



# 5220 Top/Bottom Planer 16”

## Owner’s Manual



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**M-5220 7/2010**  
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## **Warranty**

Oliver makes every effort possible to assure that its equipment meets the highest possible standards of quality and durability. All products sold by Oliver are warranted to the original customer to be free from defects for a period of 2 (two) years on all parts, excluding electronics and motors, which are warranted for 1 year. Oliver's obligation under this warranty shall be exclusively limited to repairing or replacing (at Oliver's option) products which are determined by Oliver to be defective upon delivery F.O.B. (return freight paid by customer) to Oliver, and on inspection by Oliver. This warranty does not apply to defects due, directly or indirectly, to misuse, abuse, negligence, accidents, unauthorized repairs, alterations, lack of maintenance, acts of nature, or items that would normally be consumed or require replacement due to normal wear. In no event shall Oliver be liable for death, personal or property injury, or damages arising from the use of its products.

## **Warning**

Read this manual thoroughly before operating the machine. Oliver Machinery disclaims any liability for machines that have been altered or abused. Oliver Machinery reserves the right to effect at any time, without prior notice, those alterations to parts, fittings, and accessory equipment which they may deem necessary for any reason whatsoever.

## **For More Information**

Oliver Machinery is always adding new Industrial Woodworking products to the line. For complete, up-to-date product information, check with your local Oliver Machinery distributor, or visit [www.olivermachinery.net](http://www.olivermachinery.net)

# ! WARNING

Read this manual completely and observe all warning labels on the machine. Oliver Machinery has made every attempt to provide a safe, reliable, easy-to-use piece of machinery. Safety, however, is ultimately the responsibility of the individual machine operator. As with any piece of machinery, the operator must exercise caution, patience, and common sense to safely run the machine. Before operating this product, become familiar with the safety rules in the following sections.

- **Always keep guards and covers in place and in proper operating condition.**
1. If you are not properly trained in the use of a planer do not use until the proper training has been obtained.
  2. Read, understand and follow the safety instructions found in this manual. Know the limitations and hazards associated with this machine.
  3. Make certain that the machine frame is electrically grounded and that a ground lead is included in the incoming electrical service. In cases where a cord and plug are used, make certain that the grounding plug connects to a suitable ground. Follow the grounding procedure indicated in the National Electrical Code.
  4. Wear an approved safety shield, goggles, or glasses to protect eyes. Common eyeglasses are only impact-resistant, they are not safety glasses.
  5. Before operating the machine, remove tie, rings, watch and other jewelry and roll up sleeves above the elbows. Remove all loose outer clothing and confine long hair. Protective type footwear should be used. Where the noise exceeds the level of exposure allowed in Section 1910.95 of the OSHA Regulations, use hearing protective devices. Do not wear gloves.
  6. Keep the machine guards and covers in place for every operation. If any guards and covers are removed for maintenance, DO NOT OPERATE the machine until the guards and covers are reinstalled.
  7. Keep the floor around the machine clean and free of scrap material, saw dust, oil and other liquids to minimize the danger of tripping or slipping. Be sure the table is free of all scrap, foreign material and tools before starting the planer. Make certain the work area is well lighted and that a proper exhaust system is used to minimize dust. Use anti-skid floor strips on the floor area where the operator normally stands and mark off machine work area. Provide adequate work space around the machine.
  8. Maintain a balanced stance and keep your body under control at all times.
  9. Before turning on machine, remove all extra equipment such as keys, wrenches, scraps, and cleaning rags away from the machine.
  10. Give the work you are doing your undivided attention. Looking around, carrying on a conversation, and “horseplay” are careless acts that can result in serious injury.
  11. Before performing any service, maintenance, adjustments or when changing knives disconnect the machine from power source. A machine under repair should be RED TAGGED to show it should not be used until the maintenance is complete.

12. Do not plane boards with loose knots, nails or any foreign material in the workpiece. Irregular, or warped stock should be jointed first on one side before planing a parallel surface.
13. If the operator leaves the machine area for any reason, the planer should be turned "off" and the cutterhead should come to a complete stop before their departure. In addition, if the operation is complete, they should clean the planer and the work area. NEVER clean the planer with power "on" and never use hands to clear sawdust and debris; use a brush or air hose.
14. Use only genuine Oliver Machinery factory authorized replacement parts and accessories; otherwise the warranty and guarantee is null and void.
15. Do not use this Oliver planer for other than its intended use. If used for other purposes, Oliver disclaims any real or implied warranty and holds itself harmless for any injury or damage which may result from that use.
16. Do not operate this machine while under the influence of drugs, alcohol, or any medication.
17. This machine is designed for planing wood products only. Do not use to plane any kind of substance other than wood.
18. Never start the planer while a workpiece is in contact with the cutterhead or knives.
19. Always feed workpiece against the rotation of the cutterhead.
20. Some dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:
  - Lead from lead-based paint.
  - Crystalline silica from bricks and cement and other masonry products.
  - Arsenic and chromium from chemically-treated lumber.Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals, work in a well-ventilated area, and work with approved safety equipment, such as those dust masks that are specifically designed to filter out microscopic particles.

