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SHOTARO OKUMURA
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SILVER AUTOMATIC HOME KNITTER

INSTRUCTION MANUAL

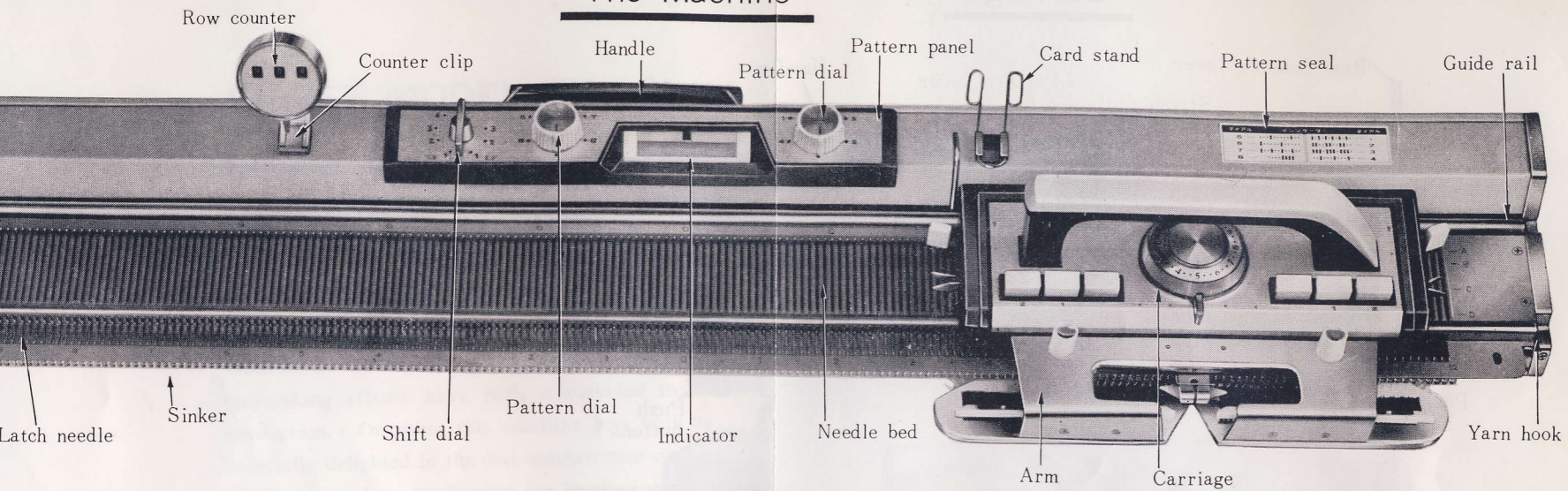
MODEL SK-301 SILVER INSTANTAUMATIC
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SILVER MODEL SK-301

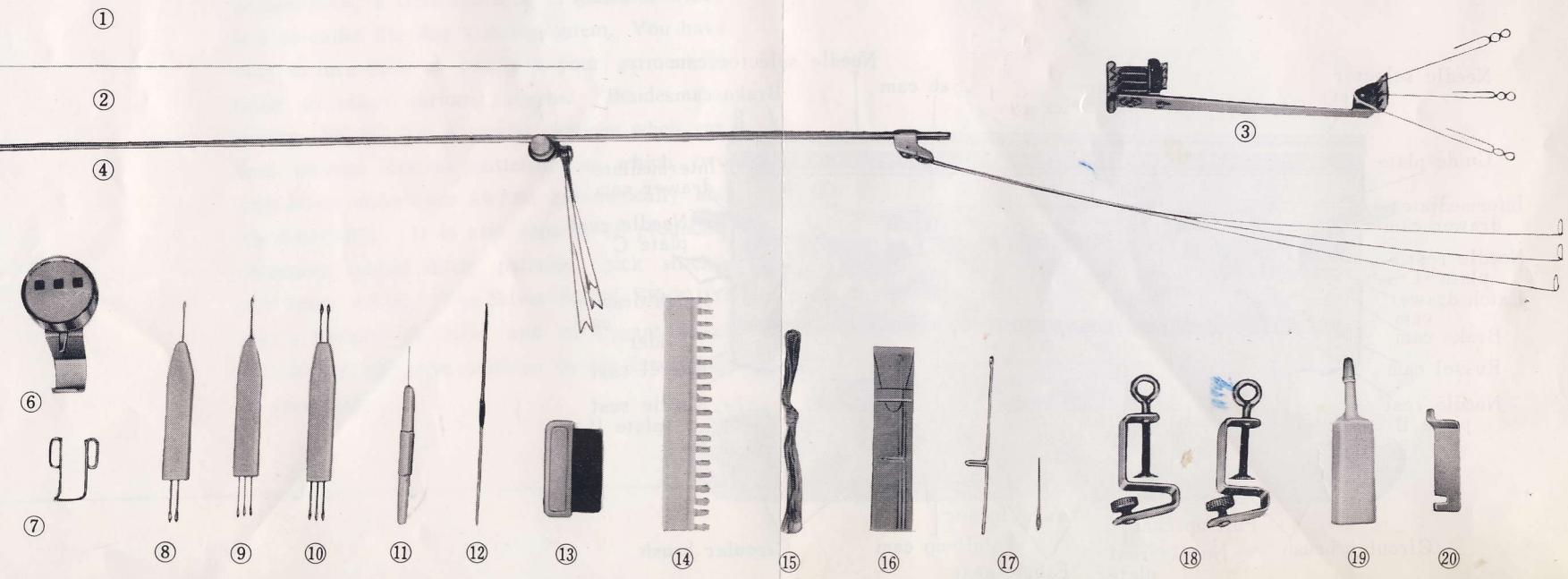
Dial Compartment System Unique Capacity for Pattern Knitting

The Silver Model SK-301 is an automatic knitting machine of the highest quality. Many years of painstaking efforts have been contributed to its production. On using this machine you will be especially delighted in the dial compartment system which is a unique mechanism for knitting various patterns. The secrets of knitting varied patterns are contained in the interior of the pattern panel-pattern dials, a shift dial and an indicator—which is a so-called Zig-Zag knitting system. You have only to turn dials as you knit your garment in order to select various patterns. Besides this system, SK-301 has a special carriage which can knit colored knit-in patterns, in which two contrasting colors are knitted automatically and simultaneously. It is also capable of producing successive tucked stitch patterns, pick stitches and many others. The Silver Model SK-301 is also a portable machine, and its elegant design will be an attractive addition to the furnishings in your home.

The Machine



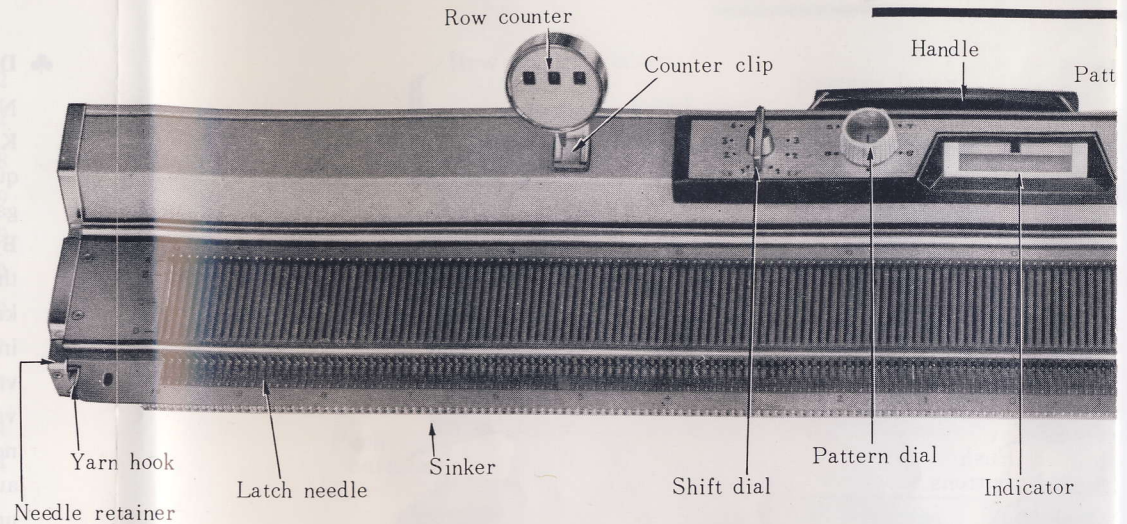
Accessories



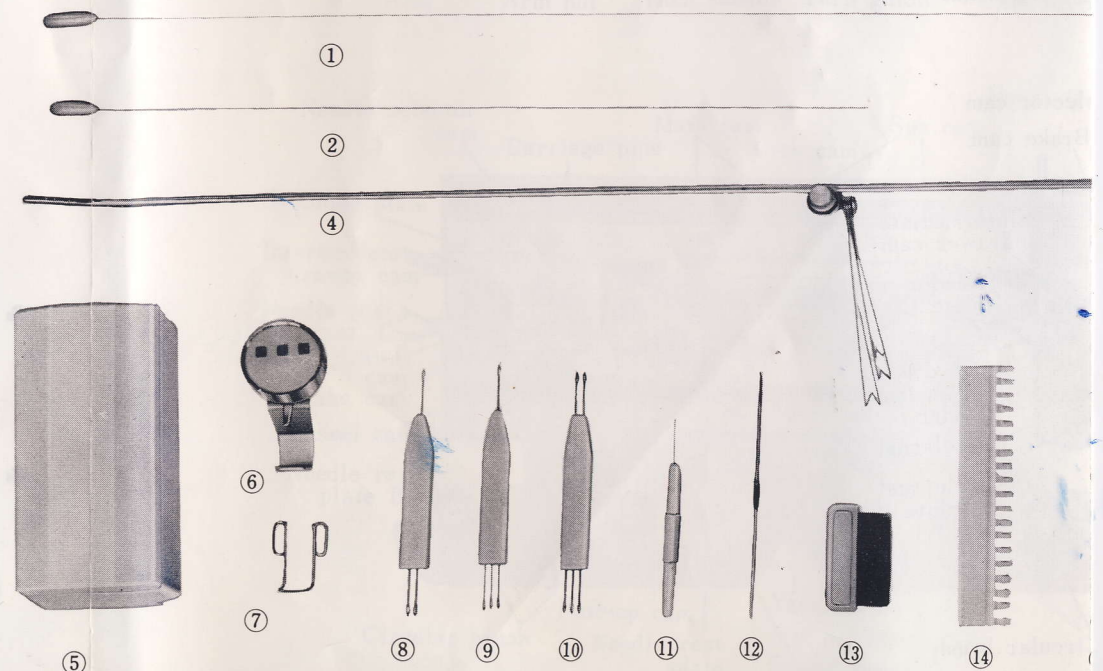
Machine and Accessories

- ① Cast-on wire (long) For casting on stitches up to two hundred.
- ② Cast-on wire (short) For casting on stitches up to hundred.
- ③ Auto-tension for three colors Automatically takes up excess of yarns.
- ④ Yarn rod Holds the auto-tension.
- ⑤ Accessory box For accessories : ⑥~⑱
- ⑥ Row counter Indicates number of rows knitted.
- ⑦ Card stand Holds the pattern cards.
- ⑧ Transfer tool (1~2) For transferring stitches, increasing, decreasing or
- ⑨ Transfer tool (1~3) knitting various designs.
- ⑩ Transfer tool (2~3)
- ⑪ Tappet For picking up dropped stitches or purling stitches.
- ⑫ Crochet hook For binding off stitches.
- ⑬ Cleaning brush For cleaning the machine or opening latches.
- ⑭ Needle pusher (0~ $\frac{1}{1}$) For selecting needles for pattern stitches.
- ⑮ Raveling cord For separating the waste knitting from main knitting.
- ⑯ Spare needles (3) For replacement.
- ⑰ Tapestry needle For stitching seams or weaving.
- ⑱ Clamps Clamp the machine to a table.
- ⑲ Oil For machine use.
- ⑳ Carriage fastener Keeps the carriage secure when not in use.

