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The Bee Travel Wheel

All About Your Bee Travel Wheel, by Amelia Garripoli



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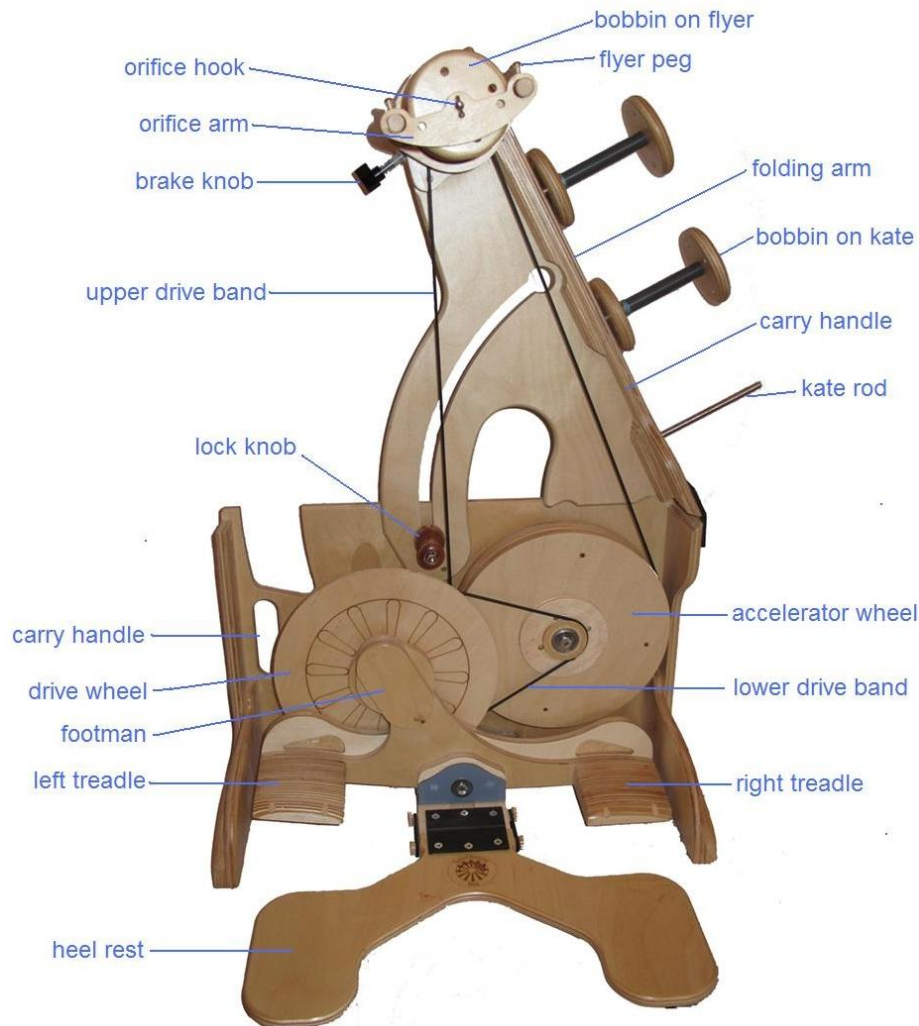
Contents

Your Bee.....	3
Unpacking your Bee.....	4
Unfolding your Bee	4
Folding your Bee.....	5
The On-board Kate.....	5
Treadling.....	5
Bobbins	6
Setting the Ratio	7
Working with Open Threading.....	9
Adjusting the Tension.....	9
While you are Spinning	10
Learning to Spin	11
Twists and Turns	13
Maintaining your Bee	15
Technical Specifications	15
Bee Accessories.....	15
About the Author.....	15
Meet the Makers.....	16

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Please use the information in this guide in a responsible manner. A spinning wheel is a complex machine, and needs to be treated with care and respect. Please contact your dealer or the makers if you have any questions or concerns about your Bee Travel Wheel.

Your Bee



The Bee Travel Wheel by SpinOlution combines traditional functionality with innovative features.

I've used traditional names for traditional parts on this diagram. However, "folding arm" is my own term for the long arm that lifts when opening the Bee. The arm holds the Kate rods and ends at the flyer. The Bee has unique features in its orifice arm (usually part of the flyer assembly), orifice hook, flyer pegs (usually hooks), heel rest, and lock knob.

Model Changes ...

The Bee has had some changes in its features since the original release; the current model is shown here.

- The upper middle carry handle hole and one of the round holes in the case were removed to avoid pinch problems.
- The foot pedals and heel rest have been rounded and the heel rest is longer for increased comfort.
- Channels have been put in the back of the drive wheel to make putting the drive band on easier.
- The flyer rod no longer slots into the orifice; it stops at the front of the bobbin. This decreases drag on the bobbin.
- The bobbins now have rounded edges (old-style bobbin in upper photo on page 6).

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SpinOlution's goal is to provide the most advanced and easy to use spinning wheels that have ever been seen or used. The evolution of spinning wheels is finally here!

