will be able to determine whether or not there is a need to adjust the knives in the cutterhead. Proceed to the appropriate section following depending upon whether you are using the jack screws or the springs.

Knife sharpness is one of the most important factors in getting good results with the planer. Knives can be made to last a long time if care is taken in checking the condition of the wood which is put into the machine. The biggest problem will come from wood with nails or other metal embedded. This will nick or chip the knives and can require a complete regrinding. Another wear factor is sand, grit, or other dirt on the surface of the wood which the knives have to cut through. At the speed the cutterhead is rotating, these types of surface contamination can have a very abrasive effect.

This planer has knives with a grind angle of 35° which is a configuration which should suit most general planing needs. The optimal grind or bevel angle is a compromise between effective cutting (the smaller the angle the better the cutting action) and edge life where the larger the angle the more the edge is supported, thus the longer it will last.

For the best results it is best to have planer knives sharpened by a professional sharpening service which has the grinding and measurement equipment to assure that the knife cutting geometry is maintained at optimum levels. It is a procedure which requires some care and precision, otherwise, a set of blades can be easily ruined. Knives should always be ground as a set so they can be properly matched. Unequal material removal can result in an unbalanced cutterhead which can affect not only planing surface quality but ultimately the life of the cutterhead bearings.

Please refer to Section 6 Adjustments - Knife Setting for complete detail on the removal and reinstallation of planer knives.



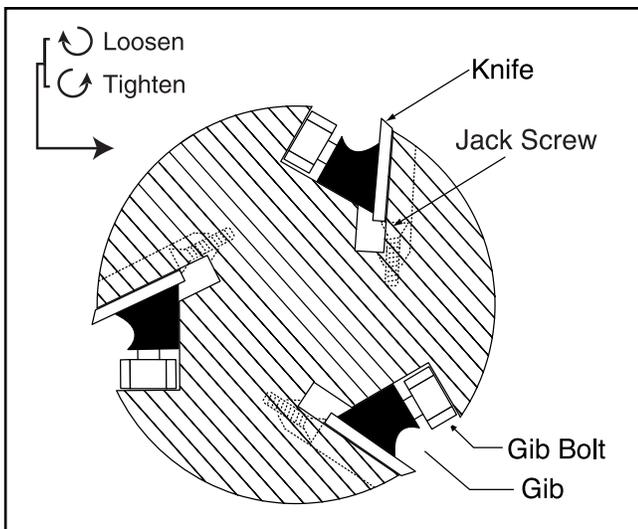
# Knife Setting

## ADJUSTMENTS USING JACK SCREWS

The knives are locked into the cutterhead with wedge-type gibs and gib bolts. Jack screws under the knives allow fine tuning to help in the setting process.

To set the knives:

1. **UNPLUG THE PLANER!**
2. Remove the upper cover 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 (when facing the head of the bolt). **See Figure 17.**



**Figure 17.** Side view with jack screws.

4. Place the knife setting jig over the knife on the cutterhead as shown in **Figure 18**. The feet should be securely planted on the cutterhead. Make sure the gauge extension rod is parallel to the cutterhead to maintain accuracy.



**Figure 18.** Tightening knives in cutterhead.

5. Adjust the screws below each end of the knife until both feet of the gauge rest evenly on the cutterhead and the knife is just touching the bottom of the middle foot of the gauge. The gauge will set the knives at a uniform protrusion of approximately  $.070''$  above the cutterhead. The knife height should vary no more than  $.002''$ -. $.003''$  across the length of the cutterhead.
6. Maintain a constant pressure on the gauge while re-tightening the gib bolts.
7. Repeat the same procedure on the remaining knives. As mentioned before, the standard knife setting gauge is satisfactory for reasonably accurate knife setting tasks.

## ⚠ CAUTION

When making adjustments, all three knives must be adjusted the same. Do not adjust one knife without adjusting the others as well. Improper knife height adjustment can result in damage to knives, poor planer performance and possible operator injury.

## ⚠ WARNING

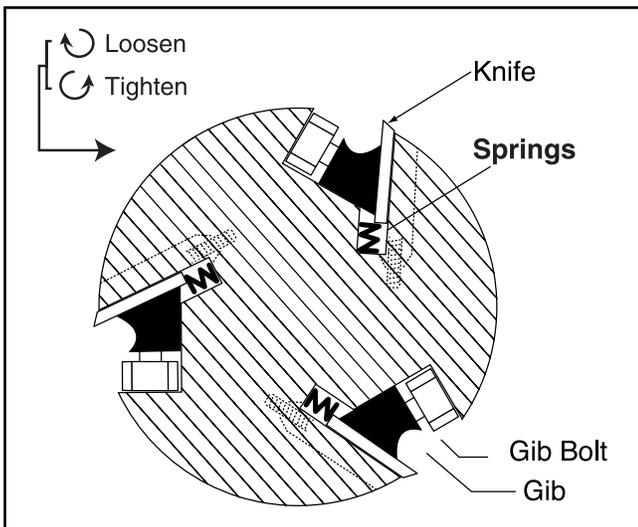
Planer knives are dangerously sharp. Use extreme caution when inspecting, removing, sharpening, or replacing knives into the cutterhead. Substantial risk of injury!



## ADJUSTMENTS USING SPRINGS

The knives are locked into the cutterhead with wedge-type gibs and gib bolts. Jack screws under the knives may be substituted with springs to help in the setting process. It is advised that the jack screws be removed when using the springs. To set the knives:

1. **UNPLUG THE PLANER!**
2. Remove the upper cover 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 (when facing the head of the bolt). **See Figure 19.**



**Figure 19.** Side view with springs.

4. Place the knife setting gauge on the cutterhead as described previously, so the feet are securely planted on the cutterhead. Make sure the gauge extension rod is parallel to the cutterhead to maintain accuracy.
5. The downward pressure provided by the gauge will set the knives at a uniform protrusion of approximately .070" above the cutter. The knife height should vary no more than .002"-.003" across the length of the cutterhead.



**Figure 20.** Tightening knives in cutterhead.

6. Maintain a constant pressure on the gauge while re-tightening the gib bolts. **See Figure 20.**
7. Repeat the same procedure on the remaining knives. As mentioned before, the standard knife setting gauge is satisfactory for reasonably accurate knife setting tasks.

### **CAUTION**

When making adjustments, all three knives must be adjusted the same. Do not adjust one knife without adjusting the others as well. Improper knife height adjustment can result in damage to knives, poor planer performance and possible operator injury.

### **WARNING**

Planer knives are dangerously sharp. Use extreme caution when inspecting, removing, sharpening, or replacing knives into the cutterhead. Substantial risk of injury!



# Chip Breaker

The chip breaker is located on the top side of the planer and extends down around the front of the cutterhead. Its function is to prevent tear-out or deep, unregulated gouging as the knives remove material. The chip breaker works by breaking the woodchips as they are being cut by the cutterhead. The chip breaker also deflects and expels the woodchips away from the surface of the board and out of the planer.