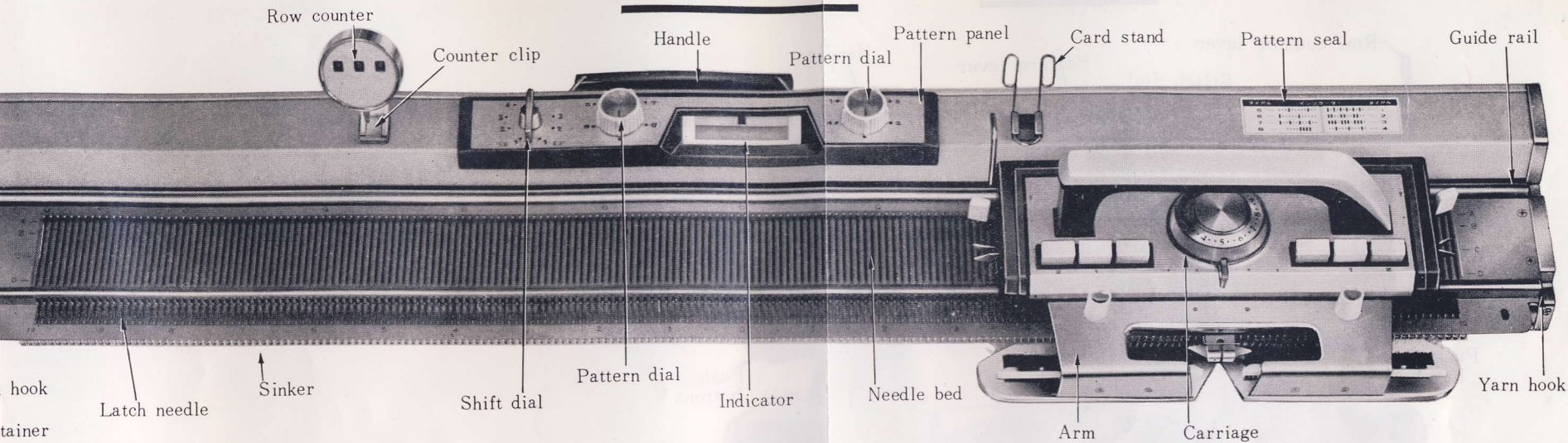
The Machine



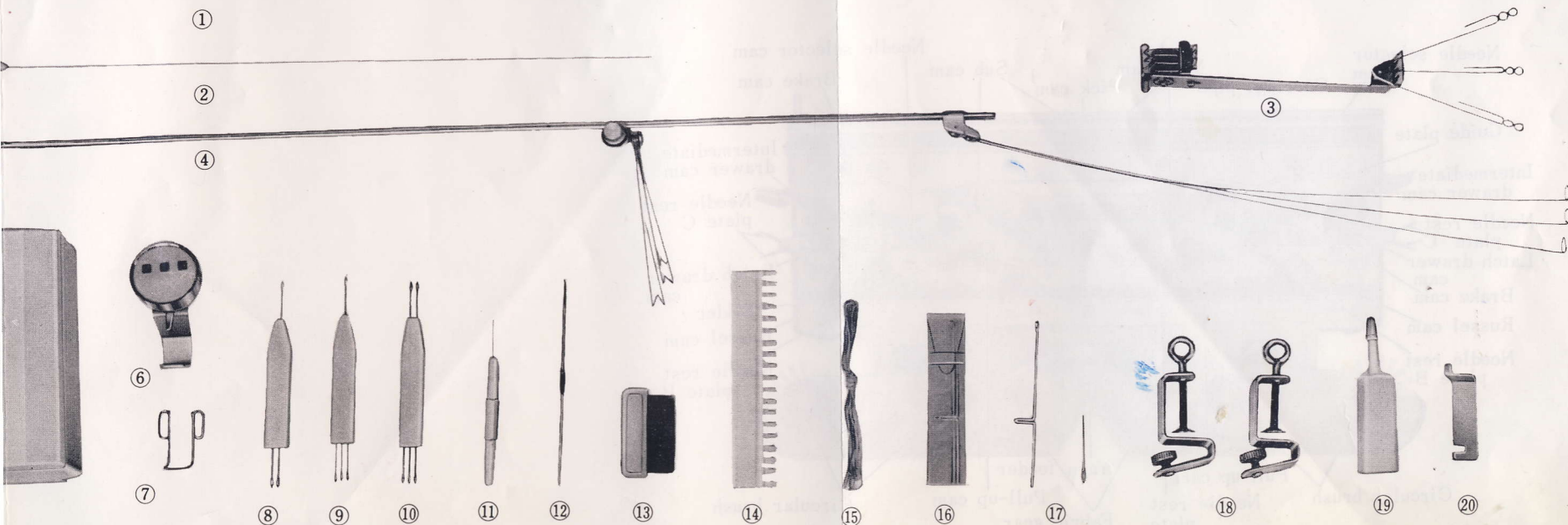
Accessories



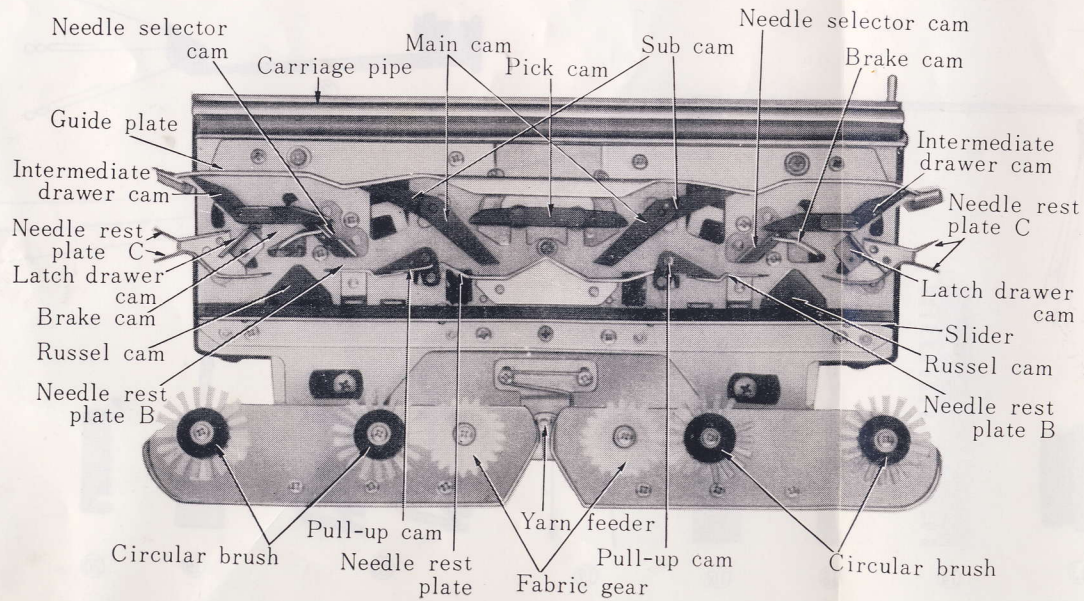
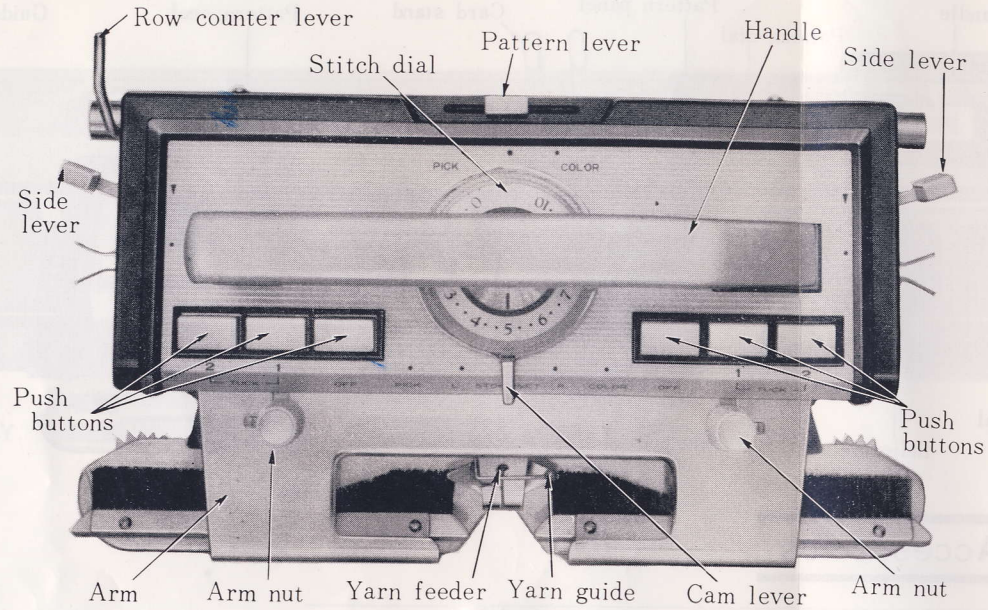
The Machine



Accessories



Carriage



The Features of Machine

♣ **Dial Compartment System with Unique Capacity for Pattern Knitting**

Now that a dial compartment system has been added to the Silver Knitting Machine Model SK-301, any beginner can knit various patterns quickly and easily. When you use this machine, you can knit your garment ten times faster than any machine you have ever used before.

By means of pattern dials for selecting patterns, a shift dial for shifting the patterns, an indicator for automatically illustrating the patterns knitted, a pattern panel by which the pattern dial, a shift dial and an indicator are easily perceived and operated, and carriage for knitting various patterns as you like, you can knit more than ten thousand varied patterns. An added attraction of the Silver Model SK-301 is a new device with which it is possible to knit in two contrasting colors automatically and simultaneously. It is an art of pattern knitting unequalled by any other machine.

♣ **Simple Operation**

The Silver Model SK-301 has the following facilities to further simplify operation:

- ∴ Auto-tension for feeding three yarns, by which you can knit with three different color yarns with one hand;
- ∴ Stitch dial, by which you can knit with any material from lace thread to bulky yarn.
- ∴ A single rail that allows for corrections to be made by merely raising the carriage.
- ∴ A folding handle, which is used simply raising it up.

♣ **Excellent Durability**

The needle bed is made of stainless steel and reinforced by steel plate, the carriage pipe allows the carriage to move easily and protects it from wear, giving even more durability than before.

♣ **Elegant Design**

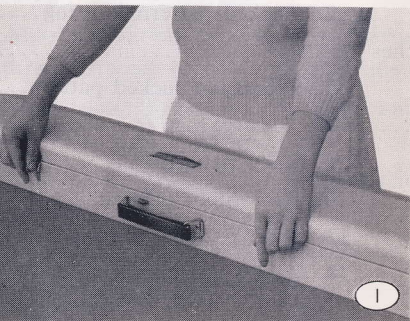
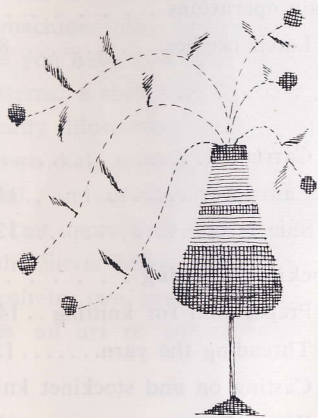
The needle bed has been finished with a special type of paint that is easy on the eye, while the carriage with its streamlined design will add to the modern appearance of your home.

The portable case is made of "vinytop" (sheet steel finished with chloridized vinyl).

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(1) Setting Up and Restoring The Machine



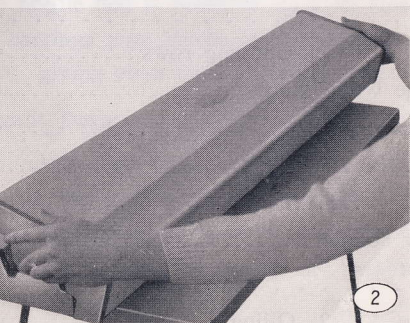
1

1. Setting up:

Place the machine on a table with the handle of the casing away from you.

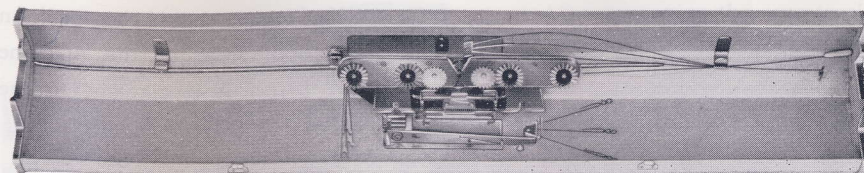
1. Remove the cover.

- (1) Unfasten the latch locks on the machine (1).



2

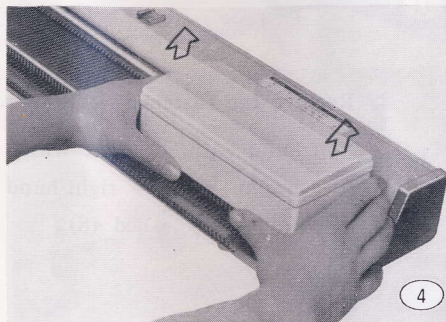
- (2) Lift the side of the cover furthest from you and pull the cover toward you. (2)



3

- (3) Inside the cover, you will find two cast-on wires (long and short), a yarn rod, auto-tension for three yarns (3) and the arm.

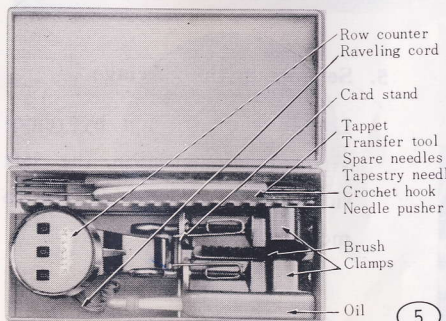
2. Remove the accessory box.



4

- (1) Take out the accessory box by lifting it up (4).

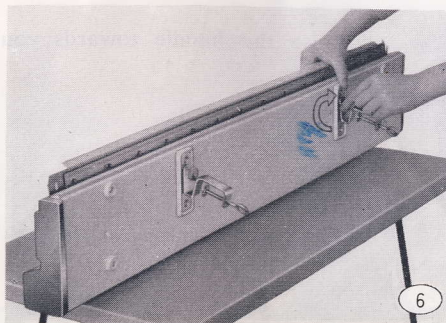
- (2) In the accessory box you will find the row counter, clamps, oil, card stand, brush, needle pusher, 3 transfer tools, tappet, crochet hook, 3 spare latch needles, tapestry needle and raveling cord (5).



5

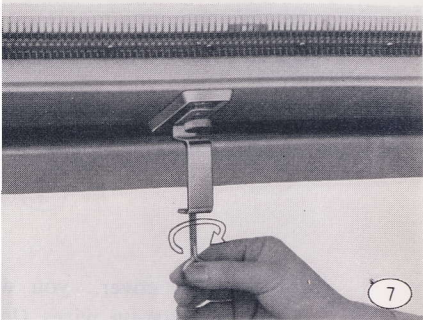
3. Setting the machine on the table.

- (1) Tip the machine away from you and put the head of the clamp into the clamp receiver, lifting the edge of the clamp-head forward as far as possible, then screw it firmly (6).

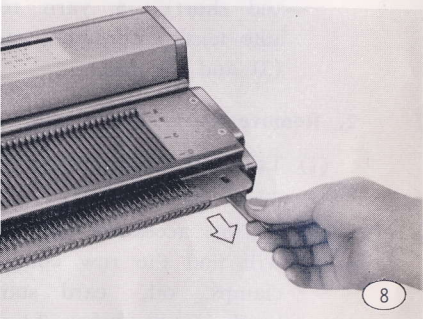


6

(The rubber feet on the bottom of the machine will hold the machine firmly enough, but it is advisable to clamp it when you intend to knit with heavy yarn or if the table is not firm enough.)