Familiarize yourself with the following safety notices used in this manual:

**CAUTION:** (This means that if precautions are not heeded, it may result in minor or moderate injury and/or possible machine damage)

**WARNING:** (This means that if precautions are not heeded, it could result in serious injury or possibly even death).

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## Specifications

Stock No.....(8HP, 1Ph Helical Carbide Insert Cutterhead)	5220.201
Stock No.....(12.5HP, 3Ph Helical Carbide Insert Cutterhead)	5220.202
Maximum Stock Width (in.) .....	16
Maximum Depth of Cut (in.) .....	
Upper Cutter – Stock Width Under 6" .....	3/16
Upper Cutter – Stock Width Over 6" .....	1/8
Lower Cutter .....	1/8
Maximum Stock Thickness (in.) .....	6
Minimum Stock Thickness (in.) .....	1/8
Dust Port Diameter (in.) .....	5
Minimum CFM Required .....	1230
Feed Speeds (FPM).....	15 and 20
Bed Rollers.....	2, Adjustable
Table Size (L x W/in.) .....	
With Extension .....	56 x 17-3/4
Without Extension .....	44 x 17-3/4
Cutterhead Diameter (in.).....	2-7/8
Number of Knives.....	108 per cutterhead
Cutterhead Speed (RPM).....	6,000
Table Support.....	4-Column
Motors .....	
Single Phase .....	Top Cutterhead, 5HP ; Bottom Cutterhead, 3HP (220 Volt Only)
Three Phase.....	Top Cutterhead, 7.5HP; Bottom Cutterhead, 5HP (220V only, Prewired 220V)
Gross Weight (lbs.) .....	865

## Oliver 5220 - 16" Top / Bottom Planer

### Contents

#### Figure 1

16" Planer

#### Figure 2

1. Upper dust hood
2. Lower dust hood
3. Extension table

#### Figure 3

1. Allen keys
2. Wrenches
3. Speed handle
4. Hardware kit

### Uncrating the Machine

Retain all packaging materials in case it becomes necessary to ship the machine to another site.

### Machine Preparation and Setup

#### **WARNING**

The equipment used to lift this machine must have a rated capacity at, or above the weight of the planer. Failure to comply may cause serious injury!

The planer can be lifted from over head using slings and the lifting poles as shown in Figure 1. There are two poles also on the rear of the machine.

Clean all rust protected surfaces with a commercial solvent. Do not use acetone, gasoline, lacquer thinner or any type of flammable solvent, or a cleaner that may damage paint. Cover cleaned surfaces with WD-40 or a 20W machine oil.

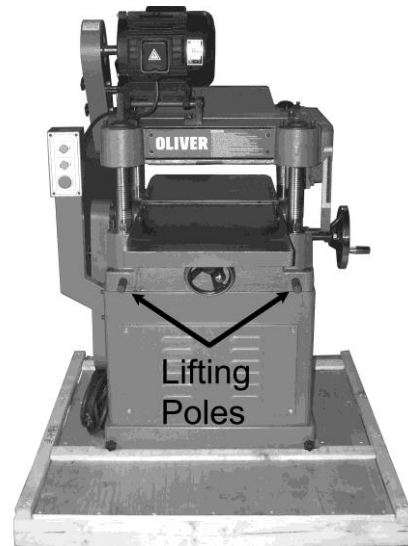


Figure 1

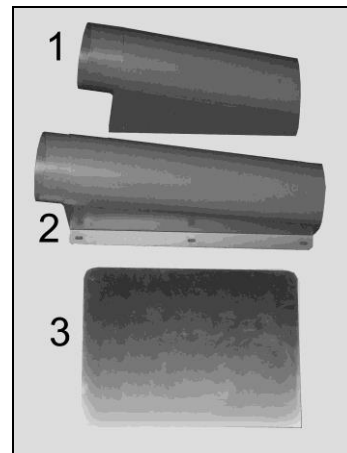


Figure 2

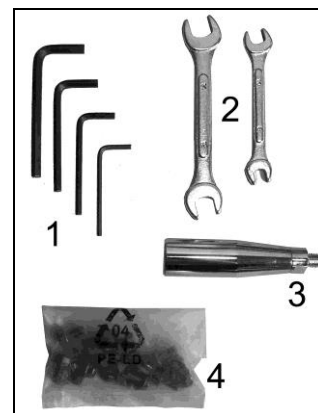


Figure 3

## Electrical Connections



### **WARNING**

**Electrical connections and wiring must be done by a qualified electrician. The machine must be properly grounded. Failure to comply may cause serious injury!**

This planer is available in both 1-Phase and 3-Phase versions.

- **Electrical Connections for a 3-Phase Unit**

This planer is 3-Phase, 220V only **pre-wired 220V**.

Make sure the voltage of your power supply matches the specifications on the motor plate of the machine.

