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BERNINA L460 INSTRUCTION MANUAL



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BERNINA L 460 | L 450

Instruction Manual

made to create BERNINA

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Safety Instructions
IMPORTANT INFORMATION

Precautions should always be followed, including the following:

Read all the instructions before using this machine.

In general when the machine is not in use, it should be disconnected from the electricity supply.

⚠ DANGER!

As a protection against electrical shock:

1. The machine should never be left unattended when plugged in.
2. Always unplug this machine from the electrical outlet after using and before cleaning.
3. LED Radiation. Do not view directly with optical instruments. Class 1M LED product.

⚠ WARNING!

As a protection against burns, fire, electric shock or injury to persons:

1. Use this machine only for purposes as described in this manual. Use only attachments, accessories and parts recommended by the manufacturer.
2. Do not allow this machine to be used as a toy. Close attention is necessary when this machine is used by or near children. The machine is not intended for use by persons (and children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge. Unless they have been given supervision or instruction concerning use of the machine by a person responsible for their safety. To ensure children do not play with the machine they must be supervised.

Never operate this machine if:

- the cord or the plug are damaged,
- it is not working properly,
- it has been dropped or damaged,
- it has fallen into water.

3. Return the machine to your local authorized BERNINA dealer for examination or repair.
4. Never operate the machine with any air openings blocked. Keep ventilation openings of the machine free from the accumulation of lint, dust and loose cloth.
5. Keep fingers away from all moving parts. Special care is required around the sewing needle and the knife.
6. Never insert any objects into any openings on the machine.
7. Do not use the machine outdoors.
8. Do not operate the machine where aerosol products (sprays) or oxygen are being used.
9. Do not pull or push the fabric while stitching. This can result in needle breakage.
10. Switch the machine off «0» when making any adjustments in the needle area, such as threading the needle, changing the needle, threading the looper, or changing the presser foot.
11. Always unplug the machine from the electrical outlet when removing covers, when covers are opened to raise the knife or thread the loopers, when lubricating or when making any other user servicing adjustments mentioned in the instruction manual.
12. Do not use bent needles.
13. Always use the original BERNINA stitch plate. The wrong stitch plate can cause needle breakage.
14. This machine is provided with double insulation (except for USA and Canada). Use only original spare parts. See instructions for servicing of double-insulated products.

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SERVICING DOUBLEINSULATED PRODUCTS

In a double-insulated product two systems of insulation are provided instead of grounding. No grounding means is provided on a double-insulated product, nor should a means for grounding be added to the product. Servicing a double-insulated product requires extreme care and knowledge of the system and should be done only by qualified service personnel. Replacement parts for a double-insulated product must be identical to the original parts in the product. A double-insulated product is marked with the words: «Double insulation» or «Double insulated».

The symbol ⧈ may also mark such a product.

LIABILITY

No liability will be assumed for any possible damage which arises from misuse of this machine.

This machine is intended for household use only.

This machine meets the European Standard 2004/108/EC concerning the electromagnetic tolerance.



Environmental Protection

BERNINA is committed to the protection of the environment. We strive to minimize the environmental impact of our products by continuously improving product design and our technology of manufacturing.

When your machine won't be used anymore, dispose this product in an environmentally responsible way according to the national directive. Do not throw away this product with your household waste. In case of doubt, please contact your local BERNINA dealer.



If the machine is stored in a cold room, it should be brought to a warm room about one hour before use.



Please find the latest version of your instruction manual at **www.bernina.com**

KEEP THESE INSTRUCTIONS SAFE!

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Reading Instructions

DANGER!
Very important!
Risk of injury!

Tips and hints!



The tag is not always at the top of the page but also at the top of the description!

Hint for L 450 users
All pictures show the L 460 except for specifically marked ones.
The operation of the L 450 is identical to the L 460 unless it is specified otherwise.

Hint for US customers
Overlockers as referred to in this manual are widely called "sergers" in the USA.

All rights reserved
For technical and product improvement reasons, the machine's features, parts and accessory are subject to unannounced changes and alterations at any time. The included accessories can differ from country to country.

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Dear BERNINA customer

Congratulations on your decision to buy the BERNINA overlocker/serger!

It is made to the highest standards and we hope it will give you countless hours of satisfying sewing time. Whether your project is garment sewing, home decoration or even patchwork/quilting, by cutting, sewing and neatening in one fast and smooth operation your BERNINA overlocker/serger will give your work a professional look.

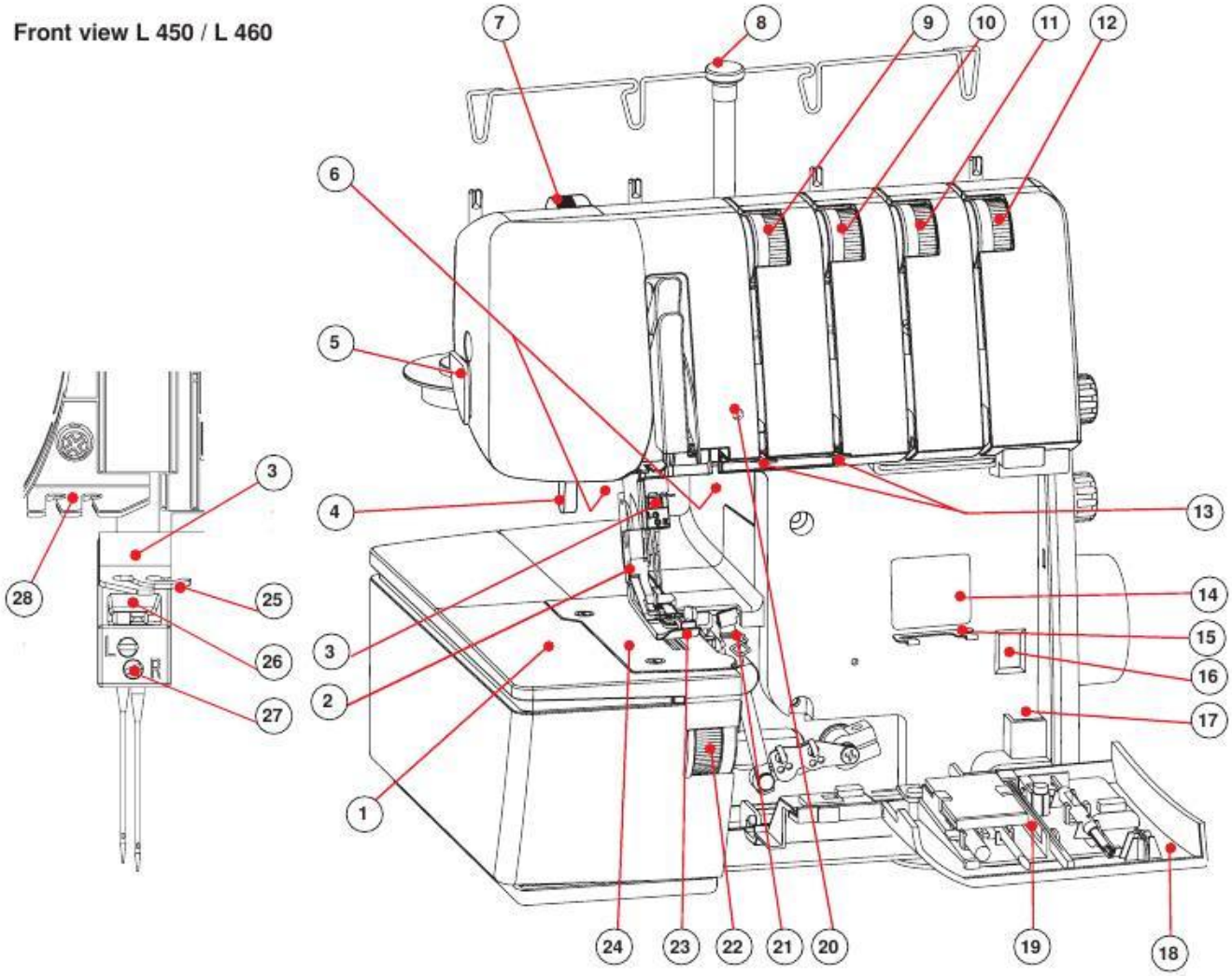
Your BERNINA L 460 / L 450 is a 4-/3-/2-thread overlocker/serger particularly well suited for sewing stretch and thin fabrics. Buying a BERNINA overlocker/serger not only allows you to perform these basic functions to perfection, but furthermore you are supplemented with many exclusive BERNINA features, making your sewing experience even more joyful. Depending on the actual model such features are the BERNINA Free-Hand System, electronic motor control for precise sewing, an automatic needle stop and last but not least the patented "mtc" Micro Thread Control.

Make sure to study this instruction manual in order to get full benefit of all these functions. Should you require further assistance, your BERNINA dealer will be a good choice to visit. He also carries a selection of optional accessories, which extends the application range of your BERNINA overlocker/serger even further. We are happy to welcome you in the BERNINA sewing family and wish you many hours of happy overlocking/serging and wonderful sewing experiences with your BERNINA L 460 / L 450.

Peter Horisberger, Product Manager,
BERNINA International AG – CH-8266 Steckborn / Switzerland

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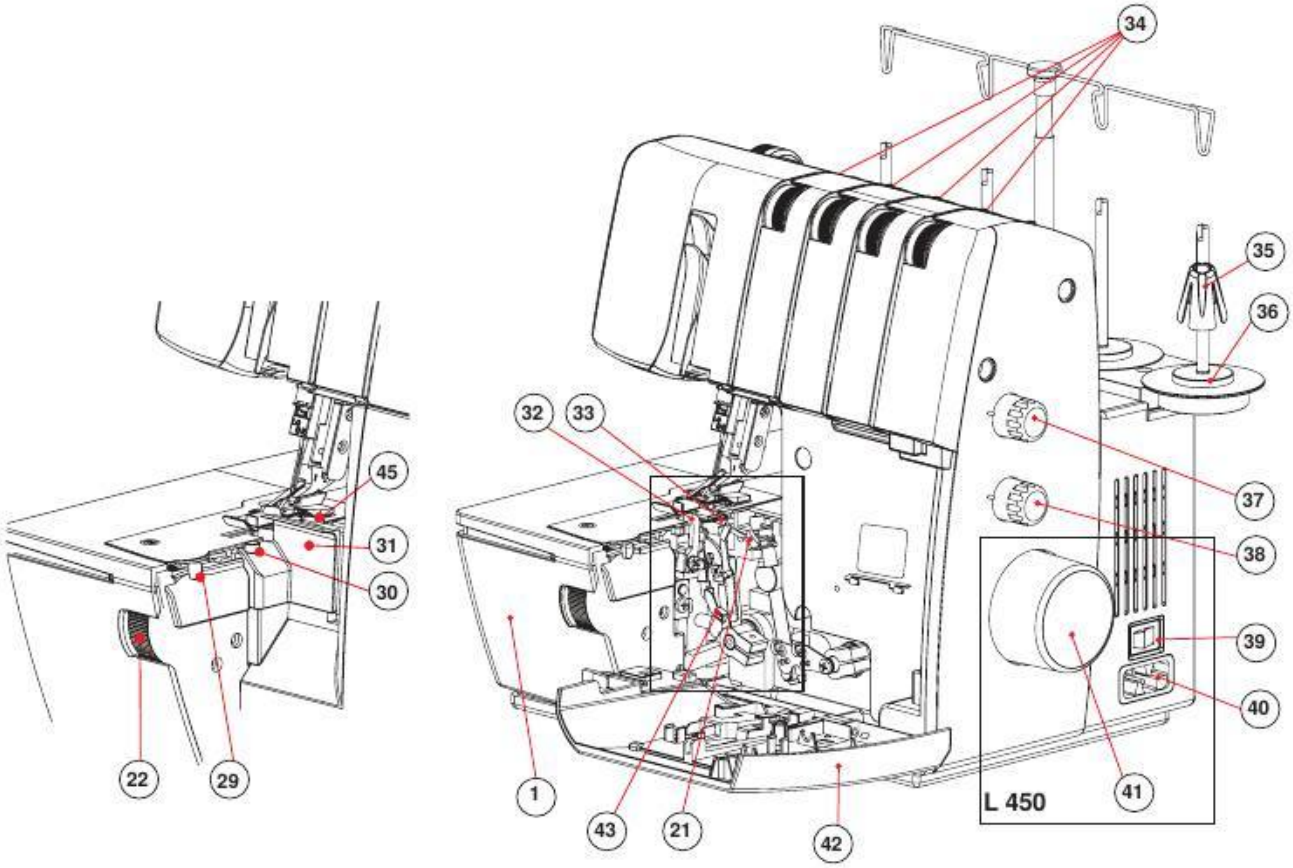
Front view L 450 / L 460

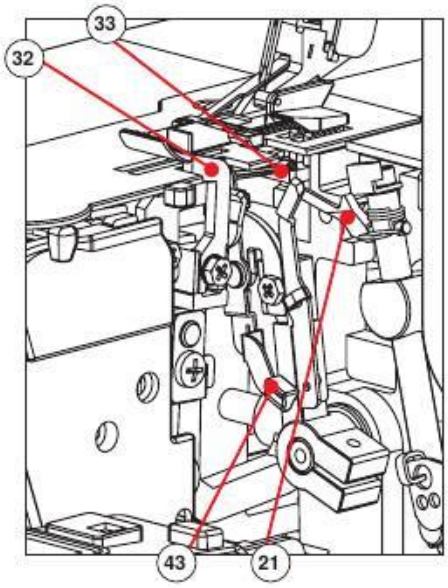


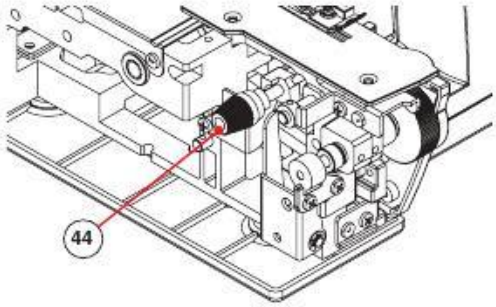
1 Sewing table
2 Presser foot release lever
3 Needle holder
4 Presser foot lifter
5 Thread Cutter
6 Dual LED Sewing Light
7 Presser foot pressure regulator
8 Retractable Top Thread Guide
9 Thread tension adjustments (yellow)
10 Thread tension adjustments (green)
11 Thread tension adjustments (blue)
12 Thread tension adjustments (red)
13 Thread Guide
14 Threading Chart
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16 Handwheel Position Indicator
17 Needle Pad
18 Looper Cover
19 Accessories Storage
20 Safety indicator
21 Upper looper
22 Cutting Width dial
23 Presser Foot
24 Stitch Plate
25 Thread Guide Needle Holder
26 Needle Checking Window
27 Set screw
28 Thread Guide
29 Micro Thread Control lever
30 Rolled Hem Selection lever
31 Knife guard
32 Knife
33 Lower looper
34 Thread pretension
35 SpoolStabilizer
36 Thread Stand
37 Stitch Length dial
38 Differential dial
39 Power switch
40 Power/Foot Control Socket
41 Handwheel
42 Looper Cover
43 Lower looper threader lever
44 Knife on/off
45 Cutting Width Indicator
46 Power Control Socket
47 Foot Control Socket
48 Kneelifter Socket

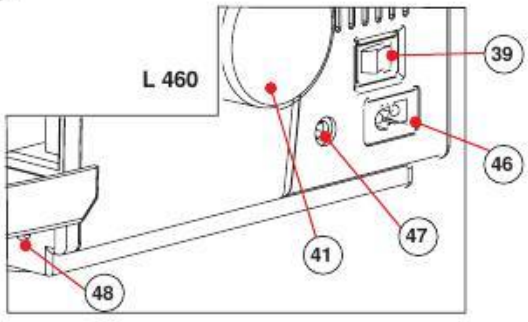
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Side view L 450 / L460



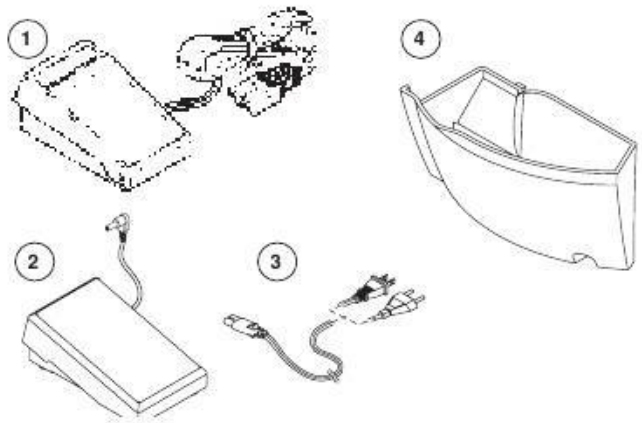




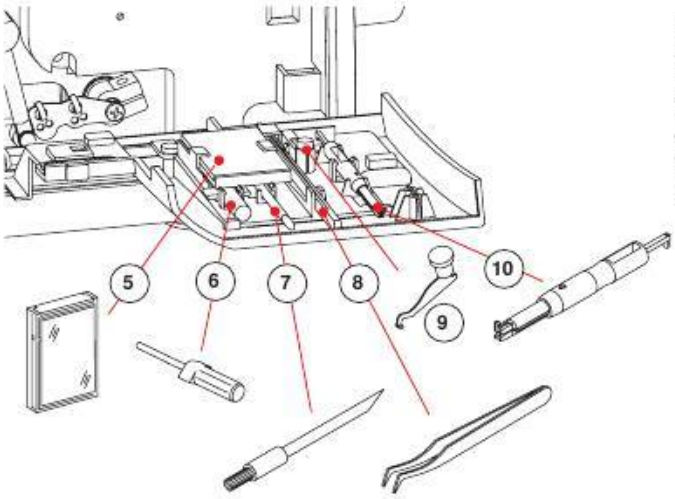


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Accessory

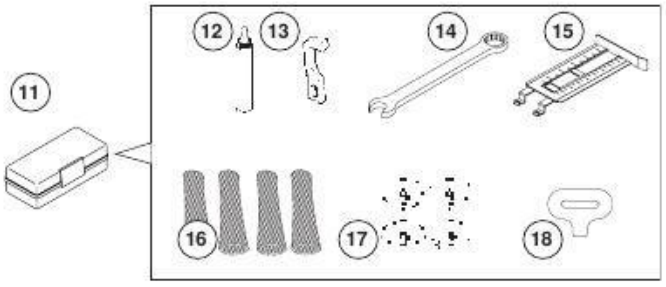


1 Foot Control / Power Cord (L 450)
(Typ YC-483N for 230V or YC 482E for 120V)
2 Foot Control (L 460 - BERNINA Typ LV 1)
3 Power Cord (L 460)
4 Cut-offsbin



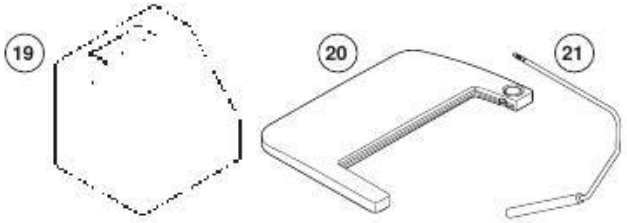
Accessory storage in the looper cover

5 Needle set 130/705H (2x No.70, 3x No.80)
6 Hexagon screw driver (1.5 mm)
7 Brush
8 Tweezers
9 Upper looper converter
10 Needle Threader / -Inserter



Other accessory

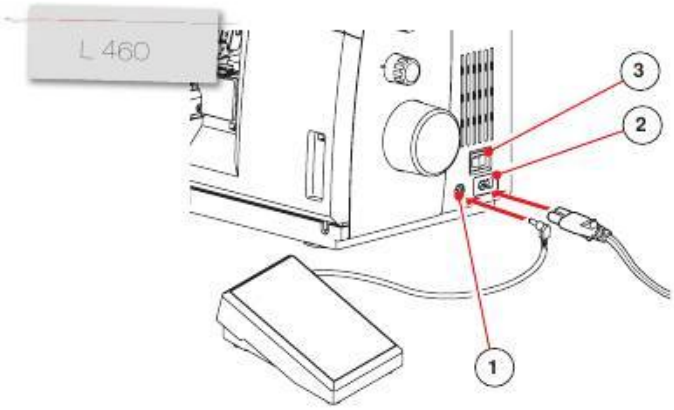
11 Accessory box
12 Oiler
13 Spare knife
14 Screw driver
15 Seam Guide right
16 Spool net (4x)
17 Thread cap (4x)
18 Screw driver
19 Dust cover
20 Extension Table (L 450 optional)
21 Kneelifter (FHS) (L 460)



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Machine Setup

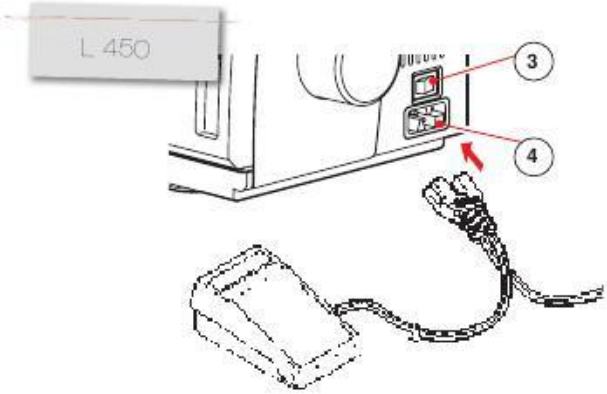
Foot control and power cord



Connection for L 460

- Insert the plug of the foot control into the respective sockets (1).
- Insert the plug of the power cord into the respective sockets (2).
- The power switch (3) turns the machine and the sewing light on/off.