## TO ADJUST THE CHIPBREAKER:

1. Disconnect the machine from the power source, remove the dust hood and lower the table.
2. Ensure that the knives are properly adjusted.
3. Place the gauge block on the table directly under the cutterhead. Using a one millimeter (0.040") feeler gauge between the gauge block and the cutterhead, raise the table until one of the knives just touches the feeler gauge. Rotate the cutterhead manually to be sure the knife is at bottom dead center.
4. Lock the table by tightening the table lock knobs.
5. Remove the feeler gauge and slide the gauge block under the chip breaker. **See Figure 21.** The chip breaker should just touch the top of the gauge block. Slide the gauge block to the opposite end of the chip breaker and check it in the same manner.

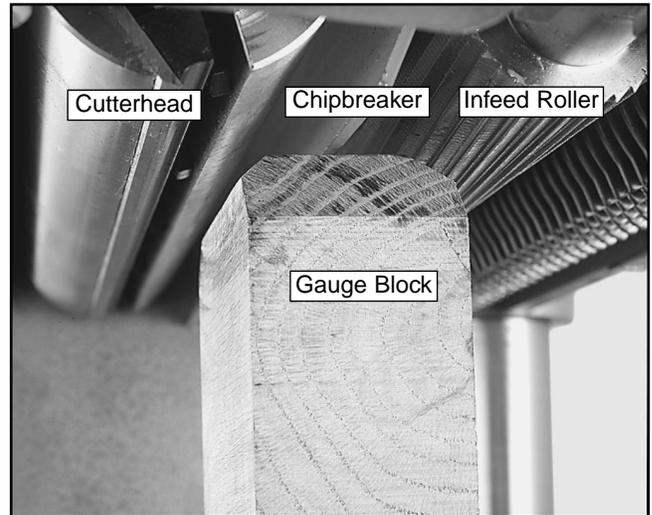


Figure 21. Location of chip breaker assembly.

6. If an adjustment is necessary, loosen the locknuts and turn the setscrews. **See Figure 22.** Stop turning when the bottom of the chip breaker just touches the gauge block.
7. Re-tighten both locknuts
8. Replace the exhaust hood.

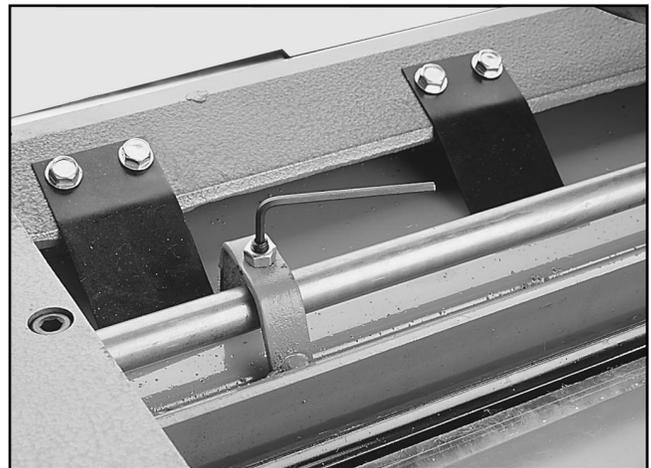


Figure 22. Chip breaker height adjustment.

## WARNING

**DO NOT make adjustments while the planer is running. Ensure that the switch is off, power is disconnected and moving parts have stopped before making adjustments. Failure to ensure that power is disconnected could result in serious injury or electrical shock hazard.**



# Feed Roller Height

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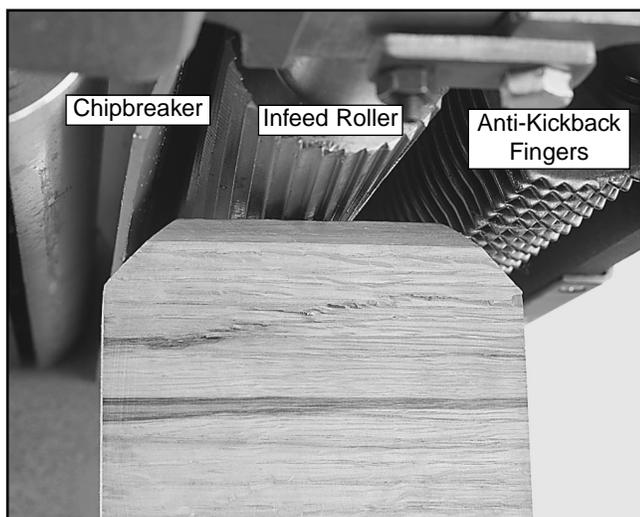
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The infeed and outfeed rollers propel the lumber through the planer. The rollers also press the lumber flat against the planer table.

Set the infeed and outfeed rollers 0.040" below the knife edge at bottom dead center.

## TO CHECK ROLLER HEIGHT:

1. Disconnect the machine from the power source.
2. Lower the table so the gauge block will fit under one side of the infeed roller.
3. Raise the table until the gauge block barely touches the infeed roller. **See Figure 23.** Do not change position of the table.
4. Slide the gauge block over so it is under the edge of one of the knives. Turn the cutterhead until one of the knives is at bottom dead center over the gauge block.
5. Measure the clearance between the top of the gauge block and the edge of the knife with a feeler gauge. Note the measurement indicated on the feeler gauge.



**Figure 23.** Feed roller height inspection.

6. Repeat steps 1-5 for the opposite side of the roller. Repeat all steps for the outfeed roller.

Feeler gauge measurement should equal 0.040".

## TO ADJUST ROLLER HEIGHT:

1. Remove the drive chain cover to access the roller adjustments on the drive chain side of the planer. A single socket head cap screw holds the drive chain cover on. Belt side adjustments are already accessible.
2. Loosen the roller adjustment check nuts and turn the roller height setscrews to change the height of the roller as needed. **See Figure 24.**
3. Check roller height according to the above instructions. Continue turning the setscrew until the roller is properly adjusted.
4. When the roller is set in the correct position, re-tighten the check nuts you loosened in Step 2 above.
5. Check your settings one last time and repeat steps 1-4 if necessary.



**Figure 24.** Feed roller height adjustment.



# Feed Roller Pressure

To be effective, the infeed and outfeed rollers must put pressure on the workpiece as it feeds through the planer. Too little pressure results in slipping boards, too much pressure results in jamming.

Experiment with the best pressure settings for your work situations. Some rough cut lumber will feed through fine with relatively few problems, while other lumber will have more difficulty.

Adjusting roller pressure does not affect height.

