User Guide

AS COCO CHANEL ONCE SAID, 'IF YOU WANT TO BE ORIGINAL, BE READY TO BE COPIED'

HOW TO CHOOSE CYLINDER SIZES

Now with four interchangeable cylinders

DO CAMS REALLY MATTER?

Experimenting with different yarns and tension.

MEASURING YOUR FOOT FOR SOCKS

An all-in-one guide to finding the perfect fit.

ISSUE 1 | JUNE 2021

editor's note

Hello Everyone,

I'm Finn the designer behind Ashcroft Makers, a 3D Sock Machine Manufacturer based in the UK.

The Ashcroft 3D CSM was launched in February 2020.

In April 2020 I set about designing and developing knitting patterns, specific to this type of 3D sock machine, as no other published patterns existed.

This included the Toe up Sock Pattern (the first one of its kind) followed shortly by patterns for hats, gloves and cushion covers.

The business has now expanded with 3D CSM Kits available for you to print at home.

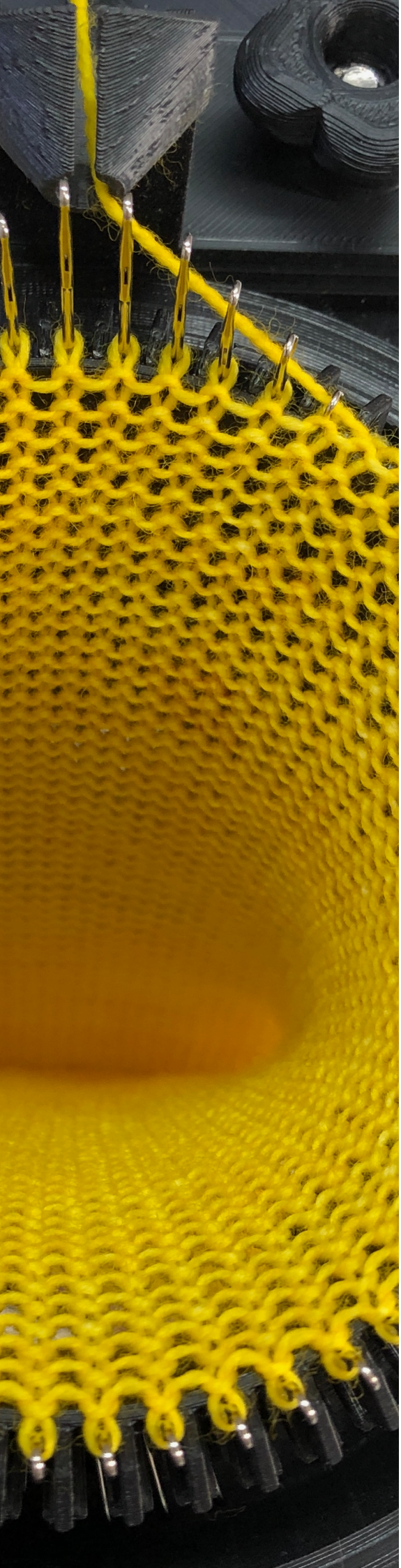
Since our debut in 2020 there has been a huge amount of interest in the industry.

As Coco Chanel once said 'if you want to be original, be ready to be copied'

Finn

contents

For more content and exclusive downloads, registered customers can visit www.ashcroftmakers.com



introducton

The Ashcroft Makers 3D CSM is perfect for any knitter wanting to take their knitting to the next level.

It is possible to create knitted fabric for socks, sock tubes, yoga socks, leg warmers, hats, cowls, headbands, gloves, mittens, scarves and more.

Knitters with a lot of experience would not necessarily become instant experts in producing knits on this Dual Tension Cam System 3D CSM, as it requires a great deal of patience and practice.

But with a little know-how and some creativity to tweak some of your knitting skills, you can definitely ring out the beat in creating your chosen knitting projects.

Don't be deceived by its apparent simplicity, the settings and adjustments of this machine are every bit as complicated, it not more so than other types of CSM's.

You can get a range of sock sizes, by simply changing the type of yarn and stitch size with just one cylinder.

..... and yes, you can reverse knit to make heels and toes.

description

The CSM is made from 3D filament, is portable and lightweight It clamps to any desk, table or worktop and does not take up a lot of space.

It works in a circular motion with the speed controlled by the handle, which is located at the front of the casing and can be used in a clockwise or counter clockwise motion.

The yarn feeder is stationary. As you turn the handle the cylinder rotates, moving the needles upwards towards the yarn feeder.

This moves the needles into working position, so the yarn hooks onto the needles and forms the stitch.

The needles are held in place with a band. The knitting gauge can be adjusted by changing the placement of the CAMS on either side of the outer casing.

The CSM comes with a cast on basket, bonnet, buckle and weight. The knitter only has to thread the sock yarn using the tension unit on the machine and you're good to go!

features

- support bracket which will accommodate a ribber
- pivoting row counter
- clamps
- tension unit/yarn feeder to cater for all cylinder sizes
- top loadable/removable/interchangeable cylinders with slot counts of 48, 60, 64 and 72.
- top loadable/removable/screw adjustable cams

The machine is supplied fully assembled and includes:

-ONE cylinder with needles

- spare needles X 10

- Table Clamps X 3

- Tension Unit and adjuster

- Cast on Basket and Bonnet

- 500g Knitting Machine Weight X 1 and Buckle

- Heel Forks X 3

- Screwdriver to remove the cylinder and cams

- User Guide

measuring your foot for socks

Place your heel against the end of a ruler, against a wall. Do not bear weight on the foot, as it will lengthen and spread.

- Foot Length: from the back of the heel, to the end of your longest toe.

-Circumference of the foot: around the ball of the foot (the widest part of the foot).

- Circumference of the calf: around the calf, 6 inches up from the floor.

You will need to measure both feet.

Shoe size is the measurement of the length of your foot, from the heel to the tip of the toe.

When you see socks labelled 'sock size 9-11 this is a reference to your foot length in inches, not your shoe size.

Choose a sock size that is 10% smaller than the actual leg or foot circumference. This is about 1 inch for an average adult sock and about 1/2 inch for a child's sock.

I generally knit socks at 60 - 64st on 2.5mm needles.
If the pattern calls for 68 stitches when hand knitting and the gauge is 8 stitches per inch, the finished sock will measure about 8 inches in circumference.

gauge

Circular knitting by the very nature, produces a tube. The secret is to get your chosen yarn with your chosen cylinder size to knit the perfect size sock.

I suggest that you measure your foot for socks and knit a swatch first, before knitting the entire sock.

Try knitting a plain sock tube in your project yarn to see how it fits around your foot and lower leg.
You can then adjust the tension of the knit if required, before knitting the entire sock.

The yarn can simply be unravelled and placed back on the machine to knit your size sock.

Different yarn bases knit differently in both width and length when using the same size cylinder.
- Thinner yarns will produce a larger sock.
- Thicker yarns will produce a smaller sock.
The width of the sock can also be changed by lowering or raising the height of the cams.

- The majority of sock patterns are based upon the foot or ankle circumference.
- The foot length can easily be adjusted by increasing or decreasing the number of rows.

If the pattern calls for a super wash wool, you would have to use a thinner non-superwash wool, to get the same gauge as the superwash wool.

gauge

Two strands of yarn and the needle should fit comfortably into each slot.

48 slot cylinder:
with chunky or DK weight yarn
knits to 7 stitches/11 rows to 1 inch
and
approximately 9.5cm/3.75 inches tube width or 7.5 inches in circumference.

60, 64 and 72 slot cylinders:
with 4 ply sock yarn or 4/16nm (400M/100gr)
knit to 8 stitches/14 rows to 1 inch,
equivalent to Needle size US 0/2mm, 60 stitches.

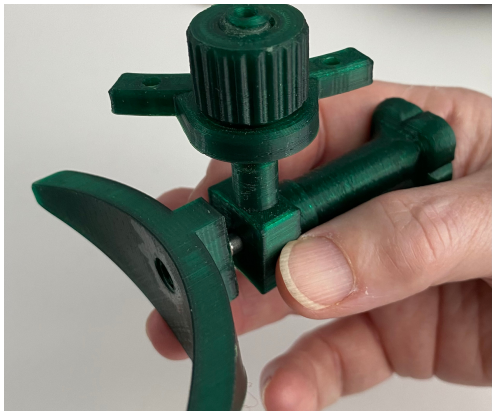
60 and 64 slot cylinders:
with 4 ply sock weight yarn
knit to approximately 9.5cm/3.75 to 10.1cm/4 inches tube width or 7.5 to 8 inches in circumference.

72 slot cylinder:
with 4 ply sock weight yarn
knits to approximately 11.5cm/4.5 to 12.5/5 inches tube width or 9 to 10 inches in circumference.

Do Cams Really Matter?

The Ashcroft CSM has a dual tension CAM system with a rotating cylinder.