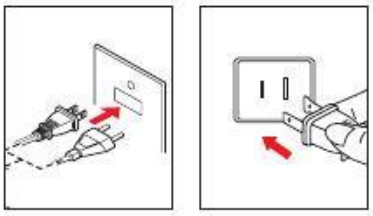
1 Foot Control Socket
2 Power Control Socket
3 Power switch



Connection for L 450

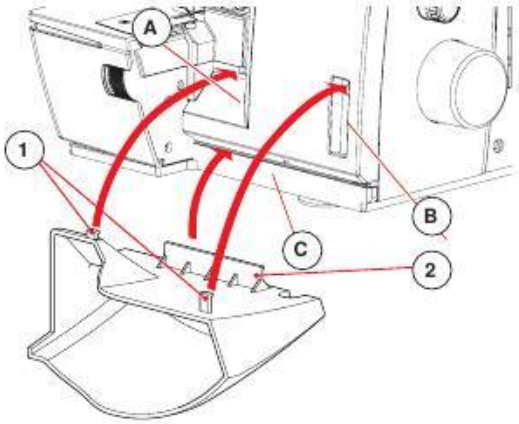
- Insert the plugs of the foot control / power cord into the respective sockets (4).
- Insert the power plug into the wall outlet.
- The power switch (3) turns the machine and the sewing light on/off.

3 Power switch
4 Power/Foot Control Socket



Polarized plug information (Canada/USA only)
Polarized plug information (Canada/USA only) This appliance has a polarized plug (one blade wider than the other). This plug will fit in a polarized outlet only one way to reduce the risk of electrical shock. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install the proper outlet. Do not modify the plug in any way.

Cut-offs bin



Make sure that the looper cover is closed before you attach the cut-offs bin.

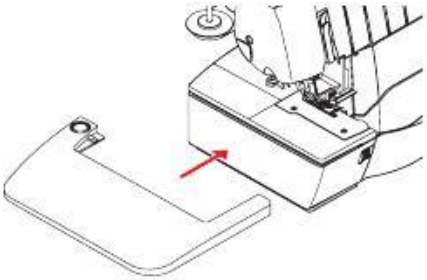
Clip the cut-offs bin into the openings on the looper cover. It catches the cutoff fabric as you sew. This keeps your working area neat and tidy.

- Position the connection bar (2) in the opening (C). Insert the two pins (1) into the respective openings (A,B) and let it snap into place.
- When storing the machine, leave the cut-offs bin attached for storing the foot control.

1 Upper pins
2 Lower pin

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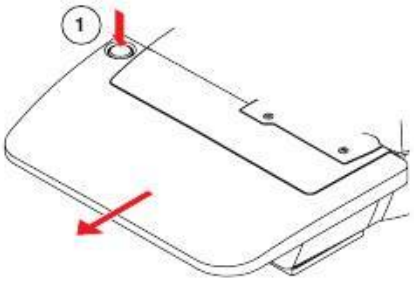
Extension Table (L 450 optional)



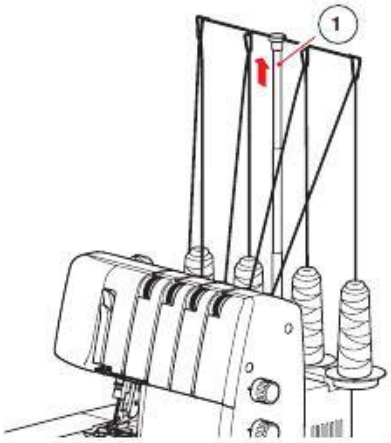
The extension table provides a large working surface for your sewing projects.

- To attach, slide the extension table from the left side horizontally along the ditch until it engages.
- To remove, slide the table to the left side while pushing the release button at the back of the table.

1 Release button

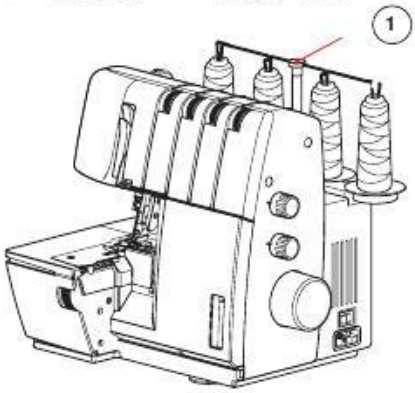


Retractable Top Thread Guide



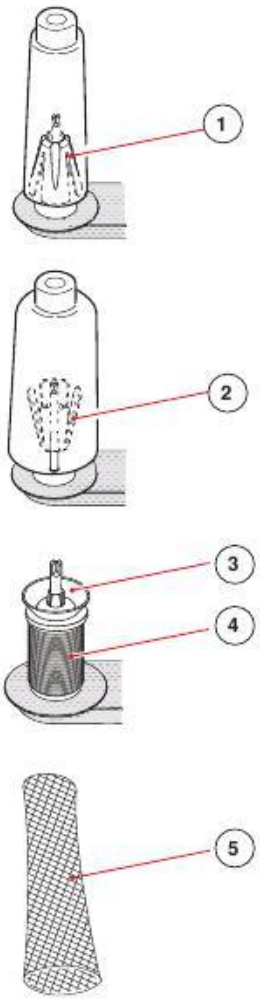
- Pull up the retractable thread stand fully, turning it slightly until the two positioning pins engage. This will align the Thread Guide (1) parallel to the Thread Stand.
- Make sure the lower part of the telescopic support rod (2) is pulled out of the housing all the way to achieve the optimum height.
- When storing the overlock machine, the base of the retractable thread stand can be pushed back into the housing.
- For transportation the thread guides hold the thread spools in place by bringing down the stand as illustrated.

1 Thread Guide



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Spool Stabilizer



Spool stabilizer for cones
With small cones the Spool stabilizer (1) is used with the narrow end upwards.
With large cones the Spool stabilizer (2) is used with the narrow end downwards.

Spool caps for domestic type spools
For standard type spools, use the spool cap (3).

Spool net
Polyester or bulky nylon threads become loose while unwinding. To keep consistent feeding of such threads, pull the spool net over the spool.

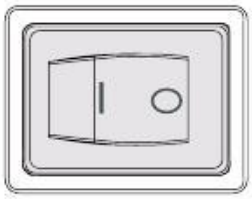
1 small thread cone with Spool stabilizer
2 large cone with Spool stabilizer upside down
3 Spool cap
4 Thread spool
5 Spool net

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Operating Instructions

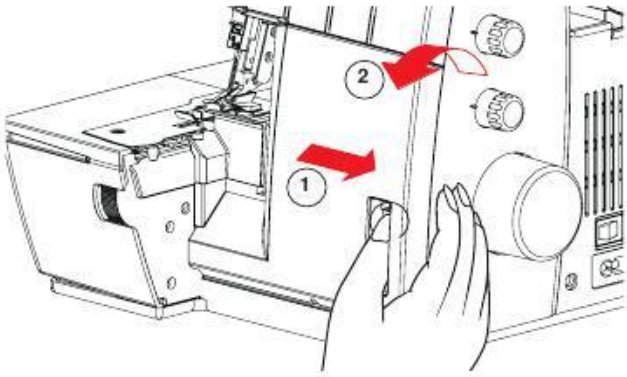
Control elements

Power switch



The power switch controls both the machine power and the sewing light. When leaving the machine unattended, or servicing the machine, switch the machine off, and remove the power cord from the wall outlet.

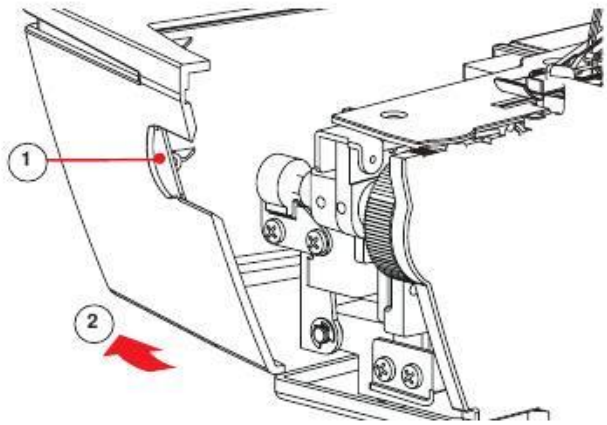
Looper cover



- To open the looper cover, pull it to the right and flip it downwards.
- To close the looper cover, flip it upwards and push it to the left. It engages automatically.

The cut-offs bin needs to be removed before the looper cover is opened.

Sewing table

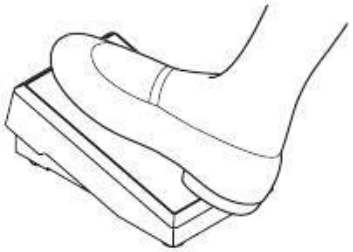


- To open the sewing table, hold onto the grip near the cutting width dial (1) and push it to the left (2).
- To close the sewing table, swivel it to the right until it engages.

1 Grip on the sewing table
2 Opening the sewing table

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Foot control



- The pressure on the foot control regulates the sewing speed.

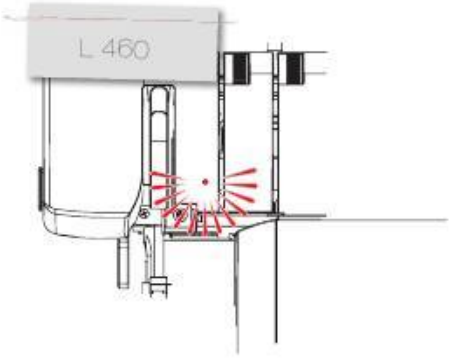
Needle up/down (L 460)



After sewing, the needle always stops at its highest position.

- Adjust the up/down position of the needle by sinking the heel back on the foot control.

Safety LED L 460



When the Safety LED is activated, the machine will not run.

Reasons and actions:

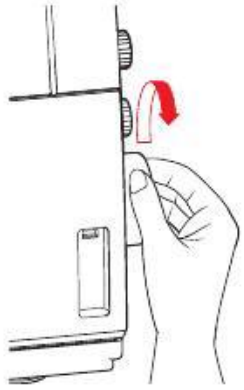
- The looper cover is open.
  - Make sure that the looper cover is closed properly.
- The sewing table is open.
  - Make sure that the sewing table is closed properly.
- The presser foot is up
  - Make sure that the presser foot is lowered properly. Do not lift the presser foot while the machine is in operation.

If overheating should occour, the motor will be cut off and the Safety LED will flash.

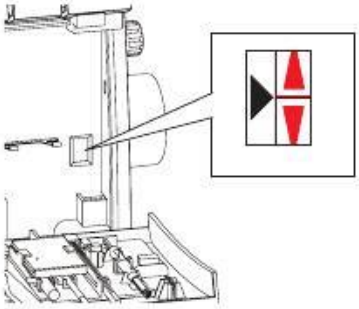
- Switch off the machine for 10 - 15 Minutes to cool down. Afterwards sewing can be continued.

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Handwheel and handwheel position indicator window

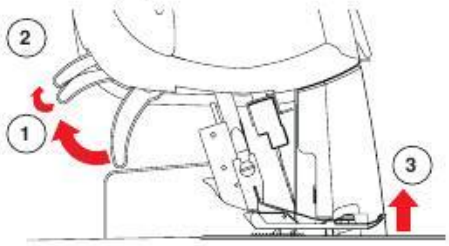


- The handwheel turns counter-clockwise.
- Open the looper cover to check the handwheel position indicator. Then set the handwheel to threading position.
- With the L 460, the needle stops at threading position automatically after sewing.



- The needle and the looper are at the threading position (high), when the red bar on the handwheel is aligned with the black triangle in the handwheel position indicator.

Two step presser foot lifter with front foot lift

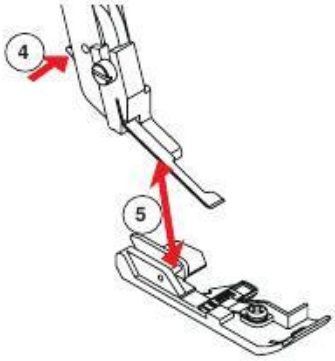


- To raise the presser foot, push up the presser foot lifter until it engages (1).
- Press the presser foot lifter even further (2) for an extra raise of the presser foot and to lift the tip (front foot lift).

As soon as the presser foot is lifted, the thread tension discs release automatically and allow safe threading.

1 Lifter position 1
2 Lifter position 2
3 Front foot lift

Changing the presser foot

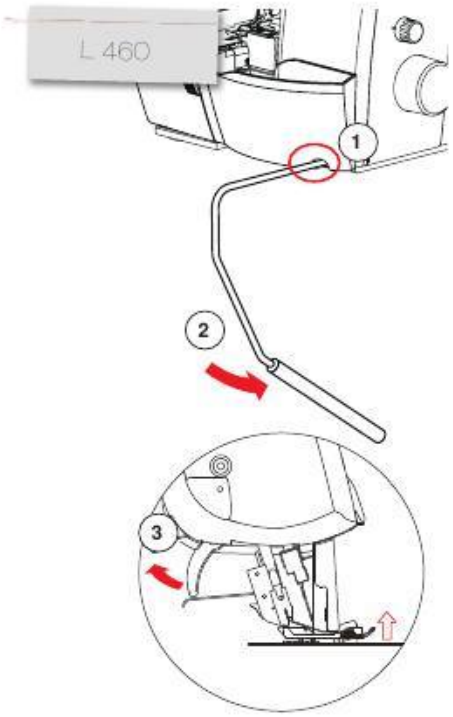


Make sure that the needle is in the highest position.

- Raise the presser foot.
- Press the presser foot release lever (4) to release the presser foot and remove it.
- To attach the foot, place it under the shaft.
- The groove in the shaft must line up exactly with the presser foot pin (5).
- Lower the shank and the presser foot engages.

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FHS Free hand system L 460



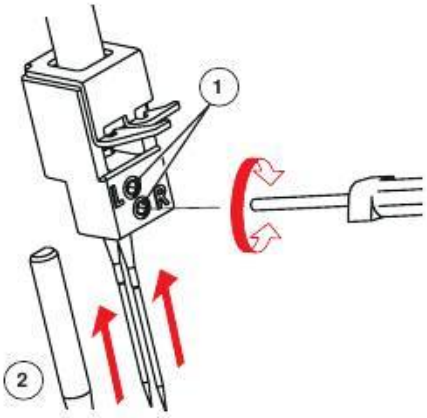
The Free Hand System lever allows raising the presser foot without using the hands.

- Insert the FHS lever into the FHS Connection (1).
- Pushing the FHS lever to the right with the knee (2) raises the presser foot.
- Wurde der Nähfuss mit dem Nähfussheber angehoben (3), kann er mit dem Kniehebel gesenkt werden, in dem dieser ganz nach rechts gedrückt und langsam losgelassen wird.

Die seitliche Position des Kniehebels kann durch ein BERNINA-Fachgeschäft etwas angepasst werden.

1 Kneelifter Socket
2 Operating direction
3 Raising the presser foot

Changing the needle





- Lower the presser foot.
- Raise the needle bar to its highest position by turning the handwheel counter-clockwise.
- Loosen the needle set screw and remove the needle. In doing so, use the 1.5mm hex screw driver which is provided in the looper cover.
- Insert the new needle (flat side to the back) into the needle holder and push it all the way up. Use the needle checking window (3) to check the needle position.
- Tighten the set screw.

1 Set screws
2 Needle (flat side to the back)
3 Needle checking window

Use needles of the system 130/705H. „Needle and Thread" see page 18.

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Needle Inserter







To handle the needle conveniently use the Needle Threader / -Inserter which is provided in the Accesssories Storage.

- Sliding the Needle Inserter over the needle before loosening the set screw avoids dropping the needle.
- The new needle is held in place by the Needle Inserter while inserting and tightening the screw.

Needle Threader













Threading the needle

A Metal rod in Y-shaped threader

B Hold the needle threader with the triangle shaped mark upwards and guide the thread horizontally through the Y-shaped slot.

C While gently pulling the thread end, push the nose of the needle threader onto the needle shaft and start sliding down. Please Note: Push the Threader only gently towards the needle in order not to damage the metal rod.

D When having reached the needle eye, push, so that the metal rod slides through the eye, taking along the thread.

E By slowly retracting the needle threader, a thread loop will be left behind the needle.

F Pull the thread end completely through the eye and place the thread end under the presser foot.

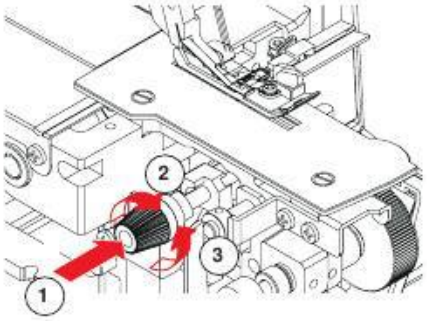
Needle pad



In the convenient needle pad you can store needles temporarily if only one of them is used or if special needles are inserted.

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Knife



Deactivating the knife

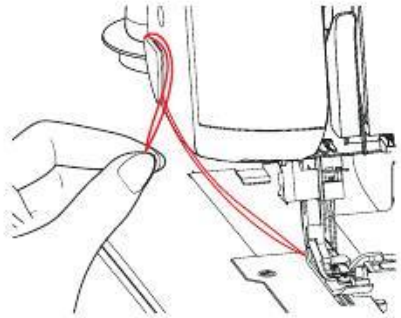
- Open the sewing table and the looper cover.
- Press the knife activating knob on/off (1) und turn clockwise (2) until the knife engages at the lower position.
- Close the sewing table and the looper cover.

Activating the knife

- Open the sewing table and the looper cover.
- Press the knife activating knob on/off (1) und turn counter-clockwise (2) until the knife engages at the upper position.
- Close the sewing table and the looper cover.

When working with lowered knife, make sure that the fabric edge is not wider than the selected cutting width. Otherwise the upper looper and the needle can be damaged.

Thread cutter

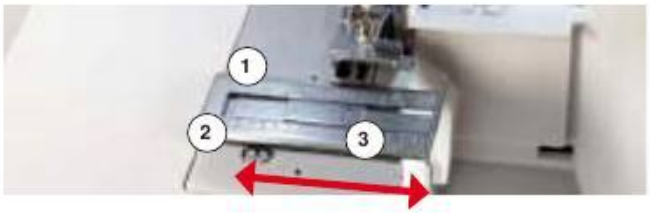


- After sewing, bring the thread up and pull it over the cutter from back to front.
- Pull the thread down to cut it.
- The chain of thread will be clamped in the thread cutter to be ready for the next piece of fabric.

Seam Guide right







- Open the sewing table.
- Attach the Seam Guide by adjusting the two hooks on the right side to the Stitch Plate and then push the Seam Guide down to the left.
- Sliding the fabric along the right side of the guide provides constant a cutting distance from the raw edge of the fabric.
- The cutout (3) in the center of the lower mounting bar indicates the position of the left needle. Scales are provided in mm (1) and inches (2).

1 Scale in mm
2 Scale in inches
3 Cutout

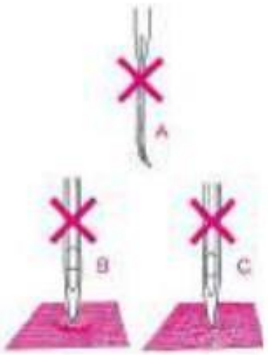
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Needle and Thread

Needle

This overlocker is prepared to hold needles of the system 130/705H (standard household needles, equivalent to HAx1 of the system 15x1 H).
For standard applications use universal needles of the sizes No.70-90 (equivalent to 10-14 in the US).
For fine jersey or delicate stretchy fabric use medium ballpoint needles 130/705 H-S or SUK (equivalent to HAx1SP, JLx2 or ELx705).

Needle condition



Needles must be in perfect condition to achieve best sewing results. Please check the needles before each sewing project. Defective needles may not only damage the sewing project, but can also damage the overlocker.

Needles must not be:
A bent or crooked
B damaged or blunt
C have hooked points

Needle, thread and application table

Thread	Needle	Where	Application
All purpose overlock thread 120/2 (polyester)	70-90	Needles and loopers	For all overlock stitches
Polyester sewing thread	80-90	Needles and loopers	Seam in all fabrics
Spun polyester		Loopers only	Neatening edges
Bulked threads (Wooly Nylon)		Loopers only	Soft seams in knits, rolled hems
Embroidery/darning and decorative threads		Loopers only	Neatening edges, rolled hems, flatlocks

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Needle and thread matching

The fabric used determines the thread weight and accordingly the needle size. When sewing, the thread is fed through the long groove in the needle. If the needle is too fine, the thread does not fit into the groove and stitches will be skipped. Needles No. 70 - 90 on the overlocker.

Thread selection

Sewing and special overlock threads are manufactured in a wide variety of types, weights and combination of fibres. It is worth investing in good quality threads for perfect sewing results. Decorative threads specially made for overlockers (available on cones or on spools) can be purchased almost everywhere. If special threads are used on the overlocker, it is recommended to consider following guidelines:

- Purchase threads on cones or spools which are produced exclusively for overlocker.
- Always use normal spools in combination with the spool caps (in accessory box).
- Only use decorative threads in the loopers. The thread has to run easily and smoothly through the thread guide and the the looper eye .

– The thicker the thread, the longer the stitch length (3-4).
– The thicker the thread, the looser the tensions.



- It is recommended to start sewing at minimum speed.
- Sew slowly when using decorative threads.

- Pull the thread chain gently to the back when starting to sew. Always test sew decorative threads before starting to sew the project. BERNINA recommends using high-quality threads such as Mettler Seracor®, Serafloc®, Seralene®,Poly Sheen® and Isacord.

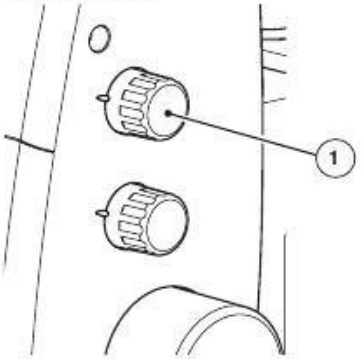


Keep in mind that the looper threads will use about 6-10 times the amount of thread used in the needles.

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Adjusting and Setting

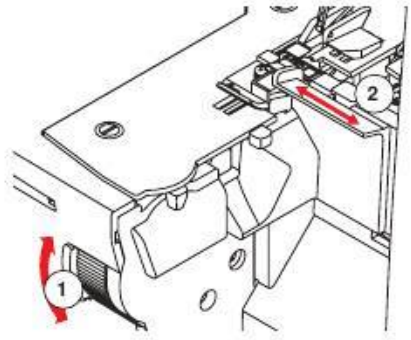
Stitch length



Turn the Stitch Length dial until the desired length is obtained. The higher the number, the longer the stitch. The stitch lenght is infinitely variable and can be adjusted from 0.8 - 4.0 mm, even while sewing. Adjustments can be made while sewing.

