

INSTRUCTION BOOK

Memo-Matic

The Knitting Computer

SINGER



CONTENTS

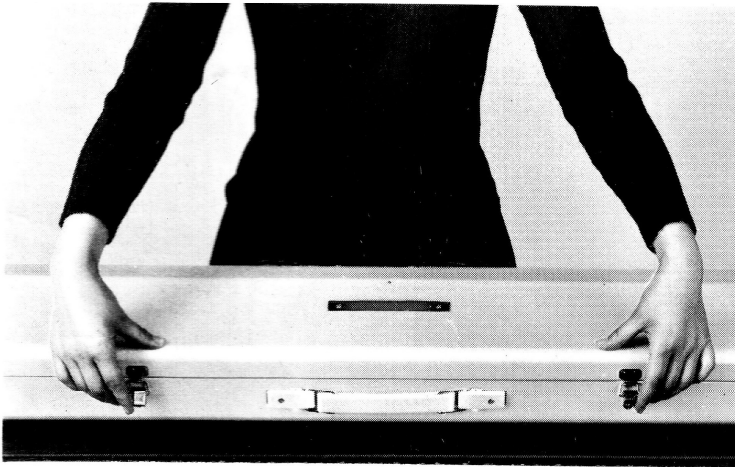
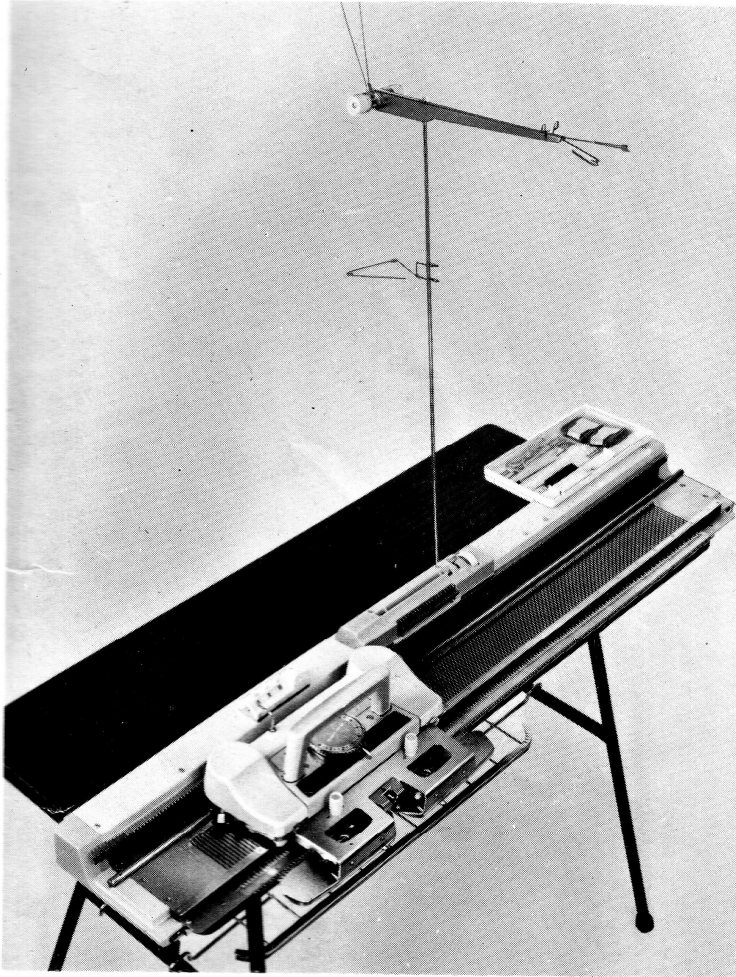
Names and function of component parts

Accessories
Carriage
Main body of machine

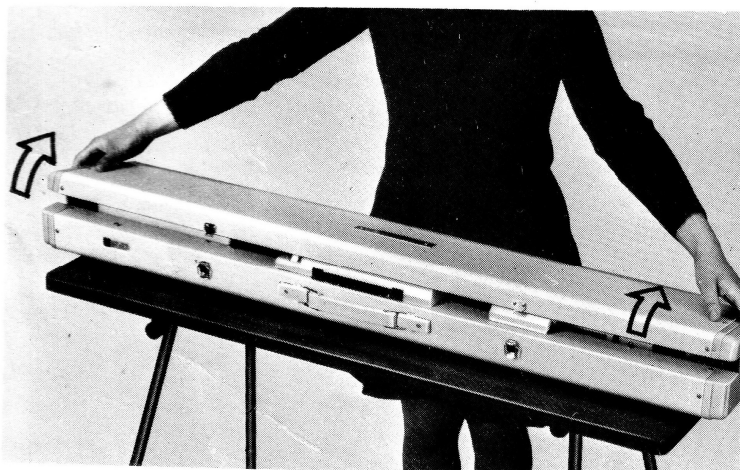
1. Assembling procedure	1
2. preparations for knitting	6
3. Casting on and stockinet knitting	9
How to unthread	11
The Relation between the tension dial and yarns	14
How to make a gauge (Swatch)	15
Waste knitting	15
4. Pattern knitting	16
How to read the punched card	16
How to use the markings A, B, C and D on the card	16
Installing the card guide	17
How to set the punched card	17
First setting position	17
How to read the operation table	18
Preparations for knitting pattern stitches	19
Tuck knitting	20
Tuck knitting in colors	24
Slip stitch pattern	29
Slip stitch pattern in colors	32
Knit-in (Fair Isle)	35
Weaving (or Threading)	40
Punch lace knitting	46
Lace knitting	49
If incorrect stitches are knitted	52
Correct improper knitting in the following manner	52
If the carriage has jammed while knitting	52
How to repair incorrect knitting	53
When the carriage is accidentally pulled off the rail in the middle of pattern knitting	54
The Relation Between the punched card and the touch levers	54
The Relation Between the pattern marks on the needle bed and patterns	55
How to correct a dropped stitch while knitting	56

Pattern stitches without using pattern card	58
Open work	58
Cable stitches	59
K1, P1 ribbing	61
Garter stitches	62
Solid pattern of knit and purl stitches	63
Cord knitting	64
5. Fundamental techniques of knitting	65
Methods of increasing	65
Increasing one stitch at the edge	65
Increasing two or more stitches at the edge	65
Methods of decreasing	66
Decreasing one stitch at the edge	66
Decreasing two or more stitches at the edge	66
Method of partial knitting	67
Partial knitting by decreasing stitches	67
Partial knitting by increasing stitches	69
Finishing	71
How to remove the garment from machine	71
Binding off with crochet hook	71
Winding method	72
Binding off K1, P1 ribbing	73
How to join the garments	74
Kitchner stitch or weaving	74
Seaming on machine or Binding off	75
Seaming the side edges	75
Hemming a garment	76
Mock ribbing	77
6. Helpful hints	78
Replacing damaged needles	78
If the yarn gets loose or entangled at the edge of fabric	79
If the yarn is entangled in the memory bank	79
If the yarn is wound around the fabric gear	80
7. Maintenance instruction	81
Lubrication	81
After using the machine	81
8. How to pack the machine away	82
Bound off Cast-on (Permanent)	84
Let's knit	85
Knitting symbols	

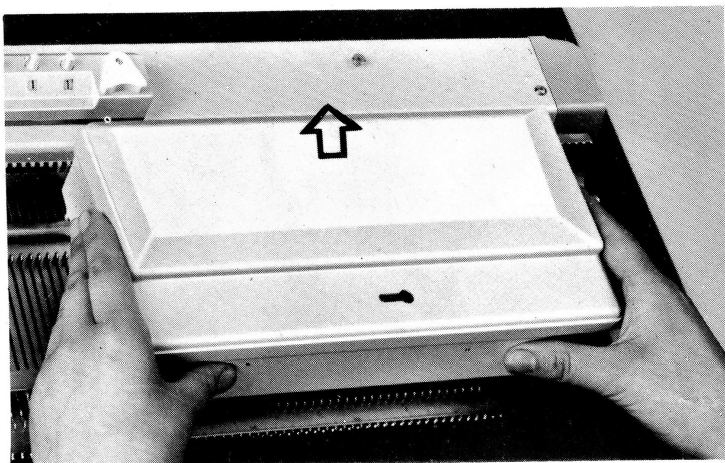
I. ASSEMBLING PROCEDURE



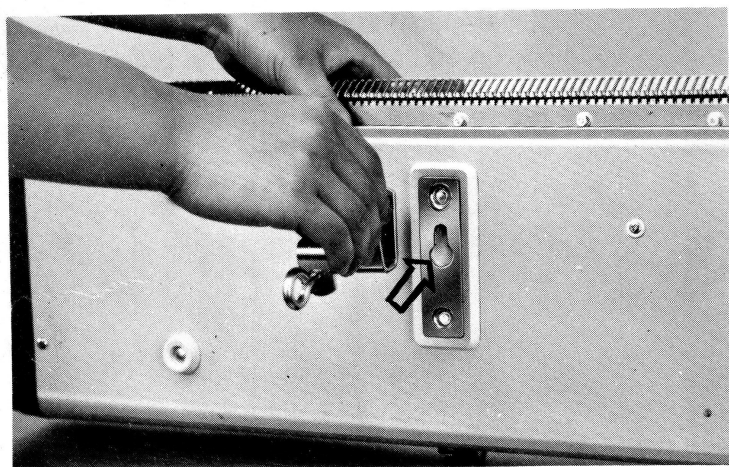
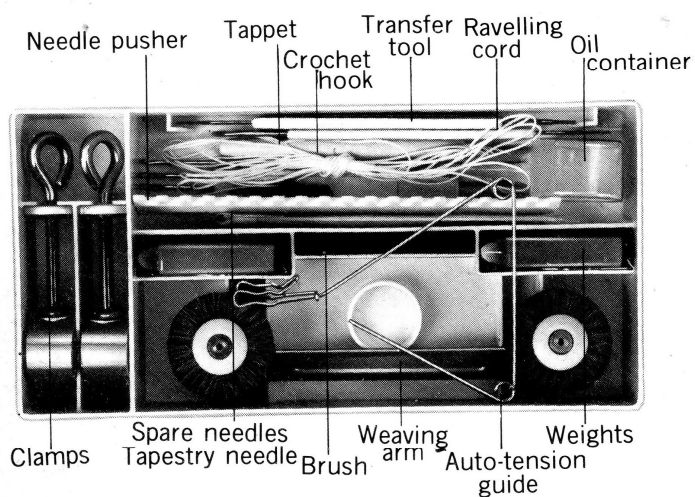
- (1) Put the machine on the table with the case mark up and the handle at the opposite side from you, and unfasten the latches.



