



**KG 88/89**  
**Instruction Manual**  
**For**  
**G-Carriage**

## **CONTENTS**

PARTS NAME .....	1
PARTS TO BE CHANGED .....	3
(1) Yarn Tension-G	
(2) Racks	
BEFORE STARTING TO KNIT .....	5
(1) Row Counter	
(2) Tension Dial	
(3) Needle Position	
(4) Selector	
(5) Self Turning Lever	
(6) Carriage Direction Lever	
HOW TO USE THE G-CARRIAGE	
(1) Preparation .....	7
(2) Casting On .....	9
(3) Rib Knitting .....	10
(4) Multi Garter Stitch Pattern Knitting .....	14
(5) Casting Off .....	16
BASIC TECHNIQUES	
1. INCREASING/DECREASING .....	20
2. HOW TO UNRAVEL AND PICK UP STITCHES .....	23
3. HOW TO SHAPE A NECK LINE .....	25
4. WHEN YOU HAVE TO KNIT ONE ROW WITH K-CARRIAGE .....	28
5. CHANGING THE YARN WHILST KNITTING .....	29
USEFUL HINTS	
1. IF THE G-CARRIAGE SHOULD STOP MOVING .....	30
2. IN CASE OF MOVING THE G-CARRIAGE WITHOUT YARN .....	32
3. HOW TO UNRAVEL SEVERAL ROWS .....	33
4. CLEANING AND MAINTENANCE .....	37
VARIOUS PATTERNS .....	38
COMPARISON CHART .....	40

The G-Carriage is an automatic carriage and works for you by itself. You do not have to knit by yourself.

It can knit plain, rib, garter and various stitch patterns and cast-off.

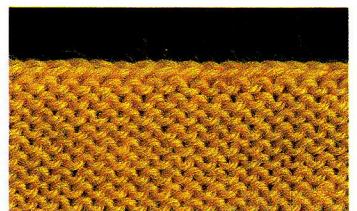
1. Rib knitting



2. Multi Garter



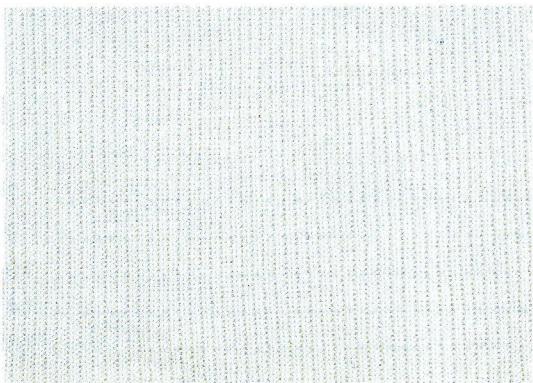
3. Casting Off



## PATTERN VARIATIONS BY USING ATTACHED CARDS

### RIB KNITTING

Card No. 1



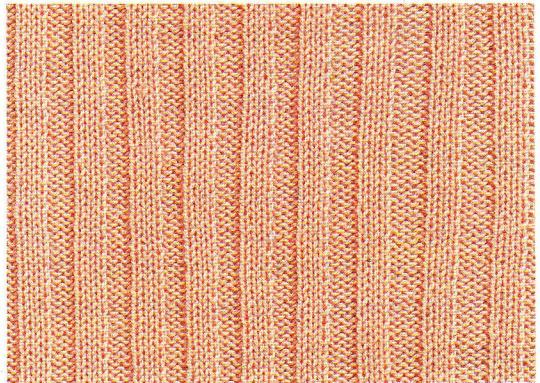
1x1 Rib



2x2 Rib



2x1 Rib



3x3 Rib



4x4 Rib



6x6 Rib

MULTI GARTER STITCH PATTERN



Card No. 2

(GARTER STITCH)