1. **Disconnect machine from power source!**
2. Remove screws that secure the cover to connection box.
3. Insert the power cable through strain relief, and attach the wires to terminals.
4. Re-install connection box cover. With 3-Phase power verify in-feed roller is rotating in the correct direction. Raise the top cutterhead completely. Connect planer to the power source and push the "ON" button to start the planer. Crouch down to view in-feed roller from the front of machine. The top of in-feed roller should be rotating down towards you in such a manner that it would pull a piece of wood into the planer. If it does not, disconnect machine from power source and reverse any two incoming power leads.
5. When wiring is completed, tape all power box joints to keep out dust.

- **Electrical Connections for a 1-Phase Unit**

This planer is 1-Phase, **220V only**.

Make sure the voltage of your power supply matches the specifications on the motor plate of the machine.

1. **Disconnect machine from power source!**
2. Remove screws that secure the cover to connection box.
3. Insert the power cable through strain relief, and attach the wires to the terminals.

4. Re-install connection box cover.
5. When wiring is completed, tape all power box joints to keep out dust.

## Assembly

The planer comes with two dust chutes; one for the top cutterhead and one for the bottom cutterhead.

- 1 The top dust chute (A, Figure 4) is shown mounted to the machine using three 10mm bolts (B, Figure 4). Although not shown, there are an additional three bolts on the underside of the chute.

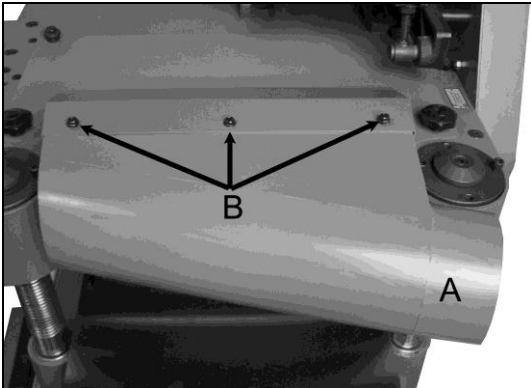


Figure 4

- 2 The bottom dust chute (C, Figure 5) is shown mounted to the machine using three 10mm bolts (D, Figure 4). Again, not shown are an additional three bolts on the underside of the chute.

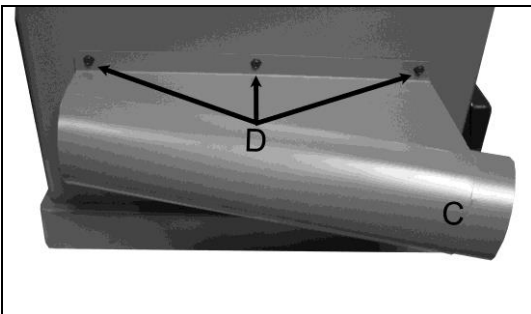


Figure 5

## Handwheel Assembly

Attach the speed handle (A, Figure 6) to the handwheel (B, Figure 6) and the complete assembly to the machine as shown using the supplied 19mm bolt and washer.

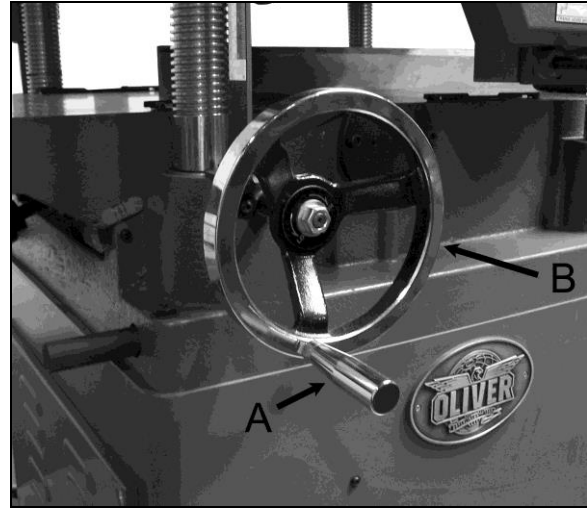


Figure 6

## Outfeed Extension Table

The outfeed table attaches to the rear edge of the main table using the two supplied 12mm hex bolts and lock washers. Also included are two leveling set screws as shown in Figure 7.



Figure 7



## Outfeed Extension Table (cont.)

Do not over the 12mm bolts at this time but just enough to hold the table in place while leveling it to the main table. Place a straight edge as shown in Figure 8 and use a rubber mallet to tap the table into position while adjusting the leveling screws and 12mm bolts. Once set, securely tighten the bolts.

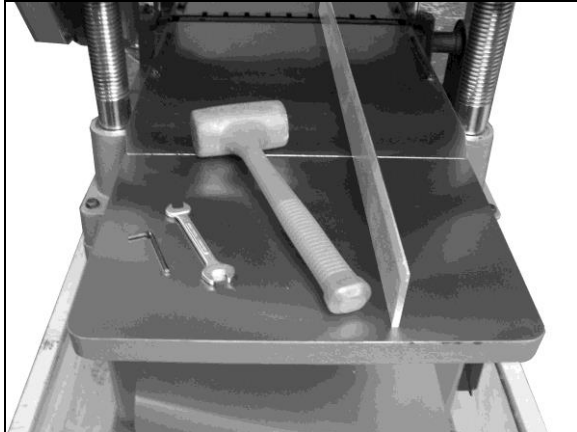


Figure 8

## Control Panel

The two green buttons of the control panel (Figure 9) turn on the top and bottom cutterheads individually. It is recommended to start the top cutterhead and wait approximately five seconds until it gets up to operating speed before turning on the bottom cutterhead. The red button on the bottom turns off both cutterheads at the same time. The red button is a safety stop and requires a ½ turn to the right to disengage.