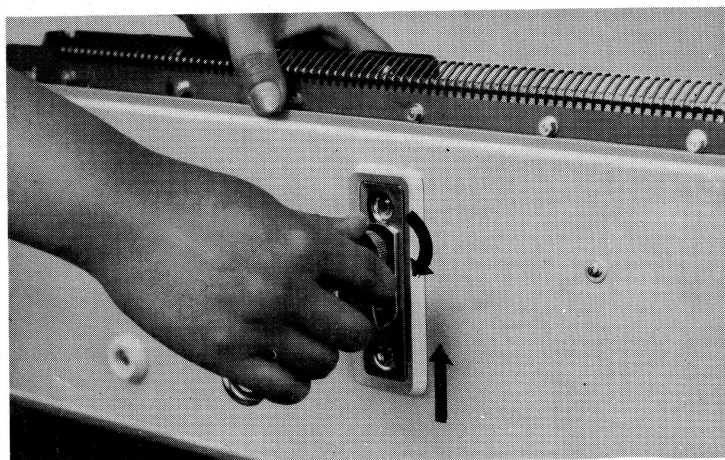
- (2) To remove the cover, pull it toward you tilting the handle side a little at a upward motion and lifting.



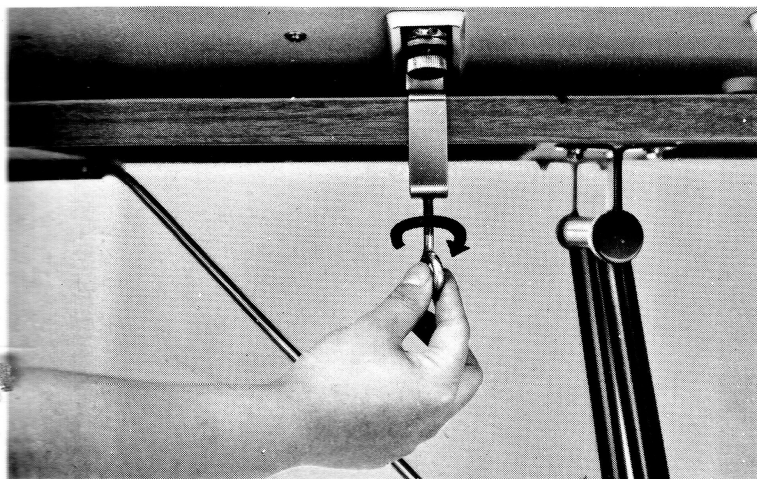
(3) Remove the accessory box.



(4) Remove the clamps from the accessory box and insert the head of the clamp screw into the center of the hole on the bottom of the machine.



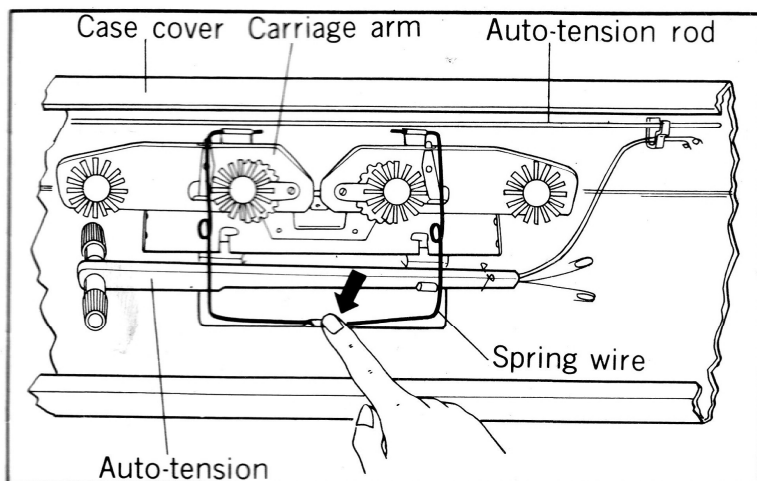
(5) Slide the clamp upward and tighten it firmly by the screw.



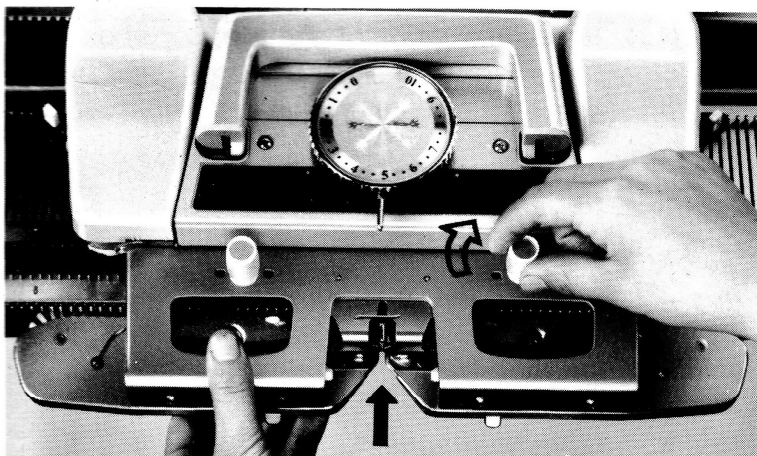
- (6) After both clamps have been tightened in position, fasten the clamp securely to the table. Rubber feet are provided on the under side of the machine case so it may be held steady on the table without using the clamps. However, it is recommended to use the clamps when knitting heavy yarns.



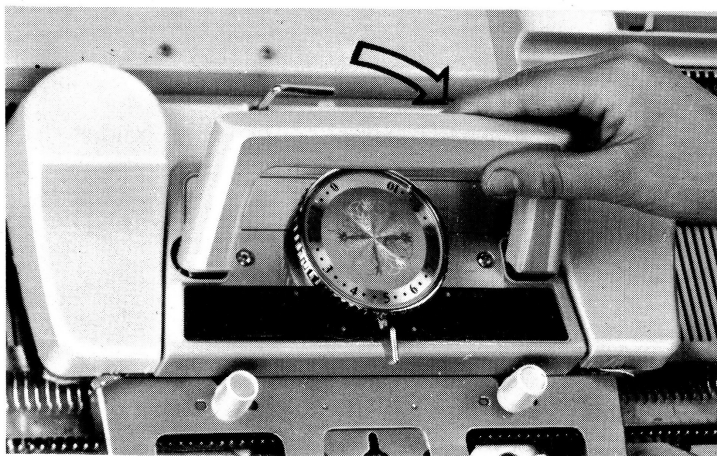
- (7) Loosen the left arm nut and remove the carriage fastener.



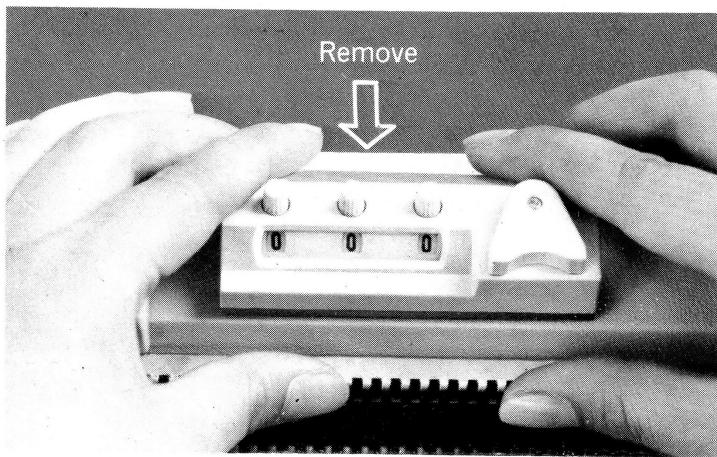
- (8) Release the wire spring which holds the accessories in position inside the case cover and remove the carriage arm.



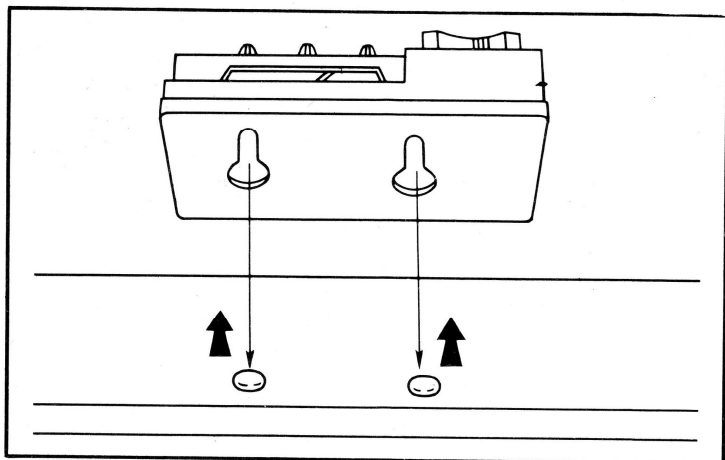
- (9) Loosen the arm nuts and push the arm as far as it will go and tighten the nuts firmly.



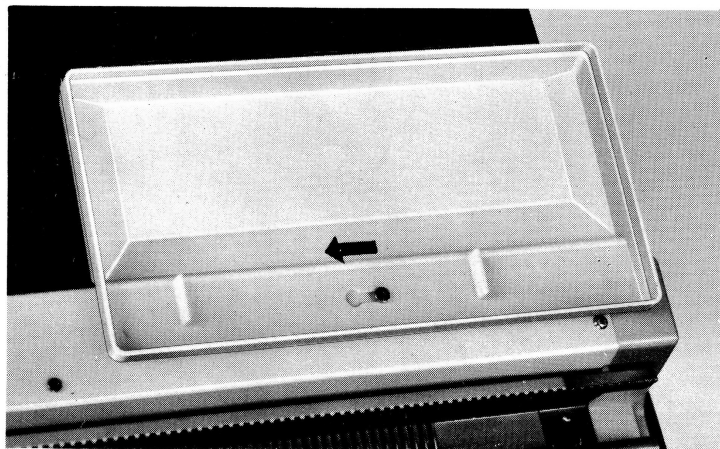
(10) Raise the carriage handle.