The two CAMS control the downstroke of each needle and the height that the needles pass through each CAM. (below)



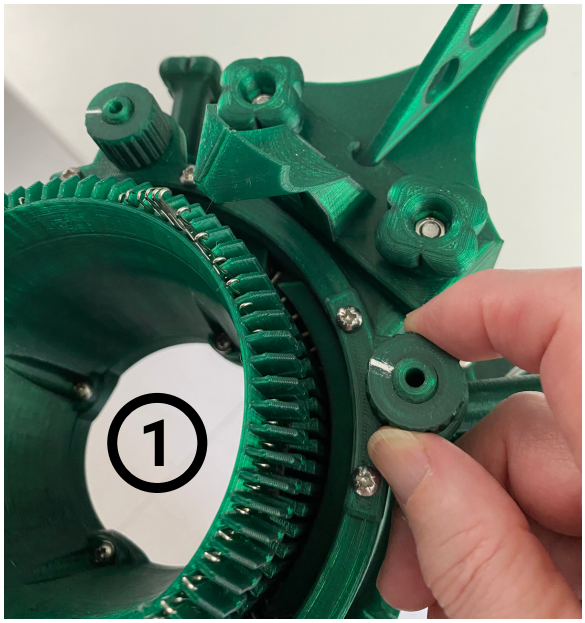
The height of both V cams can be adjusted by turning the

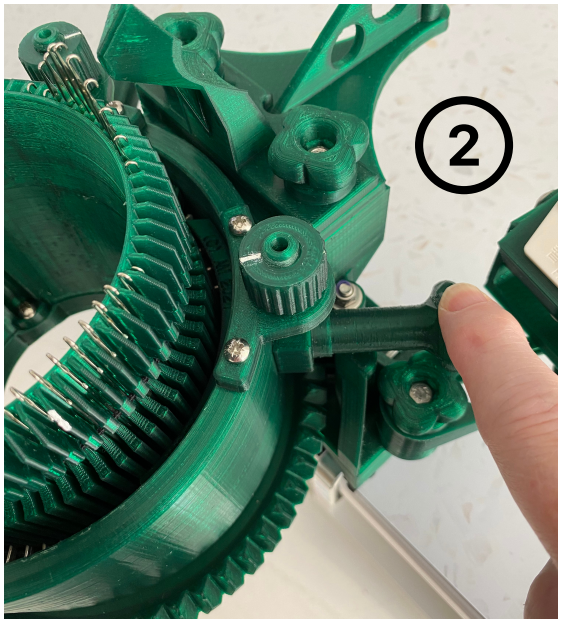
1) CAM adjustment knobs

which are located above the

2) CAM lock knobs

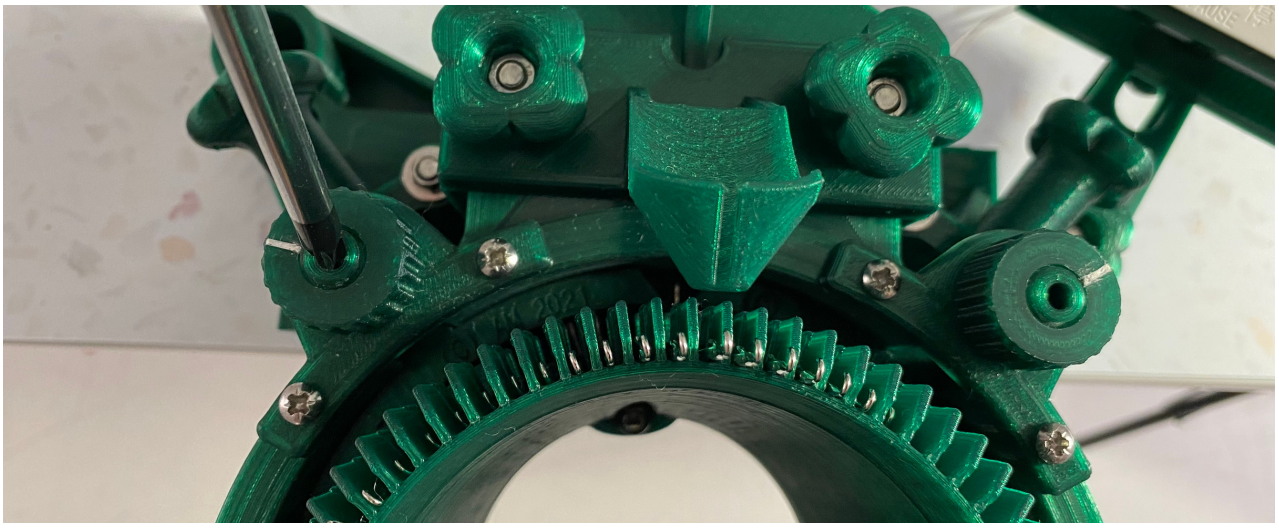
on the outside of the casing.



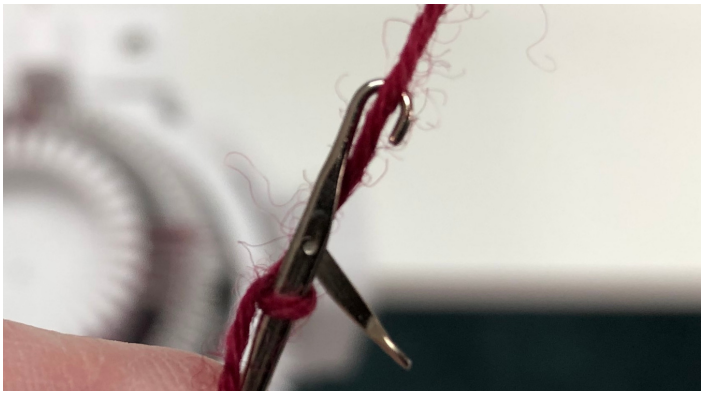


Do Cams Really Matter?

- The cam on the left hand side (when knitting clockwise) controls the 1st downstroke.



- The needle then rises towards the centre uplift cam, (underneath the yarn feeder) dropping the yarn from the previous row, below the latch on the needle.

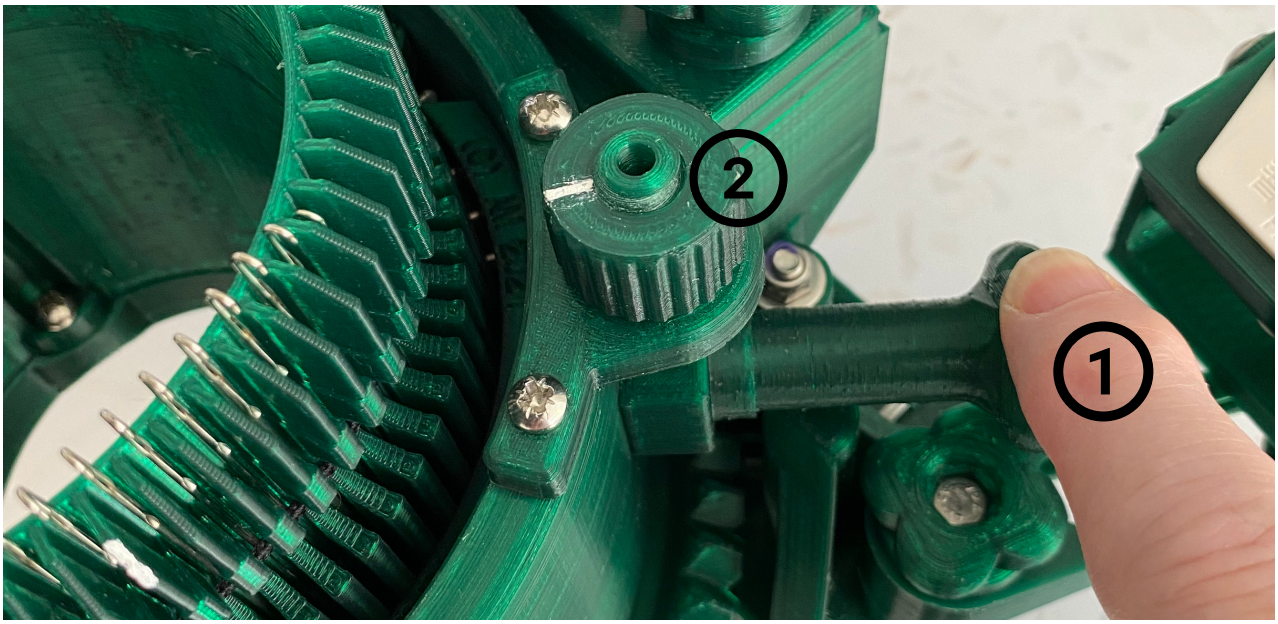


The latch on the needle does the knitting, so when the needle reaches the 2nd cam on the right hand side, the latch will close and create a stitch.

Do Cams Really Matter?

Lowering the CAMS will loosen and lengthen the stitch.
Raising the CAMS will shorten and tighten the stitch.

Please Note:
The **CAM lock knobs (1)** must be **loosened** before adjusting the height of the CAMS using the **CAM adjustment knobs (2)**



Stitches that are too tight when the needle rises towards the centre uplift CAM, will NOT drop off the needle shaft, preventing the latch from opening and creating a stitch.

As you turn the handle, the cylinder rotates and controls the timing iof the cylinder needles.

The timing isn't difficult, but needs to be precise and differs with different types of yarn.
The likelihood of setting the CAMS once, and expect it be the same for all of your projects, is slim.

The CAMS on the Ashcroft CSM may only need to raised or lowered by 1mm or 2mm for different types of yarn.

Generally, non-superwash wool or thicker or coarser yarn, the lower the cams should be.
Thinner yarn will produce a looser and longer stitch and as much as 1 inch can be added to the circumference of a sock by using thinner yarn.

Do Cams Really Matter?

This is the opposite to hand knitting, where if a pattern calls for a non-superwash wool and you are using a super-wash wool, you would use a smaller needle to get the same gauge.

Or you would have to choose a finer yarn in a natural wool that was non-superwash to get the same gauge as the superwash wool.

So in sock knitting if you were using a thinner yarn and wanted a tighter gauge, you would raise the CAMS.

If you were using a thicker yarn and wanted a looser gauge, you would lower the CAMS.

Or you would have to chose a finer yarn in a natural wool that was non-superwash to get the same gauge as the superwash wool.

If all else fails, then you need to change cylinder sizes to achieve the correct gauge for your required pattern.

What Cylinder Size is Best for me?

The space between the needles, determines the size of the stitch, not the needle itself.

If you use fine gauge needles in a standard gauge CSM, it will still result in a standard gauge knit.

In order to achieve the correct gauge, you may have to change cylinder sizes and not adjust the CAMS.

With hand knitting you can change the type of yarn, the number of stitches and the size of the needle easily.

With circular machine knitting you can only change the type of yarn, the height of the cams or the cylinder size.

Thinner yarns will produce a looser and longer stitch and a wider sock. As much as 1 inch can be added to the width of the sock by using a thinner yarn.

Sock yarn that has a high twist will result in a tighter gauge.

