



TOYOTA

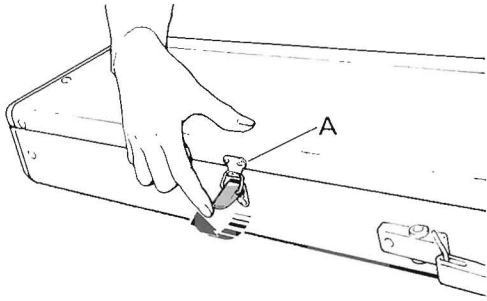
knitting machines

KS650

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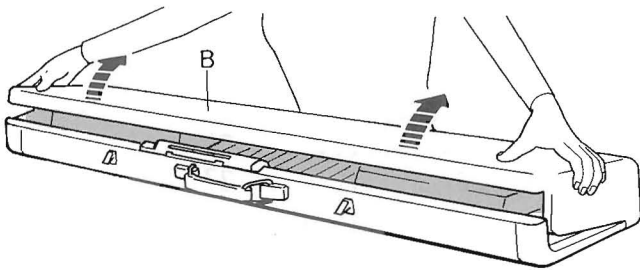
MACHINE AND ACCESSORIES



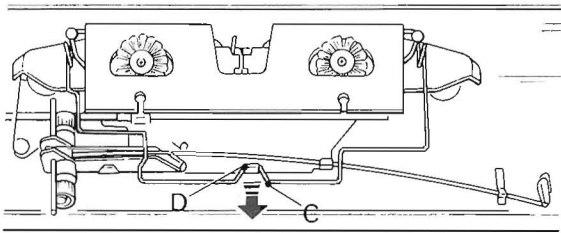
Machine

Place the Knitter on the table with the Carrying Handle away from you.

Unfasten the Latches "A".

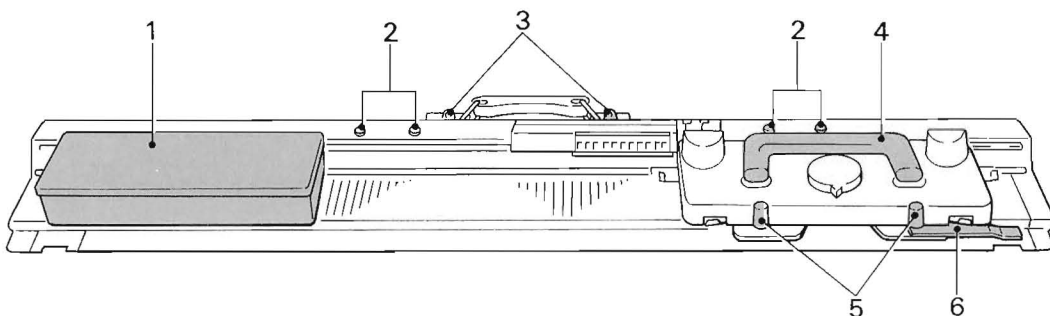
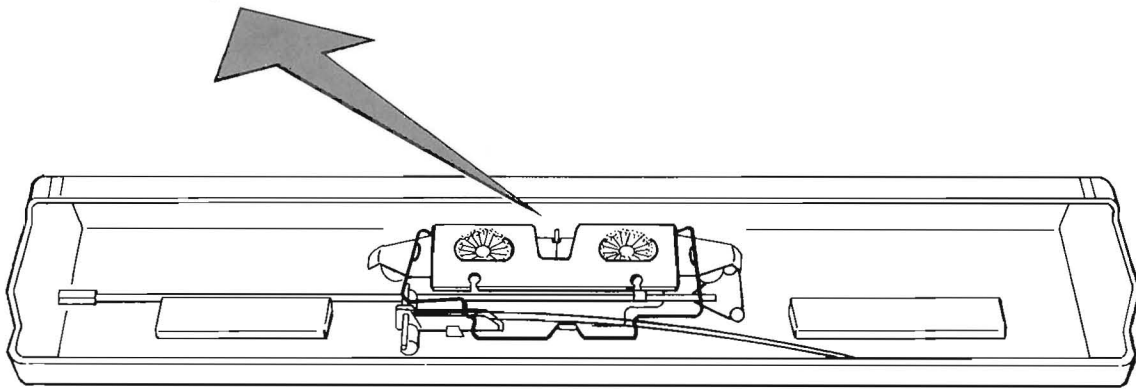


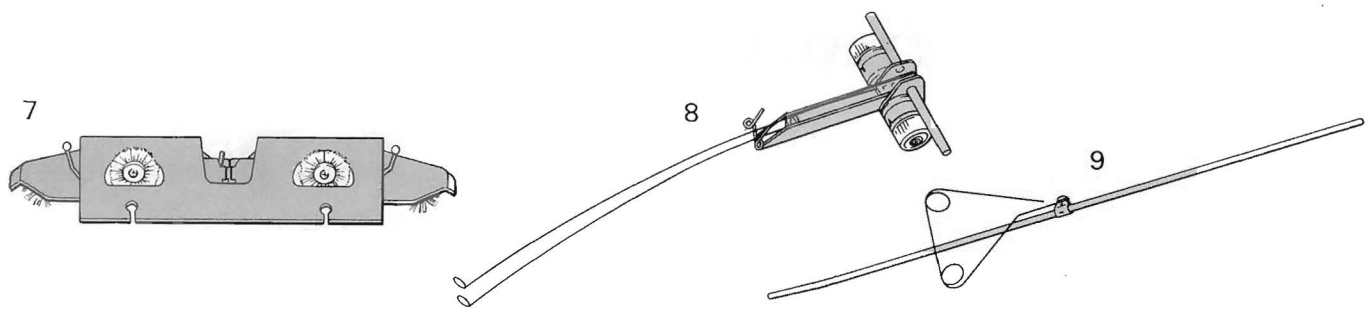
Lift the Top Cover "B" slightly, pull it towards you and remove it from the knitter.



Place the Top Cover as shown below.

Release the wire spring "C" from holding bracket "D" located inside the Top Cover.





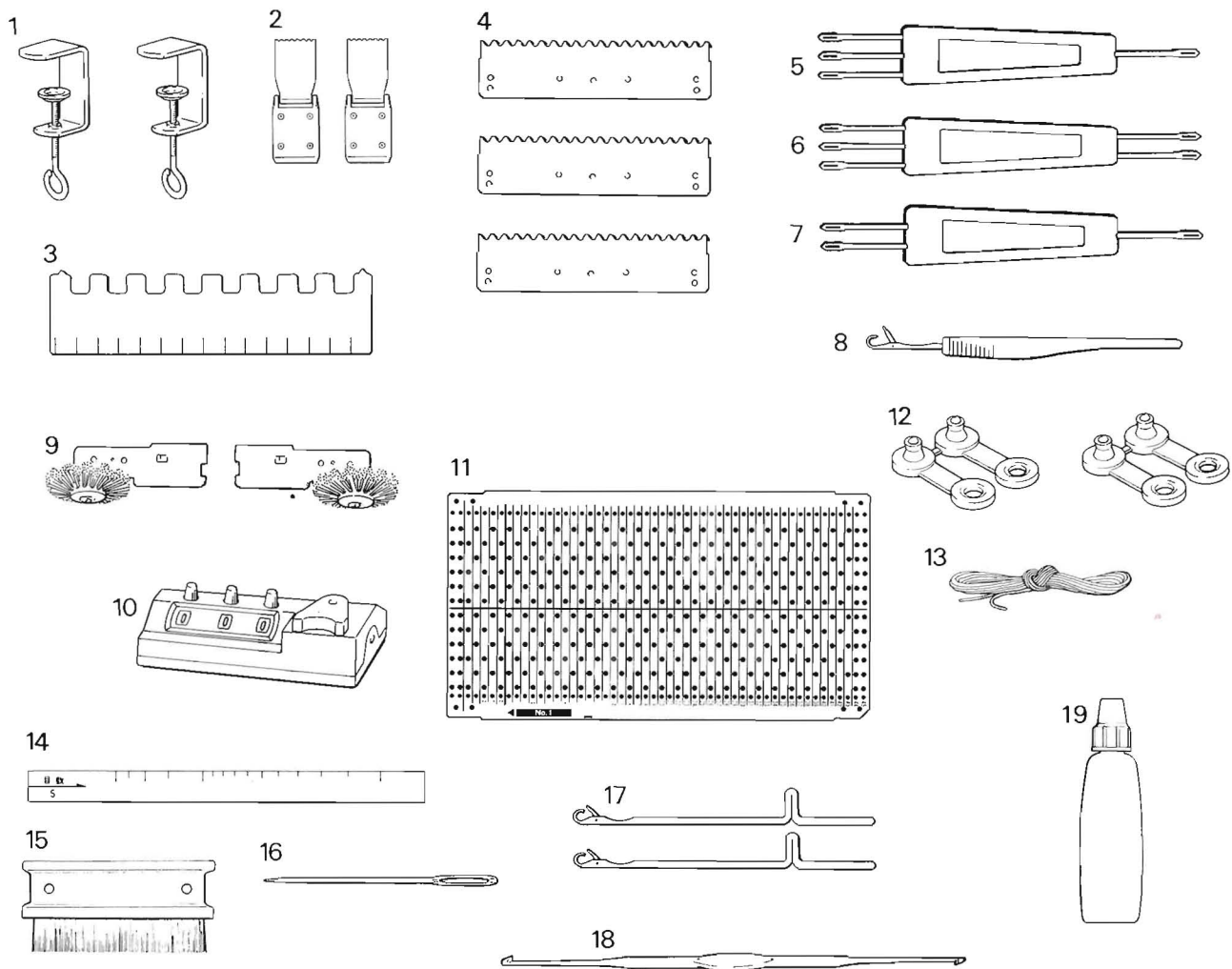
- 1. Accessory Box
- 2. Row Counter Securing Studs
- 3. Bracket Socket

- 4. Carriage Handle
- 5. Arm Nuts
- 6. Carriage Fastener

- 7. Arm
- 8. Auto-Tension
- 9. Yarn Rod

Accessories

The following are packed in the Accessory Box.

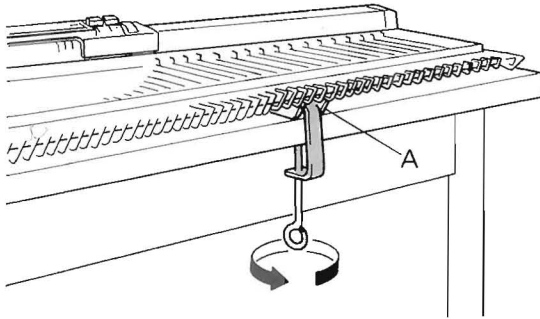


- 1. Clamp (2)
- 2. Claw Weight (2)
- 3. Needle Pusher (1/1-0)
- 4. Wide Claw Weight (3)
- 5. Transfer Tool (1 × 3)
- 6. Transfer Tool (2 × 3)
- 7. Transfer Tool (1 × 2)

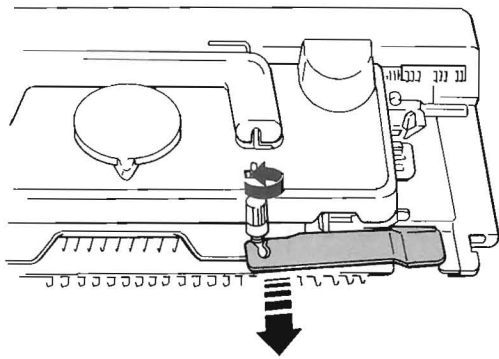
- 8. Tappet Tool
- 9. Tuck Brushes (left & right)
- 10. Row Counter
- 11. Punch Card (5)
- 12. Card Snap (4)
- 13. Ravel Cord

- 14. Gauge Scale
- 15. Cleaning Brush
- 16. Tapestry Needle
- 17. Spare Needle (2)
- 18. Crochet Hook
- 19. Oil

SETTING UP THE KNITTER

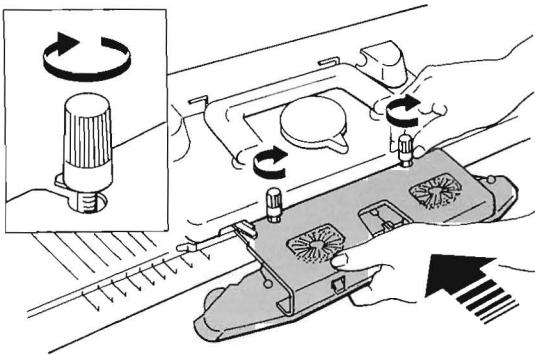


Insert the Clamps into the slots "A" at the bottom of Needle Bed.
Fasten the Clamps by turning screws in the arrowed direction.



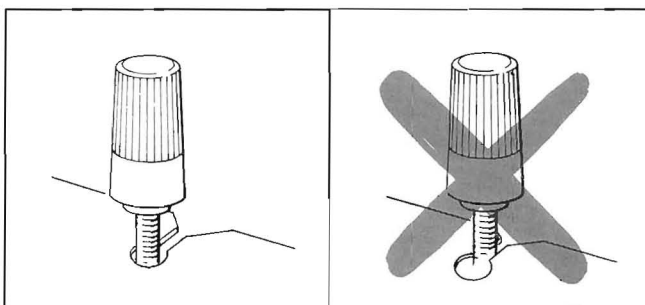
Loosen both Arm Nuts by turning them in the arrowed direction.
Remove the Carriage Fastener.

Keep the Carriage Fastener in the accessory box. Use it to keep the Carriage in place while moving the machine.

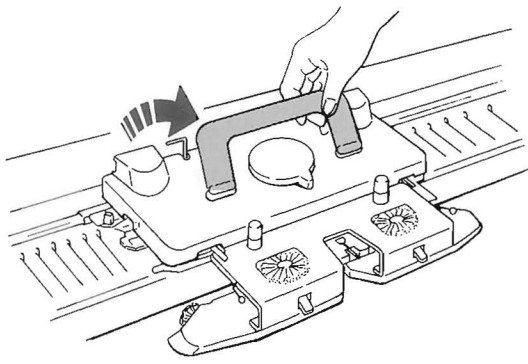


Remove the Arm from the Top Cover and position it under the two Arm Nuts screws.

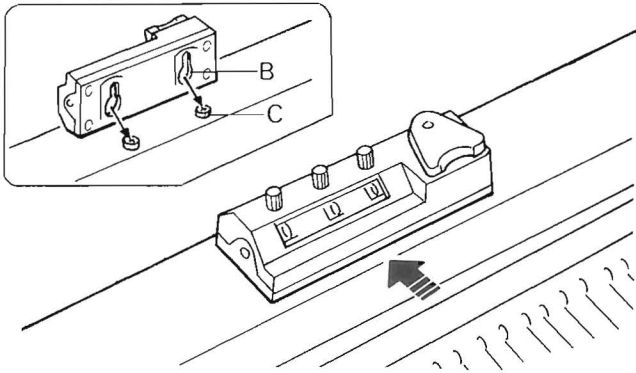
Hold the Arm securely against the Carriage, and tighten the Arm Nuts by turning them in the arrowed direction.



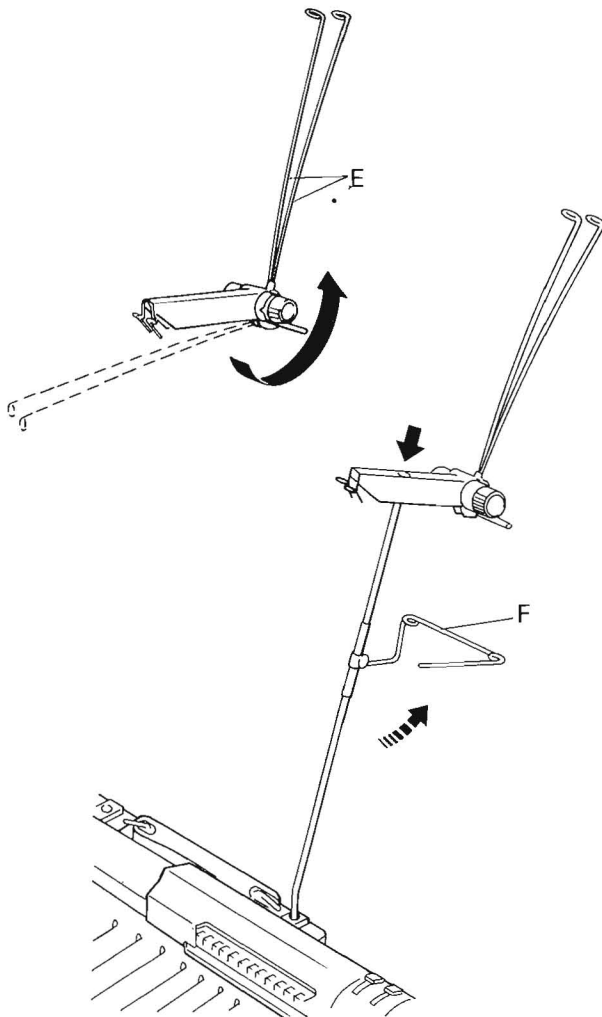
Ensure that the Arm Nuts fit properly into the cut-out of the Arm.



Raise the Carriage Handle, until it clickes into position.



Attach the Row Counter by fitting the slots of the Counter "B" to the Studs "C" on top of the machine.



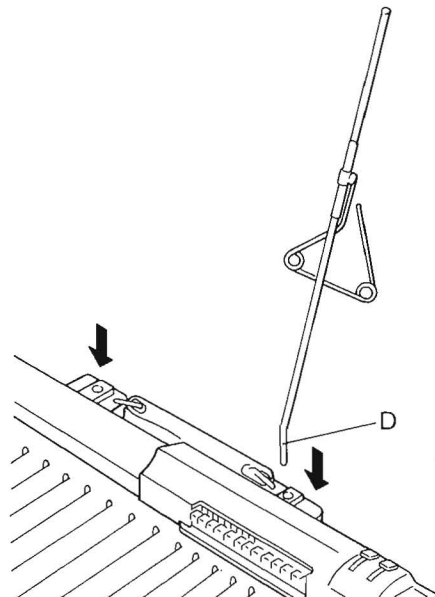
Remove the Auto-Tension and Yarn Rod from the inside of the Top Cover.

Insert the short bent end of the Yarn Rod "D" into the one of the Handle Bracket Sockets.

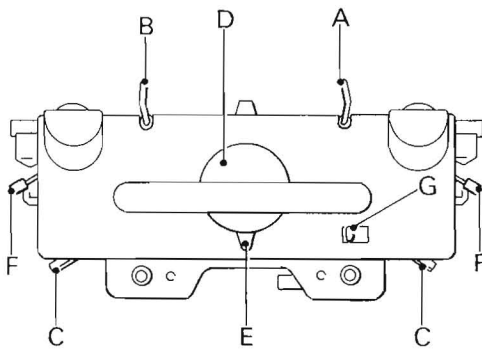
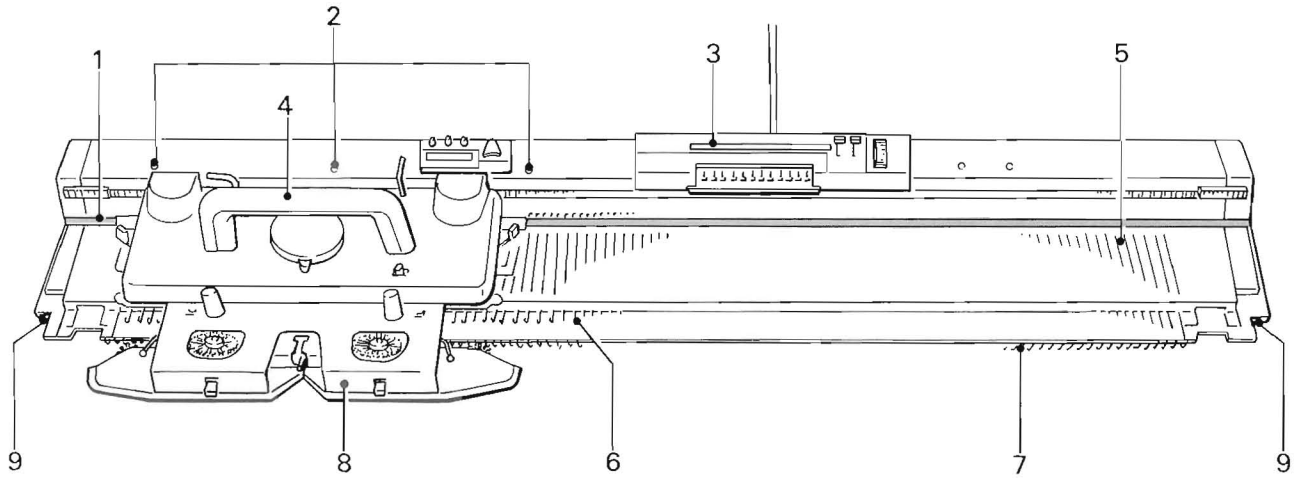
Turn the Tension Springs "E" until they click into position.

Fit the Auto-Tension to the top of the Yarn Rod.

Raise the Tension Guide "F".



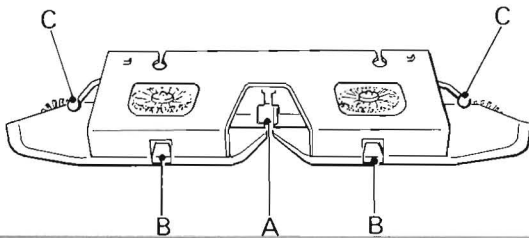
NAMES AND FUNCTIONS OF EACH PARTS



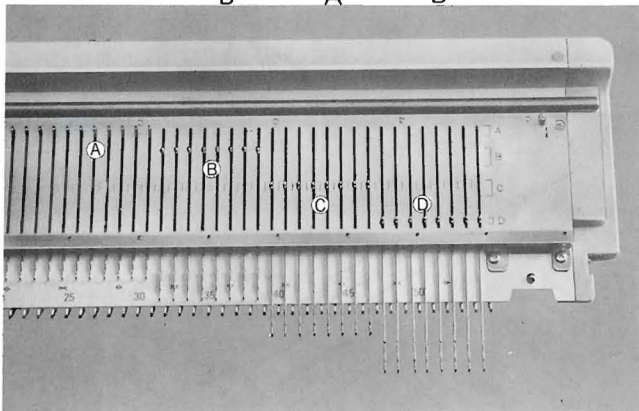
- 1. Rail
- 2. Knit Contour (optional) Securing Studs
- 3. Pattern Panel (see page 20)
- ← 4. Carriage
 - A — RC Tripper
 - B — KC Tripper
 - C — Russel Levers
 - D — Stitch Dial
 - E — Cam Lever
 - F — Side Levers
 - G — Release Lever



- 5. Needle Bed
- ← 6. Latch Needle
 - A — hook
 - B — latch
 - C — stem
 - D — butt
 - E — shank



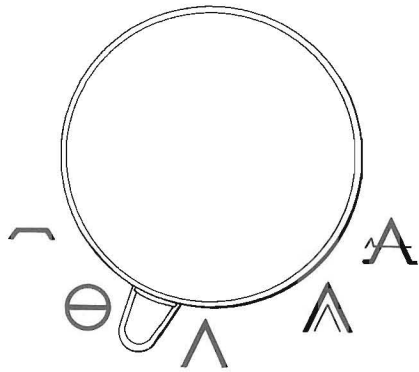
- 7. Sinker Post
- ← 8. Arm
 - A — Yarn Feeder
 - B — Weaving Knobs
 - C — Weaving Yarn Holders
- 9. Yarn Holders



Needle Positions

On both ends of Needle Bed are bracketed letters A, B, C and D. Align the needle butts inside the brackets.

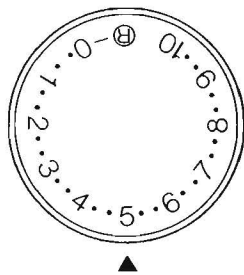
- A — Needles do not knit.
- B — Needles knit Stockinet and stitch patterns.
- C — Needles knit Stockinet only.
- D — Needles do not knit with Russel Levers at **I**.
Needles are knitted back to B position with Russel Levers at **II**.



Cam Lever

Use this to select stitch type.
Five positions are marked as shown opposite, and each position is selected by setting the Cam Lever to the selected stitch type.

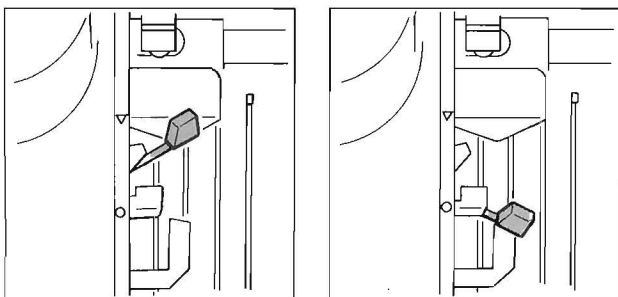
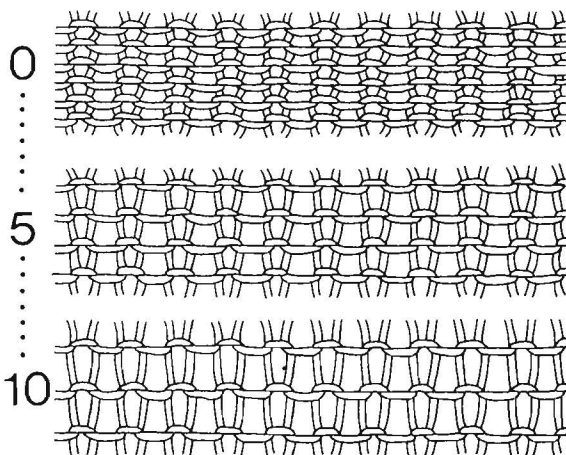
- ▲ — STOCKINET, WEAVING, CAST-ON
- ⊖ — SLIP STITCH
- ∩ — TUCK STITCH
- ▲ — PUNCH LACE
- ⋈ — FAIR ISLE (KNIT-IN)



Stitch Dial

Use this to regulate the size of stitches. Set the number to the ▲ mark at the front. The higher the number on the Stitch Dial, the larger the stitch size. (the fabric is loose.) The lower the number, the smaller the stitch. (the fabric is tight.)

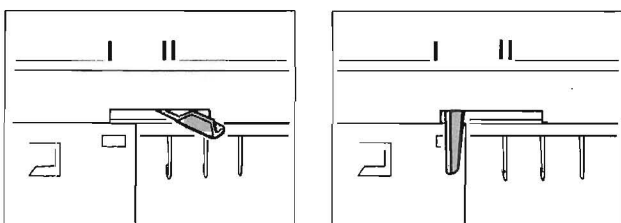
Ⓜ is selected when the Ribber (optional) is attached.



Side Levers

These control needles in B position.

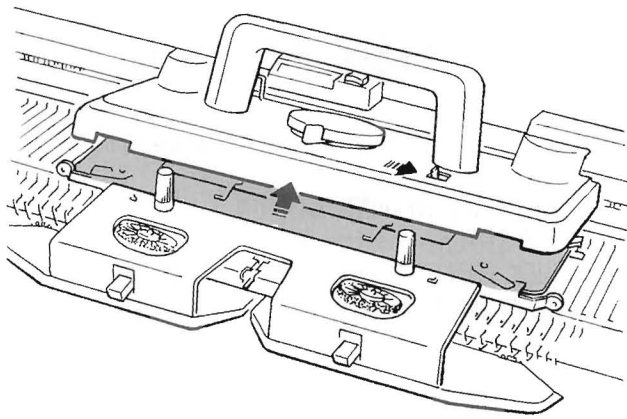
- ▼..... Set to this position to knit patterns, using a Punch Card.
- Needles knit Stockinet only.



Russel Levers

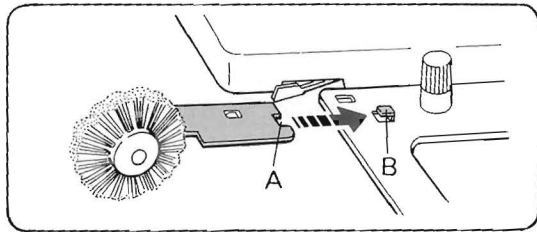
These control needles in D position.

- II..... Knit the needles in D position in Stockinet.
- I..... Do not knit the needles in D position.



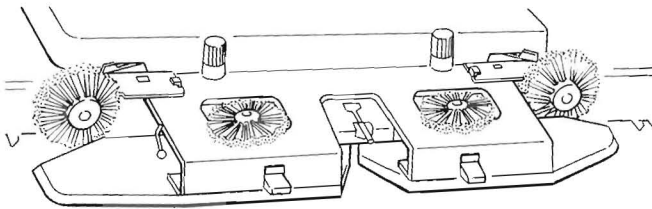
Release Lever

By using this lever, you can release the Carriage from a jam, as well as move it across the bed without knitting.

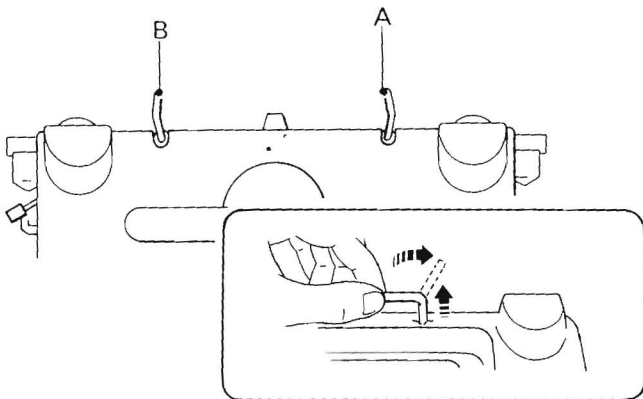


Tuck Brush

Attach the right Tuck Brush at the right side of the Arm and the left Tuck Brush at the left side, placing the cut-out of Brush "A" under stud "B" on the Arm.



Depending on the type of yarn, the stitches may be loose on the needles. The Tuck Brushes can be used to rectify this, in addition to being used for tuck stitch.

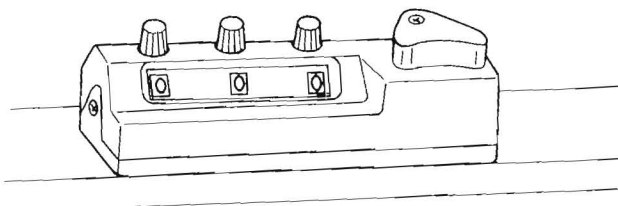


Feeding Trippers

The feeding tripper "A" on the right side of the carriage operates both the Row Counter and the Knit Contour Attachment (optional) if it is in use.

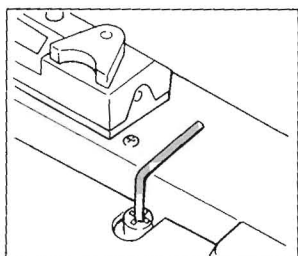
The feeding tripper "B" on the left side of the Carriage operates the Knit Contour Attachment only.

To engage either Feeding Tripper with the Row Counter, or Knit Contour, lift it up, and turn it towards the back of the needle bed. To disengage the Feeding Trippers, lift and turn to the side.

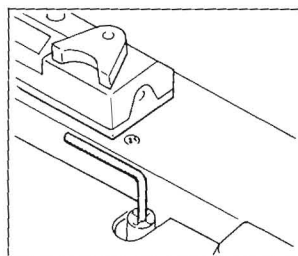


To operate the Row Counter:—

Set the right feeding tripper to working position (pointing to the back).

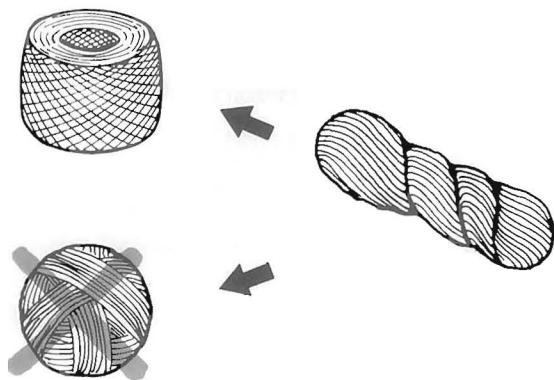


① Feeding Tripper operates the Row Counter and Knit Contour if it is in use.



② Feeding Tripper is in non-working position.

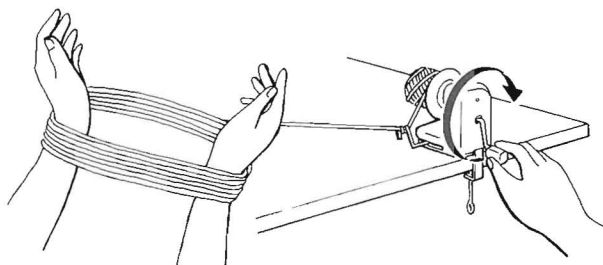
YARN PREPARATION



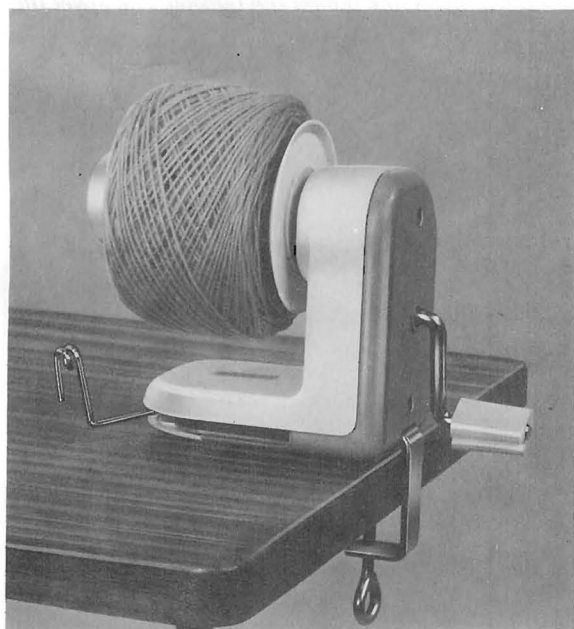
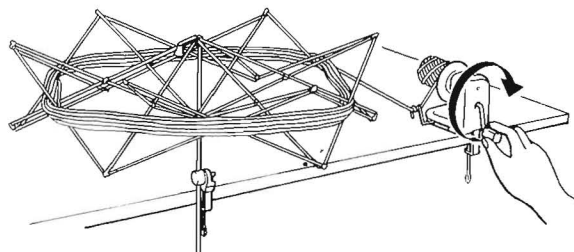
Your machine is designed to knit wide variety of bulky yarns, but it is recommended to use extra thick yarn for practice. (see page 10).