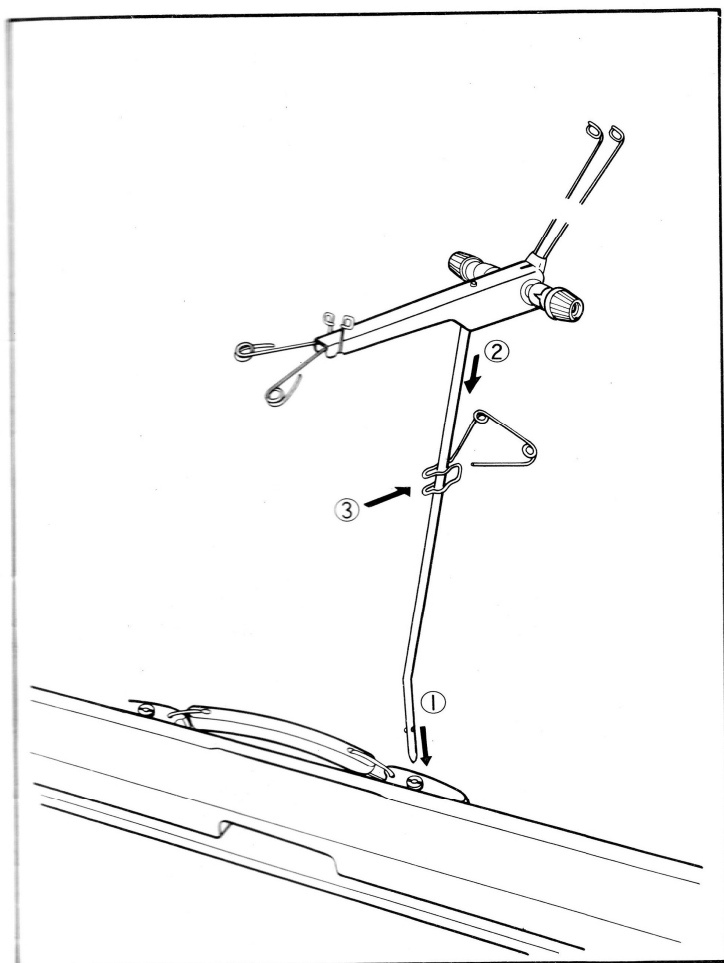
(11) The row counter can be installed on either the right or left side of the pattern panel. However, when the knit radar is to be used, install the row counter on the right side. To remove it, slide it toward you.



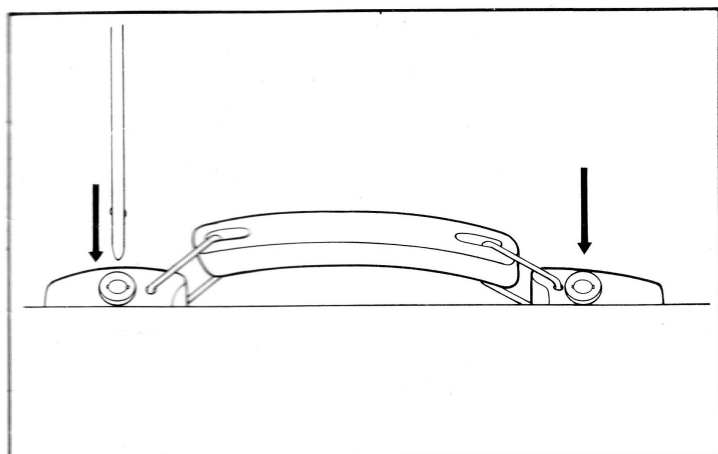
To install it, fit the holes to the studs and push it away from you.



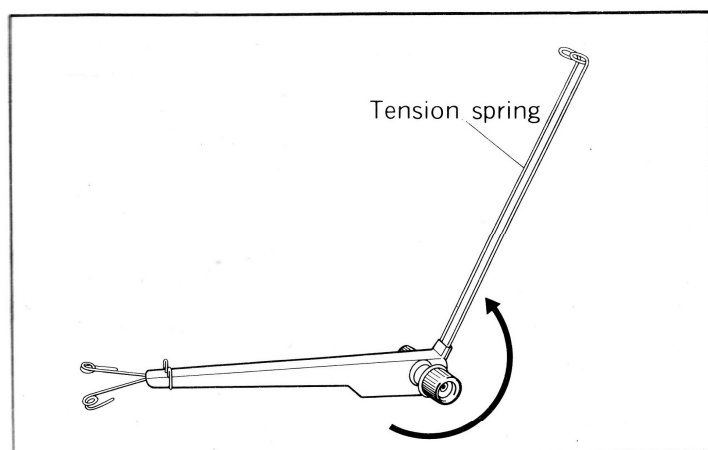
(12) Install the cover of the accessory box onto the screw at the right end of the machine so that it may serve as an accessory tray.



(13) Install the auto-tension in the order indicated in the diagram.

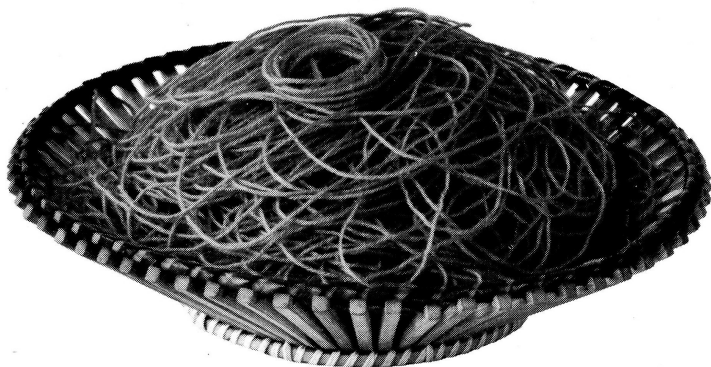


The auto-tension rod can be installed on either side of the case handle. By using an additional auto-tension complete (sold separately) you can knit four different yarns at a time.



The yarn tension spring must be turned until it comes to a stop, making a clicking sound.

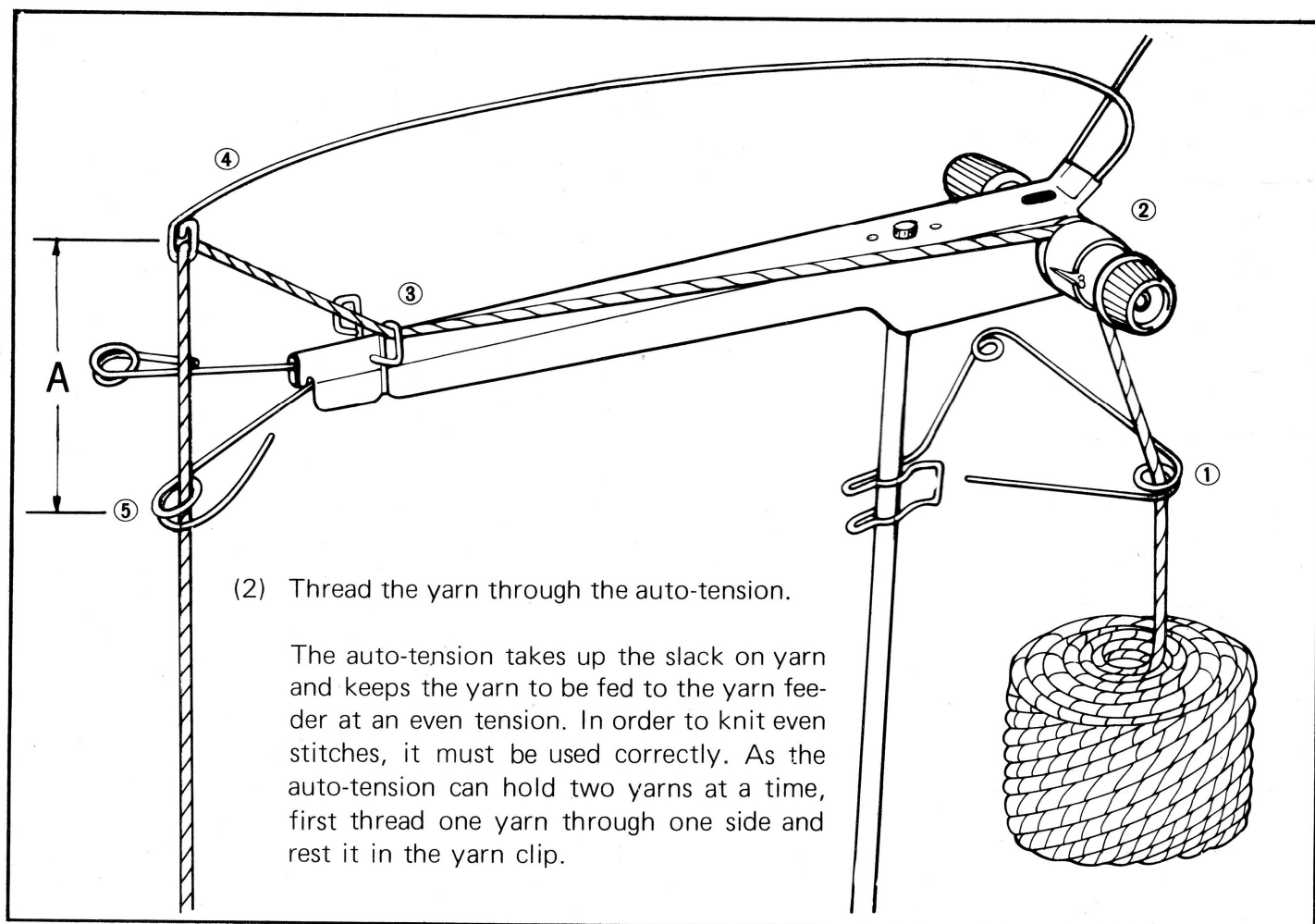
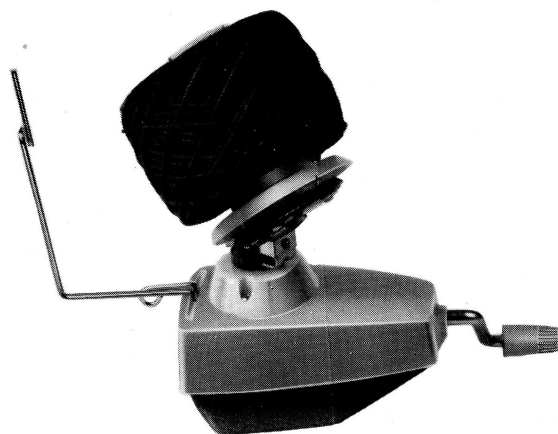
2. PREPARATIONS FOR KNITTING

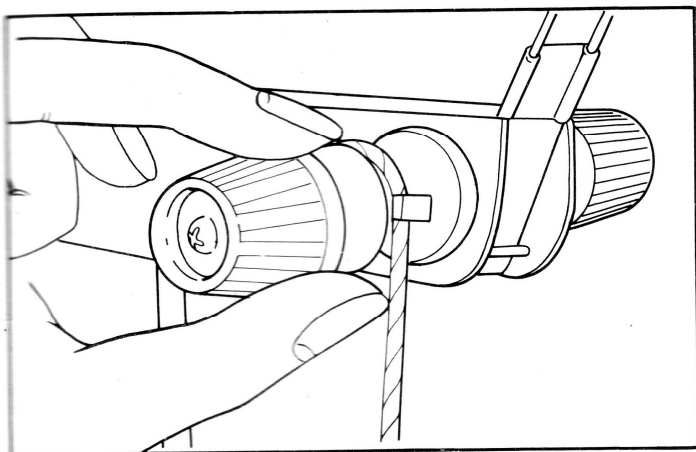


- (1) The yarn must be unwound in an orderly pile in a basket, or wind into a ball using a yarn winder and pulling from center of ball. After winding into a ball, pull yarn from center before taking it off the winder. Then, check to see if the yarn pulls smoothly. (If not, rewind again.)

