

Swingmill Blade Maintenance

Part 1 of a 5-part series on what you need to know about swingmill blades

This Issue's Focus: Blade Identification

Heard some good things about swingmills, but don't know enough about the blade technology? And I'm guessing you certainly don't want to sound like an idiot asking basic questions. You'd be in the same boat as my husband discovering any new technology; he's very impressed, eager to watch and listen, and proudly rattles off advanced technical features. But he can't seem to answer my most basic questions. Like [new hedge trimmer that has multiple accessory heads] 'How do you change the heads?', or 'How do you sharpen the cutter things?', or even 'Does a sharpener come with it?'. I'm sorry, but those questions are simply too basic to ask. You just work those out yourself when you need to. And you certainly don't consult the manual until **after** you've broke something trying to figure it out yourself.

Even those of you who already have a swingmill, I bet you haven't got around to reading the whole manual yet, right? And I bet you were a bit lost searching for someone to fix your brand new blade after chomping through a nail for the first time. Well here's all the real simple stuff answered, up front and honest. Circular swingmill blades are a completely different technology to bandsaw blades, so this 5-part series focuses purely on de-mystifying the 'swingmill' blade.

First up, what's a swingmill? (Just in case you really are from the dark ages).

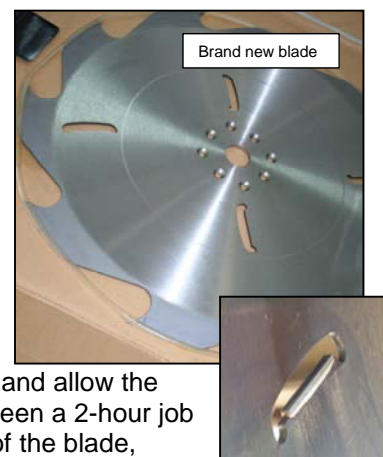
A swingmill has a single circular blade that pivots; it moves forward sawing in horizontal to make the first cut, pivots to vertical at the end of the log, and then moves back to its starting position as it saws in vertical. Your dimensional board can now be removed from the log completely edged and square. The log remains completely still and there's no edging or resawing involved.

Peterson Portable Sawmills in New Zealand were the first designers and manufacturers in 1989, followed by Ecosaw and then Lucas in Australia in 1995. Swingmills are the sawmill of choice in these countries, as well as in many of the surrounding Pacific Islands and Africa. But swingmills are still in the 'gaining popularity' phase in many northern-hemisphere countries such as the US, Canada, and Europe, simply because there is not enough information out there yet.

OK, lets look at some blades!

Here's a brand new blade straight out of the box; all sleek and shiny before you get your mitts on it. It won't look like this for very long though. As you handle it, salt and sweat from your hands can start minor rust. Even in dry storage, your hand prints will be visible in a few days. But that's no problem unless you're trying to sell a brand new blade that already looks secondhand...

You may now be asking what the holes are for, right? These are actually called Strobe Slots, where small planer knives or 'Strobe Knives' can be mounted. When you are cutting very fibrous timber like Cottonwood, the furry timber rubs the side of the blade causing friction and heat. It's usually real...slowww...going, so many sawmillers don't even bother with logs of this species. But if you install Strobe Knives in the slots, they effectively clear away the rough surfaces in the sawing path, and allow the blade to continue sawing unhindered. Strobe Knives can make all the difference between a 2-hour job and a 2-day job! Plus the slots allow water to travel through and lubricate both sides of the blade, reducing uneven heating.





Next is a perfectly good, working blade from the field. This particular one is 5 years old, and I can tell you this operator works his blades real hard! But this blade is in very good condition, and the marks and colors are completely normal. The brownish areas behind the teeth and gullets are just sap and sawdust rub marks. The owner has also left this blade out in the rain a few times - you can spot some rust pitting in the dark dotted areas. Minor pitting like this is not a big deal. Nevertheless, a blade should not be left wet for weeks at a time, as the pits can get quite deep and then weaken the structure of the blade.

Now here's a blade you'd think is destined for the scrap heap – but not so! Blade steel is chosen for its strength - not its rust resistance. This blade is still fine. It's just covered in surface rust from moisture in the air during long-term storage [yep, under cover]. There aren't any pit marks or indentations that would come from wetness; it's only a very light, but ugly, surface dusting of rust. All you need to do is give the area around the mounting holes a light sand with very fine sandpaper, to ensure it can mount flush and tight to the hub. The rest of the rust will come off with your first few boards.



The number of teeth on a swingblade, changes the performance. For example, fewer teeth with a thinner tooth are better for hardwoods, yet more teeth and wider teeth perform better in soft or fibrous timbers. More teeth give a better finish, but can be slower cutting as each tooth is only taking out a small bite. It's important that a manufacturer gets the balance right between horsepower, plate thickness, number of teeth and tooth width, to give optimum performance.

Buy genuine brand; it's safer and more effective

If you are considering getting a replacement blade made locally instead of purchasing from the manufacturer, you may need to think again. Each brand of swingmill has carefully designed their blades specifically for their mill, unlike bandsaws which are often generic. A swingmill blade's artistic design, shape, and patterns are automatically copyrighted to the original designers. And this is an international law, so it doesn't really matter that the mill is made



somewhere else and imported. Inferior quality blade copies can also make sawing a real nightmare; if the plate is too thin it will vibrate about, be hard to push, and cut rough.

Safety also has to be considered when it comes to details like ensuring the blade screws are completely level with the surface of the blade. Export manufacturers of swingmills will have spent a lot of time at the R&D stage, getting their machines up to CE Safety standards for the European market. This is one of the most stringent safety standards in the world, and close attention is paid to the blades. A blade that has CE should have a maximum rpm stamped on the body, to ensure it is not operated beyond a safe working speed. And if you ever have a problem with your blade, you can always get support from the genuine manufacturer. So considering a good blade can last you 6-8 years or more, it's a smart decision to just get a new blade from the designers themselves.

When purchasing a secondhand mill, also inspect the blades closely for stress fractures and cupping (loss of tension), and then give them a test run if they look OK. It's recommended you have a sawdoctor to check whether the body steel is beyond its shelf life. How to check teeth, gullets, and blade steel care will be covered in more detail in later issues.

There are 4 more sections of this article yet to come, which will be published in forthcoming issues;

- **Re-Tipping & Sharpening**
- **Plate (Body), Gullets & Tensioning**
- **Blade Adjustments to Run True**
- **Maintenance & Running Costs**