## TO ADJUST ROLLER PRESSURE:

1. Disconnect the machine from the power source.
2. Ensure that knives and feed rollers are set correctly.
3. Unscrew the four large pressure setscrews on top of the planer body. **See Figure 25.**

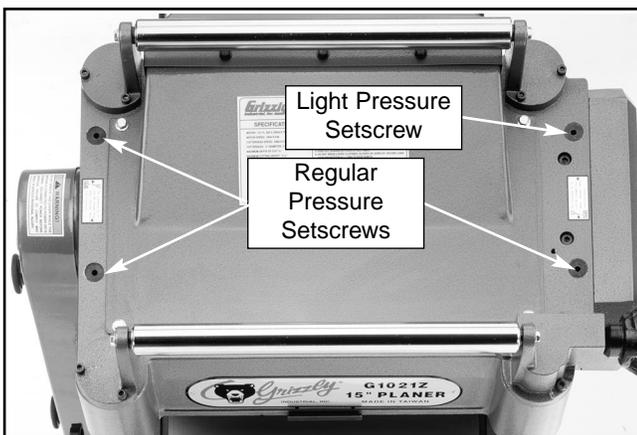


Figure 25. Roller pressure adjustment.

4. Remove the springs that are in the holes left by the setscrews. **See Figure 26.**
5. Check for any dirt or grit. Clean the springs and setscrews if dirty.
6. Screw the three regular-pressure setscrews back in until they are flush with the top of the head casting.
7. Screw the light pressure setscrew until it is approximately  $\frac{1}{4}$ " above the head casting. The feed chain applies additional tension to the right side of the outfeed roller, so the pressure added by the setscrew need not be as high.

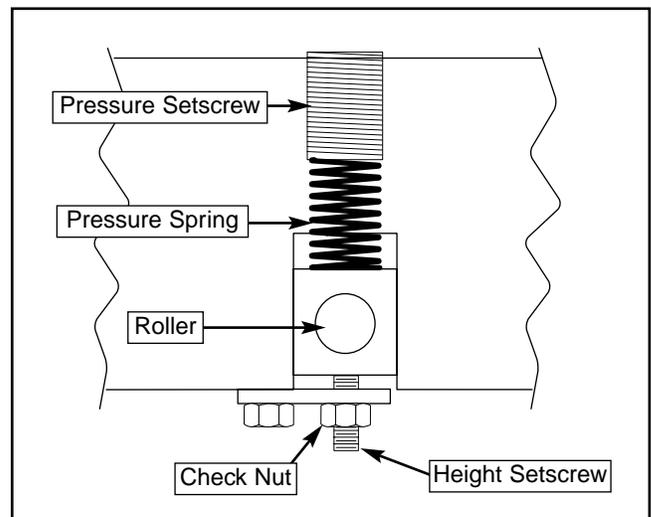


Figure 26. Roller pressure assembly.



# Bed Rollers

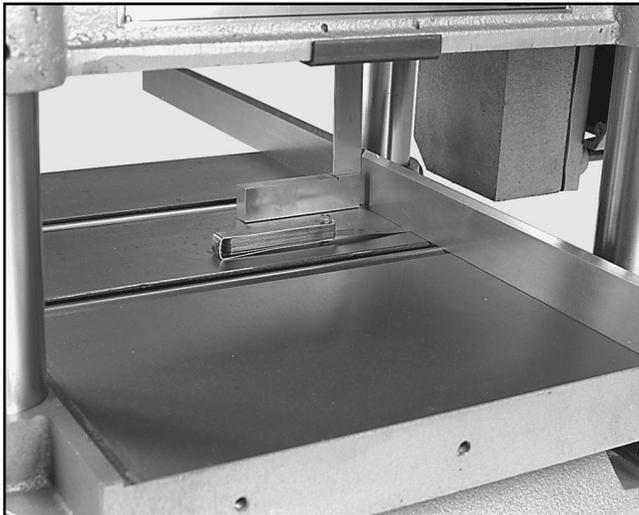
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The bed rollers ease stock movement through the planer. The height of the bed rollers will vary depending on the types of wood you will be planing. When planing rough stock, set the rollers slightly high to keep the lumber from dragging along the bed. However, snipe may be unavoidable. Smooth lumber should be planed with the rollers set just above the plane of the table. This will minimize snipe.

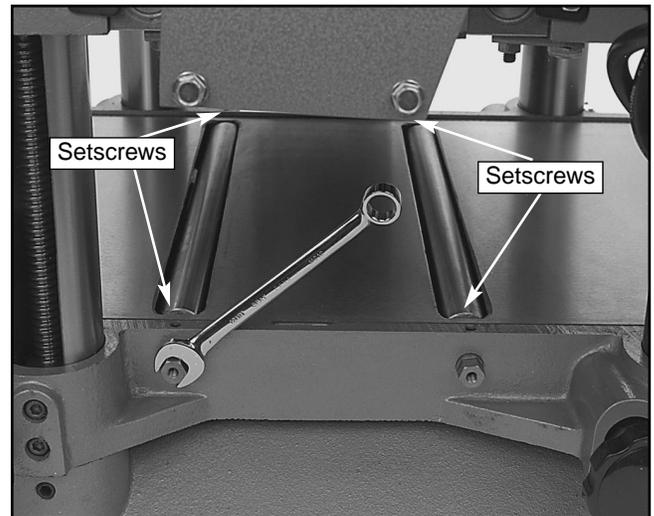
## TO ADJUST THE BED ROLLERS:

1. Ensure that power is disconnected and lay a high quality straightedge across both table rollers. Use a try square to keep the straightedge perpendicular to the table.
2. Use a feeler gauge to measure the clearance between the bottom of the straight edge and the table. Ideal clearance is between 0.002" and 0.005". Measure in several places. This measurement must be consistent across the entire table. **See Figure 27.**



**Figure 27.** Inspecting bed roller height.

3. Loosen the setscrews on both sides of each bed roller. **See Figure 28.**



**Figure 28.** Adjusting bed roller height.

4. Use a wrench to turn the eccentric shafts which adjust roller height. Stop turning when the table rollers are at the proper height.
5. Once your roller heights are correct, re-tighten all the setscrews.
6. Check the height of the table rollers. Repeat steps 1-5 until the bed rollers are properly set. Spin the bed rollers to ensure free movement.



# Chip Deflector

The chip deflector keeps chips from falling onto the outfeed roller. It is the orange plastic plate located under the top cover.

The beveled edge of the chip deflector should be about  $\frac{1}{8}$ " -  $\frac{1}{4}$ " from the knife edge. Carefully rotate the cutterhead to gauge the distance between the chip deflector and the knives. Adjust if necessary. However, if the chip deflector is set too close to the knives, the rotating cutterhead may pull it in and destroy it.

## TO ADJUST THE CHIP DEFLECTOR:

1. **Disconnect the machine from the power source** and remove the planer's upper cover.
2. Loosen the three deflector mounting bolts. **See Figure 29.** Make sure the beveled edge of the deflector faces the cutterhead.

