

FOREWORD

Many thanks for your ^u~~p~~urchasing^e of TuffyLock machine.

For use of the machine, please read carefully this instruction book. With your machine you can make an elegant edge covering stitch (Over Lock) and a double chain stitch which ^{is} well ^{suited} ~~become~~ ^{for} with thick or thin fabrics - cotton, wool, rayon, tricot, jersey, etc. You can also expect many years' enjoyment from your machine which was manufactured with up-to-date techniques and has a proud history of its own.

CONTENTS

FEATURES	1
1. DESCRIPTION	2
2. OPERATION	3
3. LUBRICATION	4
4. THREADING THE MACHINE	5 ~ 9
5. THREAD CHAIN (Stitching)	10
6. REGULATING THREAD TENSION	11 ~ 12
7. HOW TO OPERATE YOUR MACHINE	13
8. FINISHING THE SEAM	14
9. REGULATING YOUR STITCH LENGTH	15
10. PRESSER FOOT PRESSURE	16
11. STITCHES AND OPERATIONS	17 ~ 20
12. NEEDLE	21
13. KNIVES	22 ~ 23
14. STITCH TROUBLE AND ITS REMEDY	24
15. VARIATION OF WEIGHT OF FABRIC, THREADS AND STITCH LENGTH	25
16. SPECIFICATION FOR MODEL 94	26
CONTENTS IN THE SHIPPING CONTAINER	27

TuffyLock MACHINE

OPERATING MAINTENANCE

INSTRUCTIONS

FEATURES

Three different stitches available in one machine.

Easily changed for:

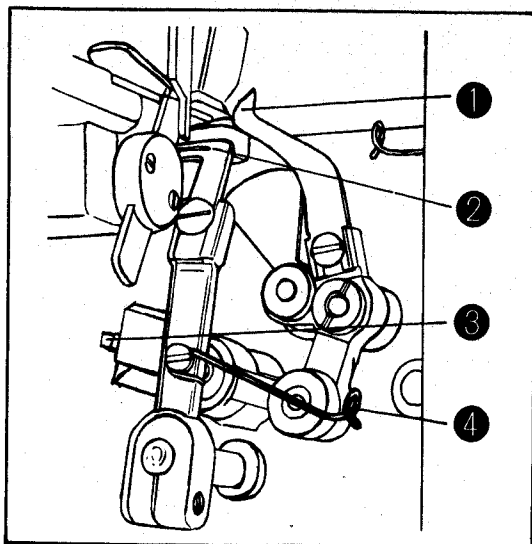
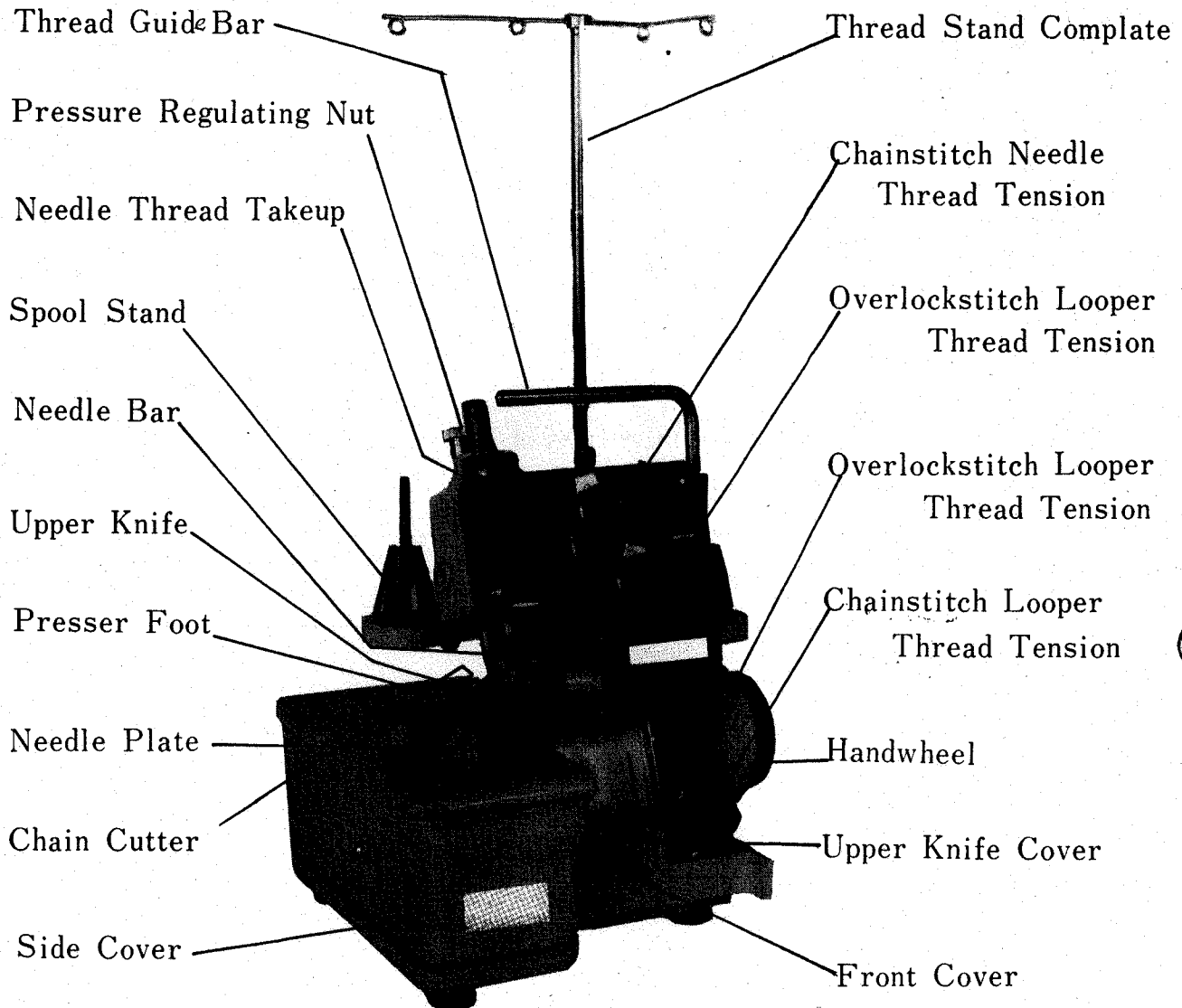
1. Overlock stitching
2. Interlock chainstitching
3. Safety stitching

Quiet running and vibrationless

Attractive modern appearance.

Guaranteed for longer life.

1. DESCRIPTION



- ① Overlockstitch Looper
- ② Chainstitch Looper
- ③ Crank Lever
- ④ Looper Thread Takeup

Looper Drive Mechanism (enlarged)

2. OPERATION

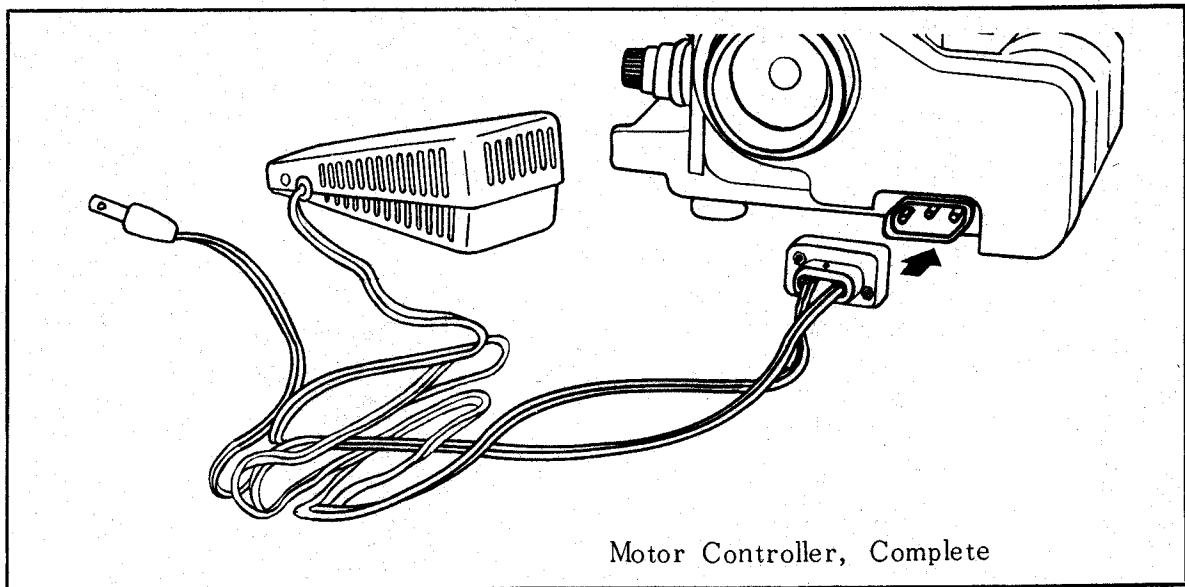
2-1 Getting Set

Place the machine on a table.