Your Bee is a unique wheel – so even if you usually skip manuals, please take a look through this for an overview of its special features. Its scotch tension mechanism is unique, the bobbins and orifice are novel, and the treadling you'll have to experience to believe. ☺

If you are new to spinning on a wheel, I heartily recommend you hook up with a book, video, class, or local guild – check with the vendor you purchased your wheel from, they may teach, or be able to point you to a local teacher or guild. Maggie Casey's *Start Spinning* is an excellent book, and Patsy Zawistowski's video *Spinning Wool: Basics and Beyond* teaches spinning in a similar format to my own classes.

I want to state clearly up front – this guide introduces the key features for success on your Bee; however, it is not a complete book for learning to spin. Please see the recommendations above, for that.

Now, if you take a class, it's likely your teacher hasn't spun on a Bee before – unless she also owns a Bee. So you might want to bring this guide along to help her understand the special features of your Bee.

Unpacking your Bee

If mailed, your Bee arrives packed in a box. Lift out any covering pieces of packing material, then check carefully – the Kate rods (3) and additional bobbins (2) will be tucked in – depending on which side of the box you open, they may be on top of your Bee or under it. Look through the packing material to be sure you have taken all of the items out of your box. Check for loose pieces that may have come off during shipping, to be safe.

Unfolding your Bee

The Bee arrives in its folded state with a bobbin on the flyer spindle already. You will notice 2 flat-oval cutouts on the reverse side of your Bee. Those are carry handles to use when your Bee is folded. You can also carry the Bee with the carved out grip on the folding arm. Use your preferred orientation, wide top or narrow top.

To unfold your Bee, sit the Bee up so the heel rest is nearest the floor. Start by pulling the lock knob out – it's not removed, just pulled out so as to no longer lock the Bee closed – then lift the Bee's folding arm at its midpoint to raise the flyer. Once the folding arm is in its diagonal position, put the lock knob back in place, locking the Bee open. Check carefully that the lock knob is holding the arm



open before releasing your hold on the arm. Once the flyer is raised and locked in place, lower the heel rests.

Before spinning, check that the drive bands are set up for the ratio you desire. The lowest ratio, 5:1, is used by putting the lower drive band in the back groove on the drive wheel and on the middle groove on the accelerator wheel; and putting the upper drive band on the largest groove on the flyer. The upper drive band always rides in the largest groove on the accelerator wheel. Check also that the drive band is not wrapping around the locking peg, but is to the right of it as you face the flyer.

I recommend folding up your Bee when it is not in use, and carrying it folded.

When you fold your Bee, hold it open before you pull out the locking peg, or the folding arm will fall. Keep hands away from where the Bee folds together to avoid an accident.

Folding your Bee

This is important – you don't want to pinch your fingers! Start by folding up the heel rest. To fold the flyer down, with one hand hold the folding arm of the Bee on the spinner's side of the Bee, midway along its length; with the other hand, pull out the lock knob. Now lower the arm until the flyer slots into place in the base. The flyer arms may need to be rotated to not push on the drive wheel. I also like to rotate my flyer so the pegs are pointing toward the drive wheel, rather than pointing out. Put the lock knob in place to lock the wheel closed. Be sure to check that the wheel is locked closed.

When your Bee is folded, the upper drive band will rest on the locking peg – if you are a fast-flyer-whorl junkie like me, you'll want to flip it over to the other side so it's not resting there, for maximum drive-band rebound during its resting time. You may also want to change the lower drive band to the smallest grooves, for the same reason.

To put your Bee in the SpinOlution Bee Tote, remove the Kate rods and any bobbins on them, and store them in the internal zippered compartment.

The On-board Kate

Place the Kate rods in the three metal bushings on the spine of your Bee to set up your on-board Kate. Place the bobbins on the rods, with the bobbin's metal bushing end against the metal bushing at the base of the Kate. You may want to oil the Kate rods and metal bushings lightly, so that the bobbins don't chatter during plying. Because the rods hold the bobbins at an angle, you will find that gravity provides all the tensioning you need for plying from the on-board Kate.

When removing bobbins from the Kate rods, push down on the rod as you start lifting the bobbin so that the rod does not lift with the bobbin.

Treading

The Bee uses a treading system unique to SpinOlution wheels. It is a left-right treading, with the ball of each foot on each treadle. Place the ball of each foot on each treadle; depress one treadle fully, and then the other. Your heels rest on the heel-rests in front of the treadles, only your toes need to go up and down. If you try to push



down a treadle with one foot before the other treadle has gone completely down, you will find the treadle very difficult to push. With a little practice, you will soon find where each side is completely depressed and adapt your rhythm to the upswing of the other treadle.

When treadling, push down on one treadle completely before pushing down on the other treadle.

Treadling should move both wheels and the flyer, when the drive bands are properly placed. If a wheel or the flyer is not moving, or it feels like you are pushing a refrigerator, check that both drive bands are in grooves on the drive wheels and the flyer whorl and that the drive band is not on the wrong (left) side of the locking peg.