Figure 9

## Changing Feed Rate

The planer has two selectable feed speeds that feed stock at 16 or 20 feet per minute. To adjust speed, firmly push or pull knob 'A' as shown in Figure 10. **Change feed speed only while the feed system is RUNNING!**

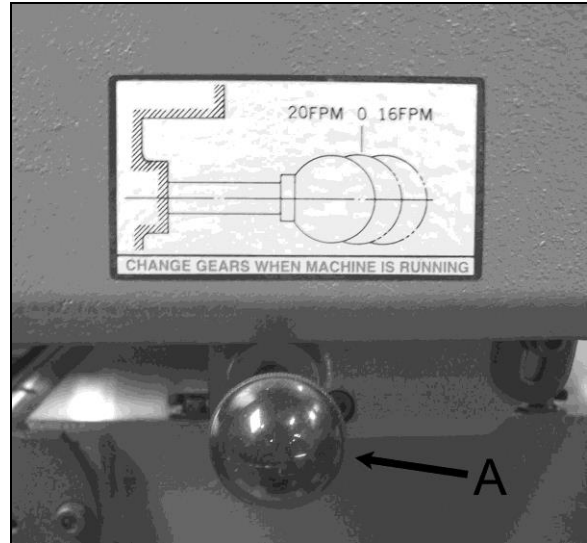


Figure 10

## Infeed Table Height Adjustment

Turn the handwheel (A, Figure 11) clockwise to lower the table. A gage on the right side of the machine indicates depth of cut.

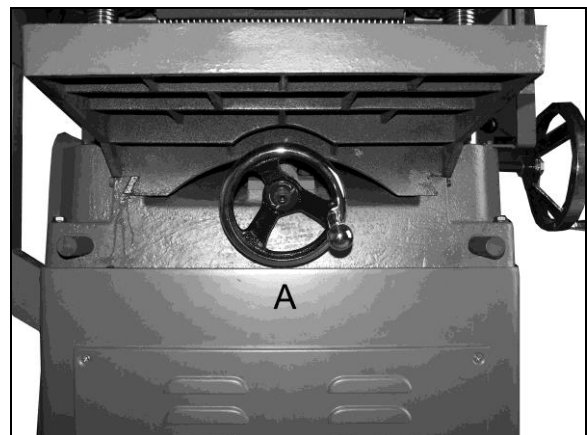


Figure 11

## Cutterhead Height Adjustment

Turn handwheel (A, Figure 12) to raise or lower the top cutterhead assembly. The gage indicates the depth of cut.

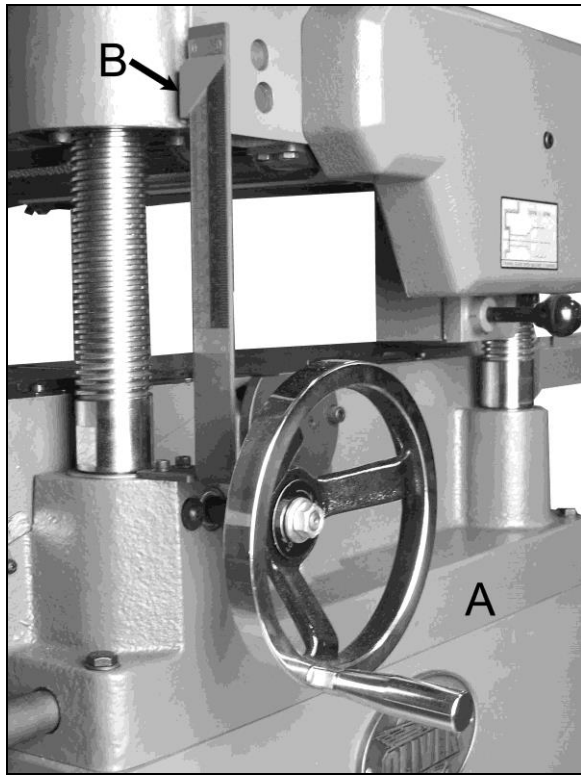


Figure 12

## Calibrating the Thickness Scale

The following sections will describe the use of a calibrating board. The calibrating board should be made of a hardwood and have one side that has been run through a jointer.

1. With the planer turned "OFF – cutterhead **NOT** spinning", place your calibrating board jointed surface down on the table and slide it into the machine.
2. Use the handwheel (A, Figure 12) to raise the table so that the in-feed roller is about 1/16" above the calibrating board.
3. Remove calibrating board from planer and turn the planer "ON".
4. Turn the handwheel clockwise one complete revolution to raise the table and run the calibrating board through the planer.
5. Repeat Step 4 until the planer removes the entire top surface of your calibrating board.