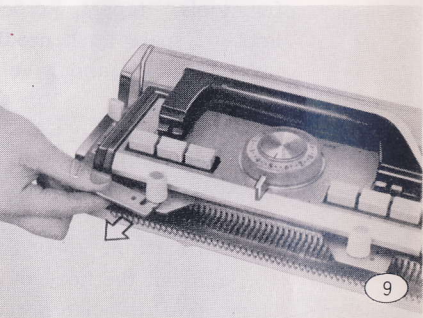


(2) Clamps should be fixed on both sides of the machine before it is clamped to the table (7).



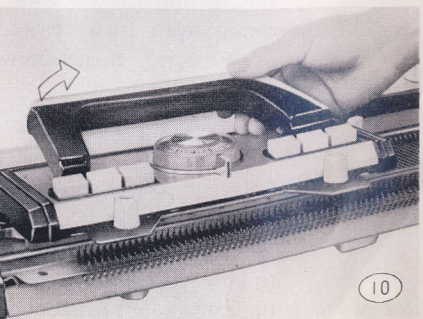
4. Remove the fastener

Pull out the copper plate which is found below the right-hand end of the needle bed (8).

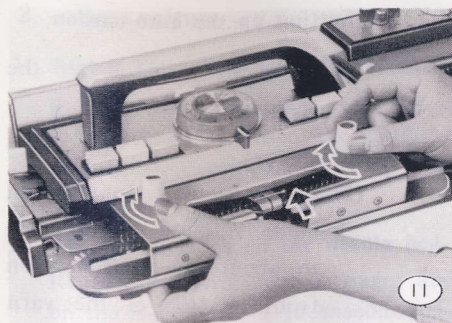


5. Setting up the carriage

Loosen the arm nut by removing the fastener on the left side and the carriage is free to move (9).

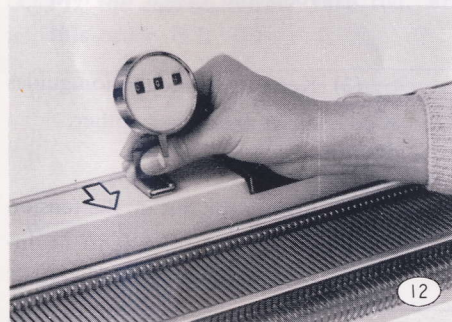


Raise the handle towards you (10).



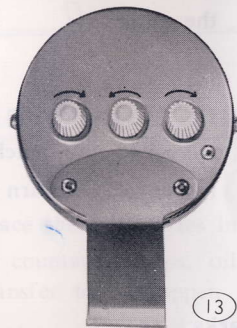
After removing the auto-tension, remove the carriage arm from the cover.

Loosen the arm nuts of the carriage, slide the arm as far as it will go, and tighten the screws firmly (11).



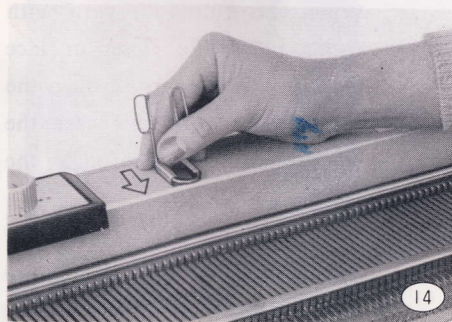
6. Insert the row counter

Insert the row counter into either the left or right row counter receiver as there is no difference (12).



The row counter reads up to 999.

For returning it to zero, turn the knobs in the direction of the arrows from the one-figure number to the three figure numbers. When you turn it back to correct an over-knitting, turn the knob for the number of the sub-figure in the opposite direction of the arrow mark (13).



7. Insert the card stand

Insert the card stand into the clip of the row counter which is not in use (14).

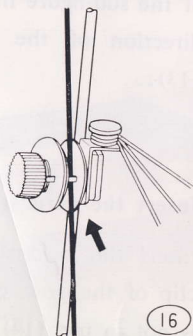
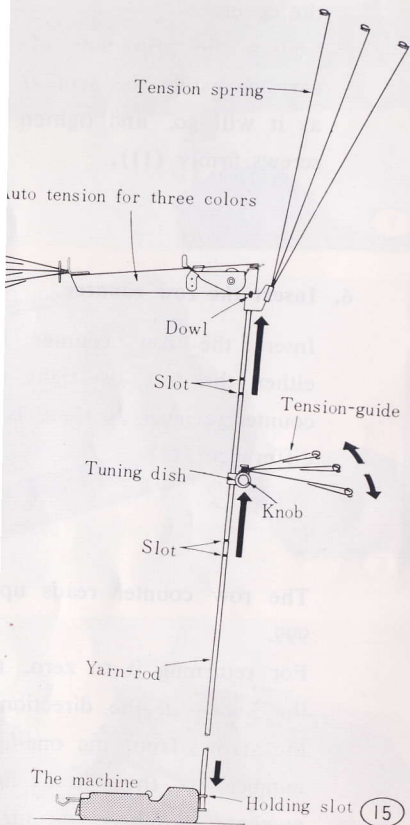
8. Setting up the auto-tension

- (1) Insert the yarn rod into the slot.
- (2) Loosen the nut of the tension guide, raise the tension guide to about one-third position from the top of the yarn rod, and fasten the nut.
- (3) Keep the three tension guides apart from each other.
- (4) Loosen the nut of the tension spring and raise it to fit into the notch at the top of the tension rod and fasten the nut.
- (5) Fit the auto-tension for three colors to the notch at the top end of the yarn rod (15).

Remarks:

When you knit with yarn with strong twist like closet or lace thread, pass the yarn through the turning dish. In this case the yarn is not passed through the tension guide (16).

The notch next to the turning dish is used to clip yarn before you begin to knit.



2. Restoring

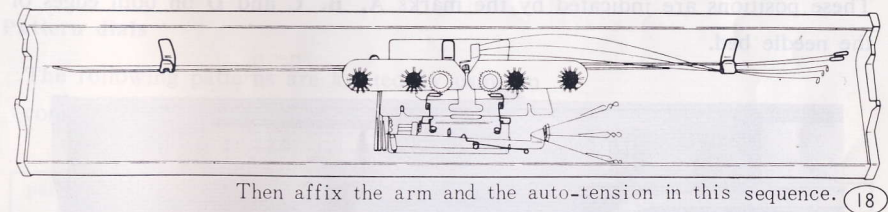
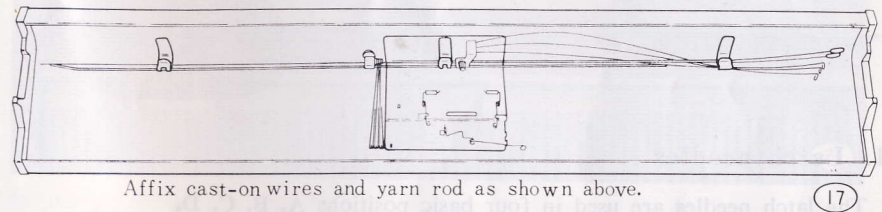
1. Attach the auto-tension for three colors to its place inside the case cover.

Remove the auto-tension from the yarn rod and the yarn rod from the yarn rod receiver. Loosen the knobs of the tension-spring and tension guide respectively, and after shifting them to the position of the slot on the needle bed, clamp them tightly.

2. Fix the carriage on the needle bed.

Remove the arm from carriage, and with the handle down fix the carriage on the right edge of the needle bed with carriage fastener.

3. Fix the cast-on wires, yarn rod, arm and auto-tension inside the cover in this order (17, 18).



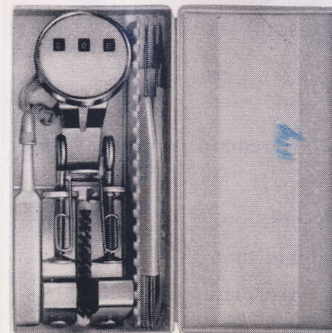
4. Replace the accessories in the box.

Row counter, clamps, oil, card stand, brush, raveling cord, needle pusher, 3 transfer tools, tappet, crochet hook, tapestry needle and 3 spare latch needles (19).

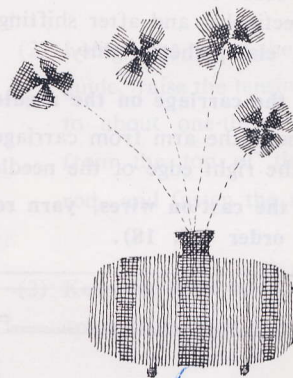
Place the lid on the box and place the box on the needle bed about an inch from the right edge.

5. Put the case-cover on the machine.

Cover the machine with the case-cover, and fasten the latch locks.



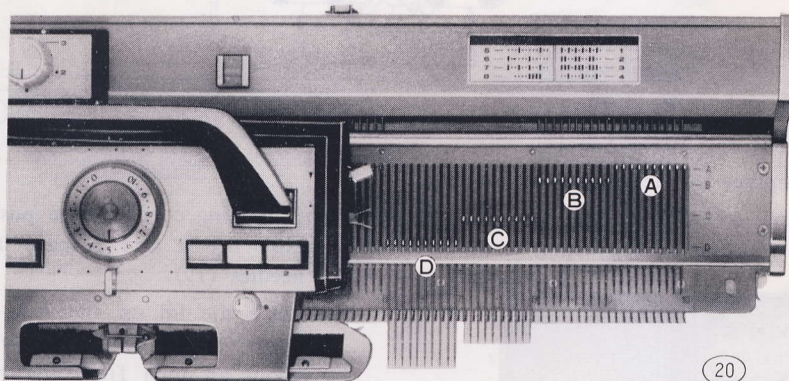
(2) Basic Operation



1. Latch needles

The latch needles are used in four basic positions **A**, **B**, **C**, **D**.

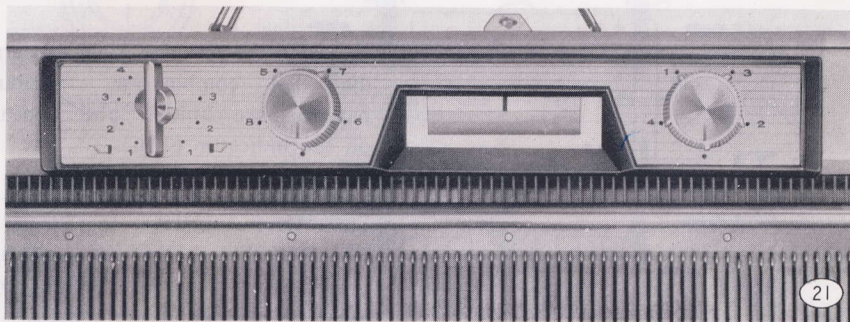
These positions are indicated by the marks **A**, **B**, **C** and **D** on both edges of the needle bed.



- A..... The needle butts are fully to the rear. They remain completely out of action even if the carriage is moved.
- B..... The latch needles are normally set at this position.
- C..... Needles are set in this position for special knitting.
- D..... Needles are set in this position when they are manually selected or when partial knitting is done.

2. Pattern Panel

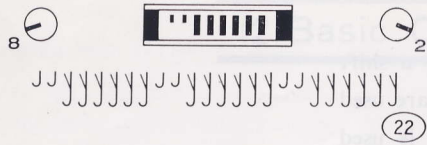
The pattern panel has two pattern dials, a shift dial and an indicator. The pattern dials are used for selecting patterns, and the indicator is used for showing the patterns selected and the positions of the patterns shifted (21).



Pattern dials

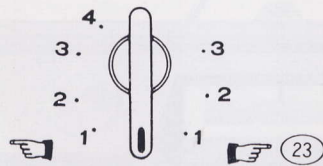
The following patterns are knitted by using in combination the left and right pattern dials:

pattern dial (left)	pattern dial (right)	the alignment of needles when the carriage is moved	indication by indicator
Ⓘ	1	յյյյյյյյյյ	
	2	յյյյյյյյյյ	
	3	յյյյյյյյյյ	
	4	յյյյյյյյյյ	
5	Ⓘ	յյյյյյյյյյ	
6		յյյյյյյյյյ	
7		յյյյյյյյյյ	
8		յյյյյյյյ	



Indication ■ in the indicator shows the needles pulled out when the carriage is moved, and ■ shows needles which are not pulled out.

When patterns are knitted by latch needles or by hand, both pattern dials are set to the mark ●.



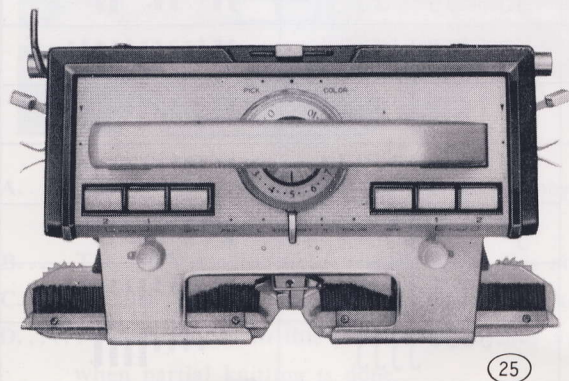
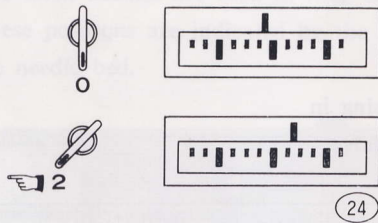
By using the left and right pattern dials in combination, various patterns are knitted and appear on the indicator (22).

Shift Dial

The shift dial is used for shifting the position of patterns knitted by the left and right pattern dials.

