

13" Thickness Planers

This class of planer is light and quite functional. All of the planers in this class function identically but beyond that, there are quite a few variations. There's >200 parts in these and they've been arranged just about any way you can imagine. Want the best value? Look for 3 knives or a helical cutter head, 4 screws and a high number of cuts per inch. Even with those ideal numbers snipe is still going to be a problem. I try to address that at the end of this treatise.

Common Elements:

The single most glaring common element is the motor mounting. All brands seem to have the same motor. It is easy to vary the pulleys to increase the torque or the speed of the cutter heads. The motors all are 15 amp but the speeds seem to have been "tweaked" widely. You'll find the speeds noted in the table below. These are (I hope) the motor speeds not the cutter speeds. Information is so scarce that I won't swear to it.

The cutter heads are the next common element: there are 2 blade straight, 3 blade straight and 26 cutter helical versions. The cutter heads should be interchangeable but I haven't tried it. Mounted fore and aft of the cutter head are drive rollers. They are geared together with a bicycle chain and a couple of sprockets. There's a "transmission" that reduces the motor speed for the drive rollers. It is geared to the cutter head and this relationship dictates the number of cuts per inch.

There are three types of blades, single edge, flipable double edge and carbide. The single and double edge are supposed to be single use but if you'll note below, there are methods for sharpening them.

The blades mounted on the cutter head are really torqued on. Removing them can be a problem. I would recommend that you get an impact driver (battery powered) to remove the screws. This will allow you to remove the screws without damaging them.

This "transmission" comes in two speed or single speed. The two speed transmission is quite nice but it has one major flaw, you cannot change speeds unless the motor is running. If the speed is

changed while the motor is not running one can destroy the transmission. I also had a drill press with a similar transmission. Marvellous idea but impractical for most people. I've also had the occasional problem changing speeds. If you have a problem, be gentle.

The next common element is on the motor carriage but it is the thickness of cut indicator. It's just a lever on a spring and a needle. But, it works quite handily. It's in the middle of the infeed side.

The raising and lowering of the motor are next. The motor is raised and lowered and held in place by screws on either side of the planer. There are two screws on each side or one screw and two sliding columns on each side. If there are sliding columns, you'll want something called "column lock" which is supposed to reduce or eliminate snipe. The two screw models have a "drive shaft" to connect the two screws. Four screw models usually use chains.

The raising and lowering crank can be positioned just about anywhere. There are even versions where the crank can be switched from one side to the other. All cranks will raise or lower the motor head 1/16" per turn.

Moulded into the side panels are usually handles to make manhandling it easier. It's not light with weights from 70 to almost 100 lbs. There seems to be no rhyme or reason in the variations of the weight.

All of the models have flip down infeed and outfeed tables. The adjustment is pretty feeble but it sort of works. I removed the infeed, outfeed and bed panels and replaced them with a piece of waxed Formica 4 feet long. This reduced my maximum capacity but left everything else within specs.

Lubricating your planer

These printers all need to be lubricated. There are a lot of moving parts that can fail so read your manual carefully. Mine (SteelCity 40200) has a full page of several instructions on lubrication.

Glossary of terms used in the tables below.

Brand/Model and Image: are included just incase you can't find a manual for your's. If your's looks and sounds like another, the manual here could apply.

Width: this seems silly but they all look alike and in some cases, the only difference is the width of cut.

Knives: in the cutting head. Note, there are three different kinds of heads, straight bladed with two or three knives and a Helical cutter head. The Helical is the best and easiest to reconfigure. Some knife sets are reversible so you can flip the blade over and get twice the life out of a knife. You also have to be careful. Some blades are High Speed Steel and others are carbide. None are supposed to be able to be resharpened but read below.

Screws: the number of screw rods used to raise and lower the motor and cutter carriage. Two is cheaper than four and far easier to balance and control. That said, the pressure applied on the pinch rollers is far less with a two screw head control than a four screw. Also the instance of snipe is less with two screws but the depth of cut is less consistent with two screws than four.

CPI: cuts per inch. This is an indication of how smooth the cut is. Each cut puts shallow divot across the board. This is called the "Planer Scallop Depth." The more scallops the smoother the board. That said, every mechanically planed board should be hand planed or scraped before use to ensure the quality of the finishing.

Amps: At the start I thought each motor would be different. They weren't but too late to remove the column. Note Amps given are for 120V AC.

RPM: revolutions of the motor per minute, not the cutting head. Note: most planers use a medium-high speed motor (>20,000 rpm) and reduce the rpm with reducing pullies to improve the maximum depth of cut and torque.