So when circular knitting with the cams at the same height, a thicker yarn will produce a smaller sock and a denser knit.
A thinner yarn will produce a larger sock and a knit that is less dense.

The stitch length in the fabric measured after knitting, is always less than the stitch required.

48 - child

60 - ladies

64 - ladies

72 - mens

Yarn Tension Unit

The yarn from the feeder should not have much tension at all, but at the same time should not have much slack.

The purpose of the tension arm is to feed the yarn to the tension regulator.

The end of the tension arm is entirely dependant upon where your yarn is positioned.

If your yarn is behind the machine then the tension arm should be somewhere near 45 degrees from vertical, depending on how close your yarn is to the machine.

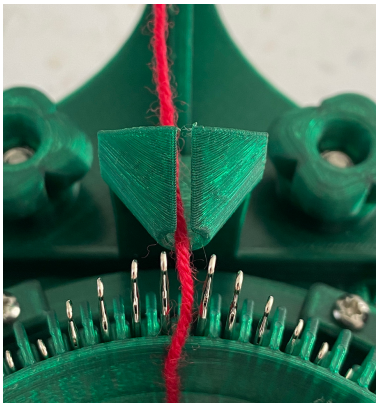
- Thread the yarn through the end of the tension arm.
- The yarn in the tension regulator should be threaded over the take up spring, then down below the shaft, between the 2 discs and then into the yarn feeder.



If the tension regulator is too tight, it will prevent the needle latches from opening.

This is usually the main reason for the yarn not dropping off the needle shaft as it approaches the centre uplift cam.

If your yarn is being fed from a cone, the end of the tension arm just aligns the yarn with the back of the CSM.


Row Counter

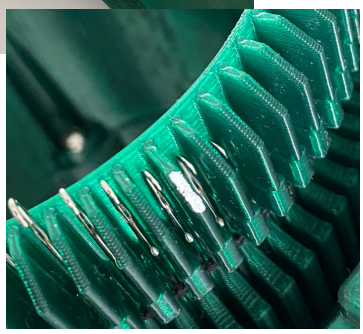
The pivoting digital row counter sits on the right hand side of the bracket and is a great gadget for counting rows on a 3D CSM.

A magnet fixed to the bottom of the large gear below the cylinder, operates the counter and is fitted with an AA battery.

Two turns of the handle equal one turn of the large gear and 1 row on the counter.

You can pivot the row counter to view when you are standing or sitting.

On the left is the PAUSE button and on the right is the RESET button.



To stop the counter:

press the PAUSE button once, so that it is down.

To continue counting:

press the PAUSE button again once, so that it is up.

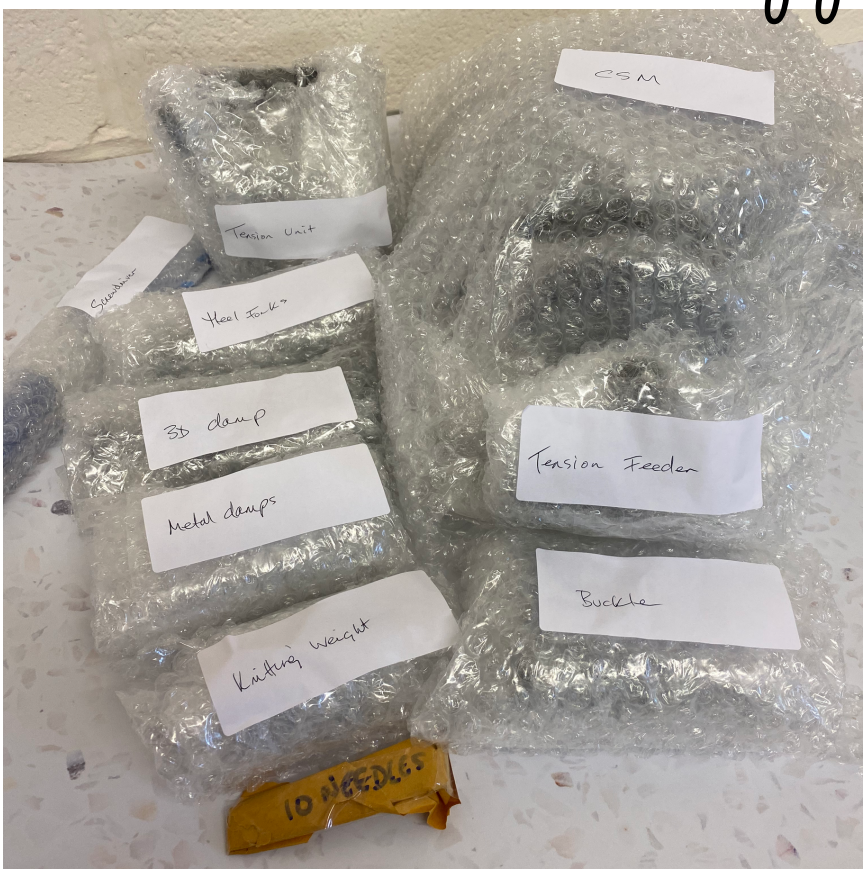
To reset the counter:

press the PAUSE button once, then press the RESET button once, so that the counter sets to 00000 then press the PAUSE button again, once, to continue counting.

To change the battery, remove the cover plate from the back, replace battery, then replace the cover plate.

The magnet has been aligned with the mark on the cylinder, to indicate the start/end of a row.

Shipping



Ashcroft Makers ship the CSM in a double walled box and bubble wrap.

The bubble wrap is the best performing material we have found as it provides thermal protection in both summer and winter and ensures the machine is properly protected from physical damage during shipping and storage whilst in transit.

The packaging isolates the CSM from high temperatures in the summer and high humidity/damp in the winter.

Recycle with YAA

Our local Post Office now recycles unwanted packaging. You can drop off bubble wrap which they display in the shop. Customers can then take as much as required making a donation to the Yorkshire Air Ambulance.

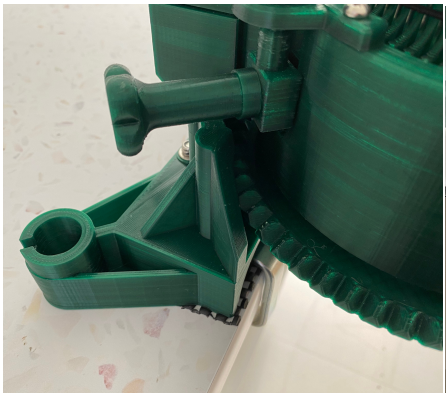
One of the easiest ways to raise money and help save the planet at the same time.

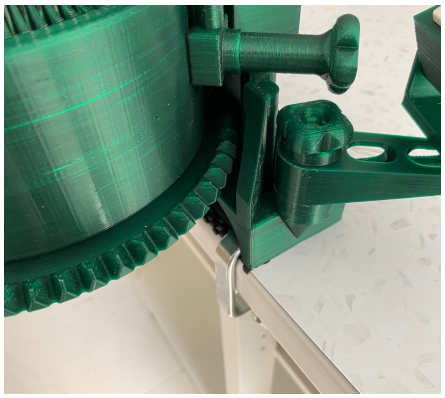
Set Up

Place the rubber mat on the **edge** of your table, desk or worktop.

Place the CSM over the rubber mat and tighten the screw clamps, adding a third clamp for more stability.

You will need to support the front of the CSM during set up, until secure.

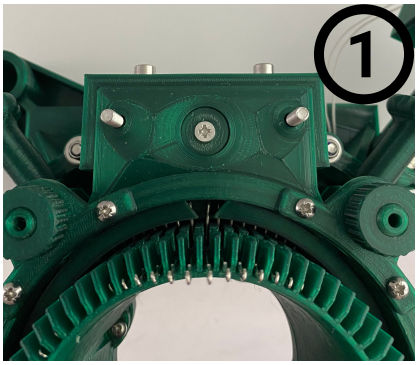




1 - fit the tension unit by removing the knobs from the cover plate

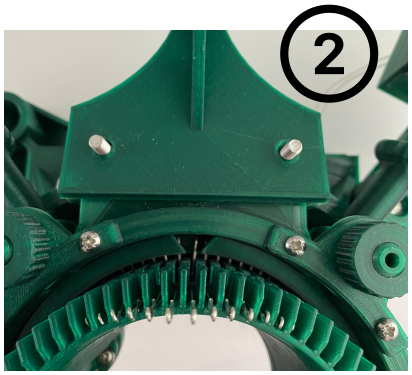
2 - place the yarn tension unit over the cover plate.

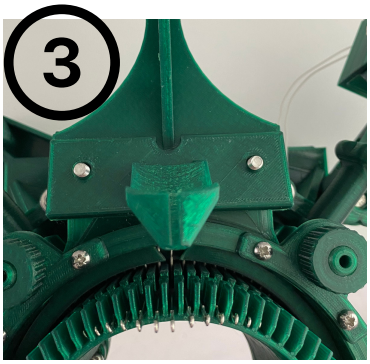
3 - place the yarn feeder over the cover plate



4 - replace the knobs.

You can now thread the CSM.



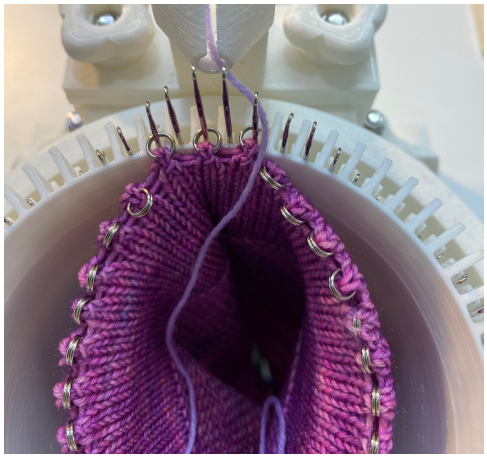


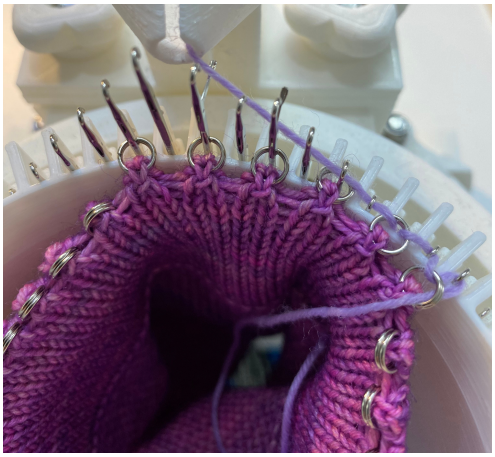
Casting On

Using a Cast on Bonnet **with** split rings

1 - Place the split rings over **every other** needle, starting at the uplift cam in the centre of the cylinder, with the rings **below** the latch on the needle.