When this shift dial is moved, the marks ■ and ■ on the indicator move relatively to the red indicating hand and illustrate the position of shifted patterns (23 and 24).

The red indicating hand on the indicator shows (0) which is the center of the needle bed.

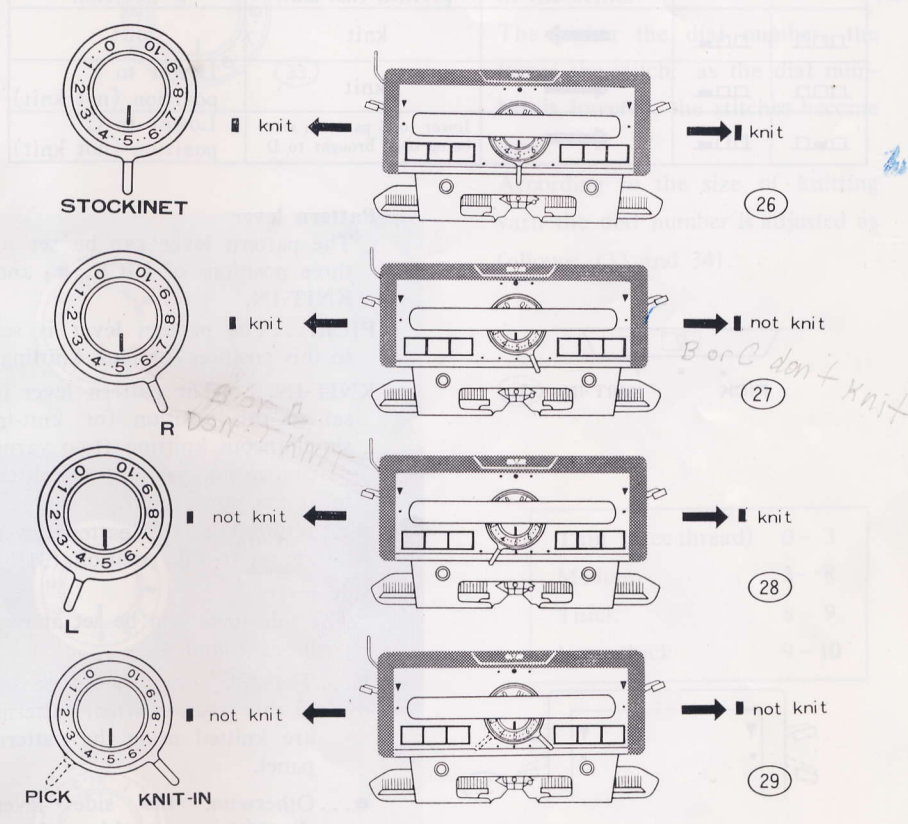


3. Carriage

Cam lever, push buttons and pattern lever may be set differently according to varied knitting practices (25).

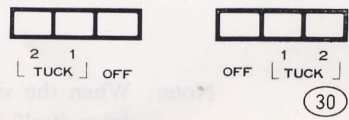
The cam lever

The cam lever can be set to positions of **PICK, L, STOCKINET, R** and **KNIT-IN** and operates the needles on **B** and **C** positions enabling or inabling them to form the stitches. (26—29)



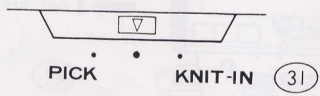
Push buttons

The push buttons on each side are provided with **OFF button** **TUCK button 1** and **TUCK button 2** respectively. **TUCK button 1** works on the needles with the mark **|** on the indicator, **TUCK button 2**, on the needles in **D** position and the **OFF button** raises the **TUCK button** that is pressed down (30).



HOLD
HOLD

push button		proceeding dir · of the carriage	needles of <small>(mark ■ in the indicator B position)</small>	needles at D position
□□□	□□□	→	knit	remain at D position
□□□	□■□	→	pulled out to D position (not knit)	remain at D position
□□□	□□■	→	knit	knit
□□□	□□■	←	knit	Lower to C position (not knit)
□■□	□□■	←	lower to C position after being once brought to D	Lower to C position (not knit)



Pattern lever

The pattern lever can be set to three positions of PICK, ●, and KNIT-IN.

PICK... The pattern lever is set to this position for pick knitting.

KNIT-IN.... The pattern lever is set to this position for knit-in simultaneous knitting (two yarns of contrasting colors are knitted in at the same time).

●.... Otherwise, the pattern lever is set to this position (31).

Side levers

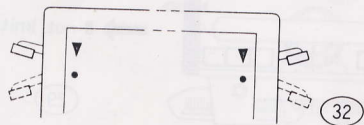
The side lever can be set at two positions ▼ and ●.

▼... The side lever should be set to this position when patterns are knitted using the pattern panel.

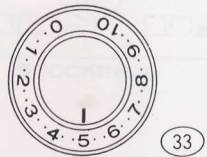
●... Otherwise, the side lever should be set to this position.

In working patterns using the pattern panel, and if you desire any portion of your garment to remain without patterns, adjust the side lever to position ● (32).

After you pass the portion of the garment to remain without patterns, readjust the side lever to position ▼.



Note: When the side lever is in position ▼, be sure that the lever itself is behind the butts of the needles in use.



Stitch dial

The stitch dial is used for altering the size of the stitch. Adjust the figure of the dial to the red line in the center.

The higher the dial number, the looser the stitch; as the dial number is lowered, the stitches become finer.

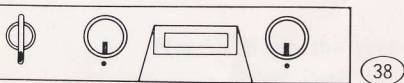
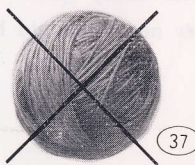
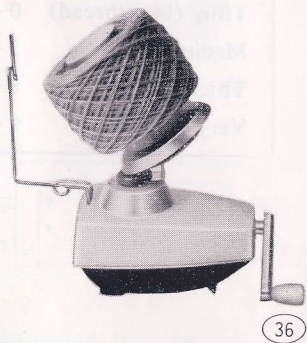
According to the size of knitting yarn the dial number is adjusted as follows: (33 and 34).



Thin (lace thread)	0 - 3
Medium	3 - 8
Thick	8 - 9
Very thick	9 - 10

When bulky yarn is used every other needle should be used.

(3) Stockinet Knitting



1. Preparation for knitting

Unravel your yarn and drop it neatly into a box or a basket (35) or keep it wound around a spool (36).

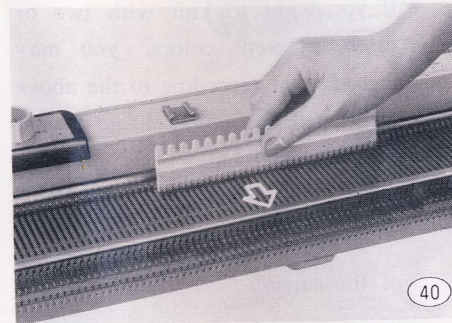
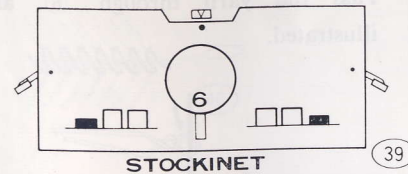
Yarn rolled into a ball will cause your knitting to be uneven (37).

2. Setting for knitting

Set pattern panel and carriage as follows:

<Pattern panel>

- pattern dial (left)... ●
 - pattern dial (right)... ●
 - shift dial..... 0
- (38)



<Carriage>

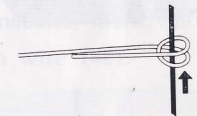
- Cam lever.... stockinet
- Push buttons... Both tuck buttons
2 down
- Pattern lever... ●
- Side lever..... ● (39)

<Latch needle>

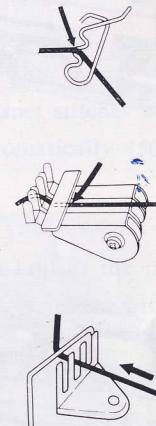
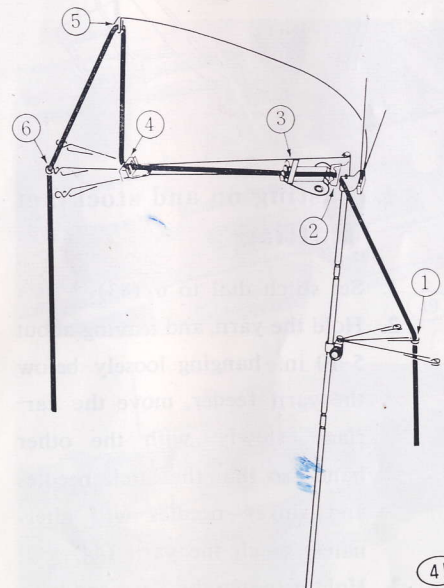
- Latch needles... Bring required numbers of latch needles out into D position (40).

3. Threading the yarn

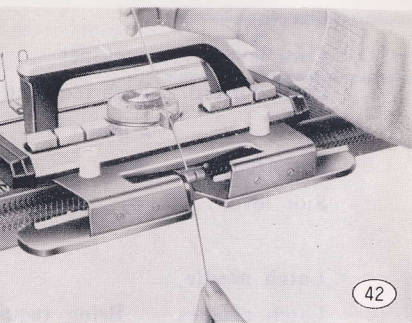
Pass the yarn through the tension guide ① as illustrated.



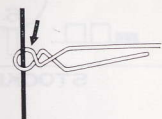
Pass the yarn through ②-④ as illustrated.



Pass the yarn through the yarn-taking spring ⑤.

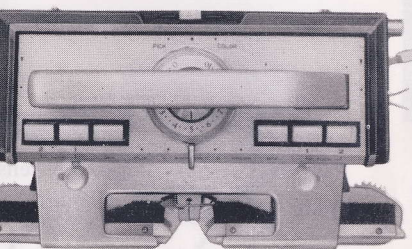


Pass the yarn through ⑥ as illustrated.



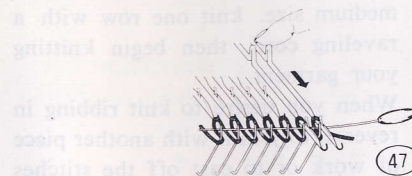
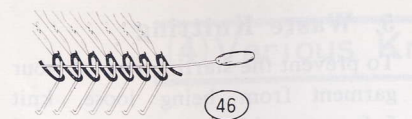
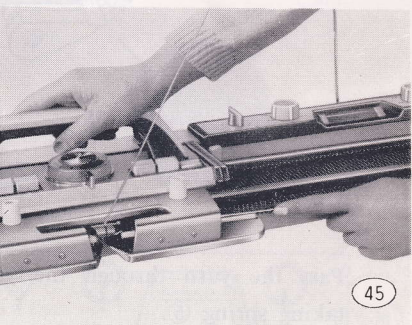
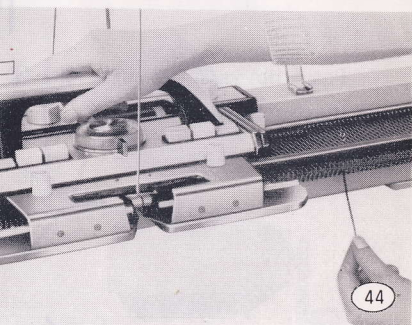
If you want to knit with two or three different colors, you may thread them according to the above mentioned procedure, but be careful not to cross them.

(8) Thread the yarn from the auto-tension down into the yarn feeder of the carriage (42).



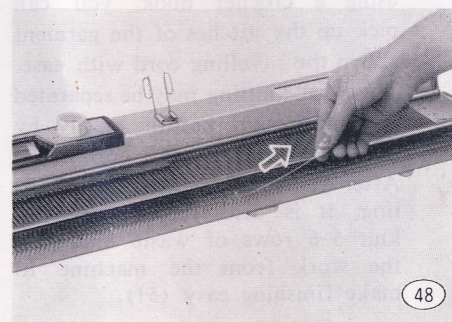
4. Casting on and stockinet knitting

1. Set stitch dial to 6 (43).
2. Hold the yarn, and leaving about 5-10 in. hanging loosely below the yarn feeder, move the carriage slowly with the other hand, so that the latch needles and sinker needles will alternately catch the yarn (44).
3. Holding down the yarn end with your finger, push the carriage forward (45).

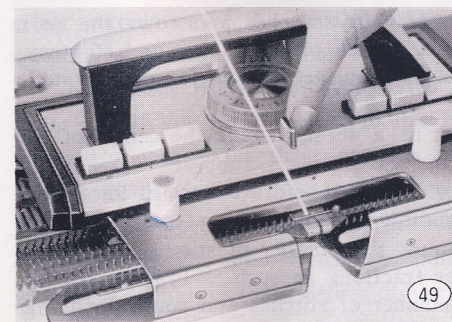


(4) Place the cast-on wire on the yarn between the latch needle and the sinker needle (46).

(5) While pressing down the cast-on wire so that it will be lower than the latch needle, pull out one or two latch needles at both ends and one in the center over the cast-on wire to D position (47).

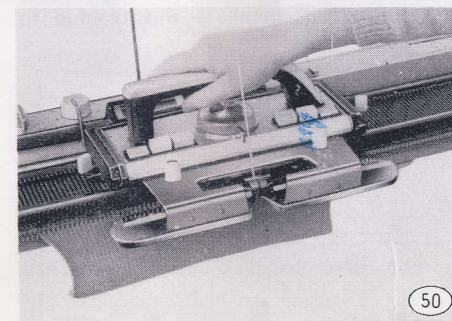


(6) Knit about 5-6 rows by moving the carriage across the operating needles, then remove the cast-on wire (48).

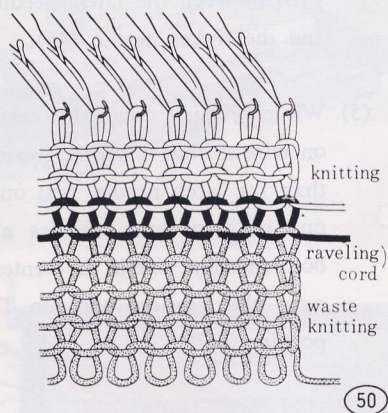


(7) Set stitch dial to 5 (49).