Card No. 3



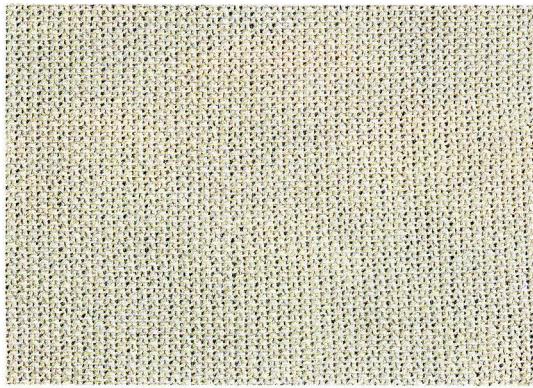
Card No. 4



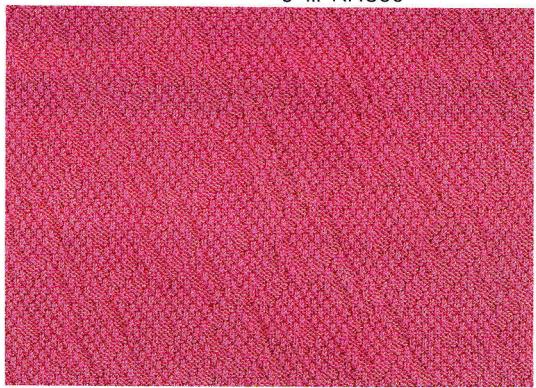
Card No. 5

## **PATTERN VARIATIONS BY USING THE ATTACHED CARDS**

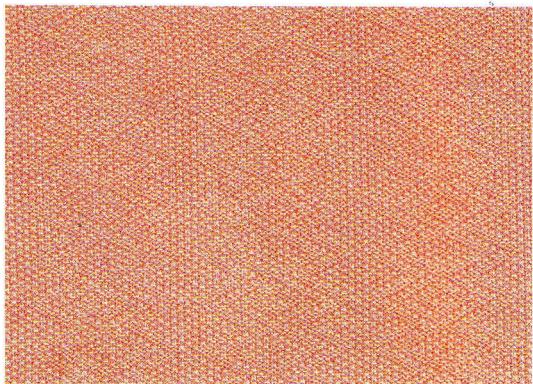
M ... KH890/891  
J ... KH860



CARD No. 1J 1M



CARD No. 7J 7M



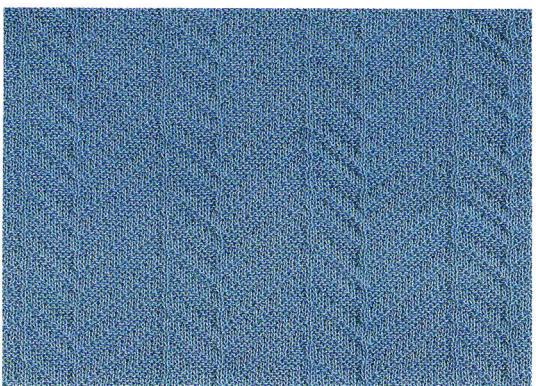
CARD No. 8J 8M



CARD No. 10M



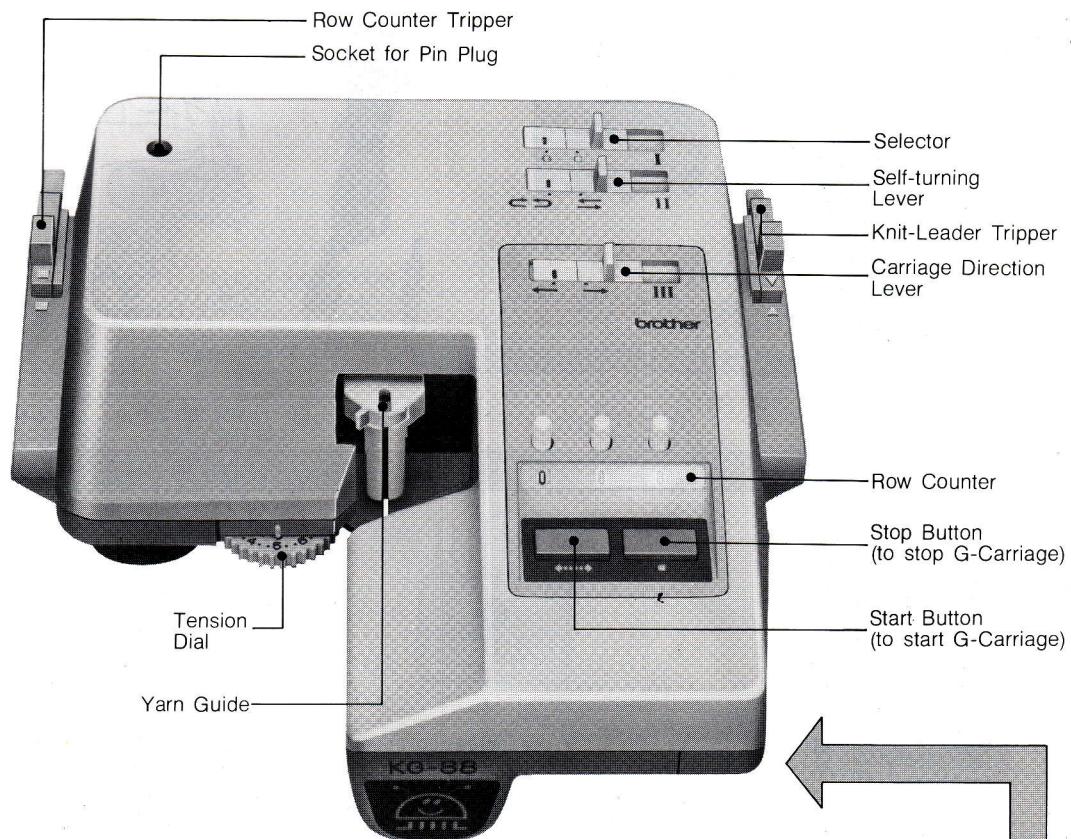
CARD No. 11M



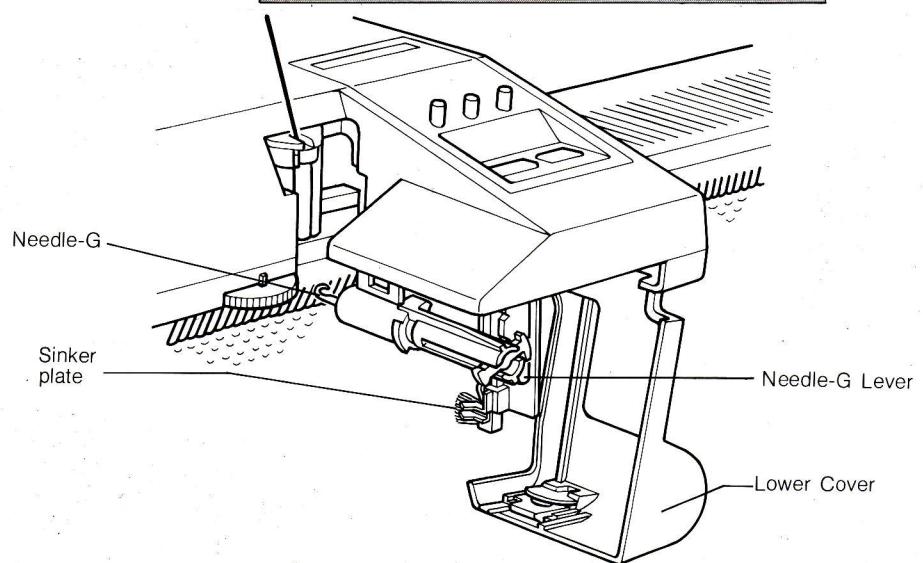
CARD No. 12M

# NAME OF PARTS

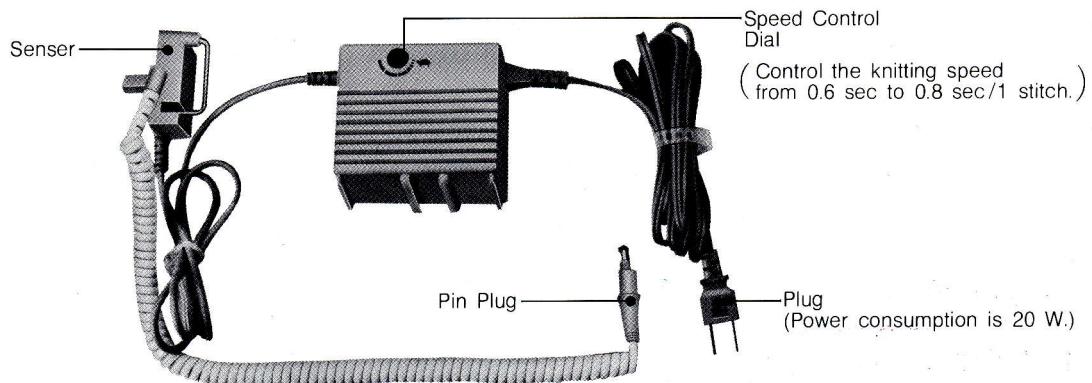
## •G-Carriage



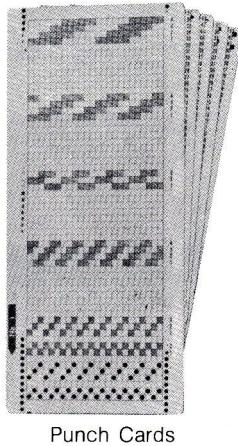
INSIDE OF THE COVER



### •Adaptor



### •Accessories



Punch Cards



Weights  
for increasing more  
than 2 stitches



for 1 stitch



for 2 stitch



for 3 stitch



Spare Needle-G (5)