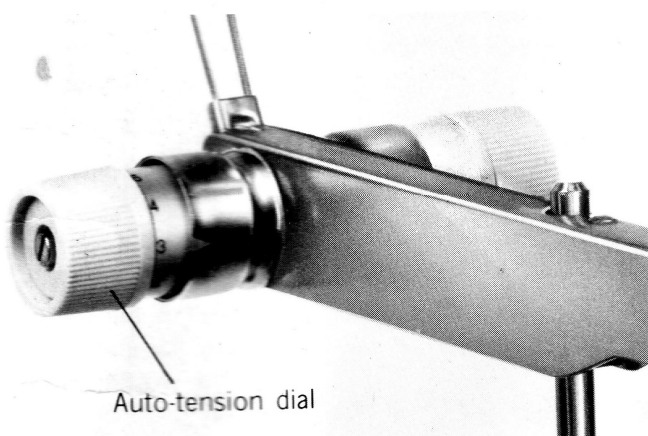
Note: * The yarn must be placed well behind the machine so that it will not touch the carriage. If the yarn hangs loosely over the machine, it may get entangled in the memory bank. Care should be taken to prevent this.

* For practice, it is recommended to use medium size, 4 ply wool in light color.





* Be sure the yarn passes under the copper colored guide pin.



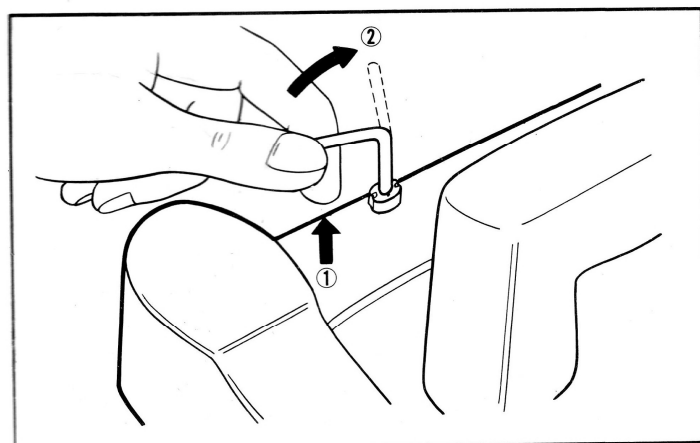
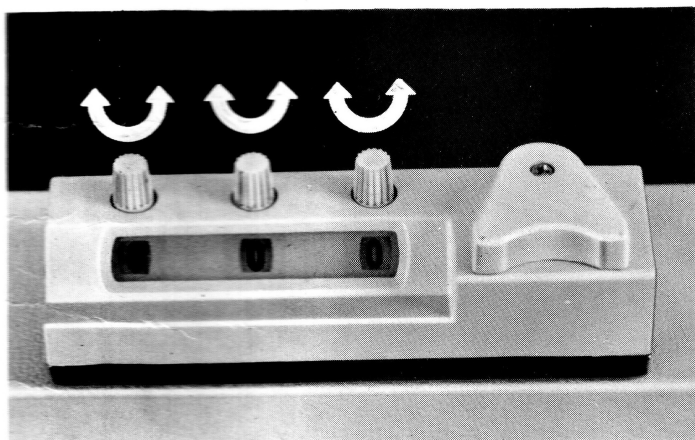
- (3) Turn the auto-tension dial to set the numerals to the ► shaped cut according to the thickness of the yarn to be knitted. With any kind of yarn, adjust the tension dial so the tension spring will keep the distance (A-space) in 10–20cm (4 to 8 inches).

Standard auto-tension dial number.

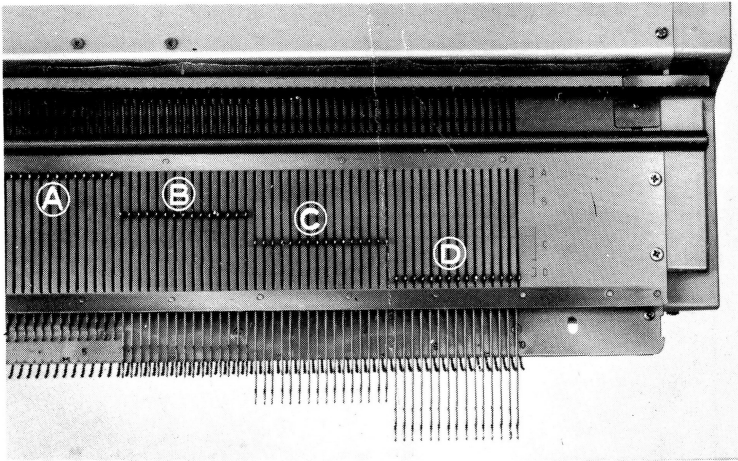
Fine yarn	4–5
Medium yarn	3
Heavy yarn	2–1

* Adjust the Row Counter *

- (4) The row counter can be adjusted by turning the knobs on top in either direction.



- (5) Lift the row counter lever upward, then turn it straight. (Keep the lever turned inside when the row counter is not in use).

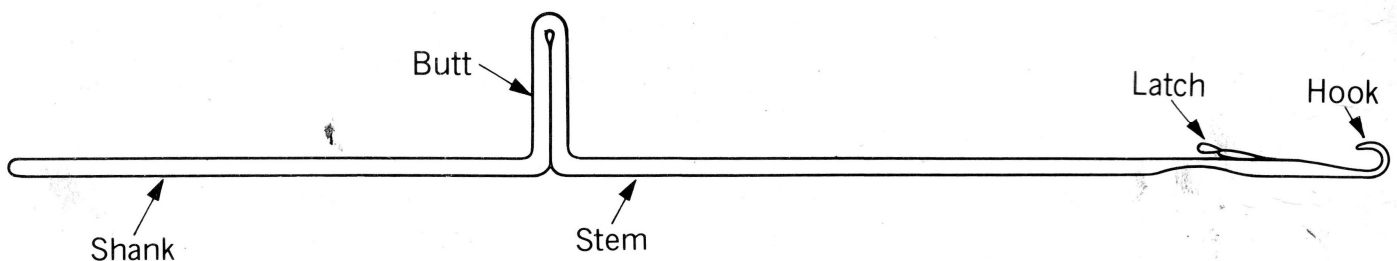


- (6) Each end of the needle bed is marked A, B, C, D and each is accompanied with the mark "]" which indicates the range of needle selection.

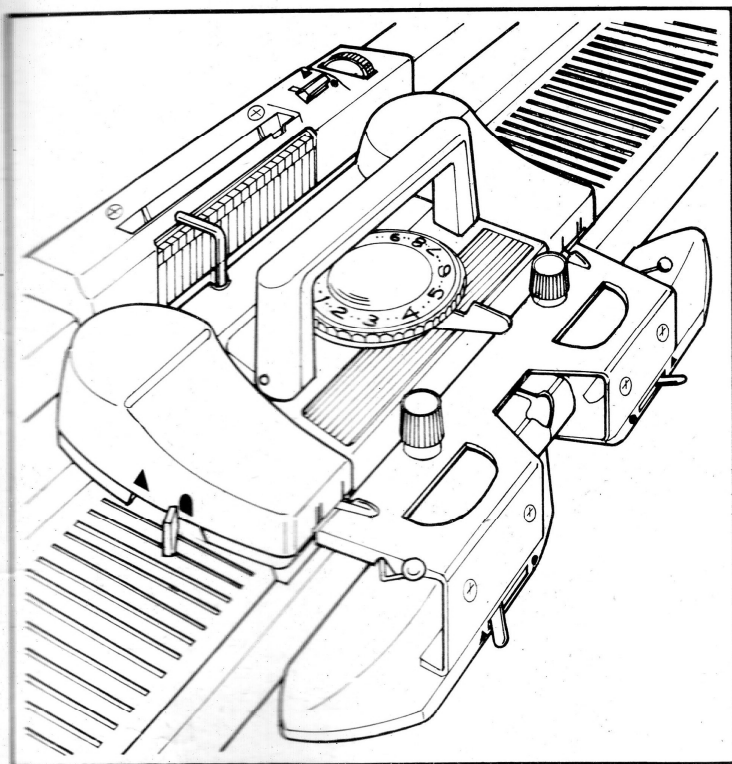
- A position. The needles in this position do not operate when the carriage is moved across.
- B position. Normally the needles are used in this position. (For stockinet and pattern knitting)
- C position. The needles knit in this position at all cam settings.
- D position. The needles are set in this position for partial knitting and working pattern manually.

* Needle *

Let's learn the name of each part of a needle.



3. CASTING ON AND STOCKINET KNITTING



- (1) Set the stop knob and each part on the carriage as follows.

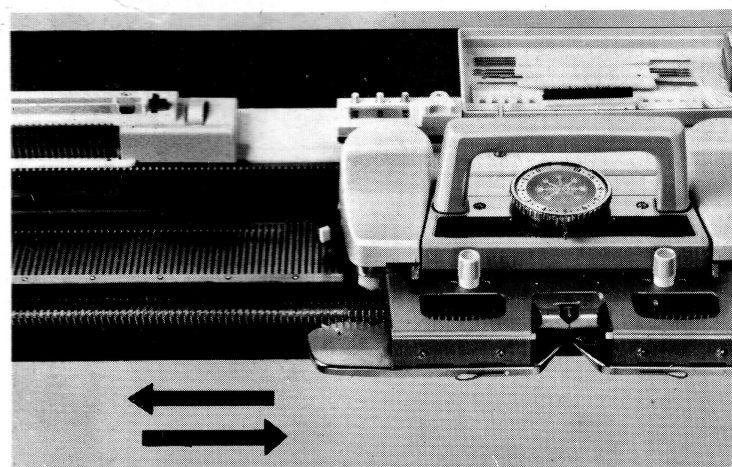
Stop knob. ●
 Cam lever. STOCKINET
 Tension dial. 5 (for 4 ply wool of medium thickness)
 Side levers. ▲ (Both)
 Russel levers. 1 (Both)
 Arm levers. ▲ (Both)

* The stop knob should be set directly on the ● mark. (Do not stop it in the half way position).