2- Start with about 3 rings, then thread your waste yarn through the tension unit and feeder, with the yarn **above** the latch on **every** needle.

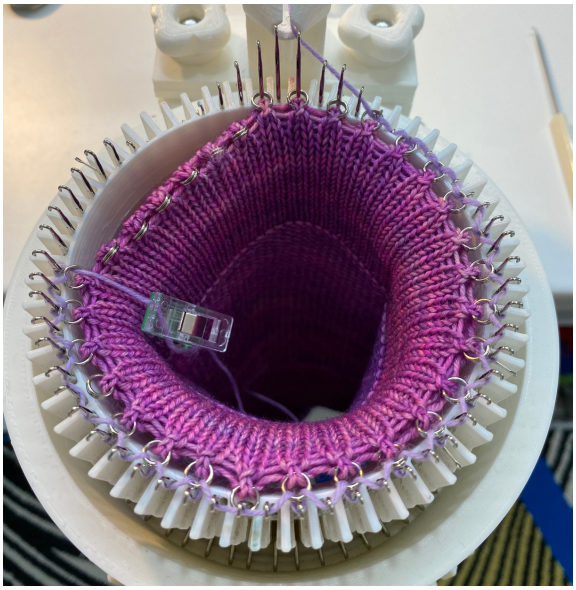


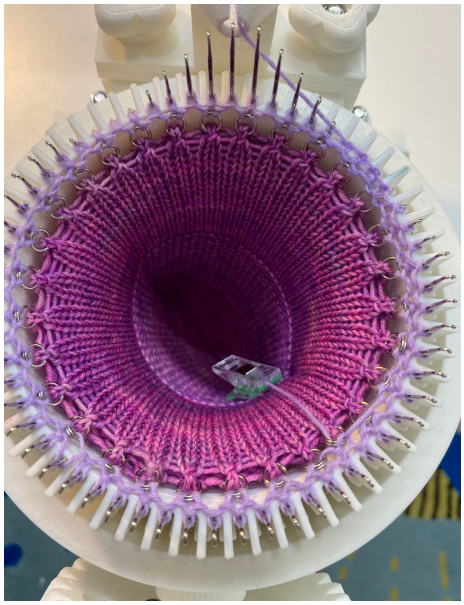


3 - Continue all the way round, placing the rings on every other needle below the latch, one at a time, with the yarn from the feeder above the latch on every needle.

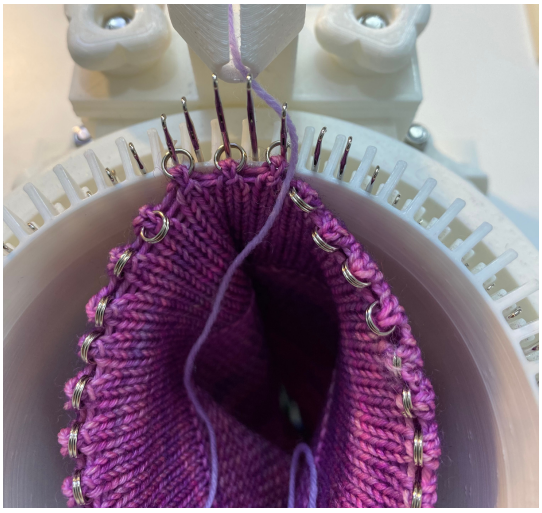
4 - The buckle and weight or the heel forks can be added to the bonnet to achieve the correct tension.

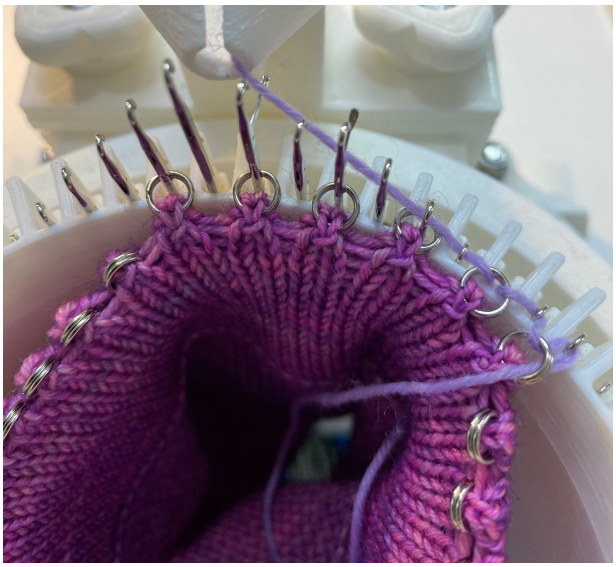
5 - For a slower speed, the cylinder can be turned by hand instead of using the handle to crank.

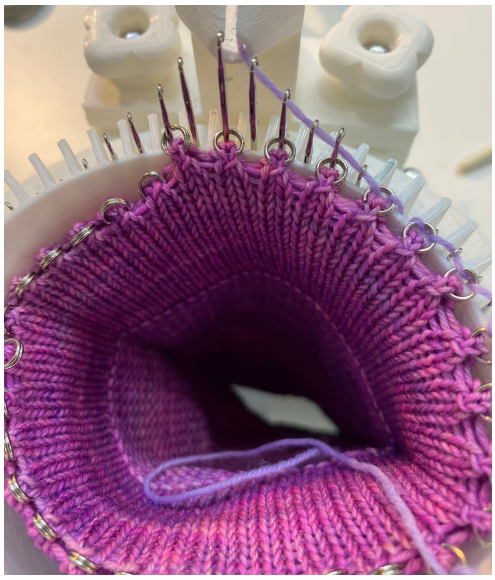


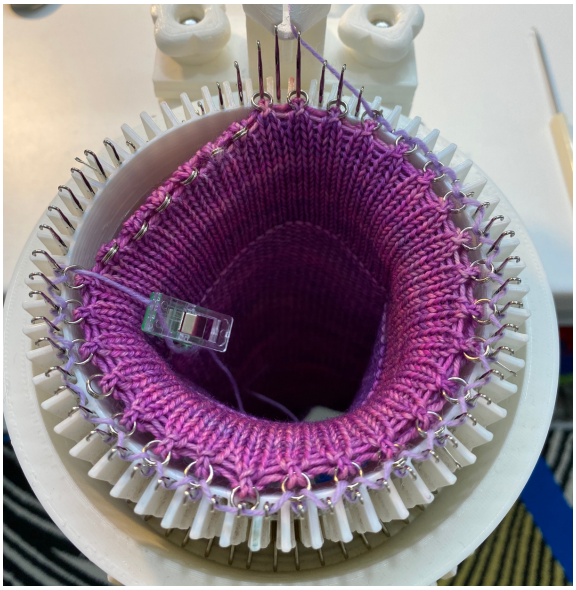


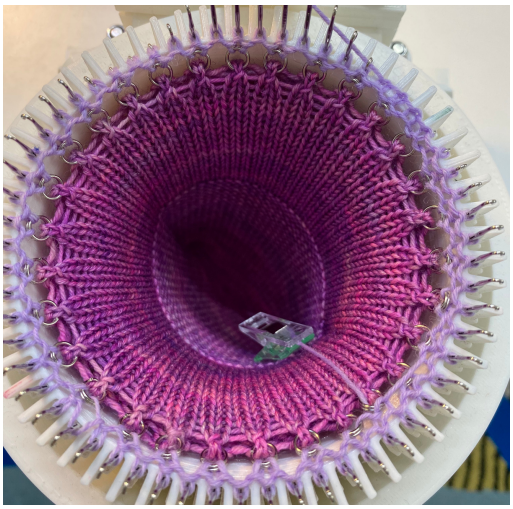
Casting On











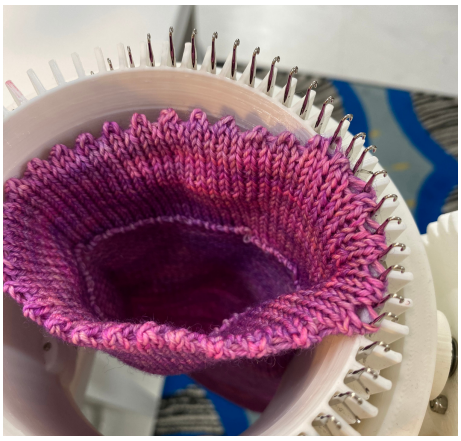
Casting On

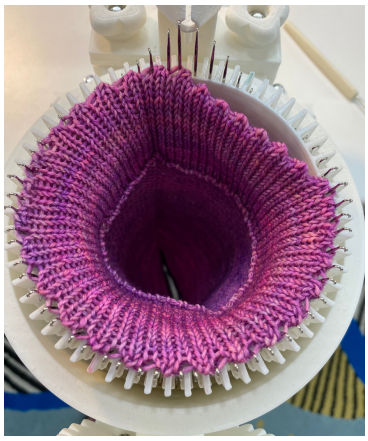
Using a Cast on Bonnet **without** split rings

1 - Place the cast on bonnet inside the cylinder.

2- Starting at the 6 o'clock position, pick up the bars between the peaks and place them over **every other** cylinder needle, with the bars **above** the latch on the needle.