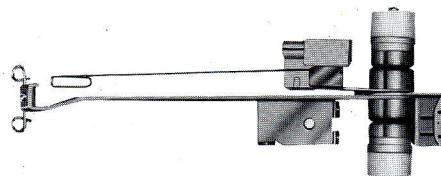


Double Latch Tool



Tripper for KH-860/890

### •Parts for using KH-860/881



Yarn Tension-G



RACK L



RACK M

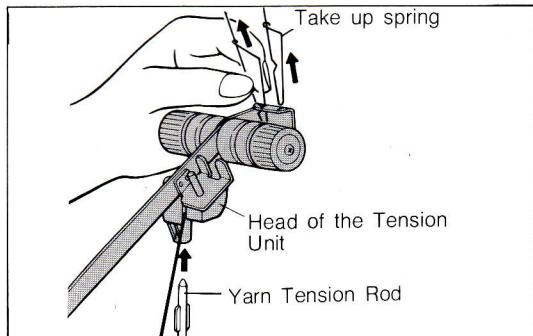


RACK R

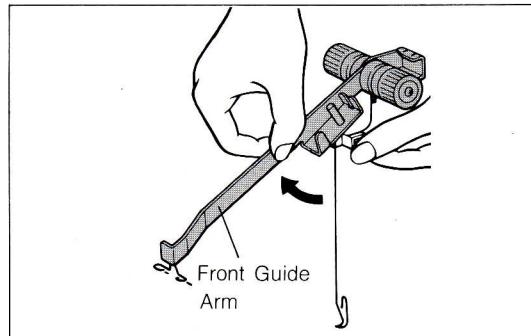
# CHANGE THE FOLLOWING PARTS TO USE THE G-CARRIAGE ON KH-860/881

You can use the G-Carriage on the model KH-860/KH-881 (KG-88) and KH-891 (KG-89). If you use KH-860 (881) the following attachments are necessary. So put them onto your machine. (You don't need any attachments in using KH-891.)

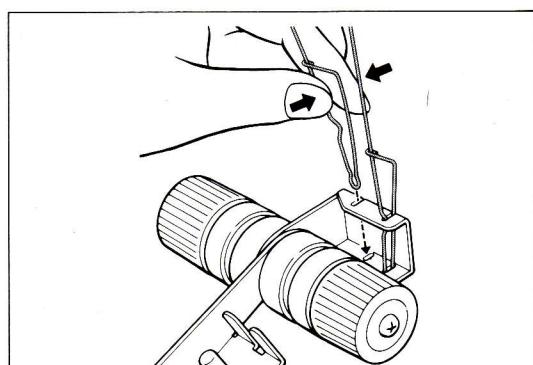
## (1) YARN TENSION-G (Attachment for using KH-860/881)



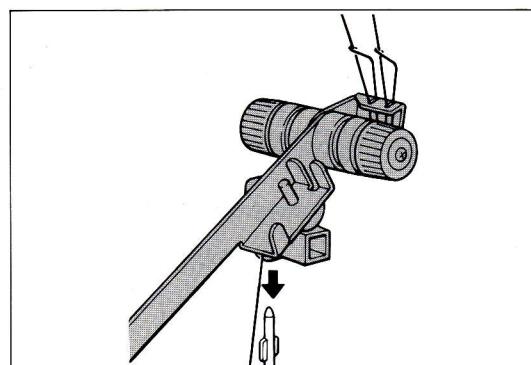
1. Take the Yarn Tension Head off the rod and pull out the take-up springs.



2. Raise up the front guide arm on the Yarn Tension-G.



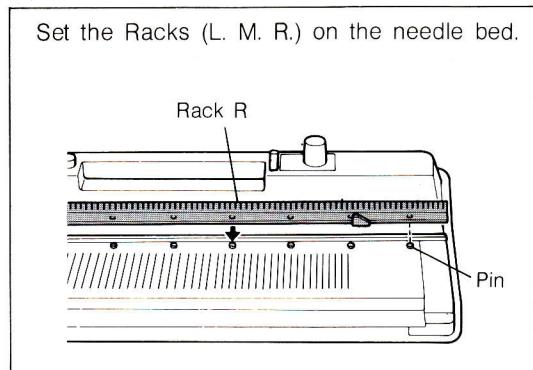
3. Set the take-up springs onto the Yarn Tension-G.



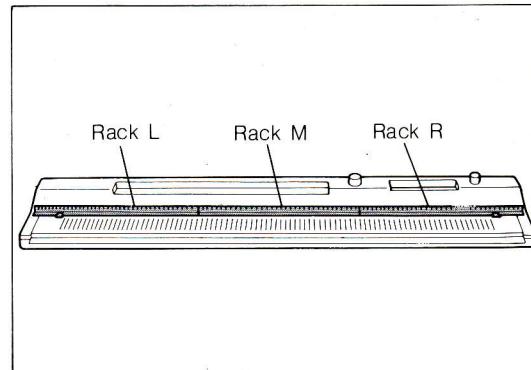
4. Put the Yarn Tension-G onto the rod.

## (2) RACKS (Attachment for using KH-860/881)

Set the Racks (L. M. R.) on the needle bed.



1. Put the Rack R on the right side of the needle bed and fix the pins on the needle bed into the hole on the racks.

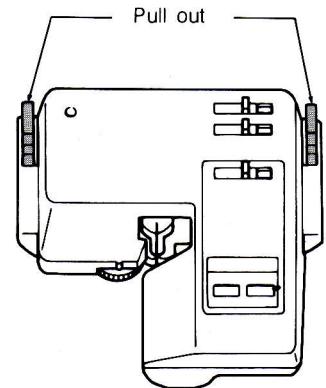


2. Put Rack M&L in the same way and make sure that these three racks are in a line.

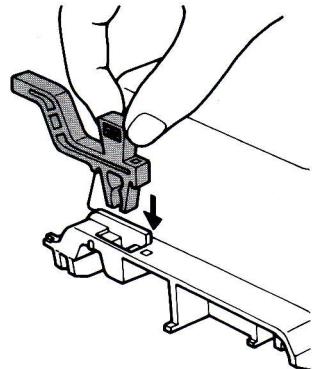
\* Take away the racks when using the K-carriage and the L-carriage.

It's impossible to use more than 190 needles (left 95, right 95) when using the G-carriage.

## TRIPPERS



1. Take off both KH-881/891 (Grey) tripers.



2. Put the tripper (KH-860/890 (Brown)) into the left hole. (The right side hole is empty.)

Tripper	Grey	Brown
Model		
881 891	<input type="radio"/>	<input checked="" type="radio"/>
860 890	<input checked="" type="radio"/>	<input type="radio"/>

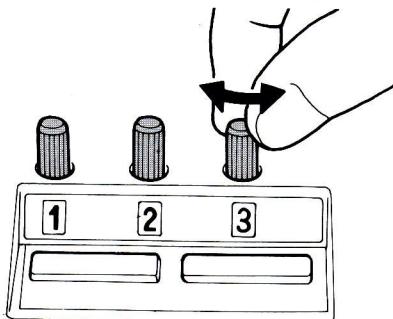
# BEFORE STARTING TO KNIT

## (1) ROW COUNTER

Set the number of rows you want to knit.

The number decreases as the G-carriage moves until it stops.  
(When it stop, the Row Counter shows 000.)