(8) If you move the carriage to and fro, stockinet stitches will be knitted automatically (50).



Note: It is best to knit at the rate of 30 rows per minute. Move the carriage smoothly. Keep moving the carriage until it produces a clicking sound (when the side lever is set to the rear (▼) it produces a double clicking sound).



(50)

5. Waste Knitting

To prevent the starting row of your garment from being loose, knit 5-6 rows with any scrap yarn of medium size, knit one row with a raveling cord, then begin knitting your garment.

When you desire to knit ribbing in reverse, to join it with another piece of work or to cast off the stitches using a crochet hook, you can pick up the stitches of the garment above the raveling cord with ease.

The waste knitting may be separated from the main knitting easily by pulling off the raveling cord.

After you have finished your knitting, it is also recommended to knit 5-6 rows of waste and drop the work from the machine to make finishing easy (51).

6. The Gauge

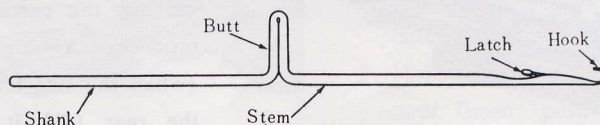
Before starting each garment, find out how many stitches and rows the yarn makes per inch. This is done by making a swatch of 60 stitches and 80 rows. You may have to try several times before you get a satisfactory swatch, changing the stitch dial gradually.

Count the number of stitches and rows in a 4" square at the center of the swatch.

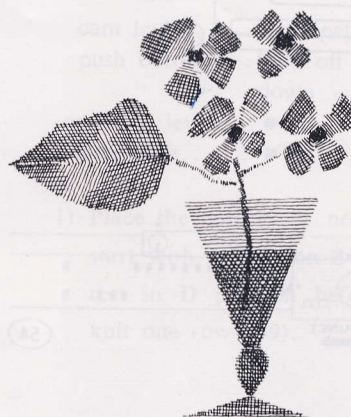
It is recommended to leave the swatch for 24 hours before counting. Should you want to count it immediately, however, rumple it gently in your palms.

Then lay the piece on a flat surface to count the number of stitches and rows. In counting them it is necessary to consider fractions as such. Fraction should not be counted as one stitch. Use the number of stitches and rows (including fractions) in the calculation of the number of stitches and rows for your garment. The reason for the improper size of a finished garment is mostly due to calculating the incorrect gauge from your swatch.

Name of the Part of A Latch Needle

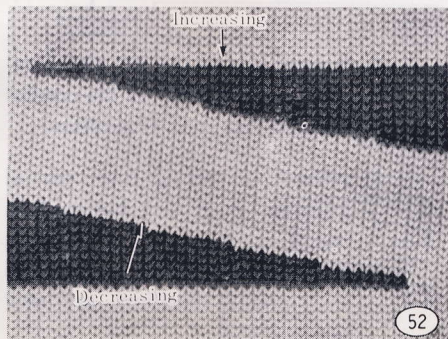


(4) Various Knitting Practices



By means of the Dial Compartment System of this machine, which can select automatically the needles to be used, you can knit patterns almost as speedily as stockinet knitting.

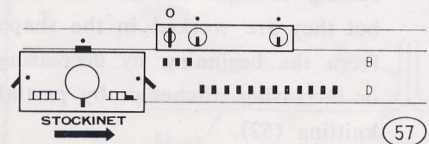
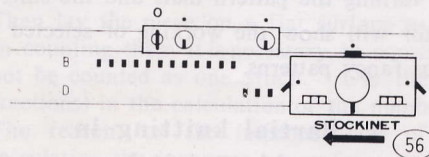
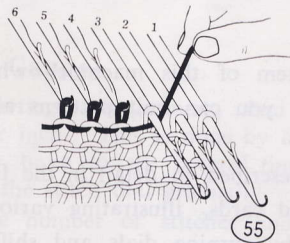
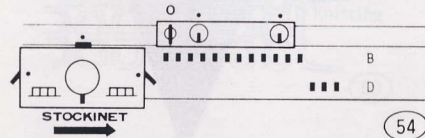
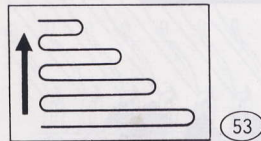
Various basic patterns are illustrated and described in detail in the following pages and if you refer further to the included cards, illustrating various other patterns you can knit these patterns easily, by turning dials and shifting the needles as directed by the card. If you are an expert in knitting, you will find it easy make-up to various patterns. By turning the pattern dials and the shift dial in various combinations the indicator will show the working of selected needles, facilitating the knitting of various fancy patterns.



1. Partial knitting in stockinet stitches

Knitted garments are not shaped by cutting as with woven materials, but they are worked in the shape from the beginning by decreasing or increasing stitches or by partial knitting (52).

Partial knitting increasing



<pattern panel>

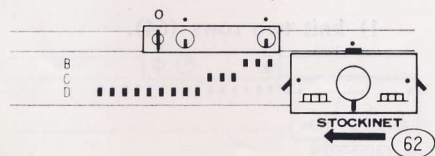
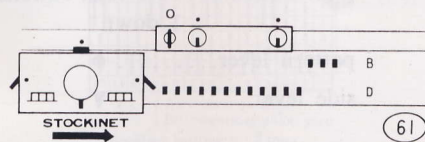
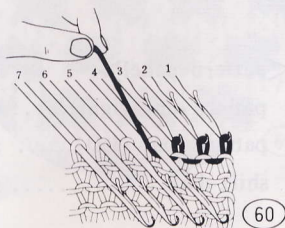
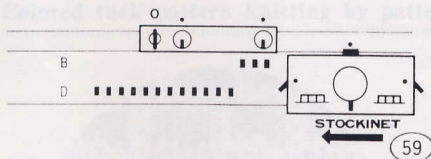
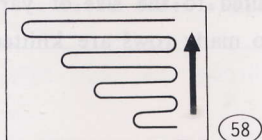
- pattern dial (right)..... ●
- pattern dial (left)..... ●
- shift dial..... 0

<carriage>

- came lever..... stockinet
- push button.... both off buttons down
- pattern lever... ●
- side lever..... ●

- 1) The number of needles to be decreased on this row should be drawn out into **D** position on the opposite side to where the carriage is and knit one row (54).
- 2) To avoid making a hole, pass the yarn under the first resting needle, lifting it over the others (55).
- 3) Continue knitting another row which completes the first partial knitting (56).
- 4) Repeat from (1) to (3) increasing the number of the needles brought out into **D** position.
- 5) After completing the partial knitting, push tuck button 2 in the proceeding direction and knit the 3rd row. All the needles in **B** and **D** positions are now worked (57).

Partial knitting increasing



<pattern panel>

- pattern dial (right)..... ●
- pattern dial (left)..... ●
- shift dial..... 0

<carriage>

- cam lever..... Stockinet
- push button.... both off buttons down
- pattern lever... ●
- side lever..... ●

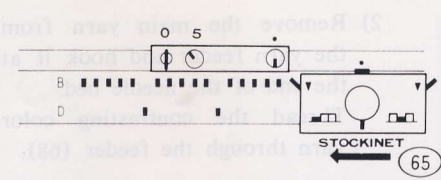
1) Place the number of needles to start with in position **B** and the rest in **D** position before you knit one row (59).

2) In order to avoid making a hole, pass the yarn under the next resting needle (60).

3) Knit another row to complete the first partial knitting (61).

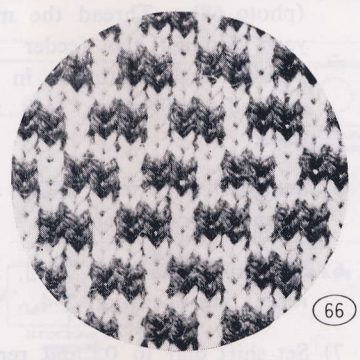
4) Push back the next group of needles to be increased to **C** position and knit the 3rd row (62).

5) Repeat this procedure 2-4 and knit as many rows as required.

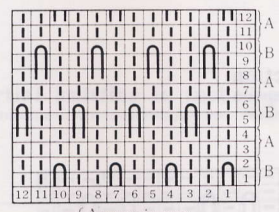


- 2) push tuck button 2 in the proceeding direction (1 button is raised) and knit another row. (push both tuck buttons 2 when more than two rows of stockinet knitting are to be knitted) (65).
- 3) Push tuck button 1. Repeat the operation 1-2.

Colored tuck pattern knitting by pattern panel



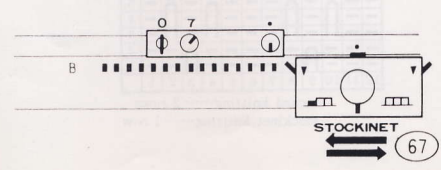
(66)



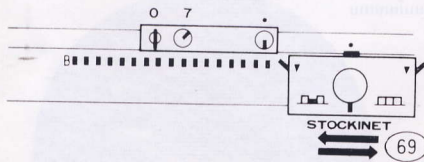
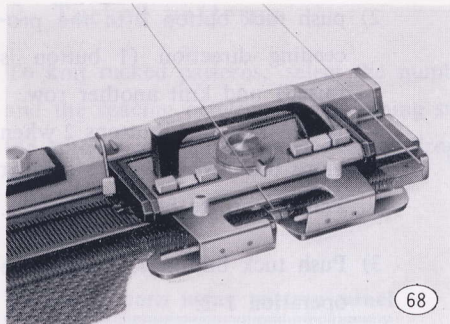
{ A.....main yarn
 { B.....contrast color yarn
 stockinet knitting..... 2 rows
 tucked pattern knitting..... 2 rows

- <pattern panel>
- pattern dial (right)..... ●
 - pattern dial (left)..... 7
 - shift dial..... 0

- <carriage>
- cam lever..... stockinet
 - push button ... both off buttons down
 - pattern lever... ●
 - side lever..... ▼



- 1) Push tuck button 2 in the proceeding direction and knit two rows with the main yarn (67).



2) Remove the main yarn from the yarn feeder and hook it at the end of the needle bed. Thread the contrasting color yarn through the feeder (68).

3) Push tuck button 1 in the proceeding direction and knit two rows (69).

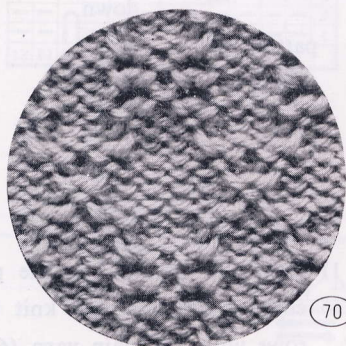
4) Remove the contrasting color yarn from the feeder and hook it at the end of the needle bed (photo 68). Thread the main yarn through the feeder and pushing tuck button 2 in the proceeding direction, knit two rows.

5) Set shift dial to 1 , and repeat the operation 2-4.

6) Set shift dial to 2 , and repeat the operation 2-4.

7) Set shift dial to 0, and repeat the operation 2-6.

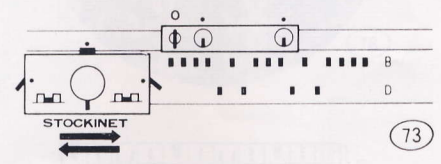
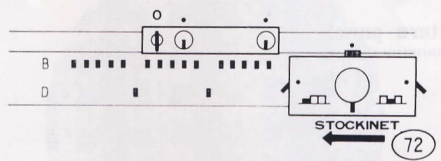
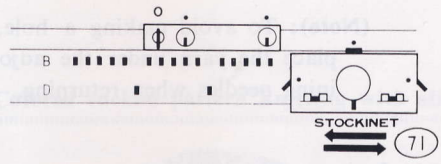
Tucked ground patterns by manual needle selection



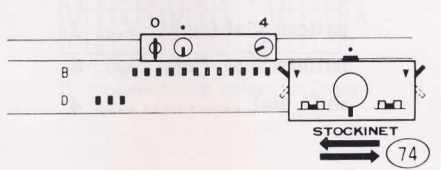
12	11	10	9	8	7	6	5	4	3	2	1	18
												17
												16
												15
												14
												13
												12
												11
												10
												9
												8
												7
												6
												5
												4
												3
												2
												1

tucked knitting..... 2 rows
stockinet knitting..... 1 row

When you have pulled out the needles, push the OFF button. Turn the pattern dial left position with the shift dial. Push the tuck buttons pulled out and knit as many rows as are required in stockinet knitting (71).



Partial knitting in tucked patterns



<pattern panel>

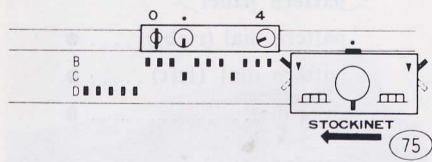
- pattern dial (right)..... ●
- pattern dial (left)..... ●
- shift dial..... 0

<carriage>

- cam lever stockinet
- push button.... both tuck buttons
1 down
- pattern lever ... ●
- side lever..... ●

- 1) Pull out every sixth needle to D position and knit two rows (71).
- 2) Push the tuck button 2 in the proceeding direction and knit another row (72).
- 3) Following the pattern chart, draw the needles on both sides of the needle pulled out formerly to D position. Then push tuck button 1 in the proceeding direction and knit two rows (73).
- 4) Following the pattern chart, repeat from 2-3.

- 1) when you knit partial knitting as you are knitting a tucked pattern, push the tuck button 1, pull out the needles to be rested to D position, and knit as many rows as are required in tucked pattern knitting at every two rows the needles to be rested are pulled out to D position, and the needles in D position are returned to C position. This is an operation the same as partial knitting in stockinet knitting (74).

