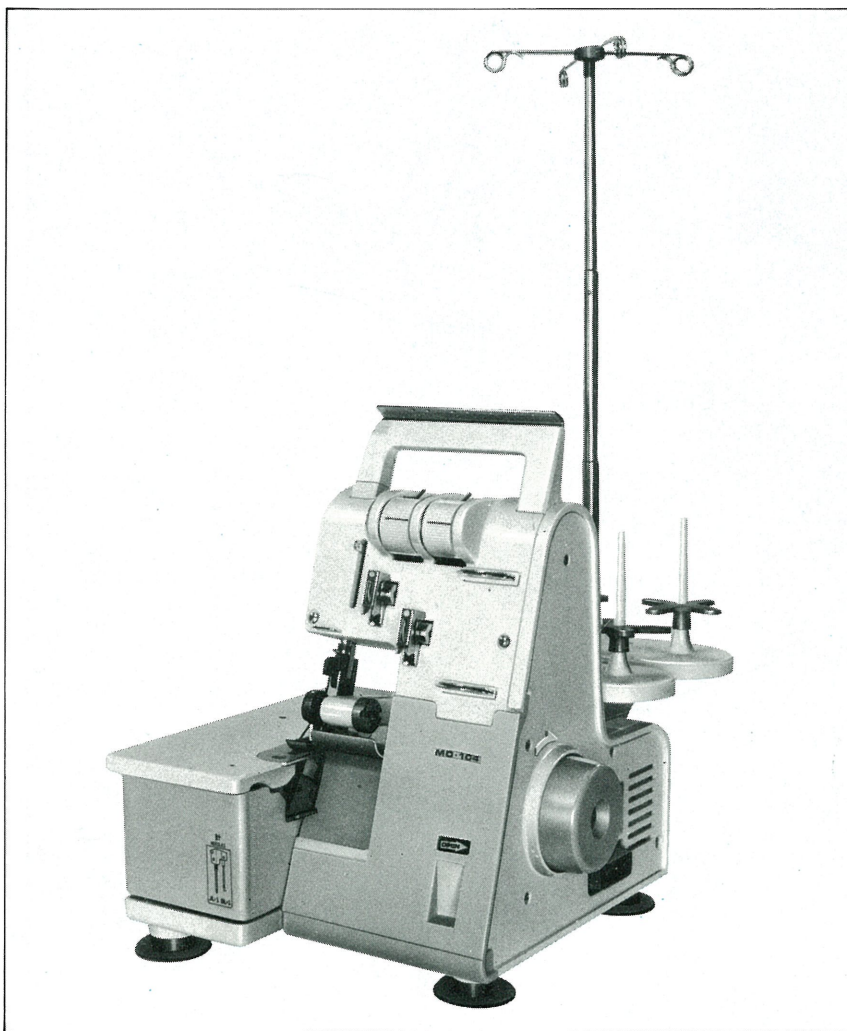


MODEL **MO-104**

OVER—LOCK sewing machine

INSTRUCTION BOOK



INTRODUCTION

OVER-LOCK SEWING MACHINE MODEL MO-104 is designed to perform the excellent capability of forming the safety seams (overedge stitches, double chain stitches) on various materials including cotton, wool, rayon, tricot, jersey, knitted fabrics etc.

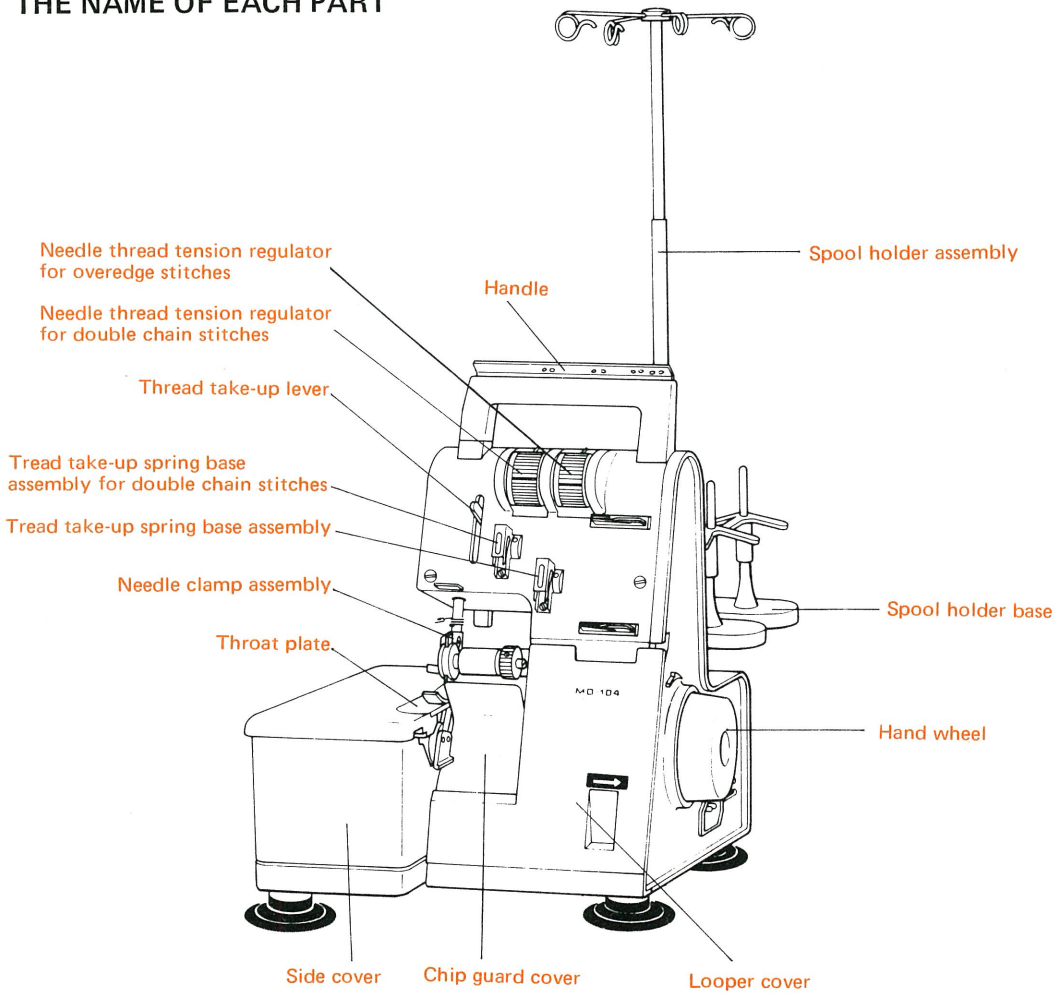
Before starting to operate your MO-104, we want you to carefully read through this INSTRUCTION BOOK which will lead you to operate the machine correctly.

Please do not hesitate to contact with our agents in your area or our main business office for further questions or details.

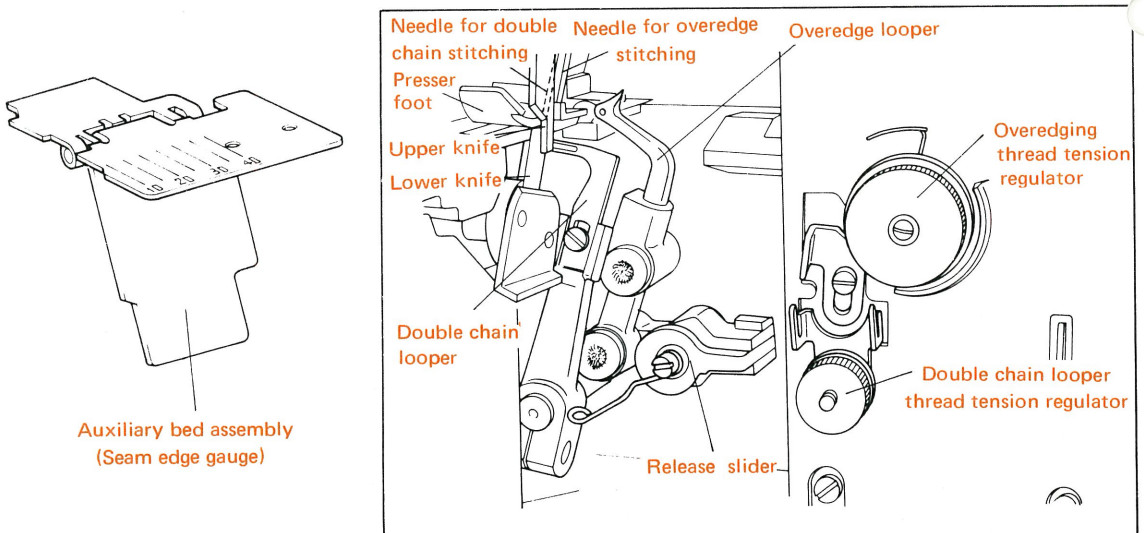
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THE NAME OF EACH PART