- \* When the Row Counter shows 000, the G-carriage does not work.
- \* If you do not use the Row Counter, set it at a large number. (ex. 900)

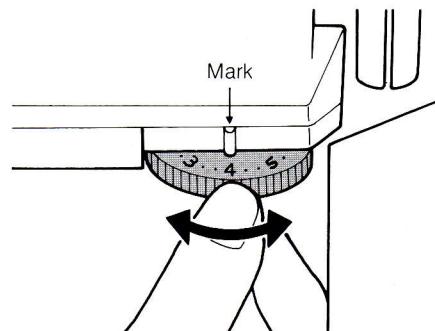


## (2) TENSION DIAL

The following chart shows the standard tension.

The tension of the G-carriage is different from that of the K-carriage.

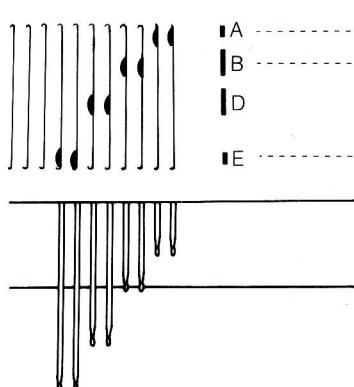
YARN	TENSION DIAL	
	RIB PATTERN	STITCH PATTERN
VERY FINE (2ply)	1~2	2~3
FINE (3ply)	2~4	3~6
MEDIUM (4ply)	3~5	5~8
*THICK (5ply)	6~8	7~10
*VERY THICK	7~9	8~10



NOTE: Sometimes these \* thick yarns are difficult to knit.

You must be careful when using fancy yarns such as tweed, bouclé and loop. Also yarns with no elasticity. (ex. silk, cotton and linen)

## (3) NEEDLE POSITION



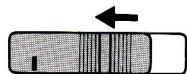
non-working position

working position

You cannot use these positions with the G-carriage

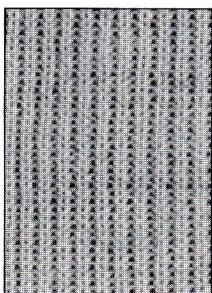
Do not use the G-carriage with-out needle on the needlebed.

#### (4) SELECTER

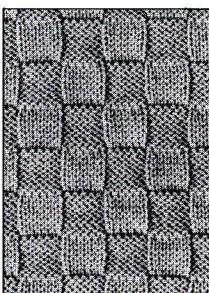


I For making rib knitting and multi garter stitch patterns

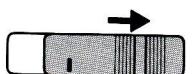
G



Rib Knitting

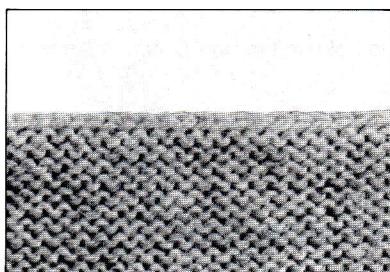


Multi Garter  
Stitch Pattern



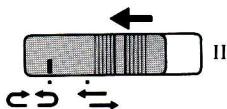
I For casting-off

C



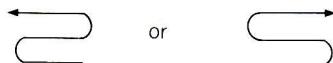
Casting-off

#### (5) SELF TURNING LEVER

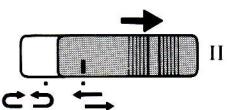


For turning the G-carriage automatically.

It turns on either side of the knitting swatch by itself until the Row Counter shows 000.

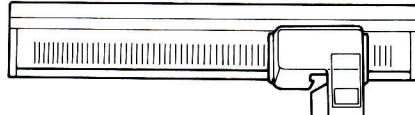


or



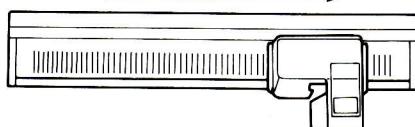
For moving the G-carriage only one row.

Push the Stop Button when it comes to where you want to stop.



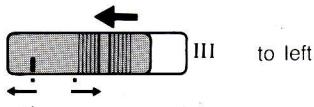
←

or

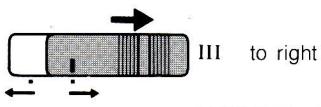
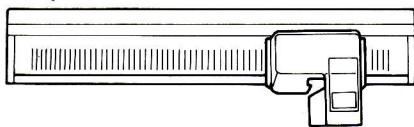


#### (6) CARRIAGE DIRECTION LEVER

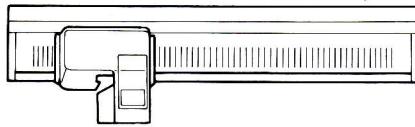
You can change the direction of the G-carriage by moving the direction lever before starting. Be sure to stop G-carriage when you want to switch the lever.



III to left



III to right



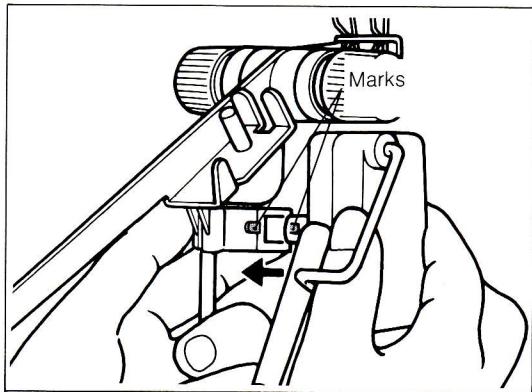
\* Stop the G-carriage and switch the direction lever after it has passed more than five needles from the edge of the knitting swatch.

\* When the G-carriage is set at the self-turning position [ ↺ ↻ ] this lever is switched automatically and shows the direction of the carriage.

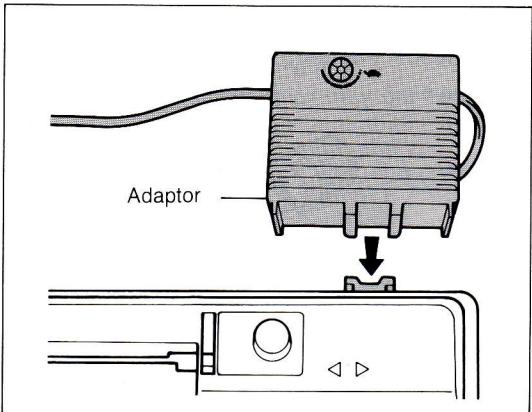
\* This lever is connected with the Row Counter. The number shown on it decreases as the lever turns.