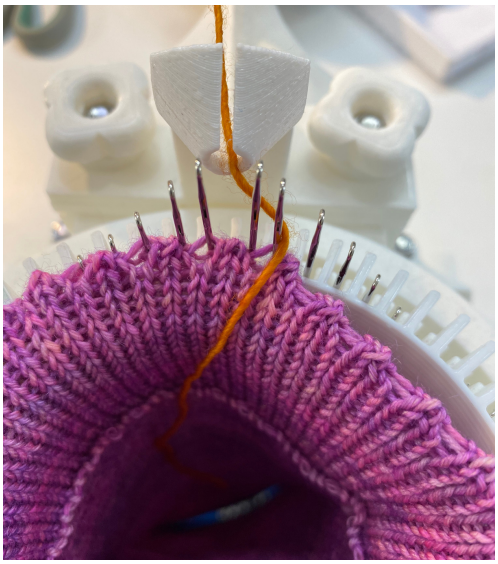
3 - Continue placing the bars over every other needle, until 3/4 way round.

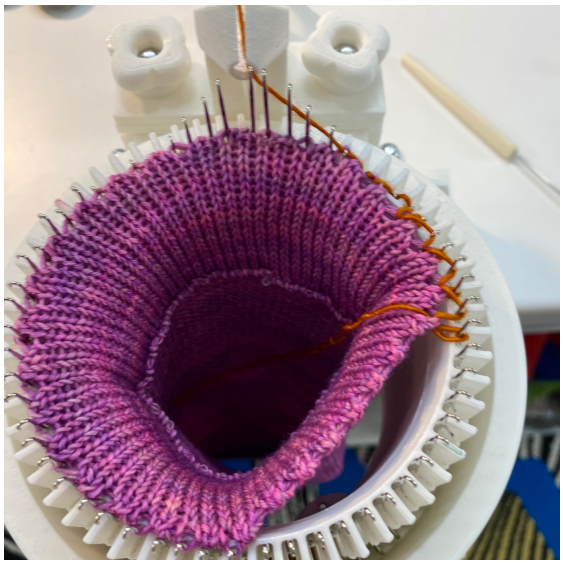




4 - Thread your waste yarn through the tension unit and feeder and around the needle at the centre uplift cam, with the yarn from the feeder **above** the latch on **every** needle.

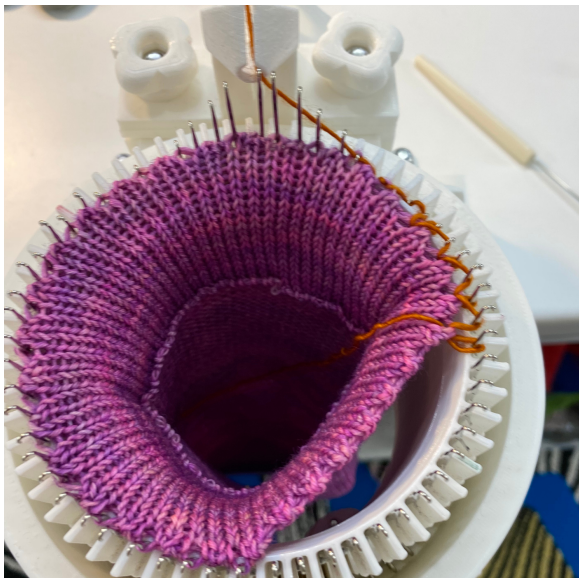
(The bars that were already placed on the needles, will now be below the latch on the needle, as they reach the centre cam, as they have passed through the first down cam on the left hand side).

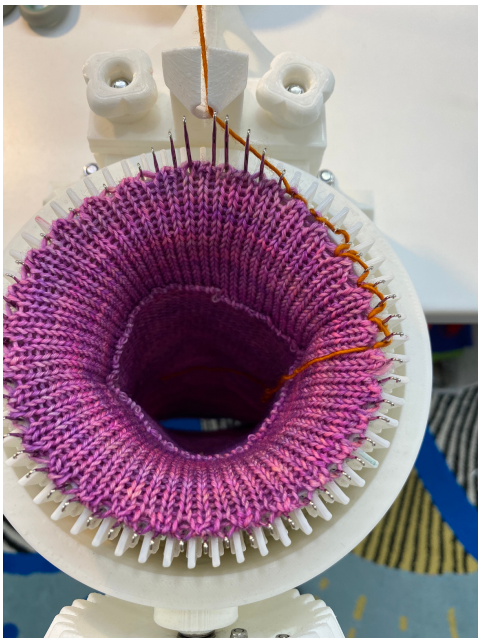




Casting On

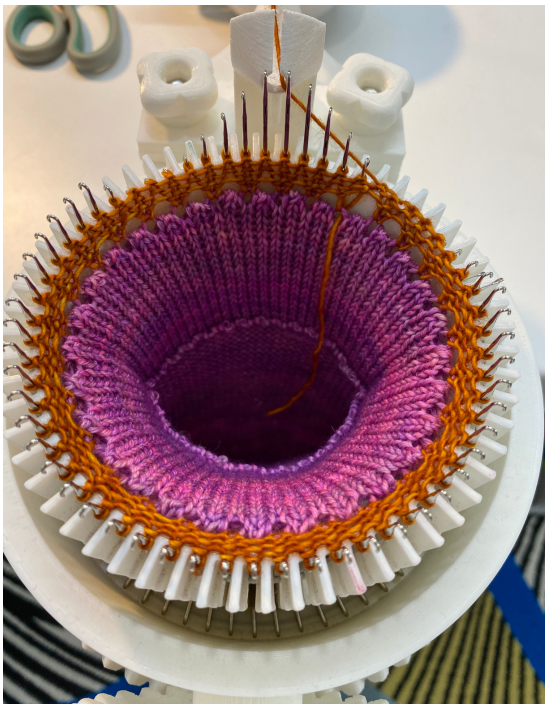
5- Place the remaining bars over every other cylinder needle before completing the cast on.

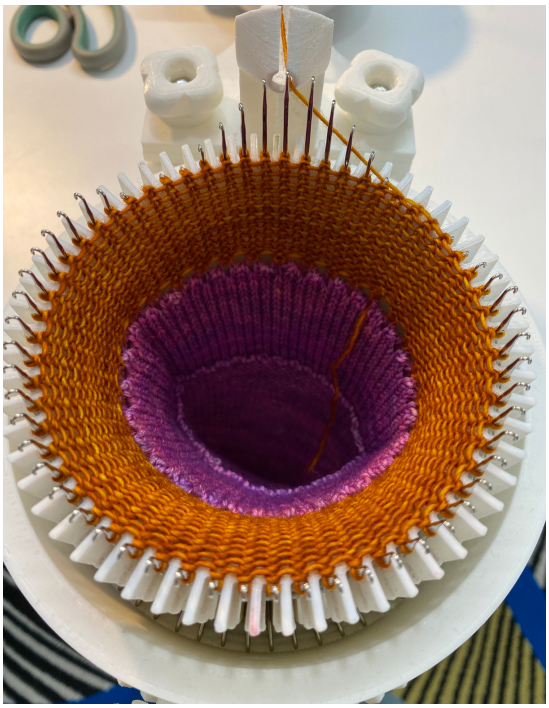




6- The buckle and weight or the heel forks can be added to the bonnet to achieve the correct tension.

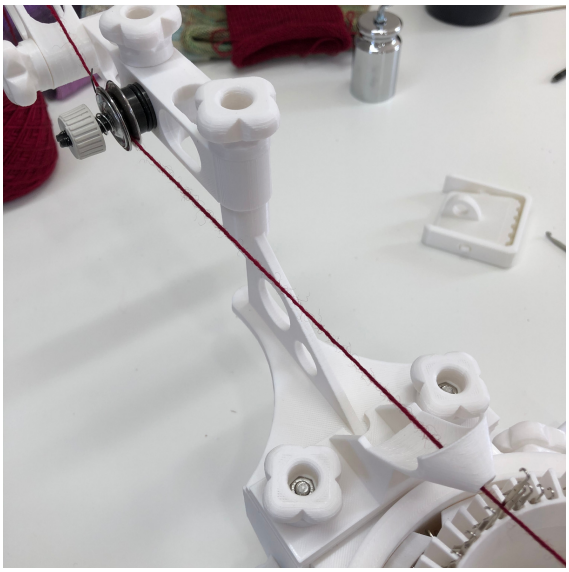
7 - For a slower speed, the cylinder can be turned by hand instead of using the handle to crank.



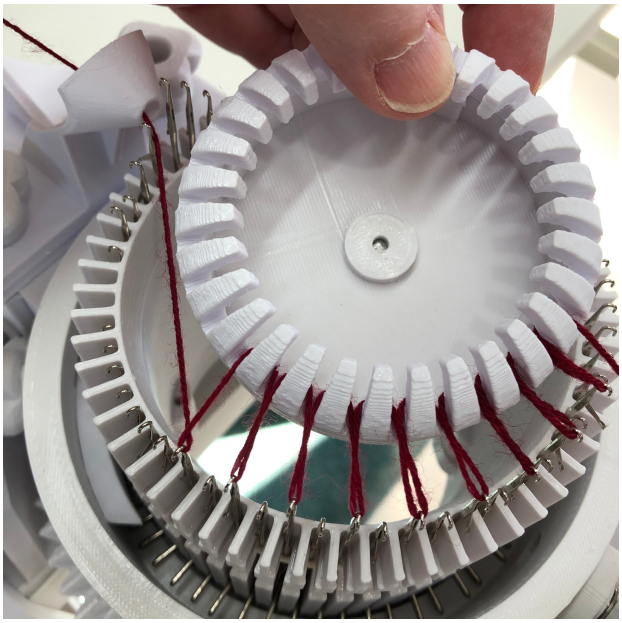


Casting On with a Basket

1 - with waste yarn, thread the yarn through the tension unit and feeder



2 - pull through approximately 1 1/2 metres of yarn

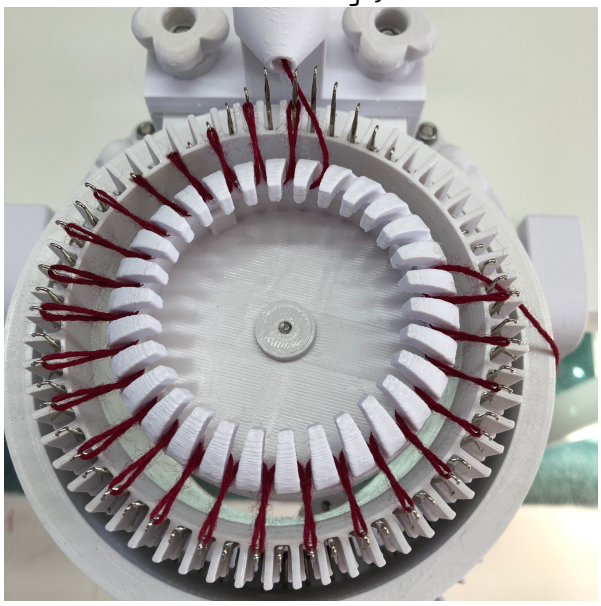


3 - hold the basket in your left hand in the middle of the cylinder

4 - thread the yarn from the feeder first around a needle on the cylinder in a figure of eight, then around every hook on the basket

