

# **SECTION H**

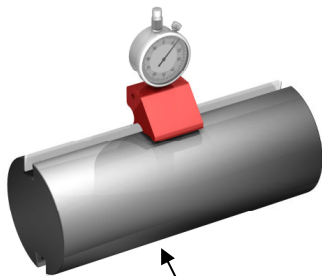
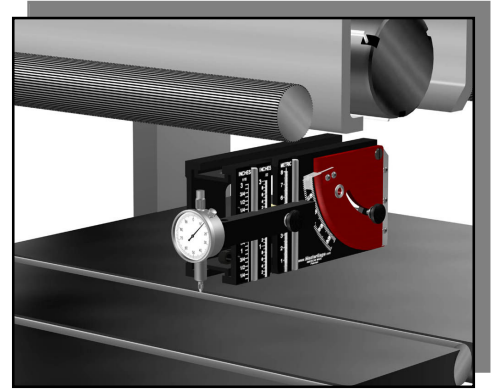
## **PLANER**

H1

H1

# PLANER

Check/set bed rollers to correct height and parallel to the table top. Use the flat Dial Indicator tip



We now offer a precision PLANER BLADE SETTING JIG for accurately setting planer blades relative to the cutter head to within .001 inches [1/1000 inches]. Contact us for details, or check our website at: [www.mastergage.com](http://www.mastergage.com)

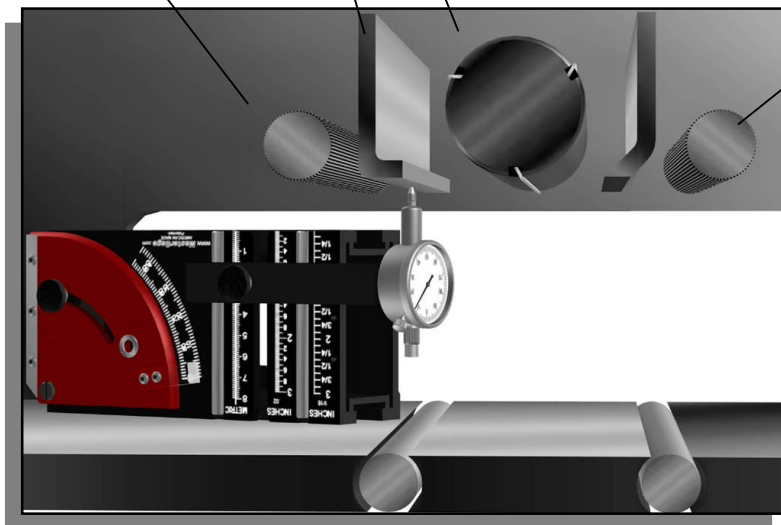
INFEED ROLLER

CUTTER HEAD

CHIP BREAKER

PRESSURE BAR

OUTFEED ROLLER



Rotate the **MasterGage/Pro** so that the Dial Indicator is facing up and check all the labeled elements on the illustration for correct height and parallelism to base table

# PLANER

**GENERAL NOTE:** *The planer is a complex machine with many components, both moving and stationary, that work in conjunction with each other. All of these components must be aligned and calibrated accurately to get the desirable results you expect. As the word “planer” implies, all of these components must be parallel with each other. NOTE: ALL ADJUSTMENTS MUST BE MADE WITH THE POWER PLUG REMOVED FROM THE ELECTRICAL SOURCE.*

## **PLANER COMPONENTS DEFINED**

**BED ROLLERS** – Most planers have two bed rollers mounted in the base table. One is located in the front of the cutter head, the other mounted in the back, behind the cutter head. The rollers are generally made of rubber or urethane. Their role is to reduce the friction as boards are pushed through the planer. They are spring loaded and non powered, and are raised slightly above the base table. Approximately 0.005 inches [5/1000 inches] for pre-finished stock and about 0.015 inches [15/1000 inches] for rough stock. It is important to maintain these heights completely across the full length of the BED ROLLERS.

**INFEED ROLLER** – This roller is generally a powered steel serrated steel roller mounted above the base table, forward of the cutter head. It is serrated so that it can grip the incoming board and move it forward through to the cutter. Tension on this roller should be stiff enough so that it leaves slight depression lines across the board. This ensures that the INFEED ROLLER will advance the board through to the cutter head smoothly. The cutter knives will remove these slight pressure lines as the board completes its passage through the planer.

**CHIP BREAKER** – It is a solid metal stationary piece and is located forward of the INFEED ROLLER and before the CUTTER HEAD. The CHIP BREAKER keeps the board from tilting at an upward angle and hitting the spinning cutter head prematurely. Both the INFEED ROLLER and the CHIP BREAKER must be adjusted even with the bottom of the CUTTER HEAD KNIVES at the cutter knives lowest point [arc]. If the INFEED ROLLER AND CHIP BREAKER are too high, the board will vibrate and have a rippled surface.