# HOW TO USE THE G-CARRIAGE

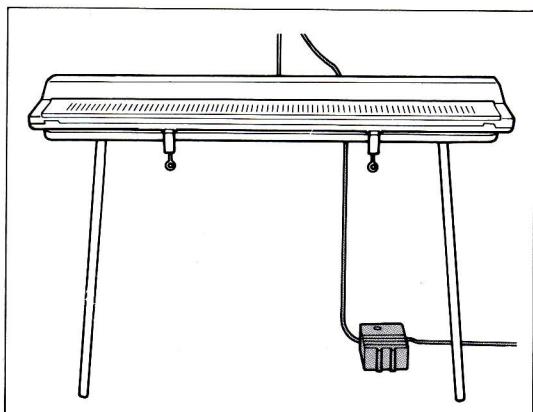
## (1) PREPARATION



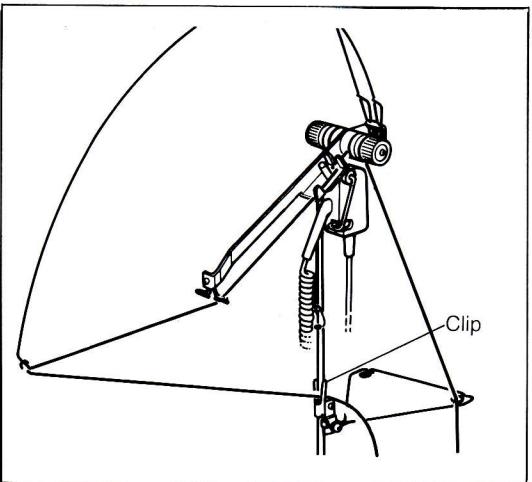
1. Fix the Senser attached with the Adaptor onto the Yarn Tension-G setting the marks together.



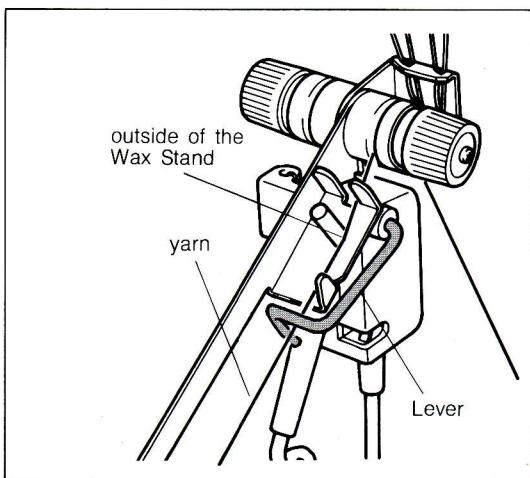
2. Set the Adaptor onto the knitting machine. (in case of KH-891)



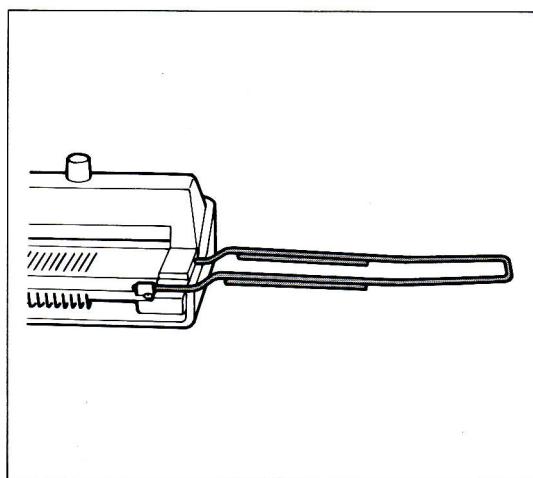
Place the Adaptor at your feet. (in case of KH-881/860/910)



3. Thread the Yarn Tension Unit and place the yarn into the clip.



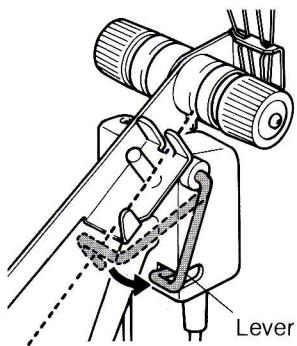
4. Put the Senser Lever on the yarn.



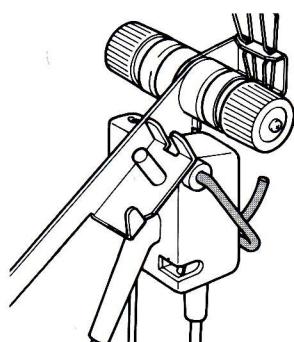
5. Set the Extension Rail.

### \*SENSOR (For running out of yarn)

The Senser works when the yarn runs out.

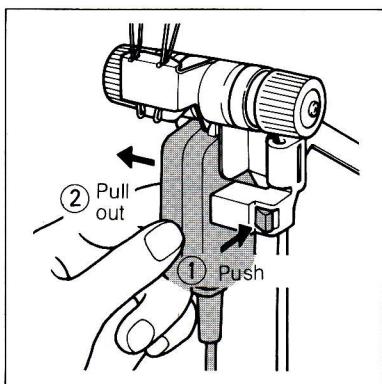


The Senser Lever falls as the yarn runs out and the G-carriage stops automatically.



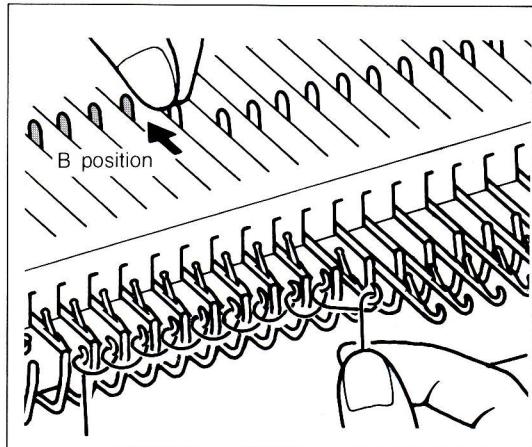
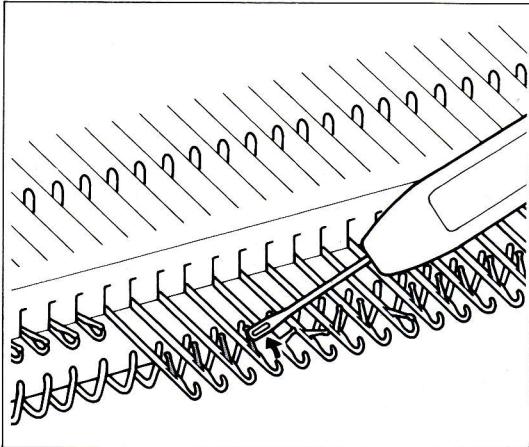
When you are not using the Senser, pull it out and set the lever at the back as shown in the diagram.