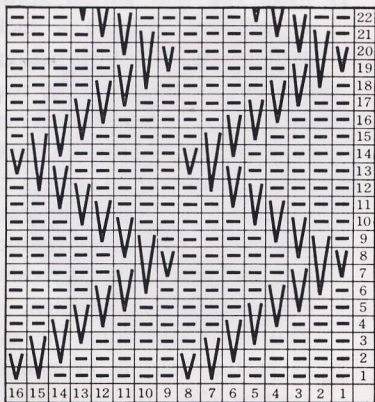


2) When you have pulled out the needles, push the OFF button instead of pushing tuck button 2, return to C position with the needles pulled out, and knit as many rows as are required in stockinet knitting (75).

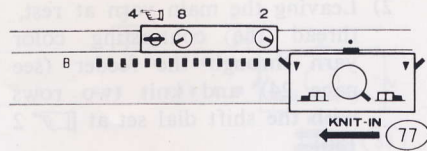
(Note): To avoid making a hole, place the yarn under the adjoining needles when returning.

3. Tucked patterns with slip stitches

Tucked ground pattern knitting by pattern panel

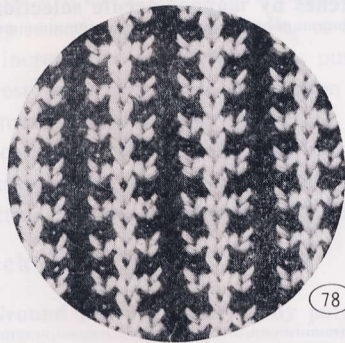


- <pattern panel>
 pattern dial (right)..... 2
 pattern dial (left)..... 8
 shift dial..... 4
- <carriage>
 cam lever.... knit-in
 push button.... both tuck buttons
 2 down
- pattern lever.. ●
 side lever..... ▼



- 1) Knit one row.
- 2) Knit one row, with the shift dial set to 3 (77).
- 3) Move the shift dial to the right by one figure at each row. When the shift dial indicates the figure 3, move it to the left by one figure at each row.

Colored tucked pattern knitting with slip stitches using the pattern panel



	V		V		V		V		V		12	B
											11	
	V		V		V		V		V		10	A
											9	
											8	B
	V		V		V		V		V		7	
											6	A
	V		V		V		V		V		5	
											4	B
	V		V		V		V		V		3	
											2	A
	V		V		V		V		V		1	

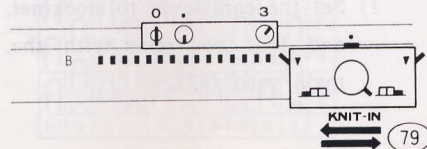
A.....main yarn..... 2 rows
 B.....contrasting color..... 2 rows

<pattern panel>

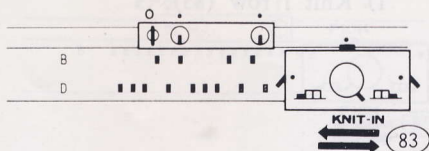
- pattern dial (right)..... 3
- pattern dial (left)..... ●
- shift dial..... 0

<carriage>

- cam lever..... knit-in
- push button.... both tuck buttons
2 down
- pattern lever... ●
- side lever..... ▼



- 1) knit two rows with main yarn (79).



2) Set the cam lever to the knit-in.
As you knit one row, draw the needle with the mark **I** in the pattern chart to **D** position, and knit two rows with the contrasting color yarn (83).

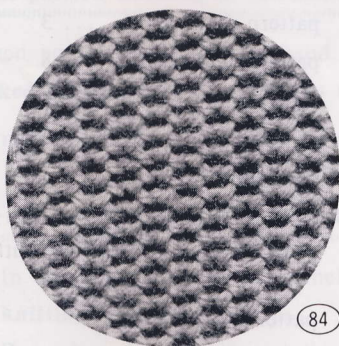
- 3) Following the pattern chart, draw the knitting needles to **D** position at each row, and knit two rows with the main yarn.
- 4) Repeat the operation (2)-(3).

Partial knitting of tucked pattern with slip stitches

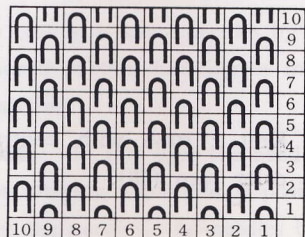
- 1) If you are using the pattern panel, push the **OFF** button (tuck button 1 and 2 are raised), draw the needles to be rested for partial knitting to **D** position.
- 2) To increase in partial knitting, push the knitting needles out of the needles at rest in **D** position to **B** position while you put the stitches into the hook by means of a transfer tool.
- 3) In case you select needles by hand, leave the needles at rest for partial knitting and the needles for slip stitches at **B** position, and draw only the knitting needles to **D** position, and knit your garment.

4. Pick Knitting

Pick Ground Pattern Knitting by pattern panel



84



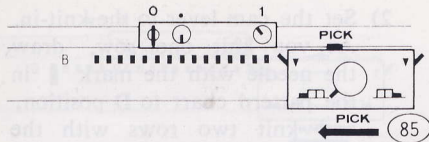
pick knitting..... 1 row

<pattern panel>

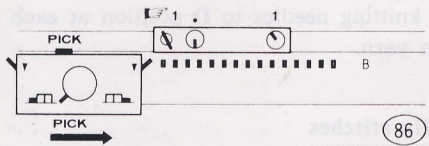
- pattern dial (right)..... 1
- pattern dial (left)..... ●
- shift dial..... 0

<carriage>

- cam lever..... pick
- push button.... both tuck buttons
2 down
- pattern lever... pick
- side lever..... ▼



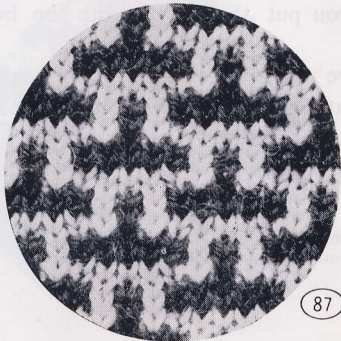
1) Knit 1 row (85).



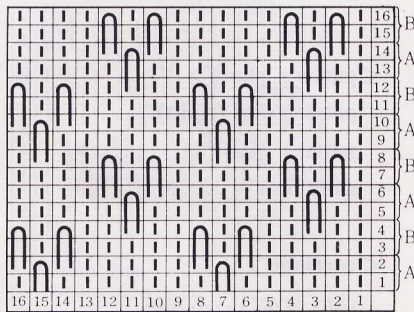
2) Set shift dial to 1, and knit one row (86).

3) Turn shift dial to 0, and repeat the operation 1-2.

Colored pick pattern knitting by pattern panel



(87)



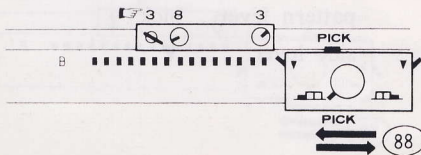
A.....main yarn..... 2 rows
B.....contrasting color yarn..... 2 rows

<pattern panel>

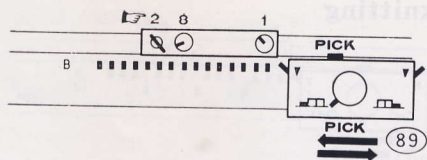
- pattern dial (right)..... 3
- pattern dial (left)..... 8
- shift dial..... 3

<carriage>

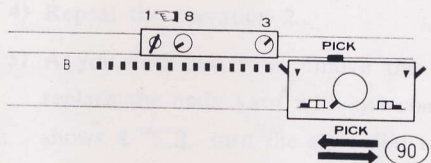
- cam lever..... pick
- push button... both tuck buttons
2 down
- pattern lever... pick
- side lever..... ▼



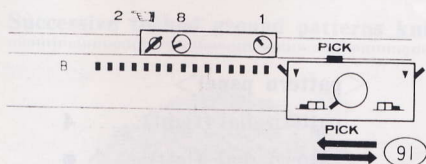
1) Knit 2 rows with contrasting color yarn (88).



2) Set the pattern dial (right) at 1 and shift dial to [2], and knit 2 rows with main yarn (89).



3) Set pattern dial (right) at 3 and shift dial to [1], and knit two rows with the contrasting color yarn (90).



4) Set pattern dial (right) at 1 and shift dial to [2], and knit two rows with the main yarn (91).

5) Repeat operation 1-4.

Pick pattern knitting by manual needle selection

When you select needles by hand, knit similarly as when you are knitting the tucked pattern with slip stitches using your hand in selecting needles.

Remarks: Adjust the pattern lever to pick.

Partial knitting with pick knitting

1) In case you use pattern panel, knit as in partial knitting with tuck knitting with slip stitches.

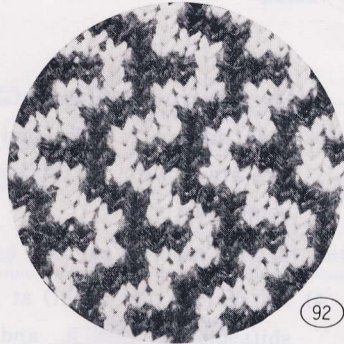
Remarks: In this case set the pattern lever to pick.

2) In case you select needles by hand, knit similarly as in partial knitting with tuck pattern knitting or in partial knitting with successive tuck pattern knitting.

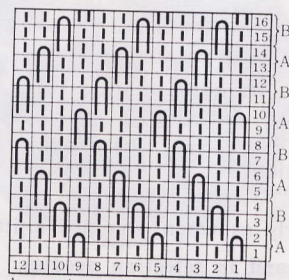
Remarks: In this case the needles for pick knitting are left in D position and the knitting needles in B position. So this knitting will be reverse in bringing out the needles, the needles brought out are reverse to the needles in a pick pattern knitting by manual needle selection.

5. Successive tucked pattern knitting

Successive tucked color patterns



92



A.....main yarn..... 2 rows
B.....contrasting color yarn..... 2 rows

<pattern panel>

pattern dial (right)..... 4

pattern dial (left)..... ●

shift dial..... 0

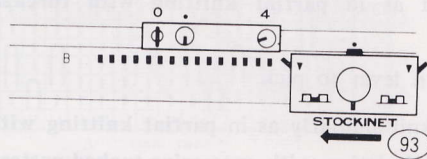
<carriage>

cam lever.....stockinet

push button... push tuck button 1

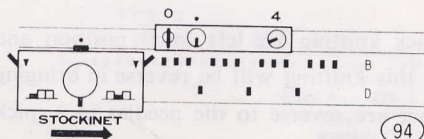
pattern lever... ●

side lever..... ▼



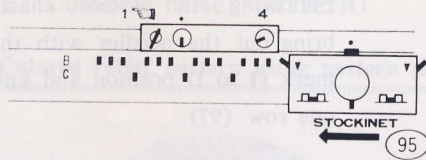
93

- 1) with tuck button 1 in the proceeding direction of the carriage pressed down, knit one row with main yarn (93).



94

- 2) Instead of tuck button 1, press tuck button 2 in the retreating direction of the carriage and knit one row (94).

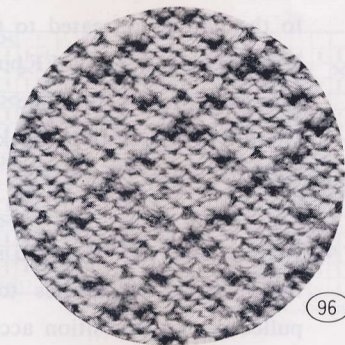


3) Set the shift dial to 1 and tuck button 1 in the preceding direction of the carriage. Then knit one row with the contrasting color yarn (95).

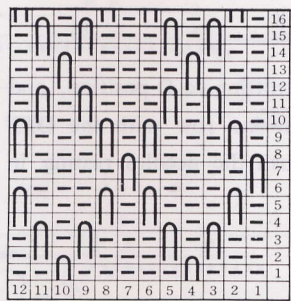
4) Repeat the operation 2.

5) As you knit two rows, move the shift dial by one figure to the left and replace the main yarn with the contrasting color yarn. When the shift dial shows 4 , turn the shift dial to the reverse direction by one figure as you knit two rows.

Successive tucked ground patterns knitting by selecting needles by hand



96



tuck pattern knitting..... 2 rows

< pattern panel >

pattern dial (right)..... ●

pattern dial (left)..... ●

shift dial..... 0

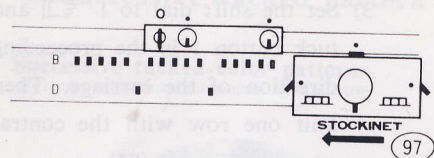
< carriage >

cam lever..... stockinet

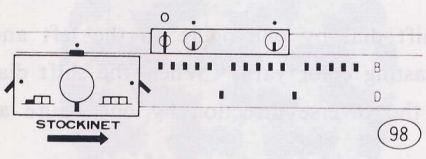
push button.... both off buttons down

pattern lever... ●

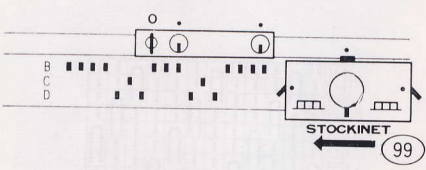
side lever..... ●



1) Following the pattern chart, bring out the needles with the mark \cap to **D** position and knit one row (97).



2) With tuck button 2 in the retreating direction of the carriage pressed down, knit one row (needles in **D** position retreat to **C** position without knitting) (98).

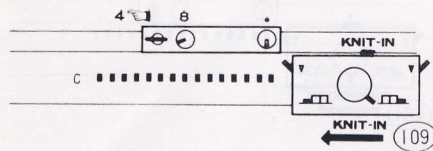


3) Bring out the needle adjacent to the needles retreated to **C** to **D** positions and with **OFF** button pressed down, knit one row (needles in **C** position can knit) (99).