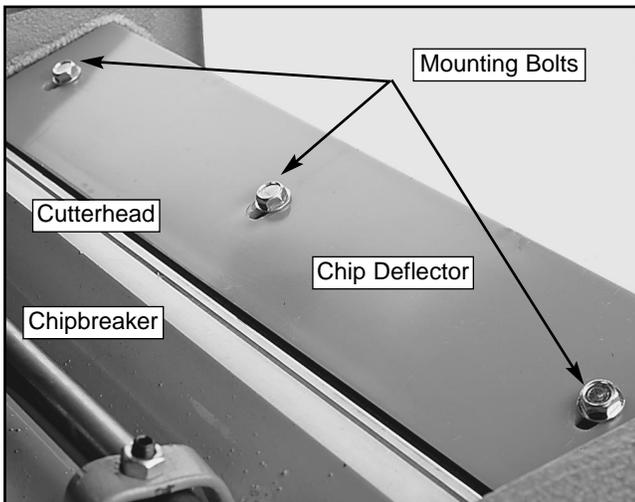


Figure 29. Chip deflector access.

3. Move the deflector until its edge is approximately  $\frac{1}{8}$ " -  $\frac{1}{4}$ " from the tip of the cutting knives. Push down on the deflector with a wooden stick to check if it will touch the knives. Cautiously rotate the cutterhead to ensure clearance. **Do Not** touch the knives - severe cuts may result.
4. Re-tighten the chip deflector mounting bolts and re-mount the upper cover to the planer.



## **!**WARNING

Planer knives are dangerously sharp. Use extreme caution when inspecting, removing, sharpening, or replacing knives into the cutterhead. Substantial risk of injury!

# Anti-Kickback

The Model G1021Z Planer provides an anti-kickback safety feature. The anti-kickback fingers hang from a rod suspended across the front of the cutterhead casting. The anti-kickback fingers should be inspected regularly. Check the fingers to ensure that they swing freely and easily. **See Figure 30.**

## **!WARNING**

**DO NOT** apply oil or other lubricants to the anti-kickback fingers. Oil or grease will attract dust and restrict free movement of the fingers, which could result in damage to your workpiece, the planer, or possibly serious injury to the operator or others in the workplace. Call our Customer Service number if the anti-kickback fingers do not move freely when setting up your planer. **DO NOT** attempt to use the planer if the anti-kickback fingers are not operating properly.



**Figure 30.** Anti-kickback assembly.



# Belts

The belt and pulley assembly are on the left side of the planer. The belts transfer power from the motor to the cutterhead and then through the gearbox to the feed rollers. Remove the belt cover by unscrewing the two lock knobs holding the cover in place.

## **TO INSPECT/ADJUST THE PULLEYS:**

Place a metal ruler or other straightedge across the pulleys to check alignment. The pulleys are aligned if the ruler crosses them evenly. **See Figure 31.**

If the pulleys are out of alignment:

1. Loosen the bolts that hold the motor to the motor mount bracket.
2. Adjust the position of the motor until the pulleys are in line.
3. Re-tighten all bolts.



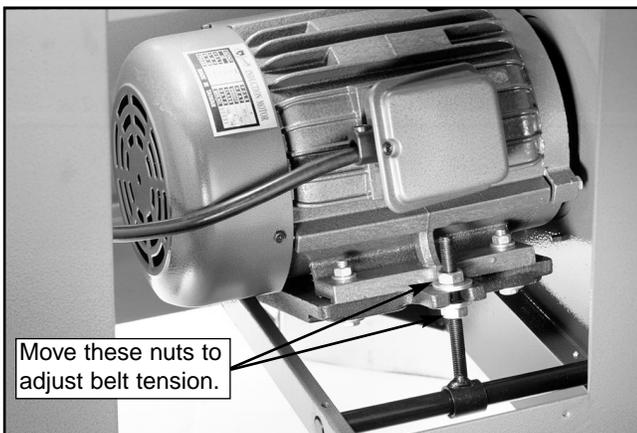
**Figure 31.** Checking pulley alignment.

## TO CHECK BELT TENSION:

Squeeze the V-Belts at their midpoints with moderate finger pressure. You should be able to deflect each V-Belt about  $\frac{3}{4}$ ". Belts will rarely be too tight, but will sometimes be too loose.

To adjust belt tension:

1. Remove the belt guard using the two threaded knobs. Remove the panel at the back of the machine stand to gain access to the motor assembly.
2. The motor pivots on a platform which is suspended at one end by a threaded adjustment bolt. Adjust the two locknuts up or down the shaft until the desired belt deflection is achieved. **See Figure 32.**
3. Tighten the bolts against the pivot plate to lock the motor adjustment into place.
4. Check belt tension again. Repeat steps 2-3 as necessary.



**Figure 32.** Adjusting belt tension.

## **!**WARNING

**DO NOT** make adjustments while the planer is running. Ensure that the switch is off, power is disconnected and moving parts have stopped before making adjustments. Failure to comply could result in serious injury.

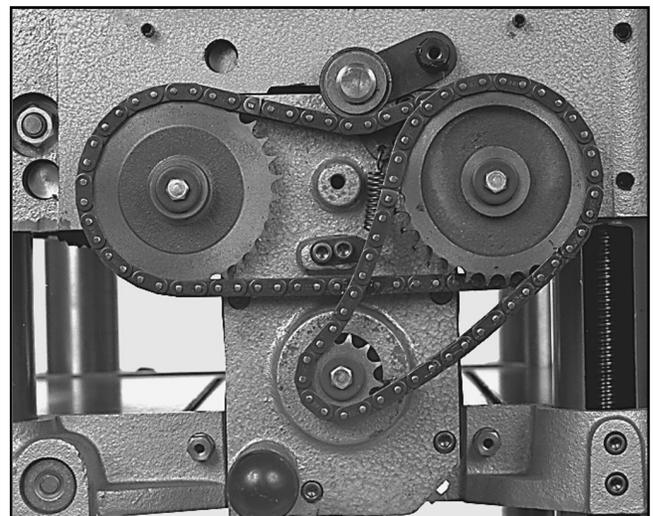


# Gearbox

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. The two-speed transmission is controlled by a push/pull lever on the right side of the planer. When engaged, the power feed rollers will move lumber through the planer at either 16 or 20 feet-per-minute. The center lever position is neutral.