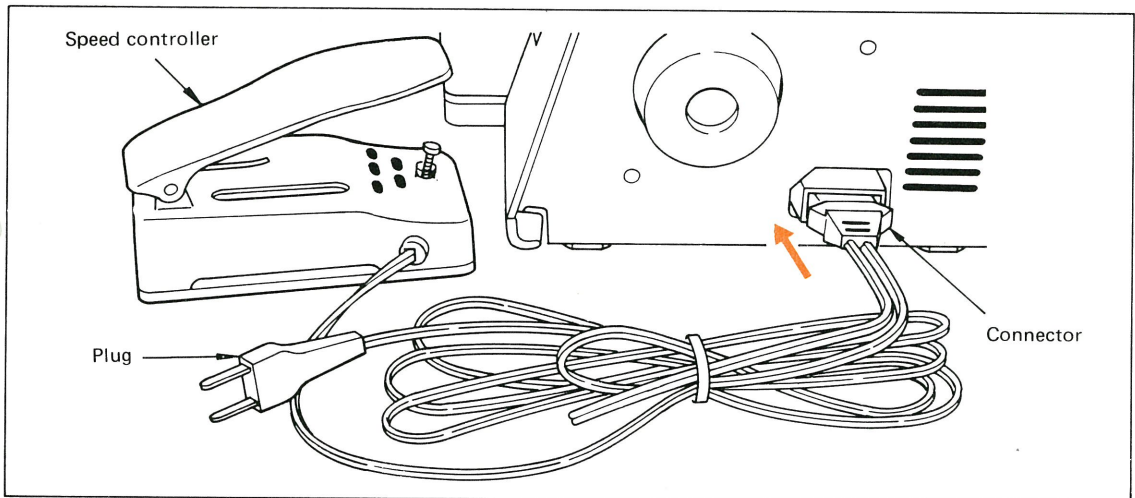
Inside view of the looper cover



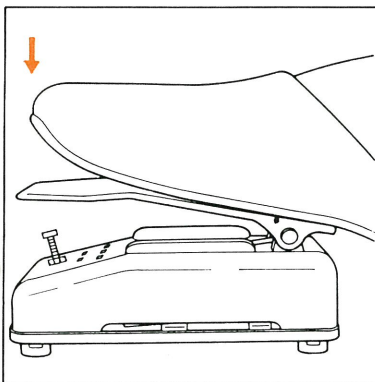
DRIVING THE MOTOR

Before starting to drive the motor of this machine, the machine should be placed in the horizontal position on a flat desk.

(Refer to the relative paragraph under “Adjusting the level of machine”). Plug the connector of the speed controller cord into the receptacle located on the machine base as illustrated below. Then, connect the main plug to the power supply source.



How to use the speed controller

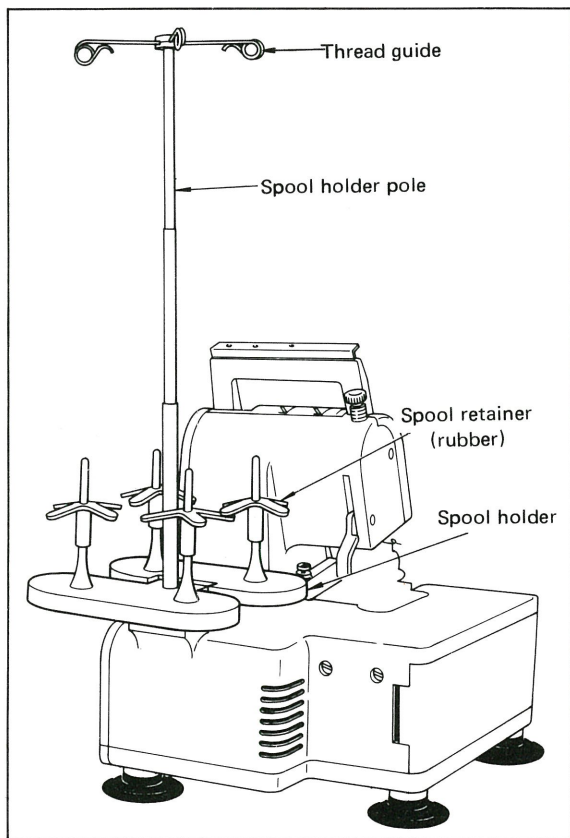


1. Place your foot on the speed controller as illustrated.
2. You can change the sewing speed by treading the actuator pedal of controller; sewing speed is increased as you press it downwards.

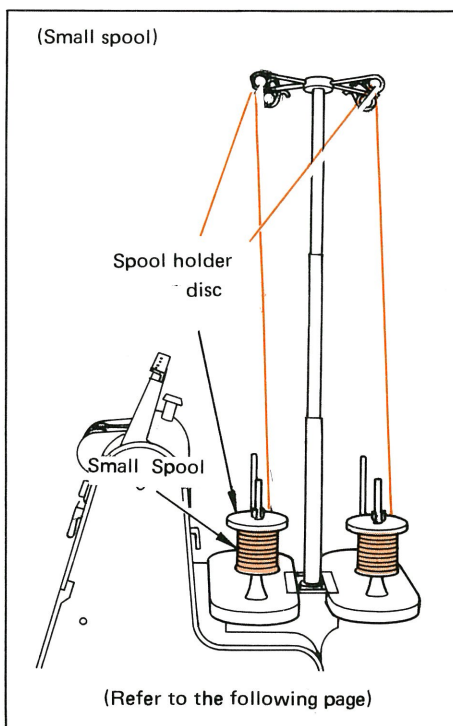
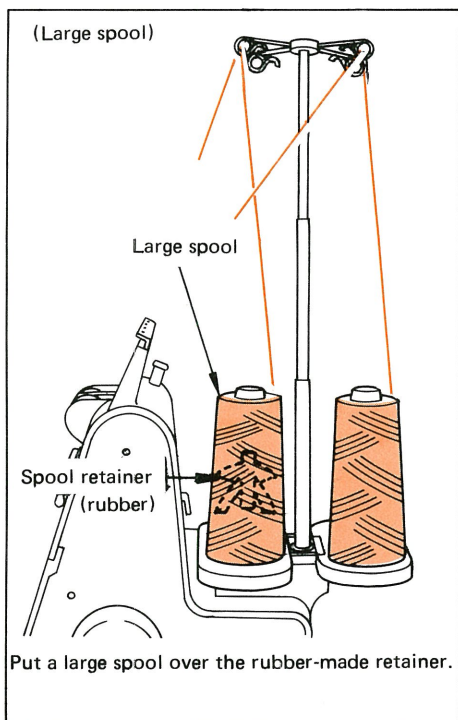
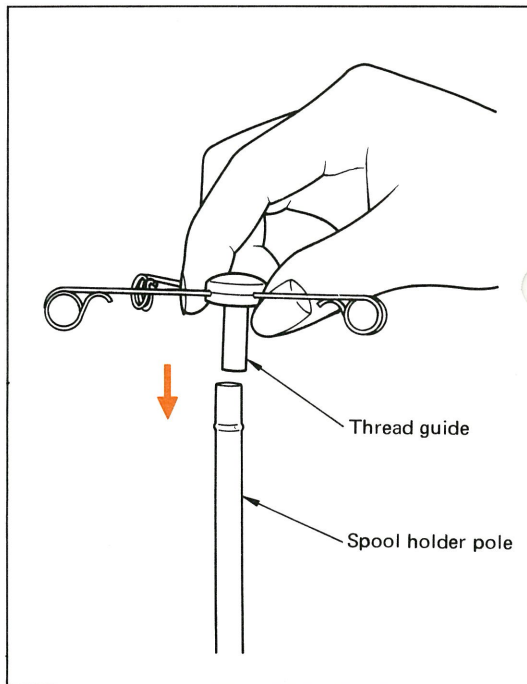
The important cautions on the motor

- The maximum sewing speed is 1,500 s.p.m.
 - The motor of this machine rotates in the reverse direction of the ordinary home-use sewing machines.
 - The motor and the controller will be warmed up slightly after a continuous operation for a long time. However, do not worry about this, because it is normal.
 - While the motor is running, you may see small sparks through the ventilation openings which are located on the pulley side and the far side on the motor bracket. They are also normal sparks which are caused by contacts made between the carbon brushes and the commutators.
 - Please do not forget to disconnect the power plug from the power supply source when the machine is not in use.
- * Warning: Belt tension adjustment to be adjusted by technician only.

SETTING UP THE SPOOL HOLDER ASSEMBLY

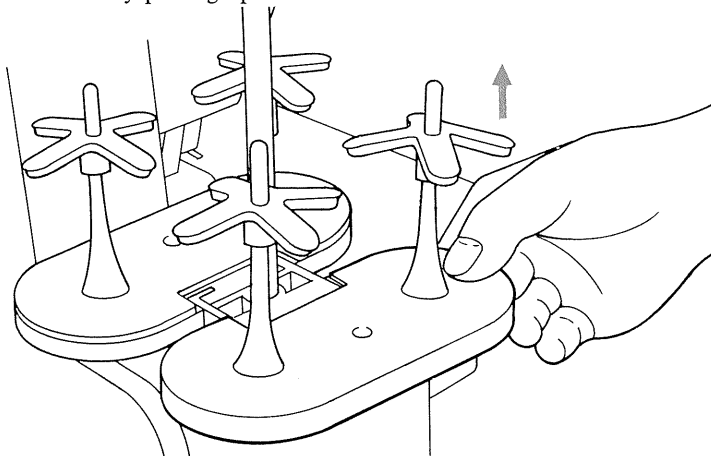


- Insert the thread guide into the top of spool holder pole.