1 Stitch Length dial

Cutting width



The knife position and as a consequence thereof the resulting cutting width can be adjusted between 3 - 9 mm by turning the cutting width dial at the front of the sewing table. The set cutting width is shown on the cutting width indicator (2). The scale indicates the distance of the knife to the left needle (5 - 9 mm). The distance to the right needle is 2 mm shorter.

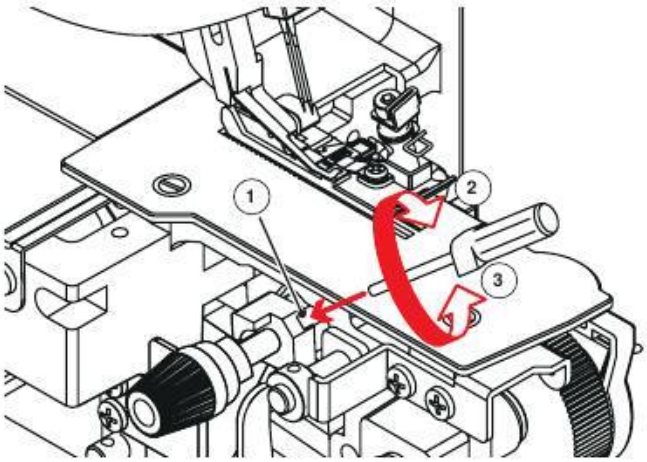
- Turn the dial upwards
  - to increase cutting width.
- Turn the dial downwards
  - to decrease cutting width.

1 Cutting width dial
2 Cutting width indicator



Use wide seams on loosely woven fabric, smaller seams on dense fabric.

Knife suspension



A wide range of fabric can be processed on this machine. When sewing extra heavy weight fabrics or multiple layers of fabric, it is recommended to secure the knife suspension mechanism as following:

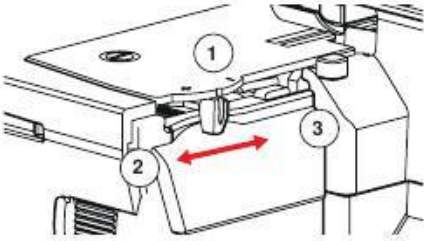
- Open the sewing table and tighten (2) the set screw (1) using the hex screw driver provided in the accessory storage.
- Before adjusting the cutting width, loosen the screw again by about 1/4 turn (3). Otherwise the fabric may not be cut properly.

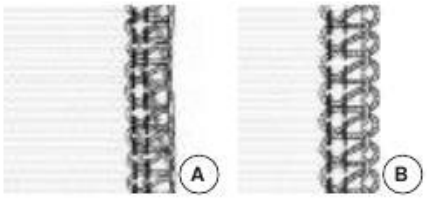
In the factory setting this screw is loose.

1 Set screw
2 Locking
3 Releasing

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mtc Thread control (Micro Thread Control)





mtc
micro thread control

This machine is equipped with the patented fine tuning feature mtc.
mtc provides easy controlling of the amount of the overedge thread along the fabric edge.

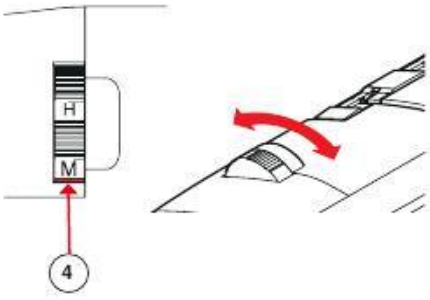
Always start at neutral position (center) when threading the machine to a new stitch configuration. After the thread tension balance has been found, the amount of the overedge thread can be fine tuned with the mtc thread control.

- If the thread is firm and the fabric curls up (A), move the mtc thread control away from the needle in (+) plus direction (2).
- If the thread at the edge is loose (B), move the mtc thread control towards the needle in (-) minus direction (3).

1 Neutral position (the groove on the lever is aligned with the notch on the stitch plate)
2 mtc-Thread control (+) plus
3 mtc-Thread control (-) minus

The mtc is the most effective in the range of 6 - 8 (Cutting width indiator).
With the knife position 5 - 6 the adjustment in (-) minus direction is limited.
With the knife position 8 - 9 the adjustment in (+) plus direction is limited.
The function of mtc is not guaranteed at stitch lengths longer than 3.5 mm.

Presser foot pressure



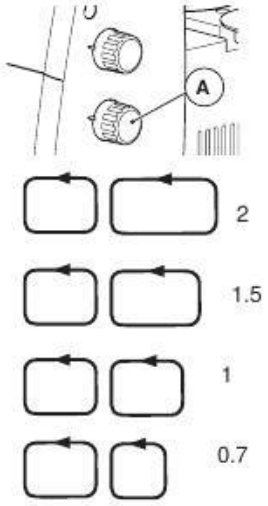
For easy operation adjust the presser foot pressure only with lowered pressure foot.

For most sewing projects the presser foot pressure may be left at standard setting M.
- If adjustment is necessary, turn the presser foot pressure regulator.

XH	=	Extra high
H	=	High
M	=	Medium (Standard)
L	=	Light
XL	=	Extra light

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Differential Feed adjustment

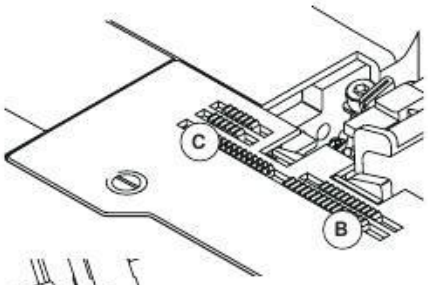


The machine provides two feed dogs which move independently. Feed Dogs can be adjusted to each other to transport the fabric evenly and to prevent unwanted puckering or waving. Even while sewing the Feed Dogs can be adjusted infinitly variable.

The adjustment can be made in the range of 0.7 (stretching effect) to 2 (gathering effect). Start with dial set to neutral (=1).

Set to required differential ratio using the Differential dial:

Setting	Effect
2	Gathering
1.5	Light gathering
1	Neutral, no effect (Standard)
0.7	Stretching

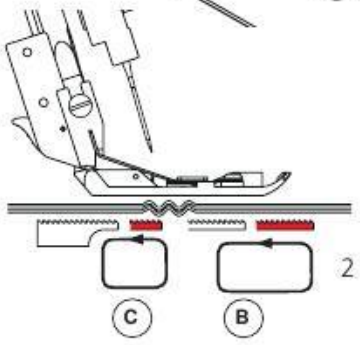


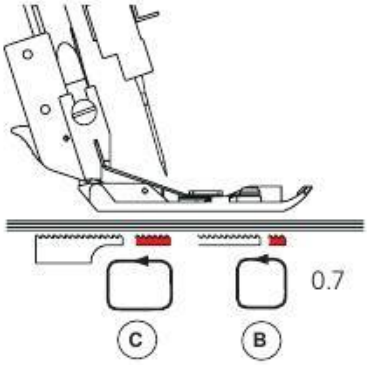
Gathering
Differential feed 1 - 2

The front feed dog (B) makes a longer stroke than the back feed dog (C).

This results in more material beeing feed under the presser foot an thus avoiding unwanted waving.

This setting may also be used to gather materials on purpose.





Stretching
Differential feed 0.7 - 1

The front feed dog (B) makes a shorter stroke than the back feed dog (C).

This results in the material under the presser foot beeing streched and thus avoiding unwanted puckering.

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Threading and Sewing

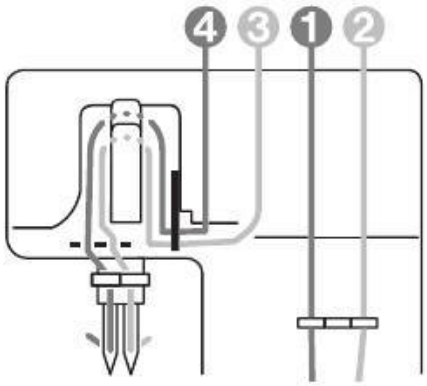
Stitch overview

The basic values can vary depending on materials used. Refer to chapter Sewing sample, page 31

Stitch			Threading / thread tension setting				Machine Setup				
Stitch	Practical / decorative stitches	Stitch pattern	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter aktiv	Cutting width	Stitch length	Differential feed
1	4-thread overlock		4	4	4	4	▲	-	6	2.5	1
2	3-thread super stretch		4.5	4	–	3	▲		6	2.5	1
3	3-thread overlock left needle		4	–	4	4	▲	-	6	2.5	1
4	3-thread overlock right needle		–	3.5	4	4	▲	-	6	2.5	1
5	3-thread flatlock left needle		1.5	–	3.5	7	▲	-	6.5	2.5	1
6	3-thread flatlock right Needle		–	2.5	4	7	▲	-	7	2.5	1
7	3-thread narrow seam		–	4	4	4.5	▽	-	7	2	1
8	3-thread rolled hem		–	3.5	4	7.5	▽	-	5	1	1
9	2-thread overlock wrapped overlock left needle		5	–	–	3	▲		6	2.5	1
10	2-thread overlock wrapped overlock right		–	6.5	–	3.5	▲		6	2.5	1
11	2-thread flatlock left needle		2	–	–	4	▲		6.5	2.5	1
12	2-thread flatlock right needle		–	2	–	4	▲		6	2.5	1
13	2-thread rolled hem		–	4	–	4	▽		5	1	1
14	2-thread overlock left needle		2	–	–	4	▲		6	2.5	1
15	2-thread overlock right needle		–	2	–	4.5	▲		6	2.5	1
30	3-thread picot stitch		–	3.5	3.5	6.5	▽	-	6	2.5	1

Threading - General information

Threading preparation



- Switch the machine off (power switch "0").
- align the thread guide parallel to the Thread Stand.
- Open the looper cover.
- If wanted, open the sewing table and deactivate the knife by pushing in and turning the knife acivating knob until it clicks in.
- Raise the needles: Turn the handwheel counter-clockwise until the red mark is centered in the handwheel position indicator window. With the L 460, the handwheel stops automatically in this position after sewing.
- Set mtc to its neutral position.
- Raise the presser foot. The thread tension is released.

Thread the machine carefully and in the sequence as indicated on the following pages. To achieve a good sewing result, it is important that you follow the sequence as described and as indicated on the Threading Chart (color dots 1 – 4) in the machine.

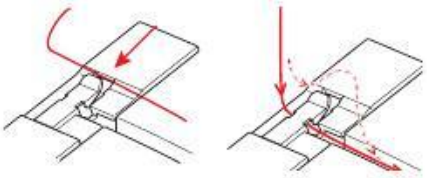
Threading aids

- Colored Stitch Charts in the appendix of this manual.
- Color-coded thread paths on the machine.
- Threading Chart in the machine.
- Threading accessories.

After threading

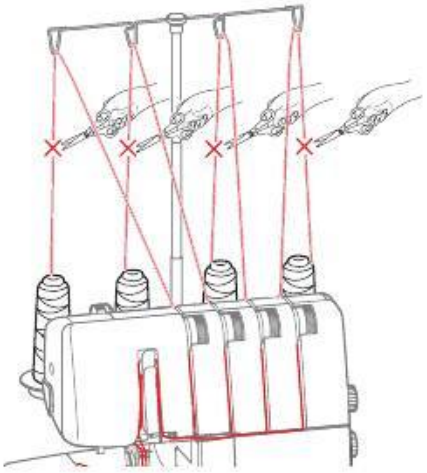
- Re-activate the knife (if deactivated).
- Close the sewing table and the looper cover.
- Switch the machine on.
- Lower the presser foot.

Thread pretension

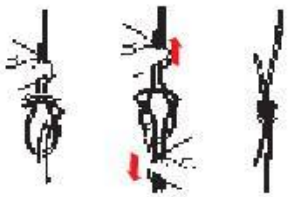


The thread pretensions are on the top of the machine. They are color-coded and simple to thread. Hold the thread with both hands and slip into the appropriate guide from the right side. Then gently pull towards the front, making sure the thread is firmly locked in the pretension hooks.

Replacing thread spools



- Cut off the existing threads near the spools and replace the cones.
- Tie ends to new spools.
- Raise the presser foot to release the tensions.
- Cut the needle threads above the needle eyes and pull the needle threads carefully through.
- Pull the thread chain carefully so that the looper threads are pulled until the new colour has passed through the looper eyes.
- At the end, re-thread the needle eyes and lower the presser foot.

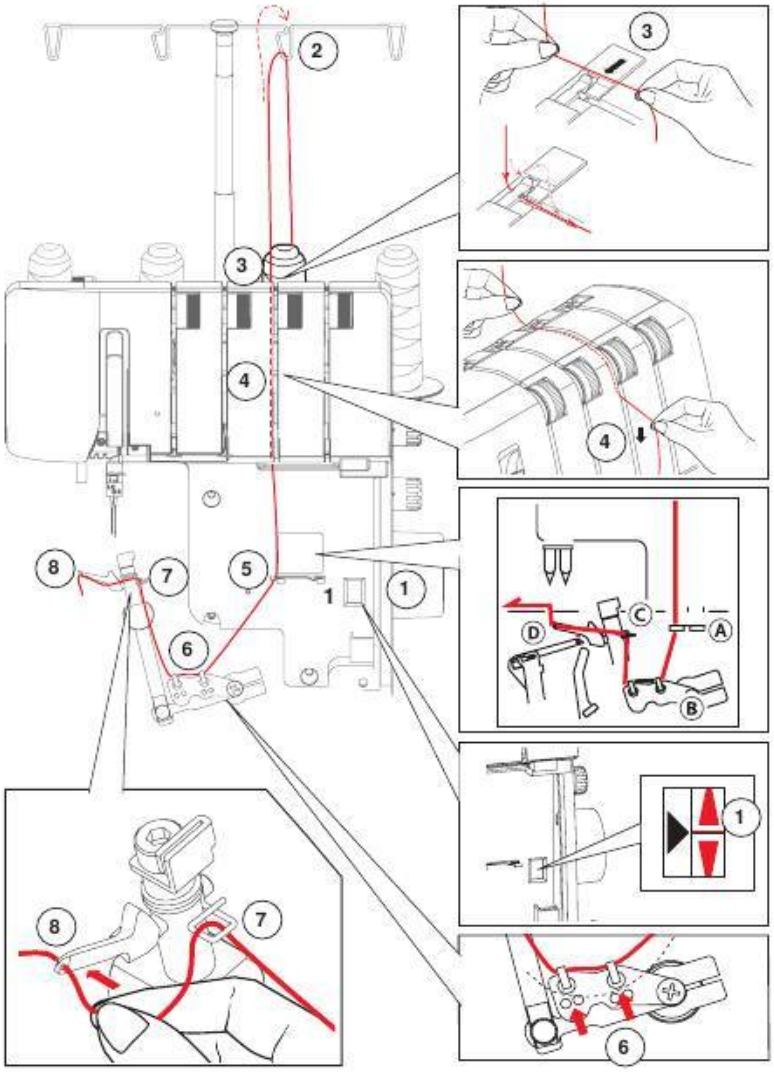


Needles could be damaged when trying to pull the knots through the needle eyes.

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4-/3-thread overlock (Stitch No. 1, 3-8, 30)

Threading the upper looper (blue)

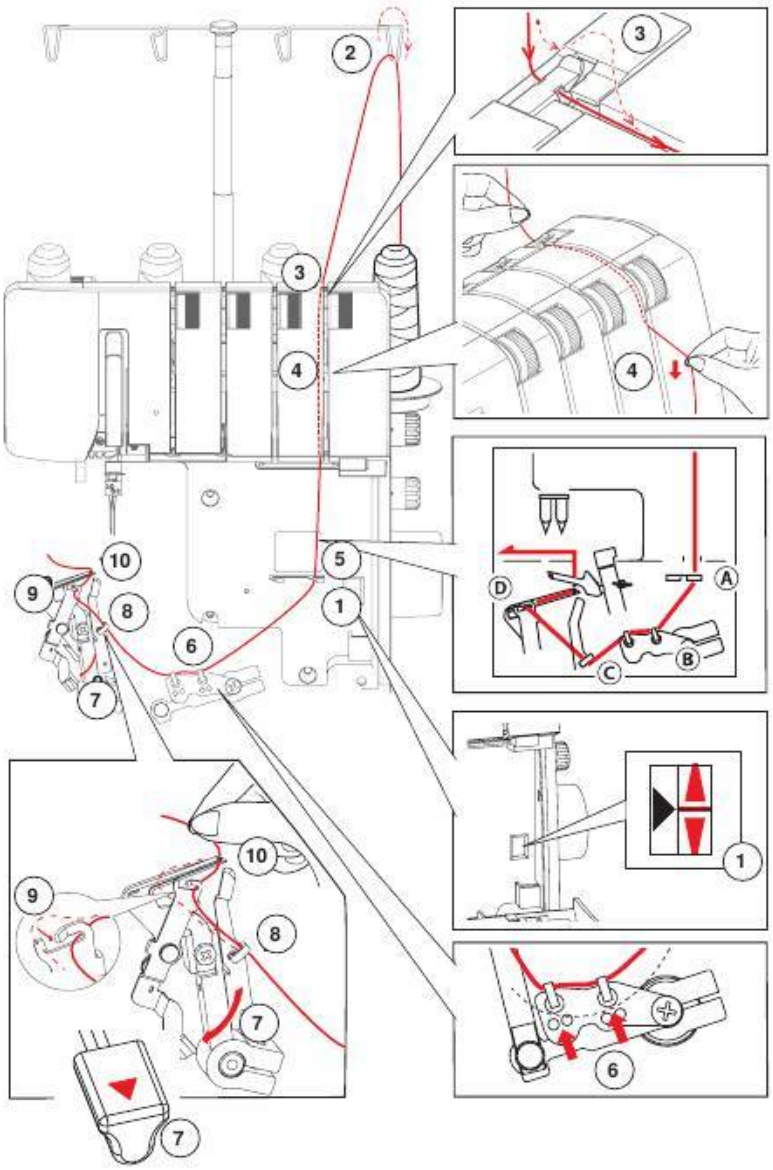


- Prepare maschine for threading. „Threading - General information" see page 24.
- Make sure that the handwheel is in threading position (Handwheel position indicator window) (1) and the presser foot is lifted.
- Feed the thread from the back through the thread guides (2).
- Thread through the pretension(3).
- Pull the thread through the thread tension (4).
- Insert the thread into the thread guides (5) and (6).
- Pass the thread through the wire thread guide on top of the upper looper (7) and then through the upper looper eye (8).
- Pull about 10 cm/ 4" of thread to the back and place it under the presser foot.

The thread tension is released when the presser foot is lifted.

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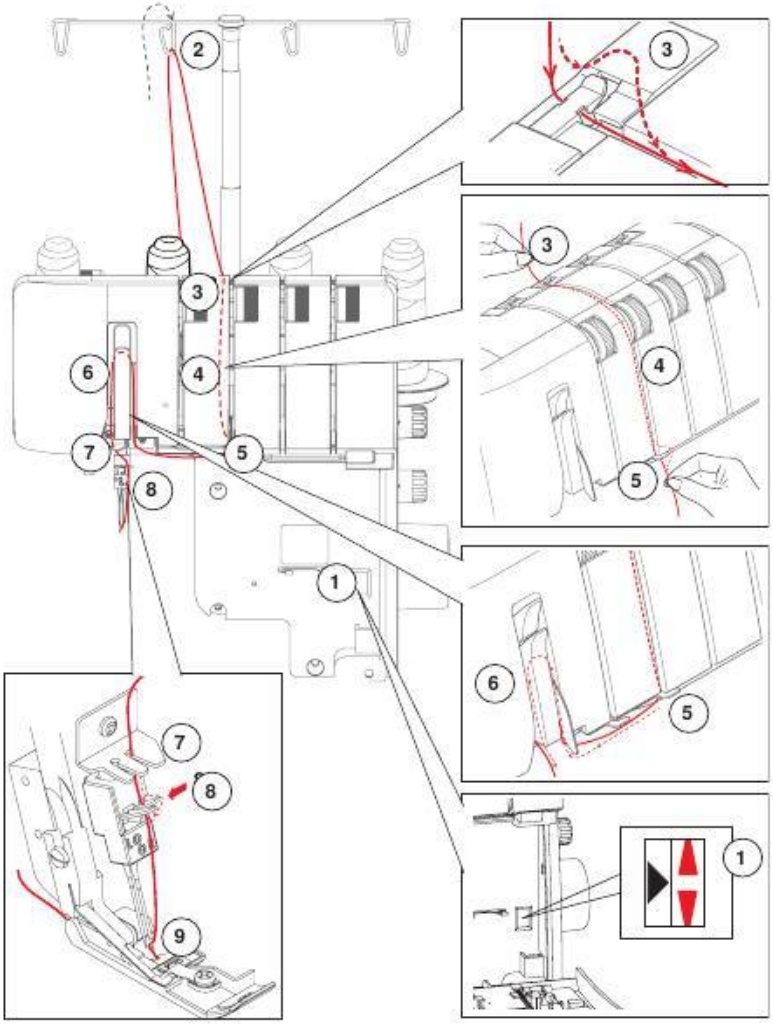
Threading the lower looper (red)



- Prepare maschine for threading. („Threading - General information" see page 24).
- Make sure that the handwheel is in threading position (Handwheel position indicator window) (1) and the presser foot is lifted.
- Insert the thread from the back through the thread guide (2).
- Thread through the pretension (3).
- Pull the thread through the thread tension (4).
- Insert the thread into the thread guides (5) and (6).
- Push down the lower looper threader lever (7).
- Thread through the thread guides on the lower looper (8) and (9).
- thread the lower looper eye (10).
- Pull about 10 cm/ 4" of thread to the back and place it under the presser foot.
- The Lower Looper Threader lever is brought back up by turning the handwheel.