### HOW TO TAKE OUT THE SENSOR

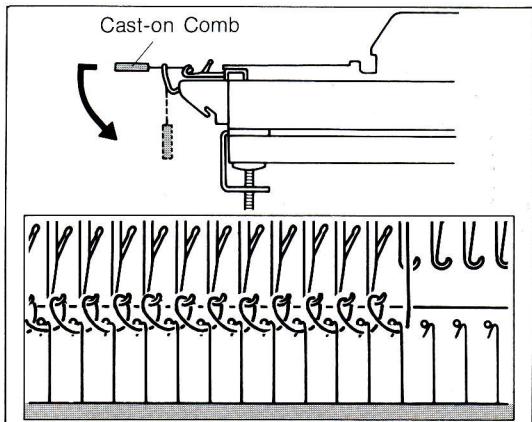
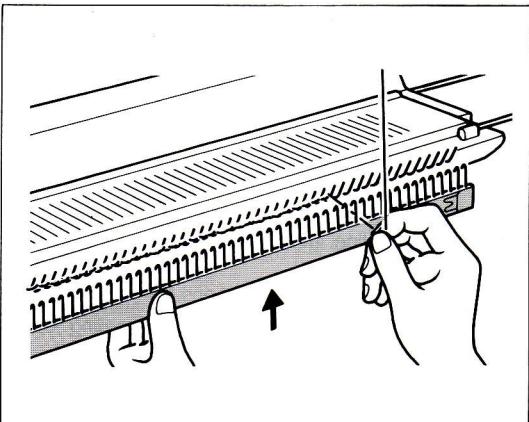


## (2) CASTING-ON

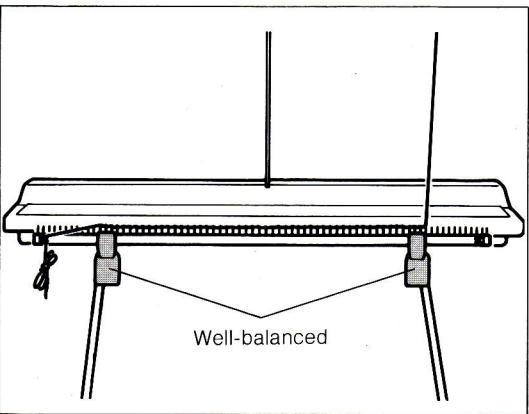
The "e" wrap method of casting on has been used in the example shown below.



1. Open the latches and loop the yarn in the hook as shown in the diagram. ("e" wrap method.)  
Do not loop the yarn tightly!



2. Hang the Cast-on Comb as shown in the diagram.



\* Do not hang the Claw Weights directly on the knitting swatch.

3. Hand the Claw Weights on the Cast-on Comb.  
(They should be well-balanced)

### (3) RIB KNITTING

**PUNCH CARD (for Rib Knitting)**

The diagram illustrates a punch card for rib knitting, featuring a grid of holes and labels for different rib patterns:

- 6x6 Rib**: A large rectangular pattern.
- 4x4 Rib**: A smaller rectangular pattern below it.
- 3x3 Rib**: A rectangular pattern further down.
- 2x2 Rib**: A rectangular pattern.
- 2x1 Rib**: A narrow rectangular pattern.
- 1x1 Rib**: A very narrow rectangular pattern.

Annotations on the left side of the card include:

- Nb. 1**: An arrow pointing to the top-left corner.
- Main bed needle works**: Labels the main body of the card.
- Needle-G works**: Labels the bottom section of the card.
- perforation**: Points to a specific hole in the bottom row.

On the right side, there are two fabric swatches:

- A vertical swatch labeled **1x1 Rib**, showing a dense vertical rib pattern.
- A horizontal swatch labeled **1x1 Rib**, showing a horizontal rib pattern.

**SET LINE**  
Set the card at this line. (It is 7 rows up from the punched holes.)  
■ marks correspond to the perforations.  
Choose the types of perforations position according to the numbers of the needles you want to use.

**HOW TO USE THE G-POINT CAMS**

The G-Point Cams prevent the Needle-G from working. The main bed needles knit wherever you place the G-Point cams regardless of the punchcard.

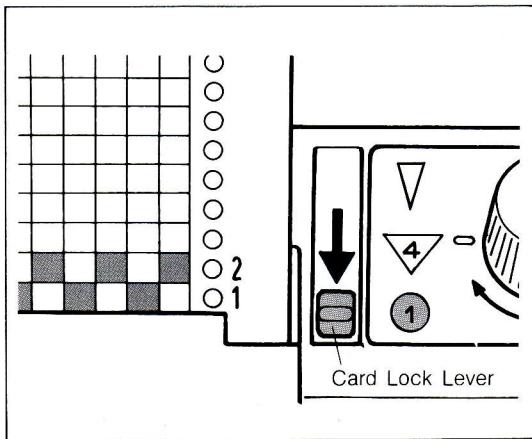
\* Do not forget to remove the G-Point cams when they are not in use.

(1) Put it in.

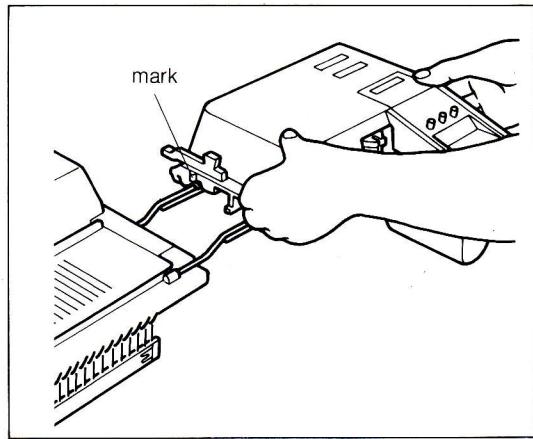
**G-Point Cam**

\* If there is a Rack...  
Put it on the Rack.

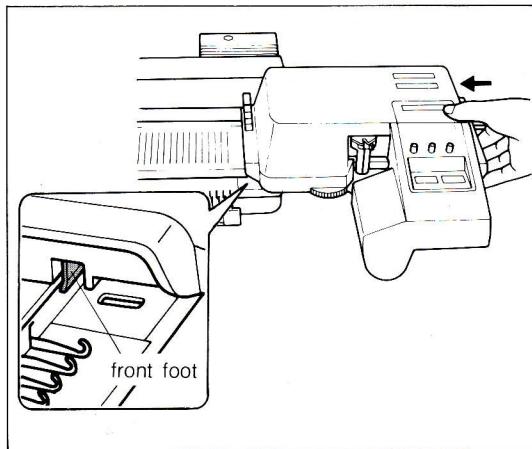
(2) Push back and fix it.



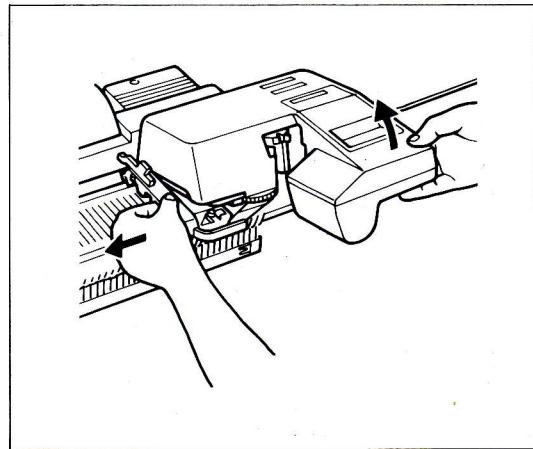
1. Set the punch card at 1sr row of 1x1 Rib and Card Lock lever at O mark.