Connect the motor controller to the machine as shown.

Connect the cord by plugging into your house *current outlet*.

Pull up thread stand center post extending it to full height.
Eyelets should be over thread spool holders.



2-2 Controlling your Machine

The speed of the Tuffyl[®]Lock machine is controlled by the *degree to which* ~~amount~~ you depress the foot treadle.

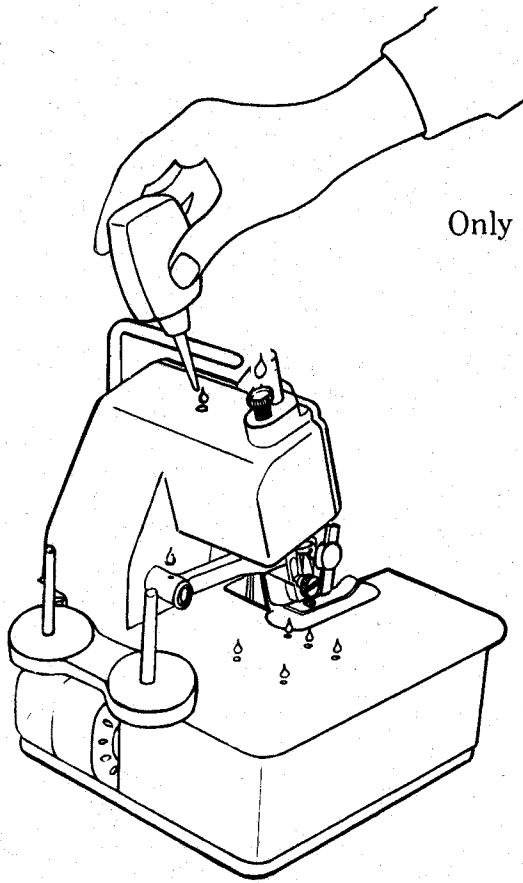
2-3 Motor

The Tuffyl[®]Lock machine rotates in a clockwise direction (note arrow near handwheel).

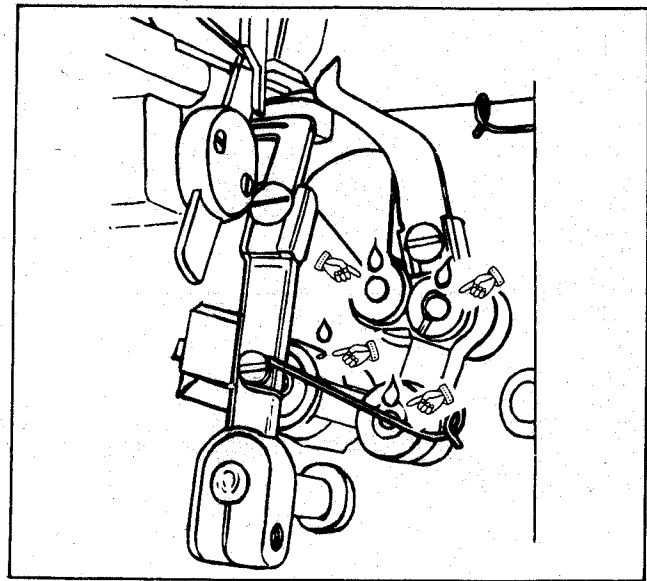
3. LUBRICATION


Proper lubrication assures long life and efficient mechanical operation. The TuffyLock is simply lubricated.

A few drops of oil from time to time in the indicated oiling holes will suffice. When in constant use oiling will not be required more often than once a month.



Only this hole requires 10-15 drops of oil



Note:  = Oil hole

Lubricate the bushings with one or two drops of oil about once a month.

4.THREADING THE MACHINE

4-1 Threading order

You will find threading your machine in the following order and, as shown in figures, ~~noted~~ to be most simple:

- (1) Chainstitch looper thread..... (fig. 4-1-1, page 7)
- (2) Overlockstitch looper thread..... (fig. 4-1-2, page 8)
- (3) Overlockstitch needle thread..... (fig. 4-1-3, page 9)
- (4) Chainstitch needle thread..... (fig. 4-1-4, page 10)

Each thread must pass between the discs in the thread tensions.

For threading, use tweezer furnished with machine.



- (1) Thread ^{ing} the chainstitch looper.
Leave surplus thread 5 cm (about two inches)
beyond the looper eye.

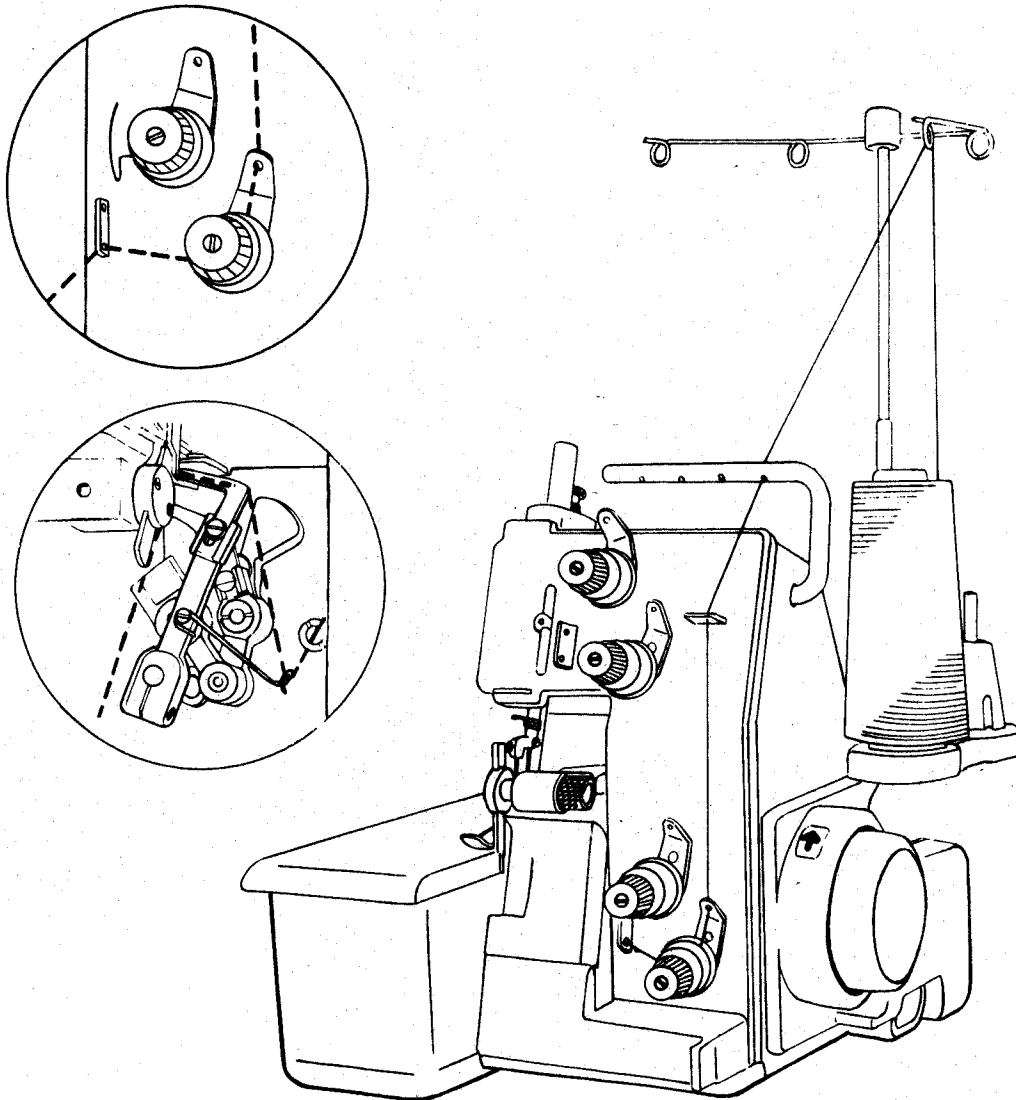


fig4-1-1

- (2) ~~T~~reading the overlockstitch looper.
Leave surplus thread 5 cm (about 2 ") beyond looper eye.