Correct preparation of yarns before you start knitting is very important. This will make knitting more enjoyable and easier. The quality of your garment will be much improved.

It is impossible to knit from a hank of yarn or hand wound ball.



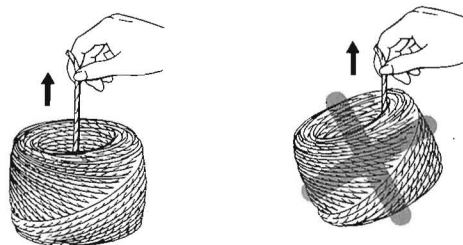
Open the hank of yarn and replace it on your arms (or on an optional Skein Holder) to wind it into a ball, suitable for machine knitting.



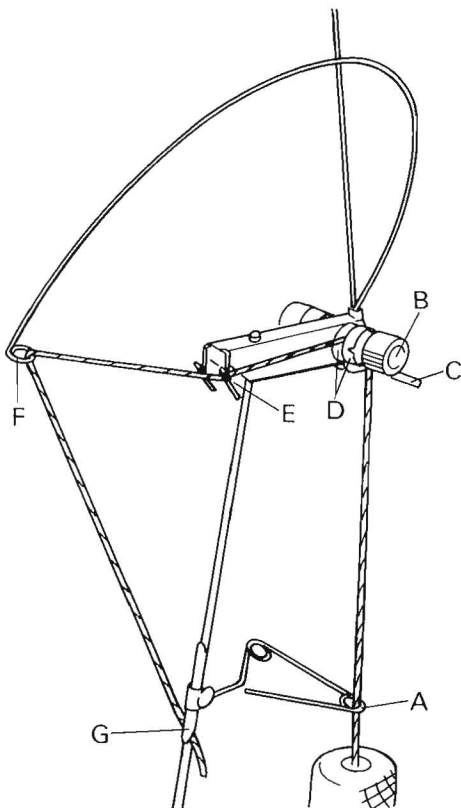
An optional Yarn Ball Winder is recommended for winding yarn.

When yarn is rewound, ensure that the yarn end comes out freely without lifting the ball.

If the ball has been wound too tight for the yarn to come out freely, rewind more loosely.



THREADING THE YARN

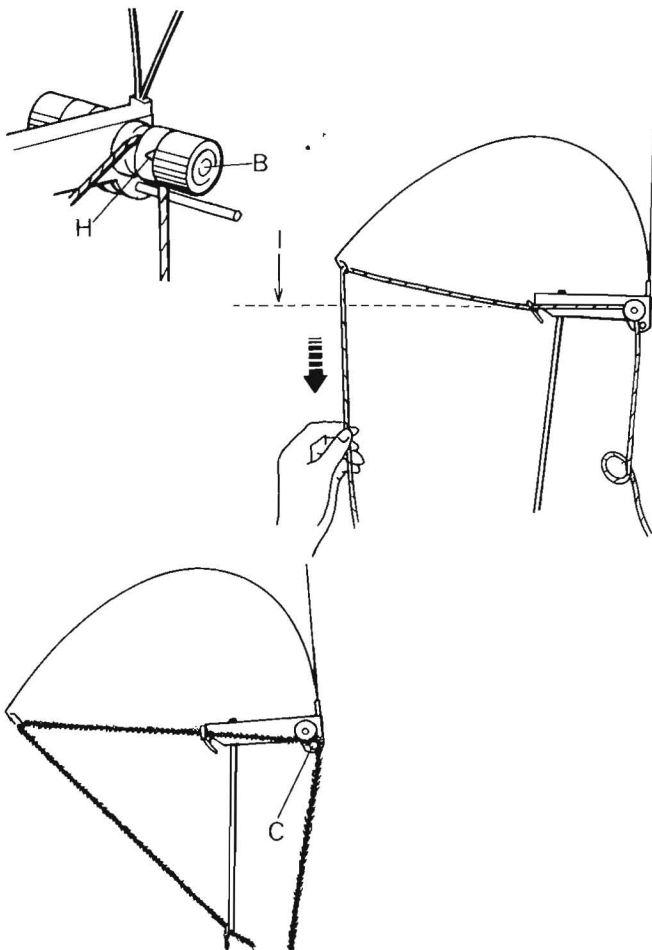


For Practice, prepare extra thick yarn.

Thread the right side of Auto Tension as follows:—

- ① through right Tension guide eyelet "A",
- ② between Tension Dial "B" and Guide Bar "C",
- ③ between two Tension Discs "D",
- ④ through right Yarn Guide eyelet "E",
- ⑤ through right Tension Spring eyelet "F".

Put the yarn end under Yarn Clip "G".



Adjusting Tension Dial

Adjust the Tension Dial according to type of yarn by turning the Tension Dial "B" until required number corresponds to the < shape "H" using the following as a guide:—

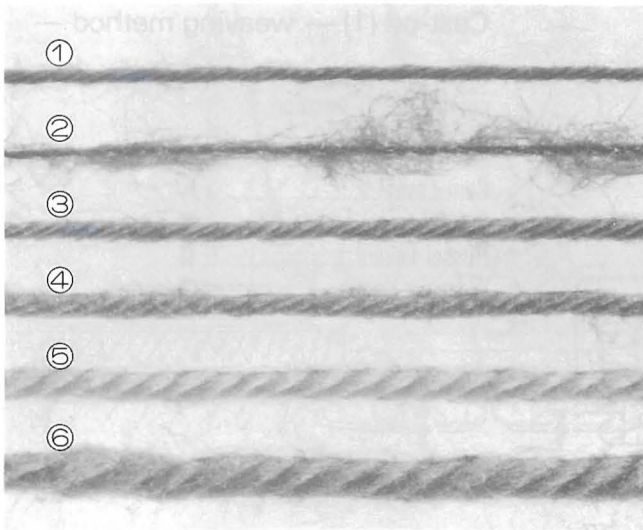
1. Yarn comes out freely from the yarn ball.
2. Distance between the Tension Spring and the horizontal line "I" — 10~20cm. must be maintained.

The higher the number, the tighter the tension. The lower the number, the looser the tension.

If you use heavy weight slub yarn, place it under the Guide Bar "C" only, not between tension discs "D".

It is advisable to pull out a certain length of the yarn from the yarn ball before casting on.

YARN AND STITCH DIAL



To obtain suitable stitch size, or suitable tension for a garment, set the Stitch Dial Number according to the thickness of the yarn, referring to the yarns and table opposite.

TYPE OF YARN	STITCH DIAL
① Medium thick	1 ~ 2
② Mohair	3 ~ 4
③ Very thick	5 ~ 6
④ Extra thick	6 ~ 8
⑤ Super extra thick	8 ~ 10
⑥ Super extra thick (every second needle)	6 ~ 7

The thicker the yarn, the higher the Stitch Dial Number, and the thinner the yarn, the lower the Stitch Dial Number.

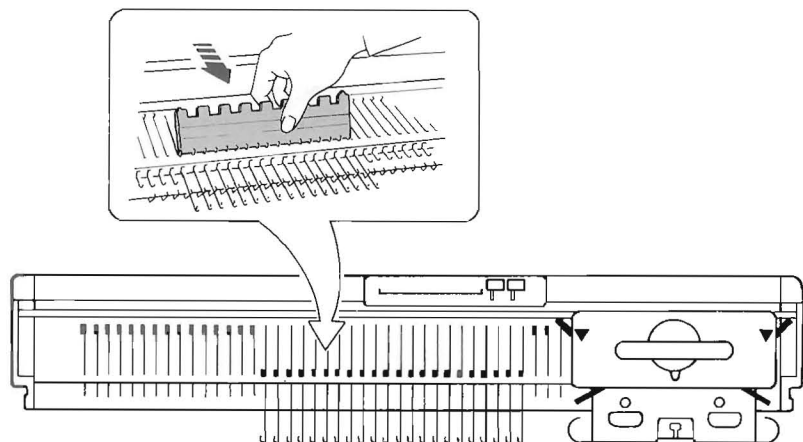


A — Stitch Dial at 1 with medium thick yarn.

B — Stitch Dial at 5 with very thick yarn.

C — Stitch Dial at 9 with super extra thick yarn.

CAST-ON AND KNITTING



Cast-on (1) — weaving method —

Push the required number of needles from A position to D position.

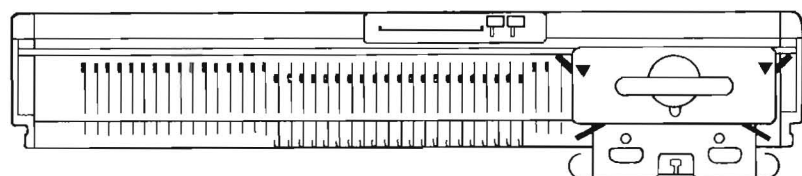
Set the Carriage as follows.

Cam Lever..... ▲

Side Levers..... ▼

Russel Levers..... ||

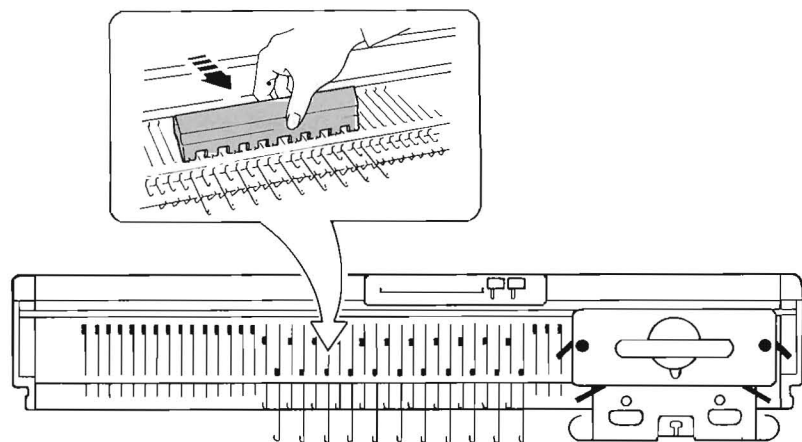
Weaving Knobs..... ○



Slowly move the Carriage across the Needle Bed until it has passed all the needles.

The needles are aligned in B position.

Leave the Carriage at the right side.

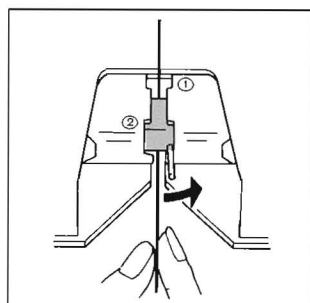
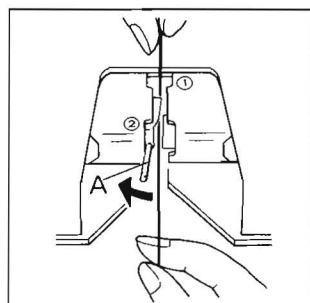


Using the Needle Pusher, push every 2nd needle from B to D position.

Side Levers..... ●

Weaving Knobs..... ~

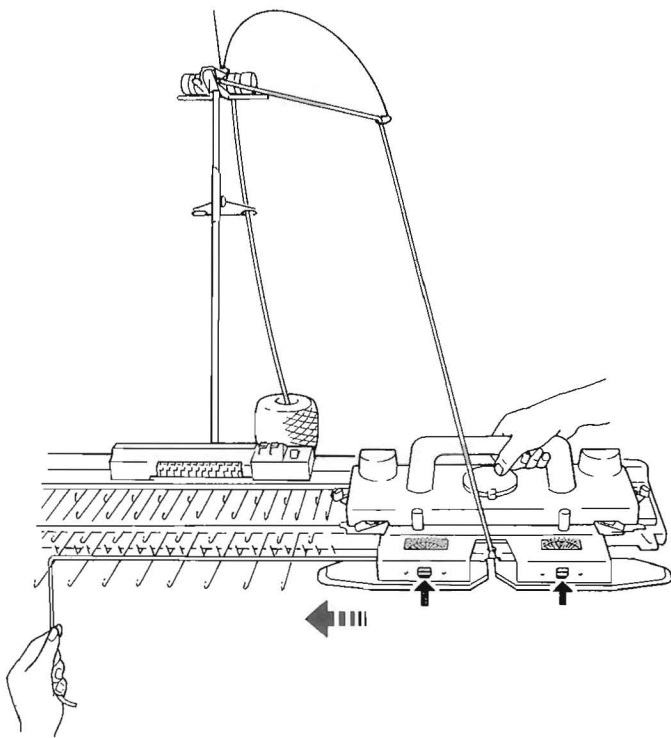
Set the Stitch Dial referring to the table on page 10.



Open Yarn Feeder by moving the Yarn Feeder Gate "A" to the left. Remove the main yarn end from Yarn Clip and bring it to the Yarn Feeder.

Hold the yarn with both hands and slide it into the Yarn Feeder.

Close the Yarn Feeder by moving the Yarn Feeder Gate to the right.

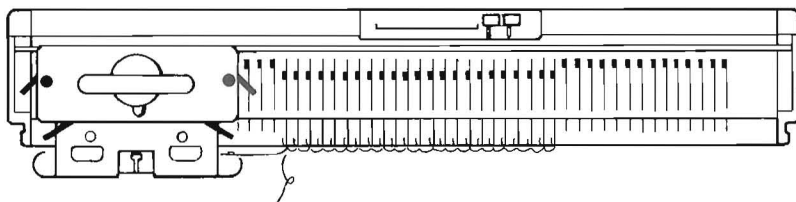


Pull the yarn end from underneath the Arm and lay it over all needles in D position.

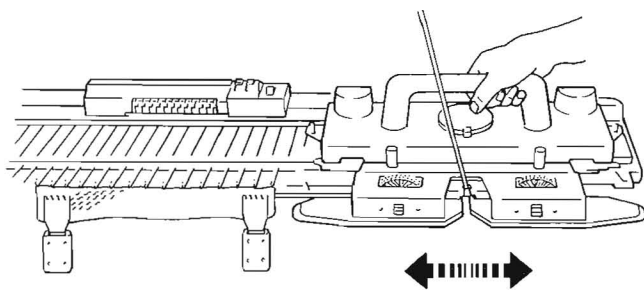
Hold the yarn loosely at the left, about 30cm. from the yarn end.

Slowly move the Carriage from right to left until it has passed all the needles, knitting 1 row.

Ensure that the Arm has passed the last knitted needle by approximately 2~3cm. before beginning the next row.



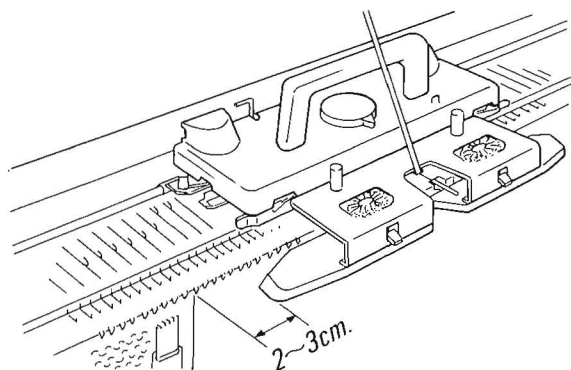
Continue to knit 2~3 rows.
Cast-on has been finished.



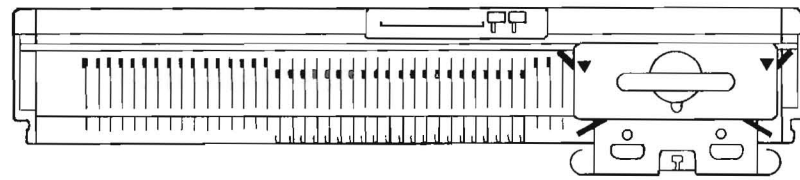
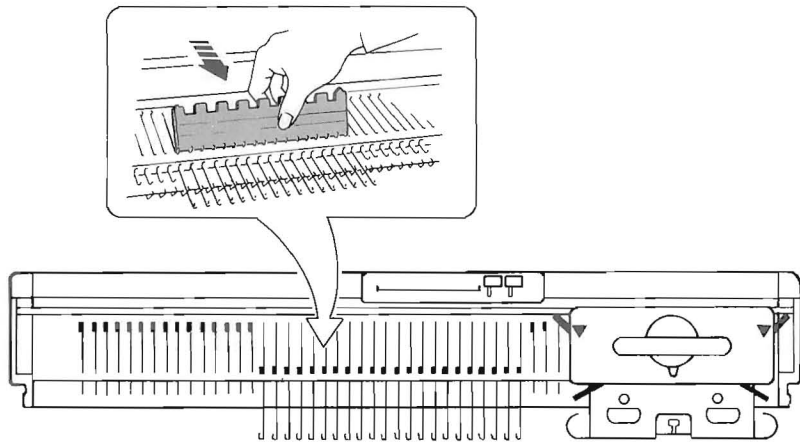
Set the Side Levers at ▼ and Weaving Knobs at ○.

Knit 4 ~ 5 rows and hang Claw Weights at both ends of the fabric.

Move the Carriage from side to side to knit Stockinet.



Ensure that the Arm has passed the last knitting needle by approximately 2 ~ 3cm. before starting the next row.



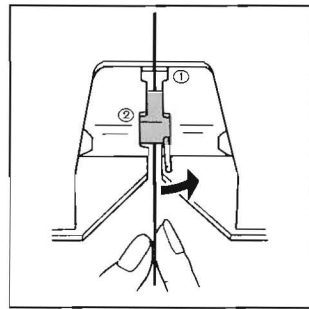
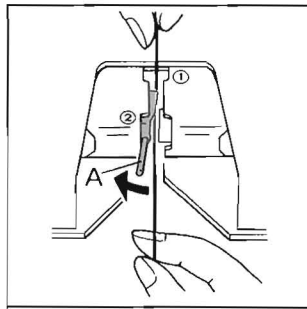
Cast-on (2)

Push the required number of needles from A position to D position.

Set the Carriage as follows:—

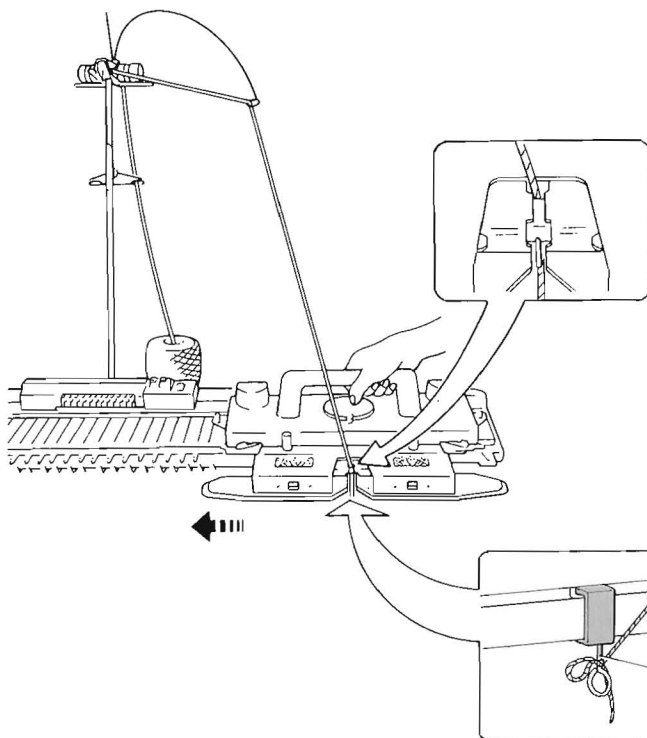
Cam Lever..... ▲
 Side Levers..... ▼
 Russel Levers..... ||
 Weaving Knobs..... ○

Slowly move the Carriage across the Needle Bed until it has passed all the needles in D position. The needles align in B position. Leave the Carriage at the right side of the needle bed.



Open Yarn Feeder by moving the Yarn Feeder Gate "A" to the left. Remove the main yarn end from Yarn Clip and bring it to the Yarn Feeder.

Hold the yarn with both hands and slide it into the Yarn feeder. Close the Yarn Feeder by moving the Yarn Feeder Gate to the right.

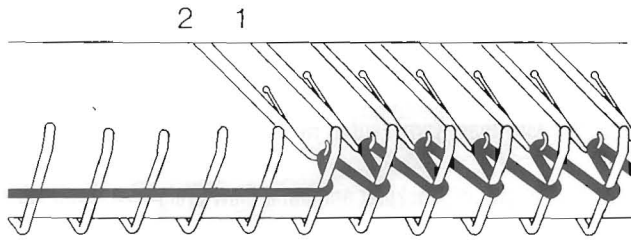


Tie the yarn end to the Clamp Screw Grip "A".

Set the Stitch Dial referring to the table on page 10.

Slowly move the Carriage from right to left until it has passed all the needles in B position.

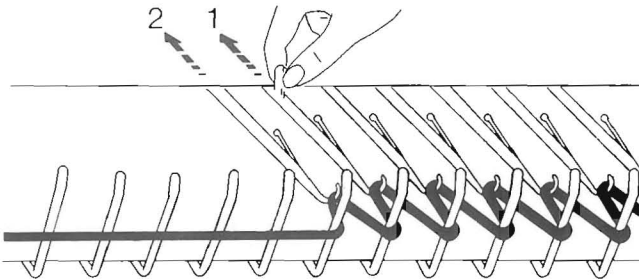
Be sure to pass the Carriage over the last knitting needle by about 2~3cm.



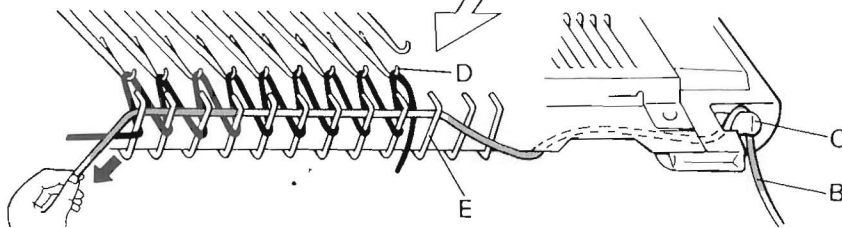
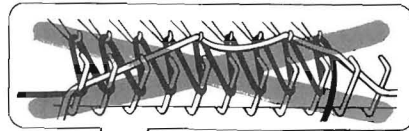
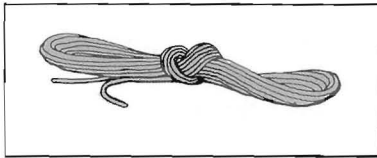
When knitting the first row, the loops may get smaller towards the edge.

To achieve a successful cast-on, these smaller loops must be increased in size.

To correct, hold yarn above the Yarn Feeder and pull it down to allow some slack.



Starting from the loop on the needle "1", push the needles with small loops one by one back to B position.



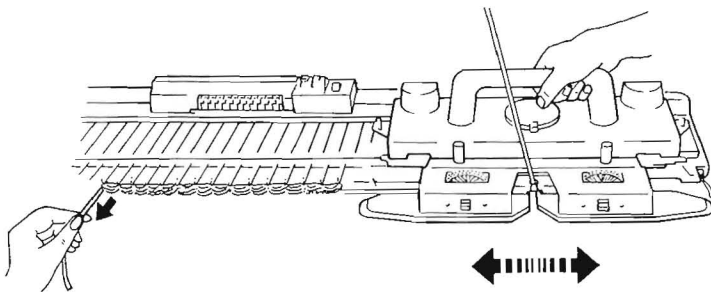
Take the Ravel Cord from the accessory box, and undo it.

Make sure that there is no knot in the cord.

Place the end of the Ravel Cord "B" in the clip "C" at the right end of the needle bed as shown.

Lay the Ravel Cord across the yarn loops between needle hooks "D" and sinker posts "E". Pull the Ravel Cord with the left hand.

Ensure that the Ravel Cord lies correctly across the loops and is not caught in the needle hooks.

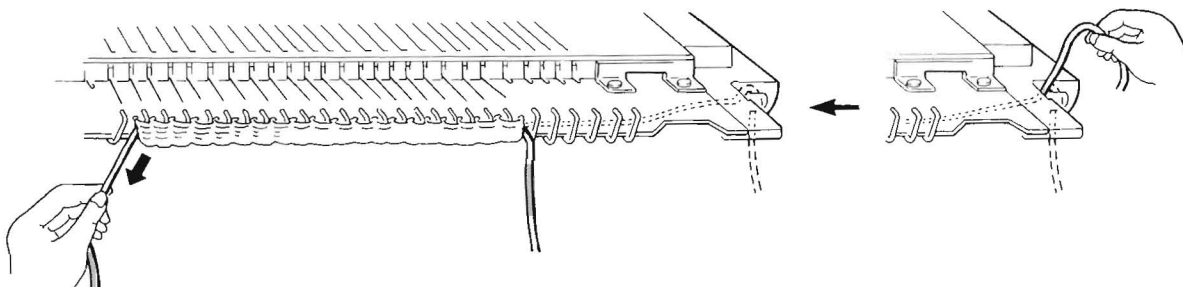


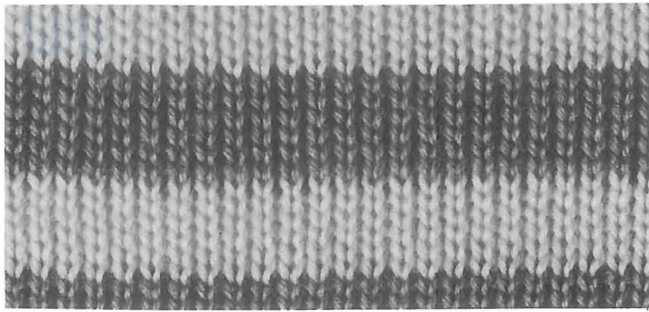
While pulling down the left end of the Ravel Cord, move the Carriage to the right side.

Continue to knit 5~6 rows.

Release the end of the Ravel Cord from the clip and pull it out from the left end.

Cast-on has been finished.





Knitting Stripe Pattern

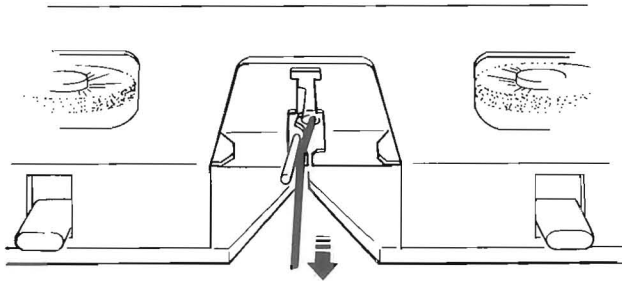
Knit stripes by changing the yarn in feeder ① every few rows.

Cast-on with main yarn. (either method is acceptable.)

Knit 4~5 rows in Stockinet and hang Claw Weights at both edges of the fabric.

Unfasten the yarn end from the Clamp Screw Grip if you have used Cast-on method 2.

Open the Yarn Feeder by moving Yarn feeder Gate "A" to the left. Remove main yarn from the Yarn Feeder.

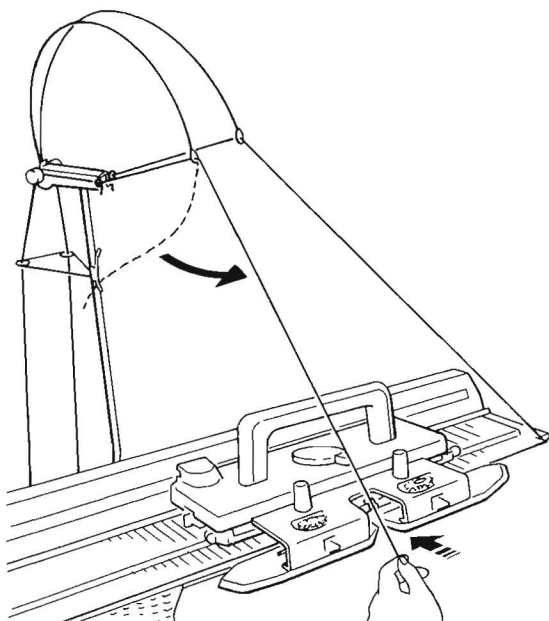
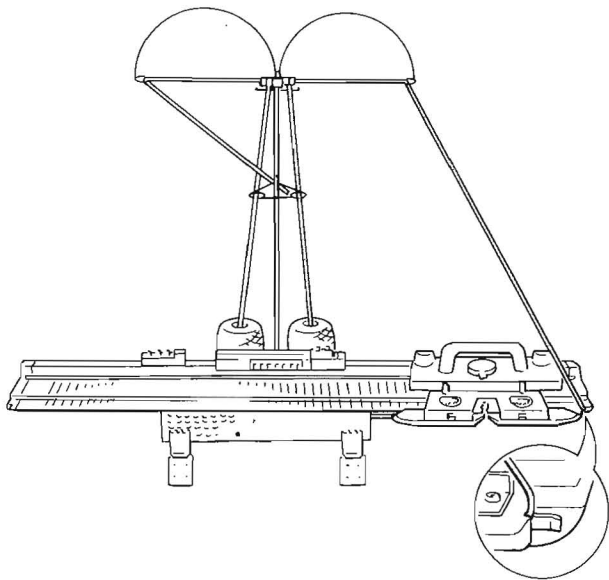


Place the main yarn in the yarn rest at the side of Needle Bed.

IMPORTANT

The yarn in the left Tension Spring must always be placed in the yarn rest at the left end of the needle bed and the yarn in the right Tension Spring in the right yarn rest.

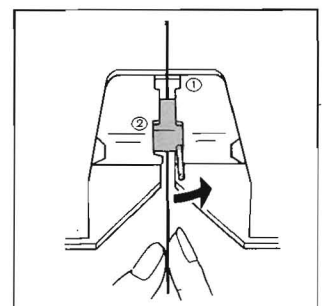
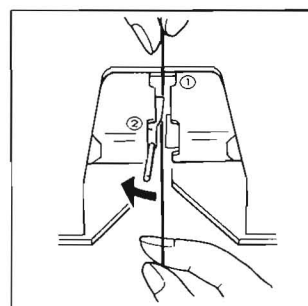
You must always rest the yarn at these ends of needle bed, no matter which side you change yarns.

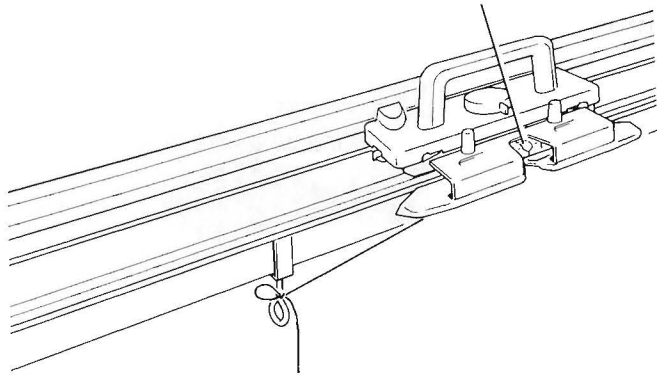


Remove the second colour yarn from the lower Yarn Clip and pull it down towards the Yarn Feeder.

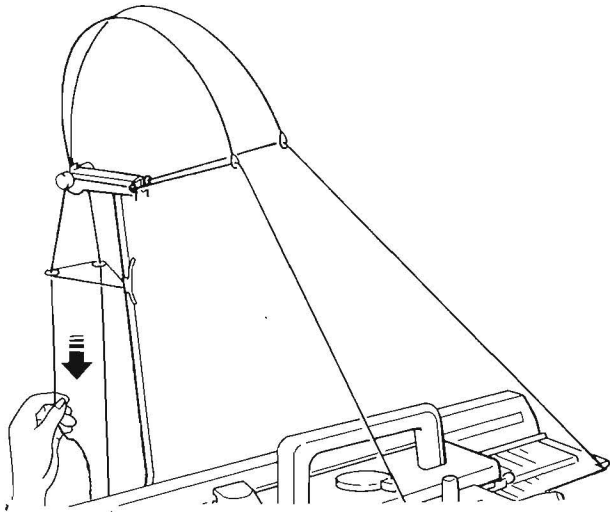
Open Yarn Feeder by moving the Yarn Feeder Gate to the left and place the yarn in the Yarn Feeder.

Close the Yarn Feeder by moving the Yarn Feeder Gate to the right.



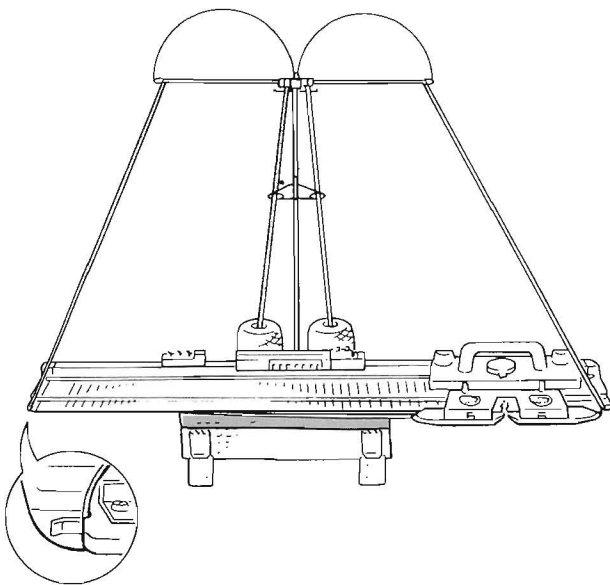


Fasten the yarn end to either Clamp.