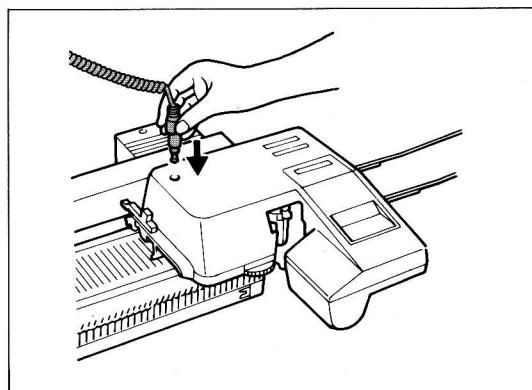
2. Hold the side of the G-Carriage with both hands and put it on the Extension Rail (R).



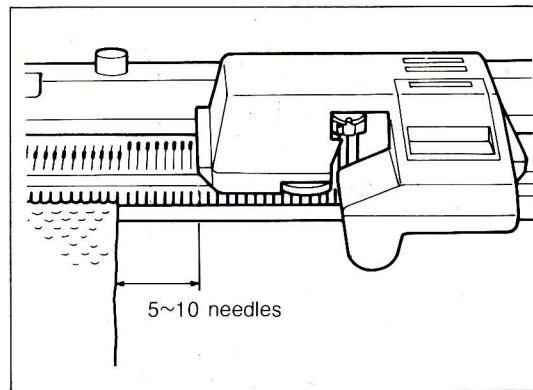
3. Push the G-Carriage until it stops.  
Make sure that the front foot is fixed on the needle bed.



4. Hold the front part of the G-Carriage up and move it to the edge of the knitting swatch by pulling it with your left hand.

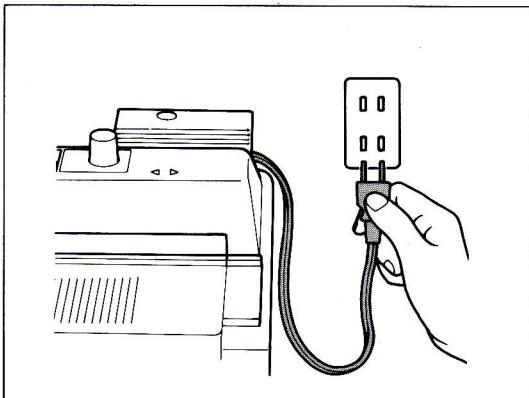


5. Put the pin plug in.



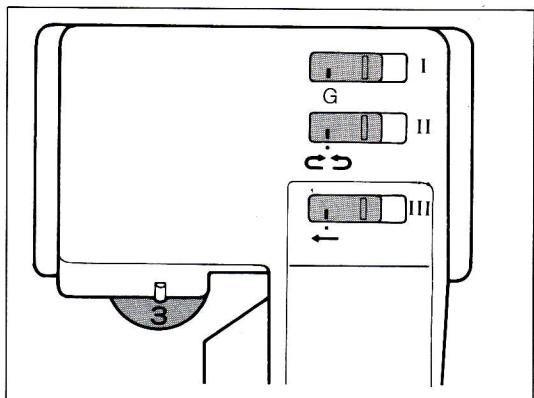
\* Set the G-Carriage more than 5 needles away from the edge of the knitting swatch.

If the carriage is not fixed correctly move slightly left and right.

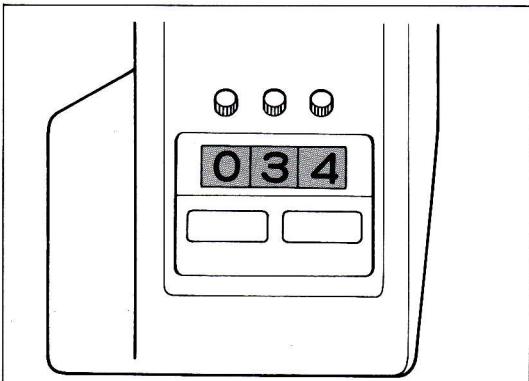


6. Plug in.

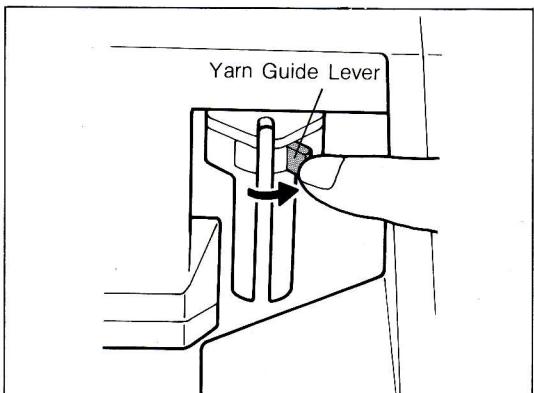
When you put the machine away, first take out the main plug, then take out the pin plug.



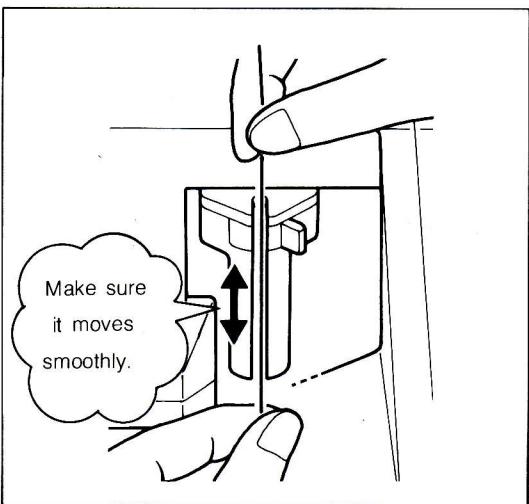
7. Set the levers as shown in the diagram and Tension Dial to the yarn you are using. (refer to page 5.)



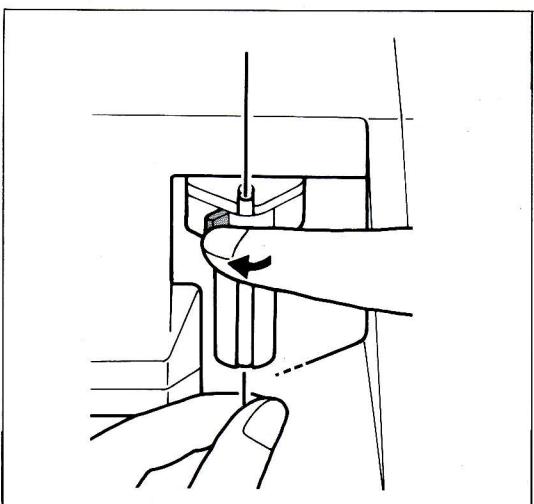
8. Set the Row Counter to the number you want to knit. (ex. 34 rows)



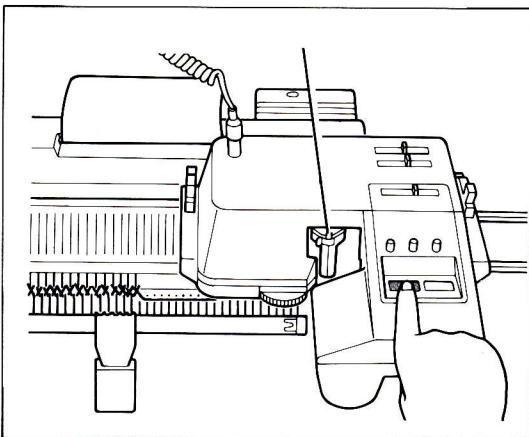
9. Thread the yarn into the Yarn Guide.  
(1) Open the Yarn Guide Lever.