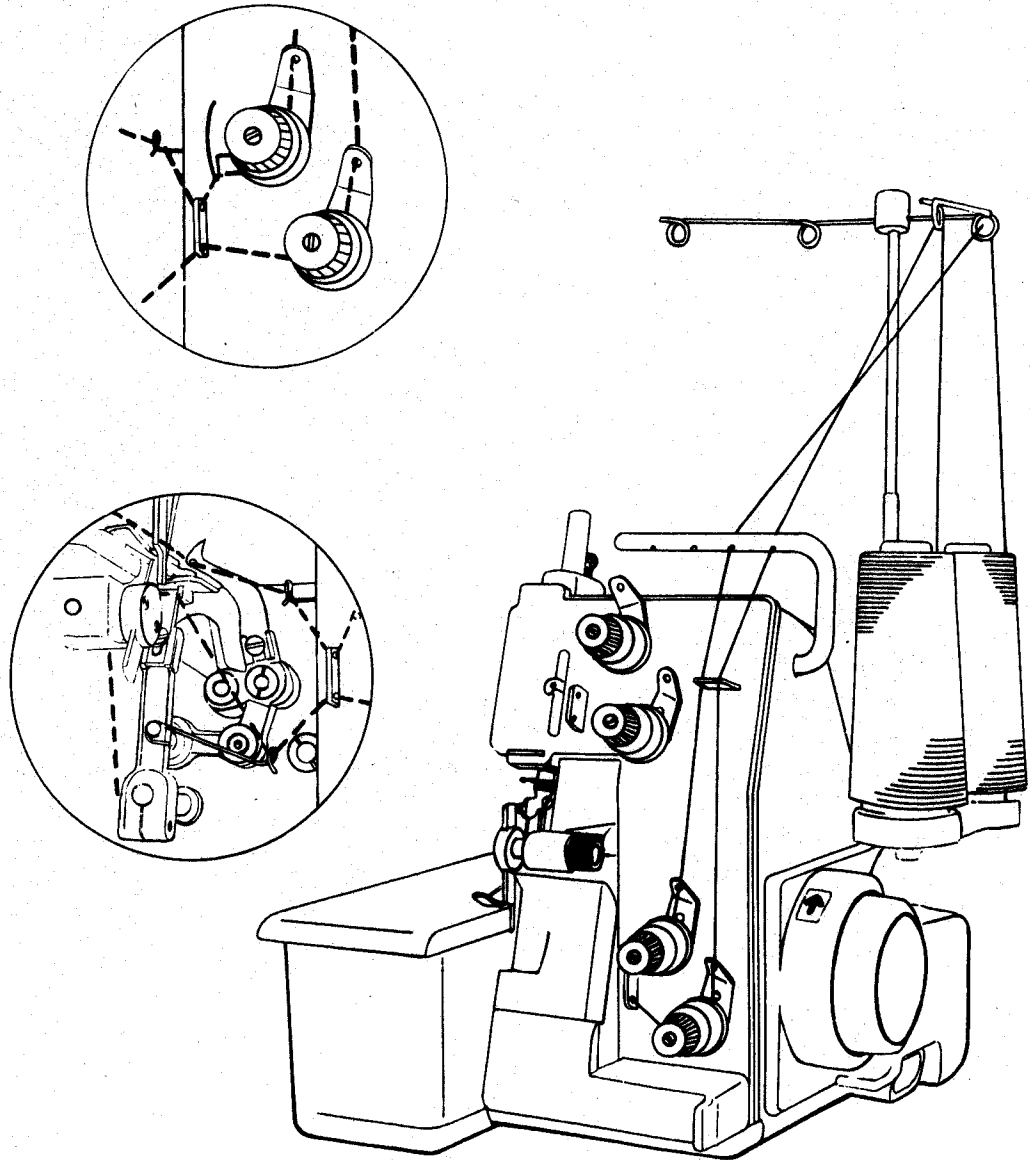
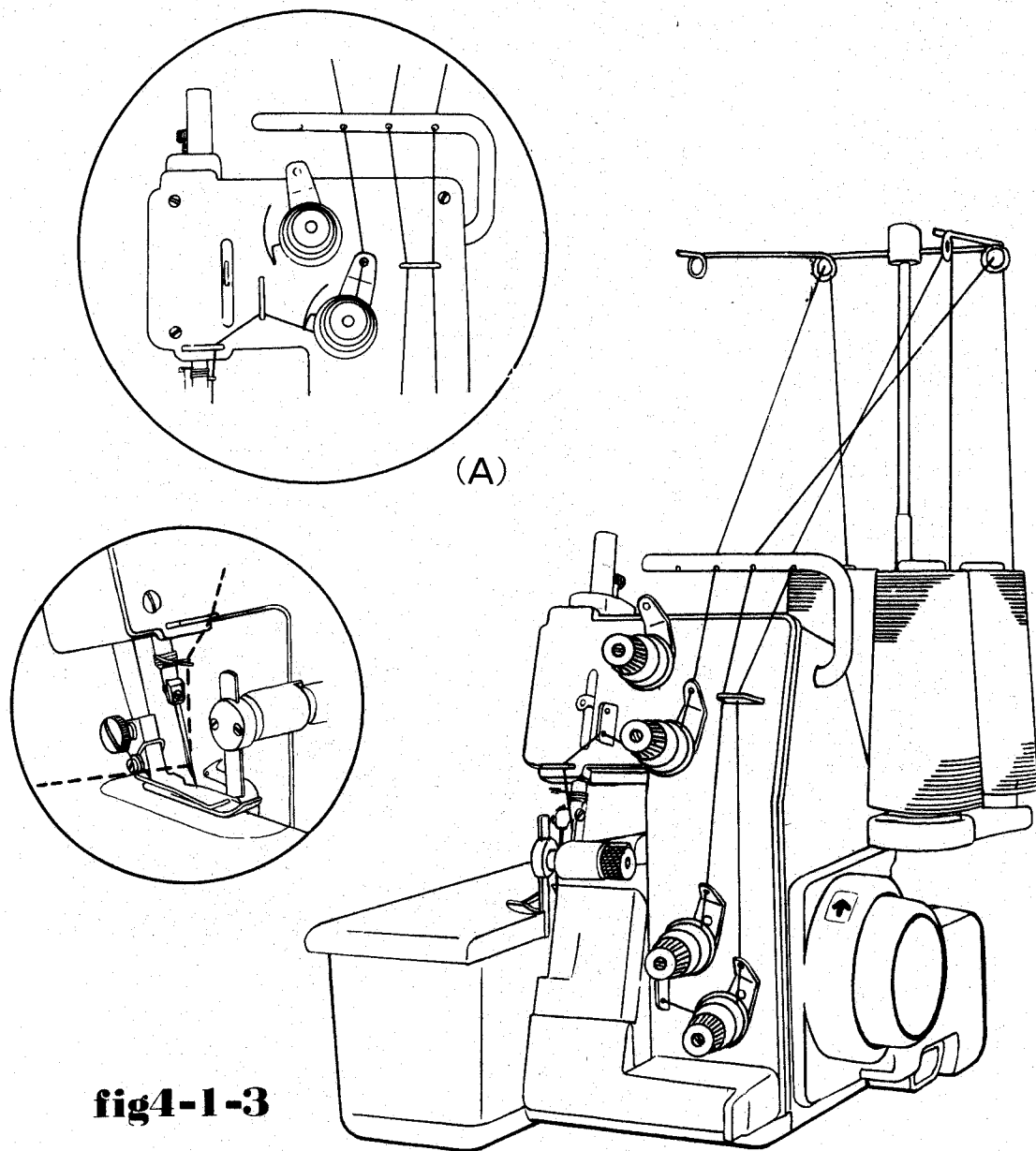


fig4-1-2

- (3) Threading the overlockstitch needle.
Leave surplus thread 5 cm (about 2 ") beyond needle eye.



For wool or synthetic thread, usually tending to stretch, threading the thread tension guide wire (A) may be unnecessary since less tension is required for the needle thread.

- (4) Threading the chainstitch needle thread.
Leave surplus thread 5 cm (about 2") beyond needle eye.