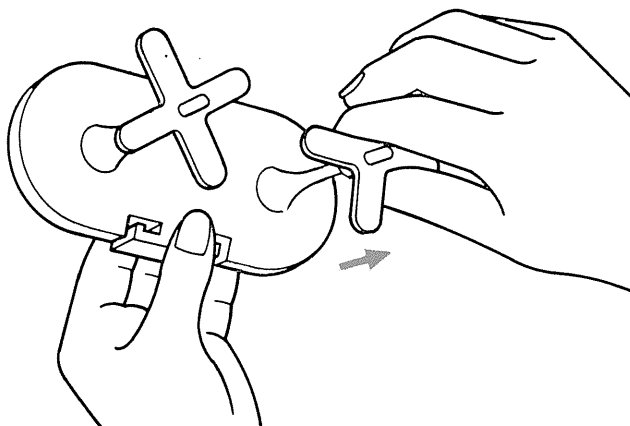


HOW TO SET THE SMALL HOME-USE SPOOLS

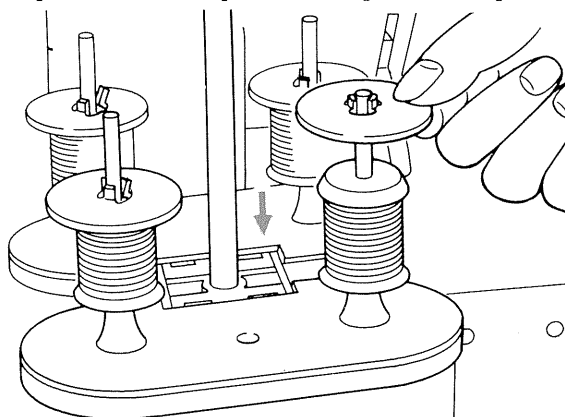
1. Take out the spool holder by pulling upwards.



2. Pull out the rubber-made spool retainer gradually.

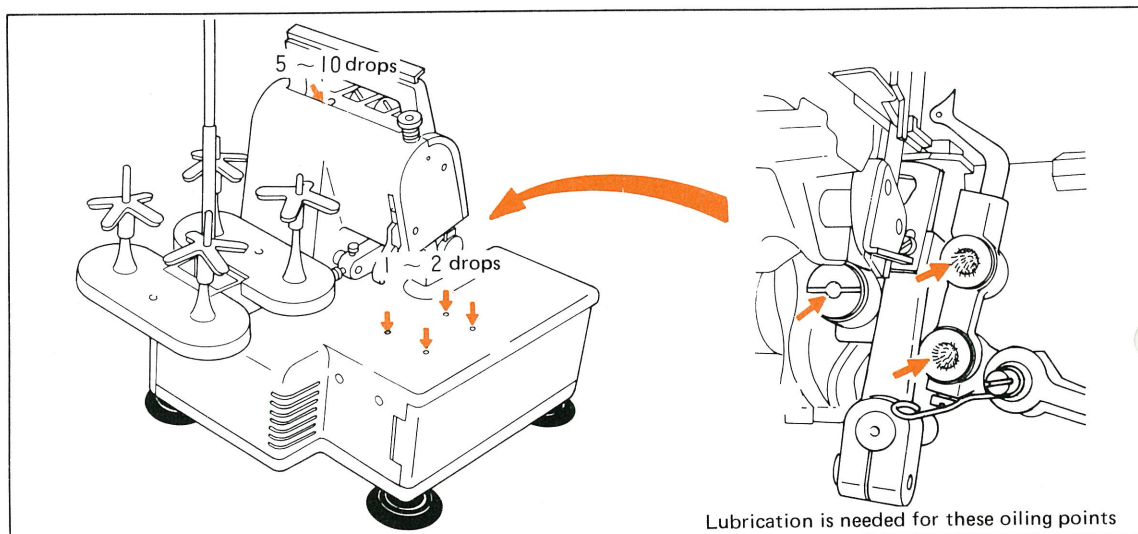


3. Attach the spool holder to the original position through the coupling grooves thereon and put the spool holder disc over the spool, which will prevent the spool holder pole from being tangled with a thread.



LUBRICATING THE MACHINE

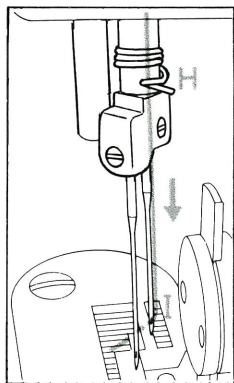
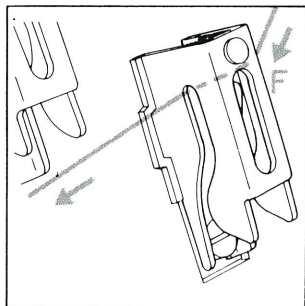
Before starting to operate the machine, you must apply a few drops of lubricating oil into the oil holes specified in the following illustration.



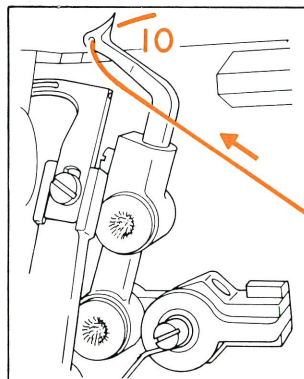
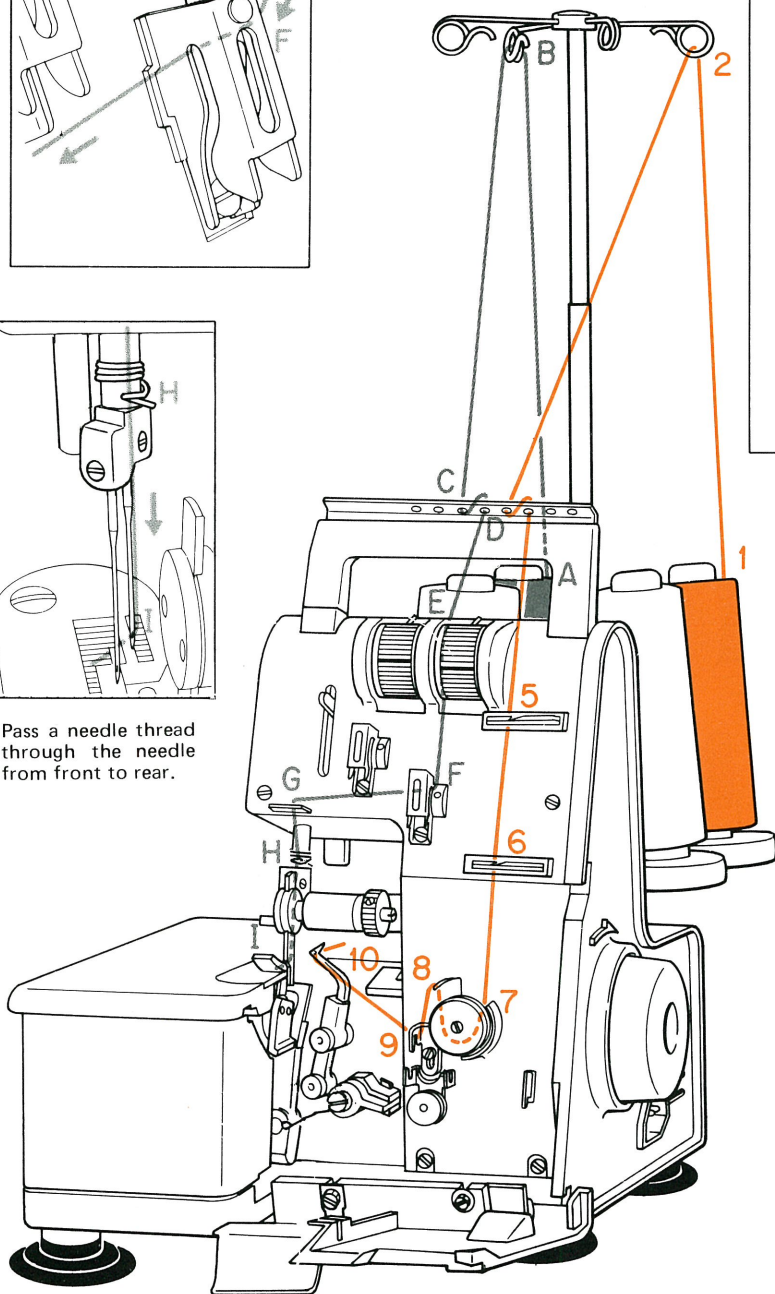
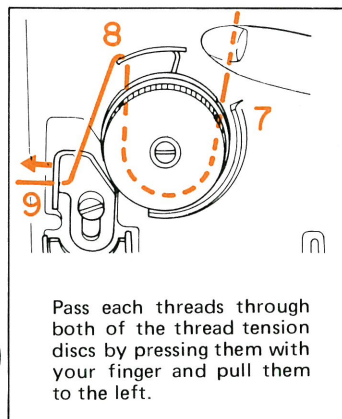
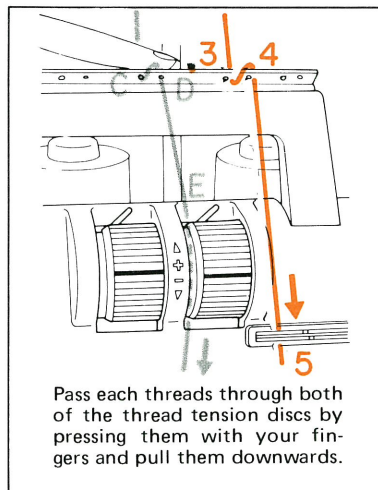
THREADING THE MACHINE

OVEREDGE STITCHES

1. Thread the machine in the correct order as shown in the following illustration.
2. You must pass the looper thread first.
3. When you use a small home-use spool, you must secure it with a spool holder disc.
4. You must provide the needles and looper with an excessive length of threads for about 50 mm(2") respectively.