MDC: Maximum Depth of Cut

Note: the maximum depth of cut comes with a whole bunch of qualifiers. If you expect to chuck in a 13" wide board and expect it to cut the maximum depth of cut, you'll burn the motor out before the end of the board. Usually the MDC is achieved with boards less than 6" wide. A lot will depend on how the vendor has ordered his configuration.


Capacity: (Cap.) This is the space between the table and the blade at its widest point. Most planers will have a maximum capacity of 6" and some say 6½" but the original design was probably metric so we're taking licence in converting metric to imperial measure. All have a minimum thickness that they can work with, some stated, some not.

CL: (Carriage Lock) This is supposed to help reduce snipe. It may be a gimmick. I have the SteelCity 40200 and it came setup for hardwood. That means that the pinch rollers (2 of them, one ahead of the cutting head and 1 behind) press very hard on the wood. Hardwoods are harder to cut so the feed needs to have more gripping power. That means that the pressure could be too high for softwoods. In my case, in softwood the snipe is terrible but in hard maple it doesn't exist.


Speeds: you will notice that there are several speeds on a few of the machines. This has nothing to do with the speed of the cutter head. That speed is dictated by the pulley ratio between the motor and the cutter head and that remains constant. What does change is the speed of the feed. This makes a dramatic difference in the number of Cuts per Inch but the difference between 16 and 23 feet per minute is not so obvious.

When cuts per inch are given don't think that is a "usable" value. Figure this: The DeWALT 734 has 10,000 RPM and 26 feet per minute. The 26 fpm is 312 inches per minute. At 10,000 rpm that's 31 cuts per inch. DeWALT specifies 96 cuts per inch. That's a lot of draw on a universal motor.

By comparison my SteelCity 40200 runs at 21,000 rpm and 85 or 130 cuts per inch. That's much less draw.

Brand/ Model	Image	Width	Knives	Screws*	CPI	Amps	RPM	MDC	Cap.	CL	Speed feet per minute	Notes:
Rockwell RK9010		12½"	3	2	55	15	10,000	1/12"	¼-6"	no	26	HH 1332667



I can find no mention of this item in any comprehensive article. Information has been gathered from posts and catalogue listings. I've seen pictures of this painted green, brown and bright orange.

DeWalt DW733		12½"	2	2		15	10,000	⅛"	⅛-6"	no	26	
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<http://servicenet.dewalt.com/Products/Detail?isId=true&productNumber=DW733&selectedType=3438#>



<http://www.routerforums.com/attachments/dewalt-manuals/43107d1302309460-dw733-thickness-planer-dewalt-dw733-type-1.pdf>

<http://www.routerforums.com/attachments/dewalt-manuals/43108d1302309460-dw733-thickness-planer-dewalt-dw733-type-2.pdf>

Brand/ Model	Image	Width	Knives	Screws*	CPI	Amps	RPM	MDC	Cap.	CL	Speed feet per minute	Notes:
Hausmann Xpert 5848006		13"	2	2	?	?	17,500	?	?	yes		Rona 5848006
General Int'l 30- 010MI		13"	2	2	88/61	15	9,500	1/16	1/8-6"	yes	18&26 fpm	Rona 6859057



http://general.ca/pg_index/manuals/30-010e.pdf

Brand/ Model	Image	Width	Knives	Screws*	CPI	Amps	RPM	MDC	Cap.	CL	Speed feet per minute	Notes:
General 30-005HC		13"	2/ 26	4	61	15	9,700	1/16"	1/8-6"	no	26fpm	
http://general.ca/pg_index/manuals/30-005HC.pdf												
Mastercraft (CTC) 55-5503-4		12½"	2	2 ?		15	9,000	3/32"				

Brand/ Model	Image	Width	Knives	Screws*	CPI	Amps	RPM	MDC	Cap.	CL	Speed feet per minute	Notes:
Mastercraft Maximum 55-5515-6		13"				15	8,000	1/8"	6"			
Powertec		12 1/2"	2			15	9,400	3/32"	1/8-6"		26fpm	Sears generic brand?

Brand/ Model	Image	Width	Knives	Screws*	CPI	Amps	RPM	MDC	Cap.	CL	Speed feet per minute	Notes:
Powertec Professional		13"	2			15	17,500	1/16"	?-6"	yes	19fpm	Sears generic brand?
ToolKing		13"		2					6"			ToolKing. com out of date
Ryobi AP1301		13"	2	2	55?	15	10,000	1/8"	6"	no	26 fpm	



http://www.ryobitools.com/product_manual/file_url/104/AP1301_828_eng.pdf

Brand/ Model	Image	Width	Knives	Screws*	CPI	Amps	RPM	MDC	Cap.	CL	Speed feet per minute	Notes:
Ryobi AP13		12½"	2	2		2,000 watts input	8,000	⅛"	¼-6"	no	26 fpm	
Ryobi AP1300		13"	2	2		15	9,900	⅛"?	6"	no		