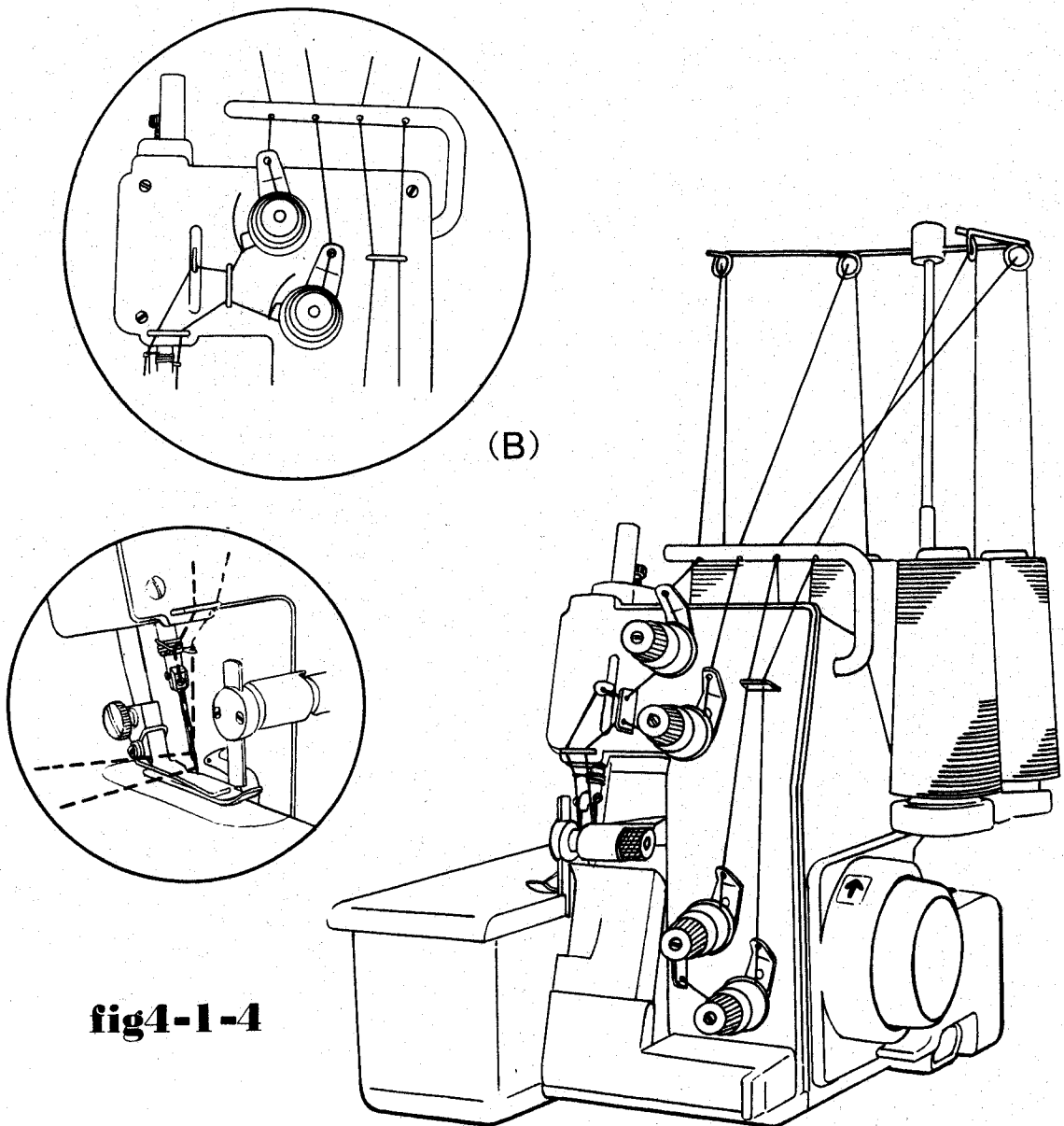


fig4-1-4

For wool or synthetic thread, usually tending to stretch, threading the thread tension guide wire (B) may be unnecessary since less tension is required for the needle thread.

Remark: It is recommended to put Thread Stripping Discs provided on Spool ^{Pins} Strays when the small diameter thread spools are used.

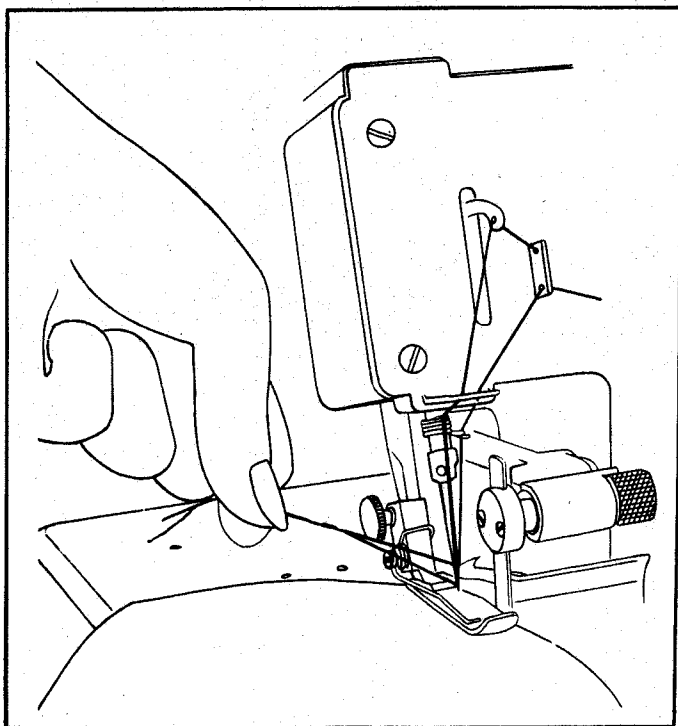
5. THREAD CHAIN (Stitching)

When

If the threading of the machine has been performed properly, you will ~~now~~ be on your way to stitching.

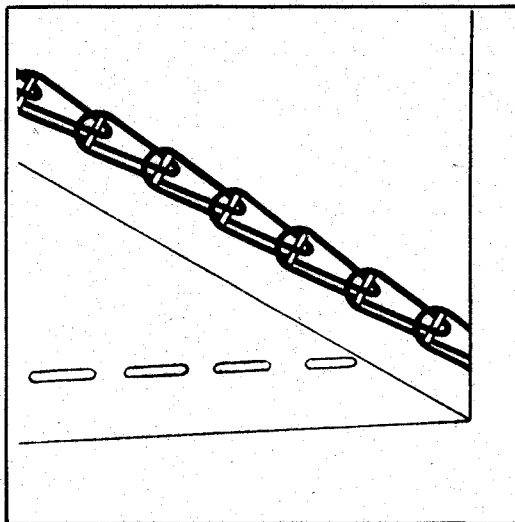
This may be confirmed by the following:

- (1) Raise presser foot by lifting the lift lever.
- (2) Insert a small piece of ~~extra~~ fabric beneath the presser foot.
- (3) Lower the presser foot.
- (4) Hold the needle threads in your left hand and pull them a bit to the left of the stitching line. Pull the thread gently and, at the same time, turn the handwheel clockwise two or three times with your right hand. A thread chain will be produced.
- (5) After being certain the thread chain has been made, sew 1 inch beyond the inserted fabric end and cut chain with chain cutter or scissors.

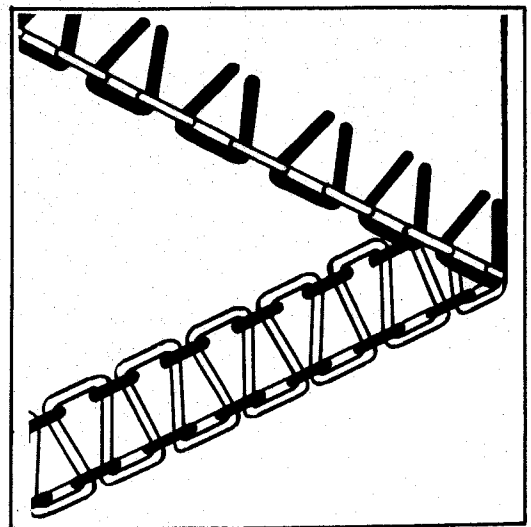


6. REGULATING THREAD TENSION

Your stitching will be enhanced by some care in properly setting thread tensions. The tension required varies with the size and type of thread, the number of plies and the type of thread, the number of plies and the type of fabric stitched. Please refer to page 3 for the description of the machine and note the location of the four (4) thread tensions. To increase tension, turn the tension nut clockwise and to decrease counter-clockwise. Here are examples of good stitching. Observe that the overlock stitch shows the needle thread and the looper thread joined at the edge of the fabric.



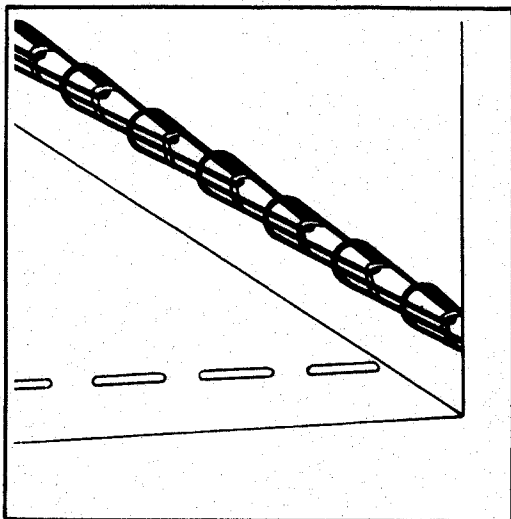
Fine chainstitching



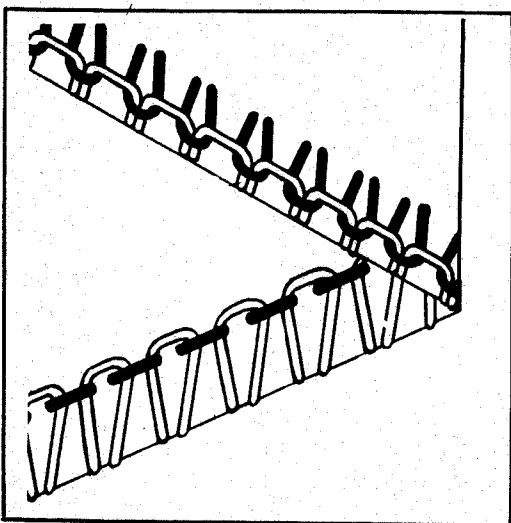
Fine overlockstitching

Regulating thread tension.....continued

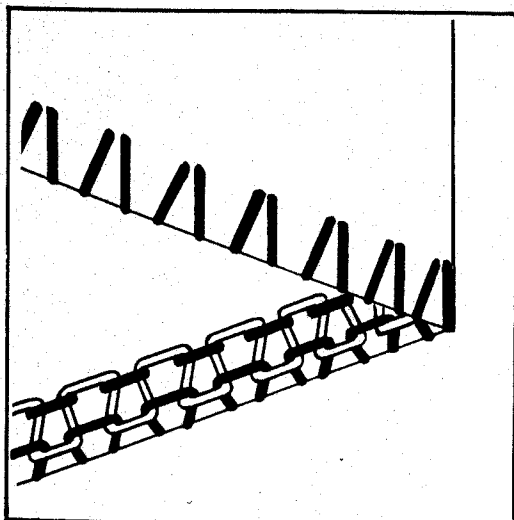
When thread tension is not properly regulated the stitching may appear like the sketches below.