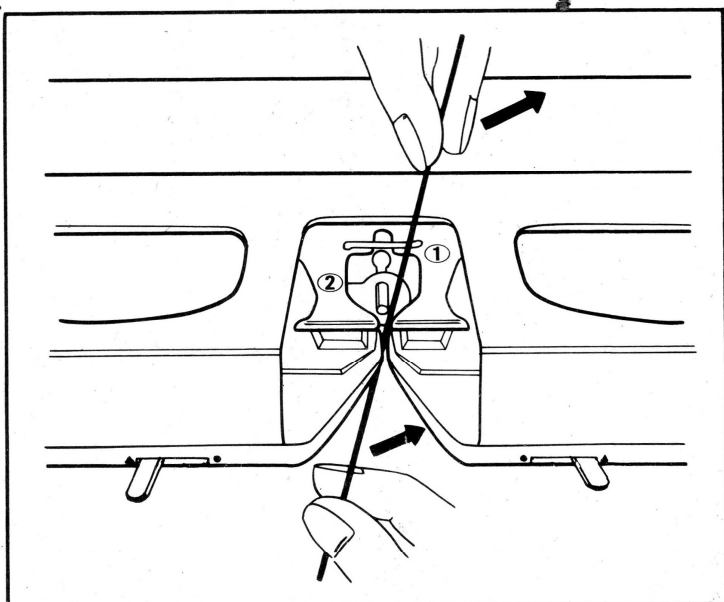
Note: * This setting of the carriage is only for casting on. When starting stockinet knitting set the side levers on the ▲ mark, and the arm levers on the ● mark.



- (2) Select the required number of needles to B position using the smooth side of a needle pusher, according to the width of desired knitting.

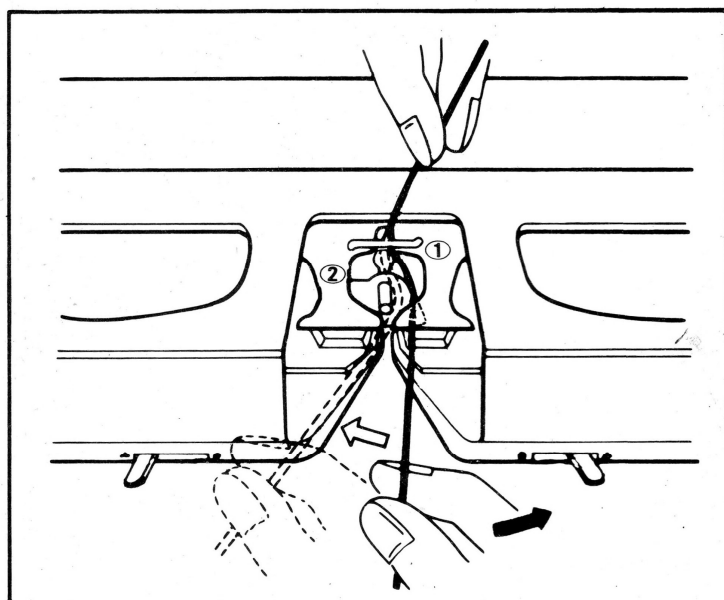


- (3) Move the carriage slowly from side to side to line the needles in B position, leaving the carriage on the right side of the needle bed.

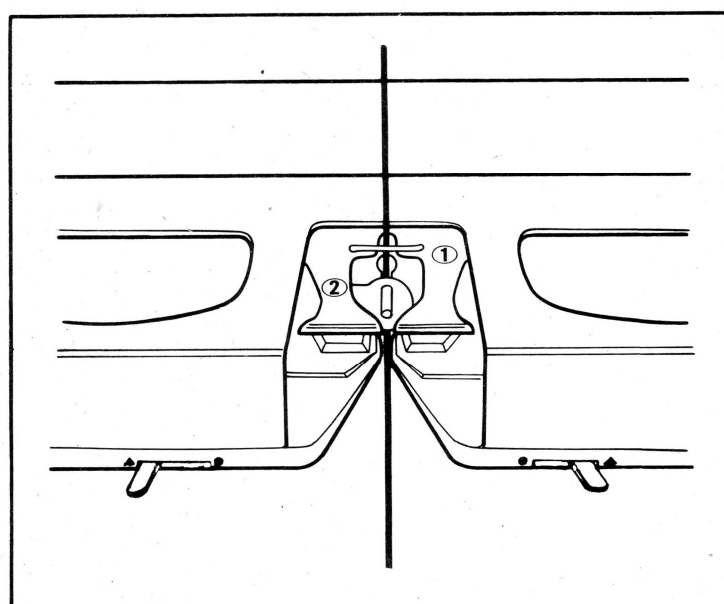


(4) Threading the yarn feeder ①.

Hold the yarn with both hands as illustrated, and slip it in to the slit in front of the yarn feeder at the right side of the pin.

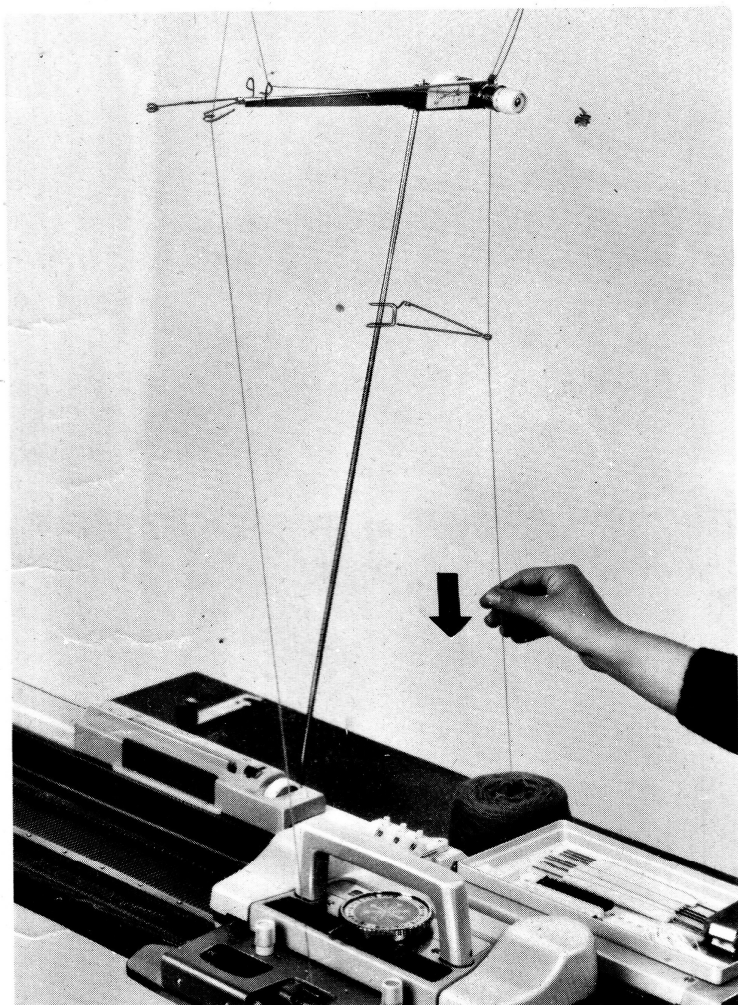


Next, pass the upper part of the yarn under the yarn guide and hold it lightly at the upper part of the yarn feeder. With the right hand, slip the lower part of the yarn to the right and backward. Then, slide it to the left side. In this manner, the yarn feeder ① will be threaded correctly.

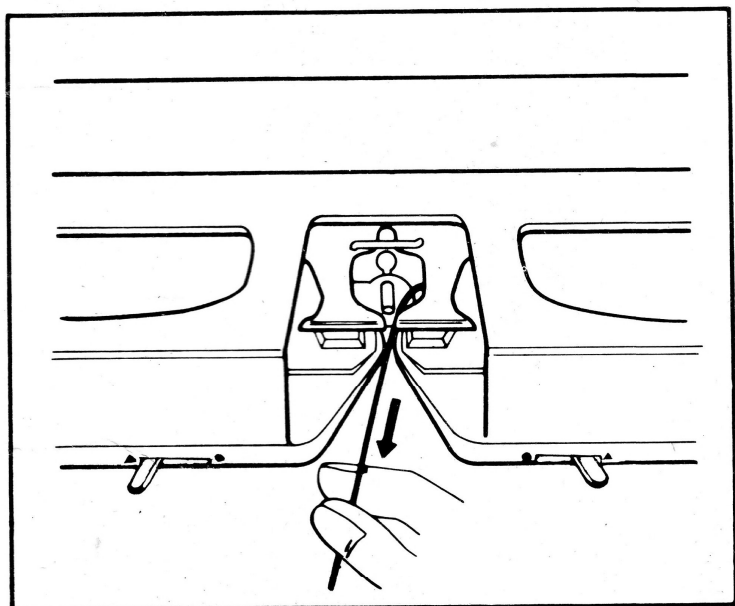


After threading, let the yarn end hang down 10–20cm (4–8 inches) from the feeder and hold it with your hand.

Hint * A clothes pin can be attached to the end for an anchor.

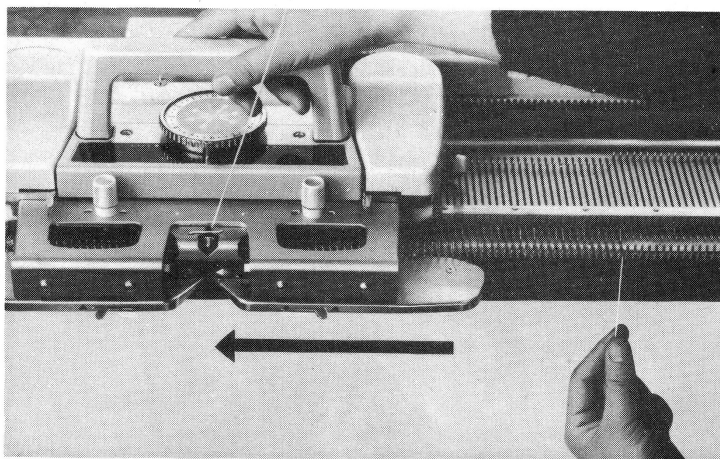


- * At this time, the yarn which is threaded through the yarn feeder should have tension on it. If it is loose, pull it from the back through the auto-tension to give it a proper tension.



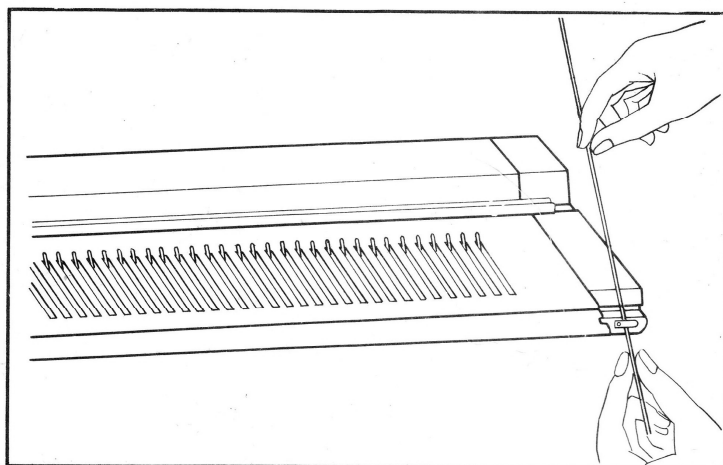
* How to unthread *

- * To unthread the yarn, unlock the upper part of the yarn by passing it under the yarn guide, then pull it downward through the slit in front of the yarn feeder.