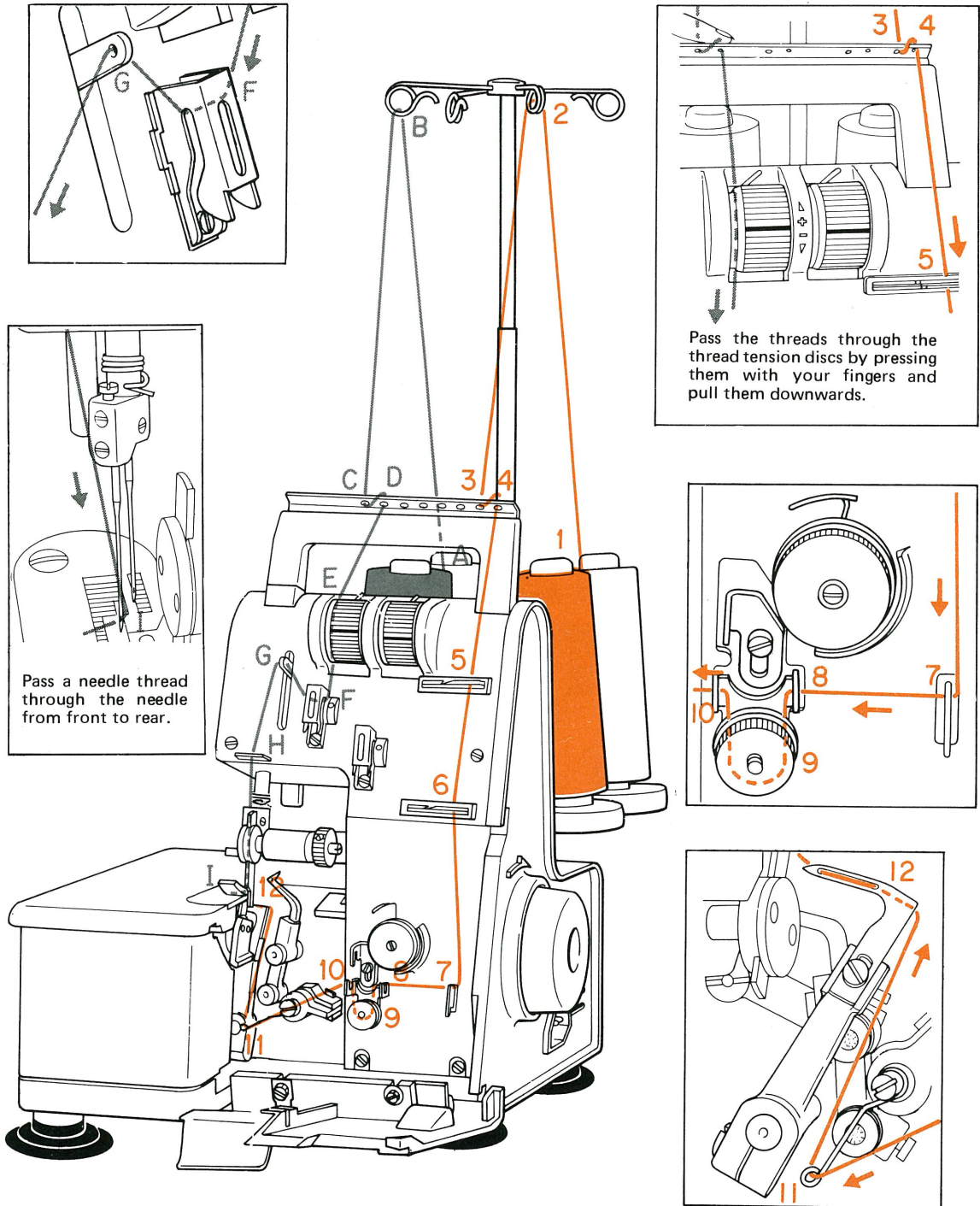


Pass a needle thread through the needle from front to rear.

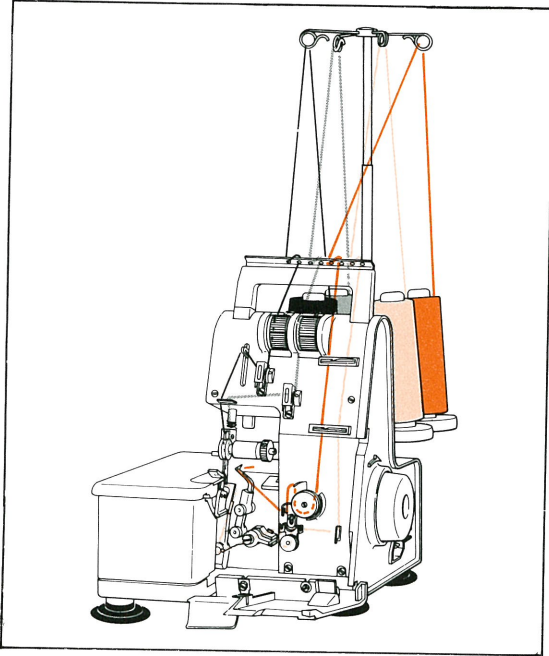


Double Chain Stitches

1. Thread the machine in the correct order as shown in the following illustration.
2. You must pass the looper thread first.
3. When you use a small home-use spool, you must secure it with a spool holder disc.
4. You must provide the needles and the looper with an excessive length of threads for about 50 mm (2") respectively.



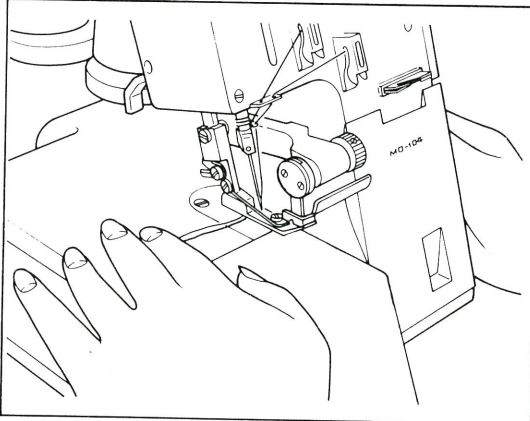
Safety Stitches



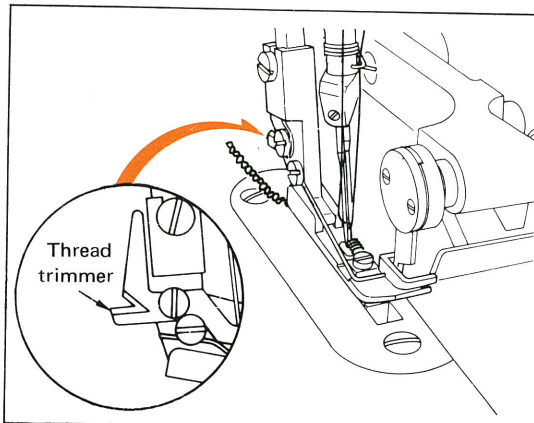
Pass 4 different threads referring to the methods mentioned those for overedge and double chain stitches.

HOW TO FORM DIFFERENT STITCHES

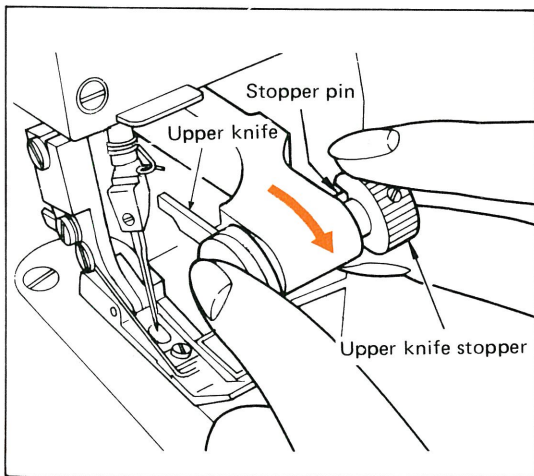
Forming the Safety Stitches



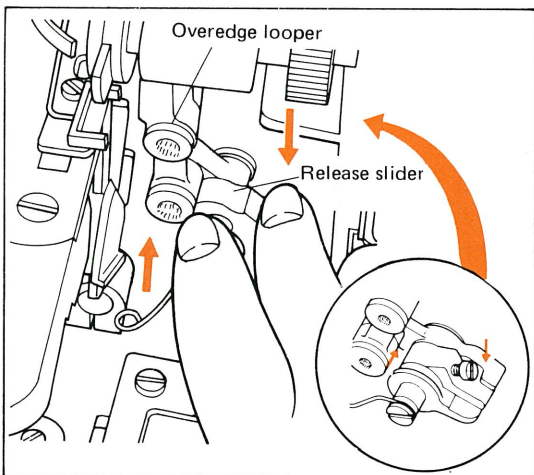
1. Thread the machine in the same way as for the overedge stitch and hold the needle and overedge looper threads with your left hand fingers, as shown in the illustration, so that the said threads receive a slight tension.
2. Bring down the presser foot and make a few stitches slowly.
3. After finishing a seam, produce a 2 to 3 cm (about 1") long idle chain additionally as shown in the illustration and cut the thread away by means of the thread trimmer on the presser foot.