6. Measure the thickness of the board using a pair of calipers.
7. Adjust the pointer (B, Figure 12) so that it reads the measured thickness by loosening the screws that holds it in place.

## Setting / Changing Knives

### **WARNING**

**Knives are extremely sharp. Be very careful when handling knives. Failure to comply may cause serious injury!**

1. **Disconnect machine from power source.**
2. If a knife gets nicked or dull, it can be rotated. Simply remove the torx screw with the provided driver. Before rotating the knife it is extremely important to clean the pocket of any dust or debris as well as the underside of the knife. Any foreign material between the knife and pocket can cause knife breakage or leave excessive knife marks on the work piece.

**Note: For the best finish it is recommended to rotate all knives at the same time.**

## Digital Readout

The digital scale equipped with your 5520, planer can serve many applications, however for wood planing we need only concern ourselves with the ON/OFF, SET, and mm/in buttons. When set properly the digital readout will display the thickness of the finished product.

**Calibration:** In order to calibrate the unit first run a board through the planer as described in the previous section and measure the finished thickness with a set of vernier calipers. This is the number to be entered into the display unit. At this point turn the unit on by pushing the ON/OFF button. Now press the mm/in button to set the unit to American standard or the metric system.

2. Press and hold the SET button until the '+' sign starts to flash and immediately release it.
3. Cycle the set button by pressing it until the '+' sign remains on.
4. Press and hold the SET button until the second zero to the right of the '+' plus sign starts to flash and immediately release it.
5. Cycle the SET button by pressing it until the number reads the correct whole number taken with the vernier calipers and immediately release the button.
6. Press and hold the SET button until the zero to the right of the decimal point starts to flash.
7. Repeat steps 4 and 5 until the last digit in the 0.001 place is entered.
8. Press and hold the SET button until the SET on the display starts to flash and immediately release it.
9. Press and release the SET button one final time to complete the calibration.

**Note: Do not turn the device off. If you do you will have to re-calibrate the unit.**

**Battery:** When the display begins to flash the battery should be replaced. The battery is to be replaced with a SR144 (or equivalent) and can be found at most pharmacies or grocery stores. When replacing the battery the positive side of the button cell must face out.



A.

Fraction	Decimal	Metric
1/32	0.031	0.794
1/16	0.063	1.588
3/32	0.094	2.381
1/8	0.125	3.175
5/32	0.156	3.969
3/16	0.188	4.763
7/32	0.219	5.556
1/4	0.250	6.350
9/32	0.281	7.144
5/16	0.313	7.938
11/32	0.344	8.731
3/8	0.375	9.525
13/32	0.406	10.319
7/16	0.438	11.113
15/32	0.469	11.906
1/2	0.500	12.700
17/32	0.531	13.494
9/16	0.563	14.288
19/32	0.594	15.081
5/8	0.625	15.875
21/32	0.656	16.669
11/16	0.688	17.463
23/32	0.719	18.256
3/4	0.750	19.050
25/32	0.781	19.844
13/16	0.813	20.638
27/32	0.844	21.431
7/8	0.875	22.225
29/32	0.906	23.019
15/16	0.938	23.813
31/32	0.969	24.606
1	1.00	25.400