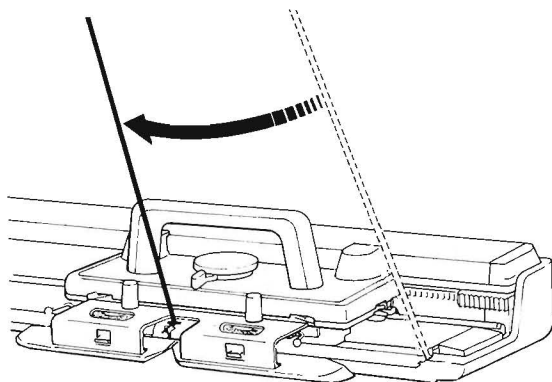


Eliminate slack yarn by pulling the yarn down at the back of Yarn Rod.

Knit an even rows.



Remove the second colour yarn from Yarn Feeder ① and place it in the empty yarn rest.



Remove the main yarn from the yarn rest and place it into the Yarn Feeder ①.

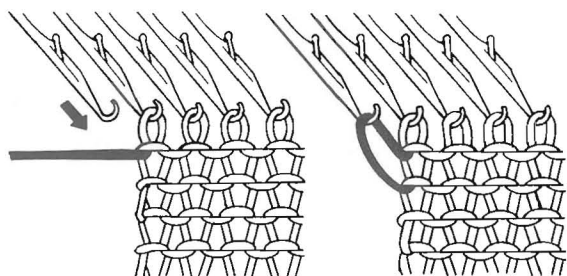
Eliminate slack yarn.

Knit an even rows, using two yarns alternately.

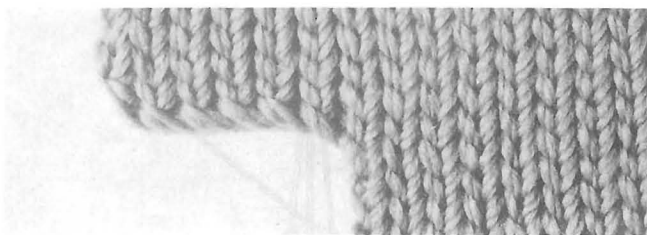


INCREASING 1 STITCH

You can increase 1 stitch at a time only on the Carriage side of the knitting.



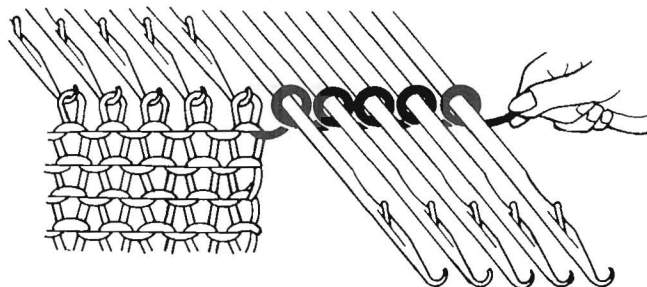
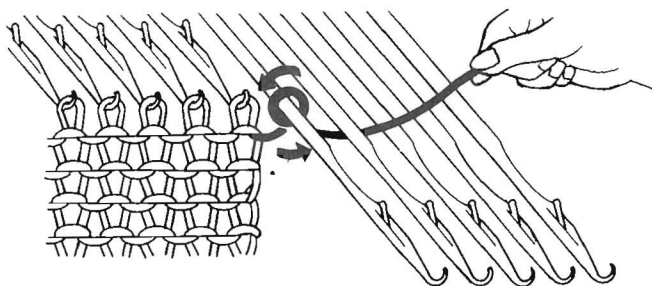
Push 1 needle at the Carriage side from A to B position.



INCREASING MULTIPLE STITCHES

You can increase only on the Carriage side.

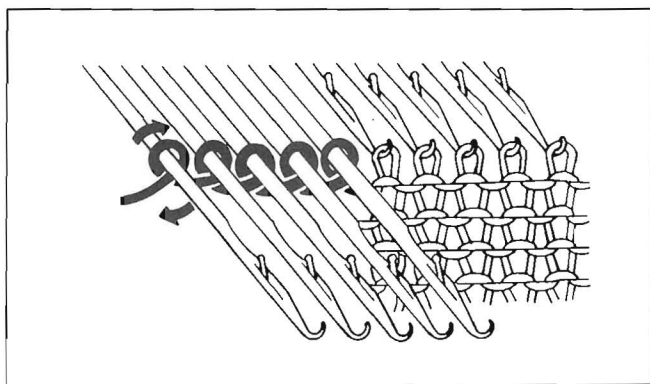
Russel Levers at II.



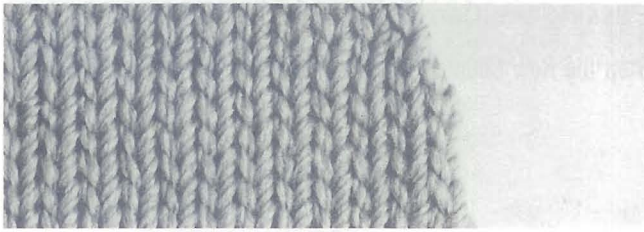
When the Carriage is at right side:—

1. Push the required number of needles from A to D position. Pull some yarn from the Yarn Feeder and wind it loosely around the empty needles in the anti-clockwise direction.

2. Push loops against sinker posts, eliminate slack yarn, and continue knitting.



When the Carriage is at the left side, wind yarn around needles in the clockwise direction.

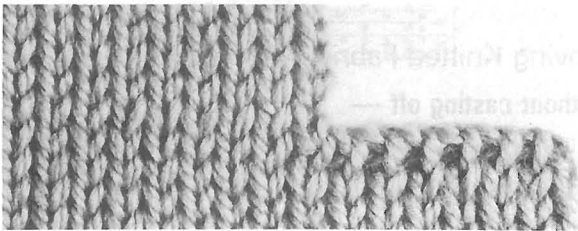
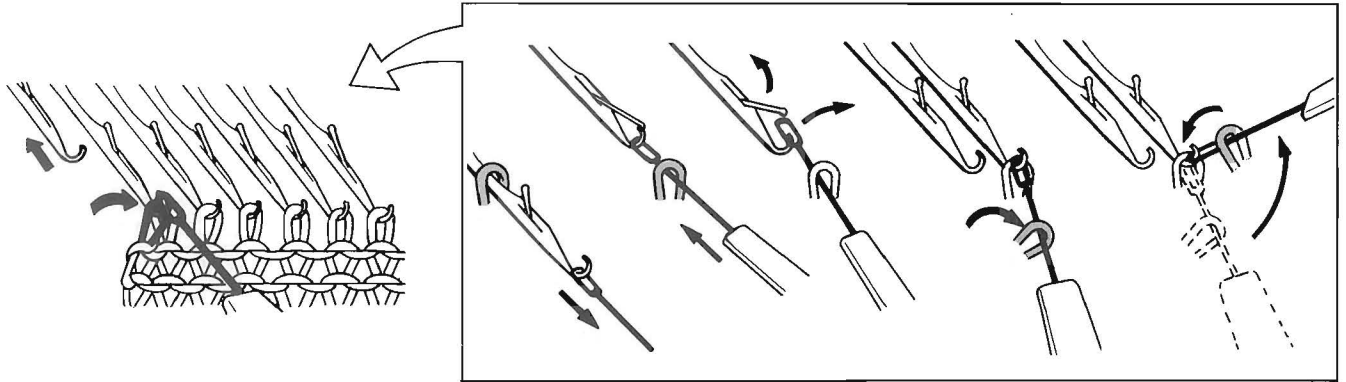


DECREASING 1 STITCH

You can decrease 1 stitch at both sides of the row.

Using the Transfer Tool, transfer the end stitch onto the adjacent needle.

Push the empty needle to A position.

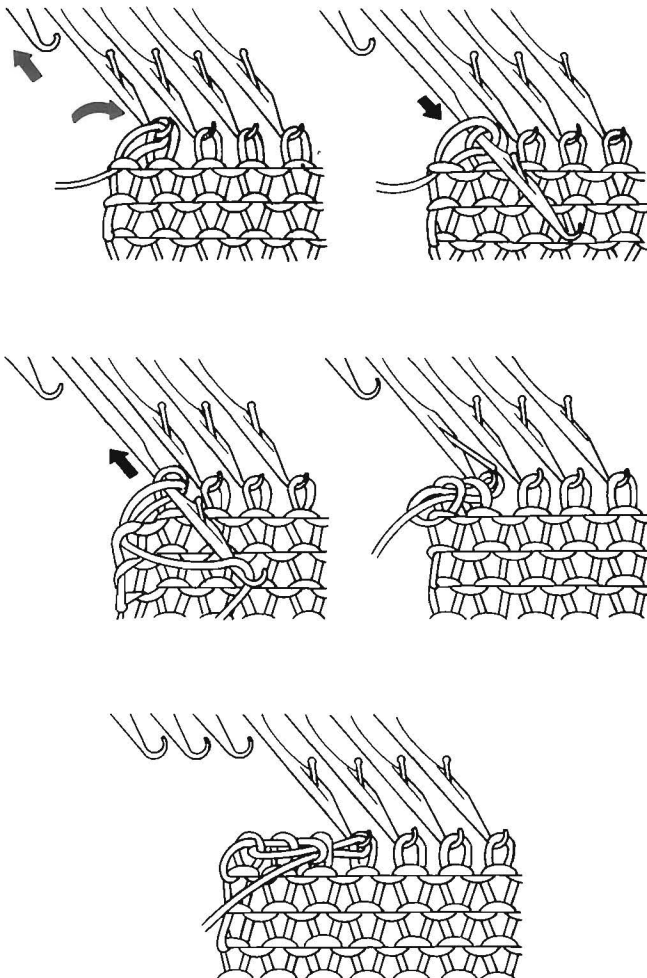


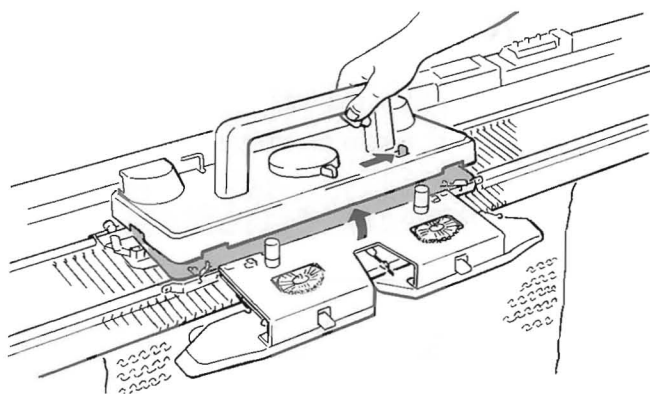
DECREASING MULTIPLE STITCHES

You can only decrease on the Carriage side.

To decrease at the left edge:—

1. With the Carriage at the left, hold the fabric back towards the Knitter.
Transfer the end stitch to the adjacent needle.
Push the empty needle to A position.
2. Push the second needle to D position until both stitches are behind the latch.
3. Lay yarn from left to right in the open hook of the needle.
4. Hold yarn slightly down and push the needle back to B position.
The two stitches slip off the needle, leaving a new stitch.
5. Continue the same procedure until the required number of stitches have been decreased.
Place the last decreased stitch onto its adjacent needle.
* Repeat in reverse to decrease at the right.



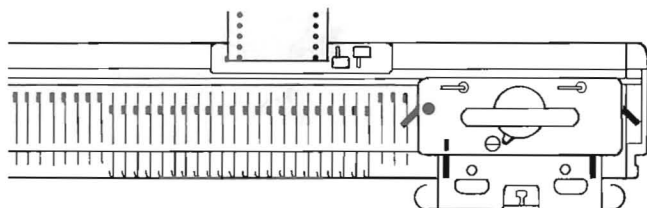


Passing the Carriage without Knitting

Stop the Row Counter, Pattern Panel, Knit Contour (Optional).

Using Release Lever:—

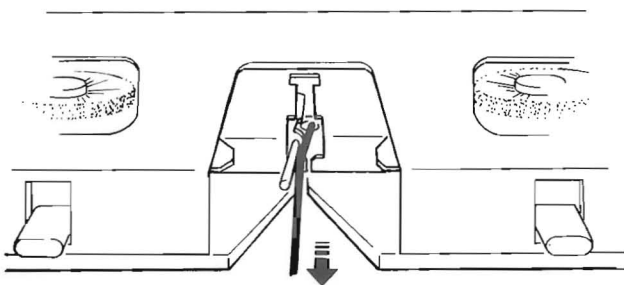
Push this Lever to the arrowed direction to raise the main part of the Carriage and move the Carriage across the fabric.



Using Cam Lever:—

Set the Carriage as follows and move it across the fabric.

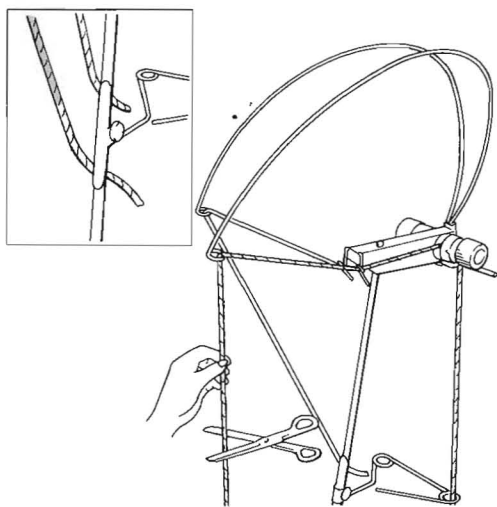
Cam Lever..... ⊖
 Side Lever (on side next to knitting)..... ●
 Russel Lever (on side next to knitting)..... |



Removing Knitted Fabric

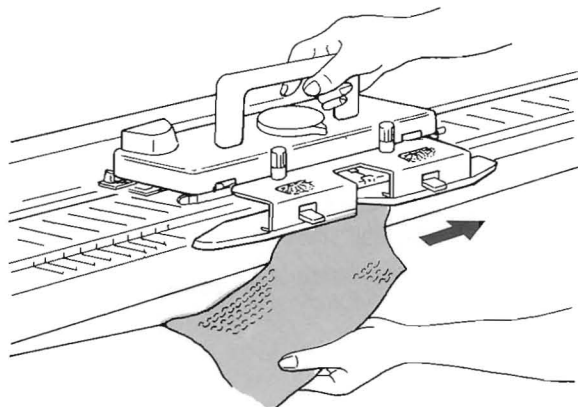
— without casting off —

This is useful for removing tension gauge and samples quickly.
 Remove the yarn from Yarn Feeder.



Hold the yarn between the Carriage and Tension Spring and cut it.

Place the yarn ends into the Yarn Clips.

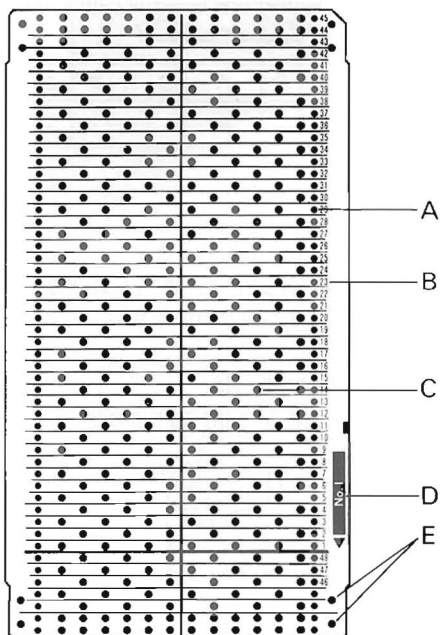


Remove weights from the fabric.

Set Cam Lever to "A" and move Carriage across the fabric.

The fabric comes off the needles.

PATTERN KNITTING



Standard Punch Cards

Five Punch Cards are supplied.

- A — Card Feeding Hole
- B — Pattern Row Number
- C — Punched Pattern Holes
- D — Card Number
- E — Card Snap Holes

Optional NP Card Set is also available.

IMPORTANT

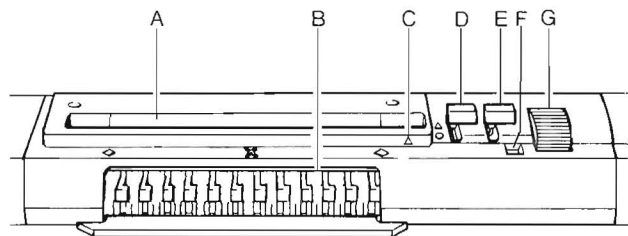
Keep the Cards away from heat and avoid the direct rays of the sun.

Do not fold or bend the Card.

Card No.	A	B	C	D	E
1	○	○	○	○	○
2			○		○
3	○	○			○
4	○	○	○		
5	○			○	

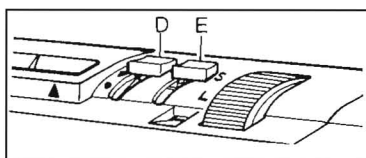
With the Punch Cards, the following patterns can be knitted.

- A FAIR ISLE/KNIT-IN
- B SLIP STITCH PATTERN
- C TUCK STITCH PATTERN
- D PUNCH LACE
- E WEAVING



Pattern Panel

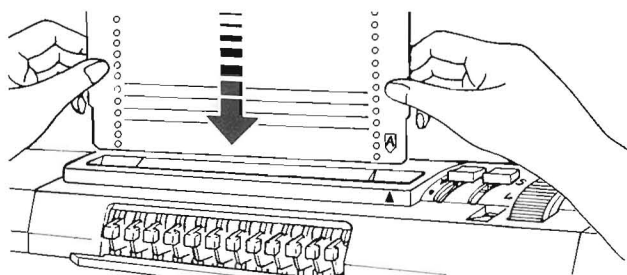
- A — Punch Card Insertion Slot
- B — Touch Levers
- C — Pattern Row Number Indicator
- D — Stop Knob
- E — L Knob
- F — L Knob Indicator
- G — Punch Card Feeding Dial



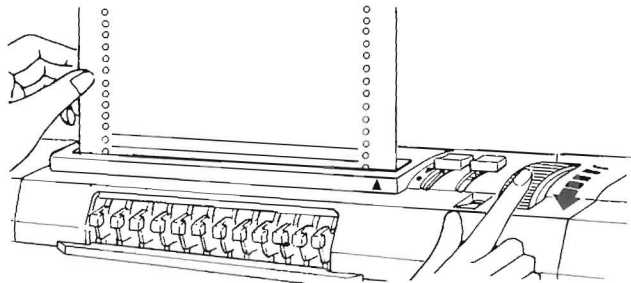
Inserting Punch Card

Prepare two Card Snaps and a Punch Card.

- Stop Knob "D" ▼
- L Knob "E" S

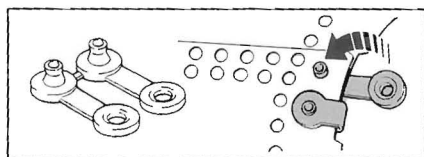


Holding the Punch Card straight with numbers at the right, insert it into Punch Card Insertion Slot and push it down slightly.



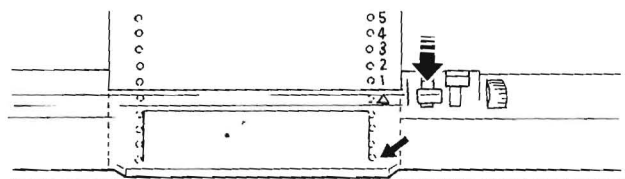
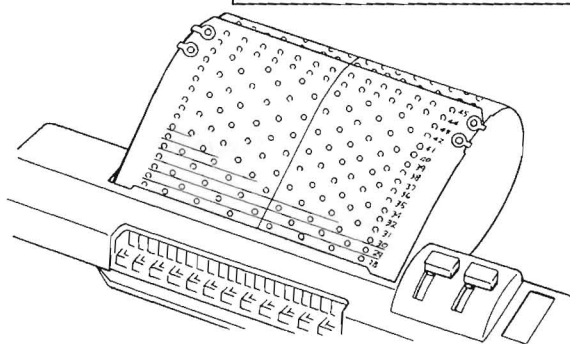
Turn the Punch Card Feeding Dial towards you and at the same time check that the horizontal lines on the Punch Card are parallel with the Punch Card Insertion Slot.

Continue turning the Feeding Dial until the card end comes out at the back.



Overlap the ends of the Card as shown in the diagram. It is important that the card is joined in this way.

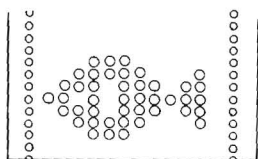
Line up the 2 holes on each side.
Join the ends of the card with the card snaps.



Turn the Feeding Dial until pattern row number 1 shows above the pattern row number indicator.

Set the Stop Knob to ●.

There is a 5-row difference between the row being knitted and the row showing above the pattern row number indicator.



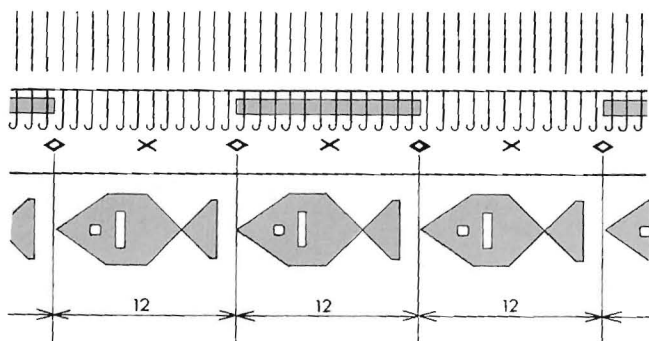
On the front of the Pattern Panel and at the front of the Need Bed are markings ◇ and ×.

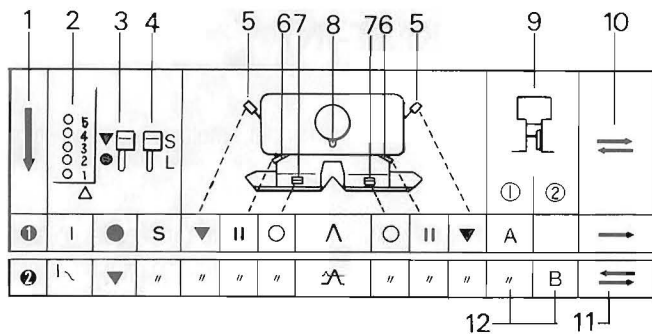
× — indicates the centre of a pattern.

◇ — indicates width of pattern.

Between two ◇ markings are 12 needles.

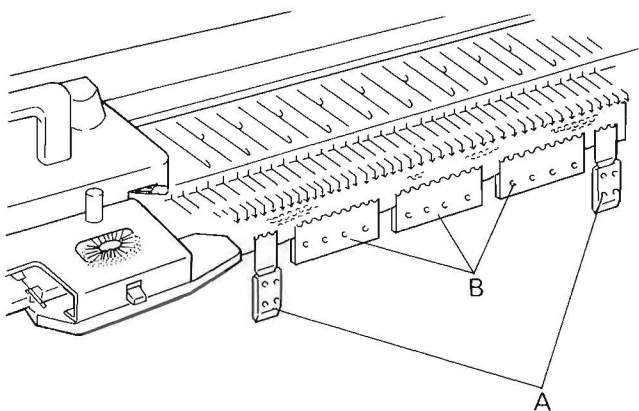
The centre of a pattern comes at the centre(0).





Reading Operation Table

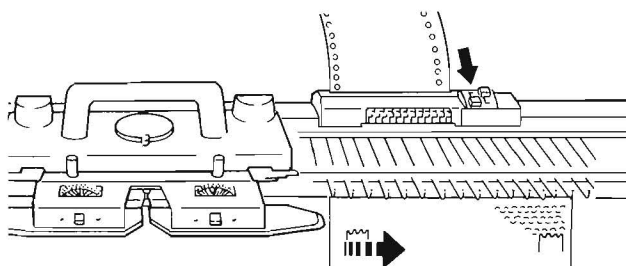
- | | |
|-------------------------------|---|
| 1 — Order | 9 — Yarn Feeder ① and ②.
Yarn Feeder ② column
also means Weaving
Yarn Holder. |
| 2 — Pattern Row Number | 10 — Carriage direction. |
| 3 — Stop Knob | 11 — Number of rows to
be knitted. |
| 4 — L Knob | 12 — A, B and C stand for
different colours. |
| 5 — Side Levers | |
| 6 — Russel Levers | |
| 7 — Weaving Knobs | |
| 8 — Cam Lever | |



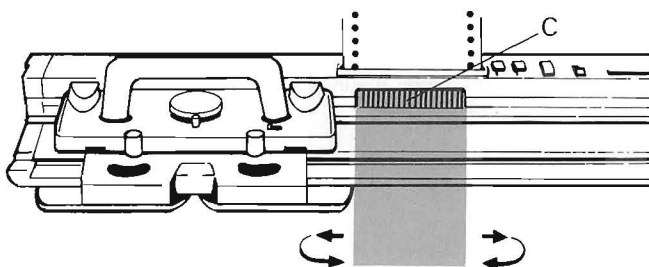
Caution on Pattern Knitting

— Before starting pattern knitting, knit 7~8 rows of Stockinet or waste knitting and leave the Carriage at the left of the Needle Bed.

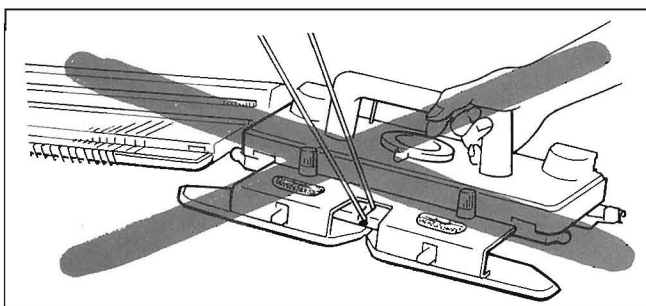
— Always use Weights.
Hook Claw Weights "A" at both edges of the knitting.
Hook Wide Claw Weights "B" evenly across the knitting when you are knitting Slip Stitch or Tuck Stitch and also when using extra thick yarn or rough yarn. (Hook them 3~4 rows below the needles and move them up as knitting progresses.)



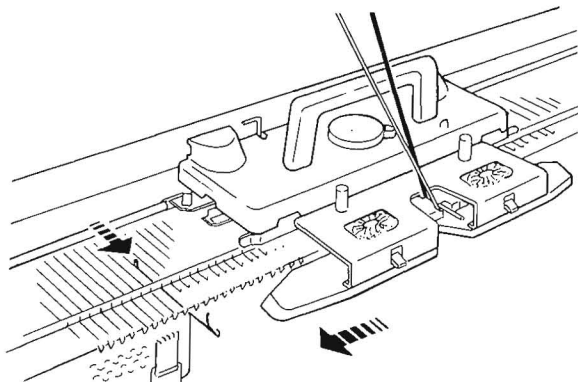
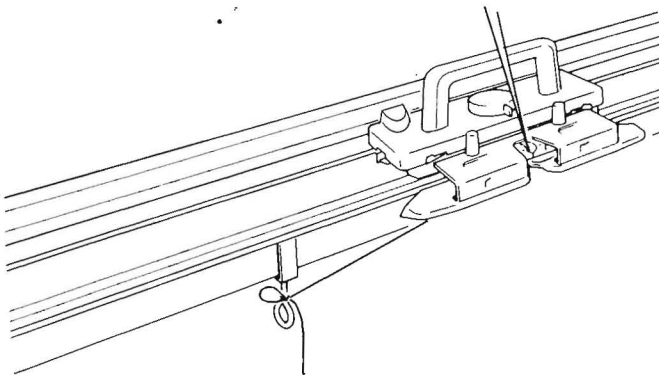
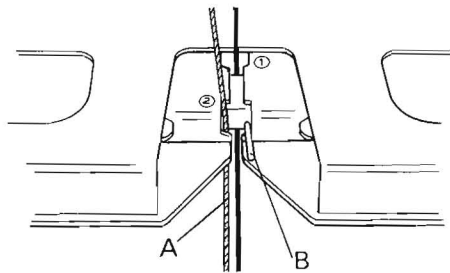
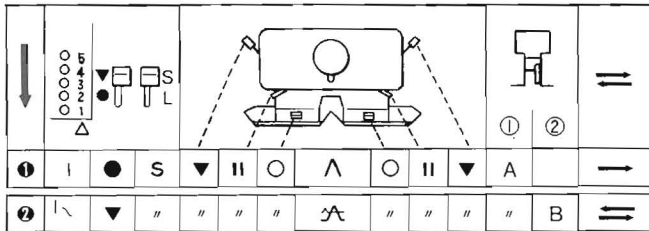
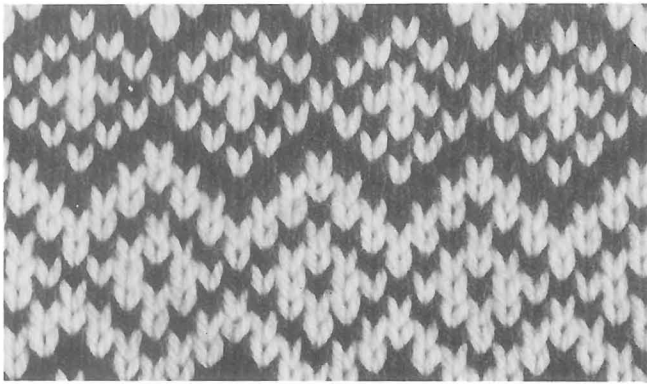
— Set the Punch Card. (see pages 20~21)
Stop Knob at ●, knit 1 row from the left to the right with main yarn to memorize the 1st row of the pattern. (Operation Table, Order ①)
Stop Knob at ▼, start pattern knitting following the Operation Table.



— When moving the Carriage back and forth, ensure that the Carriage has completely passed all the Touch Levers "C".
Move the Carriage at an even speed.



— Do not remove the Carriage from the Needle Bed.
If the Carriage has been removed by accident, see pages 62~63 to reset pattern.



FAIR ISLE (KNIT-IN)

Two yarns of different colours are knitted simultaneously and form patterns on the fabric.

Perforated area of Punch Card knits the yarn in Yarn Feeder ②, and non-perforated area knits the yarn in Yarn Feeder ①, ground colour yarn.

The sample is knitted with Punch Card No.3.

Hang the Claw Weights at both edges of the fabric.

Set the controls as required in ORDER ①.

Knit 1 row from left to right.

Set the controls as required in ORDER ②.

Remove the second yarn end from the Yarn Clip and pull it down towards the Carriage.

Insert the second yarn "A" into the Yarn Feeder ②, left side of the Guide Pin "B".

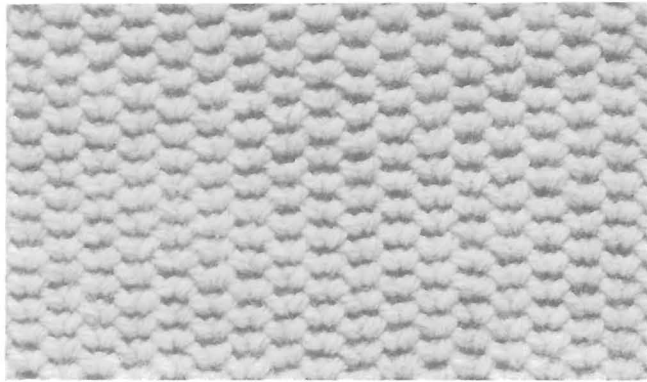
Fasten the yarn end to the Clamp.

Eliminate slack yarn by pulling yarn down at the back of Yarn Rod.

Knit the required number of rows.

If the end stitches do not knit properly, push end needle on the Carriage side to D (or C in partial knitting) position before knitting the next row.

Continue as above.



TUCK STITCH

Perforated area of Punch Card knits Stockinet and non-perforated area leaves a loop of yarn in needle hooks.

You can tuck up to 6 rows using medium thick smooth yarn.

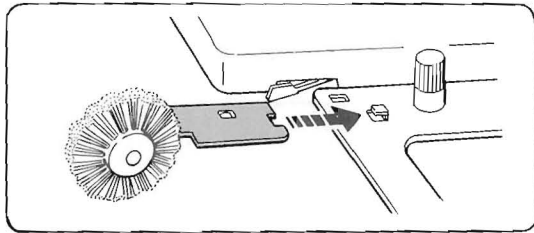
The sample is knitted with Punch Card No.1.

Hang Claw Weights and Wide Claw Weights on the fabric.

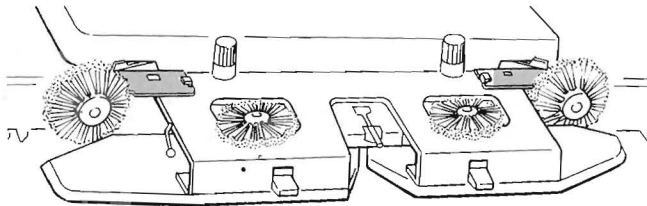
Set the controls as required in ORDER ①.

Knit 1 row from left to right.