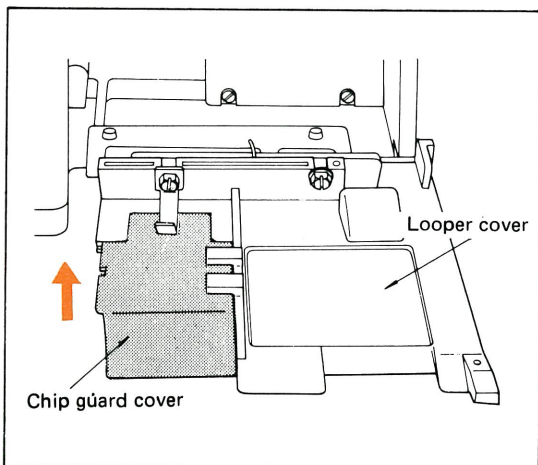
All the components of this machine have been set to form the safety stitches before shipment. Make sure the following points;



Check that the blade point of the upper knife tilts downwards. If not, turn the knife blade point toward you until the stopper pin rests in the recess as you push the upper knife presser plate against it, as the illustration shows.

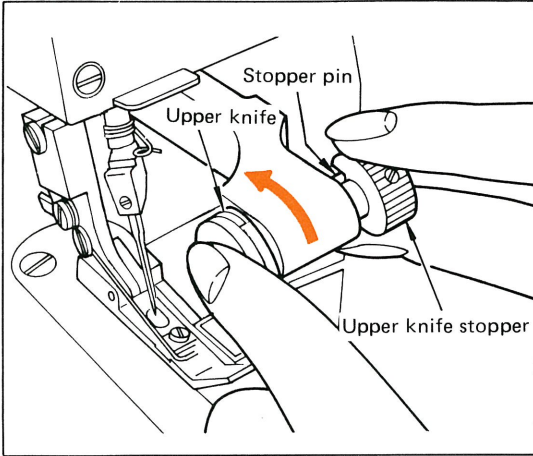


Check that the release slider is fully inserted into the recess. If not, push it fully into the recess by picking up the overedge looper. Insert the release slider until its red line has disappeared.

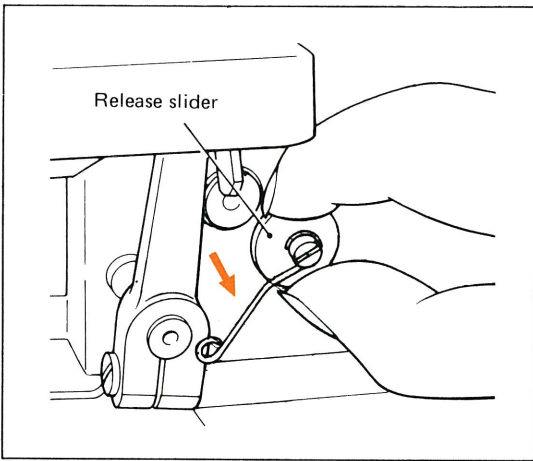


Check that the chip guard cover is tightly attached to the looper cover. If not, insert the chip guard cover the direction shown by the arrow.

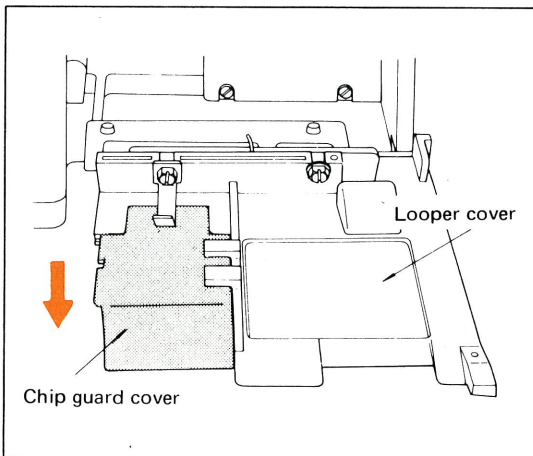
Forming only the double chain stitches



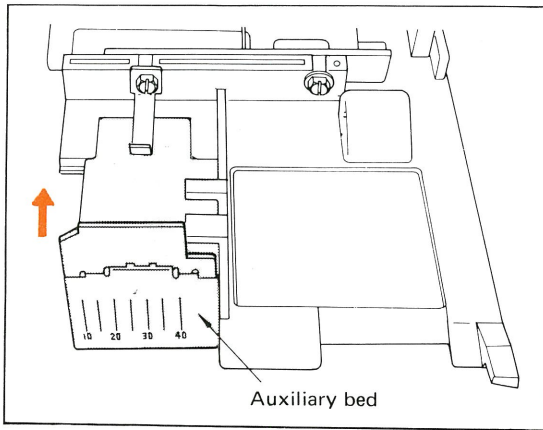
Turn the blade point of the upper knife backwards as shown in the illustration by pushing the upper knife presser plate and allow the stopper pin to rest in the recess.



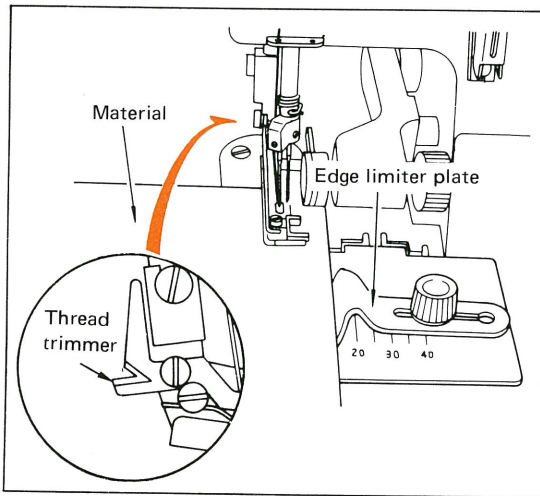
Pull the release slider toward you as far as it goes as shown in the illustration, and the overedge looper will not work.



Remove the looper cover and take out the chip guard cover as illustrated.



Reset the auxiliary bed to the position as illustrated and fix the looper cover to its position.



1. Place a material under the presser foot.
2. Start to stitch slowly, especially the first couple of stitches.
3. After a seam has been completed, cut off the excessive threads by means of the thread trimmer knife on the presser foot.
4. The edge limiter plate is an optional attachment.

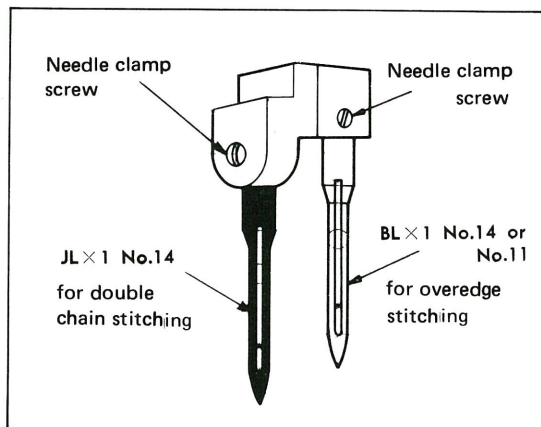
Forming only the overedge stitches

1. Remove the threads used for double chain stitching.
2. Refer to the items 1 to 3 of the safety stitches for starting and finishing procedures.

ATTACHING THE NEEDLES

The type of needles to be used for this machine is BL x 1 (for overedging) No.11, No.14 and JL x 1 (for double chain stitching) No.14.

The standard size is No.14, but you have to decide it depending on the physical characteristics of the sewing material and also the thickness of sewing threads to be used.



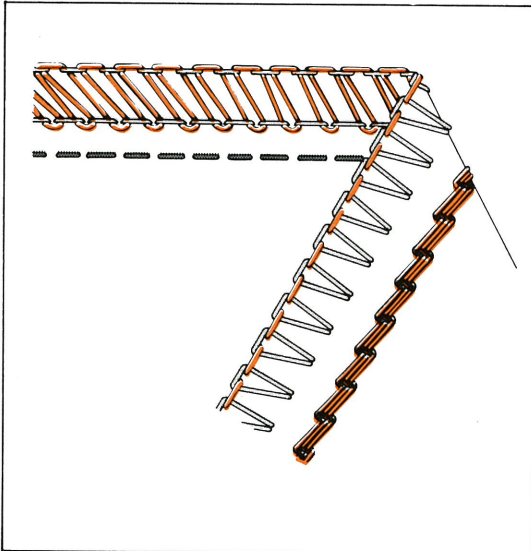
1. Bring the needle bar up to its highest position.
2. Insert the needles into the needle clamp holes fully as far as they go.
3. After making it sure that the recessed side of the needle faces backwards, securely tighten the needle clamp screws.