The treadling is very light on the lowest ratios; it will take hardly any effort at all to keep the wheel going. At the lowest ratios, you may be able to keep the wheel spinning with only the toes of one foot treadling on one treadle. The amount of effort needed increases on the middle ratios, and is similar to traditional treadled wheels at the highest ratios.

I prefer to treadle in my socks (handspun for special occasions), as this keeps my treadles and heel rests clean of anything my shoes may have picked up.

As with all wheels, practice treadling your wheel until you can start it going the direction you desire. Traditionally, spinners learn to spin singles clockwise and to ply counterclockwise, so start there. Or buck tradition, just make sure to ply in the opposite direction to that used to spin your singles.

The key to being able to start your wheel in the direction you desire is stopping the wheel at the right part of the treadle swing. Don't stop with either treadle completely depressed. If your first (slow) push down starts the wheel going the wrong direction, give a little push the other way to get the wheel started in the desired direction. With the wide range of ratios available on the Bee, it is not necessary to treadle quickly, so practice treadling until you can get the wheel turning slowly in the desired direction automatically.

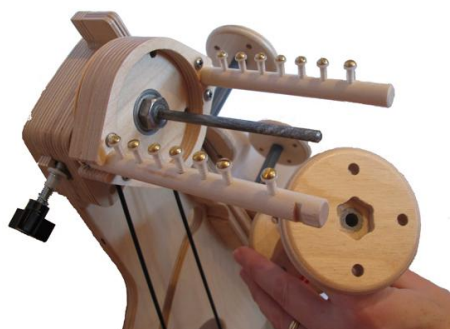
Don't combine this direction-change trick with a fast start – the yarn is likely to jump off the flyer pegs and twist around the flyer spindle, requiring you to stop and fix things before you can continue.

It should not be necessary to start the wheel in the desired direction by touching any of the drive wheels with your hands. That said, beginners can struggle with learning this magic trick on any wheel – you may find a short push on the top of the accelerator wheel in the desired direction gets you up and treadling in the direction you desire while you are still new to spinning.

Practice until you no longer need this push to start.

Bobbins

Remove the bobbin from the flyer spindle by squeezing the two flyer arms together and then pulling forward on the orifice arm – this is the cross-piece at the front of the orifice. The orifice arm comes off, and then you can pull the bobbin off.



To put a bobbin on the flyer spindle, make sure to match the hexagon cut-out at the back of the bobbin with the hex nut at the back of the flyer spindle. The bobbin is keyed onto the flyer spindle, as its rotation is braked by the tension knob on the top left of the folding arm. The inner face of the back whorl on the

bobbin should sit almost flush to the back of the flyer. If the bobbin is not far enough back, the orifice arm will not fit back onto the flyer in the grooves that hold it in place.

Replace the orifice arm on the flyer arms by pinching them in slightly and then pushing the orifice arm until its pegs slot into the cutouts on the ends of the flyer arms. There should be some open space between the end of the bobbin and the orifice arm; they don't come in contact with each other.



The Bee's bobbins have four holes around the end whorls. These can be used to hold the leader. For a leader, make a large loop from about two yarns of strong fine yarn – I use perle cotton, acrylic yarn, or a cabled wool yarn. Tie the loop with a simple overhand knot, and position the knot so it's not at either end of the loop. Push the string through one of the holes and back through another, so the ends of the loop are on the inside of the bobbin. Put one end of the loop through the other, and tighten this up as shown in the picture. This leader will stay secure and works for both clockwise and counter-clockwise spinning. Attach the leader to the front holes of the bobbin for smoothest spinning; if you put it on the back of the

bobbin, it can rub against the back of the flyer.

Setting the Ratio

Your Bee has a plethora of ratios (oh my – a plethora. That's a lot!) – nine, to be exact. But you are wondering – what's a ratio? The ratio is the number of times the orifice hook will rotate – the number of twists it will put into the fiber you are spinning – for each complete rotation of the drive wheel. The drive wheel makes a complete rotation with each complete trip of the treadles (both as a combination) up and down.

The Bee uses an accelerator wheel system – the treadles turn the drive wheel, the lower drive band drives the accelerator wheel, and that wheel drives the flyer. Both bands are used to set the ratio from 5:1 to 35:1.

Because of the Bee's accelerator wheel system, its ratios are provided to you in groups of three. The lower drive band connects the drive wheel, powered by your feet, to the accelerator wheel. Its three settings provide you with the low-range, mid-range, and high-range of ratios. The upper drive band connects the accelerator wheel to the flyer. This band stays in one place on the accelerator wheel, and can be put in one of the three grooves on the flyer to fine-tune within the range set by the lower drive band. On the flyer whorl, the smaller the groove diameter the upper drive band is placed in, the higher the ratio, within the range controlled by the lower drive band.

The drive wheel has a notch in the back to make moving the lower drive band easier. To adjust the lower drive band, move the drive wheel so the notch is at the 2:00 position as circled in this picture. Hold the drive band in the groove there and while holding it, rotate the drive wheel counter-clockwise – once you have started the band will stay in the notch all the way around.