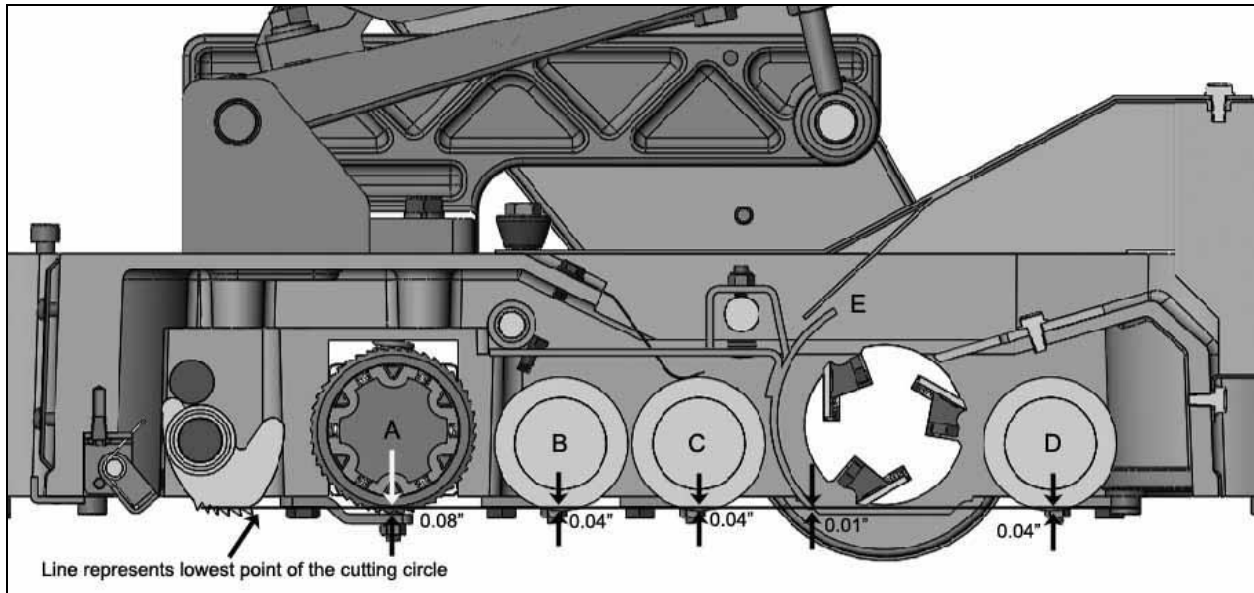


Figure 13

### Setup of Feed Rollers and Chipbreaker

**⚠ WARNING**

**Disconnect machine from the power source before performing any adjustments or maintenance. Failure to comply may cause serious injury!**

The planer comes set up from the factory and shouldn't need any adjustment.

If you find adjustment is necessary, follow the below listed sections for setting the feed rollers and chip breaker.

Figure 13 shows setup for general planing applications. The measurements shown are the relation between the lowest point of the cutting circle and the desired distance of the feed rollers and chip breaker below the cutting circle. Depending on the stock and cutterhead you may find that a different setup may work better for your particular planing operation.

Make a hardwood block to the approximate specifications in drawing Figure 14. You can use this wood gauge along with the appropriate feeler gauge (see measurements of Figure 13) to set the planer up.

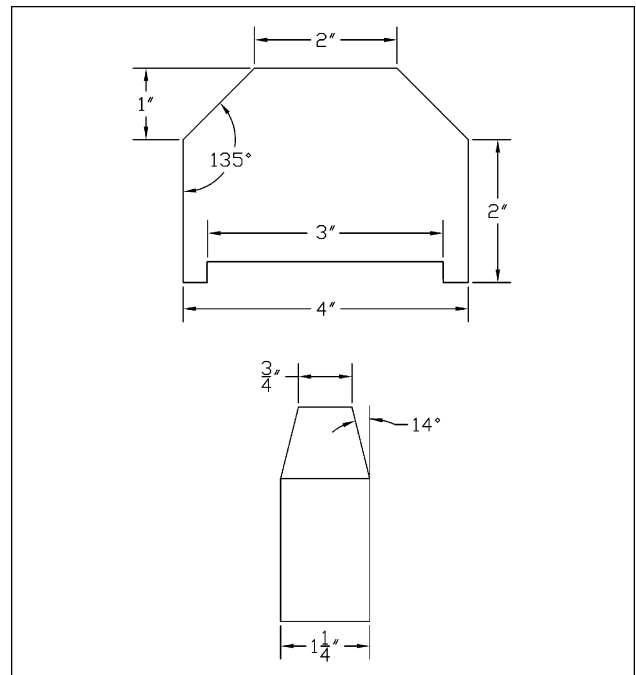


Figure 14

## Adjustment of the Feed Rollers

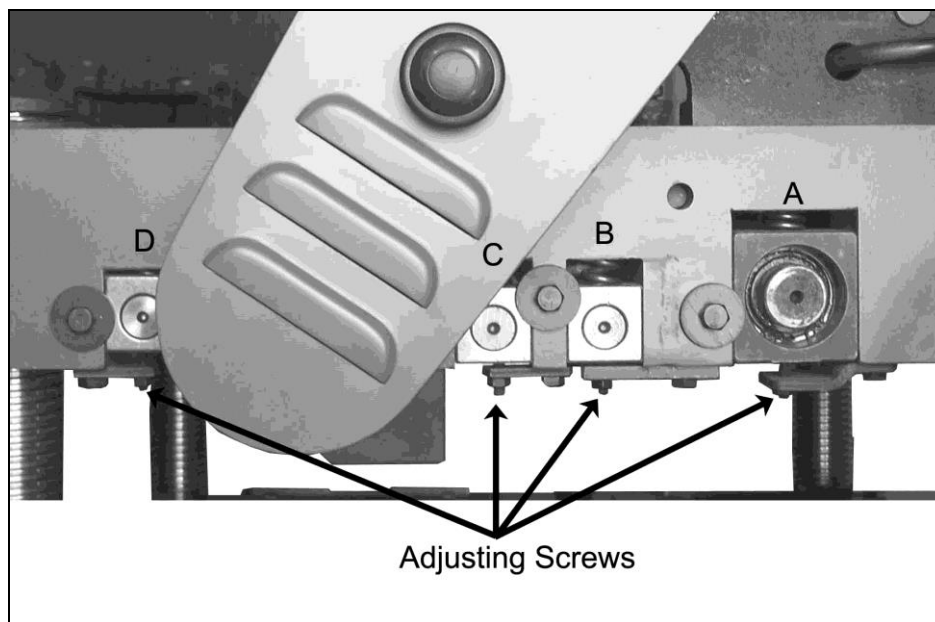


Figure 15

1. Place the hard wood gauge (E, Figure 16) you constructed under a knife in the cutterhead (F, Figure 16). Depending on which roller you are adjusting, place the appropriate feeler gauge (according to the dimension on Figure 13) on top of the wood block and raise the table until the gauge contacts the knife in its lowest position.
3. Figure 15 shows the location of the roller height adjusting screws. To make an adjustment, first loosen the jam nut then turn the allen screw to either raise or lower the roller.
4. Repeat for the right side.