The chainstitch needle thread is "loose"
Increase the thread tension by turning
the tension nut clockwise.



This may occur when the overlockstitch
needle thread tension is too tight or
where the overlock looper thread tension
is too loose. Turn the tension nut for
needle thread counter-clockwise to
decrease the thread tension. If the
appearance is not yet satisfactory, turn
the tension nut clockwise and increase
the looper thread tension.



Here we have the opposite condition to
the one above. First turn the tension
nut for the needle thread clockwise and
increase the tension. If necessary,
turn the tension nut for the looper
thread counter-clockwise and decrease
the looper thread tension.

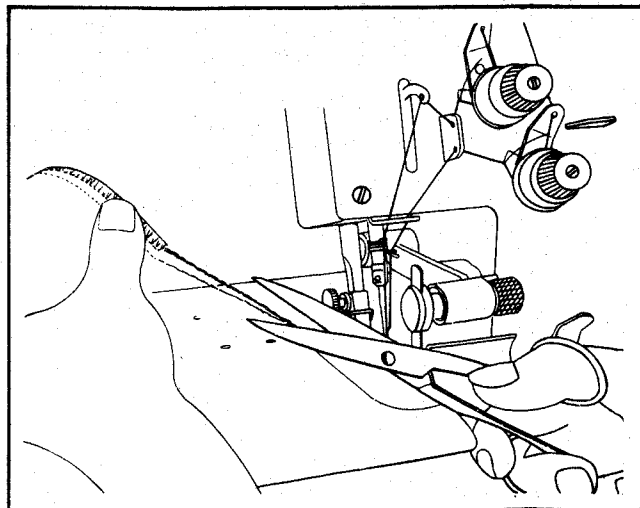
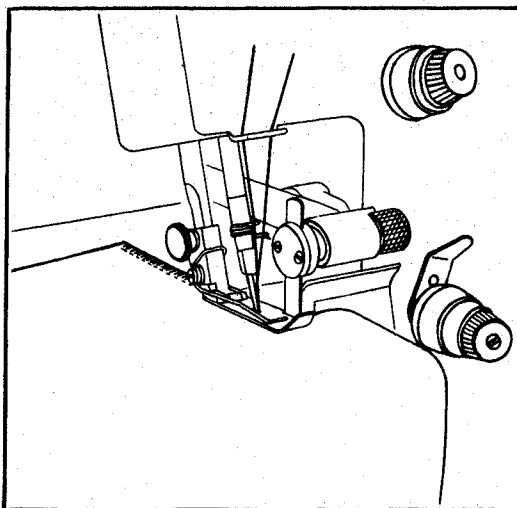
7. HOW TO OPERATE YOUR MACHINE

Operate your machine in the following manner:

- (1) Raise the presser foot by the lift lever located in the back of the machine.
- (2) Insert the fabric to be sewn beneath the presser foot so that the edge of the fabric is under the presser foot. With a little practice you will be able to ~~start~~ *begin* your seam with feeding started ~~ed~~ *ing* without raising the presser foot.
- (3) Release the lift lever and the presser foot will rest on the fabric to be sewn.
- (4) Depress the treadle of the controller and start to sew.

Note: When starting to sew, you may wish to begin the seams by turning the handwheel by hand two or three times to be certain that your stitches at the beginning of the seam are properly made. You will soon learn to control your stitching by varying the pressure on the treadle.

- (5) Guide the fabric as the machine feeds it forward.
- (6) Stitch about three or four inches beyond the edge of the fabric. Cut the thread about 2" from the edge.



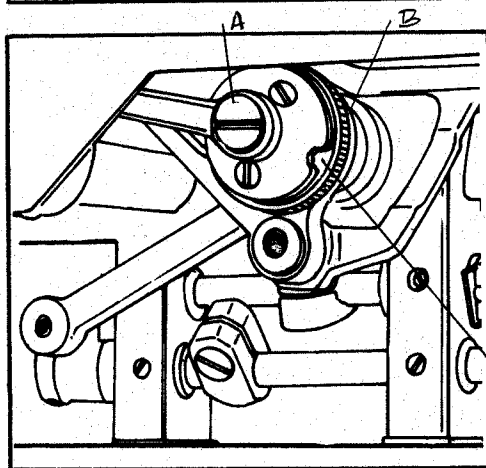
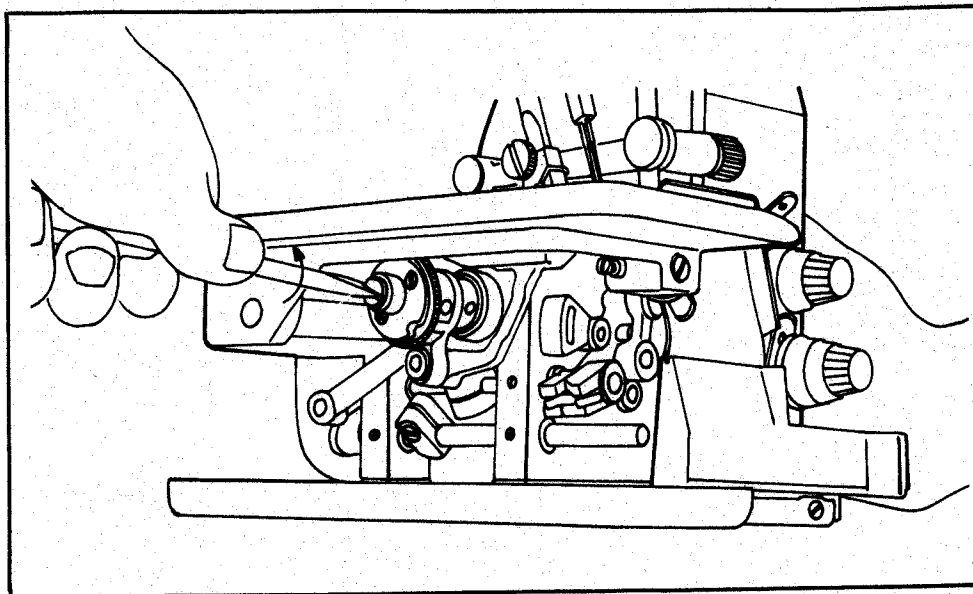
Note: Hold the sewn fabric so that the chains are as shown above when cutting.

8.FINISHING THE SEAM

For best seam end finish and to assure that your stitches will not ravel, the following suggestions are made:

	Safety stitch	Overlock stitch	Chain stitch
1. Knot the surplus thread chain	●	●	●
2. Pull back the thread chain and hand tack	●	●	●
3. Pull the surplus thread back through the stitch by using a smallhook as for example a chrochet or latch needle.		●	

9. REGULATING YOUR STITCH LENGTH



A Your TuffyLock machine will come to you factory-^{adjusted} set for about 8 stitches per inch.

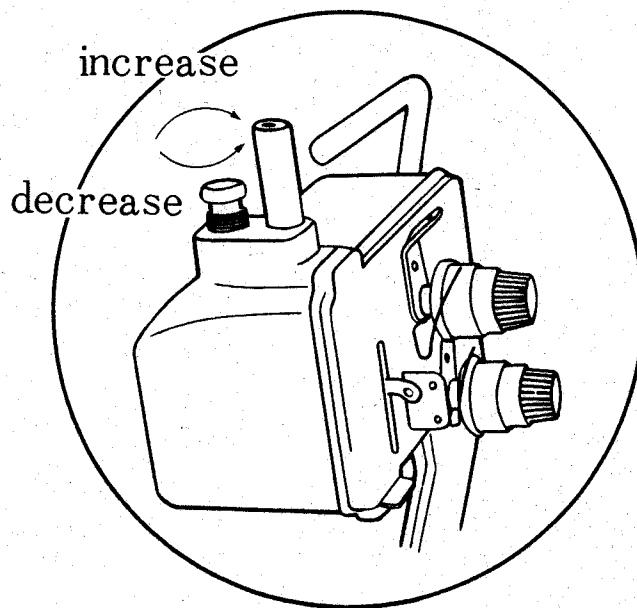
B This is a good stitch length for most of your work.