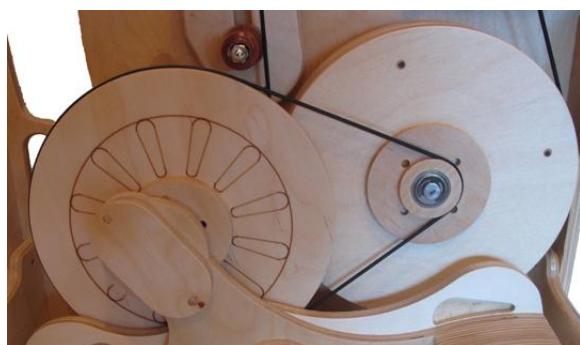




Here you see the **low-range** setting for the drive band: the smallest groove on the drive wheel (behind the wheel) and the larger of the two grooves on the front of the accelerator wheel. In this setting, the flyer whorl's grooves give you ratios of approximately **5:1, 7.5:1, and 12:1**.



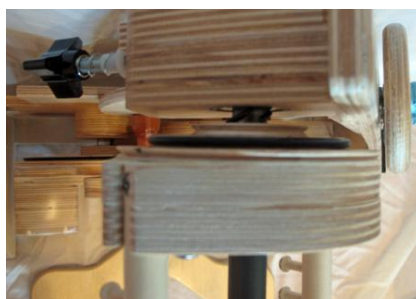
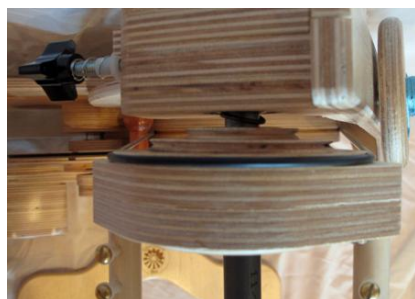
Here you see the **mid-range** setting for the drive band: the smallest groove on the drive wheel (behind the wheel) and the smaller of the two grooves on the front of the accelerator wheel. In this setting, the flyer whorl's grooves give you ratios of approximately **12.5:1, 18:1, and 27.5:1**.



Here you see the **high-range** setting for the drive band: the largest groove on the drive wheel (the outer rim of the wheel) and the smaller of the two grooves on the front of the accelerator wheel. In this setting, the flyer whorl's grooves give you ratios of approximately **15:1, 20:1, and 35:1**.

Treading in the high range is more effortful – you may wonder what happened to your easy treading. Start treading slowly, then gain speed. Once you get it started, it keeps going with regular treading.

The intrepid spinner would suggest a fourth setting as well – the larger whorl on both wheels – but it puts the drive band at more stretch than these settings, so I don't recommend using it.



The three pictures above show the upper drive band. Left, we see it in the largest diameter groove, for the lowest ratio setting in the range set by the lower drive band; the middle picture is the middle diameter groove, for the middle ratio setting; and the right picture is the smallest diameter groove, for the highest ratio setting.

How do you pick a ratio? Some spinners go by feel – they fiddle around until they find a ratio they like, and then they stick with it. Then, they take a technical spinning class and find out how their teacher

recommends they adjust ratios, up or down, for plying, spinning sock yarns, or whichever technical skill the teacher is presenting. I can heartily recommend the book *The Intentional Spinner* by Judith MacKenzie McCuin, which provides several charts and diagrams showing when and why to apply ratio changes when spinning.

Generally, the higher the ratio, the more twists you put in your yarn for a complete treadle revolution, and the less drag there is on the flyer (draw-in tension is lower). The lower the ratio, the fewer twists you put in your yarn per treadle, and the more drag there is on the flyer. So, when you adjust the ratio, you may also then need to follow up by adjusting the tension – but honestly, this change is pretty subtle, so if you don't notice, you aren't alone. ☺

Working with Open Threading

No doubt you noticed that your Bee wheel has a unique open threading system. It uses pegs rather than traditional hooks – no more getting fibers or boucle loops caught on the tip of a hook as you spin! And it has an orifice hook rather than the traditional orifice tube – no need for an orifice threader!



For me, this is priceless – I can interrupt a plying job in mid-stride without breaking off the singles. I don't have an extra tool to keep track of (that orifice threader). And I can spin all the crazy yarns I want without getting hung up on the hooks. The orifice peg has a smooth ball tip too, so it's not going to catch stray fibers either.

If you've used a delta orifice before, the theory is very similar. You bring the yarn or leader from the outermost point of the orifice hook horizontally toward you. At first, the yarn may slip out of the leader as you are learning to spin – work on keeping the angle of yarn from orifice to you horizontal, and work on keeping the wheel going in the same direction as you treadle. If you're just starting out, changing direction in treadling will cause the yarn on the bobbin to loosen and wind off the bobbin, leaping off the pegs and out of the hooks – stop, breathe in, breathe out, thread it back up, and start again. You're learning, give yourself a break. ☺

Adjusting the Tension

Once you have unfolded your Bee and put a bobbin with a leader on your wheel, you will need to check the tension on the bobbin to ensure your yarn will take up onto the bobbin as you spin.