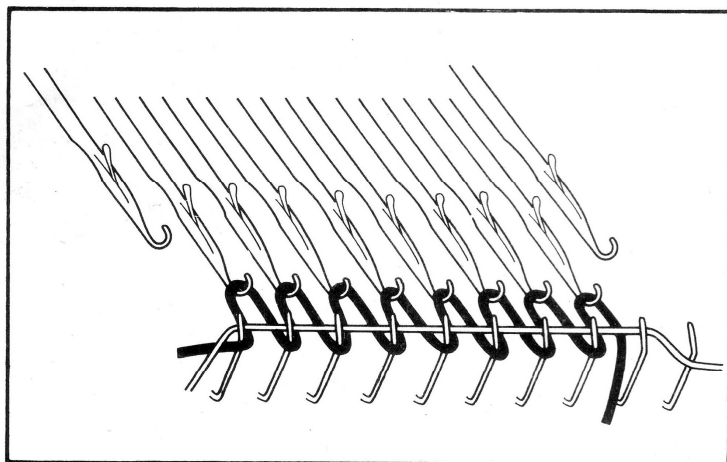


- (5) Move the carriage slowly to the left and the yarn will be hooked by the needles and sinker posts alternately.

Note: * If the yarn is pulled tight at the last few needles, loosen the yarn from the feeder and push the needles back to B position, one by one starting from the tighter stitch farthest from the carriage.

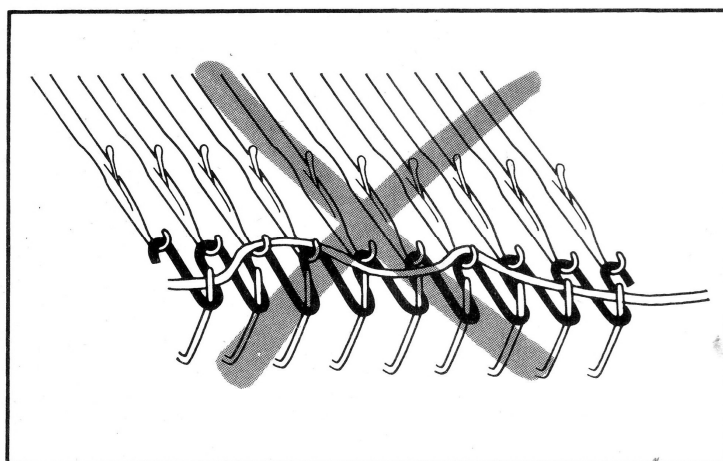


- (6) Insert the ravel cord in the yarn clip at the right side of the needle bed.

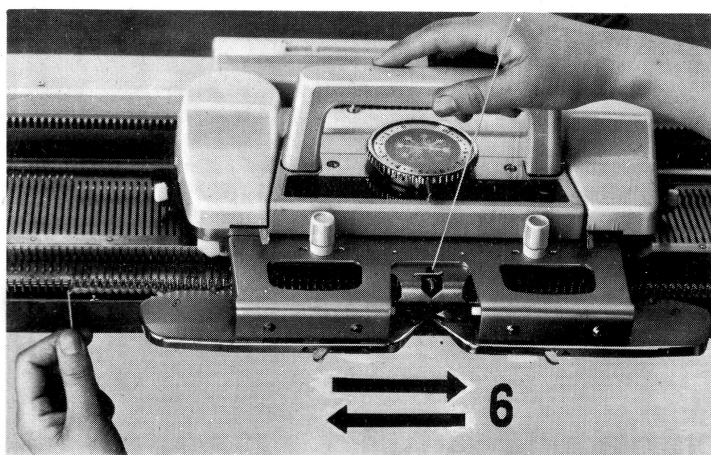


- (7) Lay the ravel cord over the knitted yarn between the needles and sinker posts.

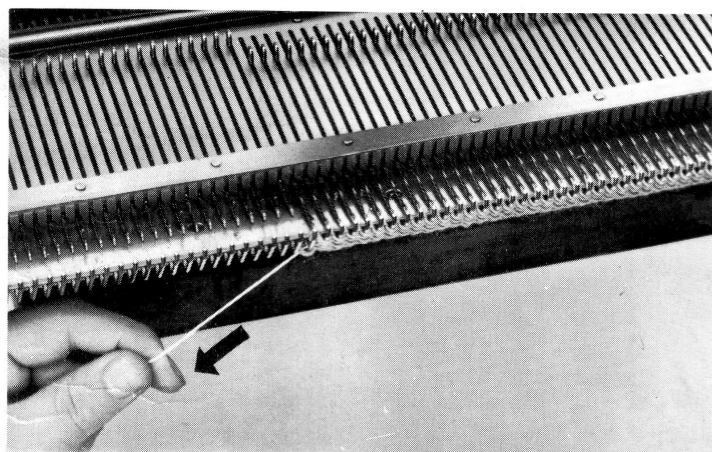
- (8) With the left hand, pull the ravel cord tight so the cord will lay straight.



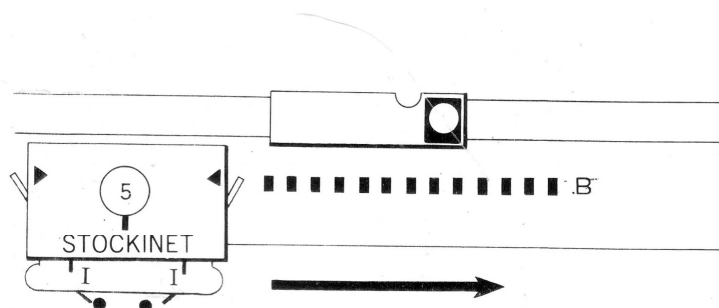
Note: * If the ravel cord is not laid correctly, or if it is not pulled tight enough, it will become loose as illustrated and will not be anchored to begin knitting.



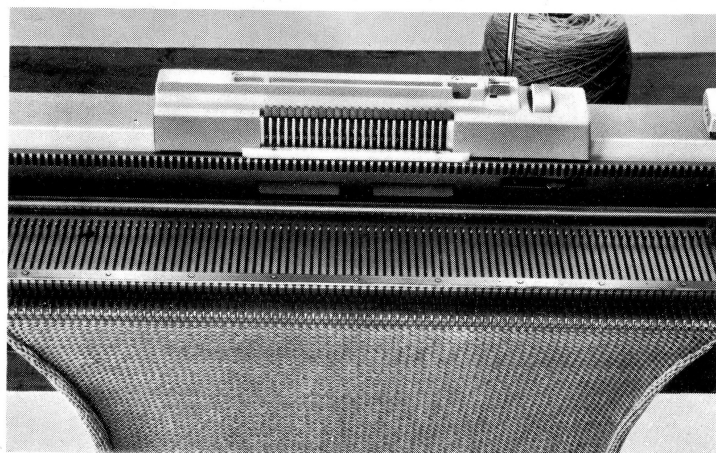
- (9) Keep the ravel cord tight with the left hand and slowly move the carriage back and forth, knitting 6 rows. The carriage will be on the left side at the end of this procedure.



- (10) Remove the ravel cord from the yarn clip and pull it out from the left side. Now the casting on procedure has been completed.



- (11) Adjust the row counter to zero (0) and turn the row counter lever to operating position. (Refer to "Adjusting the row counter" on page 7.)
Set the side levers to ▲ mark and both arm levers to ● mark.

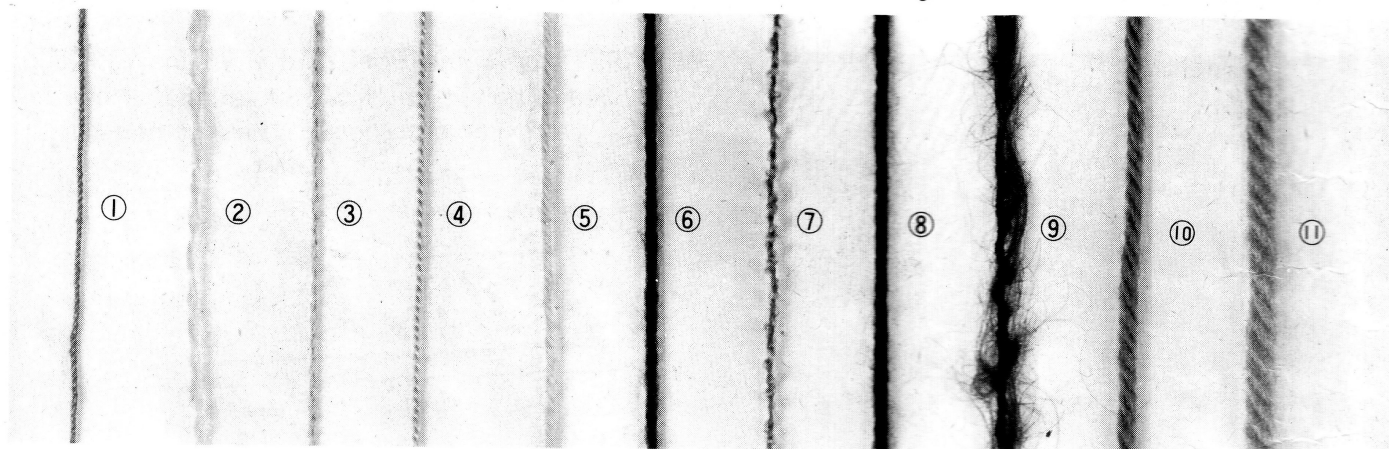


- (12) Continue to move the carriage back and forth for stockinet knitting.

(Move the carriage at an even speed)

Note: * If the carriage has jammed and its movement is prevented, do not try to move it by force. Follow the instructions given on page 52, "If the carriage has jammed while knittinting" and repair the knitting.
* The carriage should be returned as soon as clicking sound is heard, approximately 3-5cm (1 to 2 inches) passed the end needle.
* Do not try to return the carriage after beginning a row.

