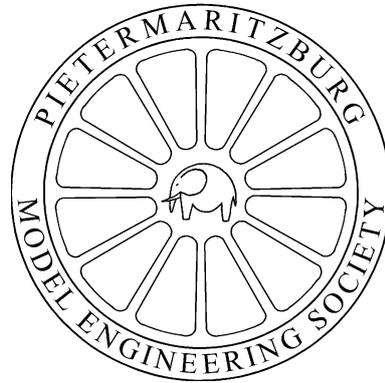


Maritzburg Matters

April



2024

PIETERMARITZBURG MODEL
ENGINEERING SOCIETY



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Track site and Clubhouse- 78 Rudling Rd
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(No postal delivery)

Club Meetings- **General Meeting:** Third Monday of each month at 19H30 at Halley Park.
Visitors welcome
Running Day: First Sunday of each month
Committee meetings: Third Monday of each month at 18h30
Work Day: Saturday following the General Meeting

Web Page- www.pmes.co.za

Facebook-  Find us on Facebook (Pietermaritzburg Model Engineering Society)

GPS co-ordinates- 29.5833° S, 30.4167° E

No responsibility is taken by the Society for any subject matter in this Newsletter other than official Society notices.

Many thanks to all who attended our AGM a couple of weeks ago, a great attendance! Not too many changes to the committee other than welcoming an additional member, Frik Erasmus, who we wish a long and fruitful time on the committee. Many thanks to all of the committee for volunteering their time and services for the next term. See the pic below of all who attended.

We await our May Running Day and that weekend with anticipation as we expect a number of visitors from various parts of the country to visit us, please note that this is open to all Model Engineers of any persuasion, not just loco builders. Bring along something you have made! We will only be open to the public on the Sunday as per usual, this should allow our members and visitors free rein on the preceding day.



Our facilities are in great shape but there is the normal list of minor maintenance jobs such as painting that need to be attended to. We have experienced some hiccups with mowers lately but so far nothing that is insurmountable. We have managed to get a number of trees removed, trimmed and otherwise cared for recently, this has been a very well worth exercise,

if anyone would like some firewood, please help yourselves.

Horizontal Bandsaw Setup

Martin Hampton

I haven't seen any instructions on how to set up a horizontal bandsaw and having fiddled with a few lately I have worked out my own way. Rather than

the hit and miss efforts that I have seen commonly used, this is my method, and please note that I am really no expert!

Take off the guide blocks and set the blade to run only on the two wheels, slacken the lock bolt (left hand in the pic) and then use the tracking screw (grubscrew arrowed) to get the blade to run true.



Slacken the blade and re-install the guide blocks.

The lateral guide bearings have one straight shaft and one on a cam on each block,

make sure that the cam spindle is installed on the outside of each block. Unlock the nut on the rear and rotate the spindle using the hex under the bearing so that the blade is slightly 'pinched' between the two bearings.



After tensioning the blade until it only just begins to strum, adjust the guide blocks to allow the rear bearing roller to just touch the spine of the blade, do this with both blocks and ensure that there is no pressure from either.



Set the guides as far apart as possible, then slightly rotate each guide block to ensure that the blade is set vertically to the bed of the machine. Do this with the saw body in the horizontal position. It is always wise to set the guides back to close to the job to be cut, or in the vicinity of the vice.

Set the main stop so that the blade stops slightly below the top of the machine base.

Adjust the switch 'pusher' to switch off as the main saw body touches the main stop.

There are a number of modifications that many workshops have done to these machines, I would recommend only two, both involving the vice, see the next newsletter!

Variable Pitch Bandsaw Blades

Lori Balkus

The variable pitch bandsaw blades, their unique qualities, and applications, are designed for a particular reason. In this case, it is pitch. Saw blade pitch is defined as the number of teeth per inch — TPI — the number of teeth that come in contact with the material being worked.