Tension on the bobbin is controlled by adjusting the brake knob to the left of the flyer on the folding arm. Clockwise rotation of the knob (looking at it face on) increases the brake

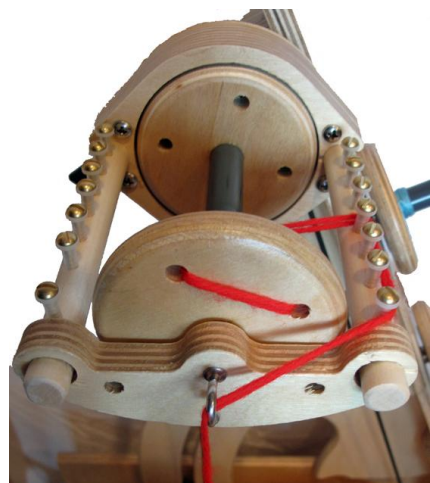
pressure, and counterclockwise rotation decreases it. Very minor adjustments are needed to fine-tune the tension – less than 1/8 of a turn – so only use full rotations for the initial adjustment.

The Bee is a Scotch tension wheel. Adjusting the brake knob changes the brake pressure on the bobbin via the flyer spindle. The flyer spindle turns independently from the flyer arms, making this a true Scotch Tension, slowing the bobbin, not the flyer arms (Irish tension brakes the flyer arms).

Let's explore the braking system briefly. The brake knob screws onto a threaded rod; it pushes on a spring, which pushes on a nylon flange, which in turn pushes on a wooden block. The wooden block goes into the flyer mounting; on its inside edge, it is curved, and has a piece of suede attached. The suede pushes on the

rod (technically, the flyer spindle) that the bobbin sits on. About once a year (or when you notice the brake not being as effective), undo the brake knob completely, and take the spring, flange, and wooden block off. Check the suede – over time its rough surface is smoothed; if needed, rough it up with a stiff-toothed comb, your fingernail, or coarse sandpaper.

To set the initial bobbin tension, start by twisting the knob until there is no pressure on the spring resting on it, so that any more clockwise twisting of the knob would cause the spring to start to compress.



Bring the leader to the orifice by taking it from the bobbin out to a peg directly to the side from it, then forward outside the remaining pegs to the front of the flyer arms, and from there under the orifice hook and toward you. Hold the leader straight from the orifice hook toward you, not at an angle.

Always go along all the pegs from the first one you come to, to the front of the flyer arm. If you skip some pegs, your yarn will rub against the end of the bobbin. (Okay, except when lacing... what's that? See 'Twists and Turns - Tips to Make Spinning Easier' at the end of this guide.)

If your leader is short, you might add a yard or two of string to the end for this step... now treadle, and see if the bobbin will take up the leader or not. If not, twist the brake knob clockwise half a turn and try again. Once the leader does take up, you will want to fine-tune the tension with turns less than $1/8$ of a rotation of the knob, clockwise to increase take-up or counter-clockwise to decrease take-up, until you can easily pull the leader off *while you are treadling* but still have the leader be taken up onto the bobbin if you are not resisting the take-up. If this testing takes a while, be sure to let the twist out of your leader from time to time – treadling with a corkscrewed leader is an exercise in not-fun.

You might want to have a tighter tension than I've described setting above when you want to make a low twist yarn; when you're drafting quickly enough that you want faster take-up onto the bobbin; or for the stronger take-up needed for a thicker yarn, plying, or a fuller bobbin.

A great Bee feature is that you will not have to adjust the tension when you change bobbins – most Scotch tension wheels put the brake band on a groove in the bobbin, so you have to remove the brake band, and then replace it, when you change bobbins. Not so with the Bee. ☺

While you are Spinning

When spinning clockwise, it's usually best to start on the right-side pegs; counter-clockwise, start on the left-side pegs. That way, the yarn will want to stay against the pegs as you spin. You will need to stop and change pegs from time to time so that the little hills of yarn that build up don't collapse into messes on the bobbin. Move regularly toward the back and then back toward the front, up and down. You can simply take the yarn off one peg, leaving it on the rest in the row, or add it around another peg in the row. Don't slalom the yarn around the pegs – it always goes to the outside, and then stays outside along the row of pegs until you come to bring it to the orifice. The last peg before the orifice hook is important – it prevents the yarn from rubbing against the edge of the bobbin: be sure to be outside the final peg.

With experience, you'll find it won't matter too much which side of the flyer arm you are on – you can use the pegs on both arms to more completely and evenly fill the bobbins. Note that when you change which flyer arm you come along, you will need to unhook from the orifice hook to come from that side of the

flyer arm to the orifice hook. Otherwise your yarn will wrap around the orifice hook and won't take up onto the bobbin (at all, or as easily... your experience may be either).

Hold the yarn you are making in a line from the center of the orifice hook to you. I keep my forward hand in a fairly neutral position in front of my body, so the yarn is coming in a horizontal line, from the hook to my hand. If you hold it at too extreme of an angle up, down or to the side, the yarn will thump as you spin it. Most spinners don't like that...