	①	I	●	S	▼		○	∧	○				▼	A	—
	②	↘	▼	"	"	"	"	"	"	"			"	"	"

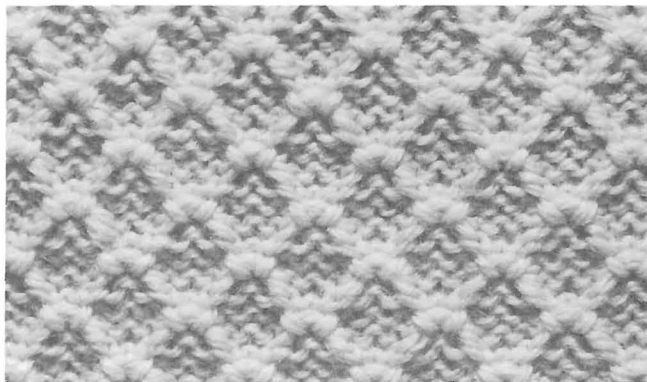


Attach Tuck Brushes.
(Refer to page 7)



Set the controls as required in ORDER ②.

Continue knitting.



Card No.2

Knit following the same Operation Table as for Card No.1.



TUCK STITCH IN COLOURS

Knit two or more different colour yarns alternately in tuck stitch pattern.

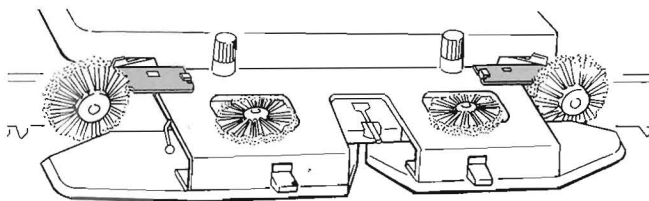
The sample is knitted with Punch Card No.4.

Hang Claw Weights and Wide Claw Weights on the fabric.

①	↓	00000 5 4 3 2 1	▼	S	▼		○	∧	○		▼	①	②	=	
	1	1	●	S	▼		○	∧	○		▼	A		→	
②	1-2	▼	"	"	"	"	"	∧	"	"	"	"	"	B	⇒2
	3-12	"	"	"	"	"	"	"	"	"	"	"	"	A	⇒10
	13-14	"	"	"	"	"	"	"	"	"	"	"	"	B	⇒2
	15-24	"	"	"	"	"	"	"	"	"	"	"	"	A	⇒10
	25-26	"	"	"	"	"	"	"	"	"	"	"	"	B	⇒2
	27-36	"	"	"	"	"	"	"	"	"	"	"	"	A	⇒10
	37-38	"	"	"	"	"	"	"	"	"	"	"	"	B	⇒2
	39-48	"	"	"	"	"	"	"	"	"	"	"	"	A	⇒10

Set the controls as required in ORDER ①.

Knit 1 row from left to right.

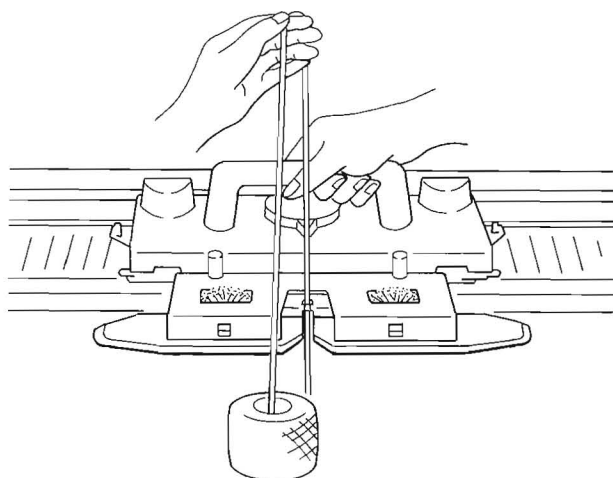


Attach Tuck Brushes. (Refer to page 7)

Set the controls as required in ORDER ②.

Knit following the Operation Table changing the different colour yarns in the same way as for "KNITTING STRIPE PATTERN" on pages 15~16.

HAND FEEDING

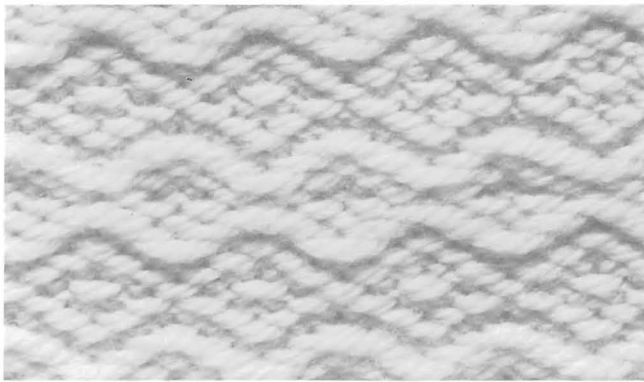


Feeding the yarn into the Yarn Feeder by hand is useful in the following cases.

- * Knitting three different colours.
- * Knitting Ravel Cord to separate the main knitting and waste knitting for marking hem.
- * The yarn end being too short to thread through the Auto-Tension.

How to hand feed

- Place the third yarn in the Yarn Feeder ①.
- Hold the yarn between the thumb and forefinger lightly above the Yarn Feeder, and move the Carriage slowly to knit the first row, and repeat throughout.



SLIP STITCH

Perforated area of Punch Card knits Stockinet and non-perforated area leaves float of yarn on the purl side of the fabric.

The sample is knitted with Punch Card No.3.

Hang the Claw Weights at both edges of the fabric.

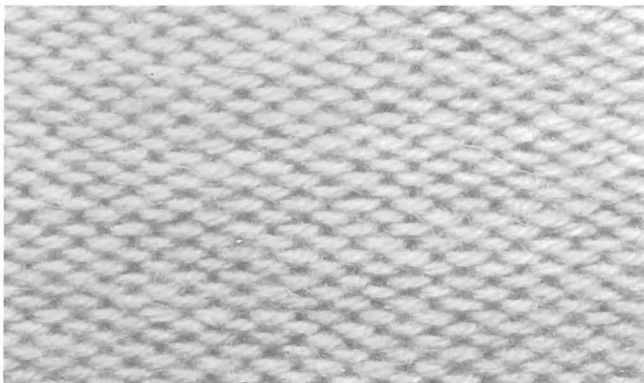
↓	5 4 3 2 1	S L							① ②	=				
			①	I	●	S	▼				○	Λ	○	
②	I	▼	"	"	"	"	⊖	"	"	"	"	"	"	⇌

Set the controls as required in ORDER ①.

Knit 1 row from left to right.

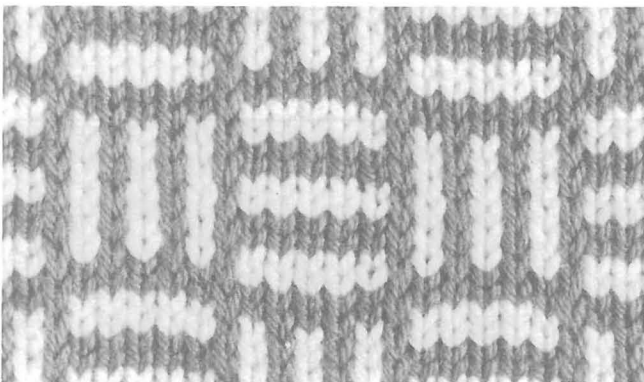
Set the controls as required in ORDER ②.

Continue knitting.



Card No.1

Knit following the same Operation Table as for Card No.3.



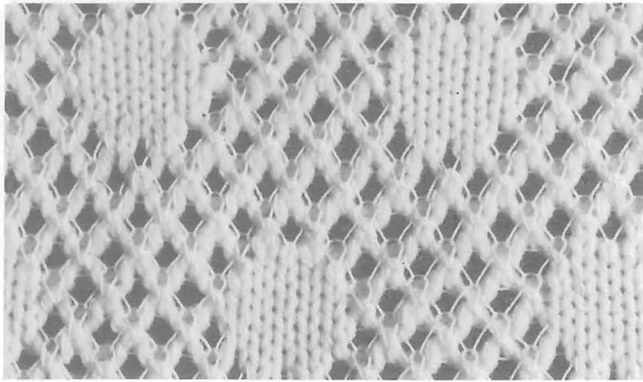
SLIP STITCH IN COLOURS

Knit two or more different colour yarns alternately in slip stitch pattern.

The sample is knitted with Punch Card No.4.

↓	5 4 3 2 1	S L							① ②	=				
			①	I	●	S	▼				○	Λ	○	
②	I	▼	"	"	"	"	⊖	"	"	"	"	"	"	⇌)2
		"	"	"	"	"	"	"	"	"	"	"	B	⇌)2

Knit following the Operation Table changing the different colour yarns in the same manner as done for "KNITTING STRIPE PATTERN" on pages 15~16.



PUNCH LACE

Combination of thick yarn and the self coloured very fine yarn produce a lace effect pattern.

Perforated area of Punch Card knits the yarn in Yarn Feeder ② (thinner yarn) and non-perforated area knits yarns together.

The sample is knitted with Punch Card No.5.

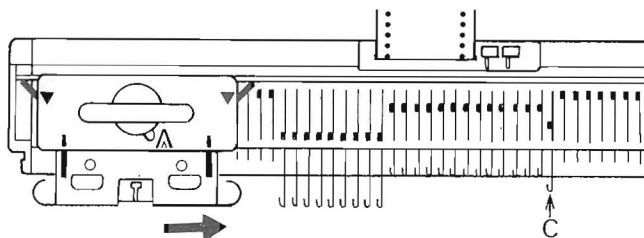
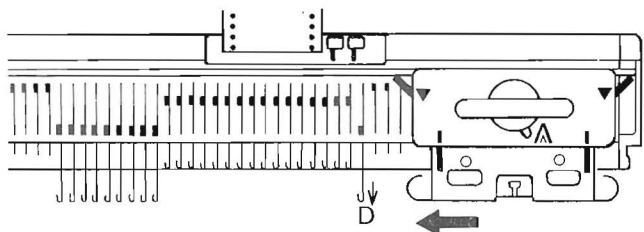
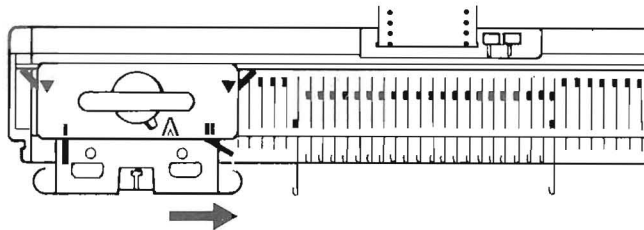
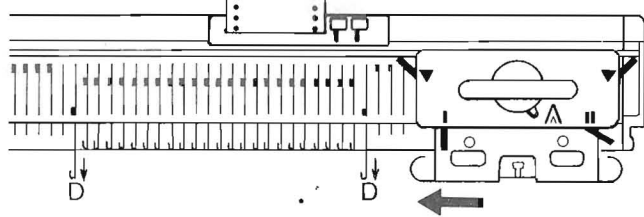
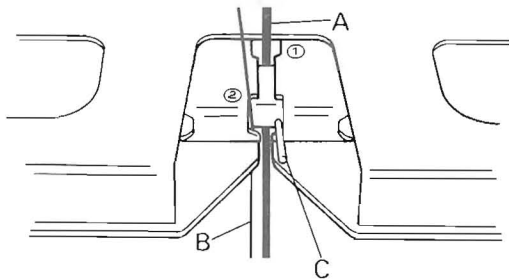
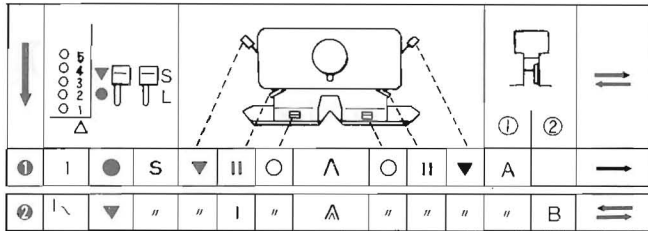
Hang Claw Weights at both edges of the knitting.

Set the controls as required in ORDER ①.

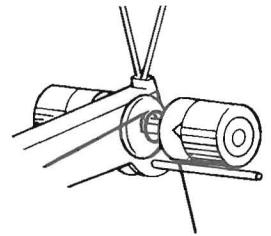
Knit 1 row from left to right.

Set the controls as required in ORDER ②.

Thread thinner yarn through the Auto-Tension.



If the yarn is loose on the Auto-Tension, wind it once around the shaft of Tension Disc.



Put thicker yarn "A" into the Yarn Feeder ① and thinner yarn "B" into the Yarn Feeder ②, left side of Guide Pin "C".

Bring 1st and last needle to D position.

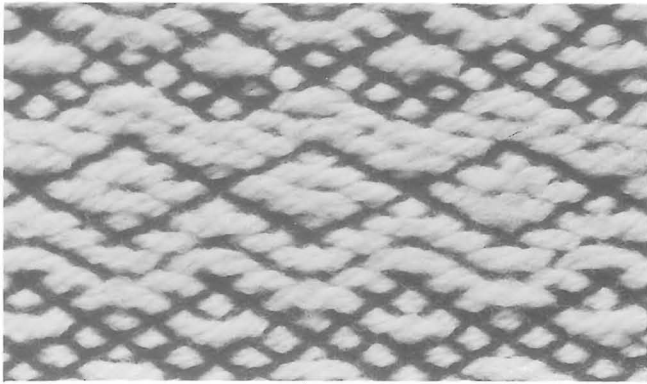
Knit from right to left.
The end needles will not knit.

Knit from left to right.

The end needles will be knitted back to B position.

Knit the required number of rows pushing 1st and last needles to D position when Carriage is at the right.

When partial knitting, set both Russel Levers to I, push 1 needle at opposite side to resting needles to D position to knit from right to left and push back the needle to C position to knit from left to right.



WEAVING

By passing fancy yarn or different materials (hereafter called weaving yarn) between the Stockinet stitches on purl side, a pattern is made on the surface of the fabric.

Perforated area of the Punch Card passes the Weaving yarn over the needle, and non-perforated area passes the Weaving yarn under the needle.

The sample is knitted with Punch Card No.3.

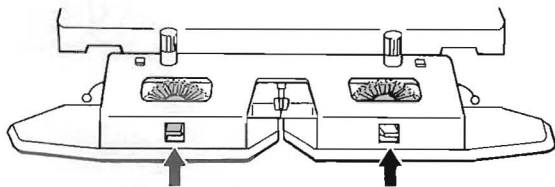
Hang the Claw Weights at both edges of the fabric.

Set the controls as required in ORDER ①.

Knit 1 row from left to right.

Thread the weaving yarn into the Auto-Tension and pull it down towards the Needle Bed.

↓	5 4 3 2 1 Δ	S L											①	*	=
			①	I	●	S	▼		○	Λ	○				
②	I	▼	"	"	"	~	"	~	"	"	"	"	B	⇌	

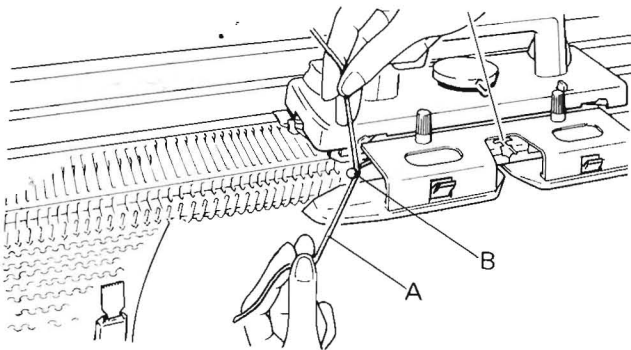


Adjust the Tension Dial.

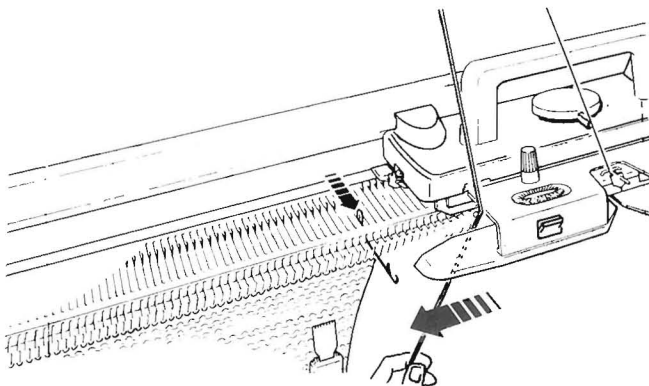
Set the controls as required in ORDER ②.

To set the Weaving Knob to ~, push up these knobs.

* mark in the Yarn Feeder column refers Weaving Yarn Holder.

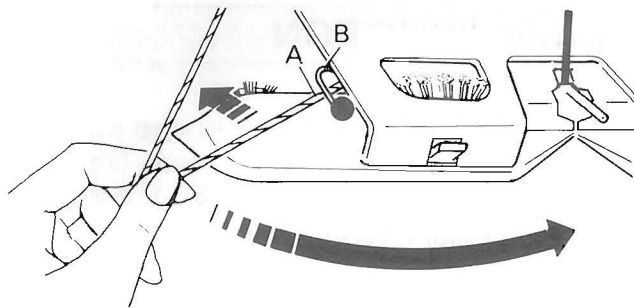


Put the main yarn into Yarn Feeder ①, hook weaving yarn "A" into the left Weaving Holder "B" (always put weaving yarn in Weaving Holder nearest to the knitting, as shown in the illustration left.) Set the Stitch Dial 1 number higher than for Stockinet.



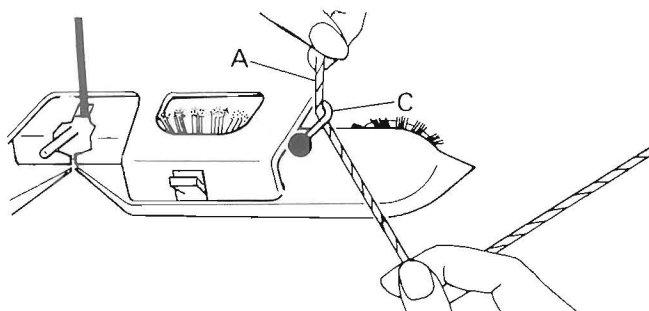
Push one end needle on the Carriage side to D (or C in partial knitting) position.

Slowly move the Carriage from right to left.

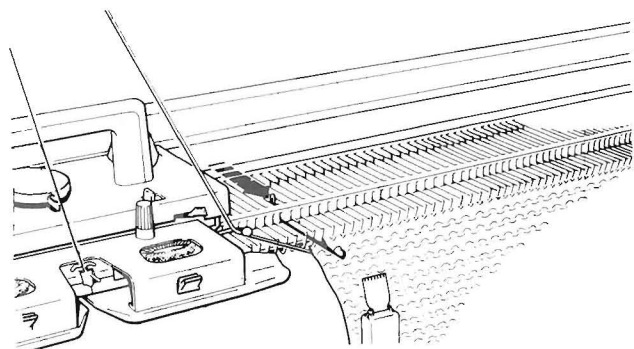


Remove weaving yarn "A" from the left Weaving Yarn Holder "B".

Bring the weaving yarn underneath the Arm and move it to the right side of the Carriage.



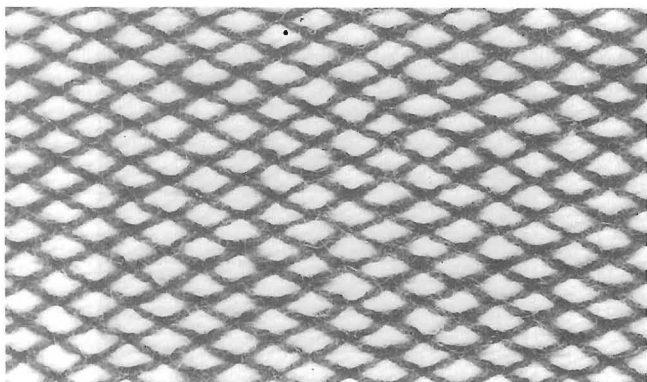
Hook weaving yarn into the right Weaving Yarn Holder "C".



Push one end needle on the Carriage side to D (or C in partial knitting) position, before knitting the next row.

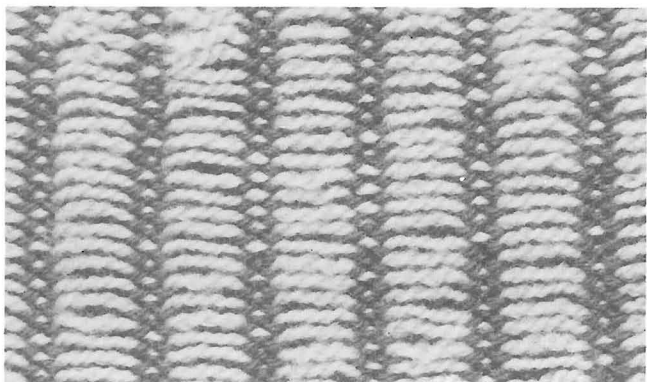
Knit from left to right.

Knit the required number of rows always placing weaving yarn in the leading side of the Carriage.



Card No.1

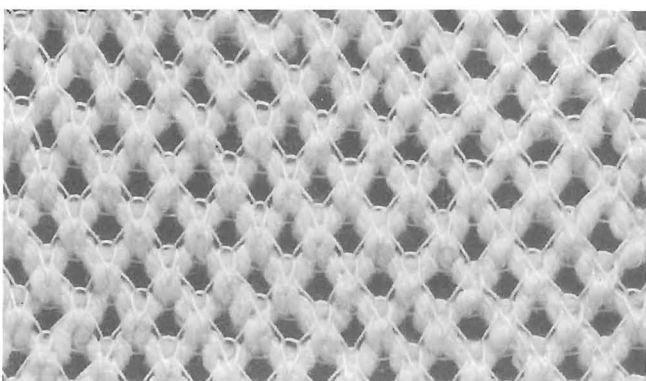
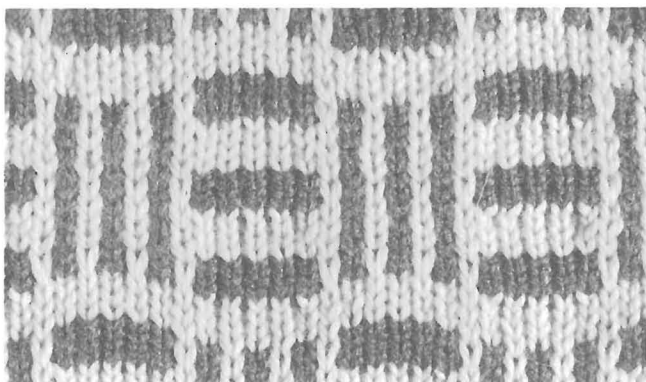
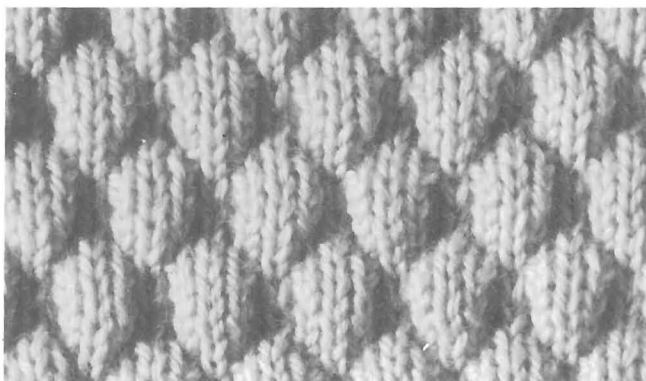
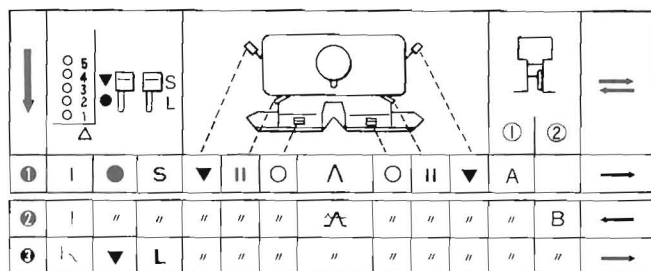
Knit following the same Operation Table as for Card No.3.



Card No.2

Knit with Stop Knob at ● on Pattern Row Number 1.

↓ 1 2 3 4 5 6 7 8 9 10											① * =			
	①	I	●	S	▼		○	Λ	○			▼	A	→
	②	"	"	"	"	"	~	"	~	"		"	"	B



L KNOB FUNCTION

When the L Knob is set to L, the Punch Card moves only on every alternate row, thus producing an elongated pattern. To get correct pattern using L Knob, set the Stop Knob and L Knob as follows.

The sample is knitted in Fair Isle with Card No.3.

Set the controls as required in ORDER ①.

The 1st row (ORDER ②)

Stop Knob..... ●
L Knob..... S

Following rows (ORDER ③)

Stop Knob..... ▼
L Knob..... L

Colours in the L Knob Indicator alternate.

Blue..... the current row will be repeated.

Red..... the Punch Card moves to the next row and a new pattern row will be knitted next.

Work other operations in the same way as for other types of patterns.

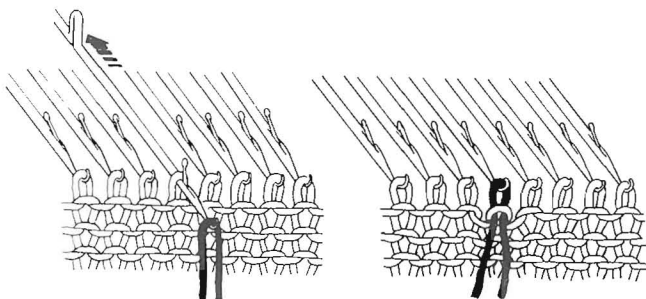
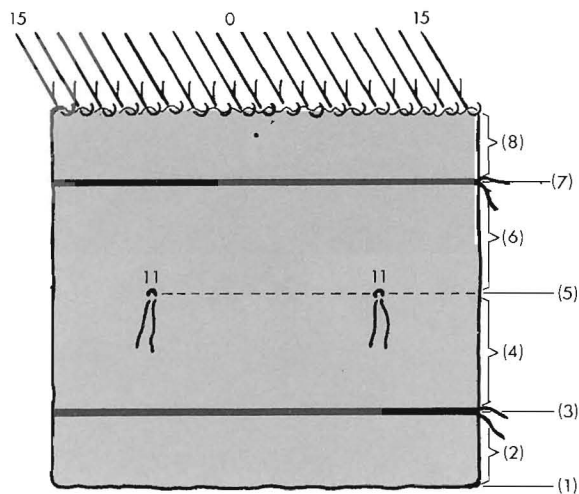
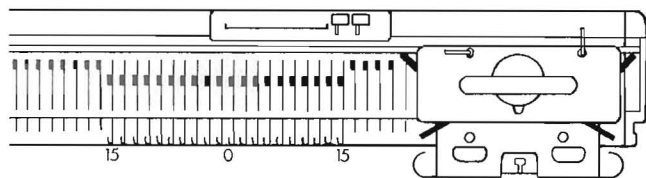
Tuck Stitch using Punch Card No.2.

Slip Stitch in colours using Punch Card No.4.

Punch Lace using Punch Card No.1.

The L Knob can also be used, if the Punch Card is suitable, for FAIR ISLE, WEAVING, SLIP STITCH AND PUNCH LACE.

TAKING A TENSION GAUGE



Tension Gauge

Tension gauge indicates how many stitches and rows per 10cm.

It is very important to take correct tension gauge to knit a desired garment in the size you selected.

To take correct tension gauge, the tension swatch must be knitted in the same stitch type, with the same yarn and Stitch Dial as to be used for a garment.

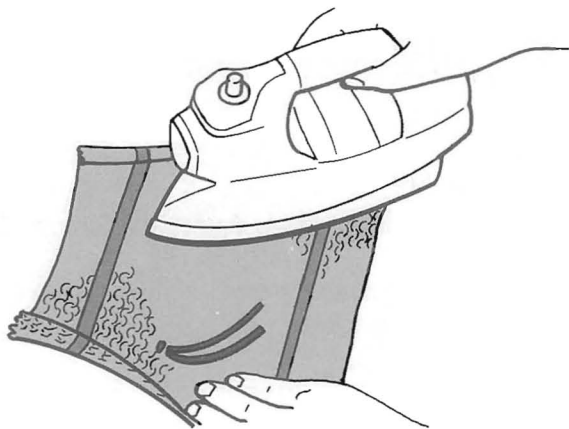
Knit a Tension Swatch.

Prepare the yarn you selected and little amount of different colour yarn for marking on the swatch.

Determine the Stitch Dial referring to page 10, but it is recommended to try knitting by changing stitch dial setting till you obtain suitable stitch dial number for the yarn and stitch type.

Then knit the swatch in the manner as instructed below.

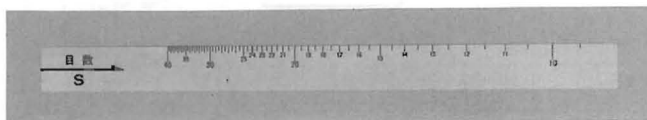
- (1) Arrange 15 needles on both sides of the centre(0), 30 needles in total for cast-on.
- (2) Cast-on with main yarn and knit 10 rows continuously in selected stitch type with suitable Stitch Dial.
- (3) Exchange the main yarn in the Yarn Feeder for the contrast yarn, and knit two rows in stockinet.
- (4) Cut the contrast yarn and rethread the main yarn, and knit 15 rows in selected stitch type with suitable Stitch Dial.
- (5) Push both 11th needles from the centre(0) to D position and place a piece of contrast yarn on each of those needle hooks. Then push those needles back toward B position by hand.
- (6) Knit another 15 rows.
- (7) Thread the contrast yarn and knit 2 rows in Stockinet.
- (8) With main yarn, knit 10 rows in selected stitch type with suitable Stitch Dial.



Remove the yarn from the Yarn Feeder and remove the swatch from the machine by moving the Carriage once.

TAKE NOTE OF THE STITCH DIAL NUMBER.

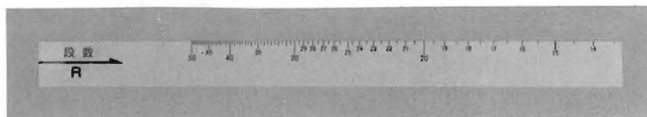
Allow several hours for the swatch to return to its natural condition. Press the swatch lightly with a steam iron, or with an ordinary iron over a damp cloth.



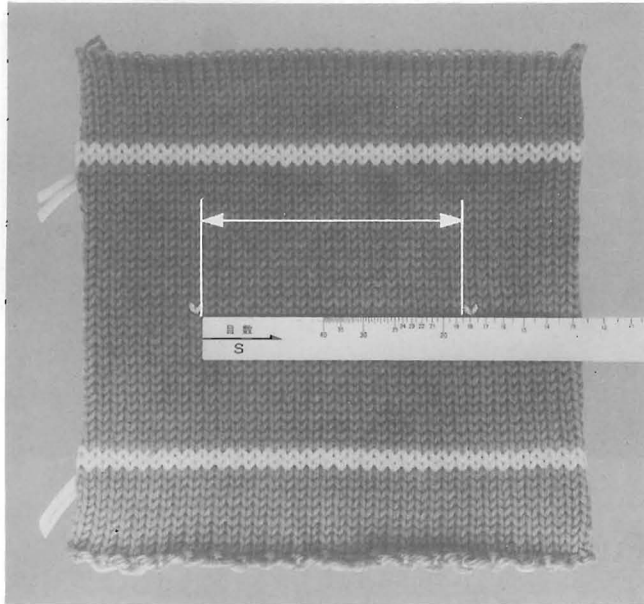
Gauge Scale

This scale is designed to get how many stitches and rows per 10cm., measuring between yarn marks on the tension swatch.

The scale has two sides. The side "S" is used for measuring stitches and the side "R" is for rows.



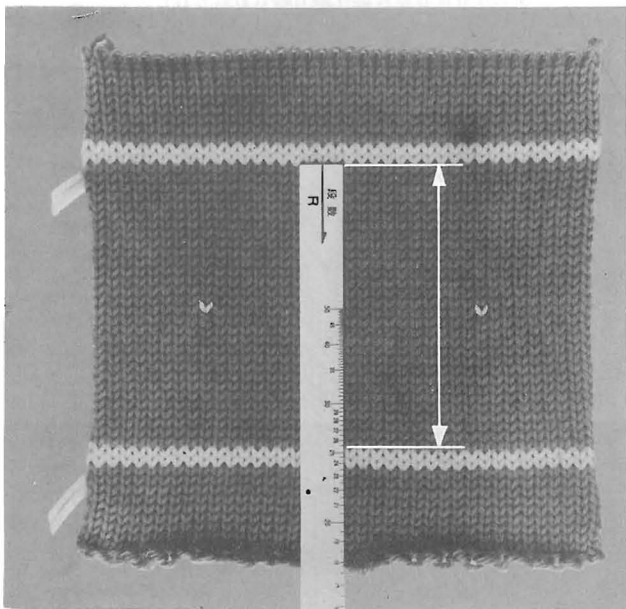
Following the instructions on the next page, measure and get correct tension gauge.