(Note) When sewing Tricot, Jersey, knit fabric and similar materials, use the needle No.11 (accessory box) instead of No.14.

ADJUSTING THE THREAD TENSION

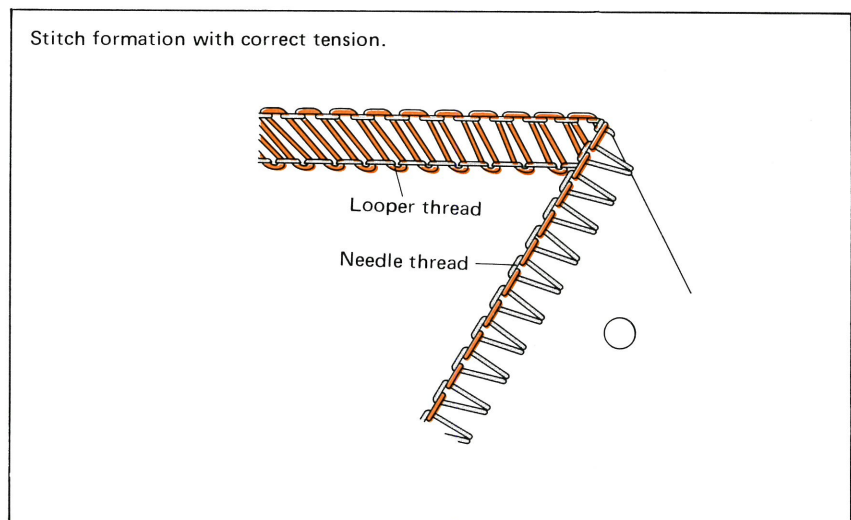
You must adjust the thread tension correctly every time when you change the type of sewing materials and the kind and thickness of threads.

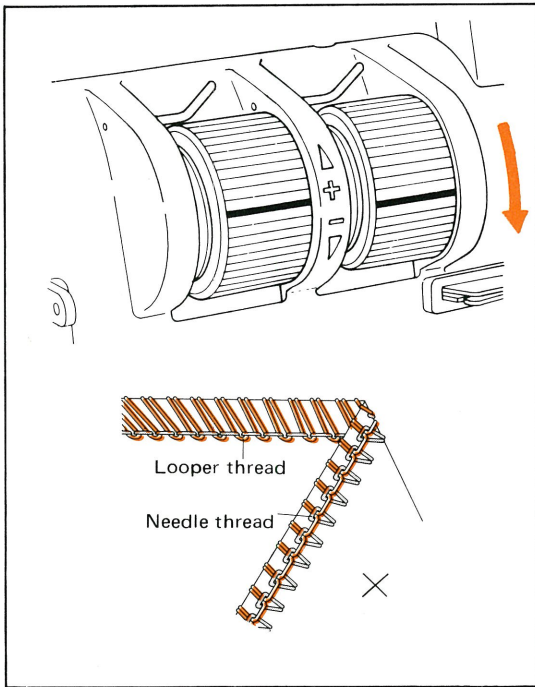
Safety stitches



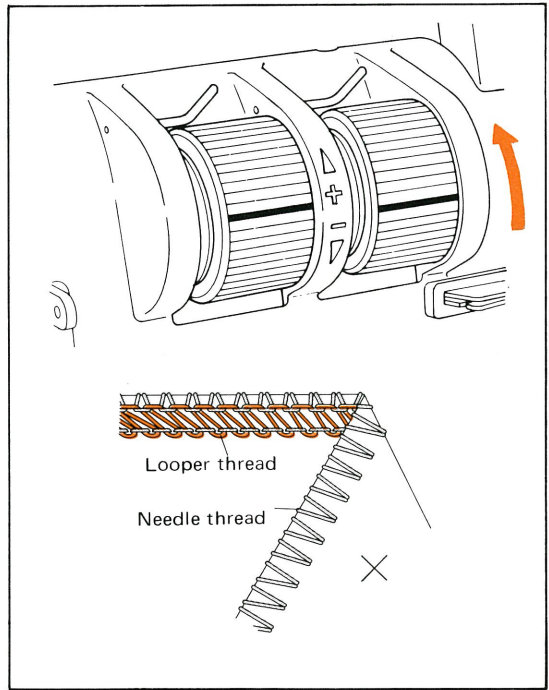
Adjust the correct thread tension according to the procedure mentioned for the overedge and double chain stitches.

Overedge stitches



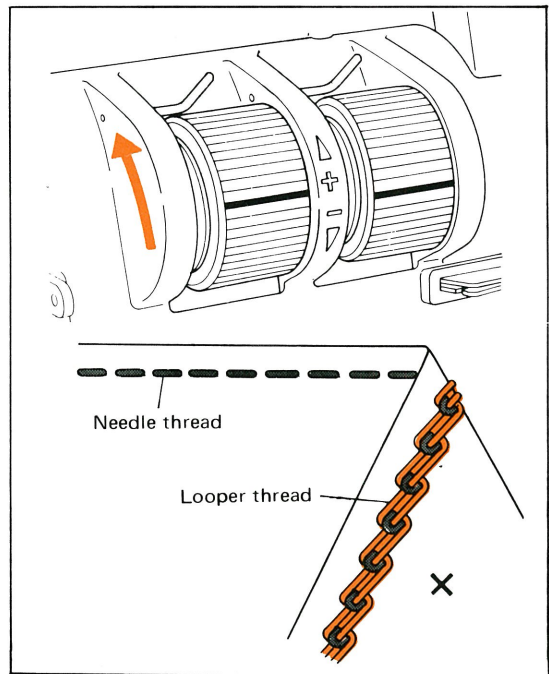
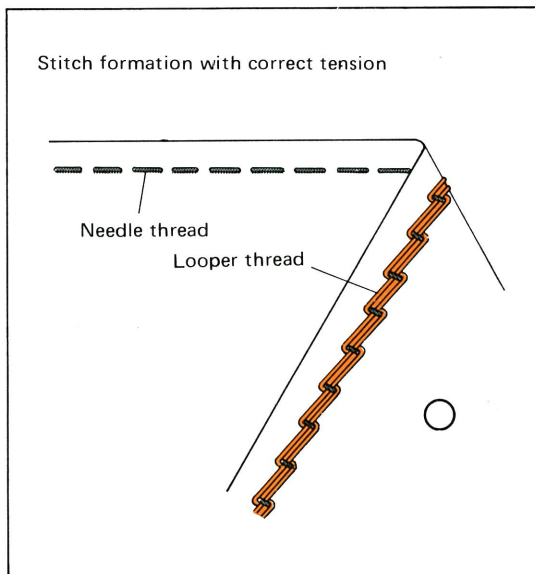


When either the needle thread tension is too high or the looper thread tension is too low, such a faulty stitch as illustrated above will be formed. Correct it by turning the needle thread tension regulator located on the right in the “-” direction.



When either the needle thread tension is too low or the looper thread tension is too high, such a faulty stitch as illustrated above will be formed. Correct it by turning the needle thread tension regulator located on the right in the “+” direction.

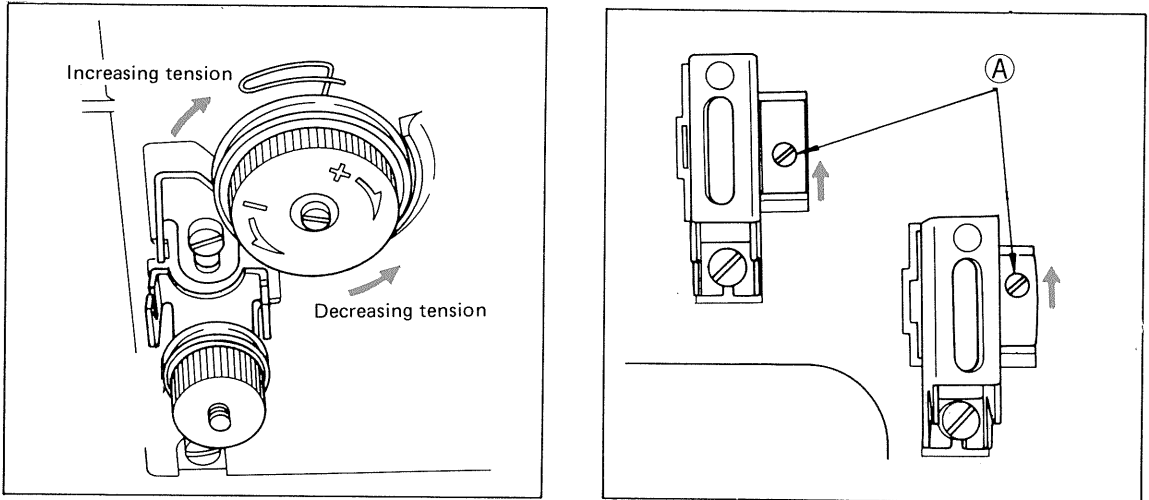
Double chain stitches



When the needle thread tension is too low, such a faulty stitch as illustrated above will be formed. Correct it by turning the needle thread tension regulator located on the left in the “+” direction.