* The Relation between the tension dial and yarns *

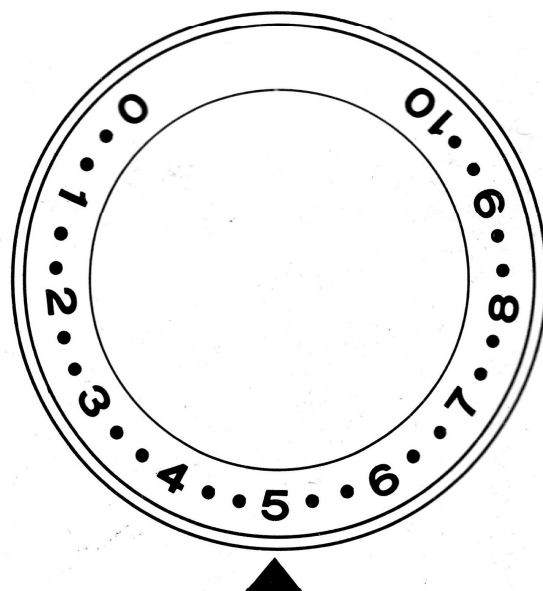


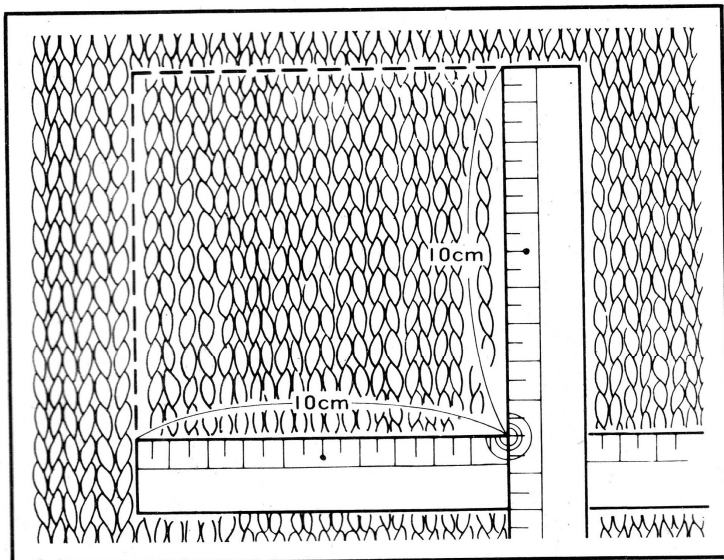
(Actual size)

Kinds of yarn	Standard tension No.
1. Cotton thread	2~3
2. 2 ply wool	2~3
3. Summer yarn (synthetic)	3~4
4. Summer yarn (synthetic)	3~4
5. 3 ply wool	4~5
6. 4 ply wool (medium)	4~6
7. Boucle	5~6
8. Thick wool	6~9
9. Mohair (Use e/o needle)	8~10
10. Very thick wool (Use e/o needle)	6~7
11. Super heavy wool (Use e/o needle)	8~10

(13) The tension dial is used to change the size of the stitches. It is adjusted by setting the dial number to the ▲ mark at the center. The numerals on the dial are so arranged that the higher the numeral, the larger the stitch, and the lower the numeral the smaller the stitch.

Note: * For heavy or bulky yarns use every other needle or even every third needle.

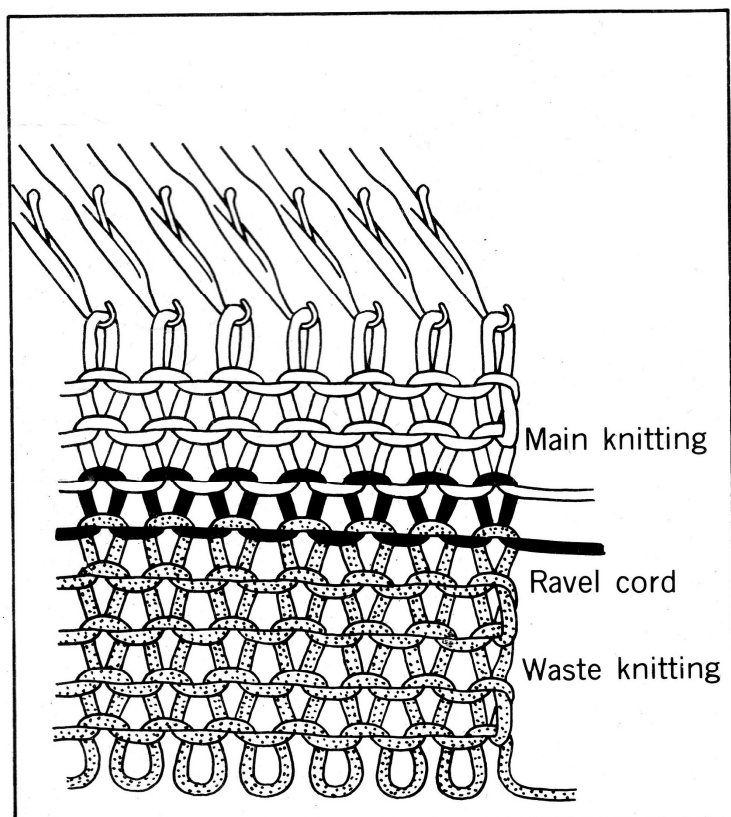




* How to Make a Gauge (Swatch) *

Knit a gauge approximately 60 stitches wide and 80 rows long for "each" tension tested (about 8" in length). When you have obtained a desirable swatch, press it lightly with a steam iron for a finished product, spread it on a flat surface and count the number of stitches and rows within 10cm. (4 inches) in the center of the swatch.

Note: * Counting the gauge correctly is very important. The garment size will be incorrect if counted wrong. Let the swatch set until settled completely before counting for best results.



* Waste Knitting *

It is desirable to knit approximately 8 to 10 rows of odd waste yarn (or scrap yarn) as the first row is always loose and easily damaged. Knit one row with ravel cord only before beginning main yarn for garment. This will enable you to knit ribbing after bodice is completed by picking up stitches of main yarn interlooped with ravel cord or make a finished hem at the beginning of garment.

The waste yarn is removed by pulling the ravel cord from the garment. It is also convenient to remove the work from the machine by knitting 8—10 rows of waste knitting.

To remove the garment from the machine, set the carriage as in stockinet, remove the yarn from the yarn feeder, then move the carriage across. The garment is removed from the machine very easily and neatly.

KNITTING SYMBOLS

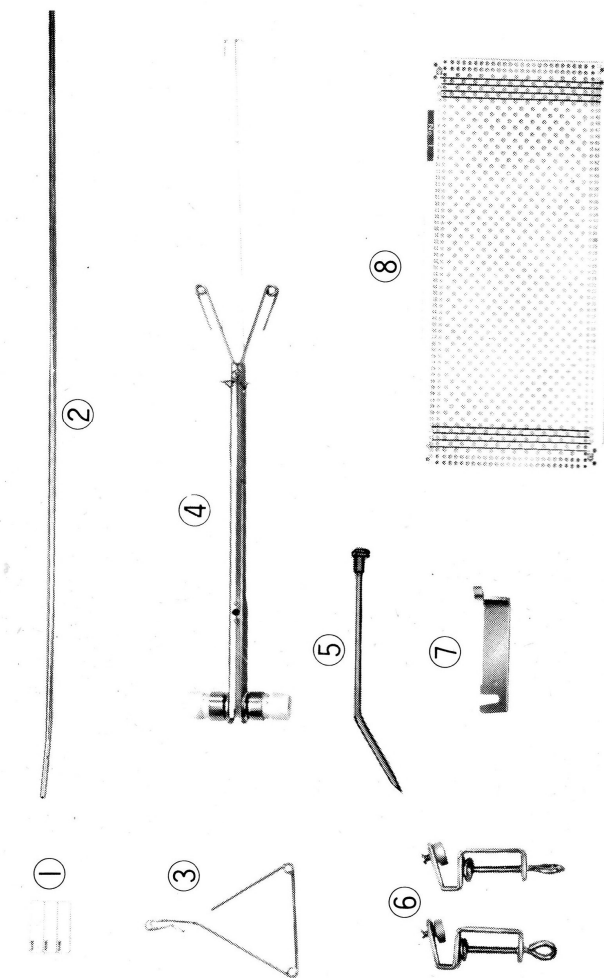
The following set of symbols has been adopted to help you understand your patterns at a glance and to save countless lines of description on each stitch.

		KNIT STITCH Face loop of stockinet	/		LEAN STITCH TO THE LEFT Transfer the stitch to the left	U		TUCK STITCH A few loops on marked rows pulled up onto one needle
—		PURL STITCH Back loop of stockinet	⋈		INCREASED STITCH TO THE RIGHT Increase one stitch to the right	∩		TUCK STITCH IN SIDEWAY TO THE RIGHT A few loops on marked rows pulled up in sideways onto a right needle
⋈		TWO STITCHES TOGETHER Transfer right stitch to adjacent left needle	⋈		INCREASED STITCH TO THE LEFT Increase one stitch to the left	∪		TUCK STITCH IN SIDEWAY TO THE LEFT A few loops on marked rows pulled up in sideways onto a left needle
⋈		TWO STITCHES TOGETHER Transfer left stitch to adjacent right needle	∩ ³		THREE STITCHES INCREASED Increased three stitches out of one stitch	∩		TWISTED TUCK STITCH A stitch twisted and pulled up onto a needle above
⋈		THREE STITCHES TOGETHER Center stitch on top of the left and right stitches	⋈		CROSSING, RIGHT OVER LEFT Cross the stitches with the right stitch over the left	∩		TWISTED STITCH A stitch is twisted
⋈		THREE STITCHES TOGETHER Right stitch on top	⋈		CROSSING, LEFT OVER RIGHT Cross the stitches with the left stitch over the right	∩		WINDING STITCH A loop formed by winding yarn around a needle
⋈		THREE STITCHES TOGETHER Left stitch on top	V		SLIP STITCH A loop marked is pulled up with yarn across behind it.	○		HOLE A hole made by transferring the stitch to the next needle
/		LEAN STITCH TO THE RIGHT Transfer the stitch to the right	∩		FLOAT STITCH A loop marked is pulled up with yarn across in the front			

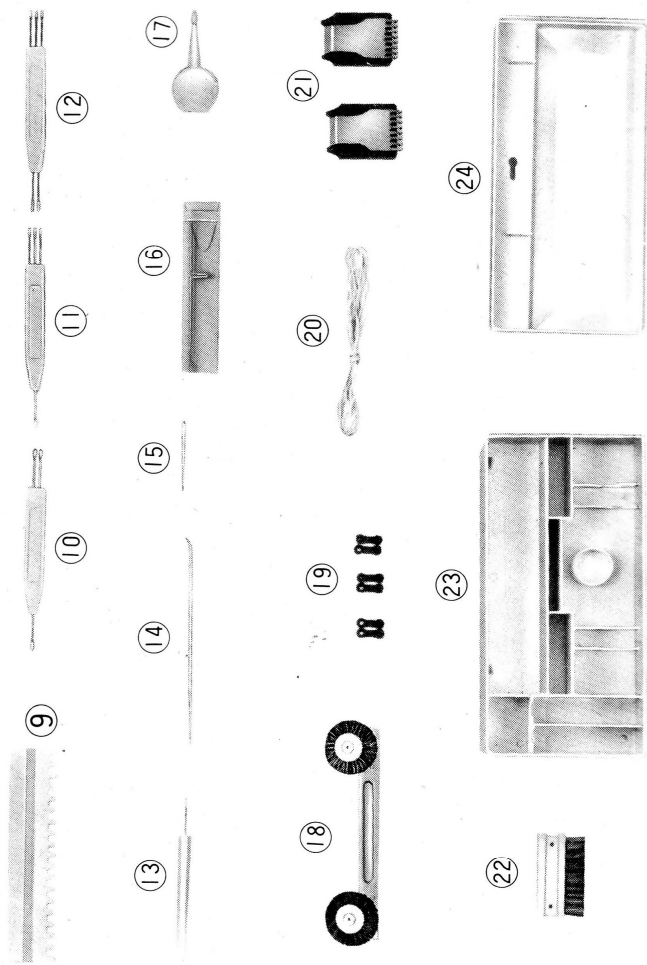
Congratulations on Your Purchase
of the New Knitting Machine
MOD.321

Before you start to knit on your Knitting Machine MOD. 321, we recommend that you carefully read this instruction book. By using these "Easy to Follow" directions you will be able to take full advantage of the excellent performance of your machine. The beautiful creations on this machine are limited only by the imagination of the operator.