How to measure the tension swatch

Stitch (Horizontal)

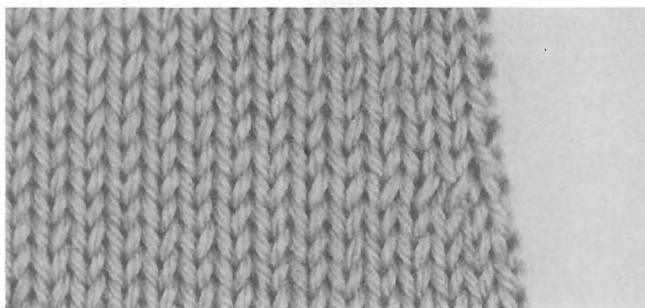
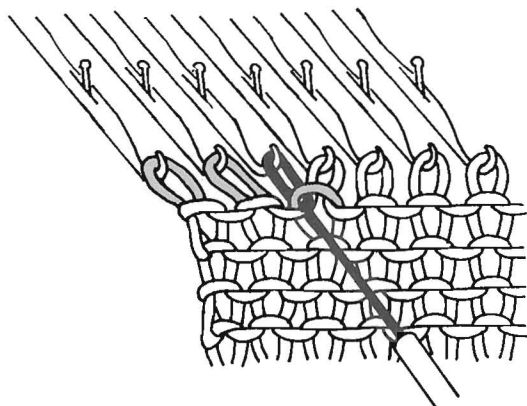
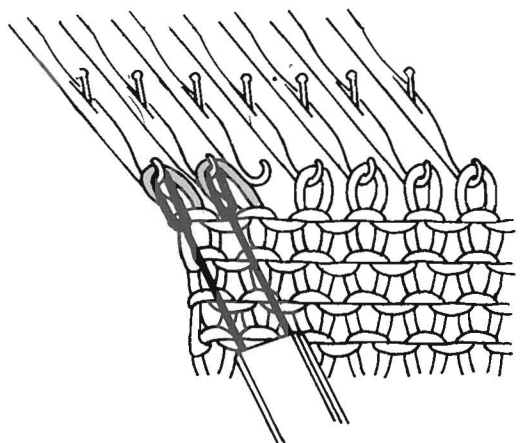
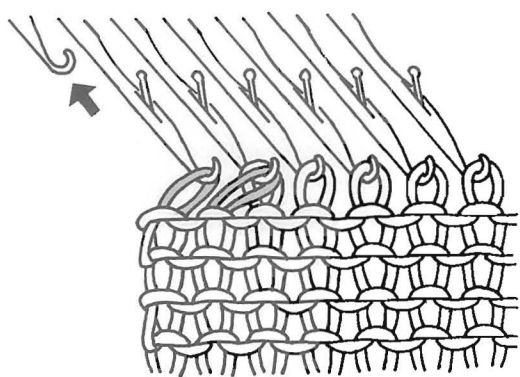
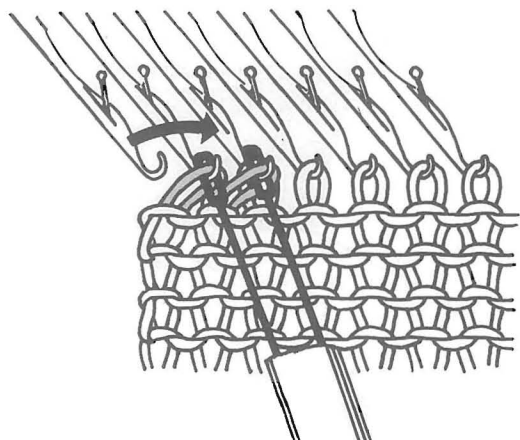
Place the Gauge Scale (blue) with the "S" side up, onto the tension swatch so as the left end of the Scale is touching the inside of the stitch in a contrast yarn. Measure to the point of the other contrast stitch and the number which corresponds with this stitch. The Scale should be read from the side indicated by the arrow, i.e. from the left side.



Row (Vertical)

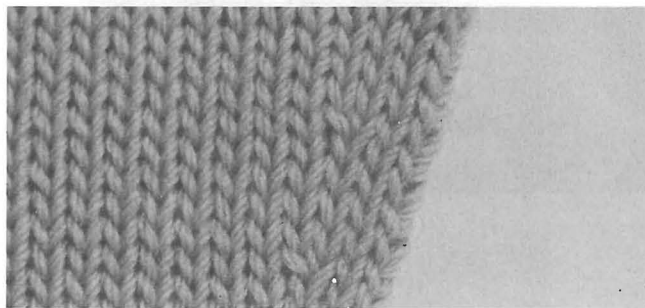
Place the Gauge Scale (blue) with the "R" side up, onto the tension swatch so as it covers the length in between the rows knitted in a contrast yarn. Measure this length and the number indicated on the Scale should be read from the side indicated by the arrow.

KNITTING TECHNIQUES



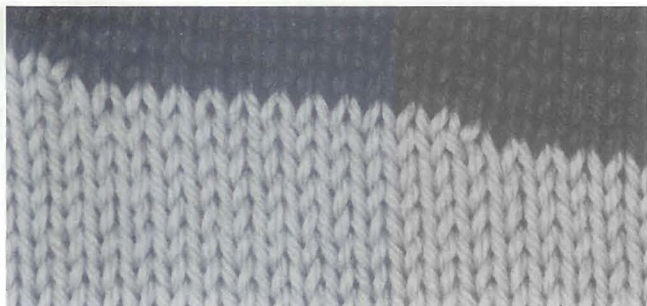
Fully fashioned decrease

1. With two prong Transfer Tool, transfer the two end stitches onto one needle inside.
In case of every other needle selection, use three prong Transfer Tool.
2. Push the end empty needle back to A position.
Continue to knit.



Fully fashioned increase

1. Push the adjacent empty needle to B position. With 2 prong Transfer Tool, transfer the two end stitches one needle out.
In case of every other needle selection, use three prong Transfer Tool.
2. Pick up the loop below the third stitch and place it onto the empty needle as shown.
Continue to knit.

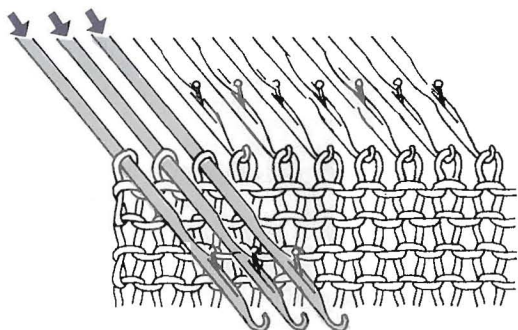


PARTIAL KNITTING is a practical method for shaping a gentle slope, such as a shoulder, bust darts and so on.

Partial knitting by decreasing stitches

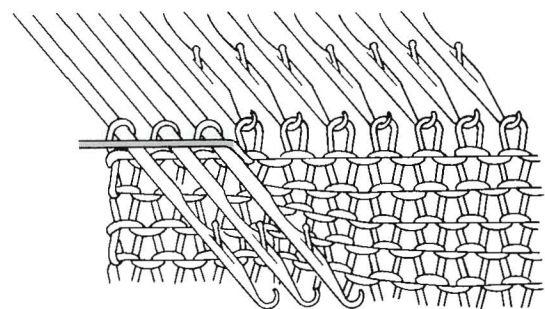
Set the Russel Levers to I position.

1. Push the needles to be decreased to D position on the opposite side of the Carriage.



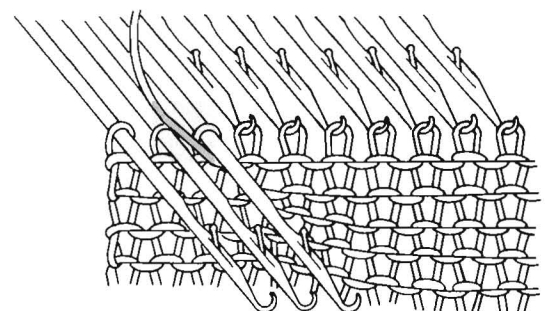
2. Knit 1 row.

The needles in B position knit the yarn. The needles in D position remain inactive and the yarn passes over them.



3. To prevent a hole from being formed in the fabric pass the yarn under the first inside needle in D position and over the other needles.

(If partial knitting is required on both sides, apply step 1 before knitting the next row.)

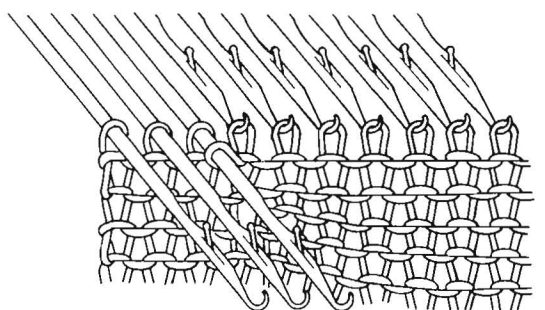


4. Knit 1 row by moving the Carriage back. This completes the first operation of partial knitting.

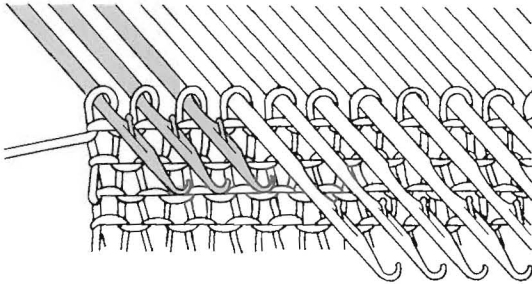
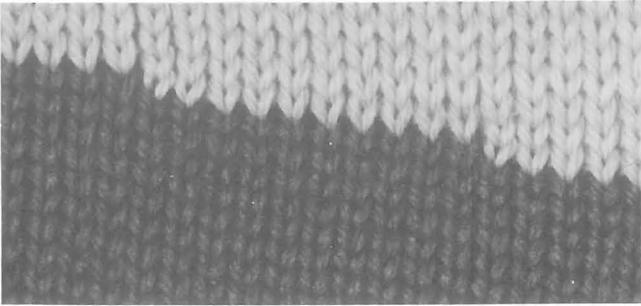
(If partial knitting is required on both sides, apply step 3.)

Repeat steps 1 — 3.

When the partial knitting is completed, push back the needles in D position to C position and continue to knit.



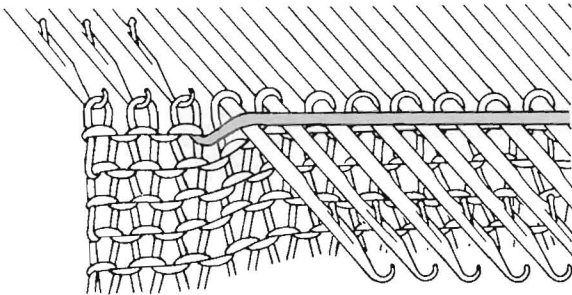
Partial knitting by increasing stitches



Set the Russel Levers to I position.

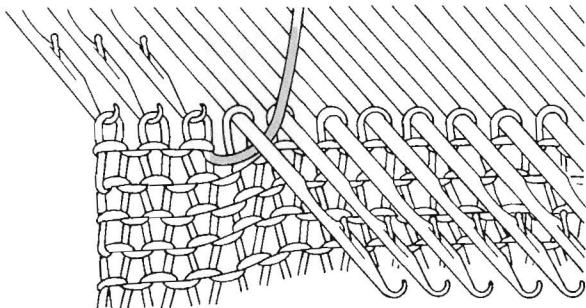
1. Push all working needles to D position.
2. On the Carriage side, push the needles to be increased back to C position.

In case of pattern knitting, push the needles to be increased to B position with a Transfer Tool.

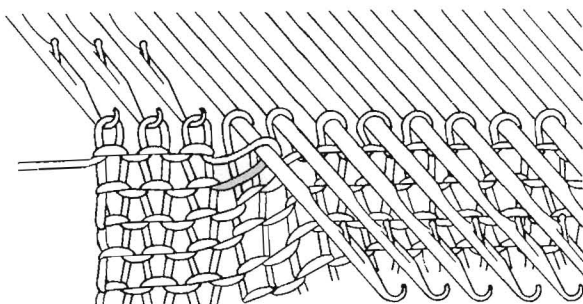


3. Knit 1 row.

The needles in C position knit the yarn. The needles in D position remain inactive and the yarn passes over them.



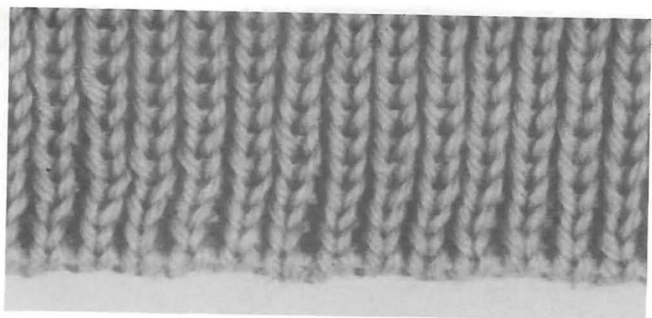
4. To prevent a hole from being formed in the fabric, pass the yarn under the first inside needle in D position and over the other needles.



5. Knit 1 row by moving the Carriage back.

Repeat steps 2 — 5.

K1. P1. Rib

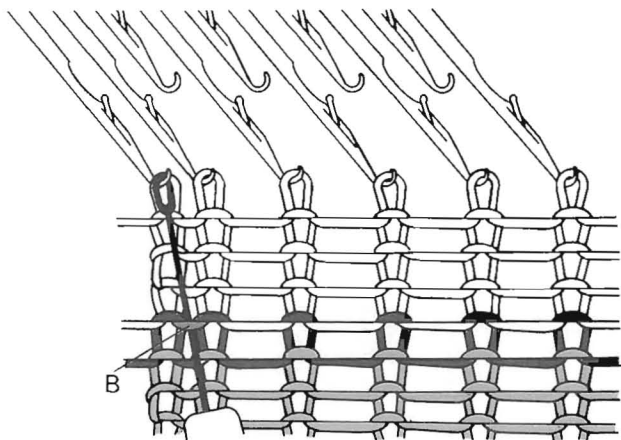
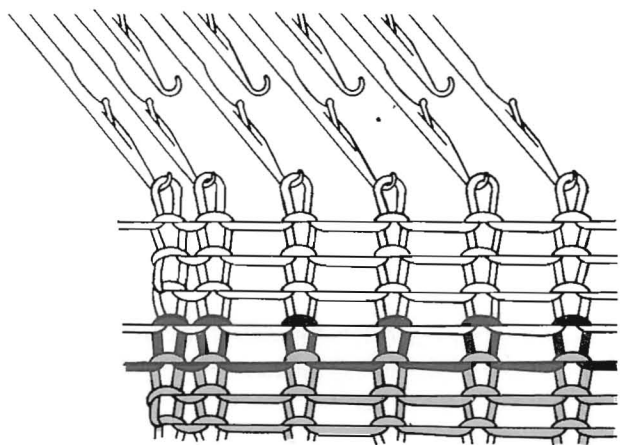
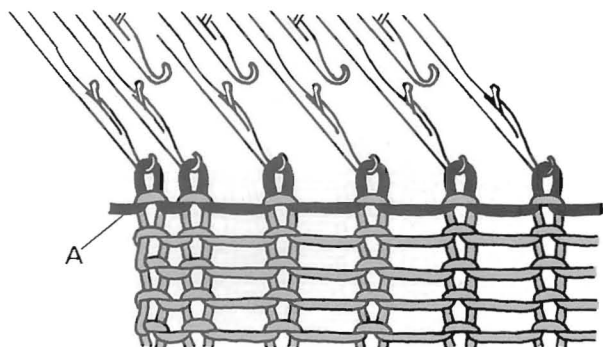
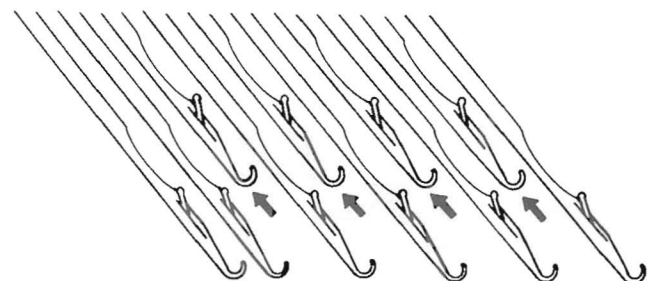


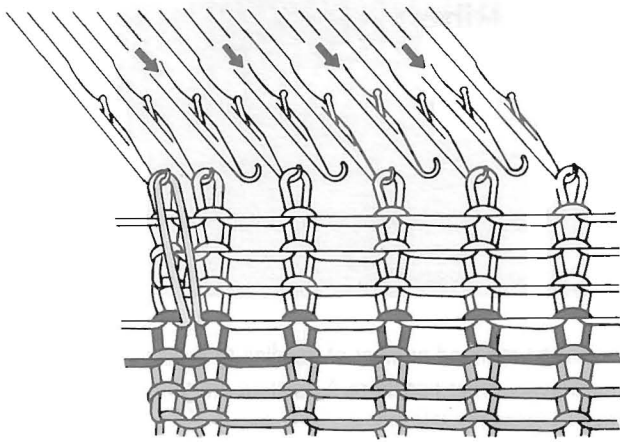
1. Push the required number of needles to B position and push back every other needle to A position starting from the third needle from the left side.

2. Cast-on and knit several rows of waste knitting.
Hang Claw Weights on both sides of the fabric.
Knit 1 row with Ravel Cord "A".

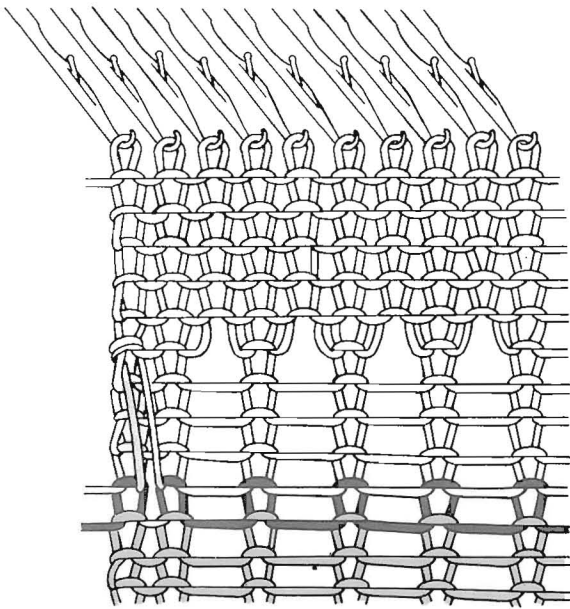
3. Thread the main yarn and knit 4 rows with Stitch Dial at 0.

4. Insert the Transfer Tool into the left end sinker loop "B" on the first row of the main knitting.

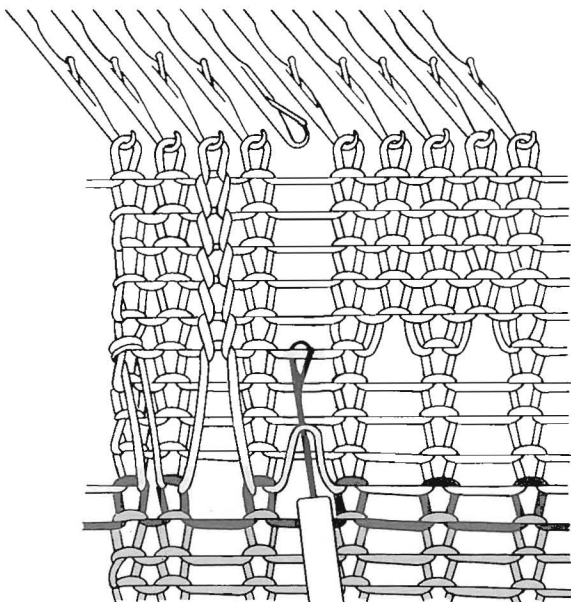




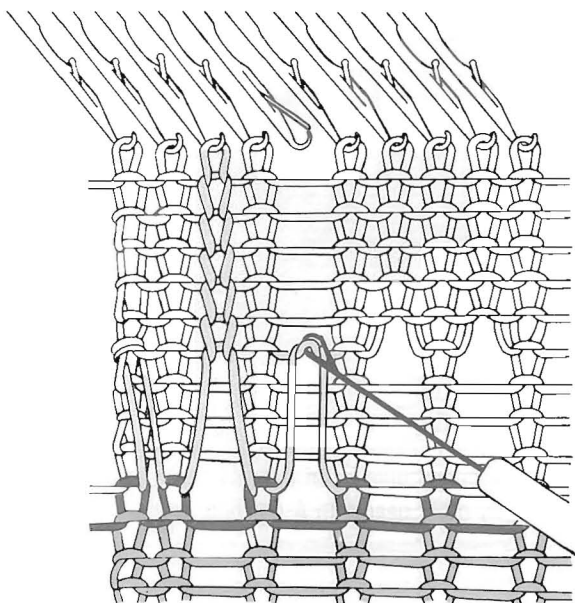
5. Place the loop onto the end needle. Push those needles that were pushed back to A position in step 1, to B position.



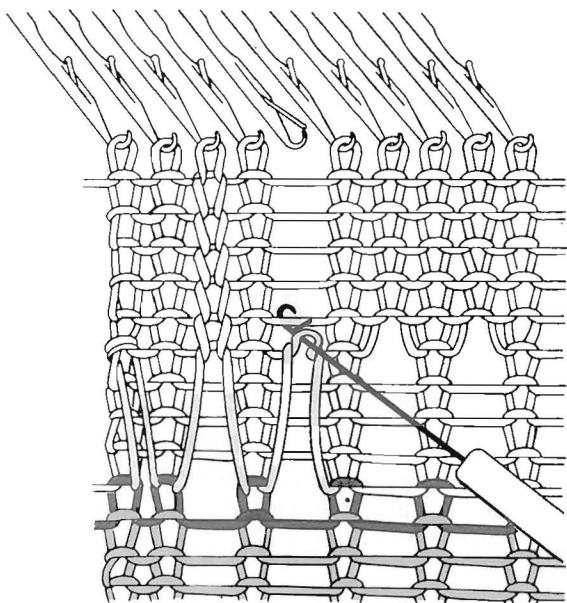
6. Knit the length required for ribbing with the Stitch Dial 2 numbers lower than that for Stockinet knitting.



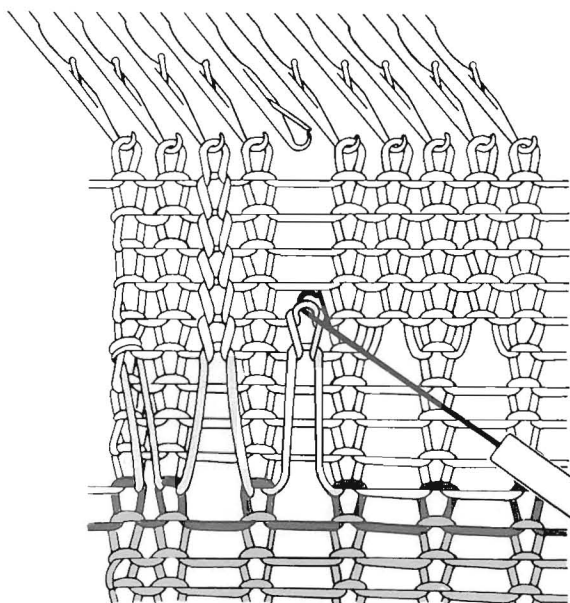
7. Insert the Tappet Tool into the loop of the first row of main knitting and unravel the stitches as shown. Skip over the next 3 rows and hook the yarn on 5th row crossing above into the hook of the Tappet Tool.



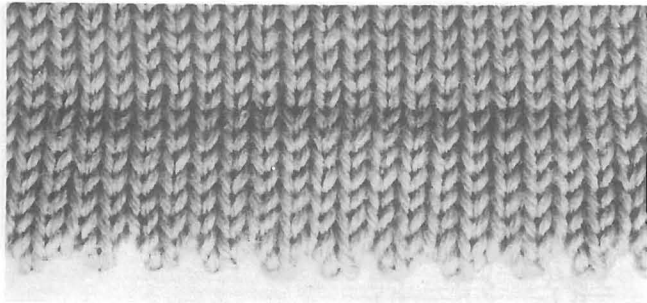
8. Pull the Tappet Tool towards you. The first stitch will slip off the Tappet Tool forming a new stitch.



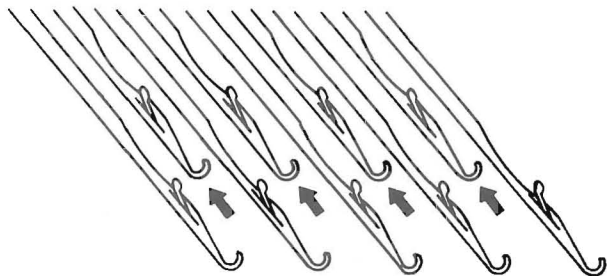
9. Hook the yarn on the next row crossing above and pull the Tappet Tool towards you.



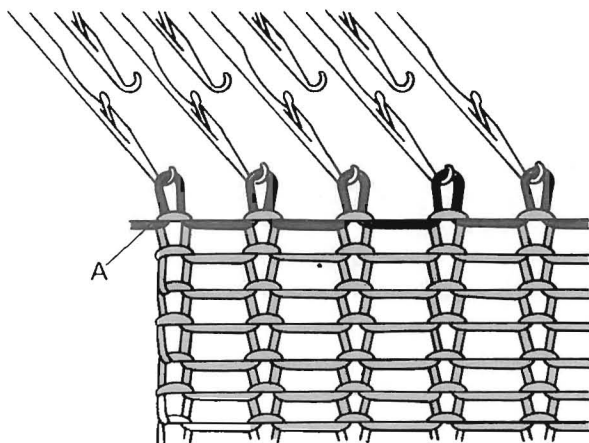
10. Repeat step 9 for every row.
Place the last stitch back onto its needle.
Reform every other stitch in the same manner as above.



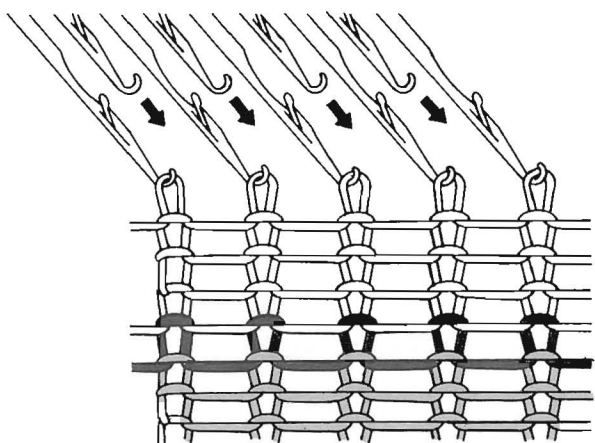
Picot Hem



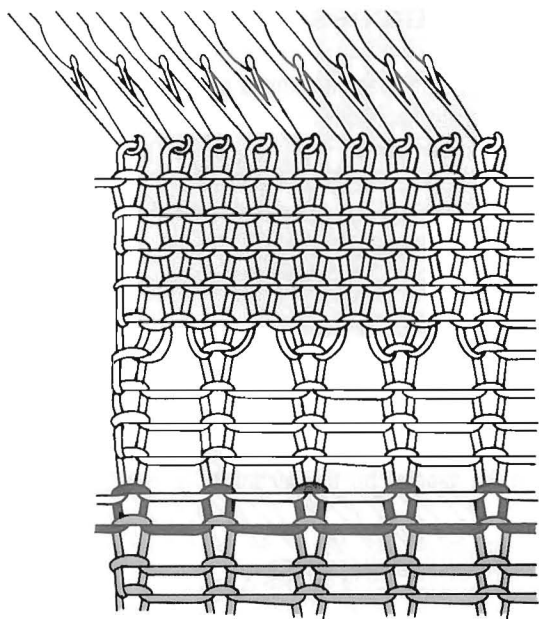
1. Arrange required number of needles in B position and push back every other needle to A position.



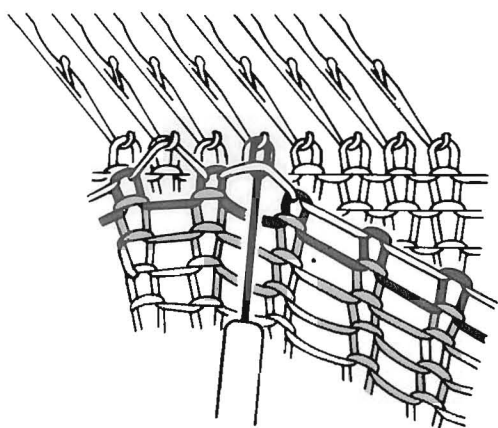
2. Cast-on and knit several rows of waste knitting, then knit 1 row with the Ravel Cord "A".



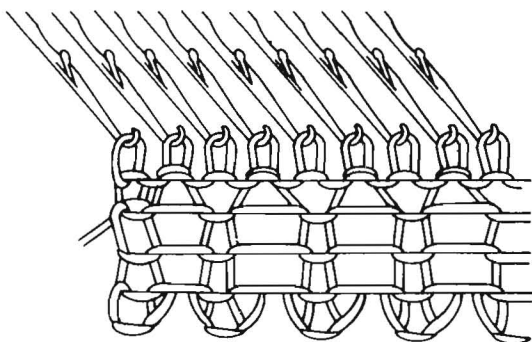
3. Set the Stitch Dial 2 numbers lower and knit with the main yarn 2 rows fewer than required for the length of hem.
4. Push those needles that were pushed back to A position in step 1, to B position.



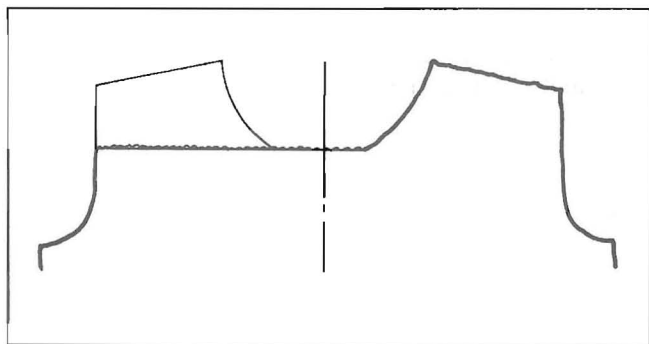
5. Reset the Stitch Dial to that originally used for stockinet knitting and knit required number of rows for the length of the hem.



6. Place the sinker loops on the first row of the main knitting onto their corresponding needles.
Pull out the Ravel Cord to remove the waste knitting.

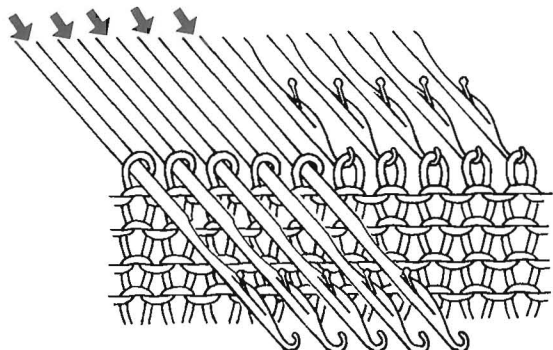


7. Set the Stitch Dial 1 number higher than the number originally used.
Push the needles in B position to D position and knit 1 row.
8. Reset the Stitch Dial to the original number and continue to knit.



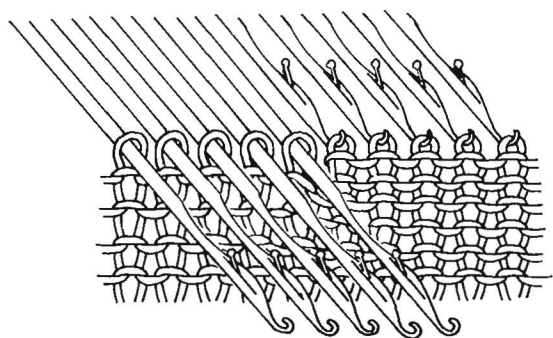
Holding stitches

If it is necessary to shape a garment partly, following methods are practical to hold the stitches for later shaping or work.



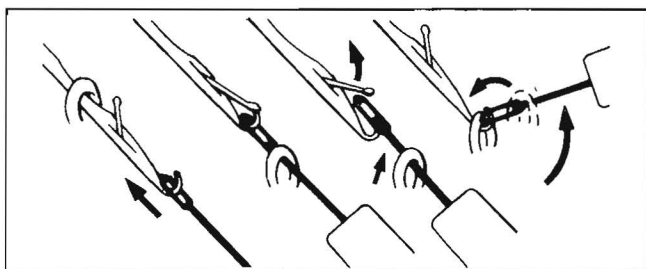
In D position:—

1. Push the needles for the section to be held, to D position.

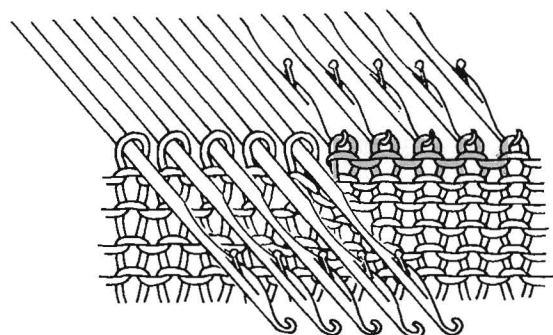


2. Set the Russel Lever to I position and continue to knit.

To knit the stitches which have been in holding position, push the needles back to C position, and continue to knit.



* When pattern knitting is in progress, push the needles which have been in holding position back to B position using a Transfer Tool, replacing their stitches correctly back in their hooks.

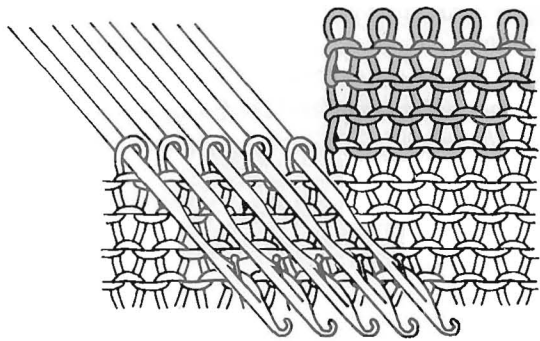


On Waste Knitting:—

Set the Cam Lever to " ^ " position and the Russel Levers to I position.