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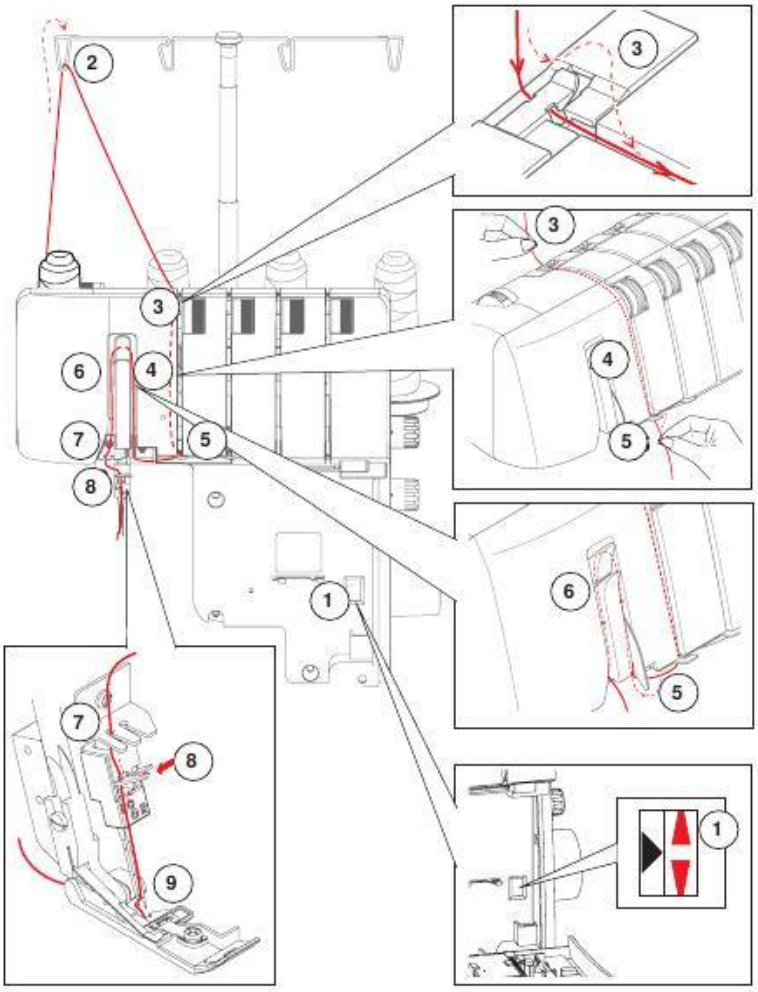
Threading the right needle (green)



- Prepare maschine for threading. („Threading - General information" see page 24).
- Make sure that the handwheel is in threading position (Handwheel position indicator window) (1) and the presser foot is lifted.
- Feed the thread from the back through the thread guides (2).
- Thread through the pretension(3).
- Pull the thread through the thread tension (4).
- Pull the thread through the thread guide (5).
- Continue to thread into the lower take up lever slot (6) and through the right slot in the thread guide (7).
- Finally thread through the right slot in the needle holder thread guide (8).
- Thread the right needle eye (9).
- Pull about 10 cm/ 4" of thread to the back and place it under the presser foot.

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Threading the left needle (yellow)

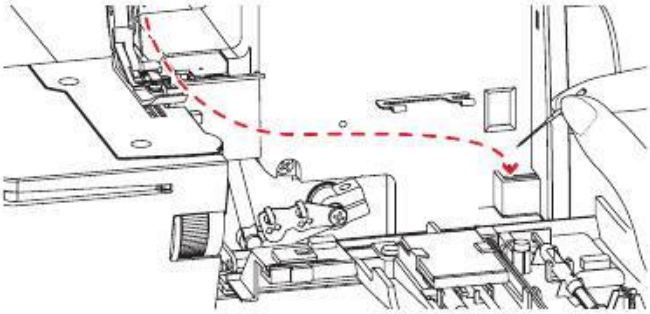


- Prepare maschine for threading. („Threading - General information" see page 24).
- Make sure that the handwheel is in threading position (Handwheel position indicator window) (1) and the presser foot is lifted.
- Feed the thread from the back through the thread guides (2).
- Thread through the pretension(3).
- Pull the thread through the thread tension (4).
- Pull the thread through the thread guide (5).
- Continue to thread into the lower take up lever slot (6) and through the left slot in the thread guide (7).
- Finally thread through the left slot in the needle holder thread guide (8).
- Thread the left needle eye (9).
- Pull about 10 cm/ 4" of thread to the back and place it under the presser foot.

„Test sewing" see page 31

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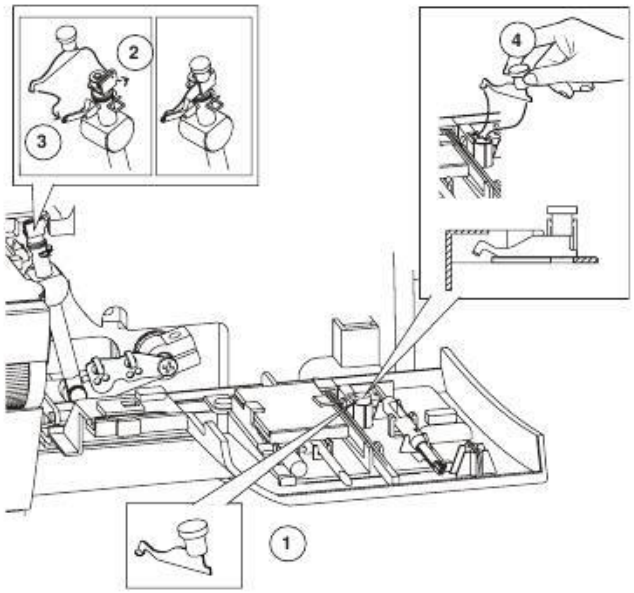
3-thread overlock



By threading the left needle a seam width of 5-9 mm will be produced. By threading the right needle a seam width of 3-7 mm is generated.

- Store the needle which is not used in the needle pad behind the looper cover.
- The threading procedure is the same as for the 4-thread overlock, just leave either the left or right needle unthreaded, as appropriate.

Upper looper converter (Stitches 2, 9-15)



3-thread super stretch or 2-thread overlock stitches can be achieved by following the threading instructions. „Stitch overview“ see page 23.
Hereby the upper looper (blue) is not threaded but covered.

The lower looper (red) and the corresponding needle(s) have to be threaded.

- Prepare maschine for threading. „Threading - General information“ see page 24.
- Make sure that the handwheel is in threading position (Handwheel position indicator window) (1) and the presser foot is lifted.
- Remove the right needle and use the left needle or vice versa, depending on the stitch formation that you have chosen.
- Take the upper looper converter from its storage in the looper cover (1).
- Attach the converter on the upper looper (2).
- Insert the hook end into looper hole.
- When not using the upper looper converter anymore, return it to its storage space in the looper cover (4).

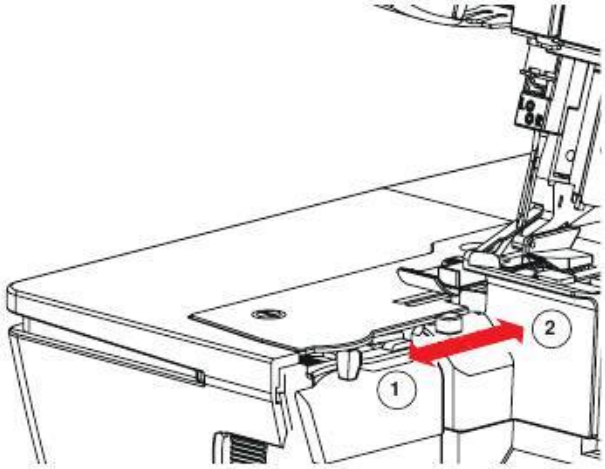
1 Upper looper converter
2 Upper looper converter attachment step 1.
3 Upper looper converter attachment step 2.
4 Storing of the upper looper converter

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Narrow seam, Rolled Hem and Picot stitch (Stitch 7, 8, 13, 30)

recommended thread

	Narrow seam with 3 threads	**Rolled hem** with 3 threads	**Rolled hem** with 2 threads
Thread for the needle	Polyester, nylon, silk No. 50-100	Nylon No.100	
Upper looper	Polyester, nylon, silk No. 50-100, bulk nylon (less stretchable)	Bulk nylon	
Lower looper		(less stretchable)	



Narrow seams and rolled hems are ideal to use on thin material such as georgette crepe, crepe de chine, silk etc.
Also a picot stitch can be produced, particularly on fine material. These stitches are unsuitable for hard fabrics and thick material.

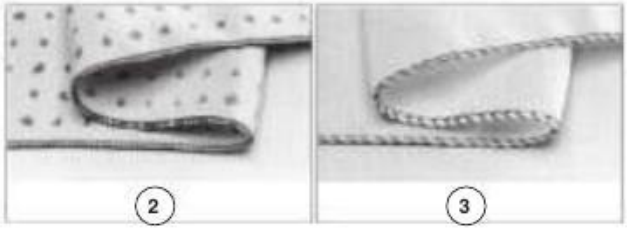
Threading / thread tension setting using the:
„Stitch overview" see page 23.
„Upper looper converter (Stitches 2, 9-15)" see page 29.

- Pull the rolled hem selection lever towards the user.
- Adjust the stitch length to 0.8-1mm for rolled hem or narrow seams and to 2.5 - 4.0 for picot stitch.

1 Rolled hem Selection lever activate.
2 Rolled hem Selection lever deactivate.



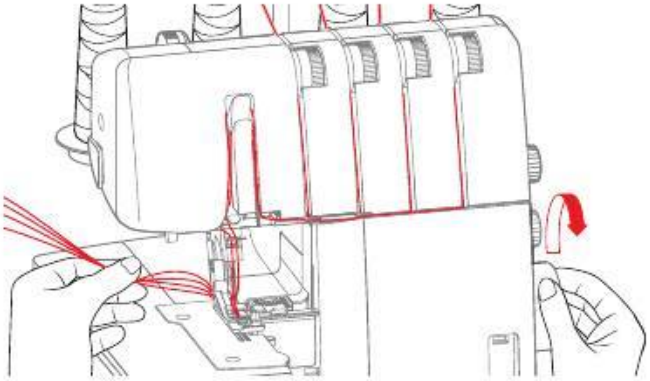
After finishing, push the rolled hem selection lever back (2).

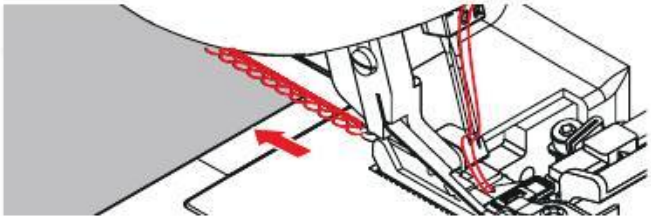


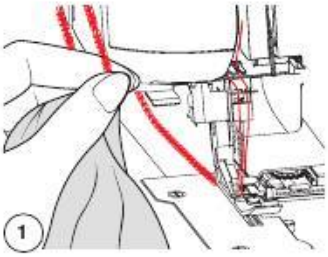
1 Narrow seam
2 Rolled hem
3 Picot stitch

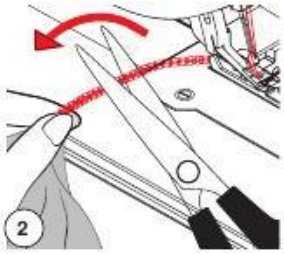
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Test sewing









Maximum Material passage for your project is 6 mm.

After threading is completed, use a spare piece of the same fabric to be used to sew and do a test sewing.

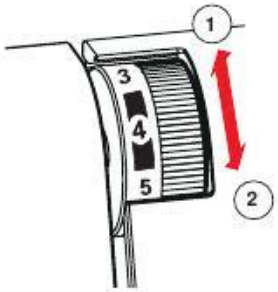
- Preset the basic thread tension, position of the Rolled Hem Selection lever, the Cutting Width, Stitch Length, Differential Feed and the Upper Looper Converter as required. „Stitch overview“ see page 23
- Pull all the threads behind the Presser Foot, to the left.
- Lower the presser foot.
- Turn the handwheel several times counter-clockwise to see if a chain is formed.
- Position the test fabric under the front of the presser foot (with most fabric this can be done when the presser foot is lowered) and sew slowly.
- Guide the fabric gently as the machine feeds the material automatically.
- Check the stitch formation and optimize if necessary. Depending on the result adjust following settings:

– „Adjusting thread tensions“ see page 32
– „mtc Thread control (Micro Thread Control)“ see page 21
– „Presser foot pressure“ see page 21
– „Differential Feed adjustment“ see page 22
– „Cutting width“ see page 20
– „Stitch length“ see page 20

- At the fabric end, carry on running machine at low speed, gently pulling the fabric towards the back, until an extra chain of stitches is produced without fabric.
- Pull the threads from the back over the thread cutter (1) or cut with scissors (2).

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Adjusting thread tensions

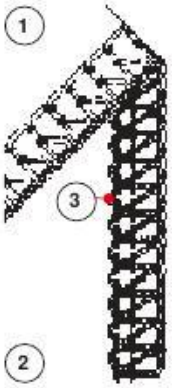
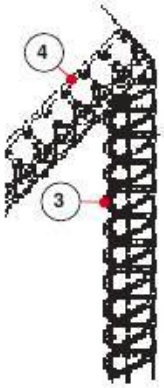
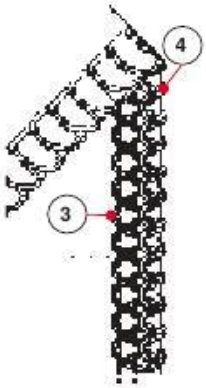
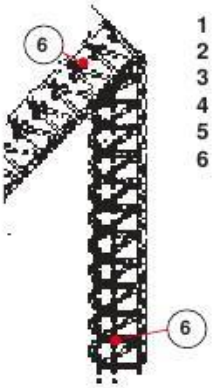


The thread tension can be altered for every thread via the thread tension adjustment.

- Turning the dial upwards increases the tension.
- Turning the dial upwards decreases the tension.

1 Increasing the tension
2 Decreasing the tension

4-/3-thread overlock

Balanced thread tension	Upper looper thread is pulled to the wrong side.	Lower looper thread is pulled to right side.	Left needle thread is loose and visible on wrong side of the fabric.	Right needle thread is loose and visible on wrong side of the fabric.
				
	Increase the tension of the upper looper thread and/ or decrease the tension of the lower looper thread	Increase the tension of the lower looper thread and/ ordecrease the tension of the upper looper thread	Increase the tension of the left needle thread and/ or decrease the tension of one resp. both looper threads.	Increase the tension of the right needle thread.

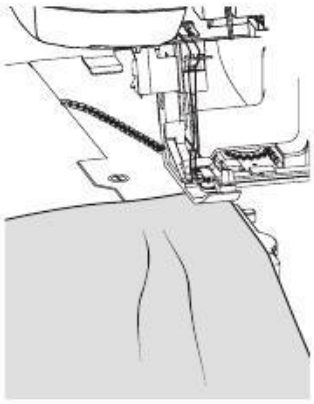
1 Wrong side of the fabric
2 Right side of the fabric
3 Upper looper thread
4 Lower looper thread
5 Left needle thread
6 Right needle thread

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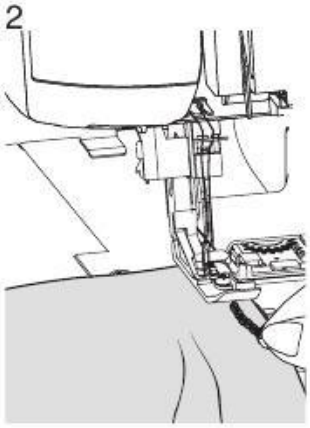
Sewing examples

Securing a Seam

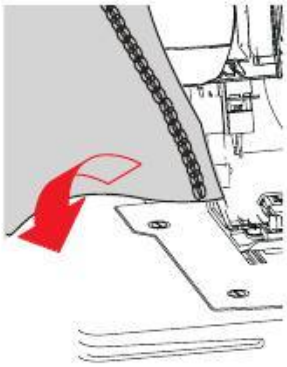
1



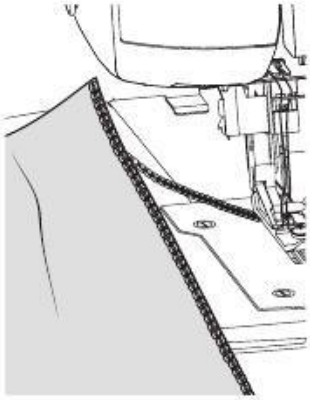
2



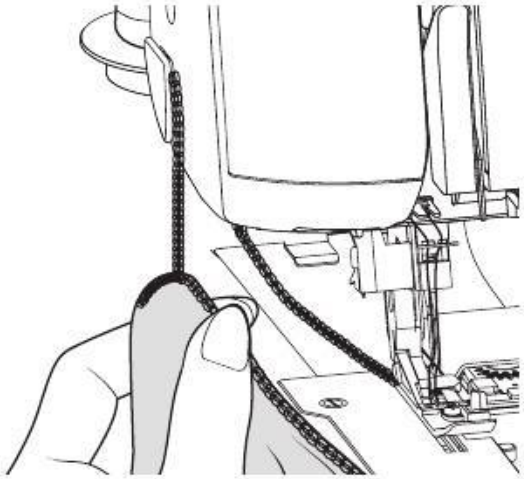
3



4



5



Seam begin

- Sew to form a 4cm/1.5" chain (1).
- Position the fabric and sew one stitch.
- Bring the needles down.
- Raise the presser foot.
- Pull the thread chain gently to the left and place it in front under the presser foot.
- Lower the presser foot.
- Sew over the thread chain (2).
- After approx. 2cm/1", cut off the excess.

L 460

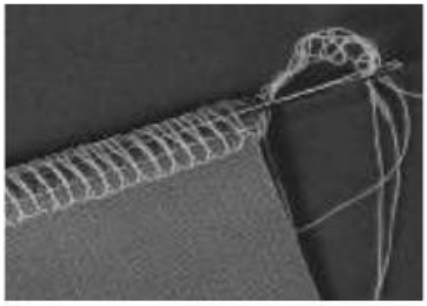
- Adjust the up/down position of the needle by sinking the heel back on the foot control.

Seam end

- Sew to the end of the seam.
- Raise the needles.
- Raise the presser foot.
- Pull the work carefully towards the back.
- Turn the seam over and lay it under the presser foot (3) so that the needles enter the fabric with the first stitch.
- Lower the presser foot.
- Sew carefully over the previous stitches (without cutting) for about 2-3cm/1.5".
- Turn the work to the left and sew an additional thread chain (not in fabric). (4)
- Pull the thread chain from the back over the thread cutter (5).

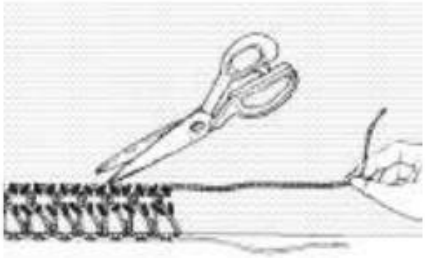
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Securing the thread chain



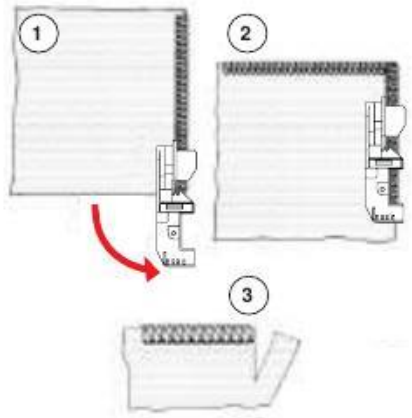
- Leave a 12cm/5" chain at the beginning and the end of the seam so that it can be knotted or pulled through the first/last few stitches with a darning needle.

Undoing stitches



To remove stitches already sewn, snip off the needle thread(s) at intervals and pull out looper thread(s).

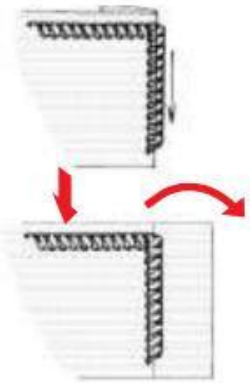
Sewing corners



1 When reaching the fabric edge, stop stitching (with the needle up).
2 Raise the presser foot and gently pull on the thread chain just so that the stitch plate is cleared. Turn the fabric, lower the presser foot and begin stitching in the new direction.
3 When overlocking and trimming at the same time, cut the fabric along the new stitching line for about 1.5"/3cm in front of the corner.

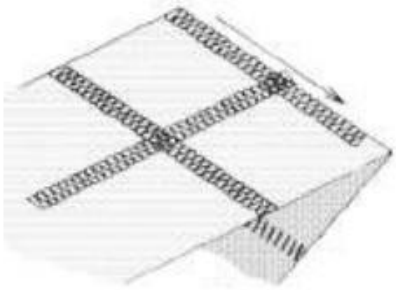
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Decorative Effects

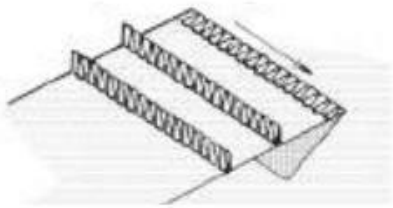


In addition to normal overlocking, this machine can also be used for a number of decorative applications such as topstitching, butted seams, pin-tucking or making lengths of decorative braid.

Decorative top-stitching
– using only two threads or using three threads (flatlock)
Fold fabric along the line to be top-stitched and overlock over the folded edge, making sure not to cut into the fold. Deactivate the knife.
Unfold the fabric, pull the ends of the threads to the underside and press flat.
For decorative effect use decor thread or embroidery yarn in the loopers.



Butted seams
– using only two threads or using three threads (flatlock)
Place two pieces of fabric wrong sides together and overlock along the edge. Unfold and press.
By using different colored fabrics and threads, a pleasing 'patchwork' effect can be achieved.



Pin-tucking
– using three threads
Fold the fabric along a line to be pin-tucked and overlock along the folded edge, making sure not to cut into the folded edge of the fabric. Deactivate the knife. Pull the ends of the threads to the underside and press.