C Should you wish to increase or decrease the number of stitches this is easily accomplished by the following steps:

- (1) Open the side cover.
- (2) Holding the handwheel with your right hand, loosen the feed regulating screw (A) using the screw driver furnished.
- (3) Turn the regulating thumb nut (B) and line up the scale with the indicator (C).
For longest stitch set scale at 5 (5 stitches per inch), and for shortest stitch, set at 1 (12 stitches per inch).
- (4) After obtaining proper stitch length, tighten screw (A).
- (5) Close the side cover.

10. PRESSER FOOT PRESSURE

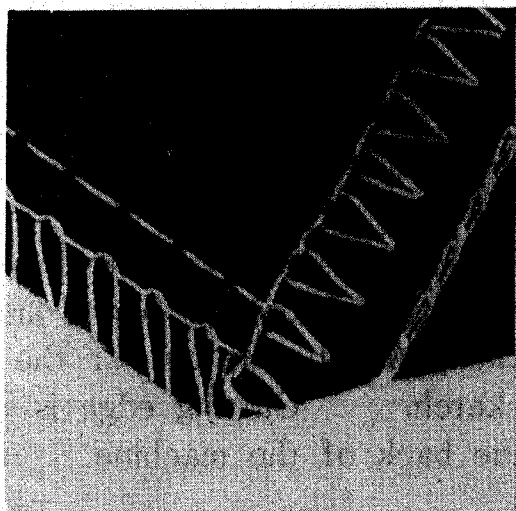
The presser foot pressure is set at the factory for medium weight fabric. This should cover most of your requirements. Should you wish to increase or decrease pressure, turn the pressure regulating nut clockwise for greater pressure; counter-clockwise for less pressure. Ordinarily, the thinner the ^{fabric} ~~seam~~, the less pressure is required. Do not use any more pressure than required to feed the material.



Pressure regulating nut

11. STITCHES AND OPERATIONS

11-1 Safety Stitch



By using all four threads, the machine sews with Safety Stitch.

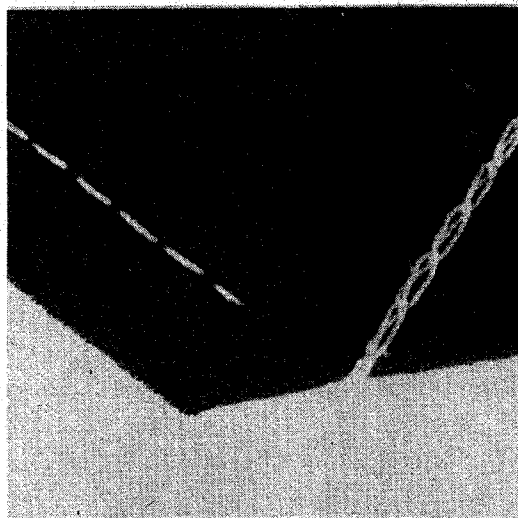
For threading, refer to pages 6~10.

Operation: Sleeve setting

General Seaming

Representative items: shirts, blouses,
dresses, slacks,
jackets, etc.

11-2 Chainstitch



Threads used for chainstitch are the chainstitch needle and looper threads only.

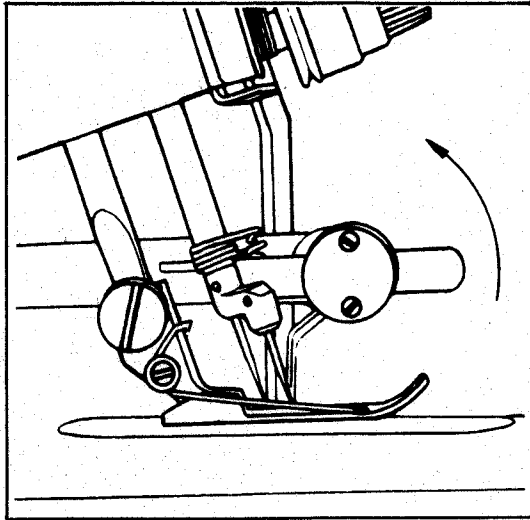
For threading, refer to pages 7, 10.

Operation: General seaming on knitted fabrics or jersey

Please note that for chainstitching the overlock looper (see fig.11-2-2) should be disengaged and the overlock needle should be removed. The upper knife (see fig.11-2-1) should be disengaged if trimming the fabric is not required; it may be left engaged where trimming the fabric is desired.

11-2-1 Upper knife

To disengage the upper knife:

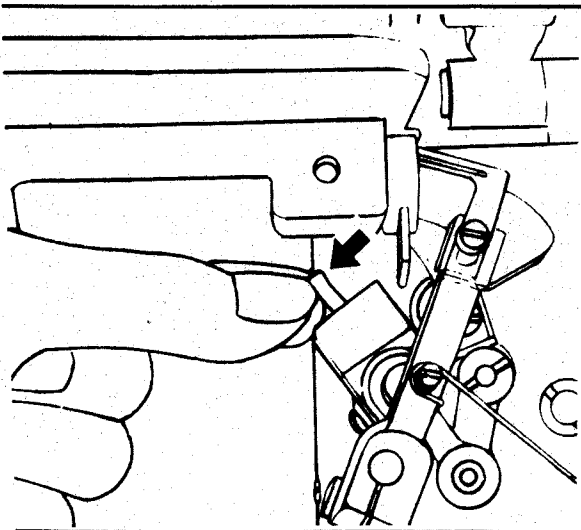


- (1) Open the front cover.
- (2) Turn the handwheel by hand until the needle bar is at its lowest position.
- (3) Pushing the upper knife to right by finger, turn the upper knife clamp thumb nut as per the sketch. Cutting edge is toward the back of the machine.

fig 1-2-1

11-2-2 Overlockstitch looper

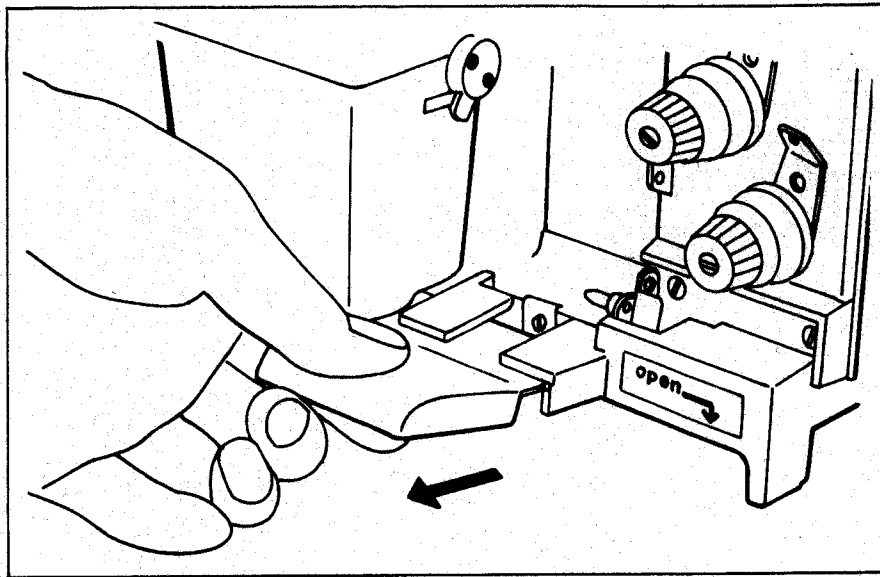
To disengage the overlockstitch looper:



- (1) Open the side cover.
- (2) At needle bar's lowest position turn up the "V" shape pin so that it is released from the groove in the bushing collar.