4) Repeat from 2 to 3 as you shift the position of needles to be pulled out to **D** position according to the pattern chart.

Partial knitting with successive tucked knitting

Bring out the needles to be rested for partial knitting to **D** position, and as you knit a successive tucked pattern after you knit one row with the **OFF** button instead of tucked button 2 pressed down, push the needles resting in **D** for successive tucked knitting back to **C** by hand.

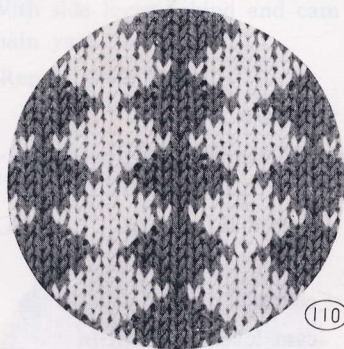


through the feeder, adjust cam lever to **knit-in**, and knit one row (109).

- 3) Move the shift dial according to the pattern chart, and repeat operation 2.

Remark: Be sure all the latches are open.

Knit-in pattern by manual needle selection



X					X	X	X				12
X	X	X		X	X	X	X	X	X		11
X	X	X		X	X	X	X	X	X		10
X											9
X											8
											7
											6
X	X	X		X	X	X	X	X	X		5
X	X	X		X	X	X	X	X	X		4
X	X	X		X	X	X	X	X	X		3
											2
											1
12	11	10	9	8	7	6	5	4	3	2	1

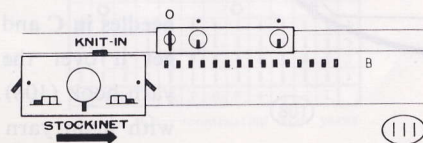
X.....contrasting color yarn

< pattern panel >

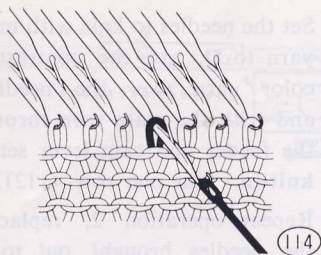
- pattern dial (right)..... ●
- pattern dial (left)..... ●
- shift dial..... 0

< carriage >

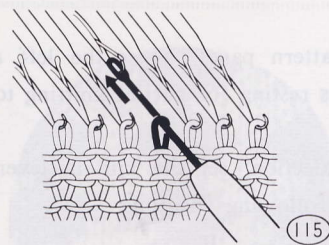
- cam lever..... **knit-in**
- push button... both tuck buttons
2 down
- pattern lever.. **knit-in**
- side lever..... ●



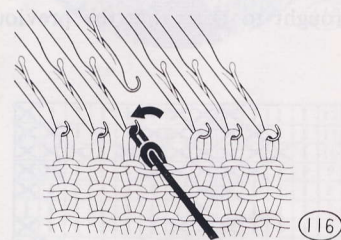
- 1) With cam lever at **stockinet** and **knit-in** lever at **knit-in**, knit one row with main yarn (111).



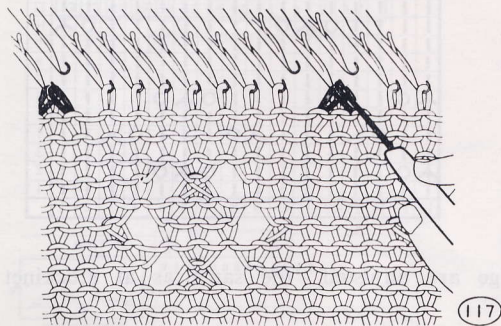
- 2) Place the one eye tool into the hook of the needle in the position marked O in the pattern chart and draw it out to D position (114).



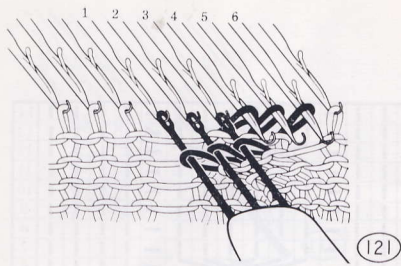
- Push the needle back, where by the stitch slides over the needle head on to the tool (115).



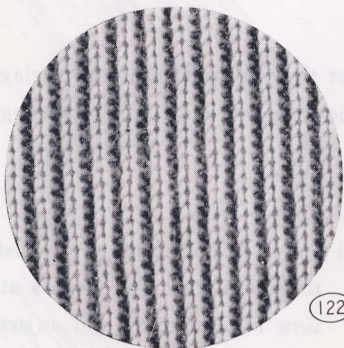
- 3) Following the chart, transfer the stitch on the tool to the adjacent needle (116).



- 4) Then knit two rows, and repeat operation 2-3.



10. Rib stitch

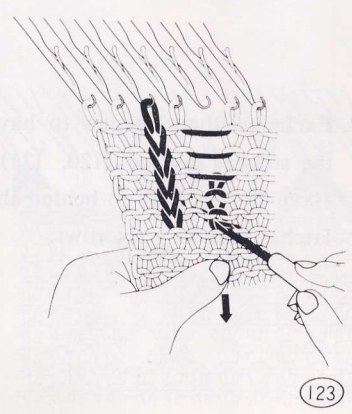


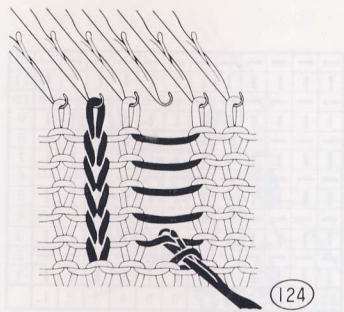
4) Repeat these procedures and when you have knit 3 patterns (18 rows) purl one stitch on each side of the cable (for purling stitches, refer to the rib stitch below).

—		—		—		—		—		—		—		—		12
—		—		—		—		—		—		—		—		11
—		—		—		—		—		—		—		—		10
—		—		—		—		—		—		—		—		9
—		—		—		—		—		—		—		—		8
—		—		—		—		—		—		—		—		7
—		—		—		—		—		—		—		—		6
—		—		—		—		—		—		—		—		5
—		—		—		—		—		—		—		—		4
—		—		—		—		—		—		—		—		3
—		—		—		—		—		—		—		—		2
—		—		—		—		—		—		—		—		1
12	11	10	9	8	7	6	5	4	3	2	1					

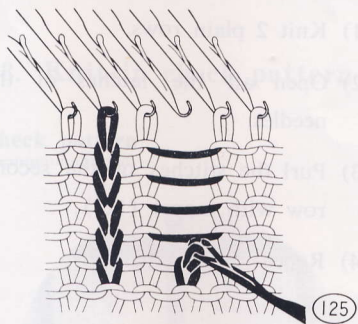
Set pattern panel and carriage same as stockinet knitting.

- 1) For rib knitting set stitch dial to a number smaller by one figure than in stockinet knitting.
- 2) Knit as many rows as you knit in a rib knitting. Bring out the third needle from the right to D position and then return it to B position. Drop the stitch to be ribbed from the hook of the needle down to a few rows above where the ribbing is to begin.
- 3) Insert the hook of the tappet through the last loop of the dropped stitch from where the ribbing is supposed to start. Then undo the above by pushing down the tappet (123).

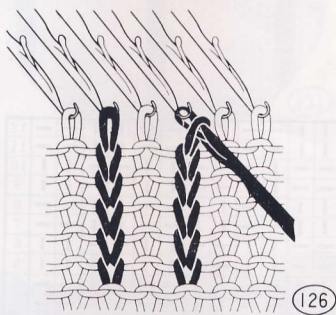




- 4) Push forward the tappet until the stitch is behind the open latch, and the cross thread above it is in the hook of the tappet (124).



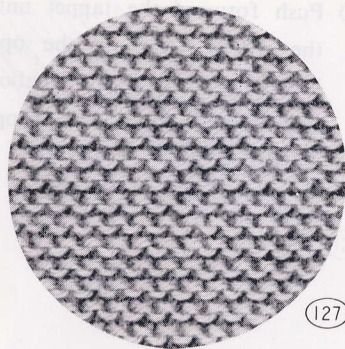
- 5) Pull on the tappet and latch will close on the trapped cross thread. Continue to pull and trapped cross thread will be pulled through the dropped stitch forming a new stitch. (125).



- 6) Repeat this operation until the last cross thread has been knit. Finally, place the stitch on its respective needle (126).

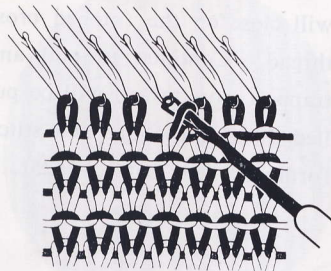
11. Garter stitches

Set pattern panel and carriage same as a stockinet knitting.



-	-	-	-	-	-	-	-	-	-	-	-	12
												11
-	-	-	-	-	-	-	-	-	-	-	-	10
												9
-	-	-	-	-	-	-	-	-	-	-	-	8
												7
-	-	-	-	-	-	-	-	-	-	-	-	6
												5
-	-	-	-	-	-	-	-	-	-	-	-	4
												3
-	-	-	-	-	-	-	-	-	-	-	-	2
												1
12	11	10	9	8	7	6	5	4	3	2	1	

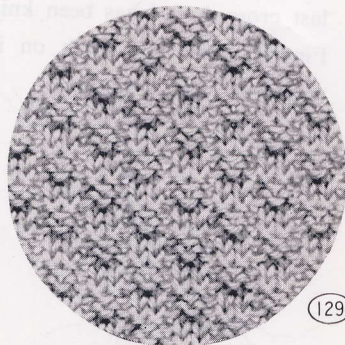
(127)



(128)

- 1) Knit 2 plain rows.
- 2) Open all the latches of the needles.
- 3) Purl the stitches of the second row with tappet (128).
- 4) Repeat from 1 to 3.

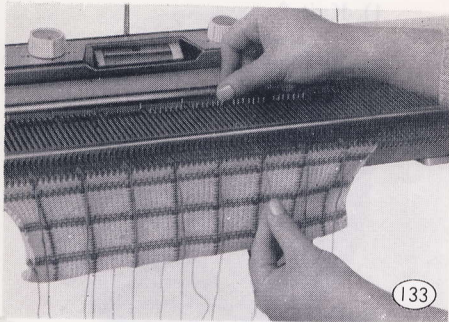
12. Double moss stitches



		-	-			-	-			-	-	12
		-	-			-	-			-	-	11
-	-			-	-			-	-			10
		-	-			-	-			-	-	9
-	-			-	-			-	-			8
		-	-			-	-			-	-	7
-	-			-	-			-	-			6
		-	-			-	-			-	-	5
-	-			-	-			-	-			4
		-	-			-	-			-	-	3
-	-			-	-			-	-			2
		-	-			-	-			-	-	1
12	11	10	9	8	7	6	5	4	3	2	1	

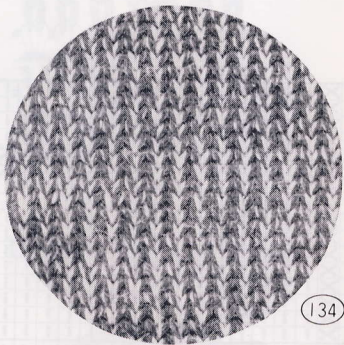
(129)

Set pattern panel and carriage same as stockinet knitting.



- 2) Knit one row with the main yarn.
 Needles at A position. cannot knit
 Needles at B position. knit
- 3) Bring out the needle in A position with the contrasting yarn to C position, knit same as 1, and push the needle back to A position. The repetition from 2 to 3 forms the vertical stripes. To form a horizontal stripe of the contrasting color, replace the yarn with the contrasting color and knit two rows (133).

14. Added-yarn knitting



Medium size yarn: single
 2-ply yarn: single
 to be used in case of

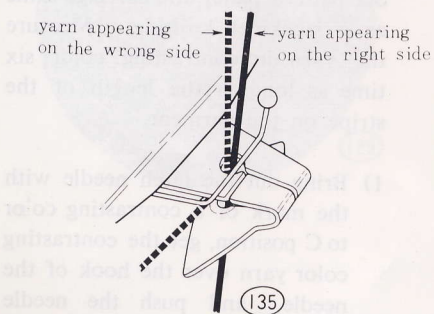
Right side: contrasting color
 (2-ply yarn)
 Wrong side: main color
 (medium size yarn)
 stitch dial. 7

These two yarns are knitted together. The stockinet stitch is formed with the contrasting color above the main color.

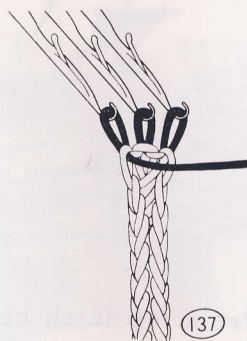
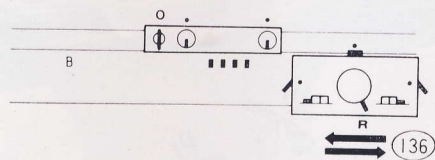
In that case, the contrasting color will appear on the right side and the main color on the wrong side, thus making each side a different color.

Pattern panel and carriage are set same as a stockinet knitting.

- 1) Insert the yarn (contrasting color) which will appear on the right side into the center hole of the yarn feeder.
- 2) Insert the yarn (main color) which will appear on the wrong side into the backward hole of the yarn feeder. (135)



15. Cord knitting



Set pattern panel similarly as stockinet knitting.

<carriage>

cam lever.....either L or R

push buttons.... both tuck buttons 2

pattern lever.... ●

side lever..... ● (136)

Bring forth into D position some needles from 2 to 5 depending on the thickness of the cord you desire (137).