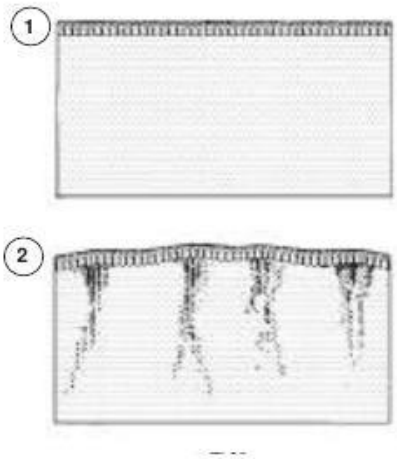
Making decorative braids
– using three threads
Overlock over a cord or a braid, holding it carefully with both hands, making sure not to cut the edge. Deactivate the knife.

Using the blind hem foot facilitates the creation of decorative stitches.
When thicker thread is used, release the thread tension of the loopers and adjust the stitch length.

Further practical sewing tips can be found in the BERNINA Overlock manual.

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Differential feed applications



The Differential feed
The differential feed (1) is designed to prevent unwanted puckering or waving on the one hand and on the other hand seams can be gathered with intention (1). It is optimal for waver-free seams in knitted fabrics.

Unwanted puckering
Unwanted puckering (2) can occur with woven or sheer fabrics. To obtain pucker-free seams, set the differential feed dial between 0.7 and 1.

Unwanted wavering
Unwanted wavering (3) can occur with knitted or stretch fabrics. To obtain waver-free seams, set the differential feed dial between 1 and 2.

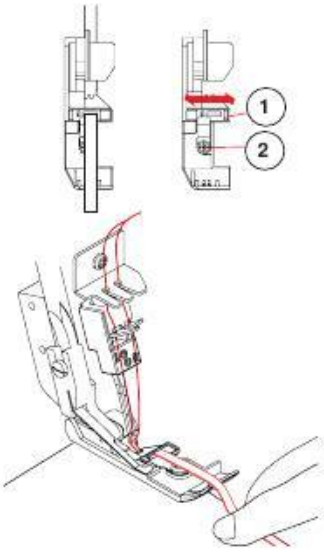
Gathering
The differential feed facilitates gathering (4) light fabrics. Use it on waistlines, sleeve heads, sleeve bottoms and ruffles, etc.
Set the differential feed dial between 1.5 and 2 to obtain the best gathering effect.

1 Pucker or waver-free seams
2 Unwanted puckering
3 Unwanted wavering
4 Gathering

The exact adjustment depends on the thickness and the elasticity of the fabric. The stitch length can influence the setting. The longer the stitches, the faster the feed of the fabric.
Always do a test run with a piece of the same fabric to be used.

„Differential Feed adjustment“ see page 22

Sewing in cord / tape



The standard presser foot is equipped with a tape guide. A tape can be sewn into the shoulder or side seams of garments made from knitted or stretch fabric so that losing shape can be avoided.

Ribbons up to maximal 4.0 mm can be sewn.

Use the Hex Screw Driver to slide the tape guide plate according to the size of the tape/ cord.
It is not neccessary to loosen the clamping screw..

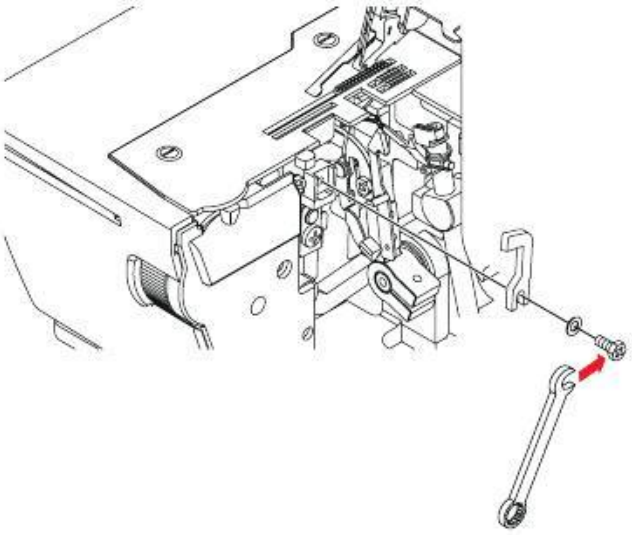
1 Sliding the tape guide plate.
2 Clamping screw

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Maintenance

Make sure that the power plug is disconnected from the main socket when doing maintencance work.

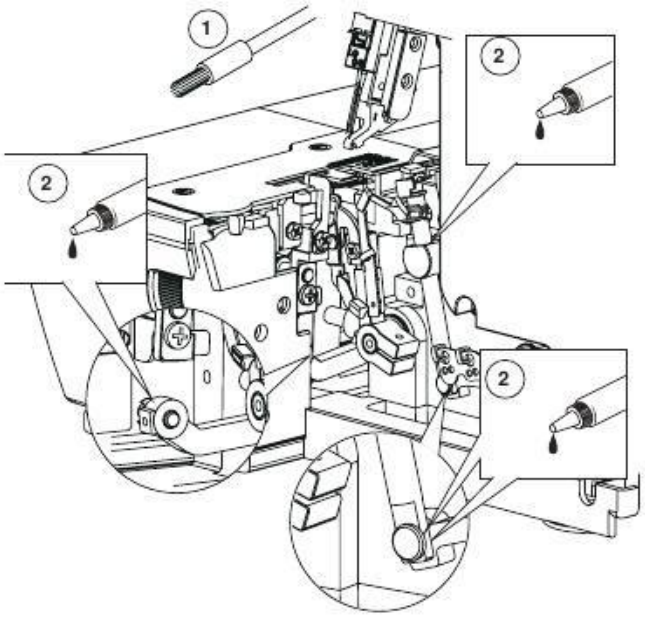
Replacing the upper knife



When the upper knife becomes blunt, replace it as follows: A spare knife is found in the accessories.

- Open the looper cover.
- Remove the screw with the spanner and detach the upper knife.
- Attach the new knife and tighten the screw a little bit to hold the upper knife.
- Bring the upper knife to its original position.
- Set the lower knife driving arm to its lowest position by turning the handwheel counter-clockwise.
- Make sure to check that the edge of the upper knife is approximately 0.5mm below the surface of the lower knife.
- Tighten the screw and close the looper cover.

Cleaning and Oiling



To keep the machine running smoothly, keep it clean at all times and lubricate regularly.

- Open the looper cover and the sewing table. Using the brush (1) provided, remove any dust and lint that have accumulated.
- Remove the stitch plate with the screw driver and remove any dust and lint from inside with the brush.
- Apply a few drops of oil to the points indicated by arrows (2).

1 Cleaning
2 Oiling

Use good quality machine oil all the time.
Contact your BERNINA dealer for details.

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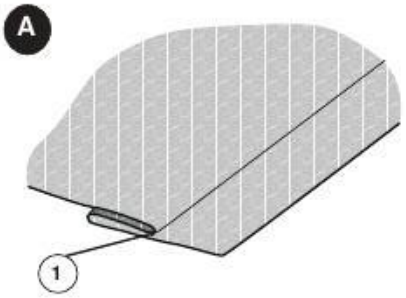
Troubleshooting Guide

Problem	Cause	Solution	Page
Irregular Stitch	– Incorrect thread tension(s).	• Adjust the thread tension(s).	**23, 32**
	– Incorrect needle size.	• Choose the correct needle size for thread and fabric.	**18, 19**
	– Incorrectly threaded.	• Re-thread the machine.	**24ff**
	– Fabric has been pulled.	• Do not pull the fabric; guide it gently.	**22**
	– Loose presser foot.	• Attach the presser foot.	**14**
Needle breakage	– Needles are bent, blunt or points are damaged.	• Replace the needles.	**15**
	– Fabric has been pulled.	• Do not pull the fabric; guide it gently.	**22**
	– Incorrect needle size.	• Choose the correct needle size for thread and fabric.	**18, 19**
	– Incorrect insertion of the needle.	• Insert the needle to highest position.	**15**
	– Loose presser foot.	• Attach the presser foot.	**14**
	– Check the needle system 130/705H.	• Use needles of the system 130/705H or HAx1.	**-**
Unwanted puckering	– Incorrect thread tension(s).	• Adjust the thread tension(s).	**23, 32**
	– Bent or blunt needle.	• Insert a new needle to highest position.	**15**
	– Differential feed is set incorrectly.	• Set the differential feed at less than 1.	**22**
Unwanted wavering	– Differential feed is set incorrectly.	• Set differential feed at 1-2.	**22**
Skipped stitches.	– Incorrect needle size.	• Choose the correct needle size for thread and fabric.	**18, 19**
	– Incorrectly threaded.	• Re-thread the machine.	**24ff**
	– Bent or blunt needle.	• Insert a new needle to highest position.	**15**
	– Incorrect setting of the needle.	• Insert the needle to highest position.	**15**
Breaking threads	– Incorrectly threaded.	• Re-thread in correct order.	**24ff**
	– Bent needle.	• Insert a new needle to highest position.	**15**
	– Thread tension(s) too tight.	• Adjust the thread tension(s).	**23, 32**
	– Incorrect setting of the needle.	• Insert a new needle to highest position.	**15**
	– Upper thread is tangled.	• Check if spool threads are running freely.	**24ff**
	Retractable thread stand is not fully extended.	• Fully extend the retractable thread stand.	**10**
Doesn't sew	– No power supply	• Check the power source.	**9**
	– Power and light switch off	• Turn on the power and light switch.	**12**
	– Overheating	• Switch off the machine and let it cool down for 10-15 minutes.	**13**
	– Sicherheitsanzeige leuchtet (L 460)	• Close the looper cover and the sewing table / lower the presser foot	**13**

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Optional Accessories

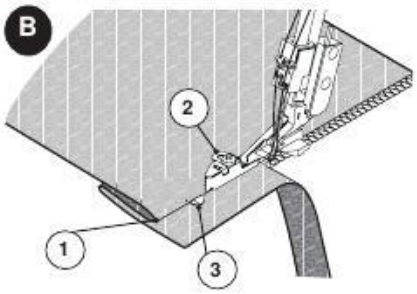
Blind stitch foot



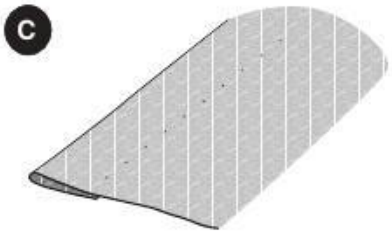
Blind stitch feet are available in two sizes at the BERNINA specialized store. 0.5 for thin up to medium weight fabrics / 1.0 for medium weight up to heavy weight fabrics.

- Attach the appropriate blind stitch foot.
- 3- or 2-thread overlock right needle.
- Stitch length up to 4.
- Release the thread tension of the needle.
- Adjust the guide on the presser foot adequately.
- Do a test run using a piece of the same fabric to be used.

A Fold the hem to the required depth and press. Fold the hem back against the right side of the garment. In doing so there is a soft fold (1) on the wrong side of the fabric.



B Place the fabric under the presser foot with the 'wrong' side up. Feed the folded edge through the guide (3) in front of the foot and lower the presser foot. Sew the first stitch (or a number of stitches) on a spare part of the original fabric and adjust the guide so that the needle only marginally pierces the folded edge. Adjust the guide by means of the small screw (2) on the top of the foot. When the guide is correctly set, sew the hem. The outside edge will be cut away.



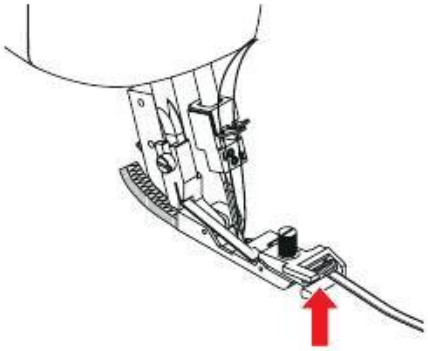
C At the end, open the hem and press again. The stitches should be almost invisible on the 'right' of the fabric.

1 Soft fold
2 Screw
3 Guide

For a double hem use the 3- or 2- thread flatlock.
When using monofil thread, the stitch is almost invisible.

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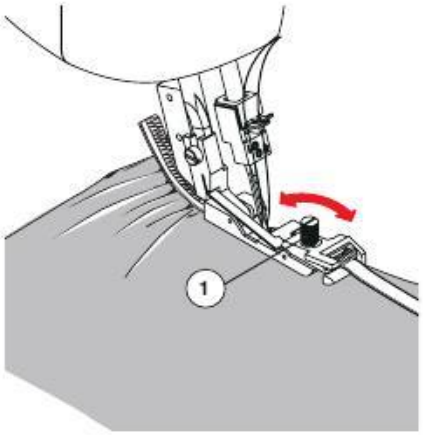
Elasticator Foot



The Elasticator foot is available at the BERNINA specialized store.

This foot will guide the elastic and at the same time it applies pressure to the elastic with a specially designed tension controlled roller.

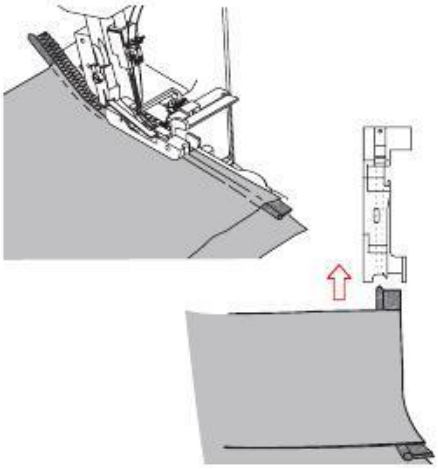
- Attach the Elasticator foot.
- Set up the 4- / 3- or 2- thread overlock.
– Adjust the cutting width.
– Adjust the pressure foot pressure.
– Do a test run to set the tension of the roller with the screw (1).
- Place the elastic under the roller and the complete foot sole.
- Fix the elastic by sewing a few stitches.
- Place the fabric under the presser foot and sew it together with the elastic.



1 Tension controlled roller

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Multi-purpose Foot

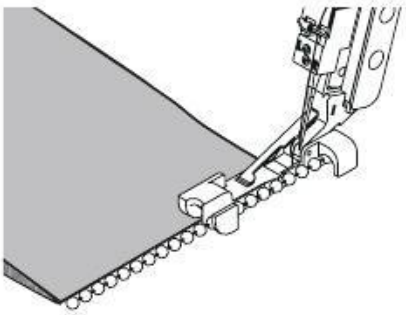


Piping

The Multi-purpose foot is available at the BERNINA specialized store.

- Attach the Multi-purpose foot.
- 4- or 3-thread overlock.
- Piping (corded bias fold tape).
- Place folded piping between fabric layers.

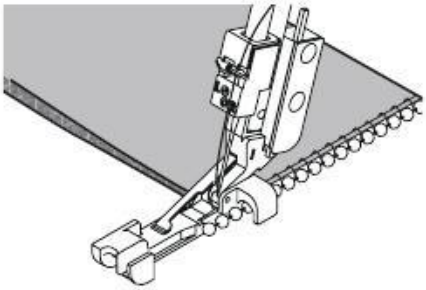
- Sewing on braid or ribbon for straight seams.
- 2- or 3-thread overlock.



Pearls along the fabric edge

Up to 4mm pearls on a string

- Attach the Multi-purpose foot.
- 3- or 2-thread overlock right needle
  – Stitch length up to 4
  – Adjust the presser foot pressure.
  – Adjust the differential feed to 0.7 -1
  – Test run
- Place the pearls in the channel on the foot with 3 cm of pearls extending behind the foot.
- Make one stitch via the handwheel to secure the pearls.
- Line up the fabric edge to extend slightly over the foot guide and along the pearls.
- Sew pearls on the edge of the fabric.

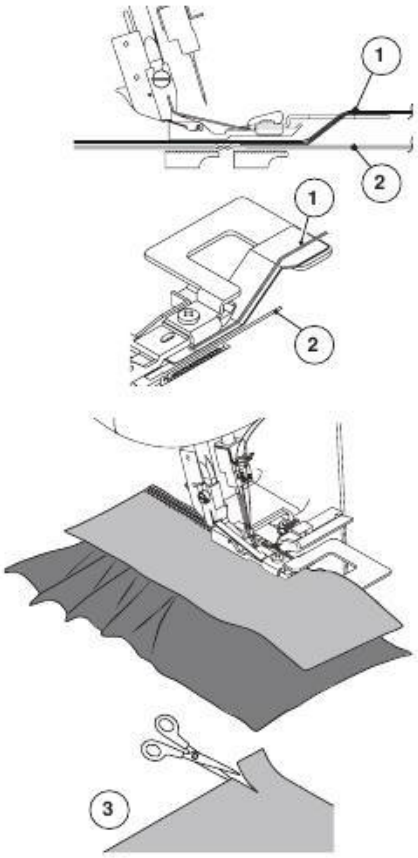


Pearls along a fabric fold.

- Attach the Multi-purpose foot.
- 3- or 2-thread flatlock right needle
  – Stitch length up to 4
  – Deactivating the knife
  – Adjust the thread tension.
  – Test run
- Place the pearls in the channel on the foot with 3 cm of pearls extending behind the foot.
- Make one stitch via the handwheel to secure the pearls.
- Line up the fold to extend slightly over the foot guide.
- Open the flatlock.

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Gathering foot



The Gathering foot is available at the BERNINA specialized store.

Gathering

- Attach the Gathering foot.
- Set up a 4- or 3-thread overlock.
– Differential feed 1.5 - 2
– Increase the thread tension of the needle thread.
– Adjust the stitch length.
- Cut in both fabric layers along the seam for about 4cm.
- Place the fabric to be gathered (2) under the presser foot.
- Place the fabric smoothly (1) between the pressure foot and the lower metal part.
- Turn the handwheel to sew 4 - 5 stitches in the fabric, making sure to catch both the upper and the lower layers.
- Use both hands to guide fabric, one on the under layer and one on the upper layer of the fabric.
- Keep in mind that the lower piece of fabric will move faster than the top piece as it is gathered.

1 Fabric to be straight
2 Fabric to be gathered
3 Cutting in the fabric

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Appendix

Technical Summary

L 450



L 460



Stitch Formations	• 16 stitches • 1-2 needles • 2 loopers	
Needle system	• 130/705H (HAx1)	
Cutting width	• 5-9 mm from the left needle • 3-7 mm from the right needle	
Stitch length	• 0.8 - 4.0 mm	
Differential feed	• stretching 0.7 - 1 • gathering 1 - 2	
Presser foot lift	• 6 mm (= max. fabric thickness) • 9 mm with front foot lift (FFL)	
Sewing light	• 2 x LED	
Sewing speed	• up to 1200 stitches/min.	• 1500 stitches/min.
Safety features		• safety switch for looper cover, sewing table and presser foot lift • Safety LED
Foot control	• Type YC-483N for 230V • YC 482E for 120V (Canada/USA)	• BERNINA LV 1
Dimensions witout Retractable Guide (L x B x H) mm	• 320 x 305 x 295	• 320 x 305 x 295
Dimensions with extension table/cut-offs bin (L x B x H) mm		• 548 x 398 x 295
Weight (kg)	• 8.2	• 9.8 kg (incl. extension table and knee lever)
Boxed size mm	• 387 x 387 x 387	• 463 x 387 x 387
Boxed weight (kg)	• 11.0	• 13.7

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Remarks

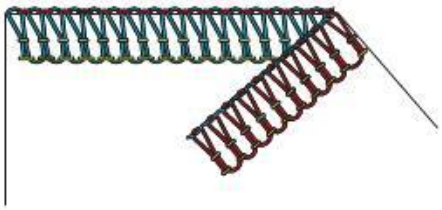
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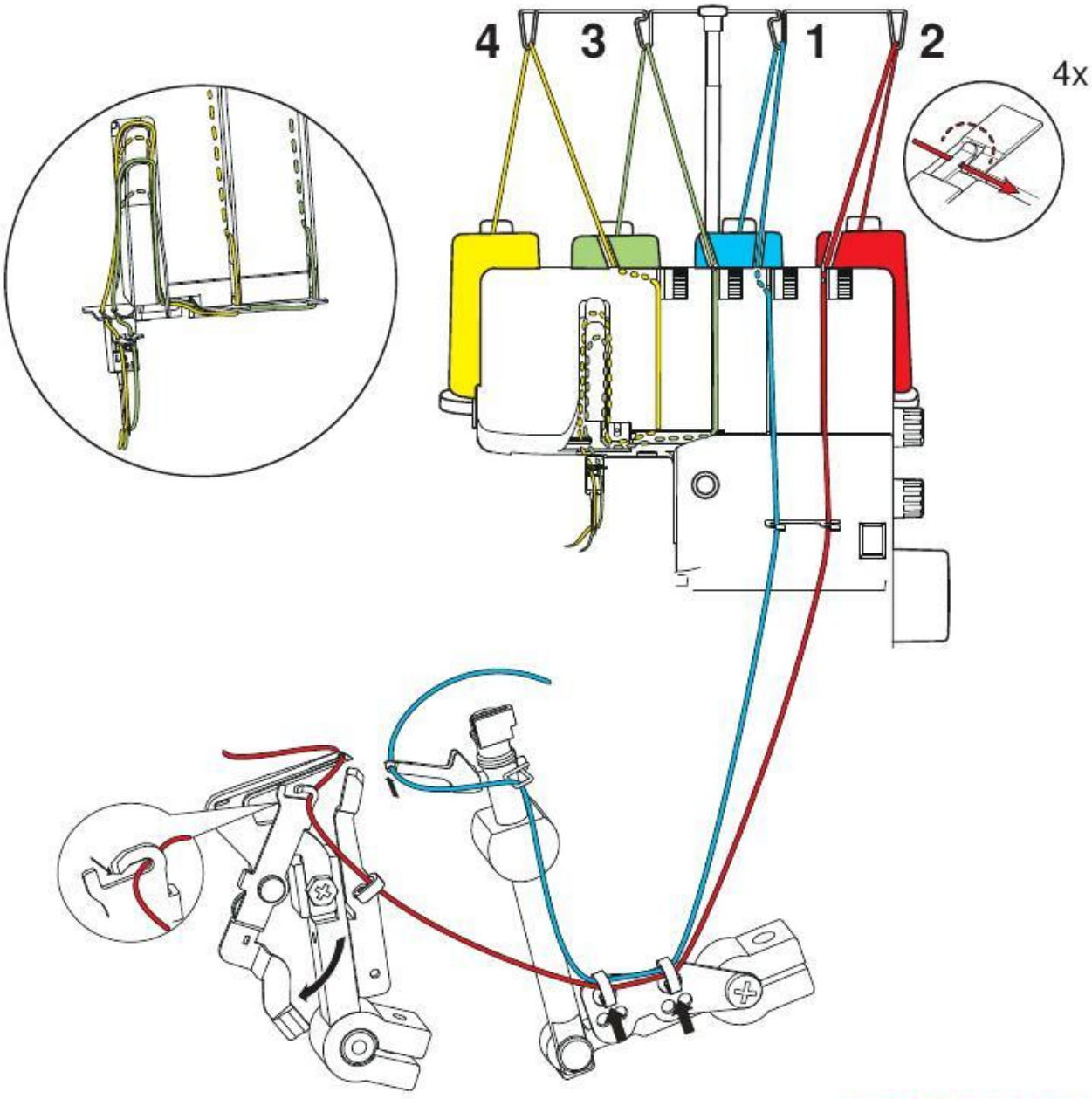
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1