Brand/ Model	Image	Width	Knives	Screws*	CPI	Amps	RPM	MDC	Cap.	CL	Speed feet per minute	Notes:
Grizzly G0477		15"	2 + 2	4		12	16,500	3/32"	1/8-6"	no	11&22 fpm	
http://cdn0.grizzly.com/manuals/g0477_m.pdf												
Grizzly G505		12½"	2	2	52	15	19,000	3/32"	13/64 - 6"	no	32 fpm	
http://cdn0.grizzly.com/manuals/g0505_m.pdf												
Grizzly G0689		13"	2	2	70	15	17,500	3/32	13/64 - 6"	yes	19 fpm	
http://cdn0.grizzly.com/manuals/g0689_m.pdf												

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Brand/ Model	Image	Width	Knives	Screws*	CPI	Amps	RPM	MDC	Cap.	CL	Speed feet per minute	Notes:
SteelCity 40200H		13"	26 He lix	2	n/a	15	9,000?	1/8"	1/8-6"	yes	26fpm	
http://www.steelcitytoolworks.com/products/40200H/40200H_manual.pdf												
SteelCity 40300H		13"	26 He lix	4	n/a	15	23,000	1/8"	1/8-6"	no	26fpm	
http://www.steelcitytoolworks.com/products/40300H/40300H_manual.pdf												
SteelCity 40100		13"	2	2		15	23,000	1/8"	1/8-6"	no	26 fpm	

Brand/ Model	Image	Width	Knives	Screws*	CPI	Amps	RPM	MDC	Cap.	CL	Speed feet per minute	Notes:
http://www.steelcitytoolworks.com/products/40100/40100_manual.pdf												
King Canada KC-426C		12½"	2	2		15		⅛"	¼-6"	no	26.2 fpm	
http://www.kingcanada.com/Files/KC-426C_manual-eng.pdf												
Makita 2012NB		12"	2	2		15	8,500	⅛"	3/32- 6"	yes	27.9 fpm	
http://www.makita.ca/data/upload/tools/2012_owner_English.pdf http://www.makita.ca/data/upload/tools/2012%20-%20Revised_parts_English.pdf http://www.routerforums.com/attachments/makita-manuals/43021d1302136222-2012nb-bench-top-thickness-planer-2012_owner_english.p df http://www.routerforums.com/attachments/makita-manuals/43022d1302136222-2012nb-bench-top-thickness-planer-2012-20-20revised_par ts_english.pdf												






[illegible]



Brand/ Model	Image	Width	Knives	Screws*	CPI	Amps	RPM	MDC	Cap.	CL	Speed feet per minute	Notes:
Jet JWP-13DX		13	2	2		15		3/32"				
stored in planer subdirectory												
Hitachi P13F		13"	2	2		15	8,000	3/32"	1/8"-6"	no	24.08 fpm	

Product Safety Recall in Australia "The anti-kickback device requires re-positioning and re-configuration to provide optimum protection to the operator in the unlikely event of workpiece kickback."

http://www.routerforums.com/attachments/hitachi-manuals/43019d1302135212-p13f-planer-planer-p13f_bd.pdf

http://www.routerforums.com/attachments/hitachi-manuals/43020d1302135212-p13f-planer-planer-p13f_om.pdf

Brand/ Model	Image	Width	Knives	Screws*	CPI	Amps	RPM	MDC	Cap.	CL	Speed feet per minute	Notes:
Charnwood W570												
Clarke CPT250												
Metabo DH330		13	2	1		15		1/8"	1/8-6"	no		
http://www.routerforums.com/attachments/metabo-manuals/43064d1302222121-dh330-thickness-planer-metabo-dh330.pdf												
Ryobi ETP-1531AK												
Sealey SM1312		13"	2	2		15			1/8-6"		28.8 fpm	

Brand/ Model	Image	Width	Knives	Screws*	CPI	Amps	RPM	MDC	Cap.	CL	Speed feet per minute	Notes:
Sip 01335		13										
Craftex B2437		12½"	2	2		13	8,000	1/8	0.2"~ 6"	no	26.2 fpm	

Snipe:

Snipe is a characteristic of this class of planer. Of all of the information I can find on snipe, there is only one site that has gotten it right. Matthias Wandel's page on *Causes of planer snipe on small thickness planers* at http://woodgears.ca/jointer/planer_snipe.html. I'll let him explain the whys and howcums. The solutions are not simple. Because the cutter head carriage is the problem lifting the board on the infeed side only worsens the

problem. This solves the problem on heavy planers but that causes the carriage to flex more on this class.