(if the first stitch is threaded incorrectly , your work will unravel and will not create stitches, regardless of all the other settings)

5 - continue looping the yarn around every other needle on the cylinder and every hook on the basket, until 3/4 way round
(keep the yarn from the feeder on the outside of the needles to prevent tangling)

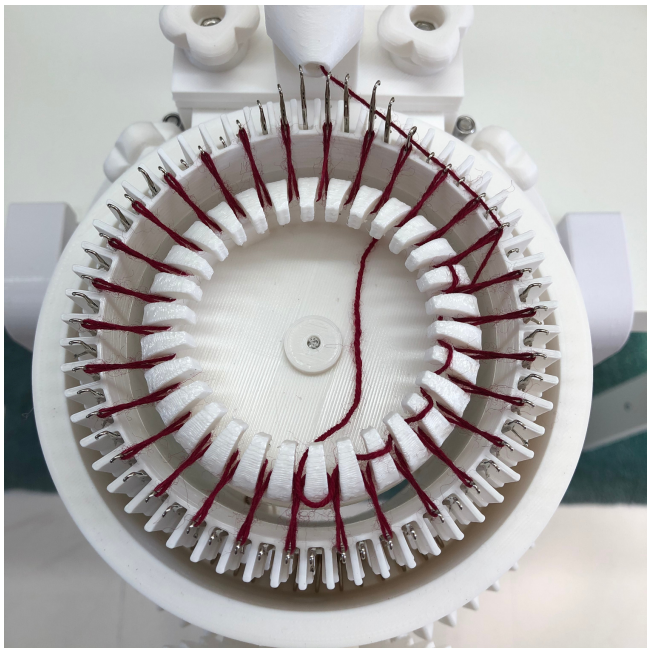


6 - The yarn from the feeder should be on the right hand side of the first needle that was cast on and also under the hook on the basket which is to the right of that first needle

Row 1 with a Basket

7 - now add the large weight to the hook below the basket, to achieve the correct tension before continuing.

The weighted basket will help the stitches to knit. Add more weight as required.



8 - The first stitches of row 1 are knit at the same time as casting on is finishing.

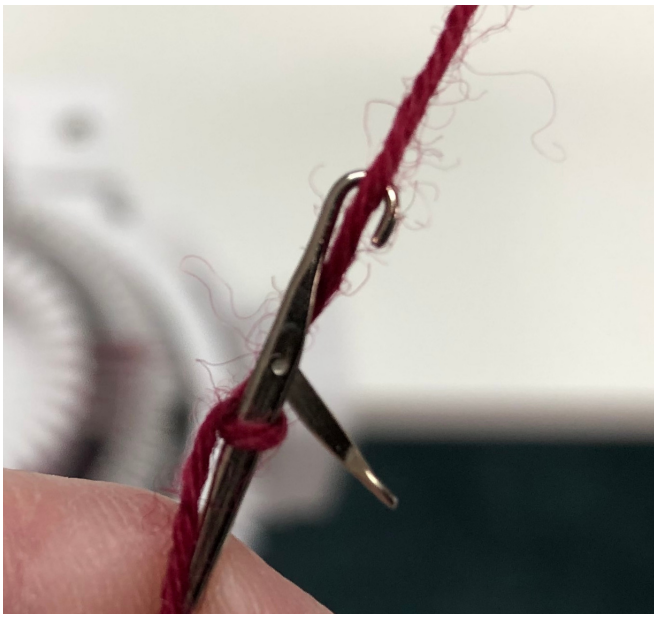
As the needles rise up on the left hand side, towards the centre uplift ca, the yarn (from the cast on row and all subsequent rows) should drop below the latch on the needle.

This does not always happen on the first row of knitting.

You may have to push the yarn from the cast on row, gently below the latch, to that he yarn entering the needle from the feeder, will hook under the top of the needle.

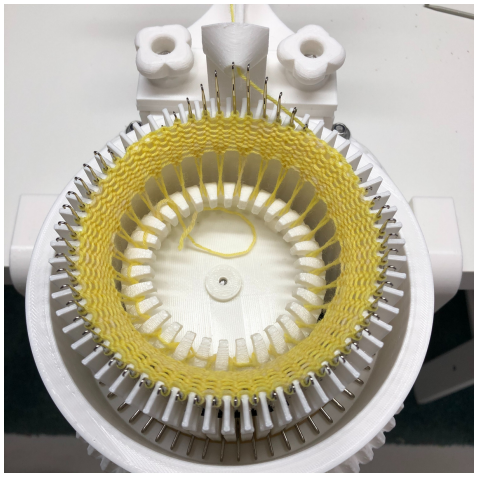
The latch on the needle will then close, as the needle drops into the cam on the right hand side, creating a stitch.

The yarn from the feeder must contact the needle about halfway between the hinge on the latch on the needle and the top of the needle.

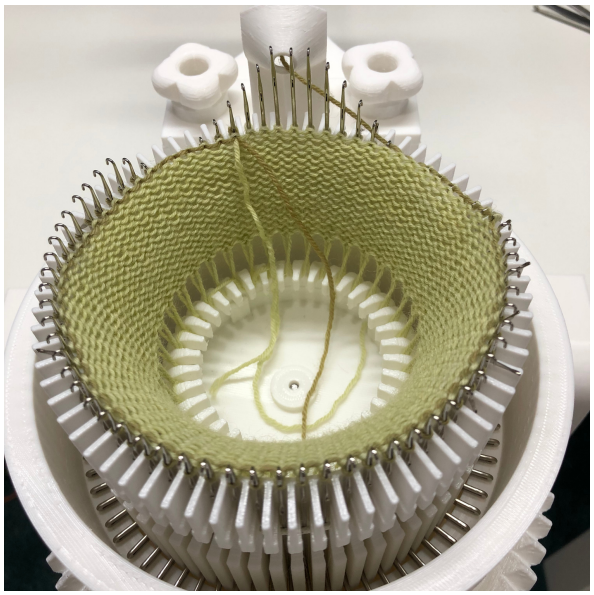


Row 2 with a Basket

9 - Check for any dropped stitches in row 2. Take the bars and hang them on the needles that did not stitch.



10 - A few rows of knitting should be cranked first, using waste yarn of the same weight as your project yarn, in order to achieve the correct tension.

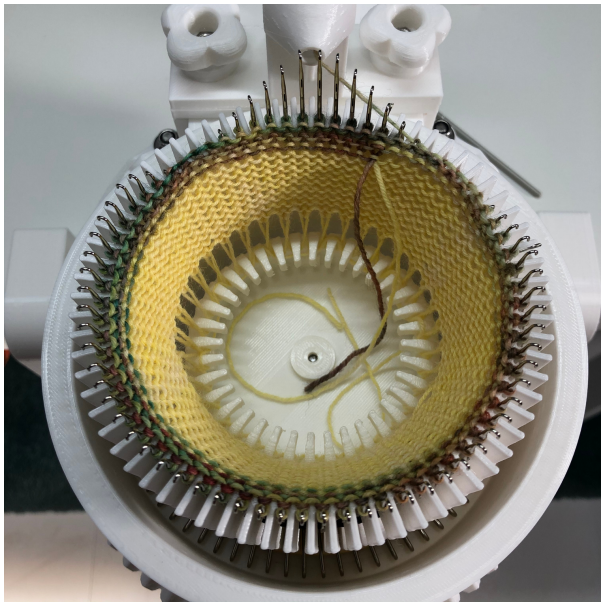


11 - Change to your project yarn by cutting the waste yarn, leaving about 6 inches in length.

Bring the waste yarn to the LEFT hand side of the needle and to the INSIDE of the cylinder.

Thread the project yarn, bringing the end to thr RIGHT hand side of the needle and to the INSIDE of the cylinder

12 - Both of the yarn ends should be inside the cylinder, with the project yarn being fed from the yarn feeder.



13 - Hold both ends of the yarn and continue knitting. After a few stitches the project yarn will be secure.
Weights can be hung from below using the buckle. Continue knitting to make beautiful socks.

To change back to waste yarn, repeat step 11.

How to install a buckle

This is an accessory to prevent stitches from dropping off the needles
and also applies even pressure to your knitting.

Hold the buckle by the eye (the hole that the weight will hang from)

Swing open the pivot and slide the sock down through the opening.

Raise the buckle to about 5 inches from the bottom of the CSM and pull the knitting taut.
Close the opening and hang the weight.

Changing Cylinders

With the Ashcroft CSM, there are **2 methods** for removing the cylinders.