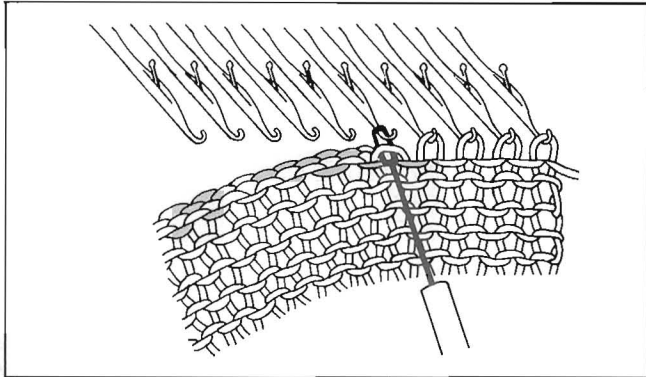
1. Leaving the needles for the stitches to be held on waste knitting in B position, push the other needles to D position.

Thread a contrast yarn for waste knitting into the Yarn Feeder and knit several rows.

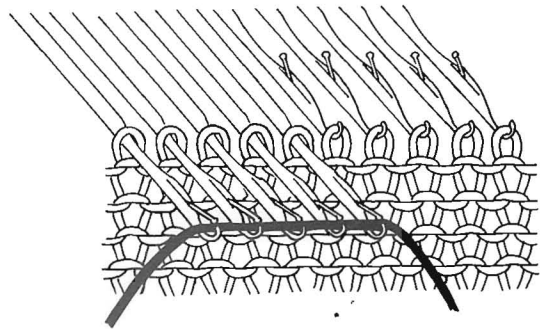


2. Remove the section on the waste knitting from the machine.

Reset the Carriage to original setting and continue to knit.

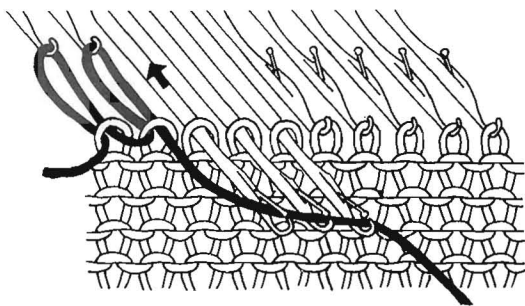


When re-knitting the stitches held on waste knitting, pick up the stitches on the last row of the main knitting and place them onto the corresponding needles.

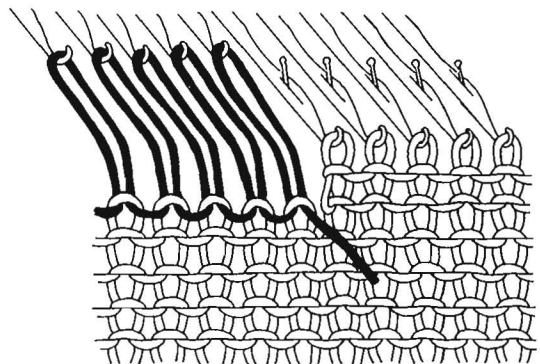


Using Ravel Cord:—

1. Push the needles for the section to be held, to D position, and lay the Ravel Cord across the hooks.



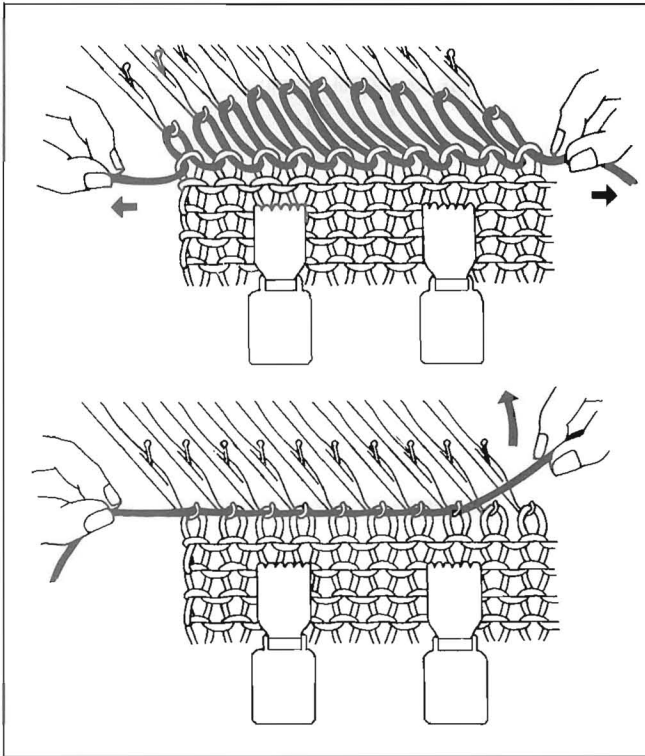
2. Starting from the end needle, knit Ravel Cord needle back to A position manually one by one.



3. Continue to knit.

Before knitting each row, make sure that the needles are correctly placed in A position.

(If not, push them back to A position properly.)

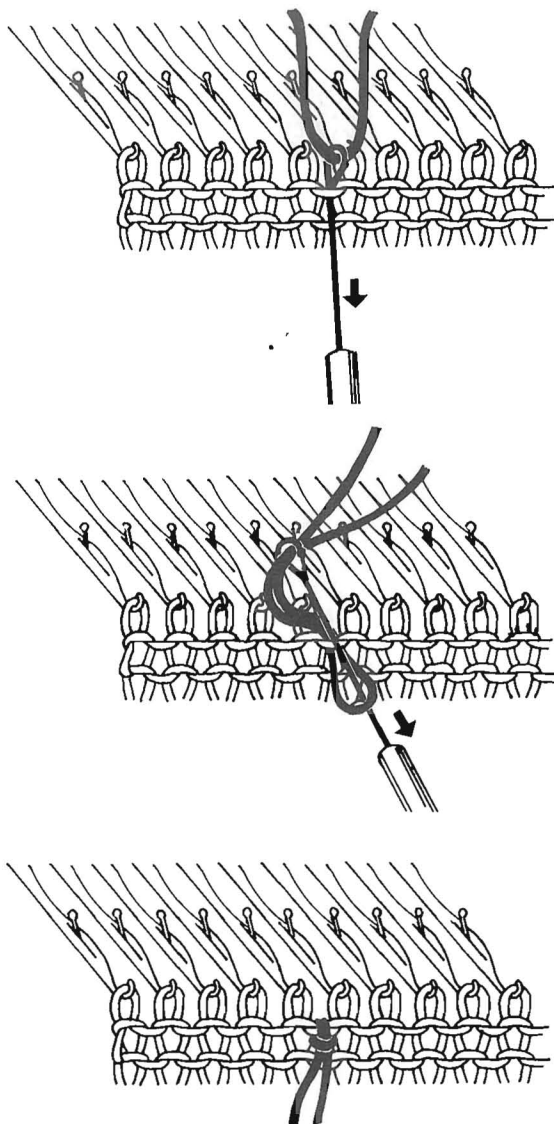


To bring the needles back into B position, pull both ends of the Ravel Cord by hands.

Note: Before pulling the Ravel Cord, hang the Claw Weights on the fabric.

When the needles are brought to B position, hold the left end of the Ravel Cord and pull the other end in an upward motion.

The stitches are replaced in the hooks.



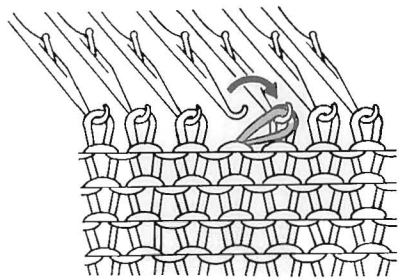
Put the yarn mark

Insert the Tappet Tool into the sinker loop that is to be marked, and by taking a piece of waste yarn, form a loop on the Tappet Tool. Pull the Tappet Tool through the sinker loop.

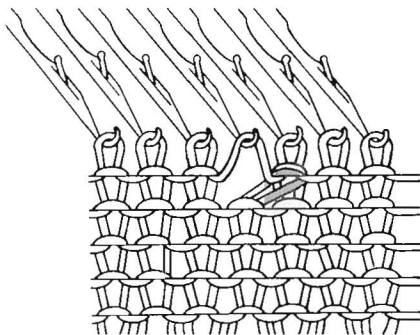
Catch both ends of the waste yarn and pull out the Tappet Tool through the loop.

Buttonhole

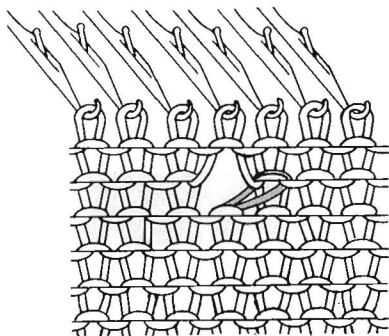
1. Place 1 stitch onto its adjacent stitch.



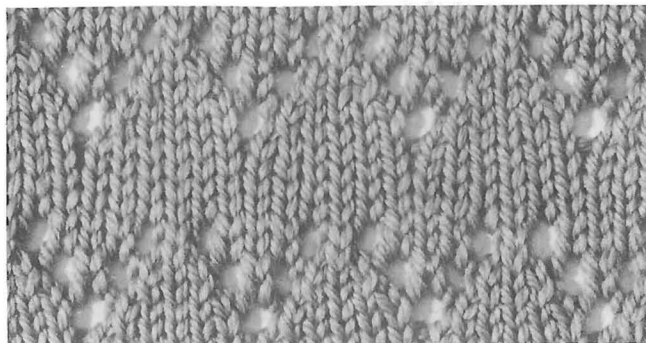
2. Knit 1 row so that a hole is formed.



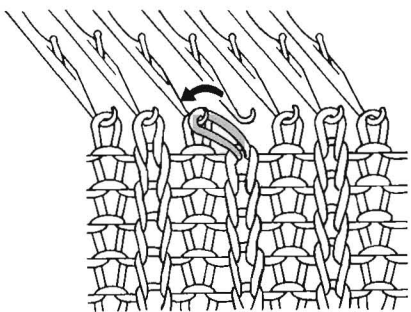
3. Continue to knit.



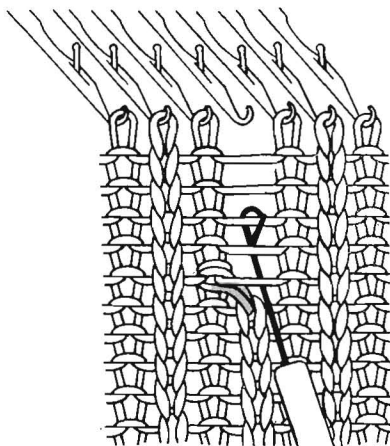
Applying buttonhole method, openwork can be formed.



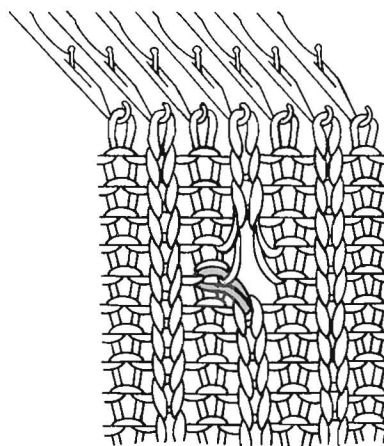
K1. P1. Rib



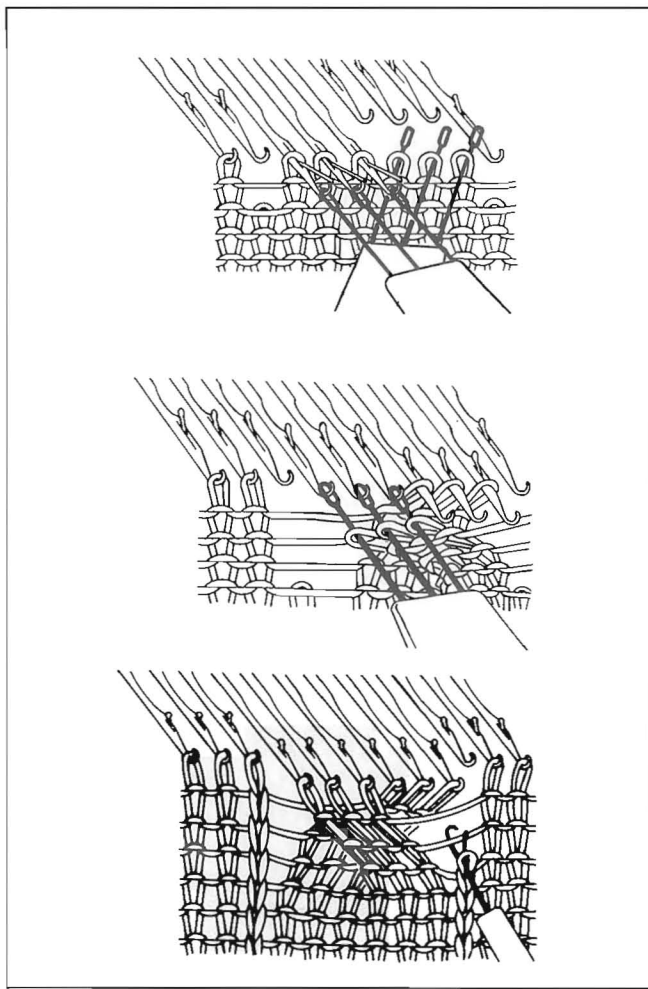
1. Reform the stitch for K1.P1. Rib and place the reformed stitch onto its adjacent needle.



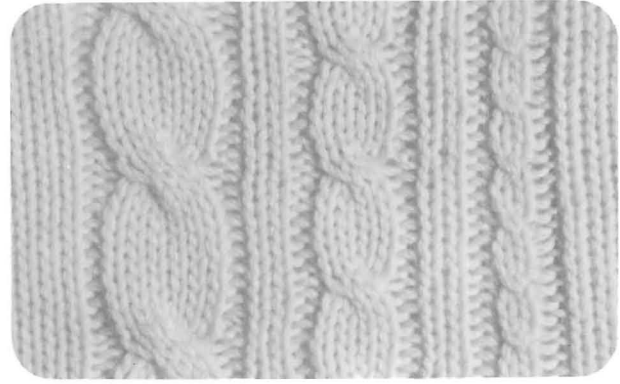
2. With the empty needle in B position, continue to knit. Unravel the row and insert the Tappet Tool behind the first two rows and hook the third row.



3. Continue to reform the stitches for K1.P1. Rib. Use the side as wrong side.



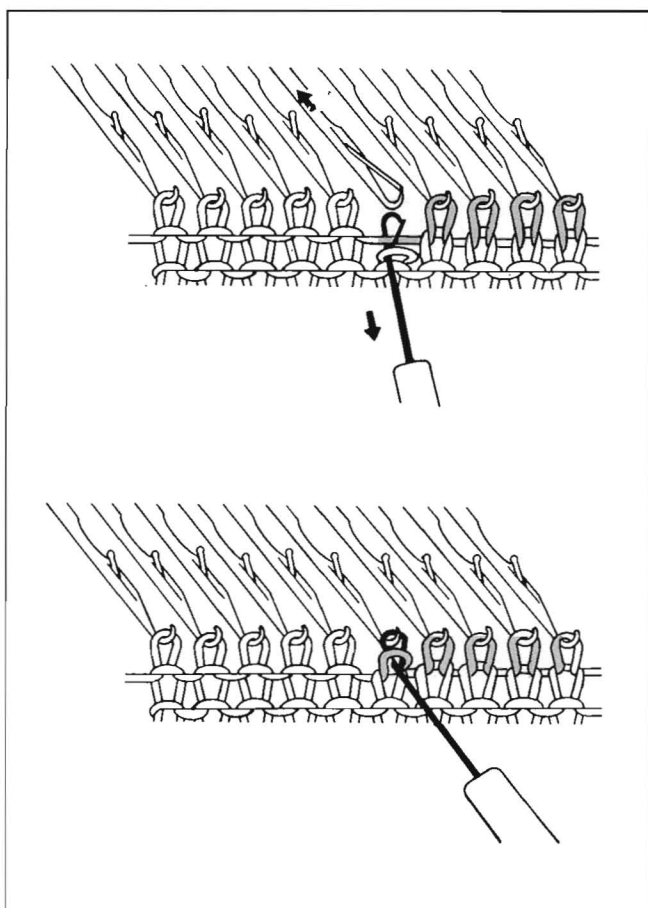
Cable pattern



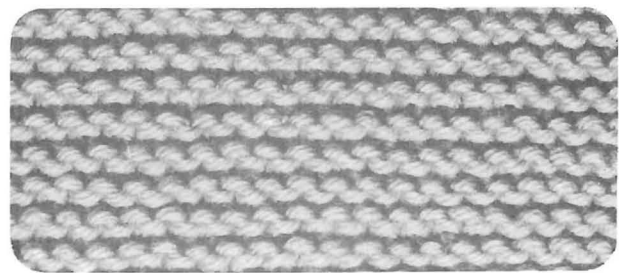
Cable pattern is formed by crossing a group of stitches over another group of stitches using two Transfer Tools.

Try a cable of 6 knit stitches.

1. Drop one stitch at each outside of those 6 stitches. Using a 3-prong Transfer Tool, pick up 3 stitches next to the first 3 stitches as shown.
2. Cross those 2 Transfer Tools and replace each 3 stitches to new needles.
3. Reform the dropped stitches at both sides of the crossed stitches using the Tappet Tool, and replace them onto the original needle.
4. Before knitting, push those 6 needles into C position, and continue to knit to the next position for crossing the stitches and repeat the above procedure.



Garter stitch



Garter stitch is used for laps, collars, borders, etc.

Knit the pattern purling the stitches every other row.

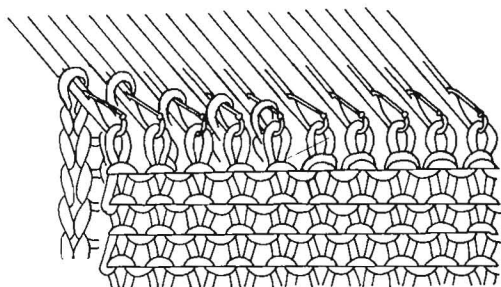
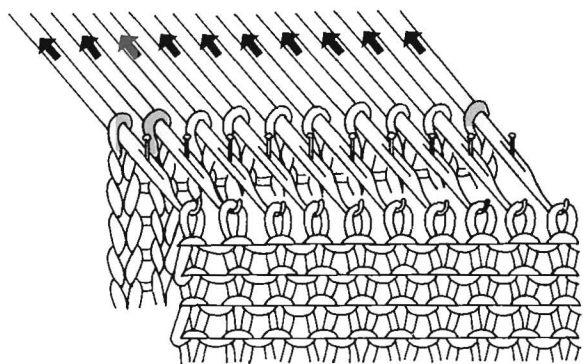
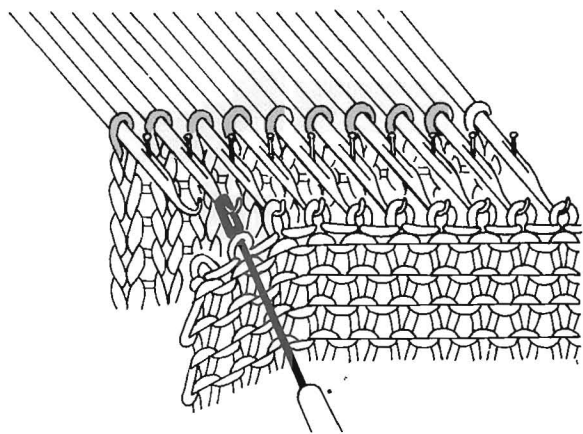
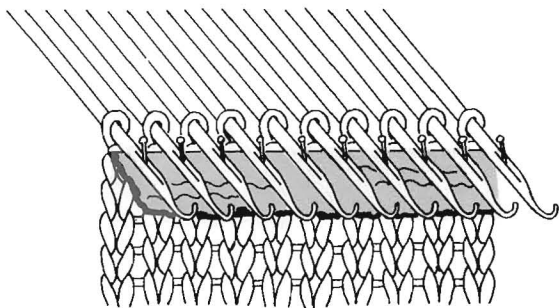
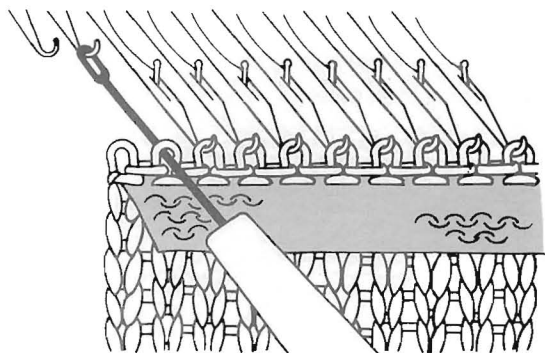
1. Set the Stitch Dial 2 numbers lower than that for Stockinet knitting. Knit 2 rows in stockinet.
2. Insert the Tappet Tool into the stitch below that which is hooked on the needle, and push the needle to D position.
3. Push the needle back to B position and pull the Tappet Tool in the arrowed direction forming a purl stitch.
4. Place the newly formed stitch back onto the needle. Repeat steps 2 — 4 for all stitches on the row.
5. Knit 2 rows of stockinet and re-form the stitches on the second row in the same manner as done in steps 2 — 4.

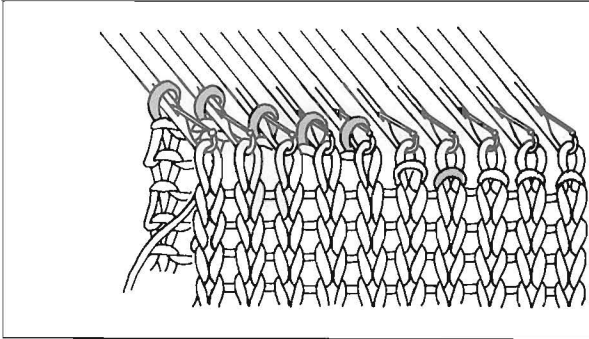
Joining on the machine

Stitch to Stitch

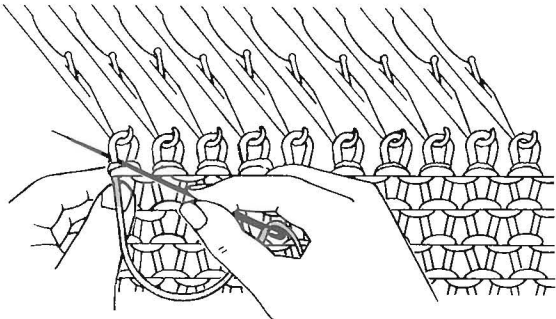
This is used for joining shoulders, etc.

1. With the right side of the first fabric facing you, pick up the stitches on the last row of the main knitting and place them onto the needles.
2. Push the needles to D position and bring the stitches of the fabric behind the latches. Unravel the waste knitting.
3. Place the stitches on the last row of the main knitting of the second fabric onto the needles with its wrong side facing you.
4. Unravel the waste knitting.
5. Push the needles towards B position. The rear stitches will slip off the needles and interloop with the front stitches.



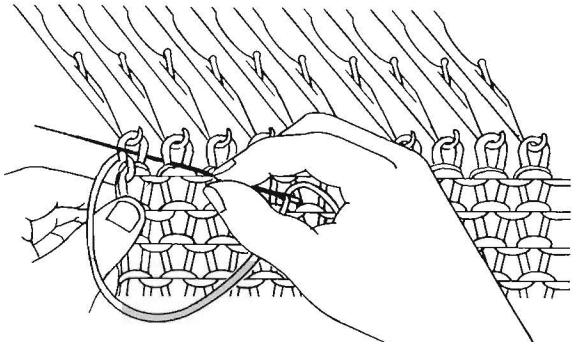


* In case of using the purl side as right side, place the stitches purl sides facing each other.

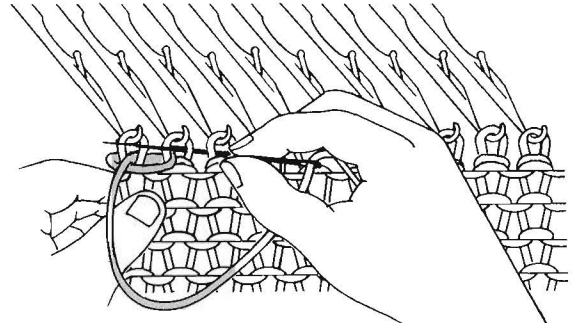


6. Cast off the stitches by using the Back Stitch Method.

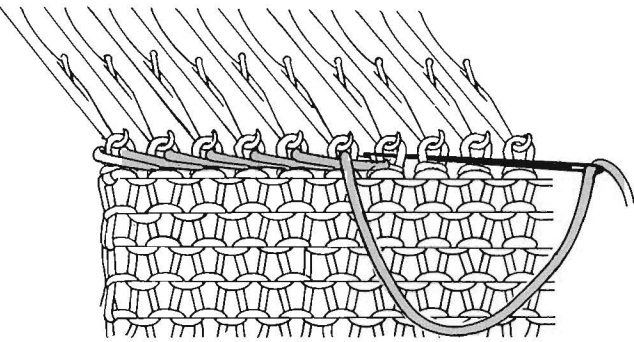
(1) Thread the Tapestry Needle and insert it into the first stitch and pull the yarn.



(2) Insert the Tapestry Needle through the second stitch and pull out from the first stitch.



(3) Insert the Tapestry Needle through the third stitch and pull out from the second stitch.



(4) Repeat steps (2) ~ (3).
Close the last stitch by inserting the yarn and guiding it out the stitch.

Open stitch to side edge

This is used for joining the border to the front open edge of a cardigan, etc.

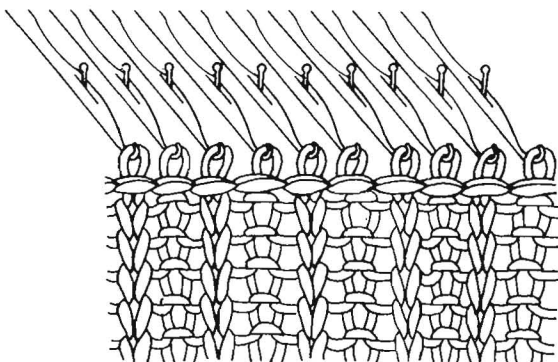
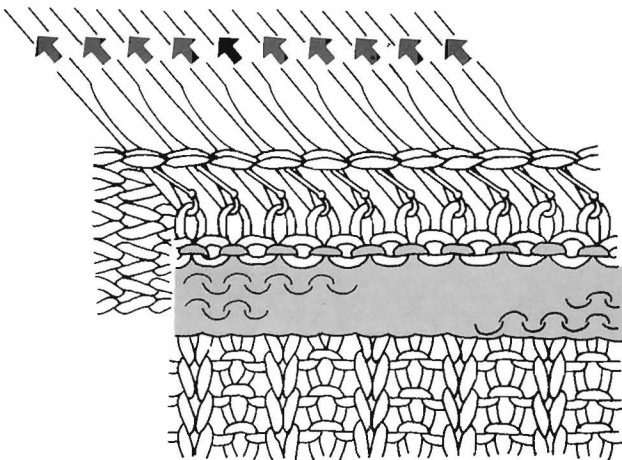
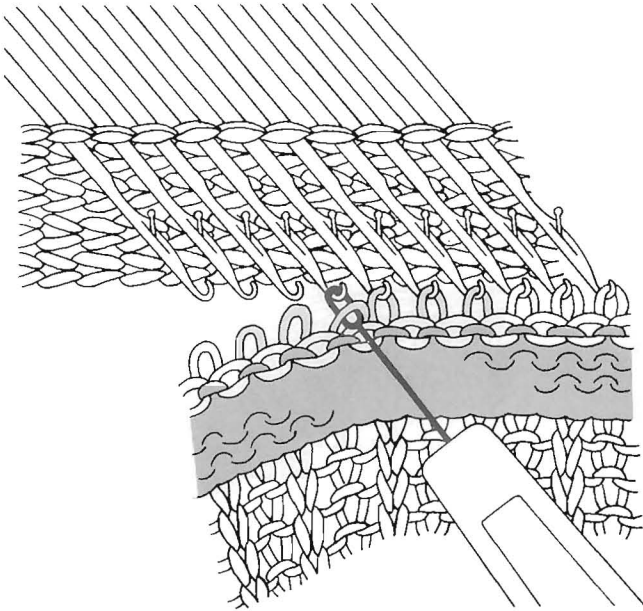
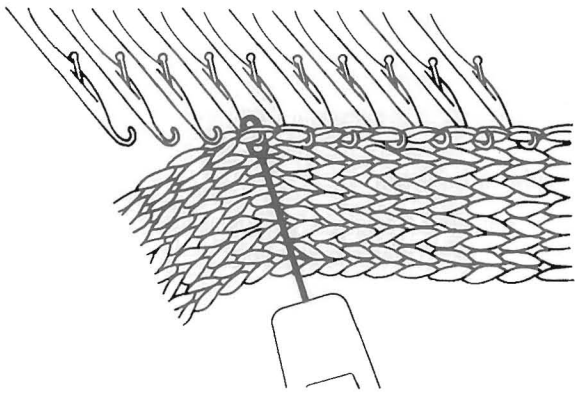
1. With the knit side of the first fabric facing you pick up the stitches on the side edge, omitting a stitch at appropriate intervals, and place them onto the needles.

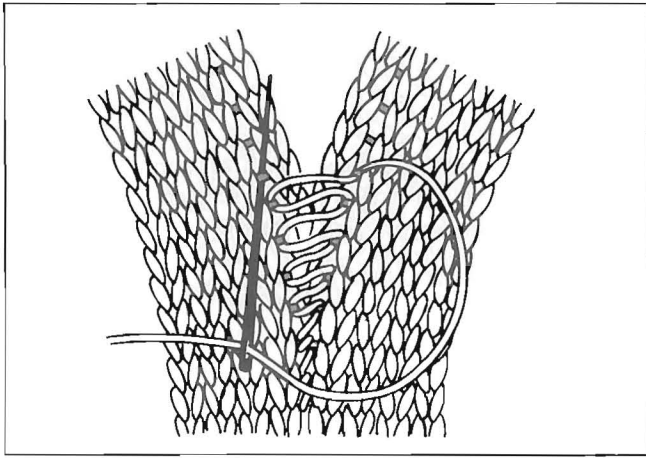
2. Push the needles to D position. With the purl side of the second fabric facing you, pick up the stitches on the last row of the main knitting, and place them onto the same needles.

3. Push back the needles to B position.

4. The stitches behind the latches will slip off the needles. Unravel the waste knitting.

5. Cast off the stitches using the Back Stitch Method. (Refer to Page 49, step 6.)



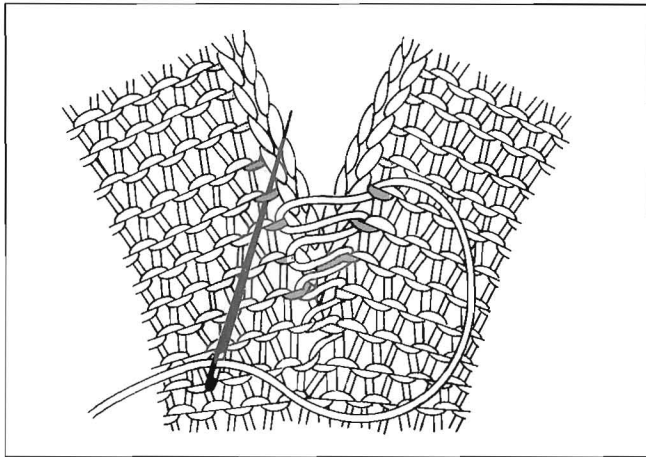


Blind stitch

This is used for joining side seams.
It is recommended to use medium type yarn.

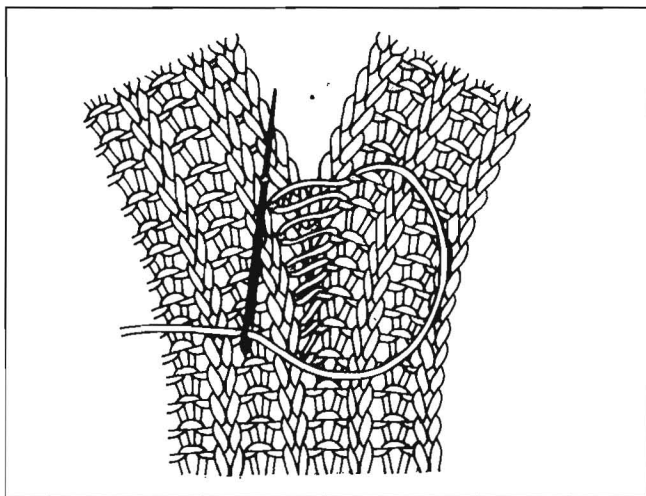
Knit side to be worn.

With the knit sides facing you, pick up each sinker loop between the last 2 stitches from the side edge.
Repeat this manner alternately every row.



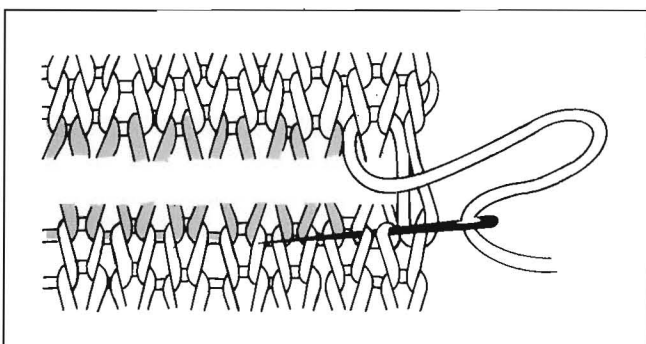
Purl side to be worn.