## TO INSPECT THE GEARBOX:

1. Loosen the socket head cap screw on the gearbox cover. Gently pull the cover off the roll pins that hold it in place.
2. Check the bolts holding the sprockets in place. Inspect the drive chains to ensure that the retaining clips are in place. Replace the clips if necessary. **See Figure 33.**



**Figure 33.** Location of sprocket bolts.



# Thickness Scale

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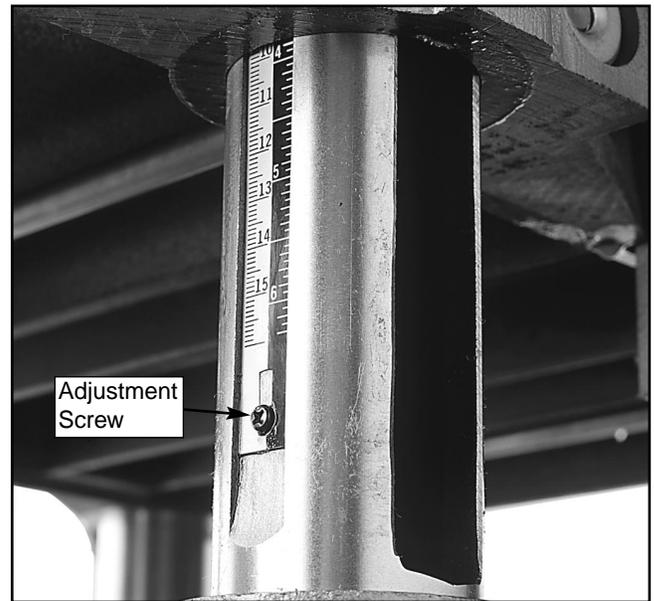
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The thickness scale, located below the handwheel, can be adjusted for accuracy. However, material must be run through the machine to adjust the thickness scale. Make certain you have followed the directions in the Operations Section for Test Running before attempting to make these adjustments.

## TO ADJUST THE SCALE:

1. Adjust the table height to the approximate thickness of your test lumber. Measure the lumber with calipers to determine its exact thickness.
2. Move the table to  $\frac{1}{16}$ " under the thickness of your lumber and feed your test board through the planer.
3. Turn the handwheel one half rotation and run the board through once more. Turn the board over and repeat.

4. Re-measure the board and compare your results with the scale. If there is a discrepancy, loosen the scale adjustment screw and correct the position. **See Figure 34.**



**Figure 34.** Thickness scale.



# NOTES

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# SECTION 6: Operations

## **⚠️ WARNING**

The Model G1021Z 15" Planer is a powerful woodworking machine, designed and constructed for professional-quality applications. Because of its powerful motor and razor-sharp knives, the Model G1021Z is inherently dangerous and should be operated with considerable caution and respect. Failure to do so could result in damage to the machine, or severe injury to the operator or others in the work area.

## Overview

1. Inspect lumber for defects, warping, cupping, twisting, and for foreign objects (nails, staples, imbedded gravel, etc.). If you have any question about the quality of your lumber, do not use it. Remember, wood stacked on a concrete floor can have small pieces of stone or concrete pressed into the wood.
2. Use the full width of the planer. Alternate between the left, the right and the middle when feeding lumber into the planer. Your knives will remain sharp much longer.
3. Scrape all glue off of joined boards before planing.
4. Plane **ONLY** natural wood fiber. No wood composites, laminates, particle board, plywoods or plastics should be run through the planer.
5. Surface wood with the grain. **NEVER** feed end-cut or end-grained lumber into your planer.
6. Do not use boards with knots, splits, cross-grain or other obvious blemishes or defects. They can damage the machine and pose the possibility of operator injury.
7. Keep your work area clear.
8. When making multiple passes through the G1021Z 15" Planer

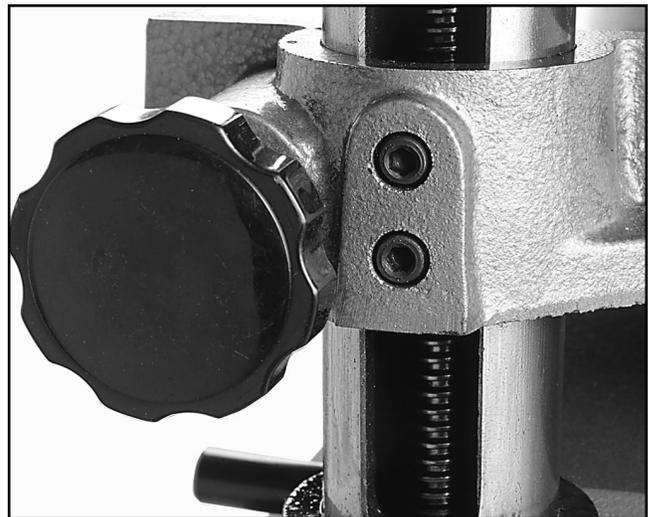
planer on long stock, use the stock return rollers on the top of the machine to move the material back to the infeed side of the machine.

9. Avoid planing wood with a high water content. Wood with more than 20% moisture content or wood exposed to rain or snow, will plane poorly and cause excessive wear to the knives and motor. Excess moisture can also hasten rust and corrosion.
10. Read as much as possible about planing procedures. Alternative publications present more wood specific planing requirements. They will often share tips on safety and more efficient ways to operate your planer.



## Table Locks

Before attempting to adjust table height, loosen the two black knobs on the left side of the table. After table height is adjusted and the table height is set, tighten the two black knobs back down again. **See Figure 35.**



**Figure 35.** Table lock knob.

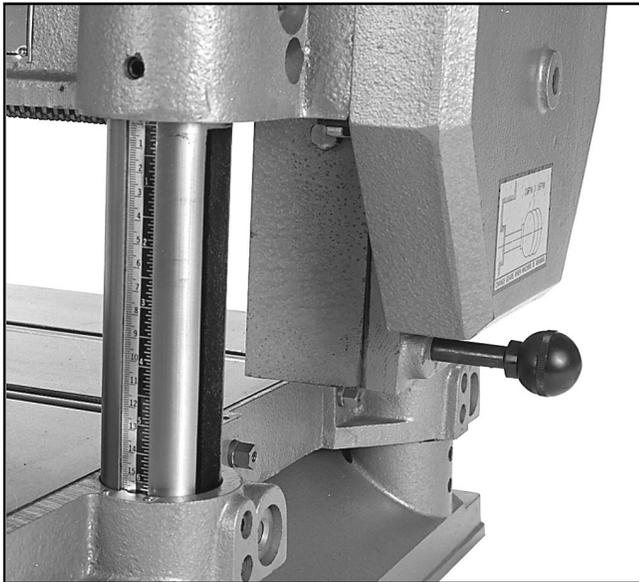


# Power Feed

The power feed features two feed rates; 16 FPM and 20 FPM. When running the machine, the operator can control the feed speed by moving the feed control knob. Moving the knob toward the machine produces the 20 FPM feed speed, away from the machine produces 16 FPM and a center position places the gear box in neutral. **See Figure 36.**

## NOTICE

**The feed rate should be set while the planer is running but before feeding lumber into it. DO NOT attempt to change speeds after the cutting operation has begun.**



**Figure 36.** Feed speed adjustment knob.

## NOTICE

**If you take a cut that is too large, the planer will bog down noticeably. The motor may even stall. If this happens, turn off the power immediately, lower the table, and remove your workpiece. Re-adjust your table to allow a lesser cut and repeat your operation.**



# Handwheel

Crank the handwheel to raise or lower the table according to the desired workpiece thickness. Make sure the height scale is properly adjusted.