TPI has the ability to affect both the bandsaw blade's performance and its durability. Too few teeth in the cut can lead to early stripping of the teeth. Conversely, too many teeth in a cut will greatly reduce the cutting rate and ultimately make the material impossible to cut. The choice of correct tooth pitch can be decisive when it comes to things like achieving the optimum performance of the bandsaw and cutting of subsequent cross-section materials.

The description of a constant-pitch bandsaw blade indicates a uniform distance from one tooth tip to the next while a variable-pitch blade's teeth distance is within a group of teeth. The smallest and the largest tooth pitch denote the variable tooth of the saw blade. This may sound elementary to experienced people in the band sawing industry, but after hearing from a variety of customers — those with a broad and varied level of experience in the industry — the same question is still asked: When is a variable-pitch bandsaw blade used? A constant pitch saw blade can increase harmonic vibrations. Harmonic vibrations can lead to excessive noise, undesirable saw or saw blade vibrations, and in severe cases, a bad cut.

A variable-pitch saw blade, with teeth that vary in gullet depth, set angle and pitch, can greatly reduce harmonic vibrations. With varying tooth space, sawing rhythms are interrupted, chip evacuation is improved, and vibration is reduced, resulting in less noise and a better overall cut. This becomes particularly

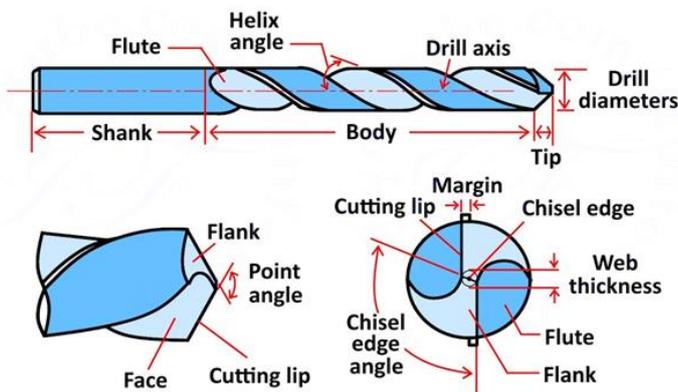
effective when cutting odd-shaped materials that are more likely to produce vibration. Vibration in the cut will significantly shorten the life of the bandsaw blade.

A variable-tooth set will also help to reduce the tooth stripping that occurs when cutting hard materials. It also offers high heat, wear, and shock resistance. These allow for a broader range of application use when cutting metal. The combination of all factors results in the longest blade life among similar types of saw blade. When combined with positive rake, the variable-pitch bandsaw blade has no equal due to its faster work penetration and increased sawing productivity.

Drill Sharpening

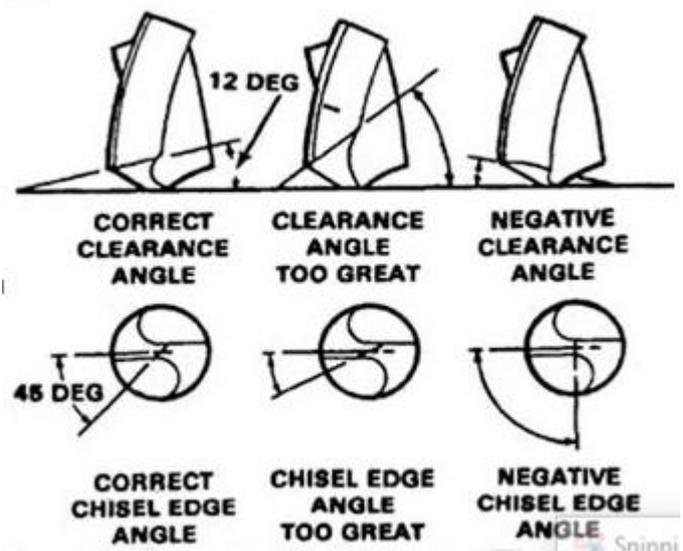
Step 1: Know Your Drill Bit

There are many features on a drill bit that can be defined. For speed sake, we're only worried about 3 basic features on the bit: the lip, land, and chisel.