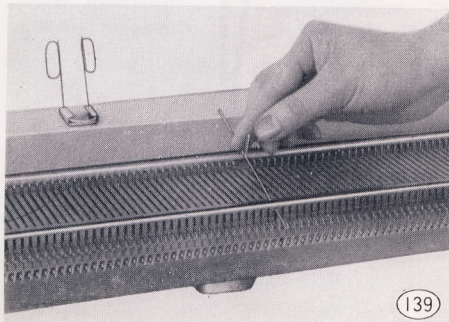
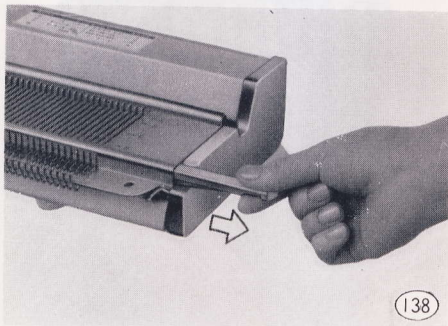
(5) Helpful Hints

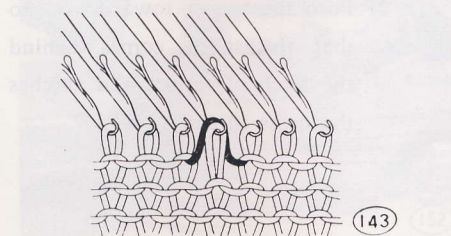
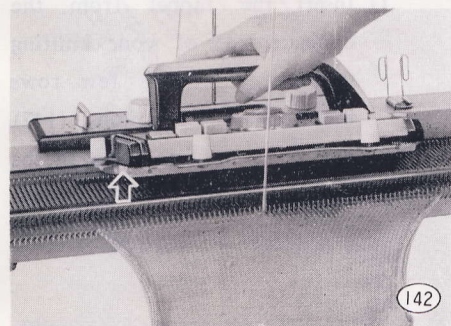
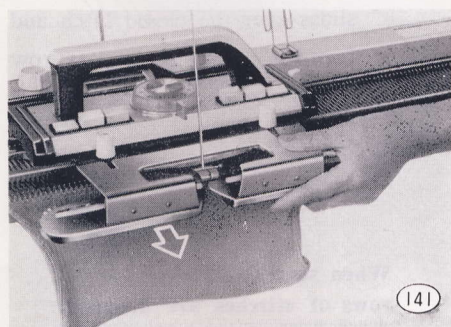
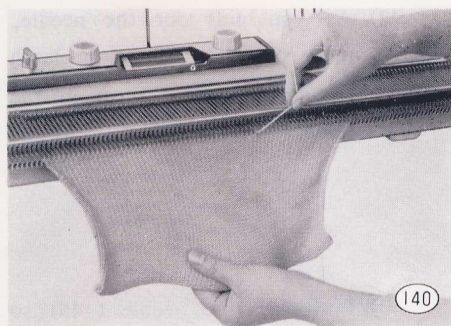


1. Replacing latch needles

You can replace a damaged latch needle with a new one even with your knitting on the machine.

- 1) Pull off the needle retainer from the inside of the needle bed (138).
- 2) Pull out the damaged needle into D position and take it out by the butt (139).
- 3) Replace the new needle by holding the butt and pushing in the hook first. Then replace the needle retainer.





2. Undoing of rows

Remove the yarn from the yarn feeder. Pull the yarn tight in the direction parallel to the machine slightly pulling the garment toward you with the other hand. Now lift the pulling hand backward, away from you, so that the latches will open and the stitches of the previous row will slip into the hooks. Repeat the procedure until the desired number of rows are removed (140).

3. When the carriage jams while knitting

When the carriage jams, never try to move it by force. This way you will damage the needle bed.

- 1) Loosen the arm nuts and remove the arm (141).
- 2) Slightly lifting up the front edge of the carriage, bring it back to the starting position (142).

Then check the points below:

If the yarn is entangled or caught somehow.

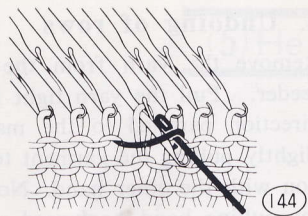
If the yarn is threaded correctly on the auto-tension.

If there is a knot on the yarn, correct any of these troubles and then undo the incomplete row.

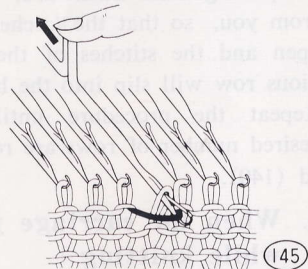
4. Picking up dropped stitches

When one row of stitches dropped:

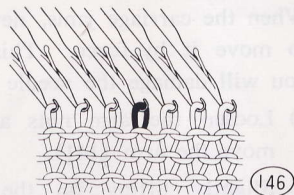
- 1) Insert the one eye tool into the stitch just under the dropped stitch raise that stitch together with the loose yarn (dropped stitches) onto the needle (143).



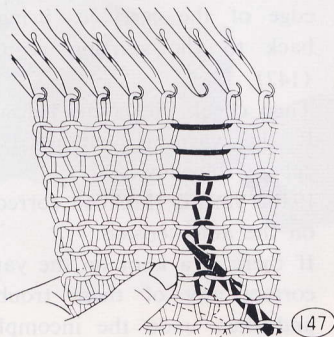
- 2) As you pull out the needle, place the stitch behind the latch leaving the loose yarn in the hook (144).



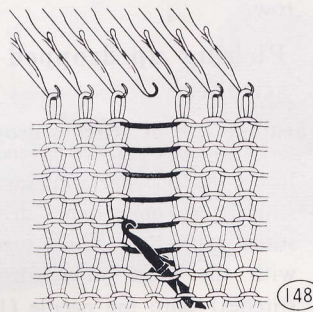
- 3) Push back the needle (145) so that the stitch behind the latch slides over the closed latch and forms a stitch of the last row (146).



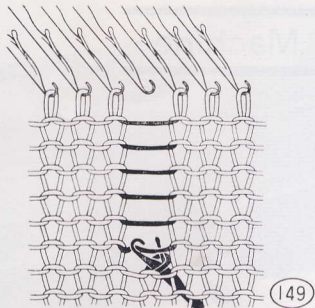
When several rows of stitches are dropped:



- 1) Insert the tappet from the opposite side of your knitting through a stitch a few rows below dropped stitch (147) and undo stitches down to the tappet.

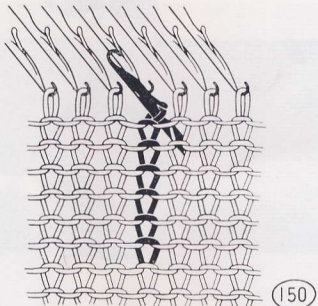


- 2) Push the tappet toward you so that the stitch comes behind the latch of tappet and catches the cross thread (148).

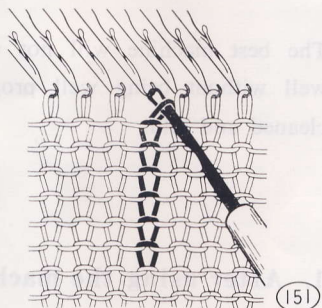


- 3) Draw back the tappet and the cross thread is trapped in the closed latch (149).

The stitch behind the latch slides down over the closed latch forming a stitch. Repeat this procedure to the top (150).



- 4) Pull the last stitch rather tight. Carefully remove the stitch from tappet and place it on the needle with your tappet from the front (151).



5. Regulation of tension on yarn

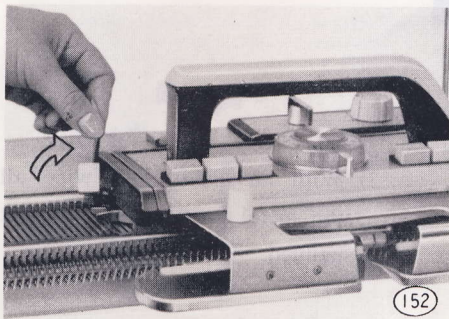
If the yarn makes loops at the ends of the fabric, you should check to see if the yarn is threaded correctly into the auto-tension.

6. Cleaning of the case

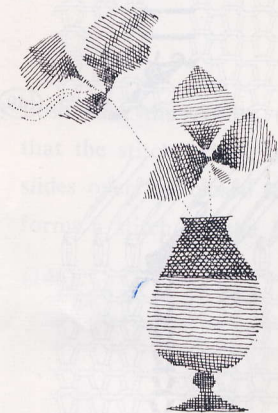
If the case is stained, wipe it off with a cloth dipped in neutral soap water or exyful.

7. How to put the row counter out of operation

If you do not want to operate the row counter, bring up the lever for it on the carriage (152).



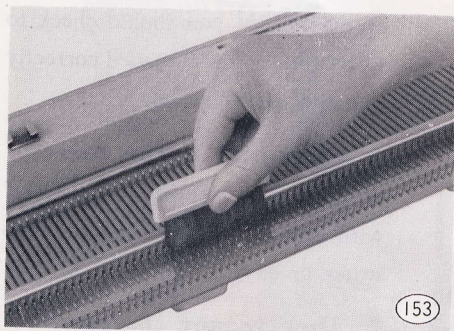
(6) Care of Your Machine

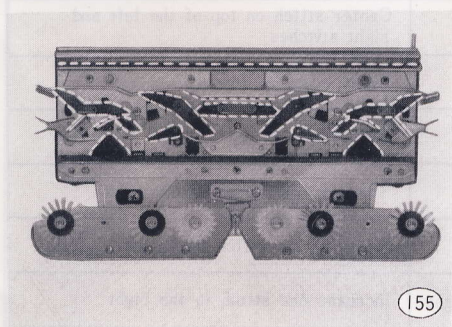
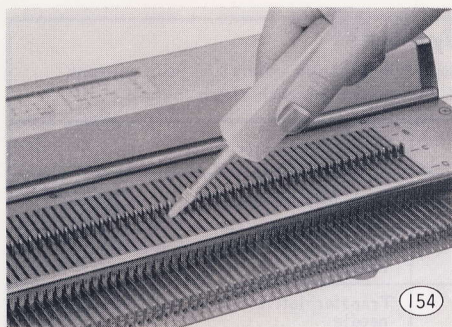


The best machine will not work well without being well properly cleaned and oiled.

1. After using the machine

- 1) Brush off all wool dust (153).
- 2) With an oiled cloth wipe all the metal parts which are not painted.





2. Oiling

- 1) The rail
The rail where the carriage glides should be carefully oiled all over.
- 2) The latch needles
When you oil the latch needles, pull out the latch needles to C or D position and oil the top of the butts only (154).
- 3) Oil the cams only carefully following the dotted line (155).



3. Preserving the machine

- 1) Keep the well oiled machine and in a dry place at all times.
- 2) If you have not used the machine for some time, you should carefully wipe off the excess oil before you use it.
It is also advisable for you to knit a piece of fabric with wast yarn before you start the real knitting.

Knitting symbols

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
























		Knit stitch	Face loop of stockinet
—		Purl stitch	Back loop of stockinet
>		Two stitches together	Transfer right stitch to adjacent left needle
<		Two stitches together	Transfer left stitch to adjacent right needle
↑		Three stitches together	Center stitch on top of the left and right stitches
↗		Three stitches together	Right stitch on top
↖		Three stitches together	Left stitch on top
/		Lean stitch to the right	Transfer the stitch to the right
\		Lean stitch to the left	Transfer the stitch to the left
↑		Increased stitch to the right	Increase one stitch to the right
↓		Increased stitch to the left	Increase one stitch to the left
3 ∇		Three stitches increased	Increased three stitches out of one stitch
X		Crossing, right over left	Cross the stitches with the right stitch over the left
X		Crossing, left over right	Cross the stitches with the left stitch over the right
∇		Slip stitch	A loop marked is pulled up with yarn across behind it
∇		Float stitch	A loop marked is pulled up with yarn across in the front
∩		Tuck stitch	A few loops on marked rows pulled up onto one needle
∩		Tuck stitch in side way to the right	A few loops on marked rows pulled up in sideway onto a right needle
∩		Tuck stitch in side way to the left	A few loops on marked rows pulled up in sideway onto a left needle
∩		Twisted tuck stitch	A stitch twisted and pulled up onto a needle above
∩		Twisted stitch	A stitch is twisted
∩		Winding stitch	A loop formed by winding yarn around a needle
○		Empty stitch	Hole made by transfer ring the stitch to the next needle

M E M O

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M E M O

The following symbols have been selected to help you understand your patterns
and a glossary and the numbers lines of description for each one.

	Knit stitch	One loop of stocking
	Purl stitch	Back loop of stocking
	Two stitches together	Transfer right stitch to adjacent left needle
	Two stitches together	Transfer left stitch to adjacent right needle
	Three stitches together	Center stitch on top of the left and right needles
	Three stitches together	Right stitch on top
	Three stitches together	Left stitch on top
	Loop stitch to the right	Let right stitch go to the right
	Loop stitch to the left	Transfer one stitch to the left
	Increased stitch to the right	Increase one stitch to the right
	Increased stitch to the left	Increase one stitch to the left
	Three stitches increased	Increase three stitches out of one stitch
	Crossing, right over left	Cross the stitches with the right stitch over the left
	Crossing, left over right	Cross the stitches with the left stitch over the right
	Wig stitch	A loop marked is pulled up with yarn over behind it
	Wig stitch	A loop marked is pulled up with yarn under in the front
	Yark stitch	A few loops on marked rows pulled up into one handle
	Yark stitch to the right	A few loops on marked rows pulled up in between with a right needle
	Yark stitch to the left	A few loops on marked rows pulled up in between with a left needle
	Twisted loop stitch	A stitch twisted and pulled up with a needle above
	Twisted stitch	A stitch is twisted
	Winding stitch	A loop formed by winding yarn around a needle
	Empty stitch	Hook made by transfer ring the stitch to the next needle

but