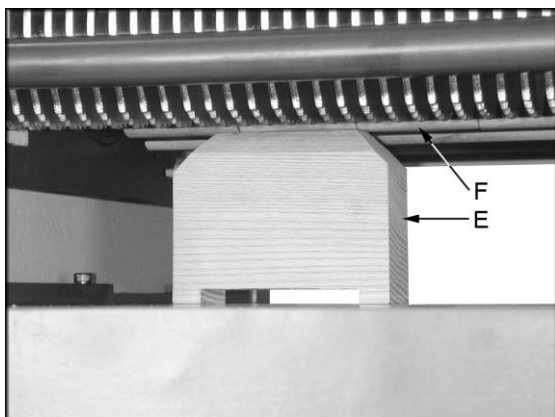


Figure 16

2. Remove the feeler gauge and place the wood block under the left side of the feed roller. The top of wood gauge should just contact the roller until it contacts the wood gauge.

## Adjustment of Chipbreaker

Remove the top cover to expose the chip breaker. The chipbreaker should be set 0.01" below the lowest point of knife. Figure 17 shows the location of the adjusting screws. Use your gage block in the same fashion as described in the feed roller adjustment section.

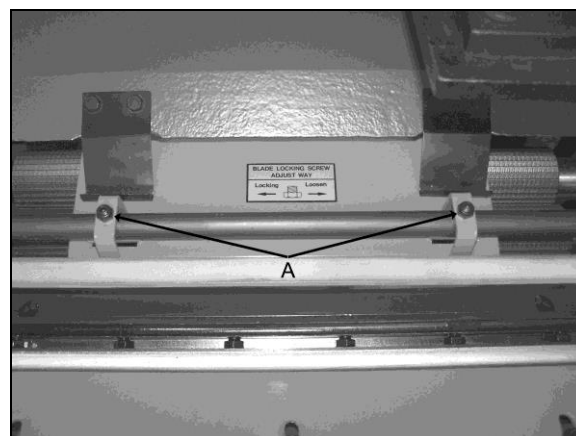


Figure 17

## Anti-Kickback Fingers

Anti-kickback fingers help prevent stock from being kicked out of the machine towards the user. Keep the fingers clean and free from sawdust, pitch gum, etc., so they operate smoothly.

## V-Belt Adjustment

Periodically check the tension on the motor v-belts. Replace if necessary. The tension has been factory set but will need adjustment after about 10 hours of operation due to stretching during the work in period.

Belts are tensioned properly when moderate finger pressure can deflect the v-belts about a 1/4"-1/2" midway between the pulleys.

## Maintenance



### WARNING

**Disconnect the machine from power source before proceeding with any maintenance, lubrication or assembly! Failure to comply may cause serious injury!**

- Periodic, or regular inspections are required to ensure that the machine is in proper adjustment, and that all hardware is tight.
- Clean out-feed rollers and table with a non-flammable solvent to remove pitch, gum and other unwanted build-up.
- Periodically clean the inside of the machine for dust control.
- Keep pulleys and belts free from dirt, dust, oil and grease. Replace worn v-belts as needed.

## Lubrication

1. The bearings on the cutterheads are factory lubricated and sealed. They require no lubrication.
2. Smear a light coating all purpose grease on the four table elevation screws indicated by the arrows in Figure 18 every 3 months.

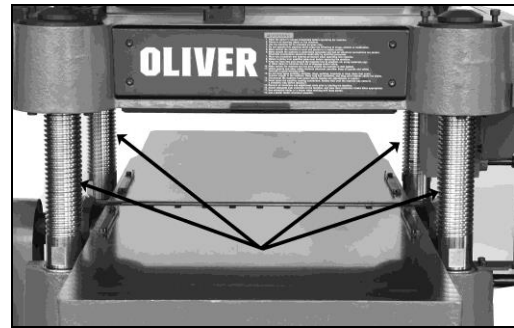


Figure 18

2. Lubricate the feed chain once a month with a light coating of grease. Remove the chain cover to access the chain by removing the allen head screw (A, figure 19).

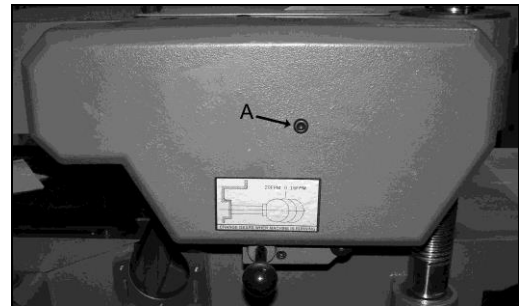


Figure 19

3. Lubricate the feed rollers after each use with a 30 weight motor oil. Four of the lubrication points are indicated by A in Figure 20. the other four are located on the opposite end of the machine.