4-thread overlock



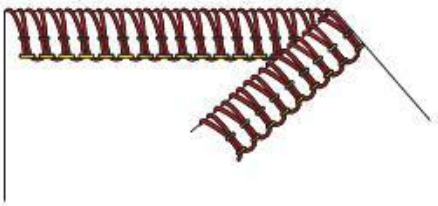
Threading / thread tension setting					Machine Setup				
	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter	Cutting width	Stitch length	Differential feed
	4	**4**	**4**	**4**	**▲**	**–**	**6**	**2.5**	**1**



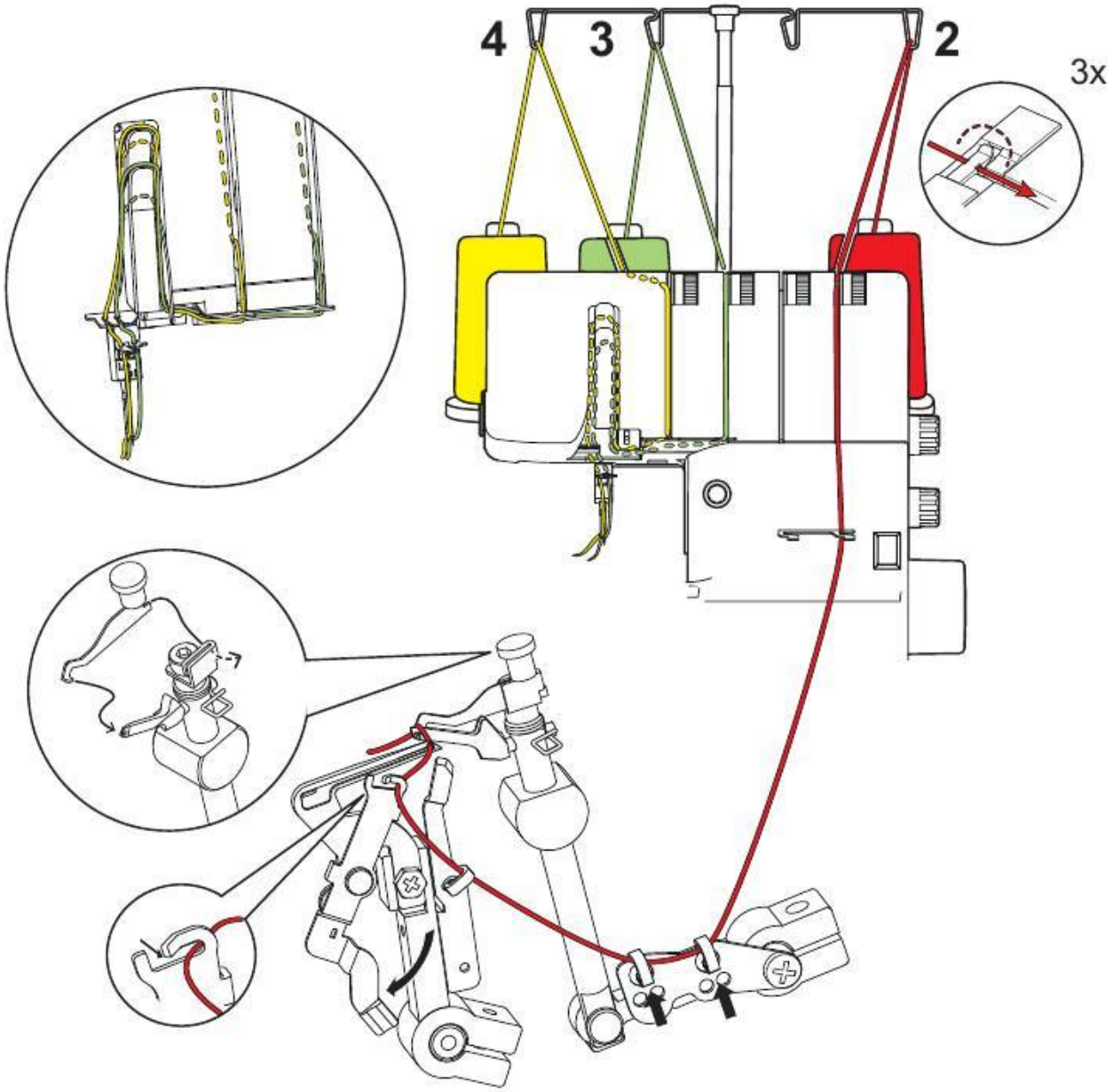
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2

3-thread super stretch



Threading / thread tension setting					Machine Setup				
	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter	Cutting width	Stitch length	Differential feed
	4.5	**4**	**–**	**3**	**▲**		**6**	**2.5**	**1**



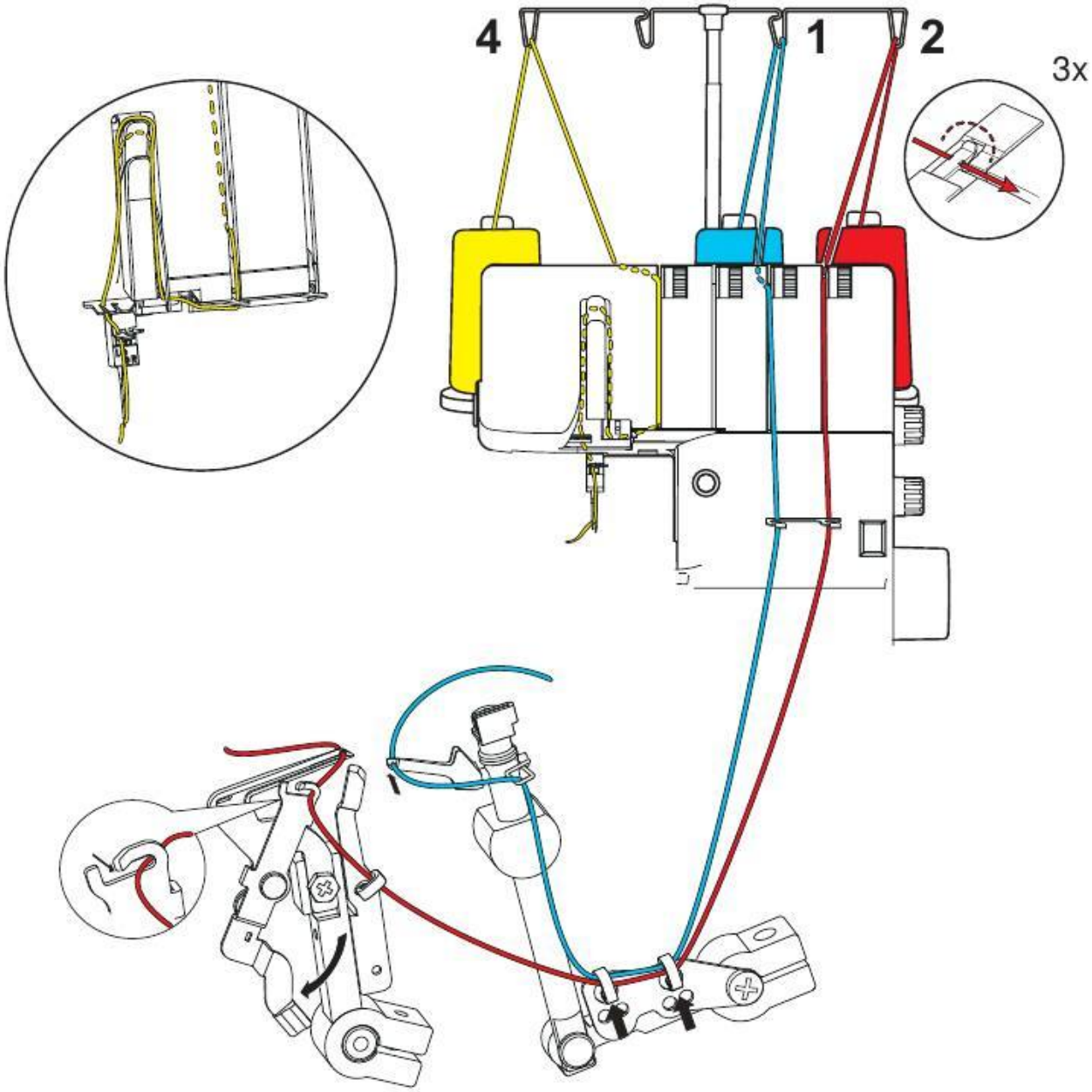
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3

3-thread overlock (LN)
(Left needle)



Threading / thread tension setting					Machine Setup				
	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter	Cutting width	Stitch length	Differential feed
	4	**–**	**4**	**4**	**▲**	**–**	**6**	**2.5**	**1**



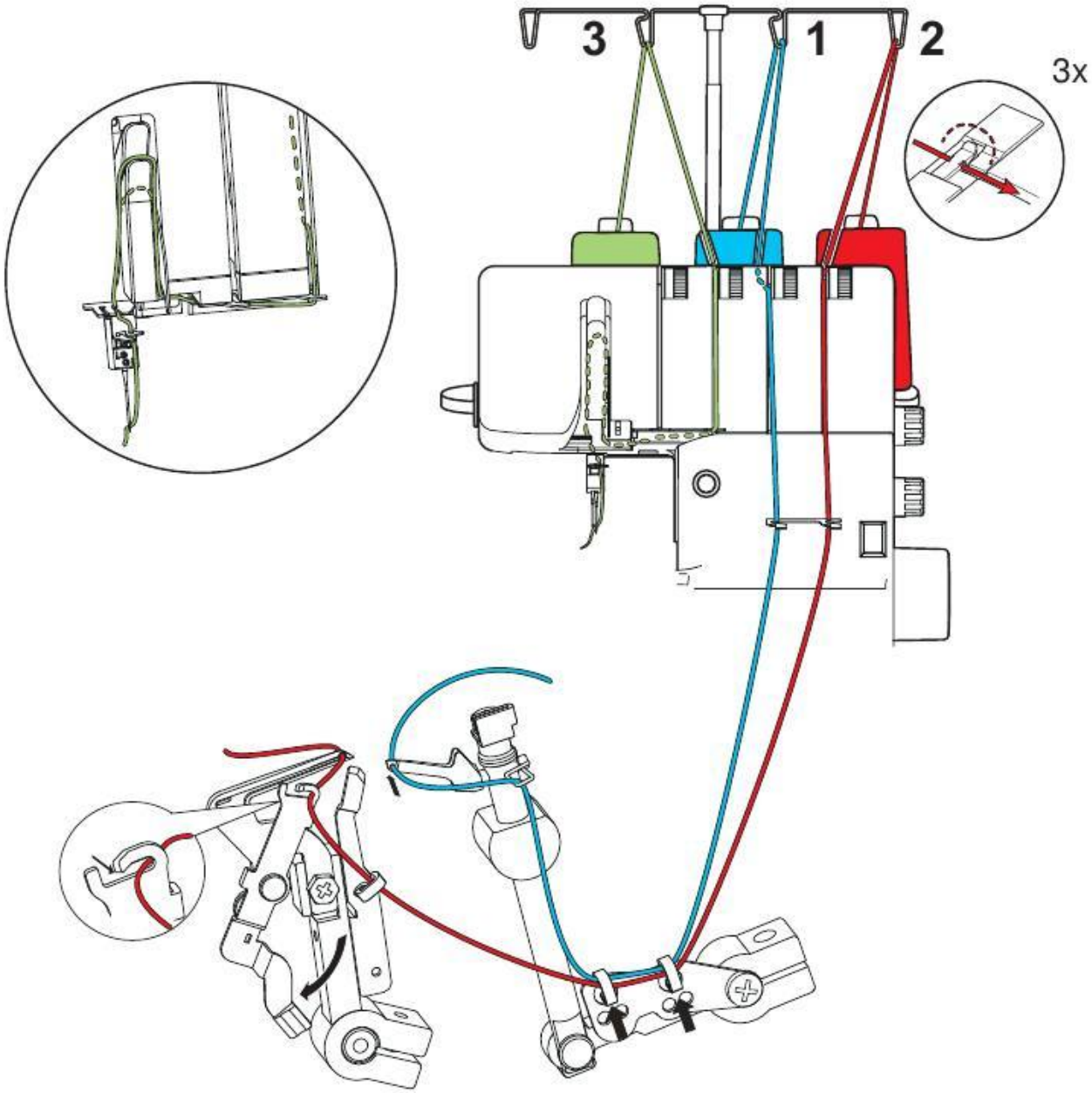
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4

3-thread overlock (RN)
(Right needle)



Threading / thread tension setting					Machine Setup				
	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter	Cutting width	Stitch length	Differential feed
	–	3.5	4	4	▲	–	6	2.5	1



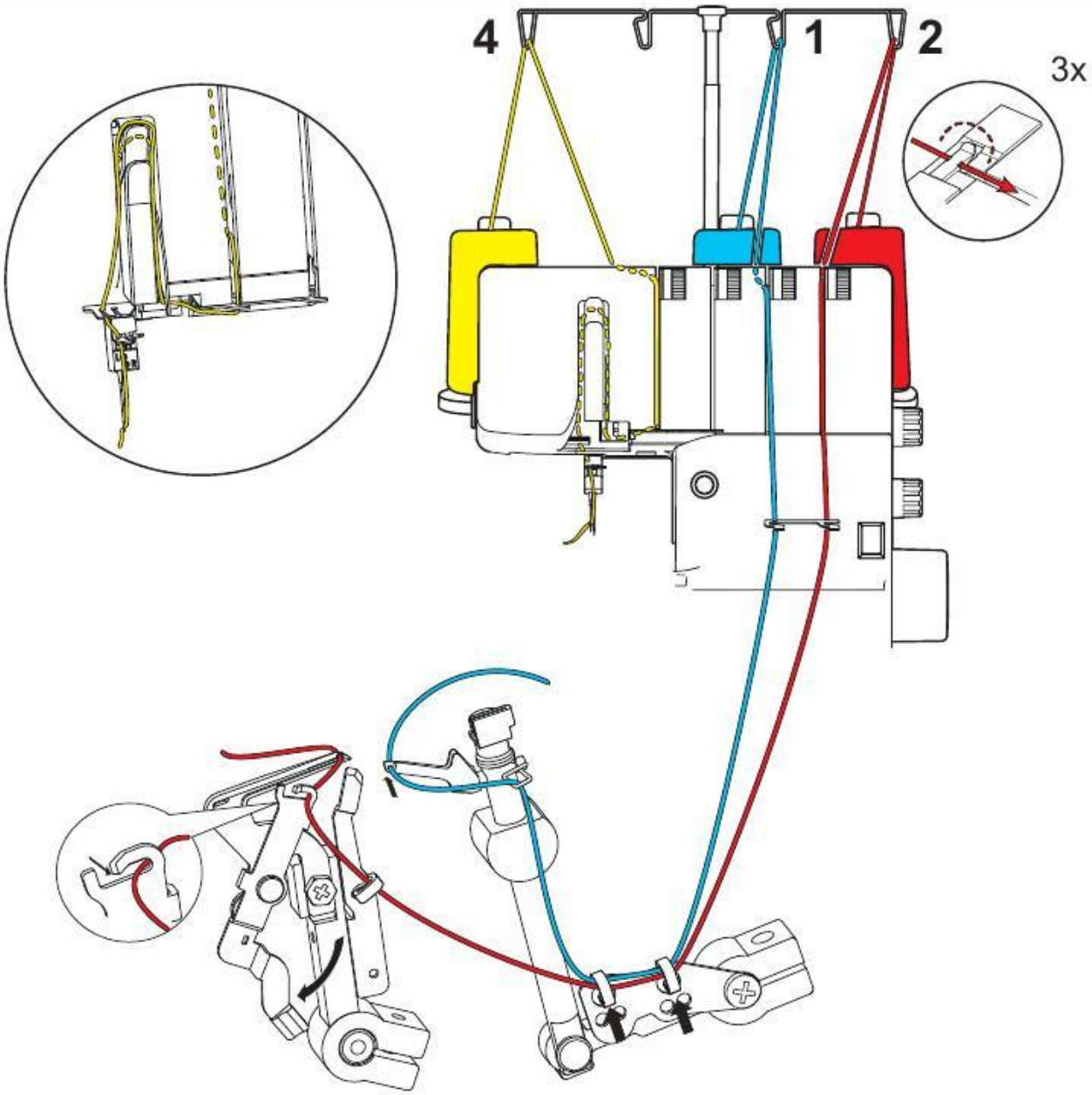
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5

3-thread flatlock (LN)
(Left needle)



Threading / thread tension setting					Machine Setup				
	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter	Cutting width	Stitch length	Differential feed
	1.5	**–**	**3.5**	**7**	**▲**	**–**	**6.5**	**2.5**	**1**



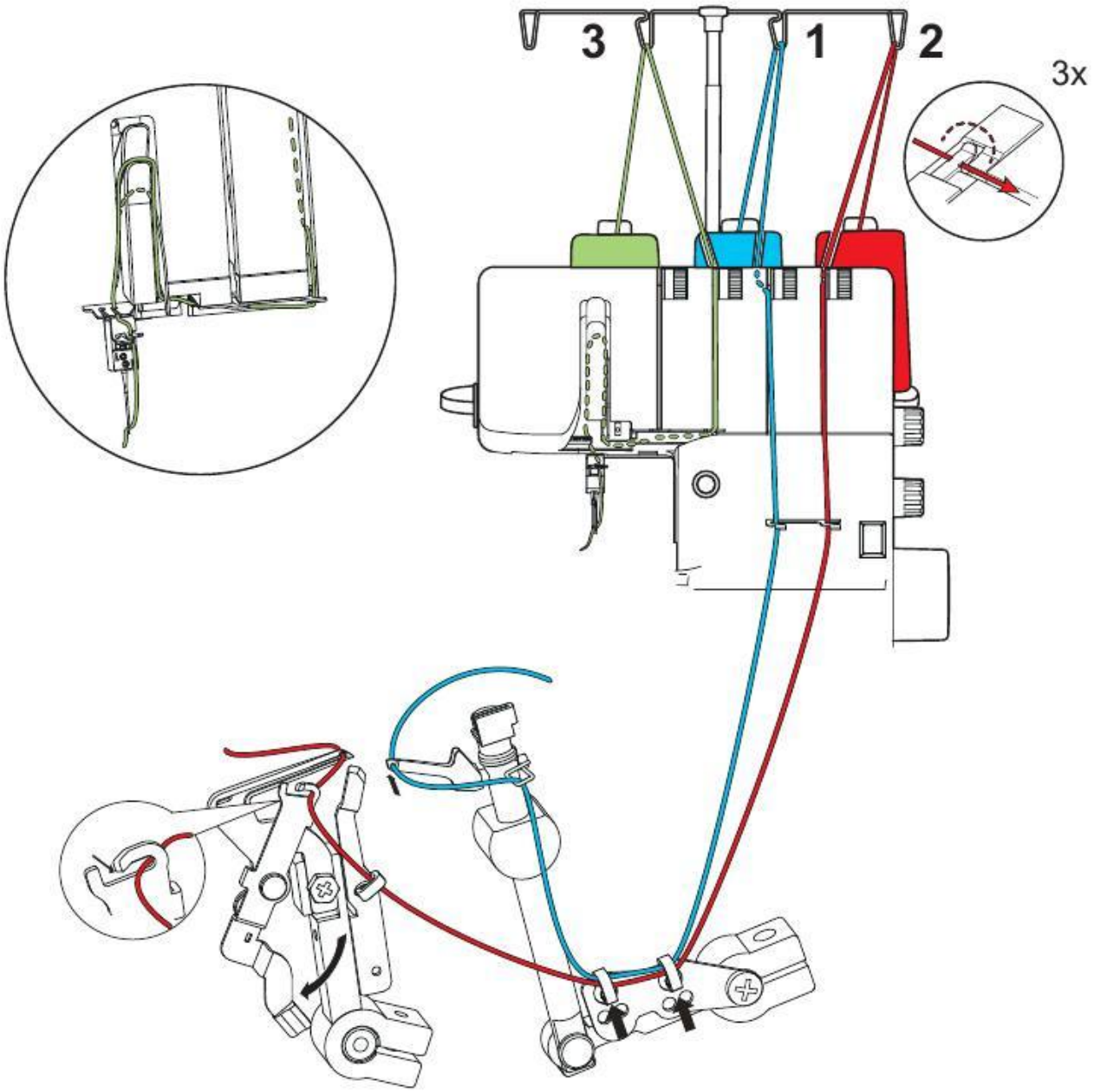
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6

3-thread flatlock (RN)
(Right needle)



Threading / thread tension setting					Machine Setup				
	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter	Cutting width	Stitch length	Differential feed
	–	2.5	4	7	▲	–	7	2.5	1