# Depth Limiter

The Model G1021Z is equipped with a depth limiter located on the bottom of the cutterhead casting just under the nameplate. **See Figure 37.** The depth limiter controls maximum depth of cut to  $\frac{1}{8}$ ".

With the limiting clip installed, you cannot cut more than  $\frac{1}{8}$ " in a single pass. While cutting this much material is possible, it is not recommended. Take it slow and easy. The quality of your work will be better and your planer will last longer.

## NOTICE

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



**Figure 37.** Location of depth limiter.

# Test Run

Once the assembly is complete and the adjustments are done to your satisfaction, you are ready to test the machine.

Turn on the power supply at the main panel. Press the START button. Make sure that your finger is poised on the STOP button, just in case there is a problem. The planer should run smoothly, with little or no vibration or rubbing noises. Strange or unnatural noises should be investigated and corrected before operating the machine further.

**⚠️ WARNING**

**DO NOT attempt to investigate or adjust the machine while it is running. Wait until the machine is turned off, unplugged and all working parts have come to a rest before you do anything!**

If noises occur that cannot be found by visual inspection, feel free to contact our service department for help.

**⚠️ WARNING**

**Operation of this equipment has the potential to propel debris into the air which can cause eye injury. Always wear safety glasses or goggles when operating equipment. Everyday glasses or reading glasses only have impact resistant lenses, they are not safety glasses. Be certain the safety glasses you wear meet the appropriate standards of the American National Standards Institute (ANSI).**



# Wood Species

The species of wood, as well as its condition, have a dramatic effect on planing ability. The harder the wood (as illustrated by its shear strength), the more difficult it will be to plane. A brief listing of common hard and soft woods in relation to their shear strengths and planing difficulty is listed below.

	Type	Shear (PSI)
↑ Increasing Difficulty ↓	Black Locust	2,480
	Sugar Maple	2,330
	Pecan Hickory	2,080
	White Oak	2,000
	White Ash	1,950
	Black Cherry	1,700
	American Elm	1,510
	Black Walnut	1,370
	Red Alder	1,080
	Basswood	980
Cottonwood	930	

Figure 38. Common hardwood shear strengths.

	Type	Shear (PSI)
↑ Increasing Difficulty ↓	Western Larch	1,410
	Tamarack	1,280
	Douglas Fir	1,160
	Alaska Cedar	1,130
	Sitka Spruce	1,150
	Sugar Pine	1,050
	Cypress	1,000
	Redwood (OG)	940
	Red Cedar	860
	White Pine	850
Balsam Fir	710	

Figure 39. Common softwood shear strengths.



# Wood Characteristics

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The species of wood, as well as condition, will affect planing ability. The harder the wood, the more difficult it will be to plane. We've included below, a list of wood characteristics you may encounter when planing. The following descriptions of defects will give you some possible answers to problems you may encounter while planing different materials. Possible solutions follow the descriptions.

**Chipped Grain** - usually a result of cutting against the grain, or planing wood with knots or excessive amount of cross grain. Chipped grain can also be caused by dull knives or misaligned chipbreaker. Often, chipped grain can be avoided by slowing down the feed rate and by taking shallow cuts. If those options do not work, inspect your lumber and determine if its grain pattern is causing the problem. If the wood does not show substantial crossgrain, inspect your knives for sharpness and inspect the chipbreaker for proper alignment. See the Adjustment Section.

**Fuzzy Grain** - Usually caused by surfacing lumber with too high a moisture content. Sometimes fuzzy grain is a characteristic of some woods, such as basswood. Fuzzy grain can also be caused by dull knives or an incorrect grinding bevel. Check with a moisture meter. If moisture is greater than 20%, sticker the wood and allow to dry. Otherwise, inspect knife condition.

**Glossy Surface** - Usually caused by dull knives taking shallow cuts at a slow feed speed. Surface gloss will usually be accompanied by overheating. Often, lumber will be scorched and eventually, damage to knives will occur. If knives are sharp on inspection, increase feed speed and/or cutting depth.

**Snipe** - Occurs when board ends have more material removed than the rest of the board. Usually caused when one or both of the bed rollers are set too high. Can also be caused by the chipbreaker or pressure bar being set too high. However, small amount of snipe is inevitable.

Snipe can be minimized by proper adjustment of the planer's components, but complete removal of snipe is extremely unlikely. More likely, you will be able to reduce it to a tolerance of .002". If snipe under that level is a problem, consider planing lumber longer than your intended work length and cut off the excess after planing is completed.

**Uneven Knife Marks** - Uneven knife marks can occur when the chipbreaker is set too high. Inspect cutterhead bearings if re-adjustment of the chipbreaker fails to remedy the situation.

**Chatter Marks** - Usually caused by incorrect chipbreaker and pressure bar setting heights. Chatter marks can also be caused by running a narrow wood piece through the planer at either the right or left end of the cutterhead. Chatter, like uneven knife marks, will show in the form of a "washboard" look. Chatter marks are more likely to be inconsistent in appearance than uneven knife marks.

**Wavy Surface** - Caused by poor knife height adjustment, wavy surface appears when one knife is taking deeper cuts than the rest of the knives. Remedy by re-setting the knives to a tolerance of  $\pm .003$ ".

**Pitch & Glue Build-up** - Glue and resin build-up on the rollers and cutterhead will cause overheating by decreasing cutting sharpness while increasing drag in the feed mechanism. The result can include scorched lumber as well as uneven knife marks and chatter.

**Chip Marks** - Occur when chips aren't properly expelled from the cutterhead. The knives catch the chips and drag them across the lumber being planed. Chips tend to be random and non-uniform (as compared to chipped grain). Can be caused by exhaust blockage or too much room between the cutterhead and chip deflector. Using a dust collection system in combination with the planer can help reduce chip marks. Inspect the chip deflector and readjust (as described earlier in the text).



# SECTION 7: MAINTENANCE

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## General

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

1. Loose mounting bolts.
2. Worn switch.
3. Worn or damaged cords and plugs.
4. Damaged V-belts.
5. Any other condition that could hamper the safe operation of this machine.



## Table

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The table and other non-painted surfaces on the Model G1021Z should be protected against rust and pitting. Wiping the table clean after every use ensures that moisture from wood dust isn't allowed to trap moisture against bare metal surfaces.

Some woodworkers recommend using automotive paste wax on exposed steel and cast iron surfaces. The wax provides a layer of protection, as well as reducing friction between lumber and the table, making cuts faster and smoother. Avoid waxes that contain silicone or other synthetic ingredients. These materials can find their way into lumber that's being worked, and can make staining and finishing difficult. If you use paste wax, make sure that it's 100% Carnauba wax.



## Knives

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The inspection and setting of the planer knives is covered extensively in Section 5: Adjustments.



