First: A discussion on Planing and the causes of Snipe

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Downloaded from Badger Pond (http://www.wwforum.com)

There are several sources for snipe.

One - machine snipe: relative motion of the cutter head to the platen in the vertical plane.

Two - curly lumber and it's deflection in the planer.

Three - infeed and outfeed table alignment as covered below.

Machine Snipe - There is no such thing as a perfectly rigid machine. In a thickness planer there is always some elasticity, clearance, etc that good design and shrewd operation will minimize to acceptable levels but not eliminate completely. In a planer a cutter head is nested between two or more power driven feed rolls mounted in a rigid housing. The feed rolls have to exert enough downward force to ensure uniform feed of the lumber.

Imagine yourself standing at the left side of the operator viewing with your X ray vision the guts of the planer as it operates. As the lumber enters from your right it contacts the powered infeed roll. The infeed roll is spring loaded or has an elastomer covering. As it seizes control of the board it pulls it under and starts to feed it towards the cutter. Force has to be opposed by equal and opposite force. The head raises slightly and rotates counter clockwise in your X ray vision (if you have the motion enhancement option).

The cut starts and a short distance is planed when the exiting board encounters the outfeed roll. The cutter head is subjected to the force of the outfeed roll which tilts it back relieving the depth of cut slightly and defining the limit of the infeed snipe. The same business happens but backwards for the board when it exits the planer causing the exit snipe.

The above describes the snipe in a moving head planer as in the typical bench top or smaller the free-standing units where the thickens adjustments is made by raising the head. The same snipe mechanism occurs in larger planers where the platen rises and falls to make thickness adjustments. The clearance between the table and its guide and lost motion in the elevating mechanism will still allow snipe.

The sources of planer snipe are well known to the people who design them. Many novel and effective clamps and minimum deflection designs are on the market but even the best machine snipes to some extent. The newer generation lunch box planers incorporate a four post design having a powerful clamp with toggle leverage that grips all posts simultaneously.

New bench top machines are often praised for "zero snipe" but as time takes its toll snipe becomes a problem. The head clamps are well designed but with minimum materials so they initially wear. If the owner consulted the manual that came with the planer he might find some discussion of how to adjust the clamp. If not, inspection might show a screw adjustment in the clamp mechanism. I suggest adjusting this cautiously. Toggle mechanism are extremely powerful as they go "over-center". The formula for the mechanism describes the force as an inverse function of the sine of the closing angle. When the angle is zero, the force is theoretically infinite. Elasticity of the working parts and their supporting structure naturally limits the force to some finite value but, yes, if you over-tweak it, you could bust something so proceed with care.

Lumber snipe - To minimize the effects of this, the operator should lift the work slightly as he commences the cut and hold it there until the cut is well established. This holds the free end flat on the platen until the outfeed roll takes effect. The helper at the other end does the same thing as the board exits. Thus the work is held flat to the platen and any snipe present is minimized. If a sniped board is turned over the feed roll forces the underside snipe to the platen, it compounds the topside snipe, particularly of the material is already thin and flexible

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Next: A tutorial for setting up a portable planer to eliminate snipe.

The following documents my method for setup of a portable planer that I've found just about eliminates snipe. What follows is the description of that method:

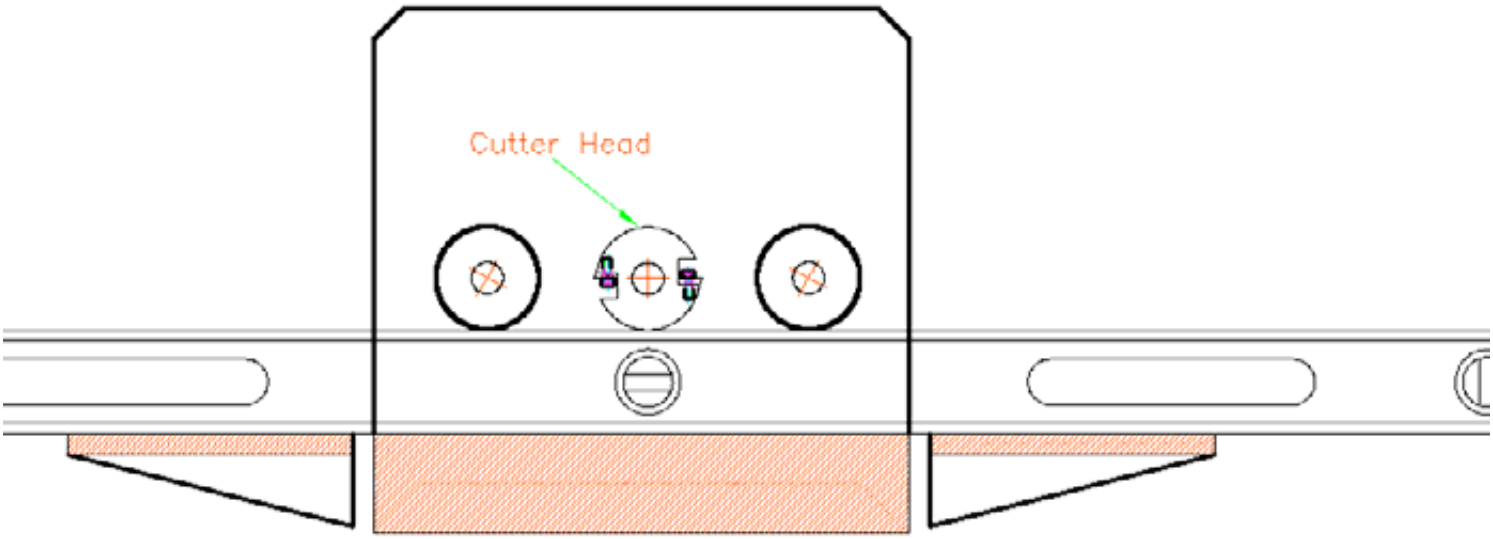
Step 1: **UNPLUG the planer!**

Step 2: Lower the in feed and out feed table adjustment screws so that the tables are below the center (cutter) table.

Step 3: Raise the cutter head assembly and rotate the head (carefully - the blades are **Sharp!**) so that no blades are hanging below the cutter head unit.

Step 4: Place a long stiff straight edge between the table and the feed rollers in the center of the cutter table (a good four foot level stood on edge works well for this).

See the following Illustration for explanation:



Step 5: Lower the cutter head assembly until the feed rollers hold the straight edge firmly in place.

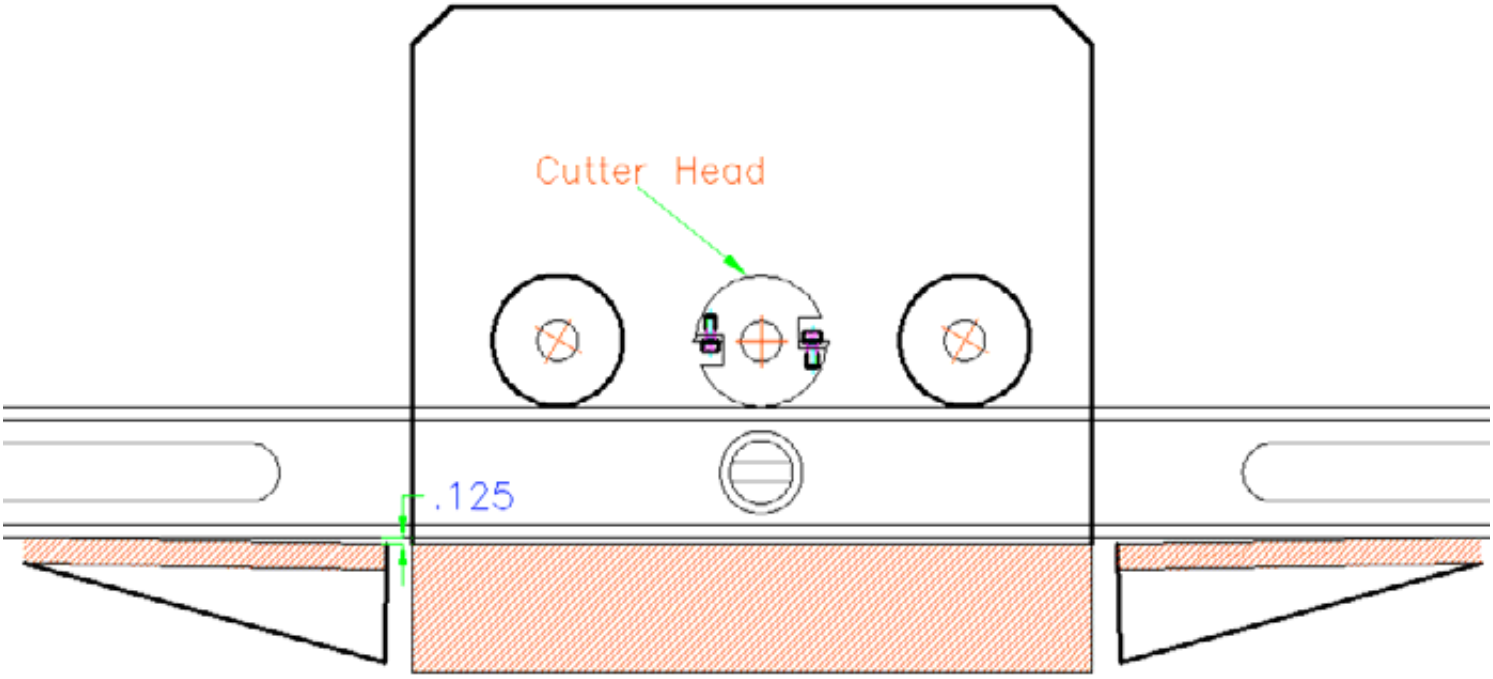
Step 6: Slowly adjust the table adjustment screws until the in feed and out feed tables contact the bottom of the straightedge.