You may find you need to increase tension slightly – only a millimeter-sized nudge at a time – as the bobbin approaches full. The fuller the bobbin is, the more it can overcome the braking pressure. This is true of any Scotch tension based flyer system.

Learning to Spin

If the Bee is your first wheel, I recommend starting out on the lowest ratio – the lower band on the lowest ratio range, and the upper band on the largest flyer whorl.

The First Steps...

With nothing on the bobbin, practice treadling as described earlier until you can start and stop the wheel going the direction you want.

Then put a leader on the bobbin and attach some yarn leftovers up to your leader (acrylic's great for this!) – wrap the end of the practice yarn through and around the leader's loop a few times to catch it in place, or use a half-hitch so it stays attached. Treadle so the wheel spins clockwise, letting the acrylic be drawn onto the wheel. Be sure to adjust the tension as described before. Doesn't the feel of treadling change a lot when you add yarn to the mix? Hold this practice yarn so that it feeds onto the wheel easily, and then hang onto it, so that it gets a little clockwise twist before it draws onto the wheel. You'll be hanging onto your fiber like this while you are drafting it, so get used to that "holding back" feeling.

Once you've had enough of that, put the bobbin on a kate rod and put an empty bobbin on the wheel.

Then do the exercise again with the yarn from the bobbin on the kate, but this time spin the wheel counterclockwise. Not only is this good practice, but you can put back in the twist you took out spinning clockwise.

Adding Fiber

Whew! You're really going to learn to spin from these small notes? Remember what I said at the opening ... this is really abbreviated! I recommend taking breaks – try these things in 15 minute increments, not more than 4 a day, so your brain has time to learn the muscle skills involved. It easily takes a month to develop basic spinning skills – and it takes practice, not just one concentrated session.

I recommend starting to spin with a Romney or Corriedale roving. Ask – roving is better than commercial top for this first lesson, as top is very compressed and harder to draft. Drafting is pulling the fiber along its length to make it thinner. Tear off a piece of fiber a foot long, then break it lengthwise into pieces about as wide as your thumb. Now hold one of these with your hands 8 inches apart and tug gently. See how it gets longer, but doesn't separate? Do this along the length until your piece is twice its original length. Eventually, you can skip this step and do this drafting while you spin.

Now pull out just a bit of fibers at the tip, so you have a skinny piece at the tip of your length of predrafted roving that is about 6 inches long. Sit at your wheel with an empty bobbin and a leader on the bobbin. Put

I highly recommend:

Start Spinning
by Maggie Casey

The Intentional Spinner by
Judith MacKenzie McCuin

the leader on the pegs and orifice hook as described earlier in this guide, and then put 3 inches of the predrafted fiber through the loop at the end of your leader, pinching both ends about an inch from the leader with your primary hand (primary = right for right handers, left for left handers). With your other hand, hold the fiber about 8 inches back from your primary hand.

Treadle slowly, clockwise. Keep pinching that fiber! You'll very soon feel twist at your thumb. Slide your pinching, primary hand back about an inch (while treadling s.l.o.w.l.y). See how the twist follows it?

Okay, now things get exciting... your other hand holds the fiber, while your primary hand pulls forward to both pull fiber out of the fiber mass, drafting it, and to feed the yarn you've made onto the bobbin. Every so often, your other hand will need to slide back to provide more fiber for drafting to your primary hand. That back hand should only be holding the fiber gently, as if it were a baby bird, not gripping it. A tight grip will matt the fiber and keep your primary hand from being able to draft from the whole mass.

Your drafted out, twisted fiber is yarn when it doesn't pull apart any longer. Stop, test a length by tugging on it, and adjust. Usually beginners have the opposite problem – their yarn is kinky -crazy with corkscrews. Treadle slower if that happens to you... your hands are learning a skill much more difficult than what your feet are learning!

How much twist, then? If you plan to ply, fold a length of singles back on itself to see what the 2-ply will look like, and adjust the amount of twist in the singles until you like the plyback test.

You've been taking breaks, right?

Sooner or later, you'll reach the end of your piece of roving; stop with 4 inches of it still unspun. To join a new pre-drafted length to it, overlay the last 4 inches of unspun end of your old piece with 4 inches of pre-drafted out end of your new piece. Draft them together just a bit, then hold at the start and start treadling again. Go back to drafting and sliding, and voila! They join! Do this as you need to.

Eventually, you'll fill a bobbin. Then another. Then, it's time to ...

Ply!

With two bobbins on your kate and an empty bobbin on your wheel, you will be treadling so the wheel spins counter-clockwise now. Take both ends from the full bobbins, bring them together to the leader and loop them through it and around through it a second time to keep them on the leader. Tension the strands with your right hand, bringing them through two different pairs of fingers, and then pinch the two strands together with your left hand. Start pinching near the leader so you have the ends folded back on the two strands. Treadle... twist enters and your yarn is plying! Slide your left hand back a bit as twist enters, then as needed feed it onto the bobbin and pull more yarn off the bobbins on the kate.

The amount of twist you need when plying is set by the amount of twist in your singles – put plying twist in until the individual fibers in the plied yarn lie along the length of the yarn. This will give you balanced singles. Your plied yarn should look like the plyback tests you made when you spun your singles.