**CUTTER HEAD & KNIVES** – The CUTTER HEAD is a long cylindrical steel roller that holds 2, 3 or 4 long cutter blades [knives]. The CUTTER HEAD must be parallel across its full length to the base table to approximately 0.001 to 0.003 inches. The cutter blades in turn must be parallel to the cutter head. Again to approximately 0.001 to 0.003 inches. As you can see, the accumulated parallelism tolerances will reflect on the finished product – your finished planed wood. Be aware that the CUTTER HEAD bearings must be in good condition. If you can feel movement when you try to lift the cutter head with at each end or if you hear a clunk noise when the planer is turned on, it is a sign of bad bearings.

## PLANER

### ***PLANER COMPONENTS DEFINED (continued)***

**PRESSURE BAR** – It is located forward of the CUTTER HEAD and is generally made of a solid metal stationary piece. The role of the PRESSURE BAR is to keep pressure on the board and hold the timber down on the table to decrease vibration, thereby giving the spring loaded OUTFEED ROLLER some extra help. It also keeps the board from tilting upward after being cut by the cutter head knives. If the PRESSURE BAR is adjusted too high, it does not hold the board down and the board can bounce and be gouged by the CUTTER HEAD. If it is too low, it will rub on the new surface or even hinder the board from exiting the planer. The PRESSURE BAR should be the same height as the as the CHIP BREAKER and the bottom arc of the CUTTER HEAD KNIVES. If it is too low, it will stop the board passing through. If it is too high, the board will vibrate and have a cupped cut effect.

**OUTFEED ROLLER** – This roller is smooth, so as not to mar the machined board surface. It is designed to keep downward pressure on the finished board surface and guide it as the board exits the planer. The OUTFEED ROLLER must also be parallel and at the same height as the INFEED ROLLER, the CHIP BREAKER, the CUTTER HEAD KNIVES, and the PRESSURE BAR.

**FINAL NOTE** – All of these measurements can be made with the *MasterGage/Professional* as illustrated. The one measurement that cannot be made with the *Professional* is setting the planer blades to the CUTTER HEAD. We have a special tool for that purpose called the *Planer Blade Setting Gauge*. This precision tool is designed specifically for this purpose. Please contact us for more information regarding this tool.



**PLANER****TROUBLESHOOTING PLANER PROBLEMS**

PROBLEM: The board is tapered across its width after passing through the planer

SOLUTION: 1. Check the bed rollers for parallelism to the table  
2. Check for the cutter head and knives for parallelism to the base table

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PROBLEM: The finished board has a washboard [cupped] effect on surface.

SOLUTION: 1. Sharpen the knives. If the knives are not sharp they tend to act as a blunt surface against the board, burnishing the surface and not cutting as required.

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PROBLEM: The finished board has a glazed or burned surface.

SOLUTION: 1. The planer knives are dull and need to be resharpened

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PROBLEM: There are ridges on the finished board.

SOLUTION: 1. One or more of the planer knives have a chip and need to be resharpened.

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PROBLEM: The finished board has a rough and irregular surface.

SOLUTION: 1. The pressure bar is not holding the board to the table.

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PROBLEM: The board stops or hesitates as it is being passed through the planer

SOLUTION: 1. Either the pressure bar and/or the chip breaker is set too low relative to the cutter head knife arc  
2. The table is offering too much friction, wash the table top surface

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PROBLEM: The board turns diagonal while progressing through the planer.

SOLUTION: 1. The feed roller is applying uneven pressure along its length.

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## **PLANER**

### **TROUBLESHOOTING PLANER PROBLEMS**

- Continued -

PROBLEM: The planed surfaces are chipped

SOLUTION: 1. The planed material waste is being forced back into the planed surface. Check the vacuum exhaust system for clogged material. The material waste is not being evacuated adequately.  
2. The chip breaker is set too low and is affecting the board surface.

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PROBLEM: One or both ends of the board has snipe. Snipe is when a slightly deeper cut appears in the leading or/and trailing areas of the board.

SOLUTION: 1. The pressure bar or chip breaker is not set correctly  
2. The pressure bar spring tension may be too light  
3. Put a scrap piece of wood of the same thickness in front of and/or behind the board being passed through the planer.  
4. Place two long narrow pieces of scrap along each side of the board to be planed. These narrow pieces are to be the same thickness as the primary board  
5. Create a base extension so that the board is completely level upon exit of the planer.

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PROBLEM: Vertical cut lines across the width of the board

SOLUTION: 1. Check the serrated infeed roller for both depth [height] and proper spring tension

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PROBLEM: Wave marks on the timber.

SOLUTION: One or more of the knives are improperly set.