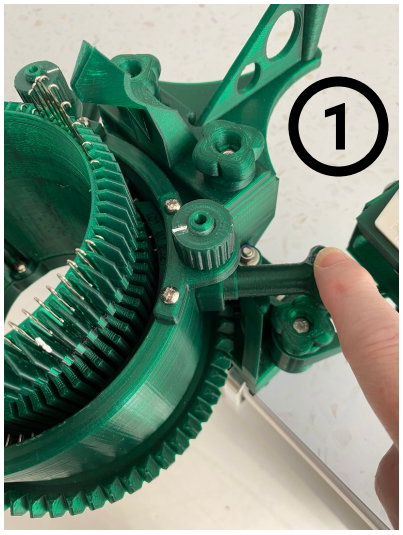
Method 1 - without removing the needles **(below)**

OR

Method 2 - with removing the needles **(easier)**

Method 1 - Removing the cylinder **without** removing the needles

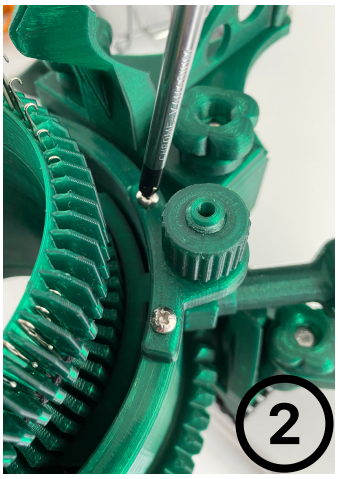
(to do this you must remove both CAMS first)



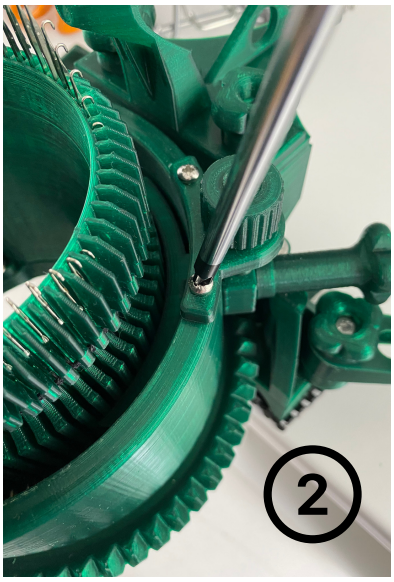
1 - Release/loosen the long **CAM lock knobs** on the back of the machine.

Note:

(these knobs should not be removed entirely)

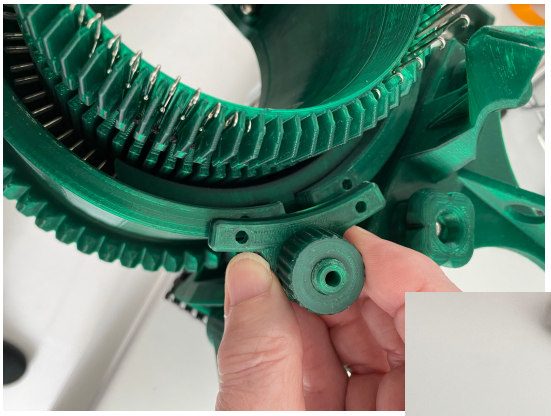


2 -Using the screwdriver provided, unscrew the screws positioned either side of the **CAM adjustment knobs.**



Changing Cylinders

- Lift the complete CAM and adjusting assembly out of the machine.



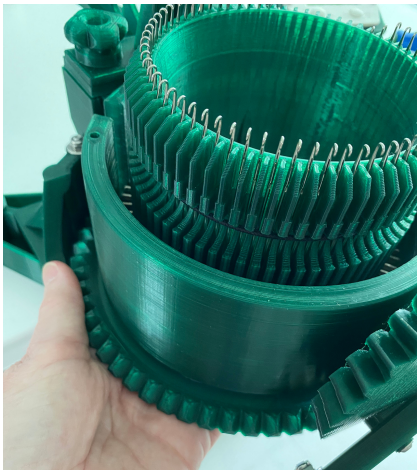
Then remove the cylinder:

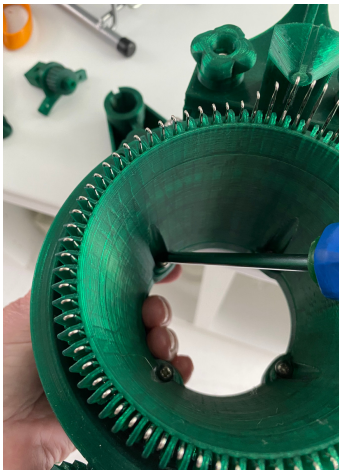
- Support the machine from below with one hand on the large gear at all times.

-Unscrew all four screws located on the inside of the cylinder.

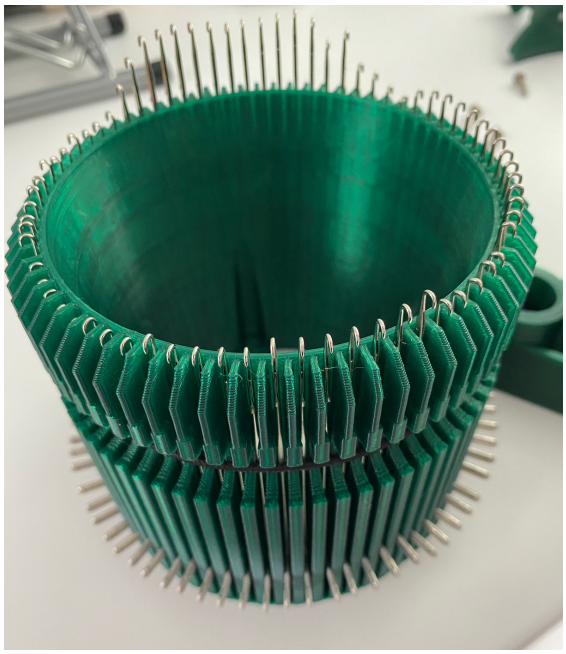
-Remove the cylinder with the needles by lifting it out of the casing.

The large gear will also become free, when the screws are removed, be careful not to drop it.





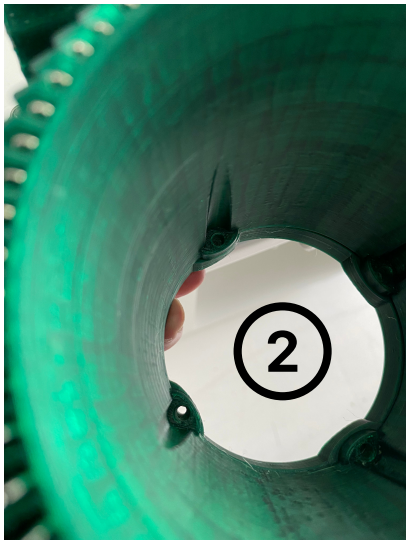
Changing Cylinders

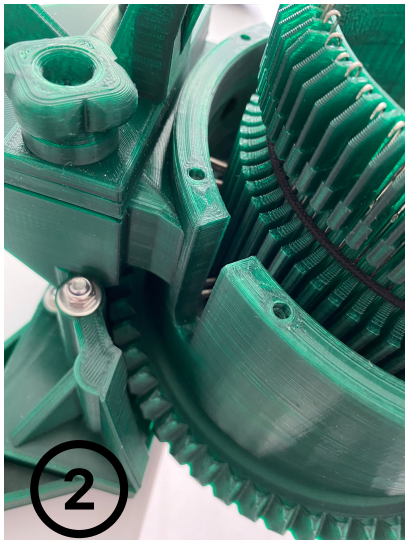


To Replace the cylinder:

1 - Place the cylinder into the casing, ensuring that the needle butts are positioned **above the centre lift CAM and needle track.**

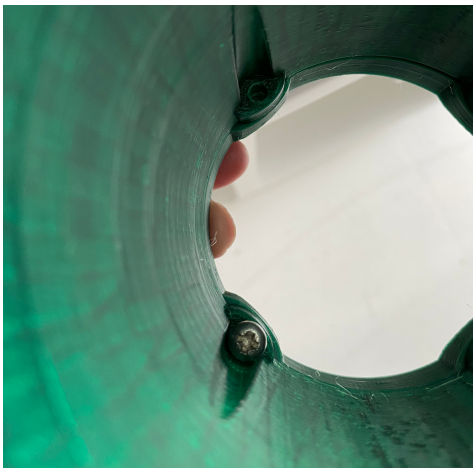
2 - Place the cylinder back inside the casing and place the gear back into position and align the 4 holes, **also aligning the magnet with the cylinder mark, for the row counter.**
supporting the machine from below with one hand on the large gear.



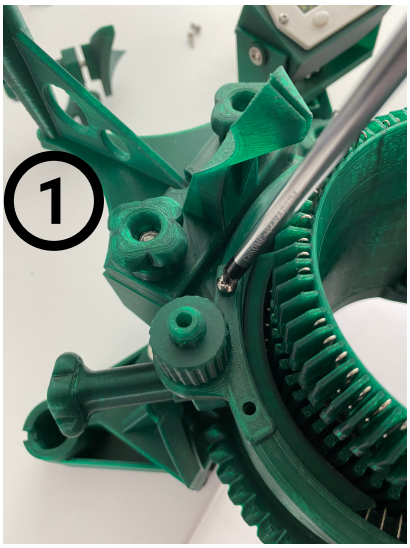


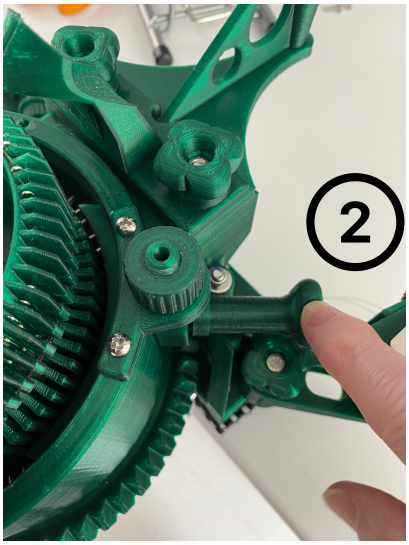
Changing Cylinders

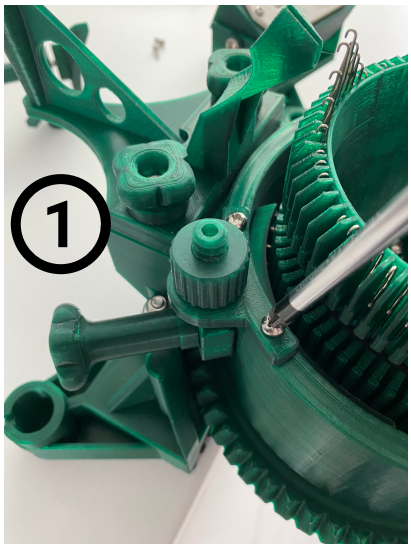
- Tighten the cylinder screws from above using the screwdriver provided, through the hole in the cylinder and the gear.
(the large screws are for the cylinder and the small screws are for the CAMS)