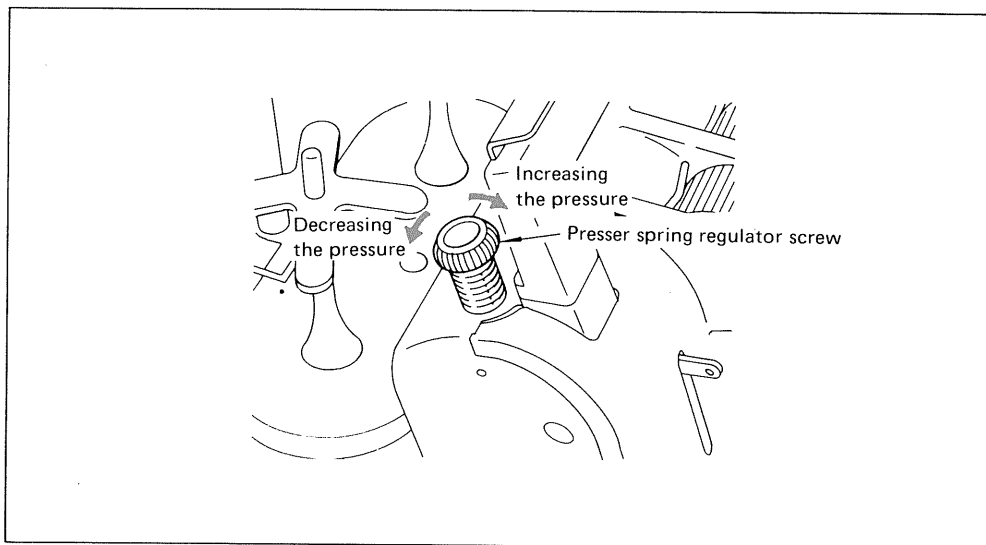
Looper thread tension for overedge and double chain stitches

In most cases, you do not need to change the overedging looper thread tension regulator after changing the sewing thread. However, increase it when sewing an extra heavy weight material. The thread tension is increased by turning the regulator in the clockwise direction and reduced by the counterclockwise turn. Similarly, you do not need to change the double-chain looper thread tension regulator after changing the thread and the material. The machine has been adjusted before shipment to the standard thread tension, although you may feel it comparatively low. When you use a synthetic fiber thread, loosen the screw (A) and move it upwards as shown by the arrow in the illustration. Make sure that the thread take-up spring is ready to work.



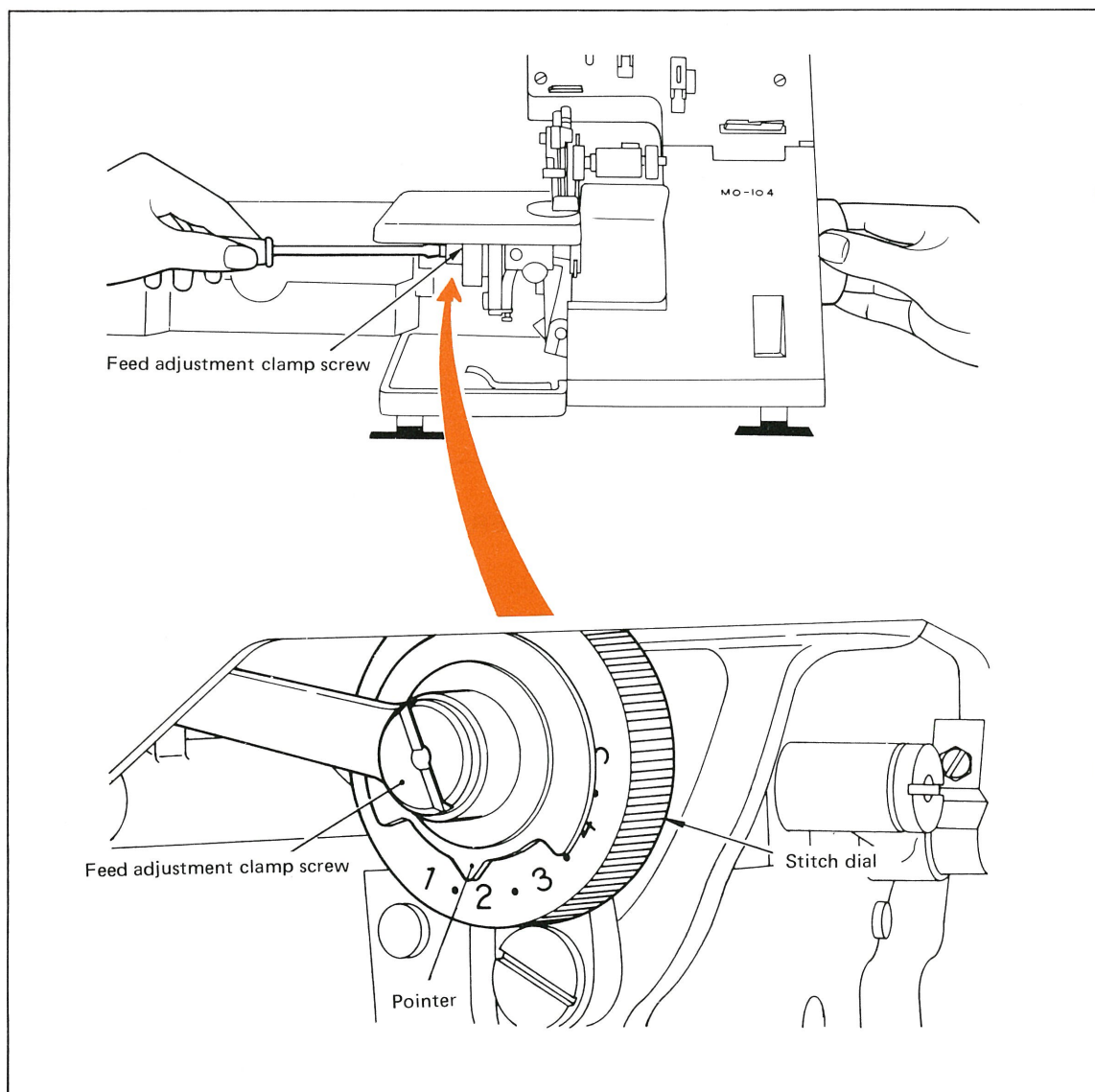
ADJUSTING THE PRESSURE OF THE PRESSER FOOT

Your machine has already been adjusted for sewing the medium heavy weight materials at our factory. You may adjust the pressure of the presser foot according to the type of materials to be sewn; apply lower pressure to light weight materials such as tricot, De Chine etc. and, on the other hand, apply higher pressure to heavy weight materials. Adjust it by turning the pressure spring regulator screw as illustrated below;



ADJUSTING THE STITCH LENGTH

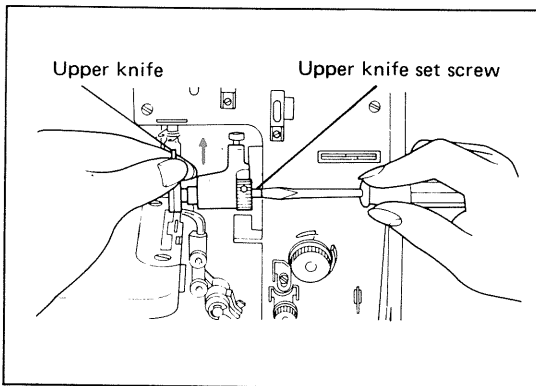
1. Open the side cover, hold the handwheel with your right hand in order not to allow it to rotate and loosen the feed adjustment clamp screw with a screw driver in the accessory box.
2. Set a desired index on the stitch dial to the pointer of the stitch dial stopper.
3. Fasten the clamp screw tightly after an adjustment has been made.



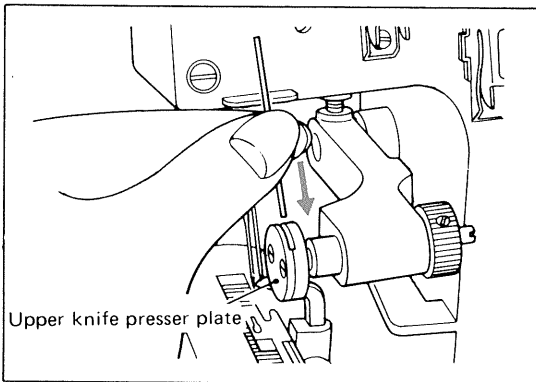
REPLACING THE KNIFE

Don't forget to disconnect the power plug from the power supply source before starting this work.
The thread trimmer knife must be replaced as soon as it has become dull.
Each one of the upper and lower spare blades are prepared in the accessory box.

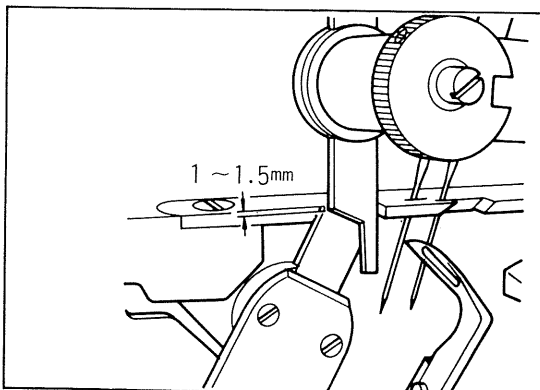
How to replace the upper knife



Loosen the upper knife set screw and pull out the upper knife upwards.