* NAMES AND FUNCTION OF COMPONENT PARTS * * ACCESSORIES *



- ① Name paper.....Used for identification of the possessor of the machine.
- ② Auto-tension rod.....Holds the auto-tension and the auto-tension guide.
- ③ Auto-tension guide.....Guides the yarn smoothly to the auto-tension.
- ④ Auto-tension.....Adjusts the tension of yarn automatically.
- ⑤ Card guideHolds the punched card in position.
- ⑥ Clamps.....Used to clamp the machine to the table.
- ⑦ Carriage fastener.....Used to fasten the carriage to the needle bed when the machine is not in use.
- ⑧ Punched card.....Perforated vinyl sheets used for pattern knitting. There are 20 sheets with the machine. Two sided plastic plate, one edge smooth and the other 1×1 . Used to select the needles.
- ⑨ Needle pusher.....Used to transfer the stitches for increases, decreases and patterns.
- ⑩ Transfer tool 1×2
- ⑪ Transfer tool 1×3
- ⑫ Transfer tool 2×3
- ⑬ Tappet.....Used to change knit stitch to purl stitch for ribbing and other patterns.



- ⑭ Crochet hook.....Used to finish the stitches.
- ⑮ Tapestry needle.....Used to finish the stitches or to seam the garments.
- ⑯ Spare needles.....For replacement of damaged needles.
- ⑰ Oil container.....Contains oil for lubrication of the knitting machine.
- ⑱ Weaving arm.....Used for weaving patterns.
- ⑲ Card snaps.....Used to join both ends of the punched card.
- ⑳ Ravel cord.....Used for cast on and separating the waste knitting from main knitting.
- ㉑ Weights.....Used on the garment while pattern knitting.
- ㉒ Brush.....Used to clean the machine.
- ㉓ Accessory case.....Holds the accessories.
- ㉔ Accessory tray.....The top of the accessory case is attached to the machine to hold the accessories while knitting.

* CARRIAGE *

Memory Bank

The memory bank is installed inside the carriage cover.

Side Lever

The side levers have two positions.

▲ For casting on and when moving the carriage without knitting.

▲ For stockinet and pattern knitting.

Row Counter Lever

A lever for advancing the row counter.

Arm Nut

Fabric Presser

This prevents the knitting from coming up or floating.

Yarn Guide

Arm Lever

The arm levers are set to ▲ mark for casting on, punched lace knitting, lace knitting, knitting fine yarns or when knitting at a tension higher than usual. In other cases, they are set to the ● mark.

Yarn Feeder

The yarn feeder is divided into two sections. Usually yarn feeder ① is used but for Fair Isle (Knit-in) and punch lace knitting the yarn feeder ① and ② are used at the same time.

* MAIN BODY OF KNITTING MACHINE *

The row number on the punched card appears here.

Punched card Insertion Slit

Row Counter

The row counter can be mounted at either side of the main body of the knitting machine. It can be returned to zero easily.

Pattern Panel

Stop Knob

This knob advances or to advance or to advance ▲. When mark, the punched card arrangement

Feed

This is the pattern wind

Feed

Touch Lever

Under Lever

Needle Bed

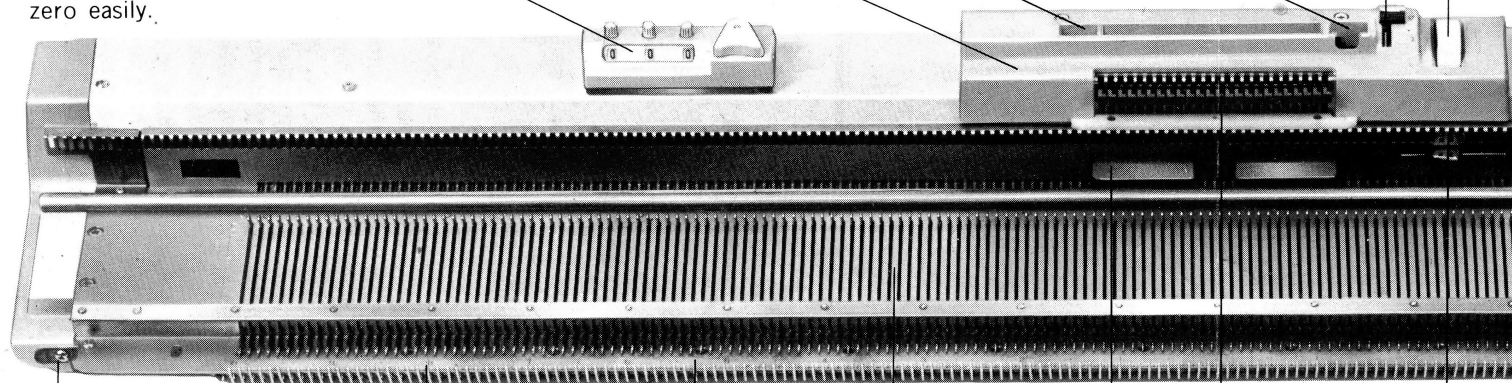
Needle Number Mark

Pattern position marks

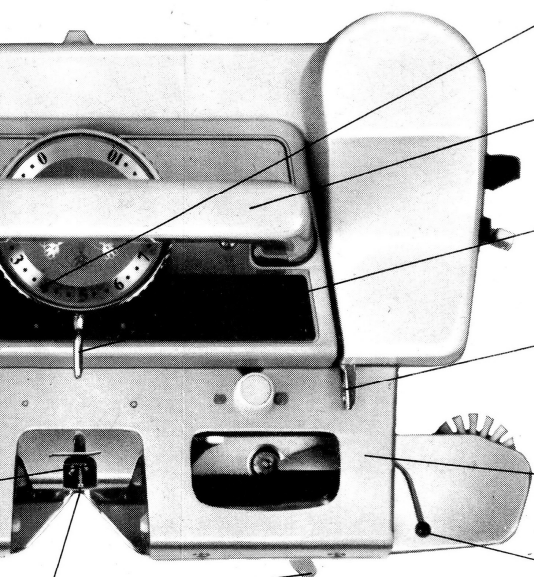
There are X and ◇ marks at every twenty fourth needles to make it easy to find the position of a pattern which repeat it every twenty fourth needles.

Yarn clip

This clip holds the ravel cord for casting on or the yarn end.



lever
ing the row counter.



Tension Dial (Stitch Dial)

This dial is used for adjusting to the weight of yarn for the size of the stitches. By adjusting this dial a wide variety of yarns from very fine yarn to bulky yarns can be knitted.

Handle

The handle can be folded readily and is ready for use when raised. It is very easy to pack away.

Cam Lever

By setting this lever to a desired position on the carriage, the pattern stitches can be worked simply by moving the carriage back and forth.

Russel Lever

I With the Russel lever in this position the needles placed in B and C position knit while those placed in D position do not knit.
II This position is used when knitting the needles placed in D position.

Carriage Arm

When the carriage jams remove the carriage arm and the front of the carriage can be lifted to be moved freely.

Yarn Holder

In weaving, the yarn to be woven is hooked here.

is divided into two sections. Usually
used but for Fair Isle (Knit-in) and
g the yarn feeder ① and ② are used

er on the
appears here.

Stop Knob

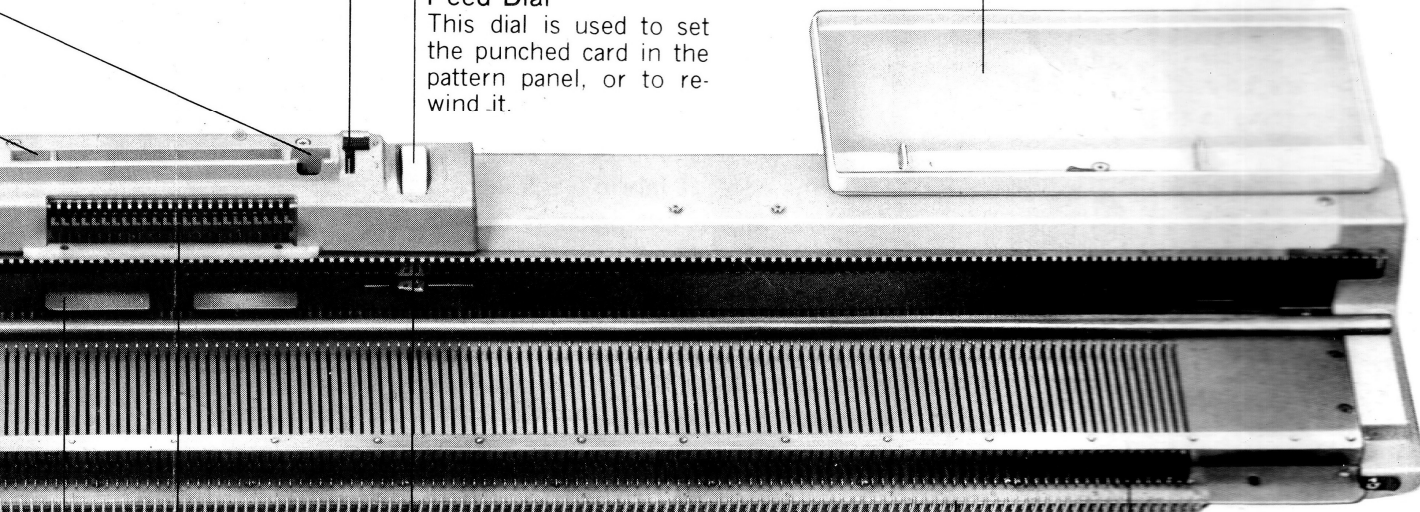
This knob is used to stop the advance of the punched card ● or to advance it automatically ▲. When it is set to the ● mark, the pattern on the punched card can be seen by the arrangement of the touch levers.

Feed Dial

This dial is used to set the punched card in the pattern panel, or to re-wind it.

Accessory Tray

The cover of the accessory case is attached to the machine body so it may serve as an accessory tray.



Feed Lever

Touch Lever

Sinker

Needle

Under Lever