# Lubrication

The Model G1021Z features factory-sealed bearings. A sealed bearing requires no lubrication during its lifetime. Should a bearing fail, your planer will probably develop a noticeable rumble, which will increase when the machine is put under load. If allowed to get worse, overheating of the journal containing the bad bearing could occur. If the bad bearing is not replaced, it will eventually seize - possibly doing damage to other parts of the machine. Bearings are standard sizes and can be replaced through Grizzly.

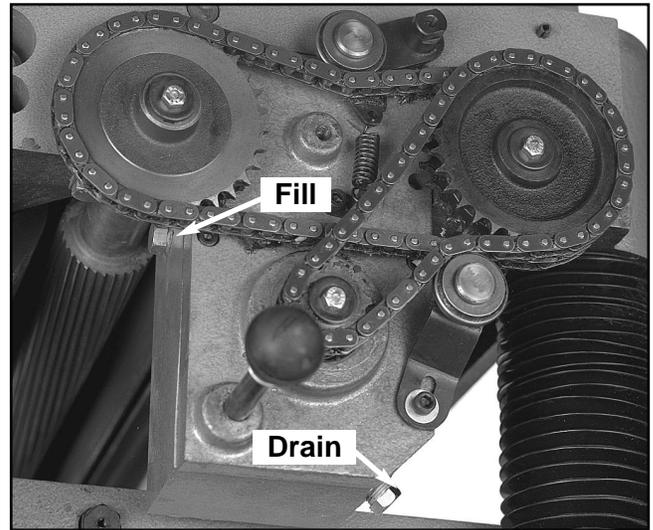
Proper lubrication of other components of the Model G1021Z are essential for long life and trouble-free operation. Below is a list of components that require periodic lubrication. Schedules are based on daily use. Adjust accordingly for your level of use.

**Columns/Lead Screws** - The four columns should be lubricated weekly with light oil. Unfasten dust covers to gain access. The four lead screws should be lubricated with general purpose grease once a month.

**Worm Gear** - The worn gear should be inspected monthly and lubricated when needed. Remove the worm gear box to inspect. See parts diagram for location.

**Chain** - The table height adjustment chain should be inspected monthly and lubricated when needed. A good quality bicycle chain lubricant works well for periodic lubrication.

**Gear Box** - Gear box oil should be drained after the first 20 hours of operation. **See Figure 40.** Replace with 80W-90 gear oil. Inspect levels periodically and change yearly. Replace gear oil more frequently under heavy use. Fill until oil reaches the top of the filler plug port for correct oil level.



**Figure 40.** Gearbox fill and drain points.

**Drive Chain** - The drive chain should be inspected and lubricated monthly. Check sprocket, chain and cotter pin during inspection. Use a general purpose grease. Some chains will have master links instead of cotter pins.

**Feed Rollers** - The infeed/outfeed pressure setscrews double as lubrication ports for the rollers. **See Figure 41.** Add 1-2 drops of light machine oil to all ports before each use. Daily lubrication of feed rollers is crucial to the operation of your planer. Lubricate before start-up. Apply a light oil, making sure that the lubricant penetrates the bearing.



**Figure 41.** Feed roller lubrication points.

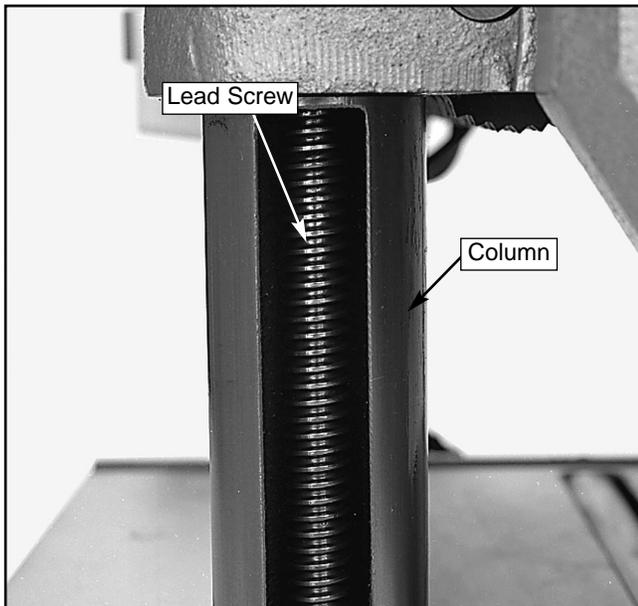
# Notes

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Clean and lubricate the chain sprockets as needed. The gearbox oil should be checked before the first use. It is full when oil begins dribbling out of the fill hole. Oil should be replaced yearly. Use 80W-90 gear oil in normal situations. Use 50W motor oil for unheated, winter shops. **See Adjustment Section.**

The lead screws and columns should be wiped of any grease and dust build up once a week. They should be relubricated with light machine oil. **See Figure 42.**



**Figure 42.** Lead Screw inside of column.



# SECTION 8: CLOSURE

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The following pages contain parts diagrams, parts lists, general machine data and warranty/return information for your Model G1021Z Planer.

If you need parts or help in assembling your machine, or if you need operational information, we encourage you to call the Grizzly Industrial Service Department. Our trained service technicians will be glad to help you.

If you have comments dealing specifically with this manual, please write to our Bellingham, Washington location using the address in the Introduction. The specifications, drawings, and photographs illustrated in this manual represent the Model G1021Z as supplied when the manual was prepared. However, due to Grizzly's policy of continuous improvement, changes may be made at any time with no obligation on the part of Grizzly. Whenever possible, though, we send manual updates to all owners of a particular tool or machine. Should you receive one, add the new information to this manual and keep it for reference.

We have included some important safety measures that are essential to this machine's operation. While most safety measures are generally universal, Grizzly reminds you that each workshop is different and safety rules should be considered *as they apply to your specific situation*.

## WARNING

**Always wear ANSI-approved safety glasses or goggles and hearing protection when operating equipment — particularly when testing new tools or machinery. Do not allow visitors into your workshop when testing or operating equipment. Serious injury may occur.**

We recommend you keep a copy of our current catalog for complete information regarding Grizzly's warranty and return policy. If you need additional technical information relating to this machine, or if you need general assistance or replacement parts, please contact the Service Department listed in *Section 3: GENERAL INFORMATION*.

Additional information sources are necessary to realize the full potential of this machine. Trade journals, woodworking magazines, and your local library are good places to start.