Step 7: Release the pressure from the feed rollers holding the straightedge in place. Move the straight edge to the each side of the table and check that the in feed and out feed tables still contact the straight edge. Reapply the pressure from the feed rollers after each movement of the straight edge.

Take your time here - this is an important step - the in and out feed tables need to be aligned across the entire table.

Step 8: While the straightedge is still in position on the table, gently use a wrench to adjust the leveling screws up 1/4 turn beyond the point where the tables contacted the straight edge. When you remove the pressure from the feed rollers this should leave a small gap between the bottom of the level and the center table.

See the following illustration:



Step 9: Re-read step 8, this is the important part of the setup

Step 10: Tighten the locknuts on the table adjusting screws.

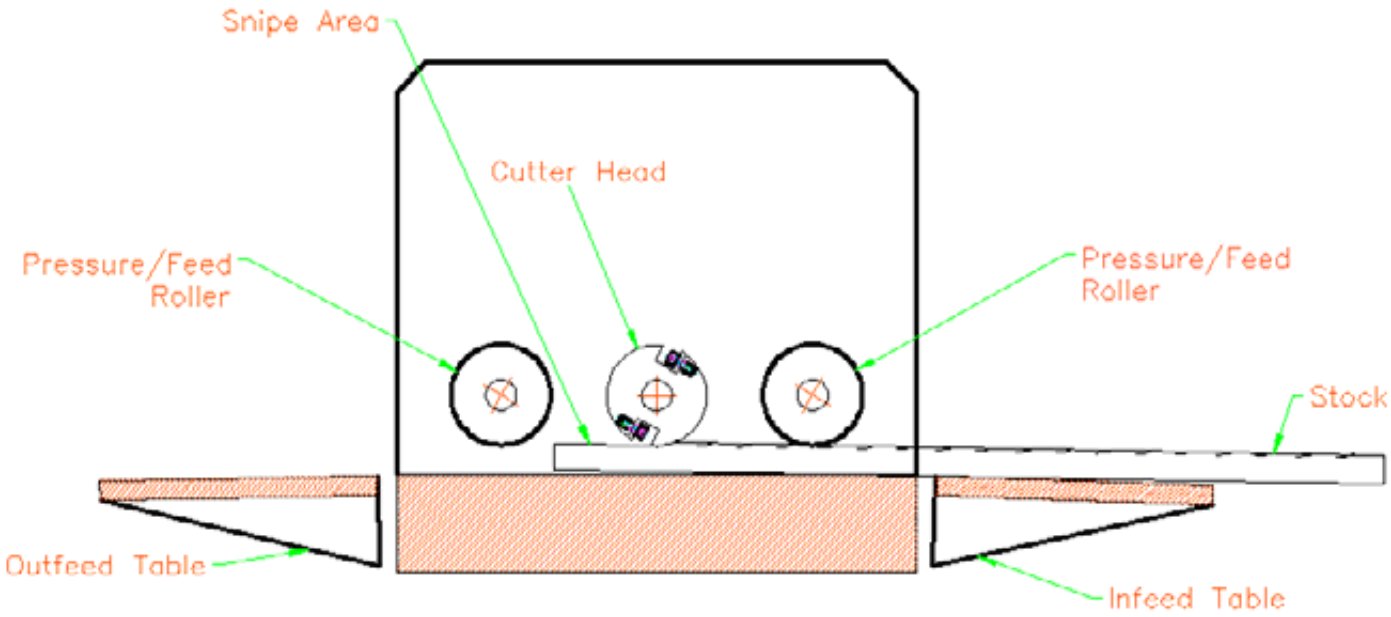
Step 11: Plug in the planer and make some test cuts