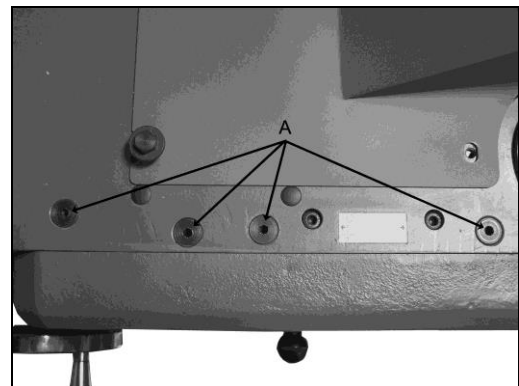


Figure 20

## Lubrication (cont.)

The lubricant in the gear box must be replaced every 2,500 hours. A 70-90 weight gear oil is suitable.

To replace the lubricant:

1. Remove the drain plug (B, Figure 21) with a 14mm wrench, and remove fill plug (A, Figure 21). Drain dirty oil thoroughly.
2. Insert and tighten the drain plug.
3. Fill with clean lubricant through the fill hole.
4. Install and tighten fill plug.

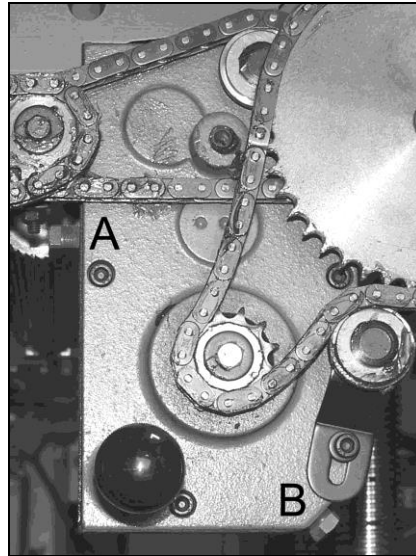


Figure 21

## Halted Feeding

If the in-feed roll takes stock away from you while feeding, then feeding stops before contacting the knives, the chipbreaker is probably too low. Or the in-feed roller is not set low enough, or does not have enough pressure. Follow the steps on pages 12-14 for setting the in-feed roller, chipbreaker, pressure bar and outfeed roller in relation to the cutterhead.

## Troubleshooting

Description of Symptoms	Possible Cause	Corrective Action
Machine will not start	<ol style="list-style-type: none"> <li>1. Fuse blown or circuit breaker tripped</li> <li>2. Cord Damaged</li> <li>3. Not connected to power source</li> <li>4. Connected to wrong voltage</li> <li>5. Emergency stop button pressed</li> <li>6. Overload tripped</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace fuse or reset circuit breaker</li> <li>2. Have cord replaced</li> <li>3. Check connection</li> <li>4. Check voltage</li> <li>5. Rotate emergency stop button clockwise until it pops out</li> <li>6. Remove lower rear cover on the base and press reset switch found inside.</li> </ol>
Cutterhead does not come up to speed	<ol style="list-style-type: none"> <li>1. Low current</li> <li>2. Motor not wired for correct voltage</li> </ol>	<ol style="list-style-type: none"> <li>1. Contact local electric company</li> <li>2. Refer to motor nameplate for correct voltage</li> </ol>
Workpiece stops when feeding	<ol style="list-style-type: none"> <li>1. Too much material being removed in one pass</li> <li>2. Chipbreaker set too low</li> <li>3. Insufficient pressure on in-feed or out-feed rollers</li> </ol>	<ol style="list-style-type: none"> <li>1. Reduce the amount of material being removed</li> <li>2. Raise the Chipbreaker</li> <li>3. Increase pressure on in-feed or out-feed rollers.</li> </ol>
Snipe	<ol style="list-style-type: none"> <li>1. Incorrect setting for in-feed, out-feed rollers, or chipbreaker</li> <li>2. Inadequate support of long boards</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust feed system per Figure 13, page 12</li> <li>2. Support long boards with extension rollers</li> </ol>

Fuzzy Grain	<ol style="list-style-type: none"> <li>1. Planing wood with a high moisture content</li> <li>2. Dull knives</li> </ol>	<ol style="list-style-type: none"> <li>1. Allow wood to dry properly</li> <li>2. Rotate or replace knives</li> </ol>
Poor feeding of lumber	<ol style="list-style-type: none"> <li>1. Inadequate feed roll pressure</li> <li>2. Planer bed dirty</li> <li>3. V-belts slipping</li> <li>4. Dirty feed rollers</li> <li>5. Incorrect setting for in-feed, out-feed rollers, or chipbreaker</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust feed roll tension or lower feed rollers</li> <li>2. Clean pitch and residue off table with a non-flammable solvent</li> <li>3. Increase v-belt tension</li> <li>4. Clean feed rollers with a non-flammable solvent</li> <li>5. Adjust feed system per Figure 13, page 12</li> </ol>