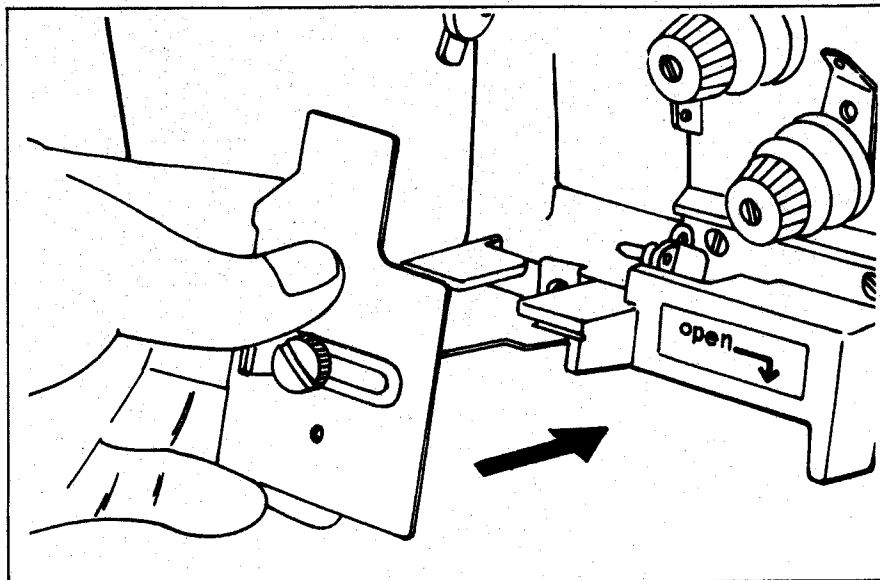
fig 1-2-2

11-2-3 Cloth gauge plate - furnished with machine



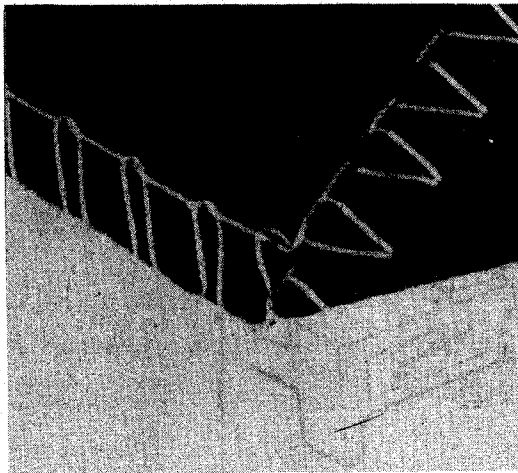
Open front cover.

Pull upward to remove the upper knife cover from the front cover. Insert the cloth gauge plate in the front cover in place of the upper knife cover.



Move to side. Close both covers.

11-3 Overlockstitching



Threads used for overlockstitching are the overlock needle and looper threads.

For threading, refer to pages 8~9.

Operation: Overedging, serging,

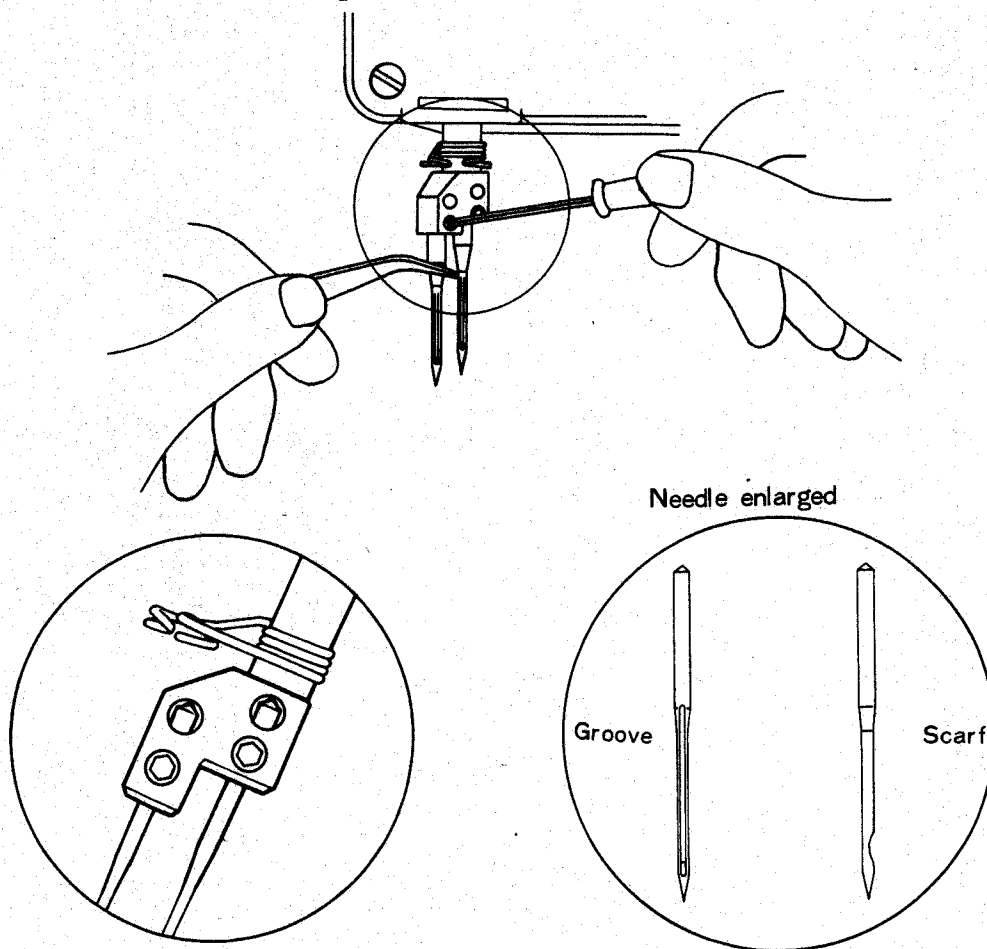
Representative items: dresses, blouses, slacks, etc.

Before operation confirm the followings:

- (1) The "V" shape pin is in the groove of the bushing collar and the overlockstitch looper is driving.
- (2) The upper knife is properly set to trim.
- (3) The upper knife cover is fixed in the front cover.

12.NEEDLE

12-1 Needles required



The following needles are available for use in the
TuffyLock machine

System: DB×1 (16 × 231)

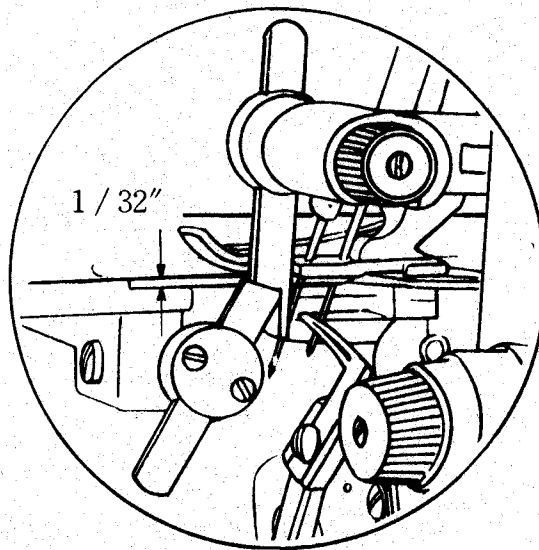
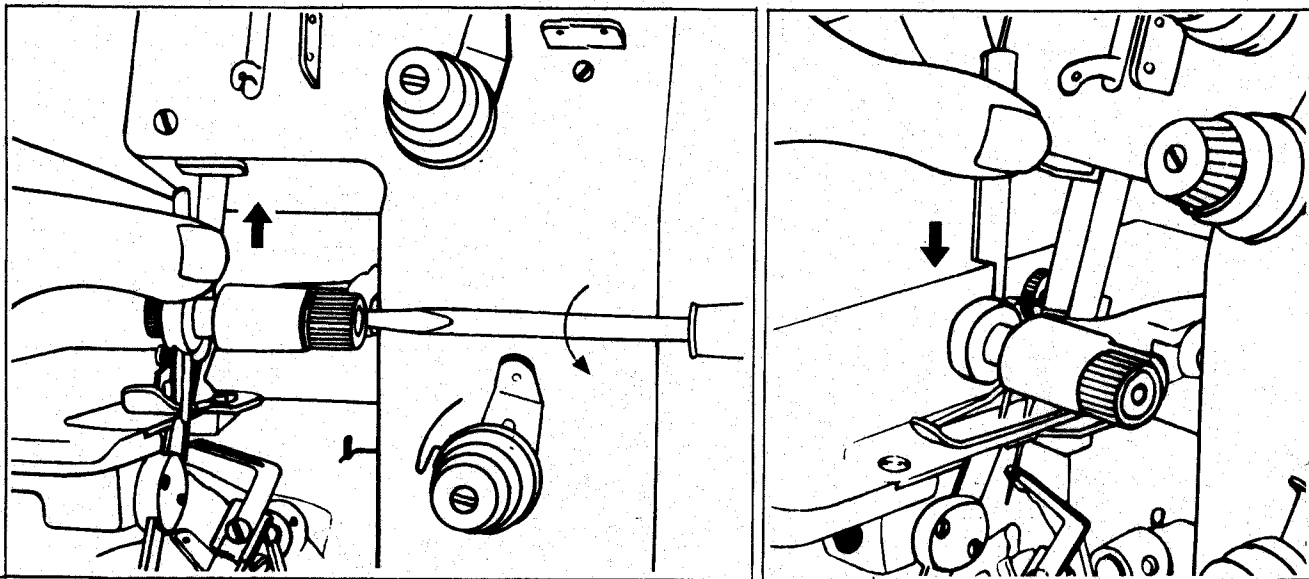
Size: #14 is standard (available ^{also} in #11~#16)