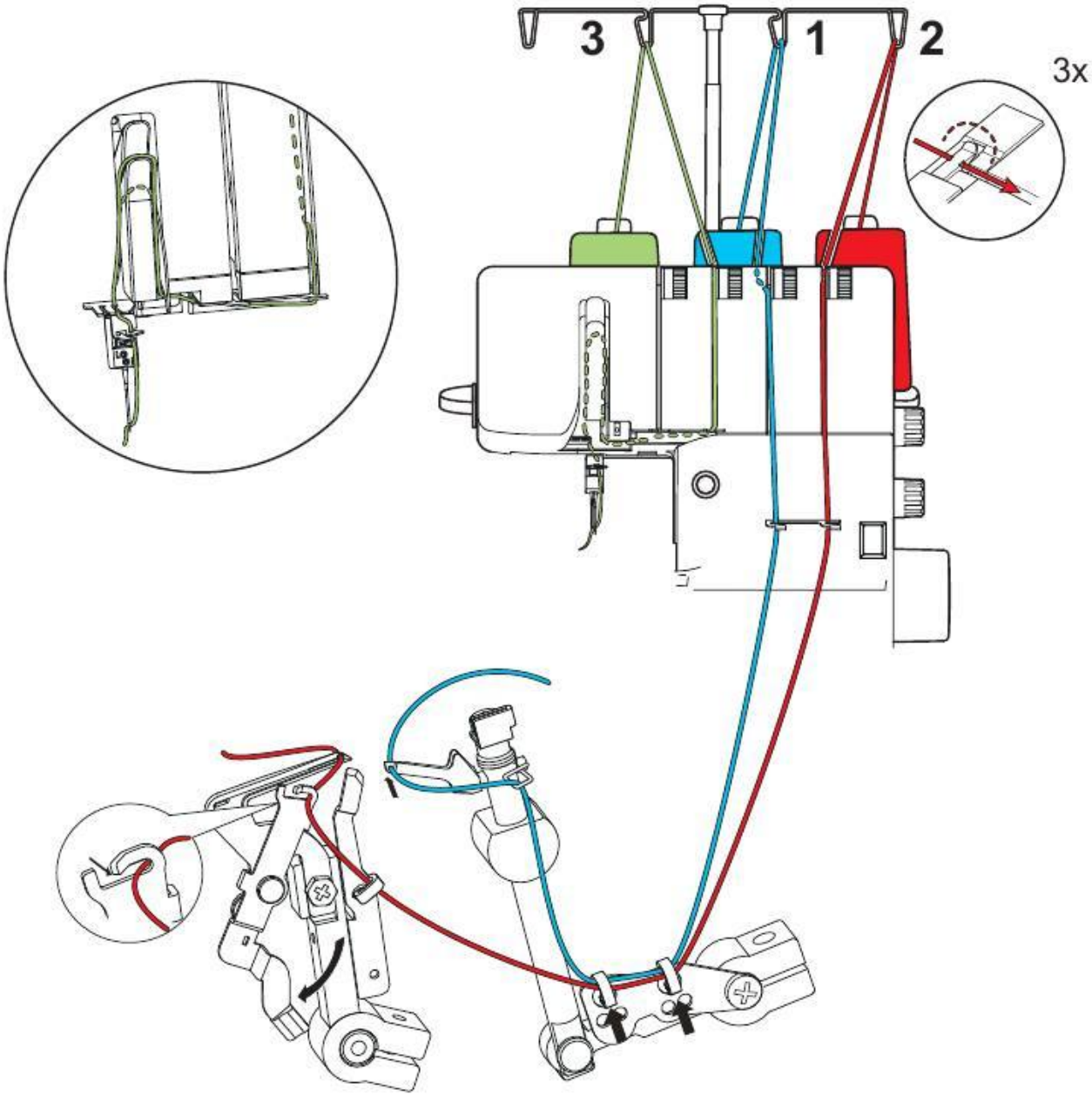
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7

3-thread narrow seam



Threading / thread tension setting					Machine Setup				
	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter	Cutting width	Stitch length	Differential feed
	–	4	4	4.5	▽	–	7	2	1



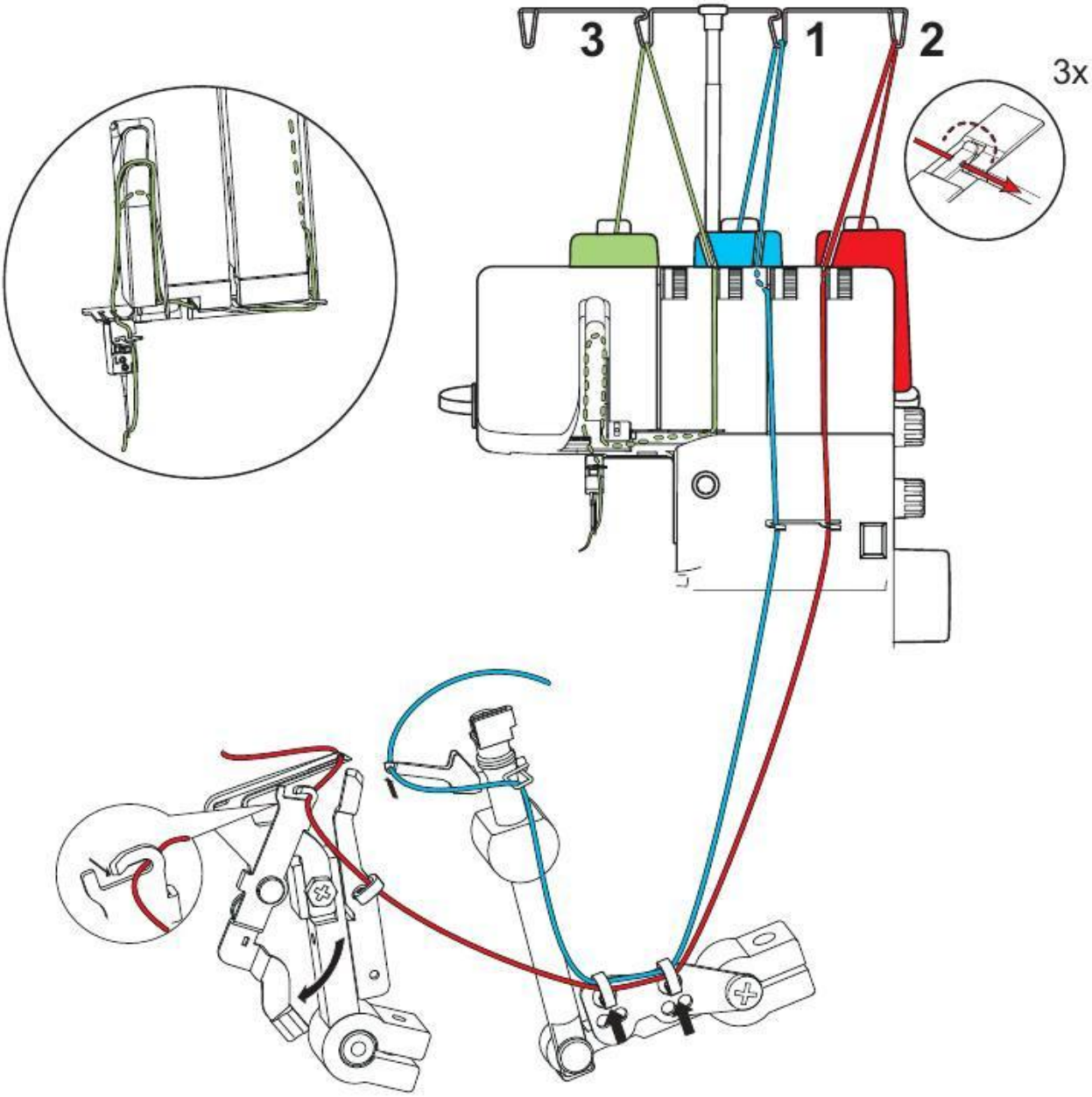
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8

3-thread rolled hem



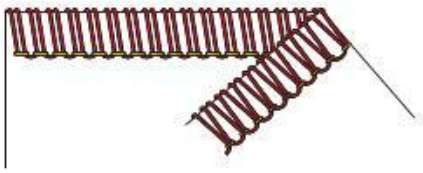
Threading / thread tension setting					Machine Setup				
	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter	Cutting width	Stitch length	Differential feed
	–	3.5	4	7.5	▽	–	5	1	1



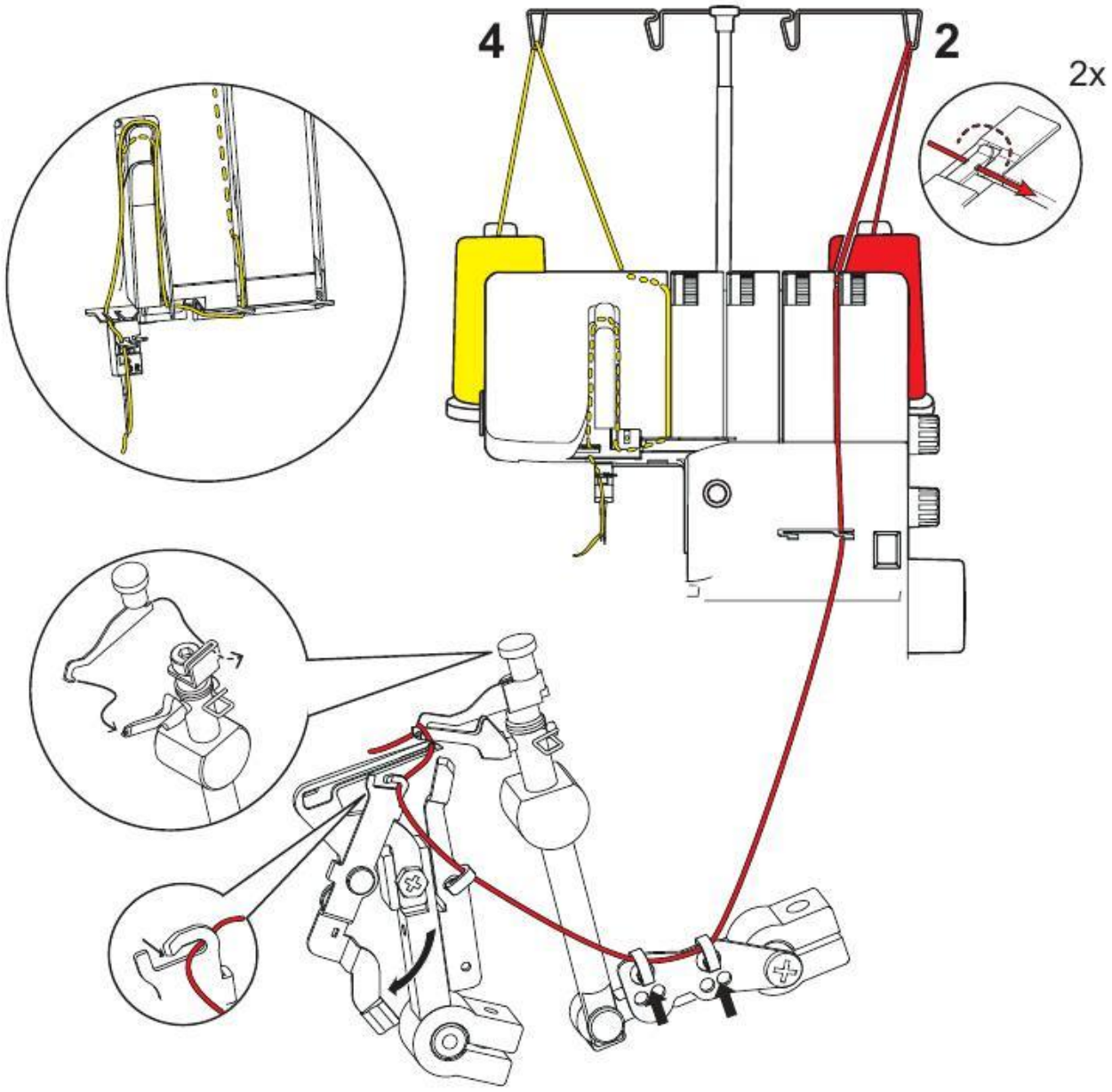
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9

2-thread overlock (LN)
(wrapped overlock left needle)



Threading / thread tension setting					Machine Setup				
	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter	Cutting width	Stitch length	Differential feed
	5	–	–	3	▲		6	2.5	1



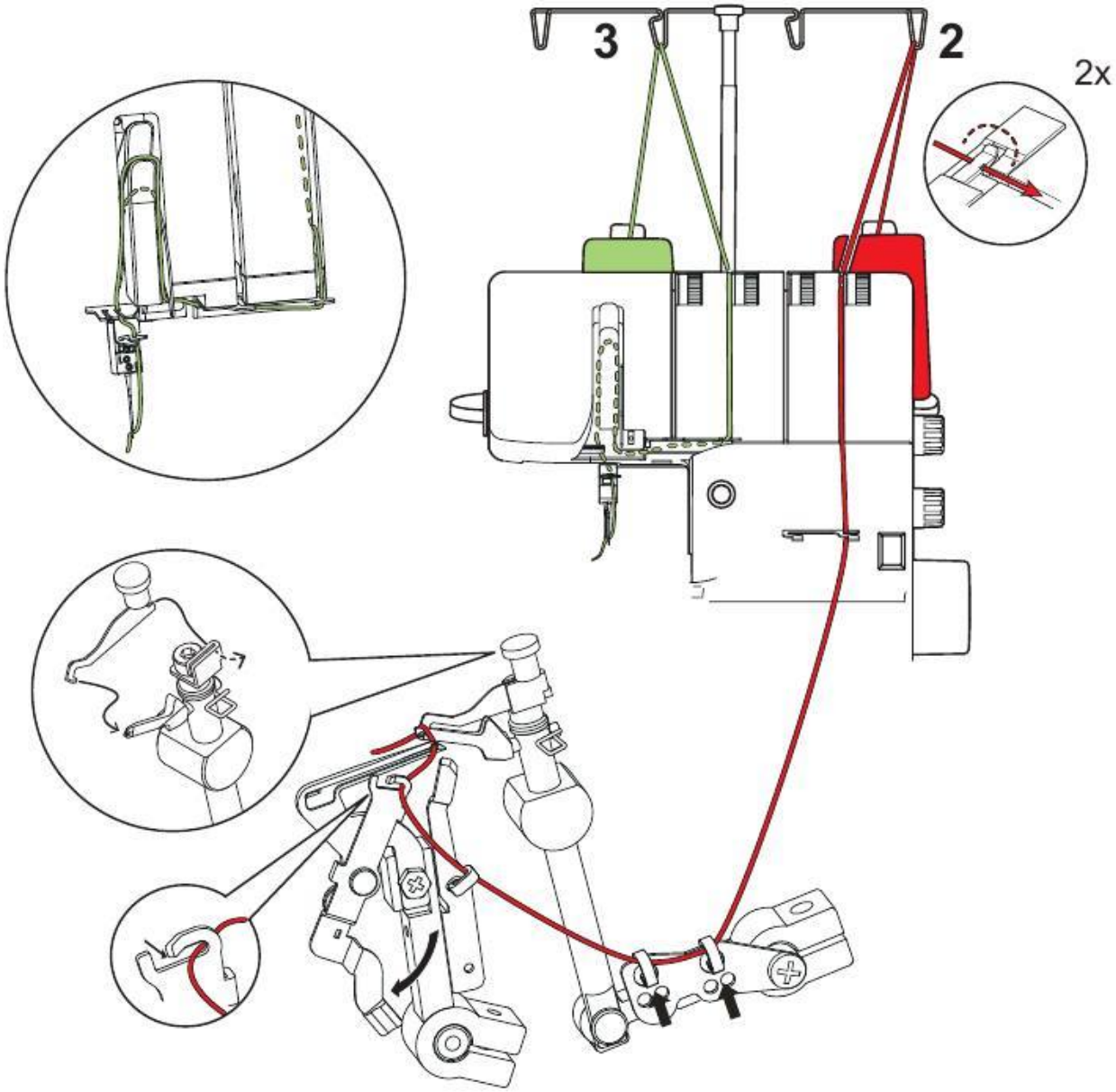
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10

2-thread overlock (RN)
(wrapped overlock right needle)



Threading / thread tension setting					Machine Setup				
	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter	Cutting width	Stitch length	Differential feed
	–	6.5	–	3.5	▲		6	2.5	1



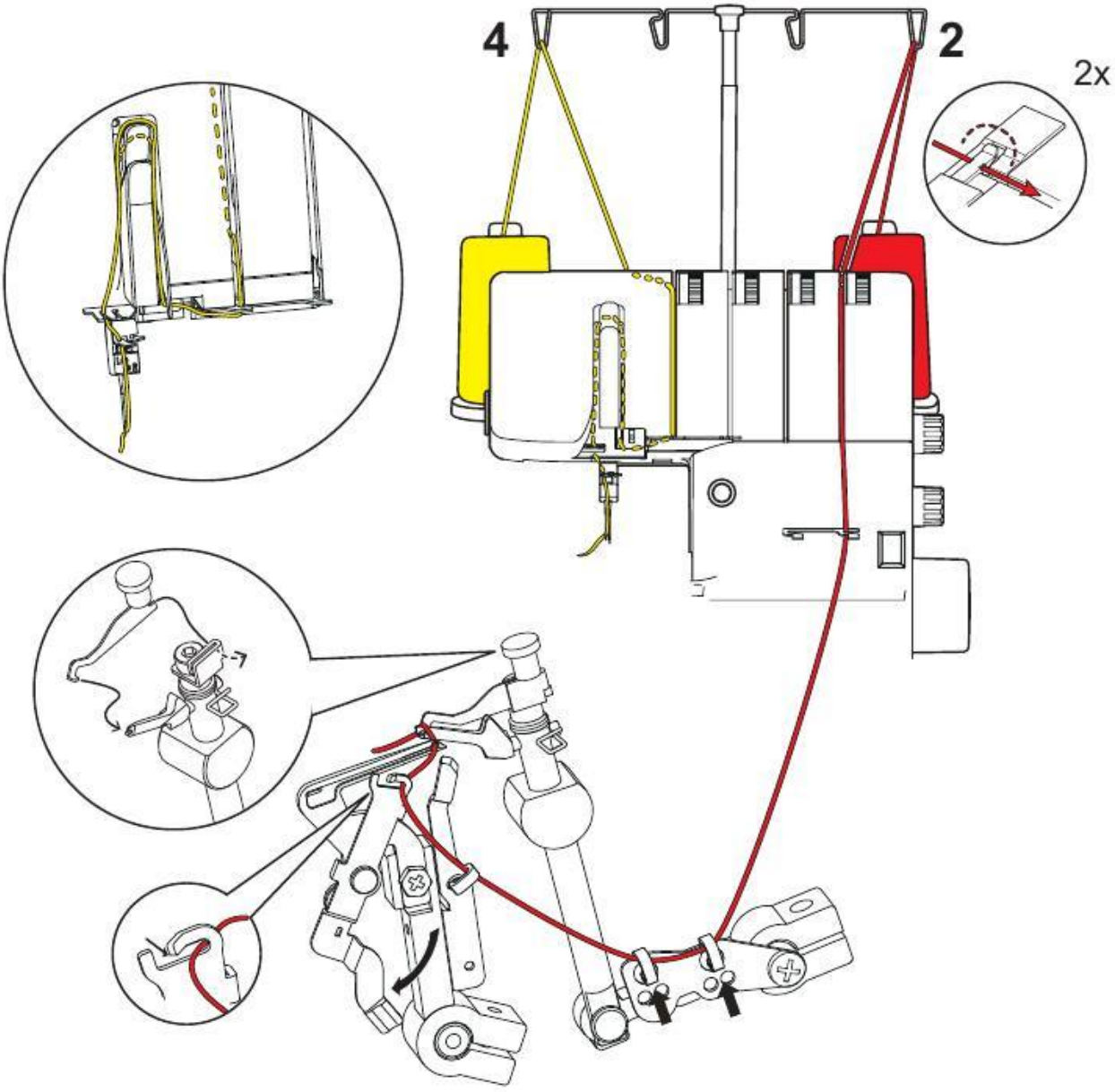
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11

2-thread flatlock (LN)
(Left needle)



Threading / thread tension setting					Machine Setup				
	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter	Cutting width	Stitch length	Differential feed
	2	**–**	**–**	**4**	▲		**6.5**	**2.5**	**1**



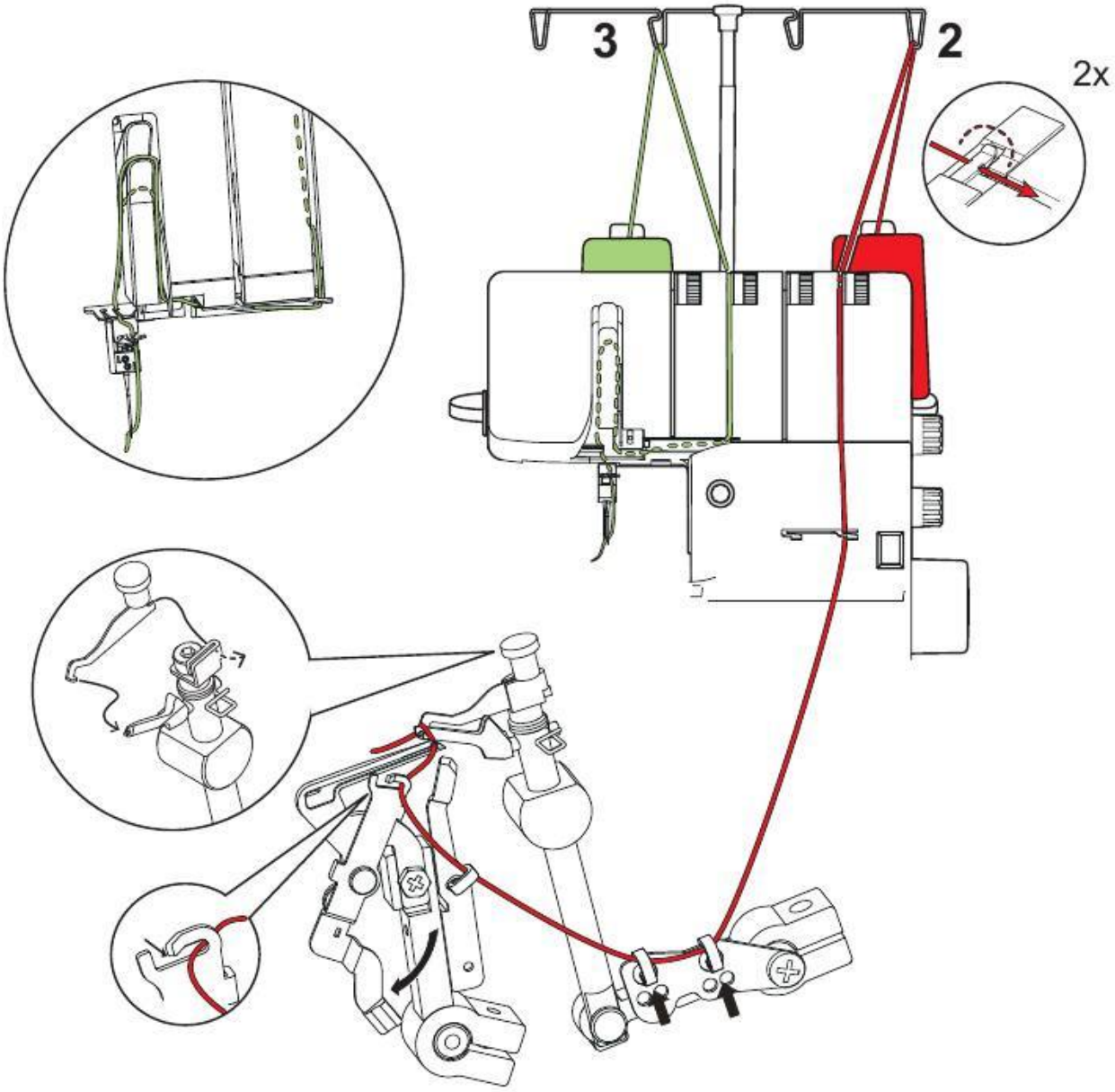
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12