If you think that snipe can be solved in this type of machine, consider this. I have the SteelCity 40200. It has four screws. I removed the infeed, outfeed and base tables and replaced them with a 4' x 1" thick piece of mdf with a layer of formica on top of that. The short third is infeed and the other 2/3rds are outfeed. I get snipe on both ends.

Solution #1

When feeding stock, feed it continuously. Do not allow the carriage to flex. If you need 6 pieces of stock for your project, use 8 with no space between the ends as they run through the planer. You can start one beside the other before it finishes going through.

Solution #2

Put sticks on either side of your workpiece. These stick out about 4" before and after the end. These sticks will keep the rollers engaged until your workpiece is through the planer. The sticks will "absorb" the snipe.

Solution #3

This one is suggested by Matthias but I don't necessarily agree. He suggests blocking either side of the carriage eliminating it's flex. Read his site for a better description of his solution.

Solution #4

This one is a bit time consuming. It involves reducing the depth of cut with each pass. By the time you get to removing about 1/64th of an inch the snipe is only 3/1000ths or so. This you will deal with by a scraper or a plane anyway to remove the mill marks.

Solution #5

This one is just as good as any of the others. Just add about 3" to each end of your workpieces and remove them only after your stock is dressed and you're doing the final cut to length. This is the most workable solution, especially for fine pieces.

Resources:

http://www.woodproductsonlineexpo.com/content.php/676/2506/wood_products_planer_misalignment.html

Got a problem with your planer and don't know what the problem is called? This site has several animated graphics that describe three common planer problems. In case this link doesn't work properly, click on "Equipment & Technology" then, "Planer Machines" then, "Planer Snipe - Online Expos."

<http://www.finewoodworking.com/Community/QADetail.aspx?id=30417>

There are several ways of addressing planer snipe. This is one of them. I have to get a kick out of this site though. Their contributing editor evaluated s11 benchtop planers: Craftsman 21758, Craftsman 21759, Delta 22-580, DeWalt 734, DeWalt 735, Makita 2012NB, Ridgid 14673, Ryobi AP1301, Steel City 40200, Sunhill SM-346, and Woodtek 115-946. I couldn't find Sunhill or Woodtek but all of the others (except the DeWalt 735) are the same machine with some variations. I wonder which one won? You figure that's the one with the biggest advertising budget ;-)

http://www.woodworkingtools.com/planer_snipe.html

This article is well worth the read. Be sure to read it all the way through. There are two opposing opinions and you have to read both to appreciate their points of view.

My position is similar to Mr. Bieber's, that snipe is caused by a certain amount of sloppiness in the cutterhead frame, even with four screws. My solution is to ease off the tension on the pinch rollers slightly to reduce the pressure of the roller climbing onto the board. I have a four screw planer and I do have snipe but I don't have slack in the screws and the planer is functioning as it should. I also think I

have a difference in hardwood planing (little or no snipe) and planing softwoods (very noticeable snipe.)

I have made several observations. The only document I can find on setting pinch rollers is in the Delta 22-580 manual. This document suggests that you make a gauge block and use it to set the outfeed pinch roller height. They say nothing about the relationship between the infeed roller, the cutter head and the outfeed roller. If you take a look at a jointer, your infeed bed is always set slightly lower than the outfeed bed. On a planer, the infeed roller should allow for a slightly thicker piece of wood than the outfeed roller. I think this is where much of the problem is coming from. It is possible that both rollers are set the same at the factory. Remember, you can set the height of the cut but not the depth of the cut.

<http://www.newwoodworker.com/plnrsuprt.html>

"The Fix" isn't. I've tried it.

http://www.woodweb.com/knowledge_base/Troubleshooting_Planer_Tearout_and_Snipe.html

There's a lot of opinions and information on this site. Some of it is well worth the look and some of it isn't worth the time to look it up. Be prepared to do some digging and lots of reading. Lots of experts and pros giving their opinions. Be selective!

http://www.woodcentral.com/bparticles/planer_setup.pdf

This is well written but still doesn't cover the entire problem.

<http://www.provenwoodworking.com/planer-tips.html>

I'm not sure how good this is. Like the woodcentral article, it doesn't cover the entire problem.

<http://www.routerforums.com/tools-woodworking/8964-material-prep-snipe.html#post77123>

This thread contains the links above

Doug Abbott's Planer Blade Sharpening Jig

http://www.ablett.jp/workshop/oak/doug_abbott.htm

This is a method to sharpen planer knives using a shop-built jig. Well worth the look.

How to adjust pinch rollers

Does anyone have any suggestions about this one?