With the purl sides facing you, pick up each sinker loop between the last 2 stitches from the side edge.
Repeat this manner alternately, every row.



K1, P1, Rib

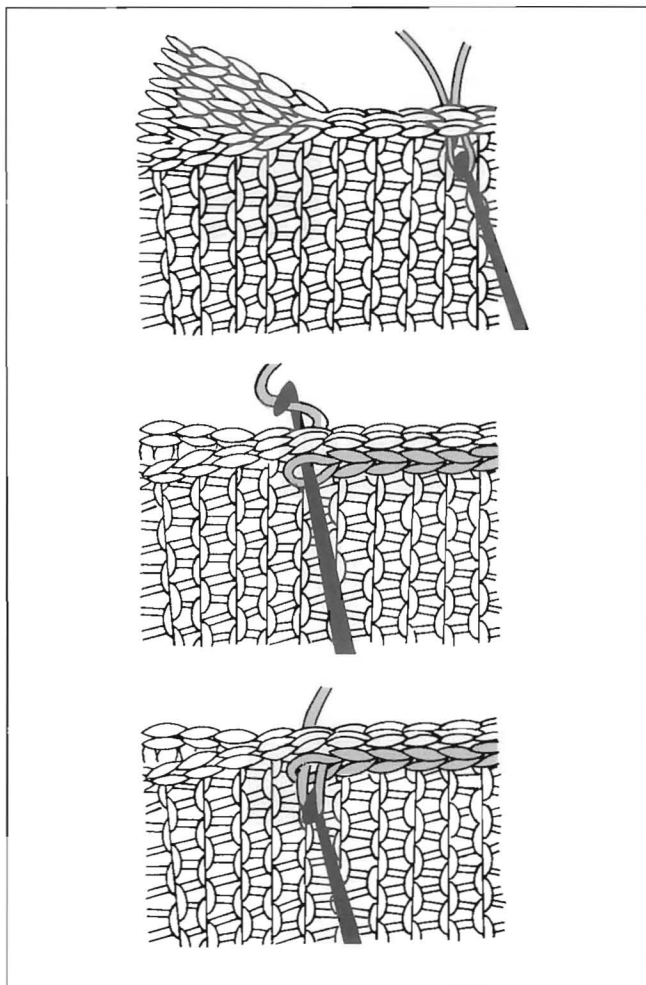
With the sides to be used as the right side facing you, pick up the sinker loops between the last 2 stitches from the side edge alternately every row.



Grafting

This is used for joining two open rows, where ridges formed by seaming should be soft to the touch.

Align both fabrics as shown and thread the knitting yarn through the stitches with the Tapestry Needle.



Slip stitch

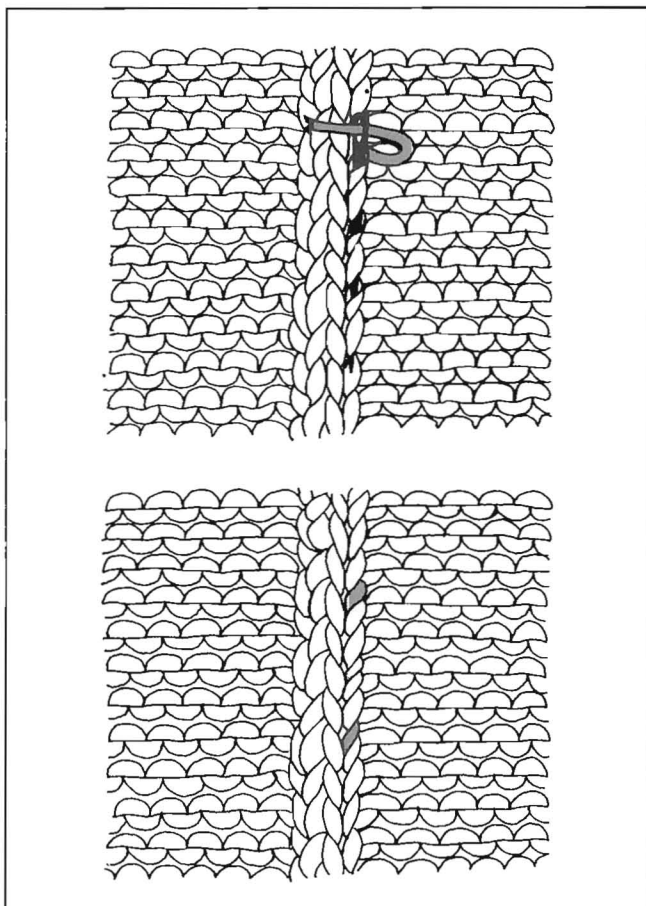
This is used for setting in the sleeves or joining side seams.

1. Place the fabric to be joined with the right sides facing each other. Insert the Crochet Hook into each sinker loop between the last 2 stitches from the side edge, catch the yarn and pull it back.

2. Insert the Crochet Hook into the next loop and catch the yarn.

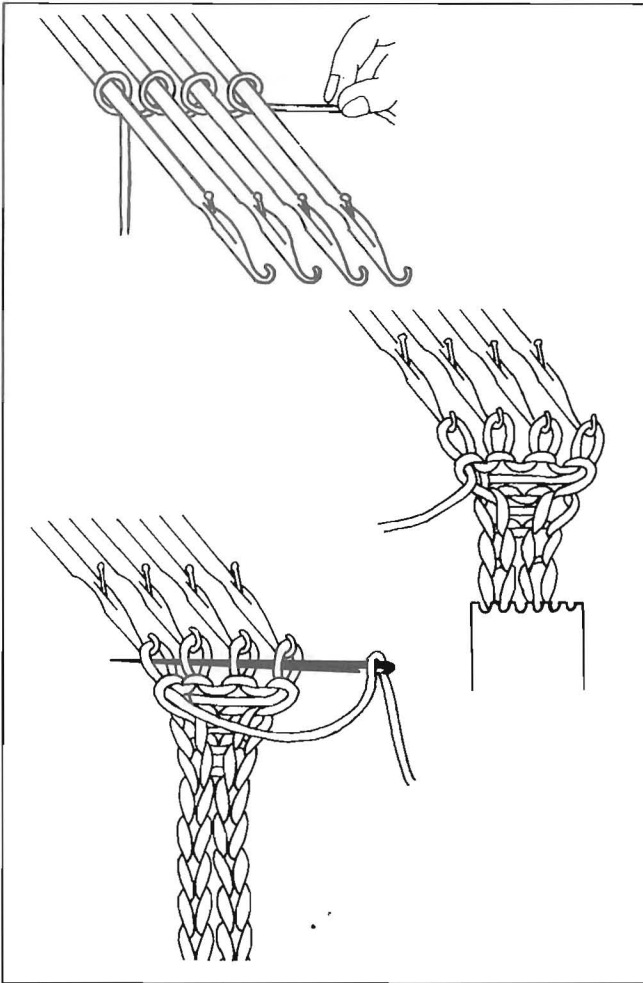
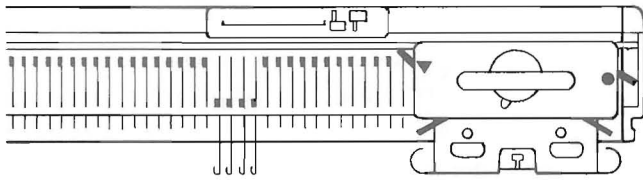
3. Pull back the Crochet Hook.

Repeat steps 2 — 3.



Sew in yarn ends

Thrust the Tapestry Needle into the seamed ridge, thread the yarn end through the eyelet of the Tapestry Needle and sew in the yarn end into the ridge.



Cord knitting

1. Place the Carriage on the right side of the Needle Bed and set the machine as follows.

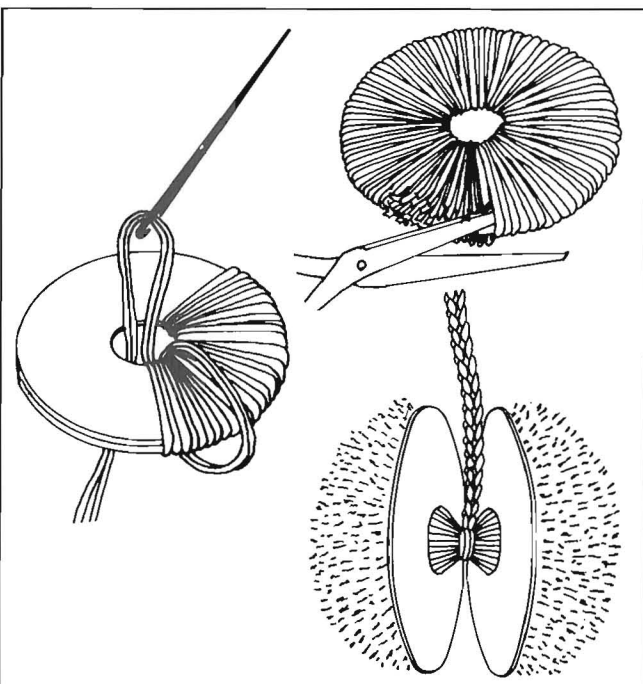
- Cam Lever.....⊖
- Stitch Dial.....lower than Stockinet
- Side Lever.....▼ (left), ● (right)
- Russel Levers.....||
- Weaving Knobs.....○
- Stop Knob.....●

2. Depending on the thickness of the cord, bring 3 ~ 5 needles to D position. Cast-on the stitches by the winding method as illustrated.

3. Move the Carriage back and forth.

4. Repeat step 3 five times, then hang Claw Weight.

5. Continue knitting until the desired length has been achieved.



Pompon

(1) Cut 2 discs out of cardboard with the same diameter for the size of the pompon with a hole of 1/4 of the diameter.

(2) Thread the Tapestry Needle with yarn for the pompon, wind evenly around the discs until the centre hole is almost filled.

(3) Insert one scissor blade between the 2 discs and cut all around the yarn.

(4) Open the discs and with cotton thread, tie the centre together. Pull out the discs and trim the pompon into shape.

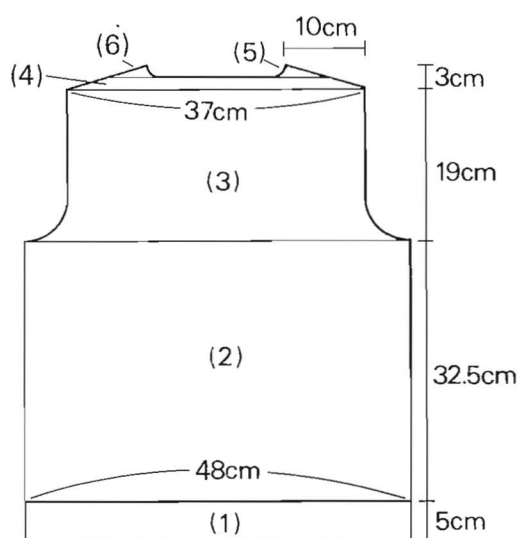
HOW TO KNIT A GARMENT—Lady's pullover—

The instruction below explains how to knit a garment without using the Knit Contour. A pullover is taken as an example based on the size and the tension gauge as shown below.

Measurements of finished garment: Bust..... 96cm.
 Length..... 59cm.
 Back Width..... 37cm.
 Sleeve Length..... 56cm.

Material: Extra thick yarn..... 500gs.

Tension Gauge: 16 stitches by 22 rows to 10cm. sq. measured over Stockinet with the Stitch Dial at 5.



Back

(1) waistband

— Arrange 80 needles and knit waistband by K1. P1. Rib.

* *K1. P1. Rib — Pages 38~40: on step 3, knit 4 rows starting from the right side, and on step 6, set the Row Counter to 000, turn the Row Counter Tripper and knit 12 rows.*

(2) straight up to the armhole

— Stitch Dial 5, knit 72 rows without shaping.
 Row Counter at 084, Carriage at the right side.

(3) shape armhole

— Decrease 5 stitches at the beginning of next 2 rows and 2 stitches of next 2 rows.

* *Decreasing multiple stitches — page 18*

— Decrease 1 stitch at both ends and following alternate rows, 3 times in all till the Row Counter shows 092.

* *Decreasing 1 stitch — page 18*

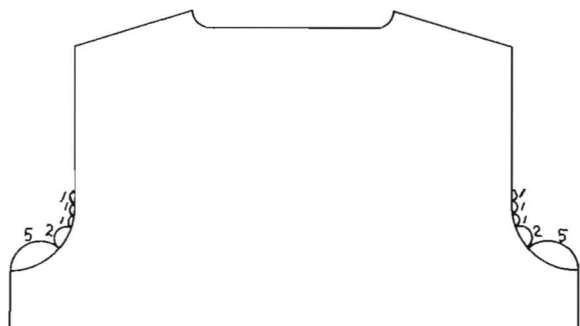
— Knit 34 rows without shaping.
 Row Counter at 126, Carriage at right side.

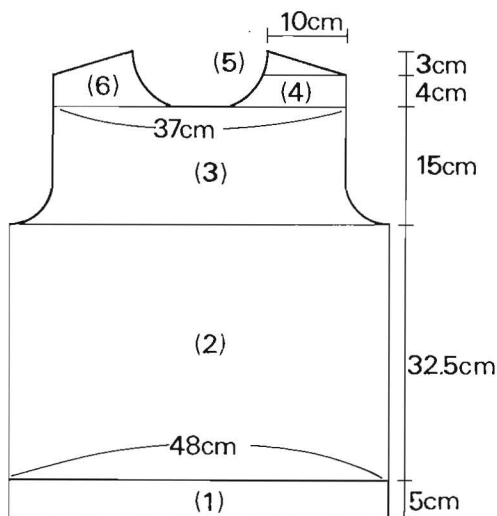
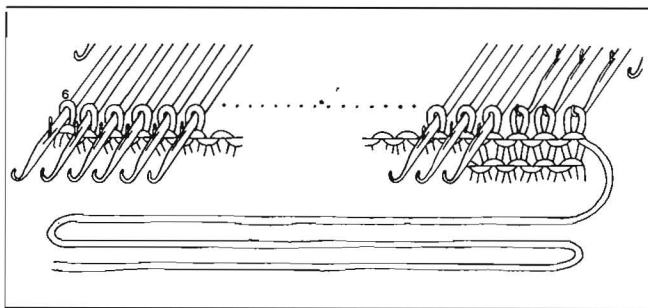
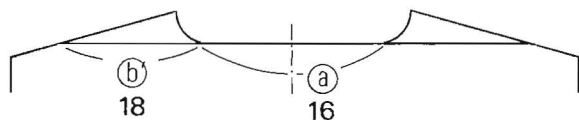
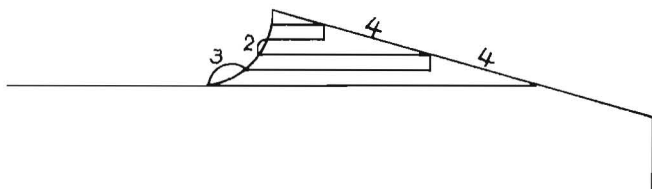
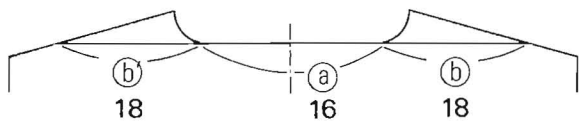
(4) shape shoulder by partial knitting.

— Set the Russel Levers to **I**, push 4 needles on the left side to D position and knit 1 row.

— Push 4 needles on the other side to D position and knit 1 row.

* *Partial knitting by decreasing stitches — page 36.*





(5) shape neck edge and right shoulder.

At the neck line, divide into three sections, right (b), centre straight (a) and left (b), and work each section separately to shape the neck edge and shoulder at the same time, as instructed below.

- Hold 34 stitches on section (a) and (b).
- * *Holding stitches on D position — page 43.*
- Knit 1 row and decrease 3 stitches at the neck edge.
- * *Decreasing multiple stitches — page 18.*
- Decrease 4 stitches on the shoulder side by partial knitting.
- * *Partial knitting by decreasing stitches — page 36.*
- Knit 1 row and decrease 2 stitches at neck edge.
- Decrease 4 stitches by partial knitting.
- Knit 1 row.
- The Carriage at left side and Row Counter at 133.
- Break the yarn leaving the end 10cm. and unthread the yarn.
- Push back the needles for the right shoulder to C position.
- With waste yarn, knit several rows and remove the section from the machine.
- Push back the empty needles to A position.
- Push 16 needles on section (a) back to C position.
- Put a yarn mark at the centre (0) of the Needle Bed.
- * *Put the yarn mark — page 45.*
- Remove the section on waste knitting and push back the empty needles to A position.

(6) shape neck edge and left shoulder.

- Push back the needles of section (b) to C position.
- Have the Carriage on the right side of the fabric, and work section (b) as done for the section (b) but in a reverse shaping.
- Break the yarn leaving the end three times the width of the shoulder, and unthread the yarn.

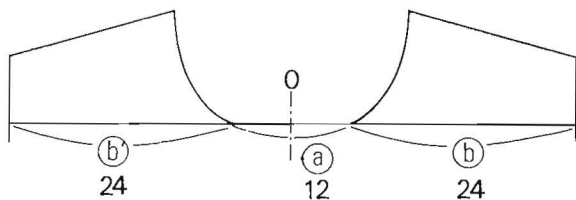
Front

(1) — (2) knit up to the armhole.

- Knit in the same manner up to armhole as done for back. Row Counter at 084.

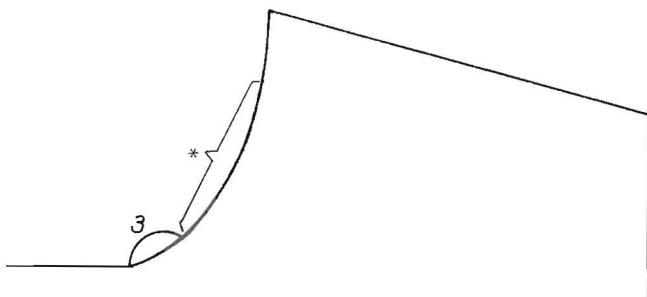
(3) shape armhole

- Shape armhole in the same way as for back till Row Counter shows 092.
- Knit 26 rows without shaping.
- Carriage at the right side, Row Counter at 118.



(4) shape neck edge of right section.

- Set the Russel Levers to **I**.
- Hold 36 stitches on section **(a)** and **(b)**.
- * *Holding stitches on D position — page 43.*

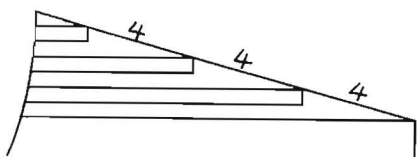


- Knit 1 row and decrease 3 stitches at the neck edge and knit 1 row.

* *Decreasing multiple stitches — page 18.*

- Decrease 1 stitch at the beginning of next and every following alternate rows, 4 times in all. — *{
Row Counter at 126.

* *Decreasing 1 stitch — page 18.*

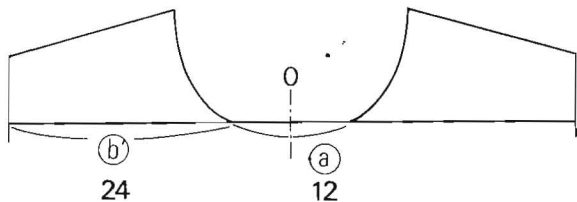


(5) shape right shoulder

- Work partial knitting by decreasing stitches in the same way as for back.

* *Partial knitting by decreasing stitches — page 36.*

- Push back the needles for the right shoulder to C position.
- Remove the section on waste knitting.
- Break the yarn leaving the end three times the width of the shoulder and unthread the yarn.

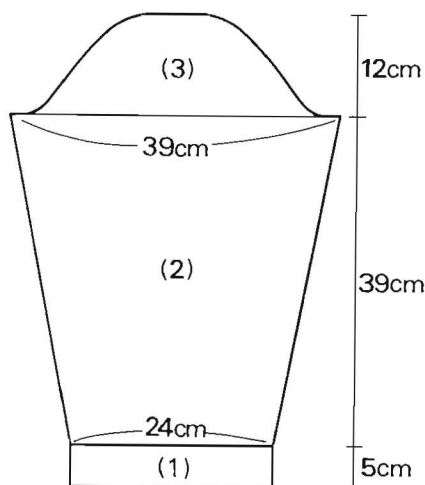


(6) shape neck edge and left shoulder.

- Push back 12 needles on section **(a)** to C position.
- Put a yarn mark at the centre(0) and remove the section on waste knitting.

* *Put yarn mark — page 45.*

- Work section **(b)** in the same way as for the section **(b)** but in a reverse shaping.
- Break the yarn leaving the end 10cm.



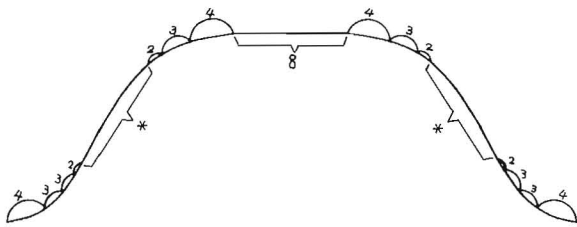
Sleeves (both alike)

(1) knit cuff

- Arrange 40 needles and knit in the same way as for the waist-band.

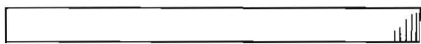
(2) shape underarm

- Stitch Dial 5, increase 1 stitch at both ends every following 6th row, 5 times and 7th row 7 times in all and knit until the Row Counter shows 097. 64 stitches remain on the Knitter.



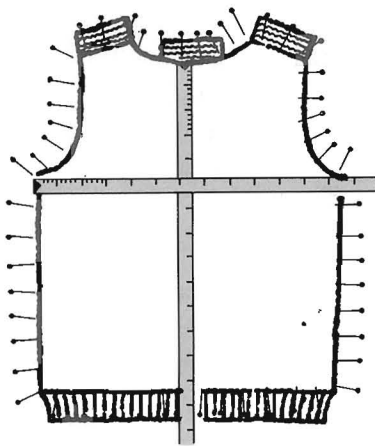
(3) shape sleeve top

- Decrease 4 stitches at the beginning of the next 2 rows, 3 stitches at the beginning of the next 4 rows and 2 stitches at the beginning of the next 2 rows.
- Decrease 1 stitch at both ends on the next row and every following alternate row, 7 times in all. — * {
- Decrease 2 stitches at the beginning of the next 2 rows.
- Decrease 3 stitches of the next 2 rows.
- Decrease 4 stitches of the next 2 rows. Row Counter at 124.
- Put a yarn mark at the centre(0) and cast off the remaining 8 stitches by using back stitch method.
- * *Cast off using back stitch method — page 49, step 6.*



Neckband

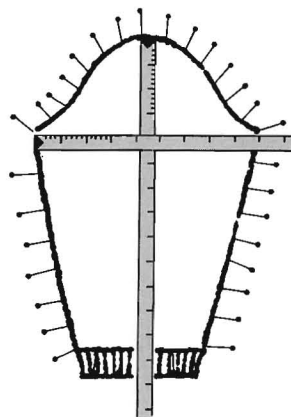
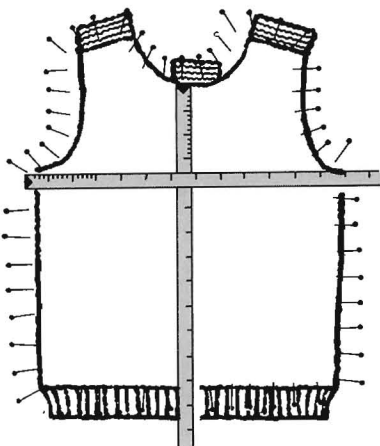
- Arrange 68 needles for K1. P1. Rib and knit 7 rows as done for the waistband.
- Remove the neckband on waste knitting.
- Break the yarn leaving the end three times the width of the neckband and unthread the yarn.

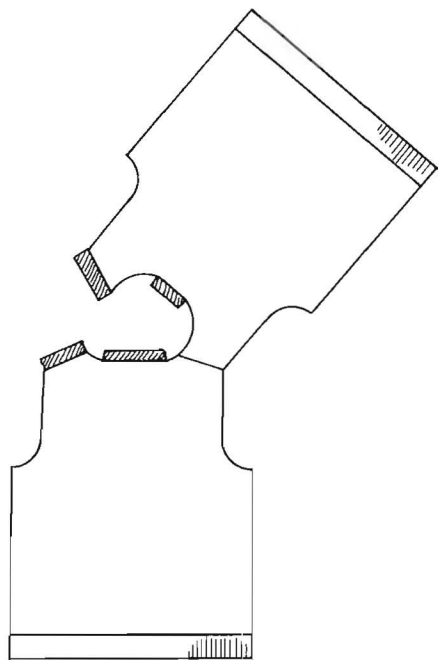


Blocking and pressing

After knitting the pieces of your garment, you must lay them flat and pin them out to their correct shape and size.

- Pin out a piece with its wrong side facing up on an ironing board at the widest point, afterwards pinning it to its correct length.
- Pin all around the edges, spacing the pins about 2~3cm. apart.
(Place the pins inside the ribbed edge.)
- Press them lightly with a steam iron or an ordinary iron over a damp cloth.
- Leave the pieces to dry before removing the pins.

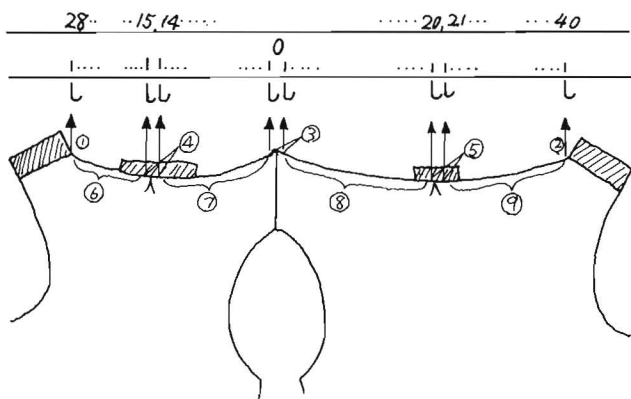




Making up

— Join the right shoulder on the machine using the yarn end.

* *Joining on the machine, stitch to stitch — page 48 (Replace the back shoulder on the needles first.)*



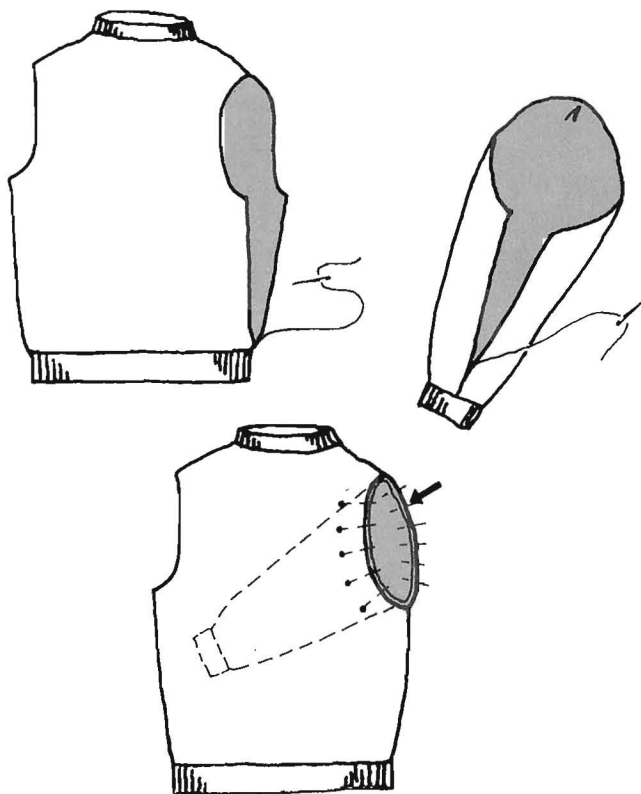
— Join the neck band to the neck edge on the machine.

* *Joining on the machine, open stitch to side edge — page 50.*

• *Arrange 40 needles on right side of centre(0) for the front neck edge and 28 needles on left side for the back.*

• *With right side facing, hang neck edge in the order as illustrated.*

• *With wrong side facing you, hang the neck band.*



— Join the left shoulder on the machine.

— Join the side, neckband and sleeve seams.

* *Blind stitch — page 51.*

— Turn the garment to the wrong side and slip the sleeves into the armhole, with the right side facing each other. Pin them as illustrated and work slip stitch along the edges.

* *Slip stitch — page 52.*

— Sew in yarn ends on the wrong side.

* *Sew in yarn end — page 52.*

— Give final press.

HELPFUL HINTS

To replace a dropped stitch

1. Insert a prong of Transfer Tool into the dropped stitch.

2. Replace the stitch onto the empty needle together with the bar above the stitch.

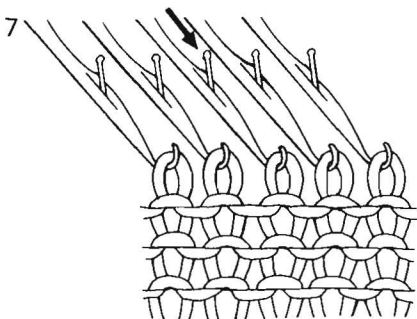
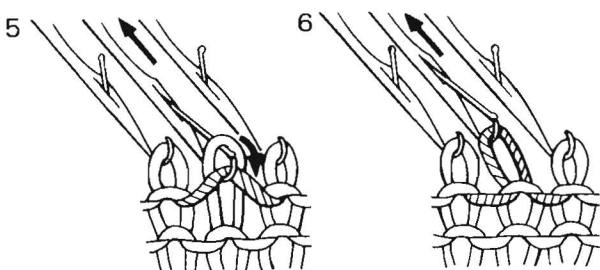
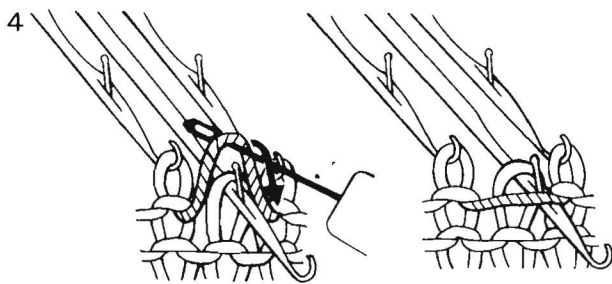
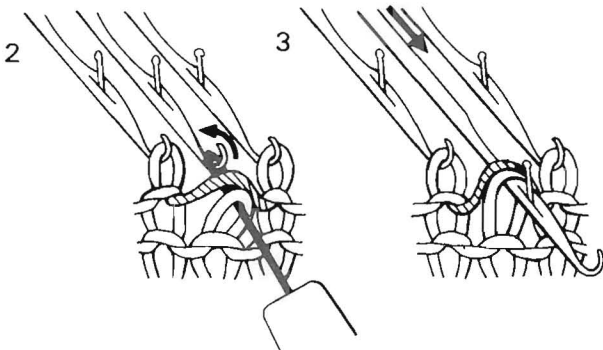
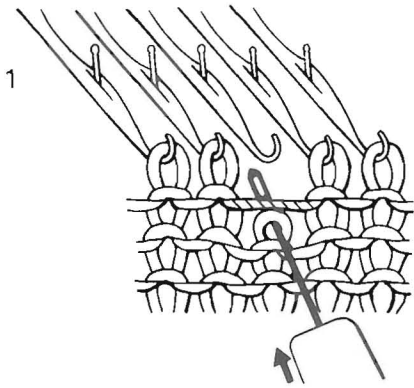
3. Push forward the needle till both stitches move behind the latch.

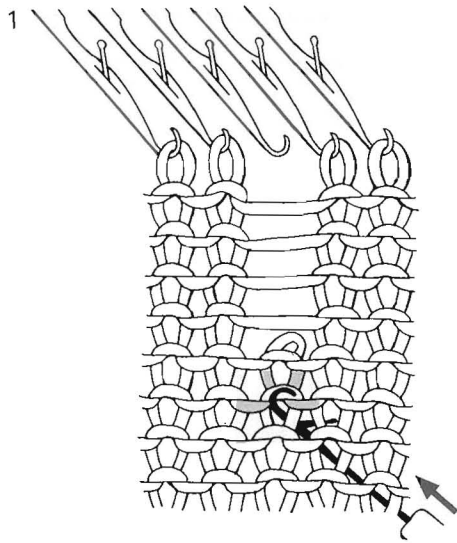
4. Lift up the bar using the Transfer Tool and bring it over the latch.

5. Push back the needle till the stitch behind the latch slips off the needle.

6. Push the needle toward A position to correct the size of stitch.

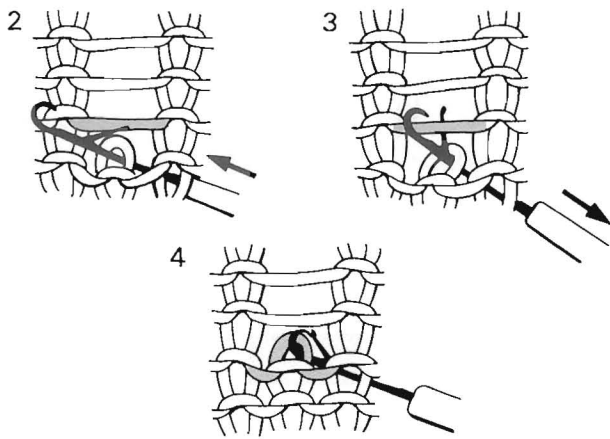
7. Align the needle correctly in B position.