- Make sure that the cylinder rotates smoothly by turning the handle and none of the screws or the cylinder are loose.
- Place each CAM back into the machine, noting that the flat side should be facing the centre. They are labelled left/right.
1 - Replace the CAM screws
2 -whilst leaving the CAM lock screw loose





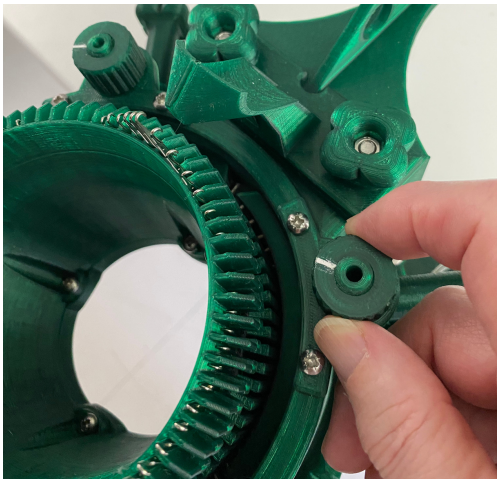


Changing Cylinders

Resetting the height of the CAMS

To lower the CAMS, turn the CAM adjustment knob to the right, in a clockwise direction

To Raise the CAMS, turn the CAM adjustment knob to the left, in an anti-clockwise direction.



After the CAM screws have been replaced and the **CAM lock screw is still loose**

- Gently lower the CAMS to their lowest point, turning the CAM adjustment knob to the right.

We suggest then raising the CAMS by turning the CAM adjustment knob to the left, anti-clockwise direction **1 full turn.**

- Both CAMS should be at the same height.

If the cylinder rotates freely, then go ahead and thread your machine with waste yarn and cast on.

If your knit is too tight after casting on, raise the CAMS another 1 full turn on both sides.

If the knit is too loose, lower the CAMS on both sides.

Use the CAMS to adjust the tension of the knit.

Method 2 - Removing the cylinder **with** removing the needles.

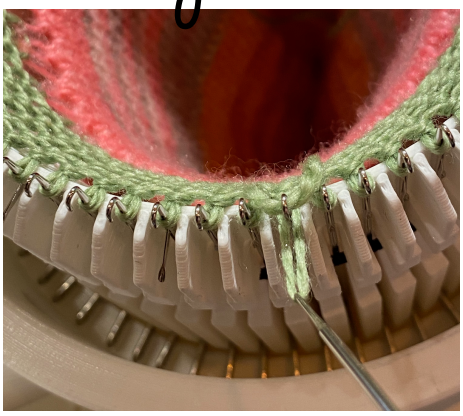
Remove all of the needles or just the needles between the 9 o'clock and 3 o'clock position, between both CAMS.

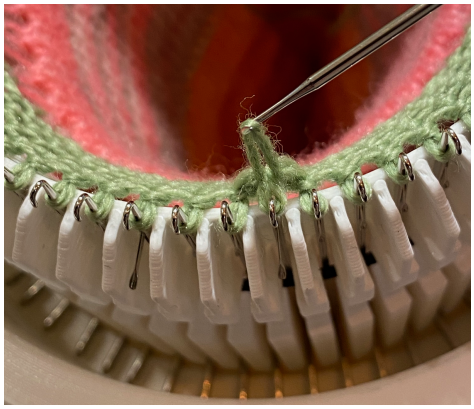
Unscrew all four screws located inside the cylinder and lift the cylinder out of the casing, **remembering to support the gear from below.**

Troubleshooting

Slipped Stitches

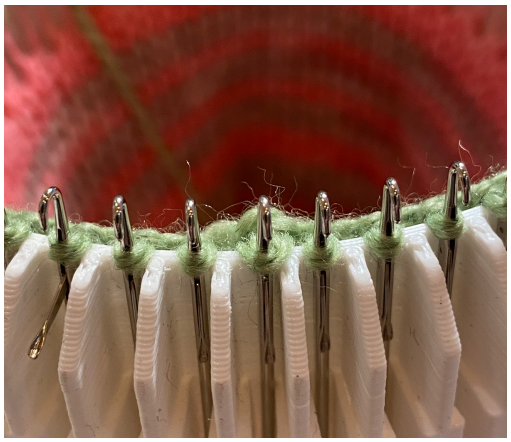
1- using a pick up tool, make sure that both bars are on the outside of the needle and under the hook but above the latch on the needle.

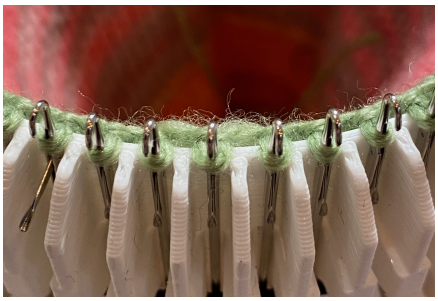




2- pick up the stitch/bar from the previous row (the one below) and lift it over the slipped stitch (the one above)

3- place the stitch from the previous row (the stitch/bar that was lifted over) on the inside of the needle





4- Carry on Cranking.....

CAMS - Both CAMS should be at the same height

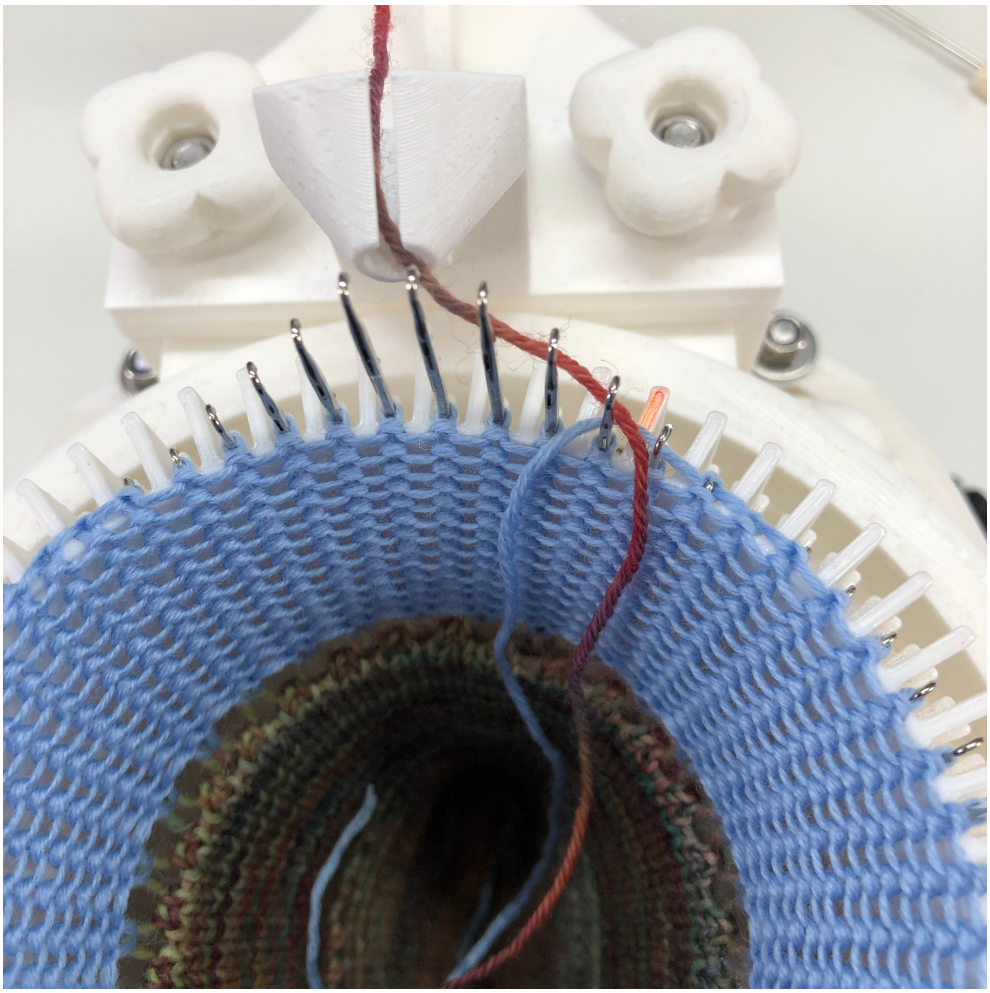
Changing Yarn

1: cut your waste yarn, leaving about a 6 inch length.
Bring that yarn to the LEFT hand side of the needle and to the inside of the cylinder.

2- Thread your project yarn, bringing the end to the RIGHT hand side of the needle and to the inside of the cylinder.

3- both yarn ends should be inside the cylinder, with the project yarn being fed from the yarn feeder.

4- hold both yarn ends and continue knitting a few stitches.
The yarn will then be secure.
Carry on cranking.....
Repeat to change back to waste yarn or another project yarn.



Cleaning your CSM

To clean the CSM, remove the CAMS and the cylinder. With a dry cloth remove any dust on the needle track.

DO NOT lubricate the machine with oil, as it will damage the machine.

Dry PTFE is recommended.

Spray on from a distance of about 6 inches. A light spray, let it dry 5 mins and polish it off.

Tip

Do not use/store/leave the machine in direct sunlight/car interior, as it will warp.

ASHCROFT MAKERS 3D SOCK MACHINE MANUFACTURER