When the plying bobbin is full, wind the yarn off into a skein around your arm – under your elbow, up between thumb and palm, around and around. Tie the skein in 2-3 places with cotton, and soak the skein in a sink of warm water and wool wash to help set the twist. Repeat in a rinse bath the same temperature. Always fill the sink first, so the yarn isn't agitated, or it may felt. Squeeze the water out and hang your skein to dry.

Refining your spinning

Try not to let the twist past your forward hand – in singles, this makes the fiber harder to draft, causing you to spin thicker yarn; in plying, it makes it harder to have an even plied yarn.

Your backward hand holds onto the fiber, but should not squeeze it – if it does, the fiber will bunch up and get matted. Treat it like a baby bird with your back hand.

Go backwards a step –go back to practicing treadling during idle moments and pre-draft a few lengths of fiber at a time, so you can separate out the skills in spinning and focus on individual tasks.

If the fiber is drawing on too quickly, decrease the brake pressure on the wheel, and treadle more slowly.

If the fiber isn't drawing in, first check – if the wheel is spinning the wrong way at first, the yarn may be jumping off the pegs and feeding off the wheel instead of on, wrapping the flyer spindle between the bobbin and the orifice, or wrapping around a peg or the orifice hook; check and fix those things, then after that, try increasing the brake pressure.

If you are having difficulties joining fiber, be sure both the old and new are completely unspun, and draft them together a bit before starting to spin. If your yarn has snapped at a thin spot, unwind yarn from the bobbin to find a thicker spot that can be unspun for a good join.

Thick and thin spots occur during spinning when different amounts of fiber are drafted – look at the thickness of the fiber between your two hands, and keep it consistent for a consistent yarn diameter. Give yourself time to improve at this, it's a very detailed task.

If your yarn is falling apart during plying, put more twist in when spinning the singles.

If your yarn is corkscrewing while spinning the singles, it needs less twist. Treadle slower, check that you are on the lowest ratio, predraft your fiber a bit more, and work on drafting more quickly. That last one will come with practice.

If a strand breaks during plying, overlap the broken ends by 1-2 inches and continue plying.

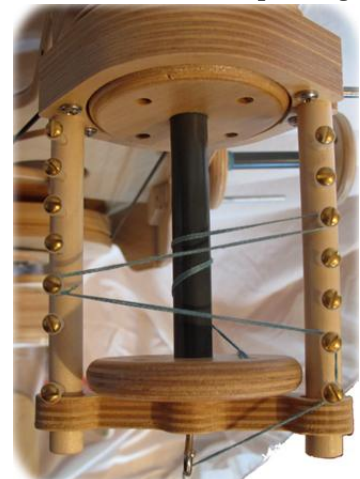
If one strand is wrapping around the other during plying, check that your right hand is tensioning the strands off the bobbin evenly.

Twists and Turns - Tips to Make Spinning Easier

Yarn is not taking up on the bobbin... increase the tension on the bobbin brake, turn the brake knob by ¼ turns clockwise until yarn takes up. As the bobbin fills, you will find draw-in decreases – this is standard behavior in scotch tension wheels; increase the brake tension and continue filling your bobbin. However, first check – if your yarn has jumped off the pegs, it could wrap around the flyer spindle between the bobbin and orifice arm. Remove the orifice arm, unwrap this yarn, and then restart spinning.

Take up is too strong, yarn is pulling out of your hands too quickly... decrease the tension on the bobbin brake. Turn the brake knob by miniscule increments counterclockwise once you have yarn taking onto the bobbin (1/8 turn or less). Very minor adjustments can have a large apparent effect.

For very fine spinning, start with a half full bobbin (of anything, even a piece of pipe insulation) or lace the yarn across the flyer arms like one shoe lace, to decrease the drag-in of the yarn. This is shown in the picture here. I find the half-full bobbin is the same as one lacing across the flyer arm, and that 2-3 lacings will reduce the draw in enough for very fine spinning.



You may find that lacing decreases draw in too much – if this occurs, give the bobbin a small nudge in the wind-on direction as you start to treadle – this is usually enough that yarn will continue to wind on as you spin.

Yarn is thump-thumping as you spin... be sure your yarn is coming from the center of the orifice hook toward your body in a fairly straight horizontal line. This minimizes any thumping. I have found that a slight angle is possible, but I definitely don't put the yarn at a 45 degree angle up, down, or sideways from the center of the orifice hook.

Drive band is slipping... increase speed slowly, over 5-10 treadlings, from nothing to the speed you want to spin, to minimize or avoid drive band slippage. Going from zero to top speed on the very first down stroke will almost always make the drive band slip.

The lower drive band may slip more in the mid-ratios if you often use it at the low or high range, as those ranges stretch it more. Put the lower drive band in the mid-ratio position between spinning sessions to help it regain its mid-ratio size.

The upper drive band may slip more in the highest ratio position if you often use it at the low or mid ratio settings. Store your upper drive band in the highest ratio groove or even on the rod behind the grooves (only if the rod is oil free!) between spinning sessions to help it regain its high ratio size.