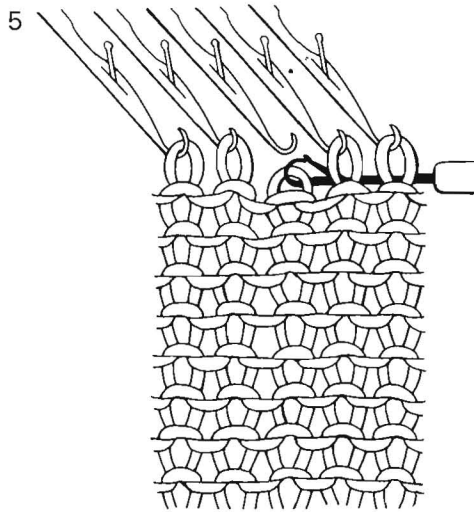


If a dropped stitch has run down for several rows...

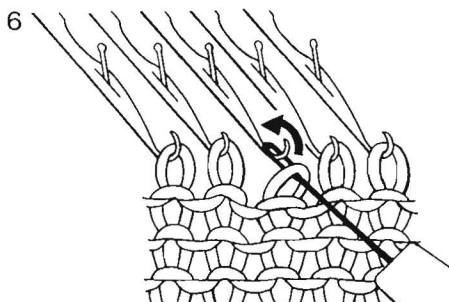
1. Insert the Tappet Tool into the stitch at a few rows down the dropped stitch from the rear side.
Let the stitch run down to the Tappet Tool.



2. Push forward the Tool till the stitch moves over the latch of the Tool.
3. Pulling the Tool backward, catch the bar crossing above.
4. The stitch behind the latch slips off the Tool and interloop with the bar in the hook.

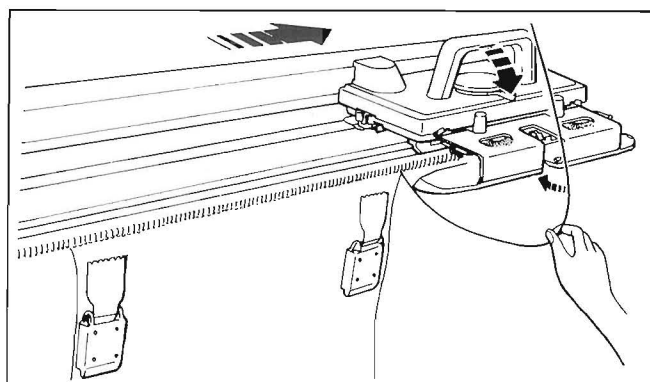
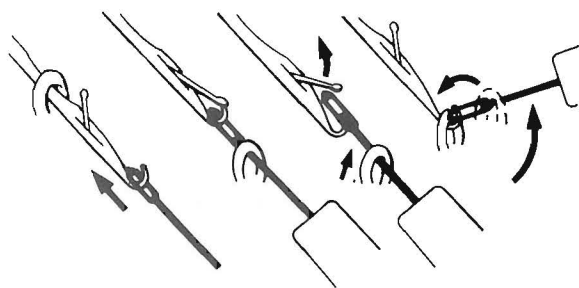
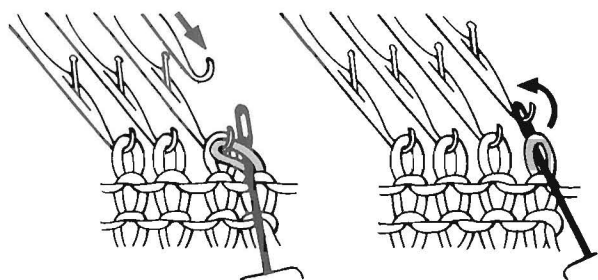
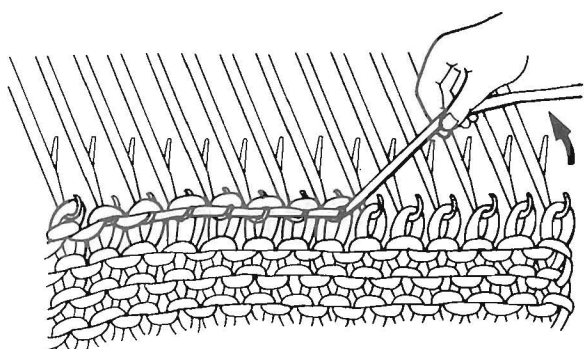
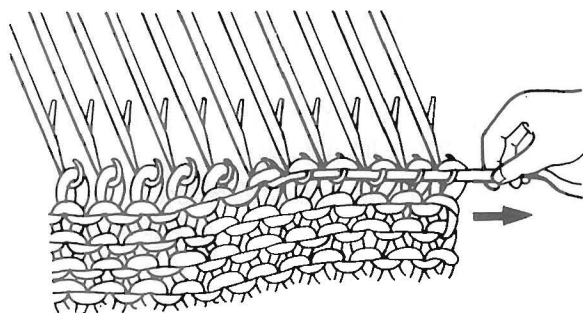


5. Repeat the above steps up to the top stitch.



6. Take the top stitch onto the Transfer Tool from the front side, and fill the empty needle with it.

If one or more stitches have dropped or when in pattern knitting, it would be rather easier to unravel the rows than to repair the stitches.



To unravel knitted fabric on the machine

1. Holding the fabric downwards, pull the yarn out, and the row gets tight.

2. Lift the yarn upwards and very slightly backwards, the stitches of the previous row will back into the needle hook.

3. Align the needles in B position.

If the fabric has been shaped in decrease or partial knitting.

Fabric with decreased edge.

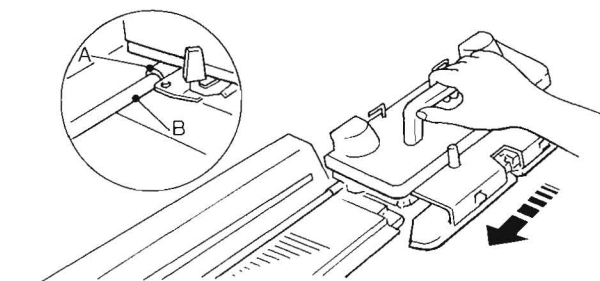
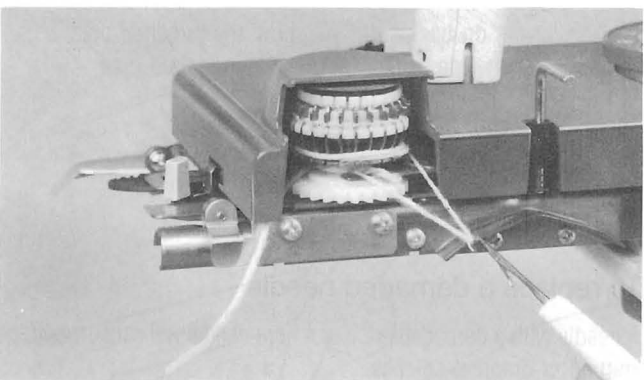
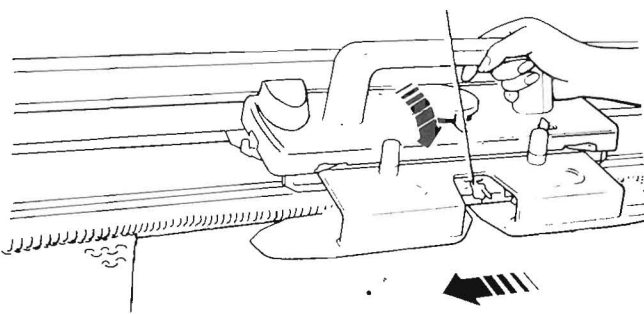
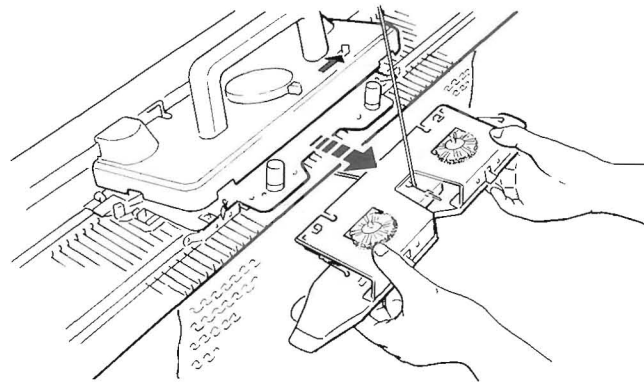
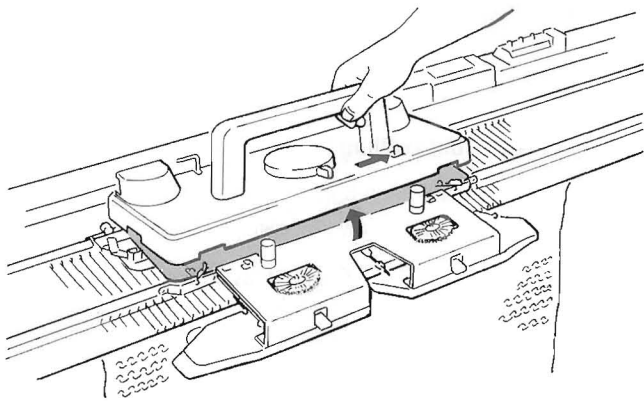
On the row of decrease, the end needle has two stitches, place one stitch back to its original needle.

In the course of partial knitting.

Replacing the stitches in the needle hooks, push back the needles in D position to B position using Transfer Tool.

3. To continue knitting, pull the unraveled yarn back towards the yarn ball at the back of the Tension Rod, move the Carriage to the side of the yarn end by pushing Release Lever, adjust the Row Counter, and replace the Yarn in the Yarn Feeder.

** If the Punch Card is in use, let the Carriage memorize the pattern.
(see page 63)*



If the Carriage has jammed...

In the middle of the row, do not push the Carriage by force, proceed as follows to release the Carriage from jamming.

1. Disengage the Feeding Trippers.
2. Remove the yarn from the Yarn Feeder.
* *If yarn is entangled with the Yarn Feeder or Round Brushes, loosen the Arm Nuts and remove the Arm.*
3. Push the Release Lever to the arrowed direction.
4. Lifting the handle, move the Carriage in its proceeding direction to the outside of the working needles.
5. Push down the handle until click.
6. Pick up dropped stitch if any.
(see pages 59~60)
Push back the needles in C or D position to B position replacing the stitches into its needle hooks using Transfer Tool.
Unravel the incomplete row and pass the Carriage to the side of the yarn end. (see page 61)
* *If the Punch Card is in use, let the Carriage memorize the pattern. (see page 63)*

Continue to knit.

If yarn is entangled in Memory Drums...

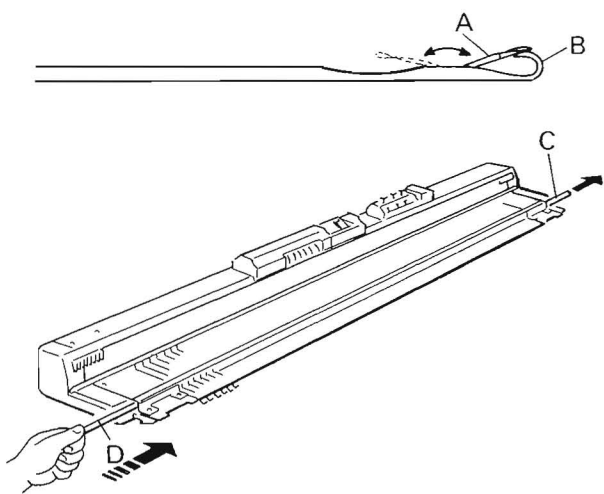
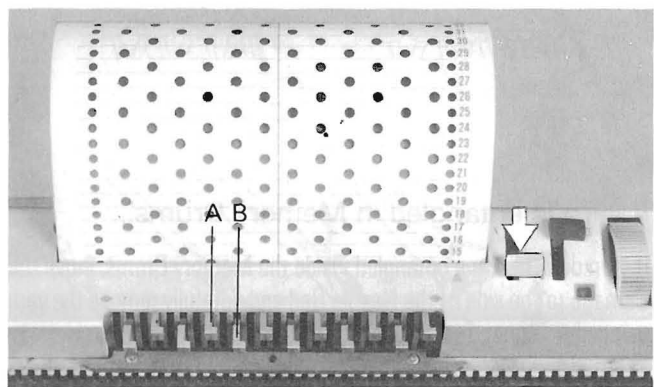
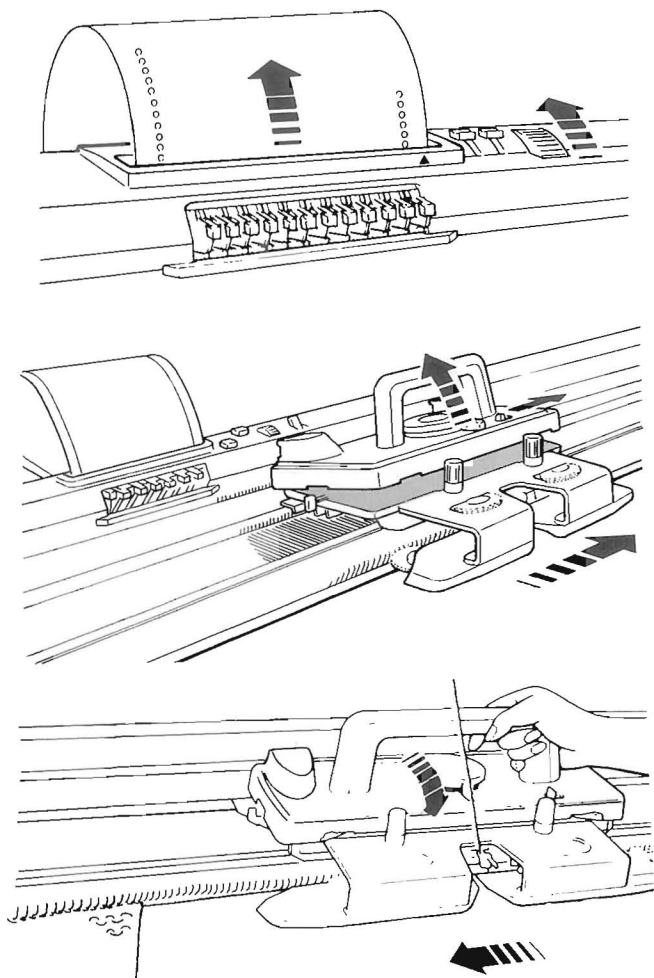
If yarn does become entangled inside the Memory Drums, move the Carriage to the side of the Needle Bed and carefully remove the yarn using the Tappet Tool.

* *If this happens during pattern knitting, let the Carriage memorize the pattern. (see page 63)*

If the Carriage has been pulled out...

Mount it to the Needle Bed sliding the Carriage Pipe "A" onto the rail "B".

* *If the Punch Card is in use, let the Carriage memorize the pattern. (see page 63)*



To memorize the pattern

When unravelling has been done,

Return the Punch Card and Row Counter by the same number of rows unravelled.

In case of using L Knob, unravel even rows and return the Card ONLY HALF THE NUMBER of rows unravelled.

For example: 3 rows incorrectly knitted, unravel 4 rows.
Return the Card 2 rows.

Set the Stop Knob to ● and disengage the Row Counter Tripper.

Push the Release Lever to the right and with the Carriage Handle lifted, move the Carriage once or twice across the Needle Bed until it has passed the 12 needles corresponding to the Touch Levers and place it at the side of yarn.

Insert yarn into Yarn Feeder and set the Controls to their original positions.

Continue to knit.

To check the pattern with the Card

* By setting the Stop Knob to ●, the pattern of the row is indicated by Touch Levers.

To check the pattern on the last row, return the Card 1 row and set the Stop Knob to ●.

* Touch Levers on back side "A" show the punched area. Ones on front side "B" show the non-punched area.

To replace a damaged needle

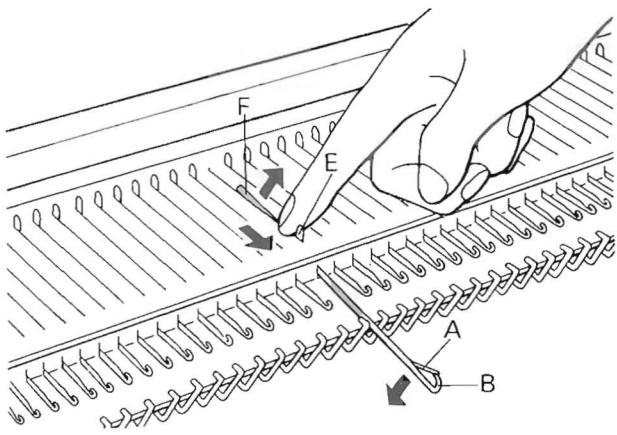
A needle with a damaged latch or a bent needle will cause incorrect knitting or dropped stitches.

The needle latch "A" must move smoothly and lie flat over the hook "B".

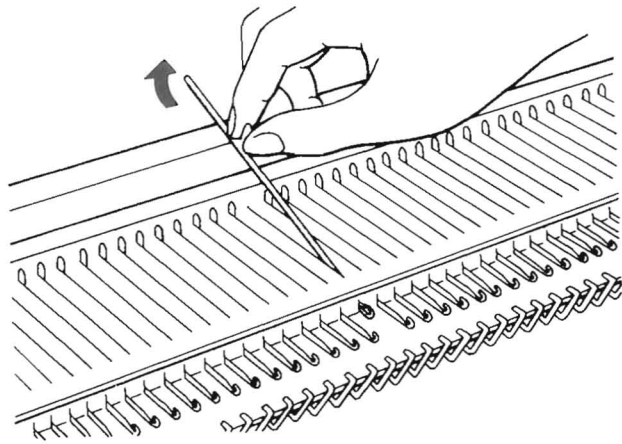
1. At each side of the needle Bed, you can see the Needle Retainer "C".

If the damaged needle is at the left half of Needle Bed, place the Carriage at right side and using a pencil "D" push the Needle Retainer at its left plastic end.

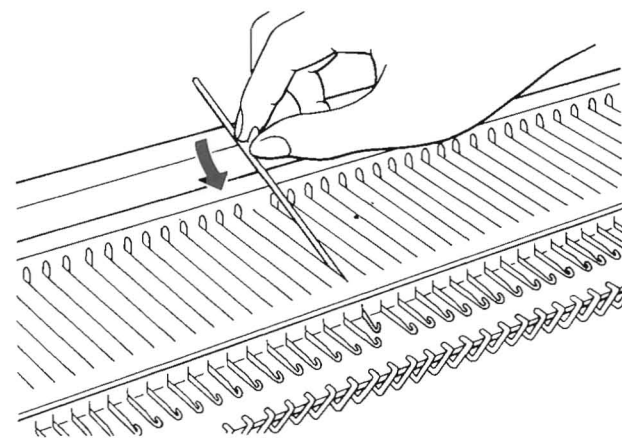
The Needle Retainer is then pushed out of the Needle Bed at the right end and you can pull it out of Needle Bed until the damaged needle lies free.



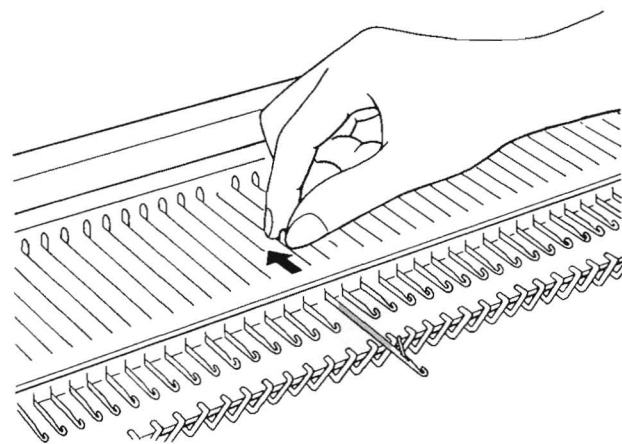
2. Push the damaged needle to D position by pressing its butt "E". Close the latch "A" and press the hook "B" down. The shank "F" will then come out of the needle groove.



3. Lift up the needle by holding the butt and pull it to remove from the Needle Bed.

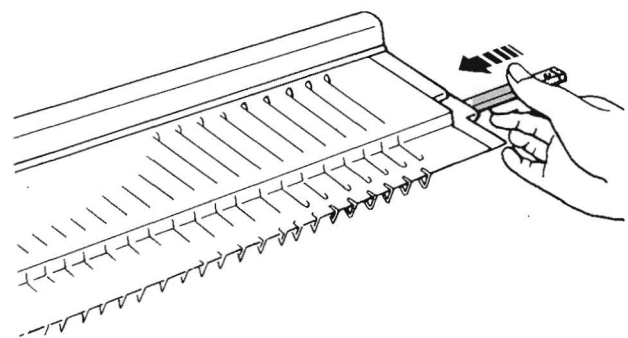


4. To replace a new needle, open its latch and slide it into needle groove until the hook comes out of the front opening of the Needle Bed.

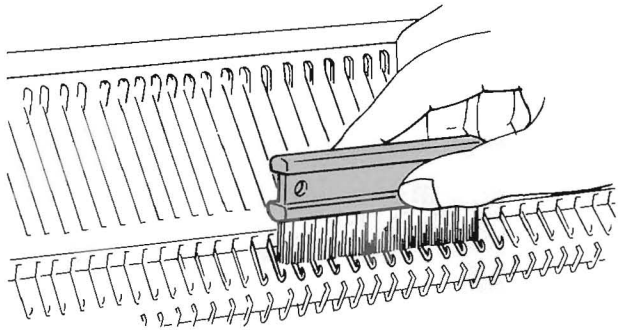


5. Push the needle back to A position by holding the butt.

6. Push the Needle Retainer back into the Needle Bed.



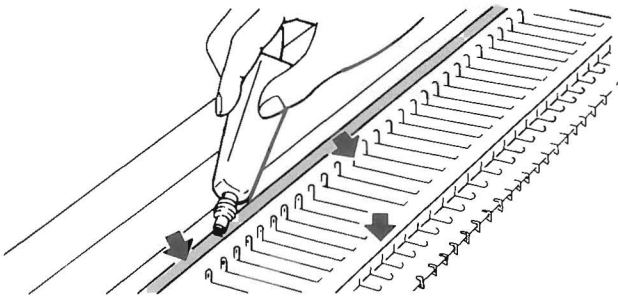
MAINTENANCE



To clean your Knitter, remove the Carriage from the Needle Bed.

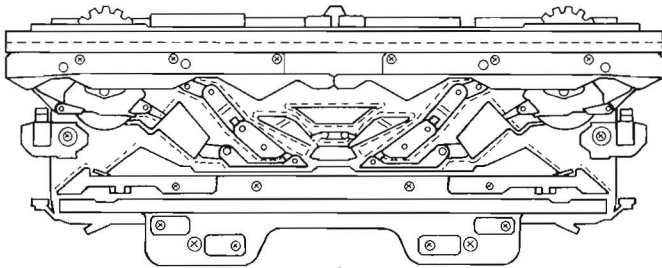
NEEDLE BED

Remove all lints using the Cleaning Brush.



Apply oil along the rail and front guide of the Needle Bed.

With an oil soft cloth, wipe needle butts.



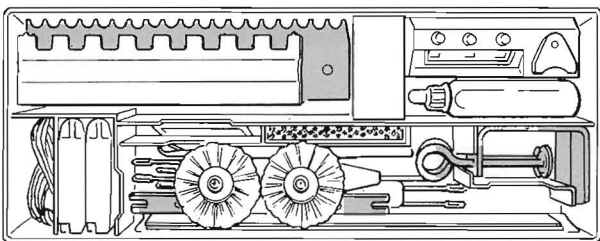
CARRIAGE

Turn over the Carriage and brush off all fluff and oil the side of the metal parts and slider and Carriage Pipe.

Wipe the places indicated by the dotted line in the diagram with a piece of oil cloth.

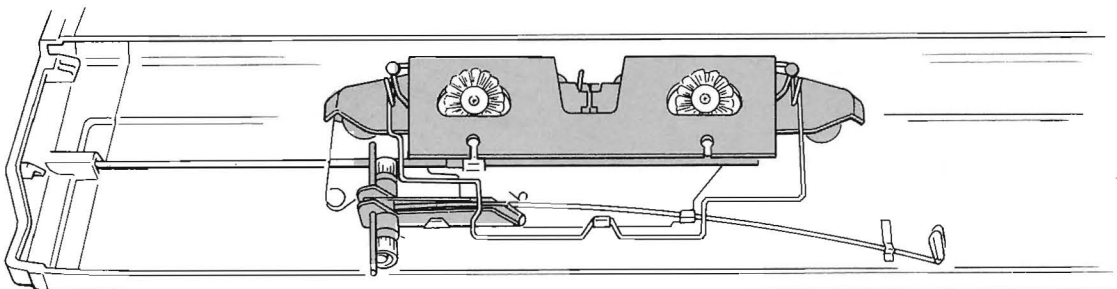
Mount the Carriage on the Needle Bed. (see page 62)

REPACKING THE KNITTER

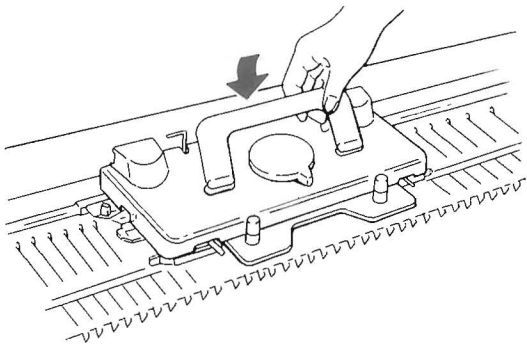


Replace the Accessories in the Accessory Box.

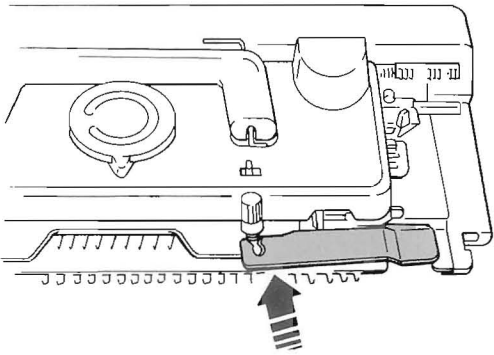
Remove the Auto Tension and Arm from the Knitter and pack them inside the Top Cover.



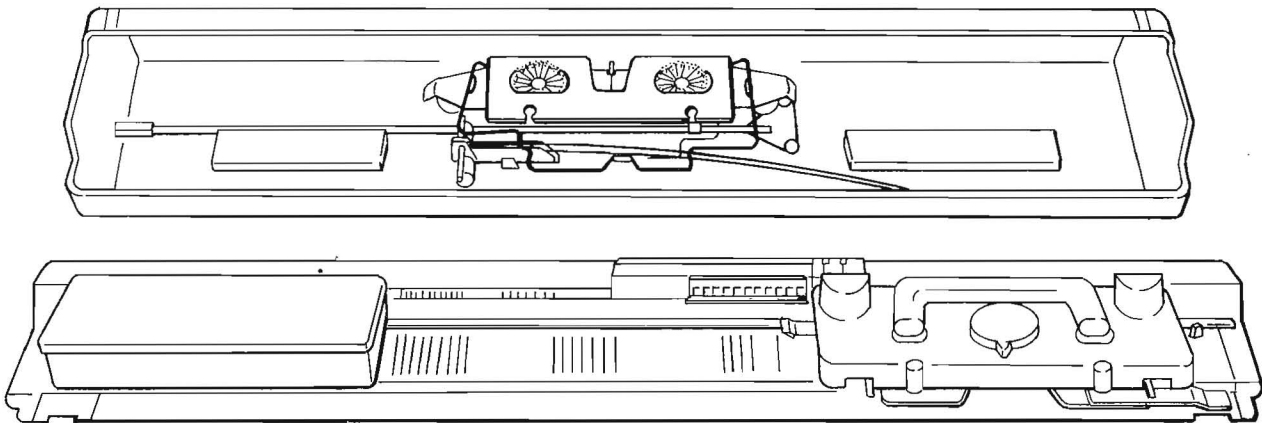
Lay the Carriage Handle down.



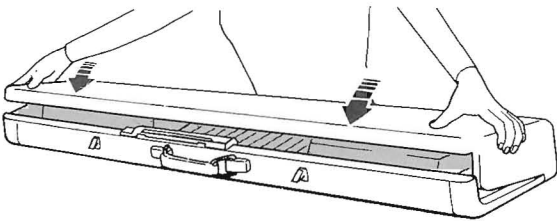
Secure the Carriage to the Needle Bed with the Carriage Fastener.



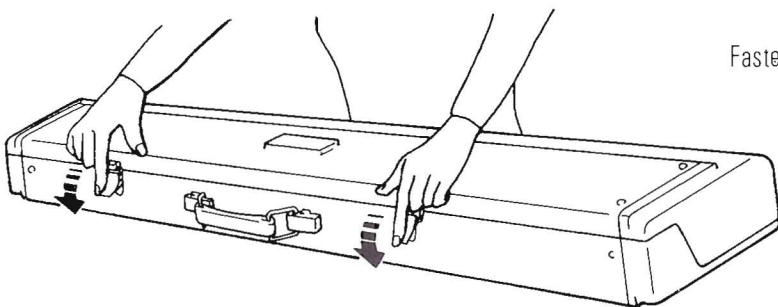
Place the Accessory Box on the left end of the Needle Bed.



Place the Top Cover onto the Needle Bed.



Fasten the latches.

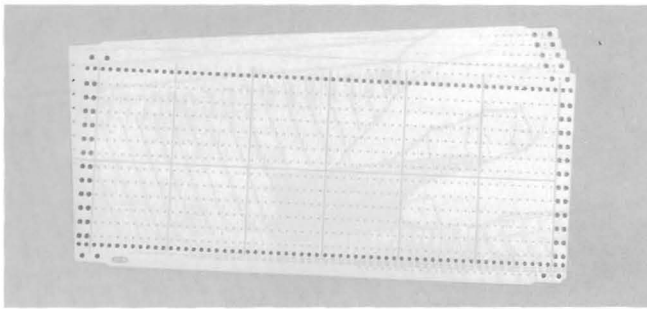


TO STORE THE MACHINE

Keep the machine away from

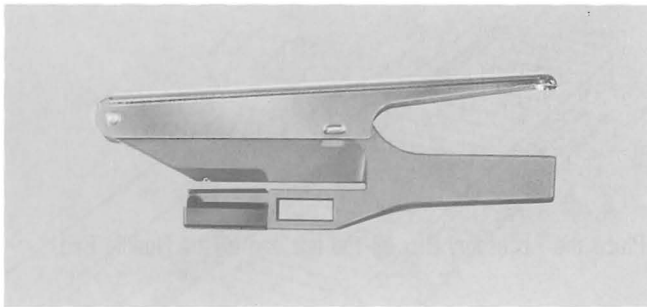
1. too much moisture.
2. abnormal change of temperature.
3. salt or chemicals.

OPTIONAL ACCESSORIES FOR MODEL 155



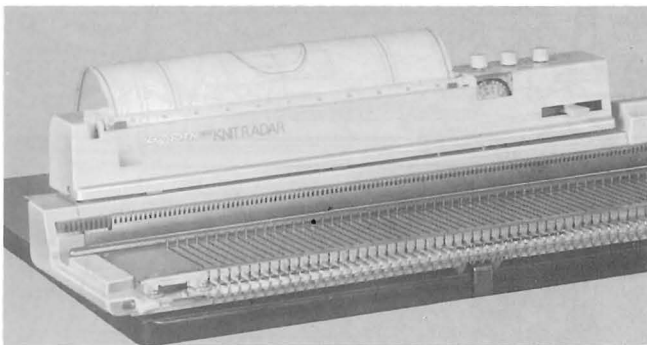
● NP (non-punched) Card for Model 155

You can create your own pattern using this NP Card and Handy Punch.



● Handy Punch

Puncher for making your own pattern on NP Card.



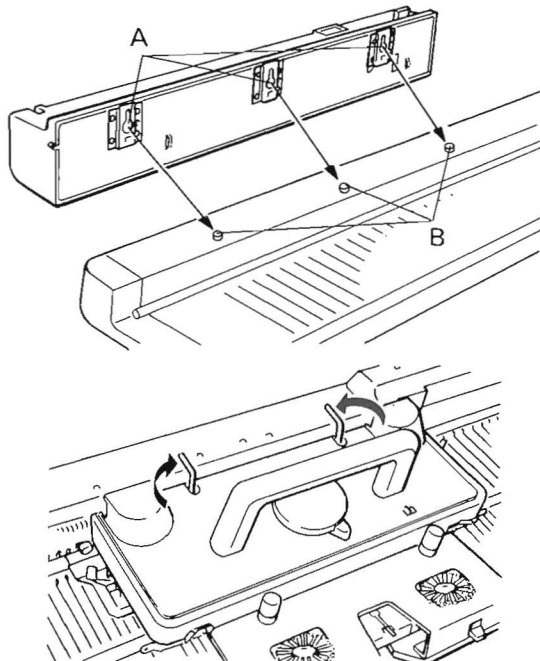
● Knit Contour (KR 7)

The Knit Contour Attachment helps you counting stitches and rows for shaping garment.

17 different pre-printed pattern styles come with the attachment.

If you own KR6, purchase additional Stitch Scales to use the KR6 on the Chunky Knitter.

To order; Parts No.07256886



— Fit 3 slots of Knit Contour "A" to the studs "B" on top of the machine and slide it towards back until click.

— If the tension gauge is less than lowest limit, 30 rows, select a number twice the row number read on the Gauge Scale and raise both feeding trippers on the Carriage.