2-thread flatlock (RN)
(Right needle)



Threading / thread tension setting					Machine Setup				
	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter	Cutting width	Stitch length	Differential feed
	–	2	–	4	▲		6	2.5	1



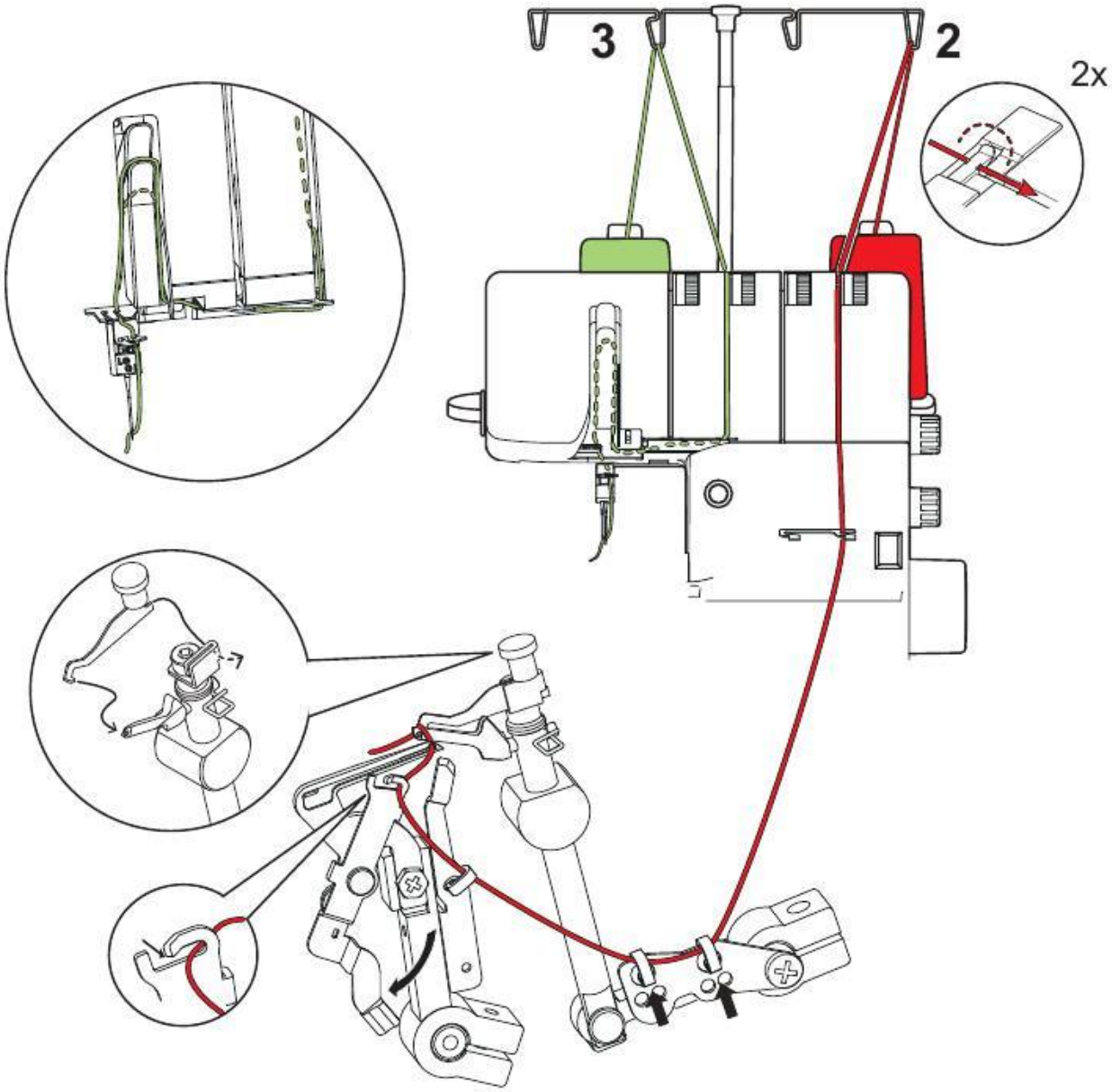
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13

2-thread rolled hem



Threading / thread tension setting					Machine Setup				
	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter	Cutting width	Stitch length	Differential feed
	–	4	–	4	▽		5	1	1



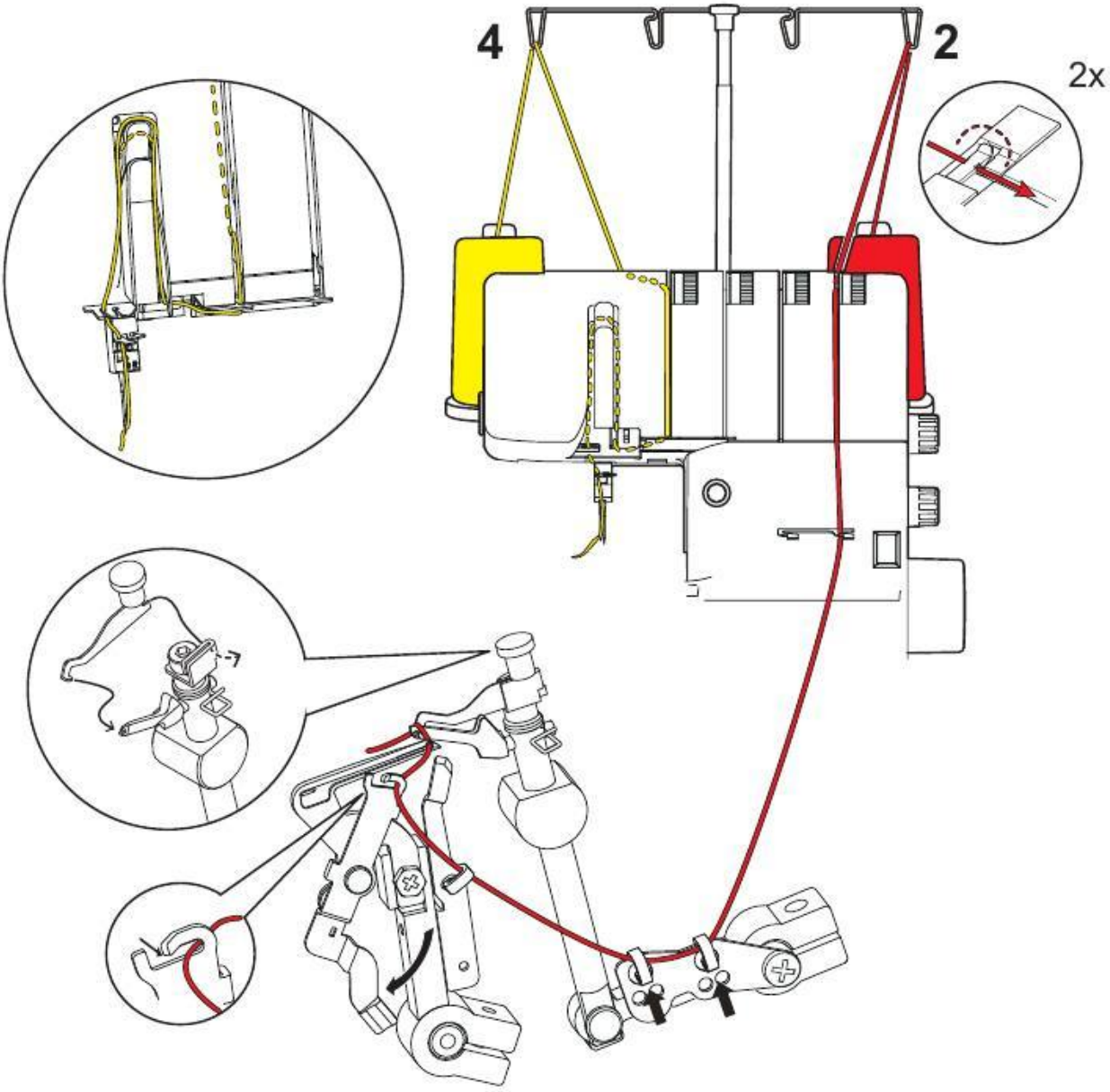
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14

2-thread overlock (LN)
(Left needle)



Threading / thread tension setting					Machine Setup				
	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter	Cutting width	Stitch length	Differential feed
	2	–	–	4	▲		6	2.5	1



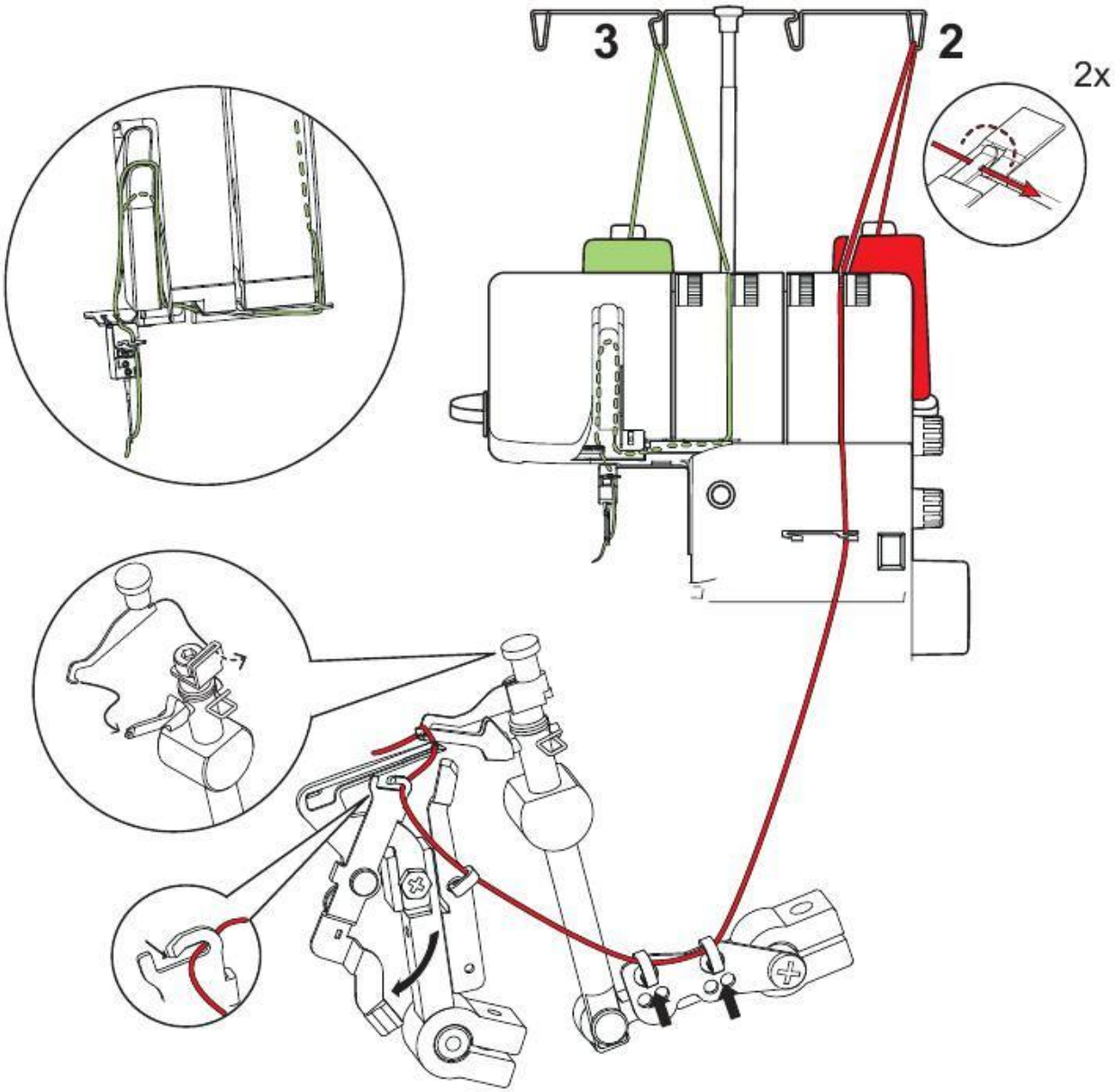
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15

2-thread overlock (RN)
(Right needle)



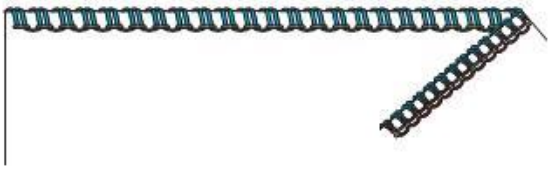
Threading / thread tension setting					Machine Setup				
	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter	Cutting width	Stitch length	Differential feed
	–	2	–	4.5	▲		6	2.5	1



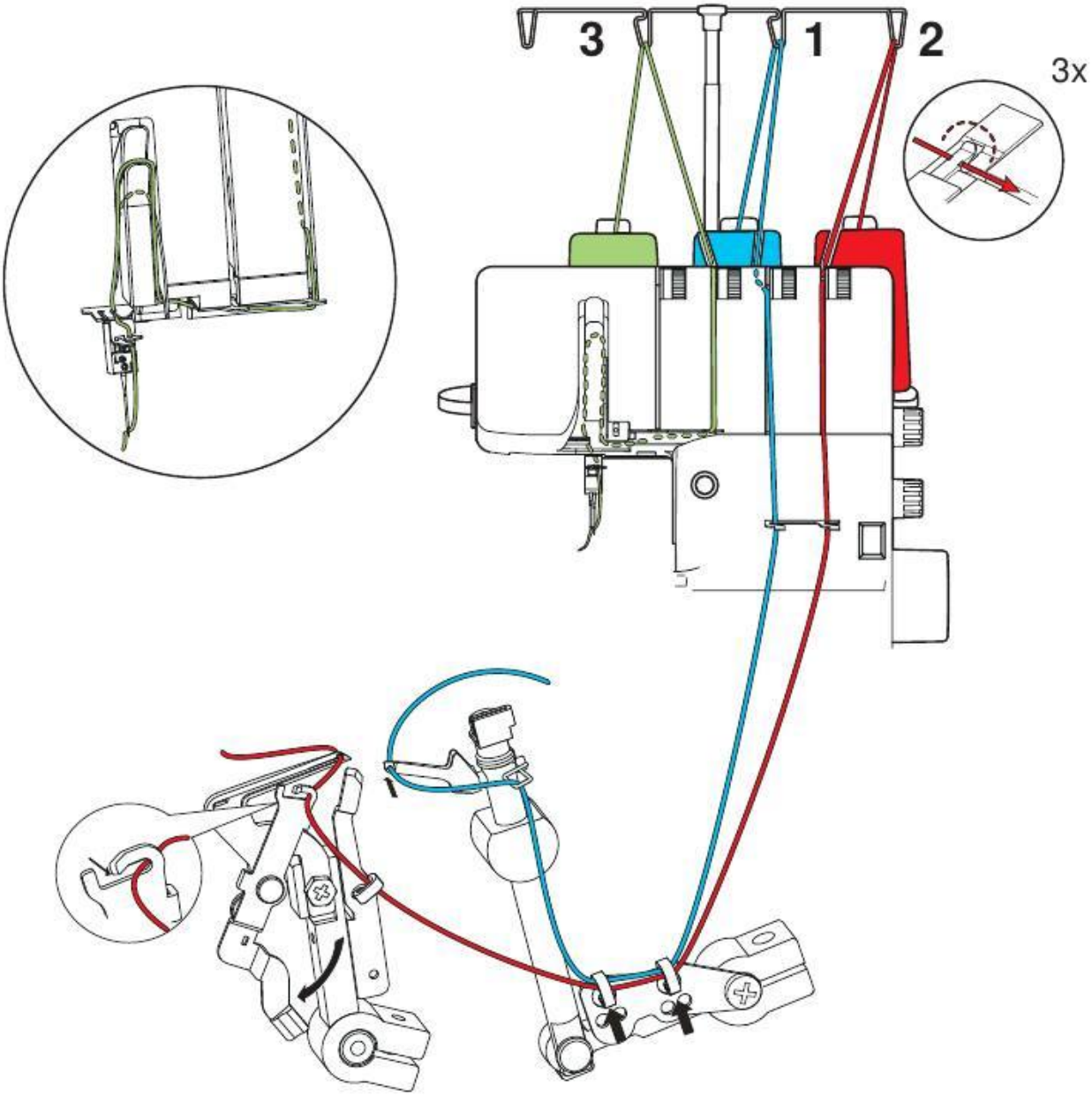
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30

3-thread picot stitch

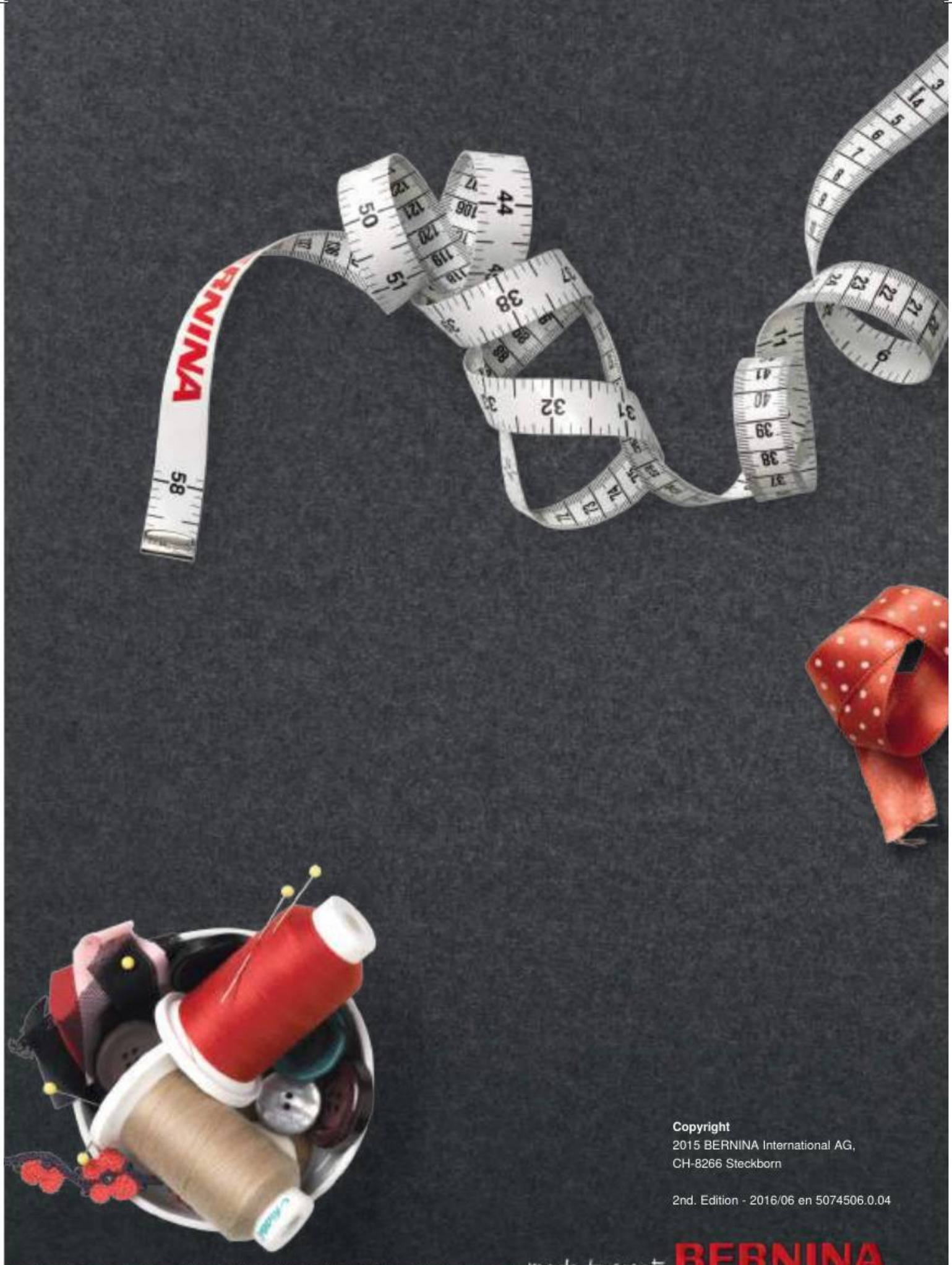


Threading / thread tension setting					Machine Setup				
	Left needle	Right needle	Upper looper	Lower looper	Rolled hem lever	Upper looper converter	Cutting width	Stitch length	Differential feed
	–	3.5	3.5	6.5	▽	–	6	2.5	1



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