What you have done is enable the pinch rollers to effectively maintain pressure on the stock without allowing the board to raise up as it travels through the planer while contacting only one roller. Now you have at least three points of contact to the stock, the cutter table, the feed roller and the **ENDS** of the in feed or out feed table.

This is the point where snipe can occur, during the beginning or the end of the cut when there are only two points of contact (the feed roller and the cutter table) leaving the board end free to pivot up or down if the infeed or outfeed table is not applying some upward pressure to the stock.

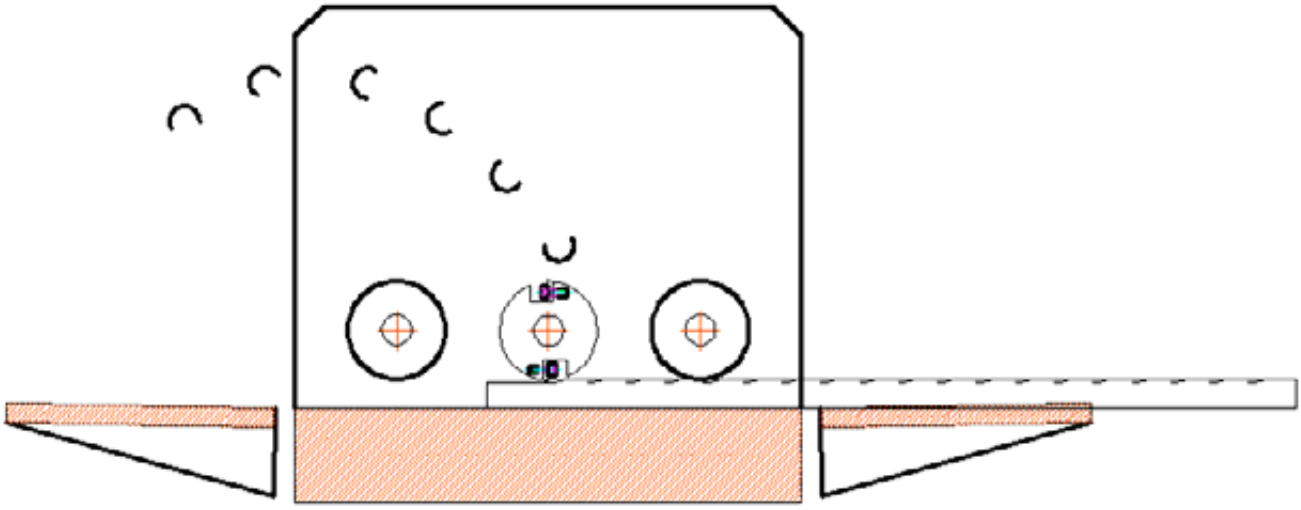
I hope this was clear enough to understand. If you don't see satisfactory results, carefully repeat this process a time or two and I think you will find it gets rid of 95% of the snipe.

Wrong Setup Shown Below - Creates Snipe



The proper setup will apply some pressure on the extremes of the stock as it travels through the planer. This should result in snipe free planing.

Proper Setup Shown Below - Eliminates Snipe:



You'll notice the illustration above shows that ends of the infeed and outfeed tables are actually slightly above the center table.

That's it - I hope it works as well for you as it does for me