## WARNING

**The Model G1021Z was specifically designed for wood cutting operations. DO NOT MODIFY AND/OR USE THIS PLANER FOR ANY OTHER PURPOSE. Modifications or improper use of this tool will void the warranty. If you are confused about any aspect of this machine, DO NOT use it until you have answered all your questions. Serious injury may occur.**

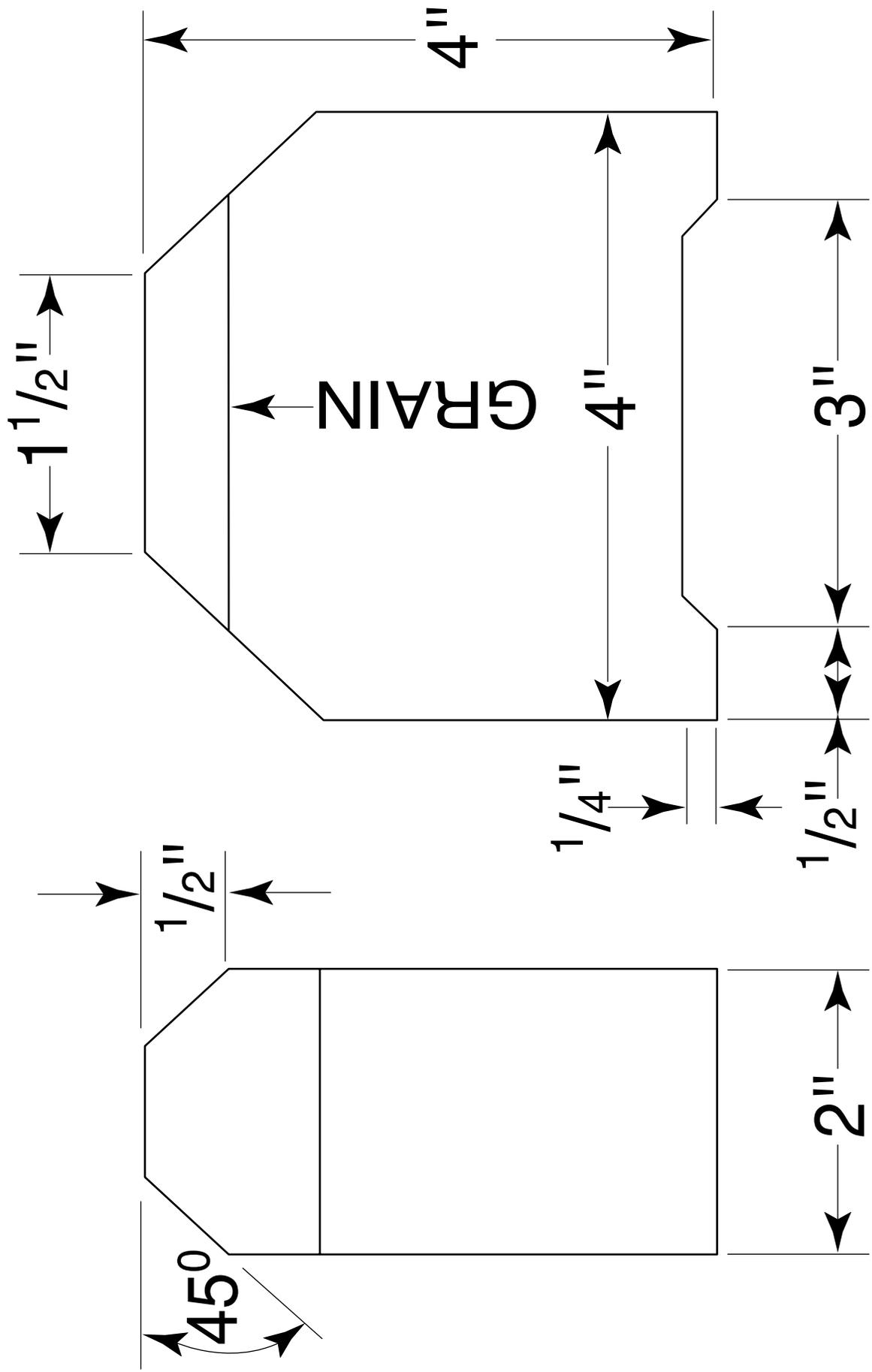
## WARNING

**Like all power tools, there is danger associated with the Model G1021Z 15" Planer. Use the tool with respect and caution to lessen the possibility of mechanical damage or operator injury. If normal safety precautions are overlooked or ignored. Serious injury may occur.**

# TROUBLESHOOTING

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.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Motor will not start.	<ol style="list-style-type: none"> <li>1. Low voltage.</li> <li>2. Open circuit in motor or loose connections.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check power line for proper voltage.</li> <li>2. Inspect all lead connections on motor for loose or open connections.</li> </ol>
Motor will not start; fuses or circuit breakers blow.	<ol style="list-style-type: none"> <li>1. Short circuit in line cord or plug.</li> <li>2. Short circuit in motor or loose connections.</li> <li>3. Incorrect fuses or circuit breakers in power line.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect cord or plug for damaged insulation and shorted wires.</li> <li>2. Inspect all connections on motor for loose or shorted terminals or worn insulation.</li> <li>3. Install correct fuses or circuit breakers.</li> </ol>
Motor overheats.	<ol style="list-style-type: none"> <li>1. Motor overloaded.</li> <li>2. Air circulation through the motor restricted.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reduce load on motor.</li> <li>2. Clean out motor to provide normal air circulation.</li> </ol>
Motor stalls (resulting in blown fuses or tripped circuit).	<ol style="list-style-type: none"> <li>1. Short circuit in motor or loose connections.</li> <li>2. Low voltage.</li> <li>3. Incorrect fuses or circuit breakers in power line.</li> <li>4. Motor overloaded.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect connections on motor for loose or shorted terminals or worn insulation.</li> <li>2. Correct the low voltage conditions.</li> <li>3. Install correct fuses or circuit breakers.</li> <li>4. Reduce load on motor.</li> </ol>
Machine slows when operating.	<ol style="list-style-type: none"> <li>1. Feed rate too high.</li> <li>2. Depth of cut too great.</li> </ol>	<ol style="list-style-type: none"> <li>1. Feed workpiece slower.</li> <li>2. Reduce depth of cut.</li> </ol>
Loud, repetitious noise coming from machine	<ol style="list-style-type: none"> <li>1. Pulley setscrews or keys are missing or loose.</li> <li>2. Motor fan is hitting the cover.</li> <li>3. V-belt is defective</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect keys and setscrews. Replace or tighten if necessary.</li> <li>2. Tighten fan or shim cover.</li> <li>3. Replace V-belt. <b>See Maintenance.</b></li> </ol>
Machine is loud when cutting. Overheats or bogs down in the cut.	<ol style="list-style-type: none"> <li>1. Excessive depth of cut.</li> <li>2. Knives are dull</li> </ol>	<ol style="list-style-type: none"> <li>1. Decrease depth of cut.</li> <li>2. Sharpen knives.</li> </ol>
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.
Chip buildup on outfeed roller.	Chips working their way back under the chip deflector.	Lay duct tape over the mounting bolts along the outside edge to seal any possible gaps.
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.	Knives dull	Replace knives.



# WARRANTY AND RETURNS

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Grizzly Industrial, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special, or consequential damages arising from the use of our products.

To take advantage of this warranty, contact us by mail or phone and give us all the details. We will then issue you a "Return Number", which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.