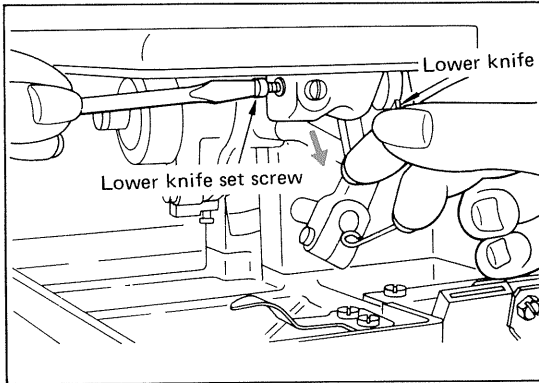


When attaching the upper knife, hold the knife facing its edge to the left, insert it into the groove of the presser plate by pushing the said plate fully to the right and temporarily tighten the set screw. If a pin protrudes on the groove, push it back by means of a pair of forceps.

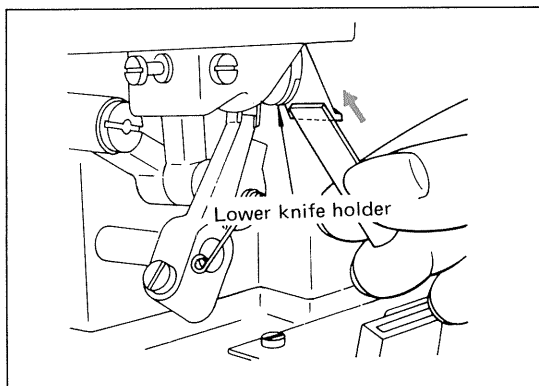


After installing a new knife, check that the tip of the upper knife edge comes down to overlap by 1.0mm to 1.5mm with the blade of the lower knife when the upper knife has come down to its lowest position by rotating the handwheel manually. After positioning the upper knife correctly, tighten the upper knife set screw securely.

How to replace the lower knife

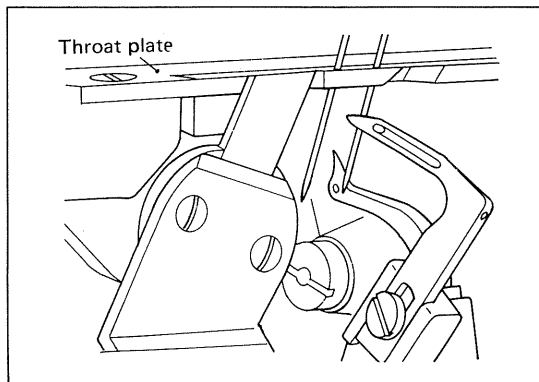


Loosen the lower knife set screw and pull out the knife downwards.



When you fix a new knife, hold it facing its edge to the right and insert it into the groove on the lower knife holder from the bottom.

If a pin protrudes on the groove, push it back by means of a pair of forceps.



Followingly, adjust the position of the lower knife so that the tip of lower knife blade stays at the level of the top surface of throat plate and tighten the set screw by holding the knife securely in order not to allow it to move while you are screwing.

CAUSE OF TROUBLES AND THEIR CORRECTIONS

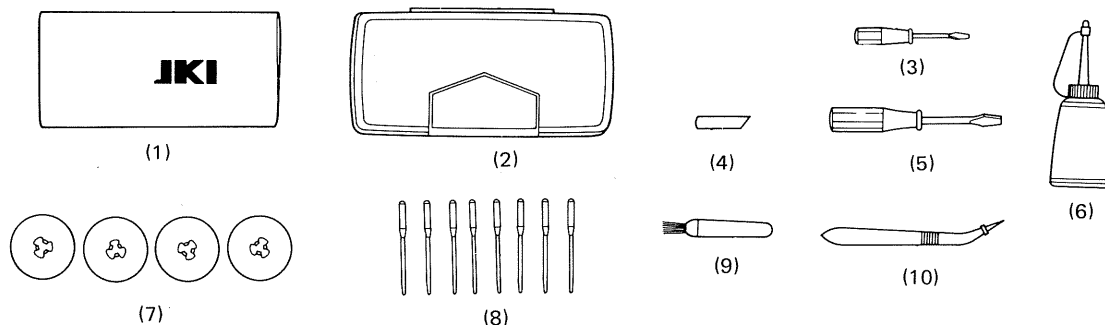
The following table is used for shooting the cause of troubles and corrections.

Troubles	Causes	Corrections
Material is not fed properly.	<ul style="list-style-type: none"> ○ The pressure applied by the presser foot is not enough. 	<ul style="list-style-type: none"> ○ Increase the pressure by turning the presser spring regulator screw clockwise.
Needle is broken	<ul style="list-style-type: none"> ○ The needle has been bent or it's point is not sharp. ○ The needle has been installed in a wrong way. ○ A material was forcibly pulled manually. 	<ul style="list-style-type: none"> ○ Replace the needle. ○ Install it correctly. ○ While a material is being sewn, you should not pull or push it. Guide it gently.
Thread is broken.	<ul style="list-style-type: none"> ○ Threading order is wrong. ○ Thread tension is too high. ○ The needle has been installed in a wrong way. 	<ul style="list-style-type: none"> ○ Thread the machine again in correct way. ○ See p. 12 ○ See p. 11
Stitch is skipping	<ul style="list-style-type: none"> ○ The needle has been bent or it's point has been dull. ○ The needle has been installed in a wrong way. ○ Threading order is wrong. ○ The pressure of the presser foot is not enough. 	<ul style="list-style-type: none"> ○ Replace the needle. ○ Install it correctly. (see p. 11) ○ Thread the machine correctly (see p. 6) ○ Increase the pressure by turning the presser spring regulator screw clockwise.
Correct stitches are not formed.	<ul style="list-style-type: none"> ○ The thread tension is not correct. 	<ul style="list-style-type: none"> ○ See p. 12
Stitch line wrinkles the material.	<ul style="list-style-type: none"> ○ Thread tension is too high. ○ Threading order is wrong or the thread is faultily hooked with other places. 	<ul style="list-style-type: none"> ○ Decrease the thread tension, especially when sewing a light weight material. ○ Check and correct it. See p. 6
Motor is not in order.	<ul style="list-style-type: none"> ○ It makes a noise. ○ It does not run at all. ○ It makes abnormally extensive sparks. 	<ul style="list-style-type: none"> ○ Replace the carbon brush. ○ Replace the carbon brush. ○ Replace the carbon brush. (Note) Spare carbon brushes are available at our agents in your area.

REFERENCE TABLE (MATERIAL/THREAD/STITCH LENGTH)

Material	Thread	Stitch Length
Light weight materials. (Thin tricot, taffeta, silk crape, lining materials)	Cotton # 80 ~ # 100 Silk # 80 ~ # 100	Overedge stitch 2.5mm ~ 4mm (7/64" ~ 5/32") Double-lock stitch: 2mm ~ 3mm (5/64" ~ 1/8")
Medium heavy weight materials.	Cotton # 60 ~ # 100 Silk # 50 ~ # 100 Synthetic fiber # 60 ~ # 80	Overedge stitch 2.5mm ~ 4mm (7/64" ~ 5/32") Double-lock stitch: 2mm ~ 3mm (5/64" ~ 1/8")
Heavy weight materials. (Tweed, coating, denim, heavy weight coating.)	Cotton # 40 ~ # 60 Silk # 40 ~ # 60	Overedge stitch: 3mm ~ 4.5mm (1/8" ~ 3/16") Double-lock stitch: 2mm ~ 4mm (5/64" ~ 5/32")
Knitted fabrics. (Knitted fabric, Jersey)	Cotton # 60 ~ # 80 Woolly nylon and synthetic fiber # 60 ~ # 80	Overedge stitch 2.5mm ~ 4mm (7/64" ~ 5/32") Double-lock stitch: 2mm ~ 4mm (5/64" ~ 5/32")

ACCESSORIES



1. Vinyl cover
2. Accessory box,
3. Driver (small),
4. Spare lower knife,
5. Driver (medium),
6. Oiler,
7. Spool holder discs (4 pcs.)
8. Needles (8 pcs.),
9. Cleaning brush
10. Tweezers

SPECIFICATION OF MODEL MO-104

Sewing speed	: 1,500 s.p.m. Max.
Overedge width	: 3.5mm (9/64")
Needle gauge	: 3.2 mm (1/8")
Stitch length	: 2 to 5 mm (5/64" to 13/64")
Presser foot lift	: 4.5 mm (11/64")
Needles	: JL x 1, No.14, BL x 1, No.14, No.11
Dimension	: 236mm(W) x 263mm(D) x 280mm(H)
Weight	: 9.5 kg.

PACKING SPECIFICATION

1. Machine head (with motor)	1 set.
2. Controller assembly	1 set.
3. Instruction book	1 copy
4. Accessory box	1 pce.
5. Spool holder assembly	1 set
6. Inspection certificate	1 copy
7. Auxiliary bed	1 pce.
8. Parts book	1 copy