The "lip" is what does the actual cutting. The two lips on the twist drill should be symmetric if an equal cutting is to be done while drilling. If one lip is favoured while sharpening, it will become bigger than the other and most of the cutting will be performed on

one side of the bit. This is bad as it makes non-straight holes. The "land" or "landing" is what follows the lip and will support the sharp edge while the bit is cutting. The landing must be angled in such a way that it leaves clearance between the part you are trying to drill and the lip. However, too much angle subtracts support from the lip, and will cause the bit to chip more often, especially on the corners.



The "chisel" is the line which is created when the landing from both sides of the twist drill intersect. In truth, this area does no cutting motion. Don't think of it as a true chisel. In fact, while the drill is turning and being forced down into your workpiece, the chisel smears the wood or metal you are drilling into the lips. For this reason, it is especially important to create a very small chisel.

Step 2: Understand Why Drills Chip and Dull

Chipped bits are caused because the landing force behind them can't support the forces exerted by the drilling operation. So make sure your landing has a curved shape to it. Curved shapes add support to the lip.

Dull bits are caused when either the chisel is having trouble smearing the material to the lip and needs to be re-defined on the face of the bit or, the lip is rolling over and needs to be re-sharpened so that it pushes directly into the workpiece.

Step 3: Practice Holding the Bit

Start in a comfortable position with your hand against the machine support and take the drill bit into both hands. Hold the bit at a 60 degree angle to the face of the belt sander. Place the end of the landing so that it is directly against the belt. Notice how the only hand that moves is the left hand. The right hand stays stationary, with only the fingers guiding the drill bit.



Step 4: Cut the Landing

Cut the landing by raising the left hand while applying pressure to the sharpening device. By moving the left hand towards the right, you will create the chisel angle. Practice a few times until the chisel angle is 45 degrees from the lip. By rotating or rolling the bit counterclockwise, you will create a rounded landing that gives more support to the lip.

Step 5: Combine Cutting, Shaping, and Rotating

Combine all three movements while sharpening to make the perfect cut on the drill face. Repeat this step a couple of times and rotate the drill bit 180 degrees in your hand to sharpen the other lip.

WARNING: this procedure will heat up the drill bit face. Have a cup of cool water by your belt sander or bench grinder to dip the tip of the drill bit into to cool it off. If it's too hot to handle, then you are probably weakening the integrity of the steel that your bit is made of. So keep it cool.

Step 6: Repetition

It may take a couple dozen times to get the two lips of the drill bit symmetric.



That's normal and requires a lot of patience. But keep on trying! Often rotate which side of the bit you are working on so that you don't favour one side over the other. Always make deliberate cuts, don't try to "feather" a sharp tip by pressing the drill bit lightly into the sander or grinder. This almost always leads to uneven lips or will cause you to roll your lip so that it no longer cuts.

If you've practiced a little with your bit and have been able to successfully roll and shape your landing and chisel, you are ready to start drilling! Go ahead and try out your bit in a drill press or hand drill. If drilling is still difficult, look at your chisel and landing angles to make sure you've got enough relief. If you see chips only coming off one side of the bit, make sure the two lips are symmetric across the centreline of the drill bit. If you see chips come off the bit on both sides of the drill bit, you're good to go!

Club Notices

- The next **General Meeting** will be on Monday evening 15th April in the Clubhouse at 7.30pm, and will be in preparation of our Open Weekend, please bring any other questions or comments that you might like to air!
- Please note that **Subs are now due**, please pay the **R200.00**! Any EFT payments must be accompanied with your name as the reference, without a reference it becomes very difficult to see who has paid what!!

The banking details are:

- Account number: 2004231637
- Hayfields Branch code: 198765
- This is a Savings account
- Nedbank

Please note that this is the PMES savings account, you may have previously paid into the current account which is going to be closed. Please amend your beneficiaries list if necessary.