12-2 How to replace needles

- (1) Turn the handwheel by hand until the needle bar is at its highest position.
- (2) Loosen the needle clamp screw and the needle can be withdrawn downward. Use the screw driver furnished with machine.
- (3) Insert a new needle as far as it will go into the needle hole facing the long thread groove to the front and the scarf to the rear. See sketch Needle enlarged.
- (4) Tighten the needle clamp screw. ~~loosened~~

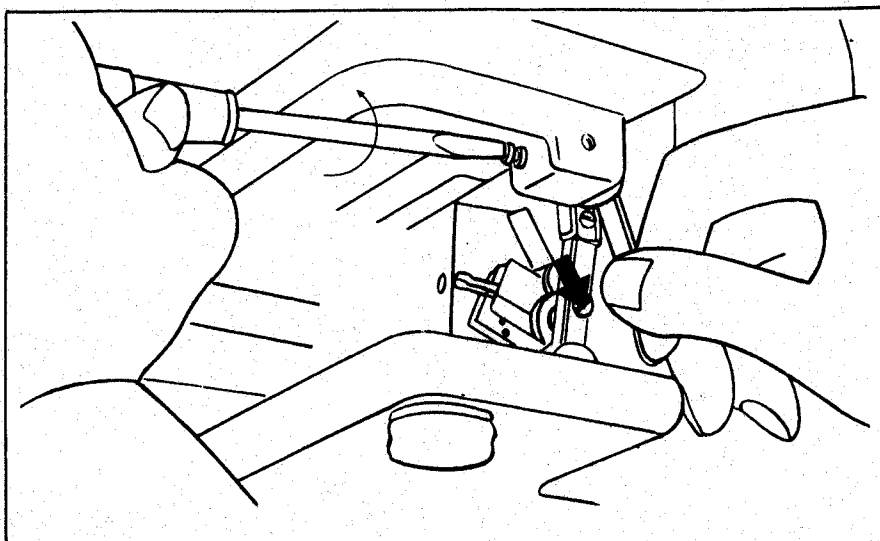
13.KNIVES

13-1 How to replace the upper knife

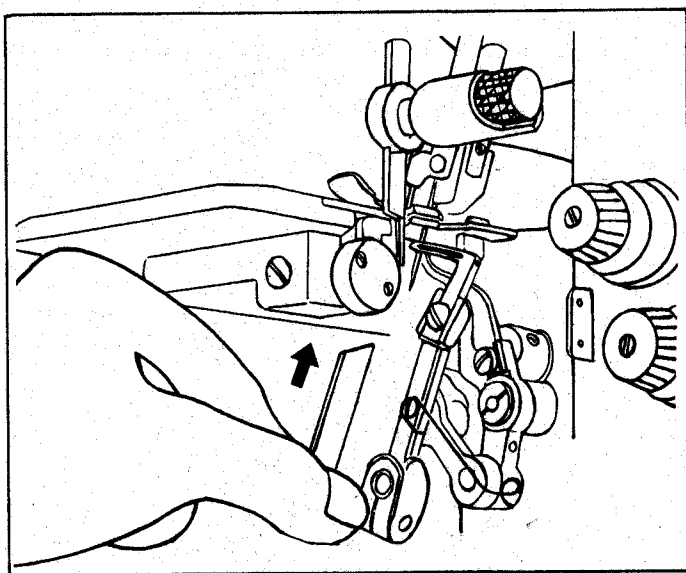


- (1) Loosen the upper knife clamp screw and the knife can be withdrawn upward.
- (2) Insert a new knife in the holder with the tang (tongue) down and to the rear. The cutting edge will be to the left. Lightly ~~affix~~^{tighten} it with the clamp screw.
- (3) Turn the handwheel until the knife holder is at its lowest position.
- (4) Slide the knife up or down so that the front of the cutting edge overlaps the lower (fixed) knife by $1/32''$. Tighten the clamp screw securely.

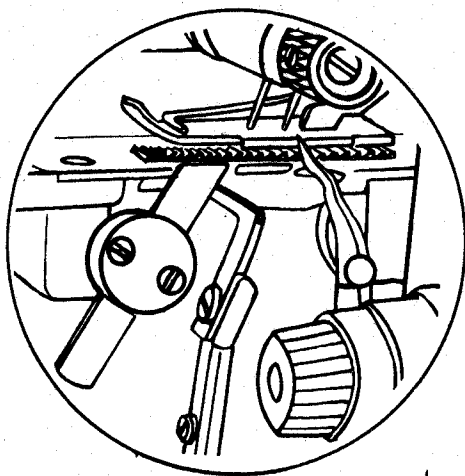
13-2 How to replace the lower knife



- (1) Loosen the lower knife clamp screw and the knife can be withdrawn downward.



- (2) Insert a new knife in the holder until its cutting edge is same level with the needle plate top surface.



- (3) Tighten the clamp screw securely.

14. STITCH TROUBLE AND ITS REMEDY

Stitch trouble	Cause suspected	Remedy
Machine does not properly feed material to be sewn.	Presser foot pressure on the material too light.	Turn the pressure regulating thumb screw clockwise and increase pressure on the material. Do gradually.
Frequent needle breakage	1. Needle bent or needle point breakage 2. Bad needle setting 3. Pulling the material badly	Replace the bad needle with new needle. Reset the needle correctly. Do not pull the material sewn by hands during operation.
Frequent thread breakage	1. Wrong threading 2. Thread knots 3. Too tight thread tension 4. Bad needle setting 5. Using incorrect needle	Re-thread correctly. See page 6~10 Pull knot through. Get appropriate tension. See page 12~13 Reset the needle correctly. See page 22 Use specified needle See page 22
Skip stitching	1. Needle bent or needle point breakage 2. Incorrect needle setting 3. Using incorrect needle 4. Wrong threading 5. Too weak pressure of presser foot on the material 6. Using woolen yarn-stretchy thread	Replace with new needle. Reset the needle correctly. See page 22 Use specified needle. See page 22 Re-thread correctly See page 6~10 Turn the pressure regulating thumb screw clockwise and increase pressure on the material. Release thread caught in tension guide wires. See page 9~10
Bad stitching	Bad thread tensions	Get appropriate tensions. See page 12~13
Puckering	1. Too tight thread tensions 2. Wrong threading or threads affected by something irregular	When sewing light fabrics decrease thread tensions as much as possible and still stitch. Re-thread correctly. See page 6~10

15. VARIATION OF WEIGHT OF FABRIC, THREADS AND STITCH LENGTH

Weight of fabric	Type of fabric	Operation	Threads	Stitches per inch
Light	Organdies, light tricots, traffeta, linings, silk, etc.	Chainstitch	Cotton # 80~ # 100 Silk # 80~ # 100	12-8
		Overlock stitch	Cotton # 80~ # 100 Silk # 80~ # 100	8-6
Medium	Cotton, tricot, linen, satin, dress fabrics, etc.	Chainstitch	Cotton # 60~ # 100 Silk # 50~ # 100	12-8
		Overlock stitch	Cotton # 60~ # 100 Silk # 50~ # 100	8-6
Heavy	Tweed, overcoat fabrics, denim, heavy outerwear fabrics, etc.	Chainstitch	Cotton # 40~ # 60 Silk # 40~ # 60 Tetlon, Woolen yarn	12-6
		Overlock stitch	Cotton # 40~ # 60 Silk # 40~ # 60 Tetlon, Woolen yarn	8-5
	Knitted fabrics	Chainstitch	Cotton # 40~ # 50 Silk # 30~ # 40 Tetlon, Woolen yarn	12-6
		Overlock stitch	Woolen yarn, tetlon available to use very thin thread in looper thread	8-5

16. SPECIFICATION FOR MODEL 94

Overlock seam width	4mm (Standard) (3 / 16")
Needle gauge	3mm (1 / 8")
Stitch per inch	2— 5mm (12st / in— 5 st / in)
Maximum sewing capacity	5mm (3 / 16")
capacity	
Needle used	DB × 1 # 14 (Standard) (16 × 231)
Number of threads	4 (four) # 11 ~ # 16
Size of machine	253mm (10") - Length
	263 (10 3 / 8") - Width
	275 (10 7 / 8") - Height

CONTENTS IN THE SHIPPING CONTAINER

Content of a shipping container:

(1) Sewing Machine with Motor	1 set
(2) Controller, complete	1
(3) Operator's instruction book	1
(4) Accessories box	
containing:	
Screw Driver.....	1
Allen Screw Driver for Needle Clamp.....	1
Needles.....	5
Type; DB×1 (16x231) Size; #14	
Upper Knife, spare.....	1
Tweezers.....	1
Cleaning Brush.....	1
Oiler (contain 50cc oil)	1
Detachable Cloth Gauge Plate.....	1
Welt Guide.....	1
Welt Guide Screw.....	1
Thread Stripping Disc.....	4

Packing Measurement

A case containing 1 set of machine including machine and standard attachments and accessories.

Net: 15.0kg Gross: 17.0kg

Weight of machine: 11.0kg

Weight of Carrying Case: 3.5kg