If you have overstretched the drive bands, you may find they will recover elasticity by removing them and placing them in a warm room for a few days. As a last resort, consider cutting and re-gluing them shorter – but be sure to let them dry completely before using, or they will separate under the strain of being used on your wheel. New drive bands can be purchased from your dealer. In a pinch, try cotton carpet warp or string until your replacement bands arrive.

Replacing a drive band... if you need to replace the drive bands, they can be removed and replaced on the Bee by pulling the heel rest forward to make a gap between it and the lower drive wheel. Grasp the heel rest above the metal brace, on both sides, and pull it gently forward. It should move forward about one inch. Remove the lower drive band first and replace it after replacing the upper drive band.

There is a SpinOlution group on Ravelry, if you have a spinning question about your wheel, you can often find an answer there:
<http://www.ravelry.com/groups/spinolution>

Flyer does not rotate as you treadle... check that the upper drive band is in one of the three wooden grooves on the back of the flyer, and not on the metal rod behind them. If it is, check if the upper drive band is loose and slipping during treadling; see “Drive band is slipping”.

Treadling is hard... check if the brake band tension is set too strong; check if something's gotten under the treadles, jamming them; check if the upper drive band is out of the wooden grooves on the accelerator wheel; check that the upper drive band isn't on the wrong side of the locking peg; try sitting closer to the wheel; or if your lower drive band is in the mid- or high-range, start with a slower first few treadles, increasing speed gradually over the first few treadlings.

A knocking sound when treadling... the pitman guide, on the inside of the footman, can get worn, causing the pitman (a bearing) on the drive wheel to knock. You can reduce or remove the knocking sound by putting one coat of clear nail polish or light glue on the inside of the pitman guide. Let it dry completely before putting it back on the pitman.

Uneven or noisy treadling... check for damage where the footman connects to the drive wheel – grasp the heel rest just above the metal plate and slide it forward, exposing the ball bearing on the drive wheel. Make sure the ball bearing’s screw is completely screwed in, and that the guide on the inside of the footman is not damaged – it is a regular flat-sided oval. You will need to contact SpinOlution for information on addressing any damage here.

Maintaining your Bee

Your Bee has a polyurethane finish, and so can be cleaned with a light dusting as needed.

Oiling: the Bee in general does not need oiling, working on sealed bearings and its unique keyed bobbin system. You may find a light coating of oil on the flyer spindle and the Kate rods helps you slide the bobbins on and off more easily, and keeps the bobbins on the Kate from chattering during plying.

If a squeak develops on your wheel, locate the source. Metal-on-metal squeaks can usually be resolved with a small drop of oil.

Every so often, check the suede on the inside end of the brake block as described in ‘Adjusting the Tension’.

Technical Specifications

Furniture grade Birch plywood with a polyurethane finish, weight: 13 lbs.

Drive and accelerator wheels: 9 in. diameter, 1.5 in. thick

	Open	Folded
Height	30 in	12 in
Width	19 in	19 in
Depth	13 in	9 in

Bee Accessories

Bee Travel Bag: built to hold the Bee and the fiber and spinning tools you like to travel with. Has a shoulder strap and handles. One side has 3 pockets, the other has a magazine pocket. Inside is a zippered compartment for your Kate rods and bobbins. \$100 with Bee, \$125 purchased separately.

Additional Bee Bobbins, \$30 each

Drive Band Set (two replacement bands) \$10



About the Author

Amelia Garripoli has been spinning and blogging since 2001, when she purchased a house that came with two llamas. She blogs as Ask The Bellwether (<http://askthebellwether.blogspot.com/>) and is an active mentor in several online forums. You can find her as askthebellwether on Ravelry, thebellwether on YouTube, and ask@thebellwether.com on email. She was thrilled to win Best Finished Item From Handspun Yarn at her county fair in 2009, a great follow-on to winning Best Handspun Skein in 2008. Amelia has written articles in Knitty, Spin-Off, and Yarn Magazine, knitting patterns for Fiber Trends,

Crosspatch Creations and The Bellwether, and has published two books, *Spindling: The Basics* (2004) and *Productive Spindling* (2009). She teaches a wide variety of workshops on fiber preparation, spindling, spinning, dyeing, and more. Amelia loves exploring ways to turn fiber into textiles.

Meet the Makers...

The Pauly family built their first spinning wheel in 1983. They started SpinOlution after 25 years of designing and building several wheels for personal use and experimentation. The company's goal is to provide the most advanced and easy to use spinning wheels that have ever been seen or used.

SpinOlution is pleased to offer the **Mach II** production wheel, the **Bee** travel wheel, the **Echo** entry level wheel, the **Hopper** art yarn/travel wheel, and an assortment of drop spindles and accessories.

SpinOlution wheels are guaranteed for 1 year. The Pauly's are happy to assist you with any questions you may have concerning your wheel. They will work with you to resolve any questions you may have about its operation or maintenance.

They can be contacted via
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Bee

Mach II

Echo



Hopper