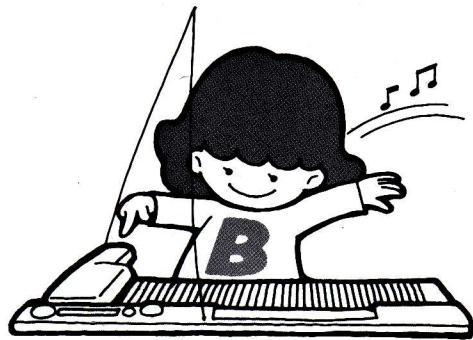
(2) Thread the yarn and move it up and down.



(3) Close the lever.

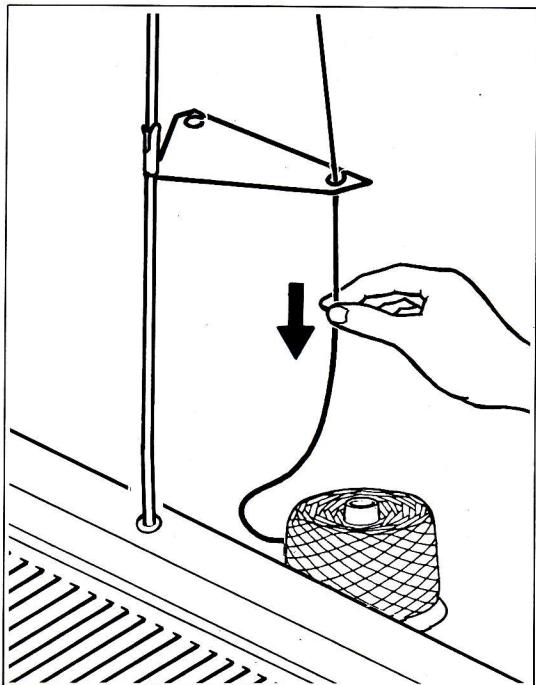


10. Push the Start Button.  
G-Carriage knits Rib Knitting for 34 rows and stops automatically when the Row Counter shows 000.

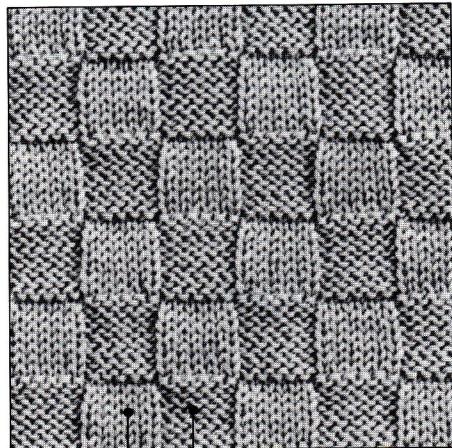
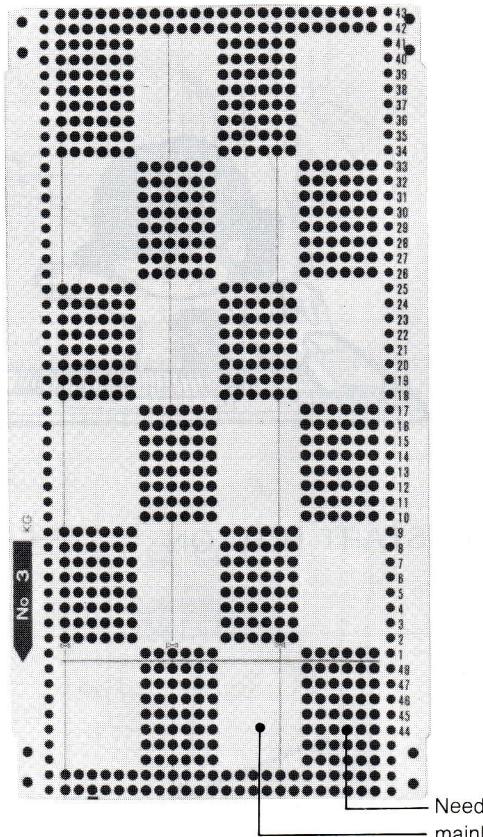


### WHENEVER YOU PUSH THE START BUTTON . . .

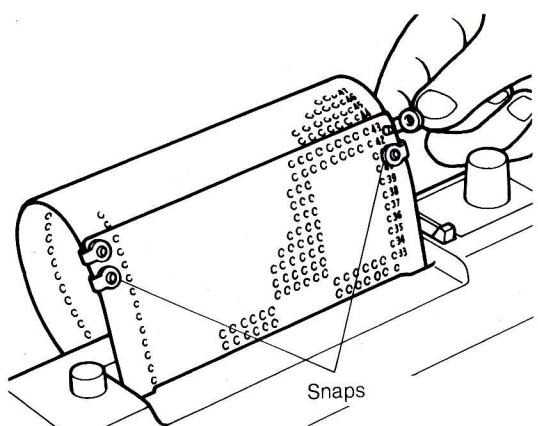
In order to give proper tension to yarn, pull it from underneath Rear Yarn Guide after pushing the Start button until a few stitches are knitted.



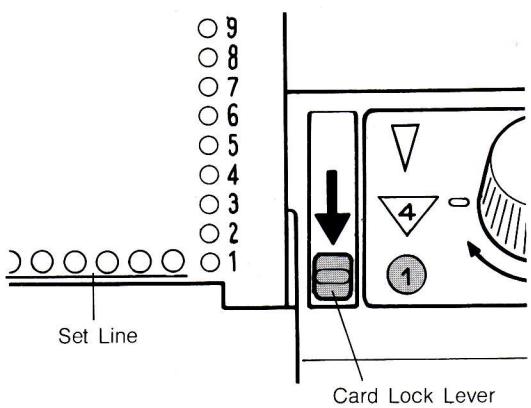
#### (4) MULTI GARTER STITCH PATTERN KNITTING



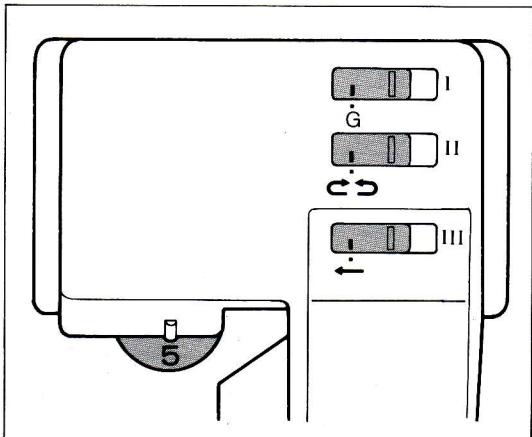
1. After casting-on and knitting Rib Pattern, change the card for a Multi Garter Stitch Pattern. (ex. card No. 3)



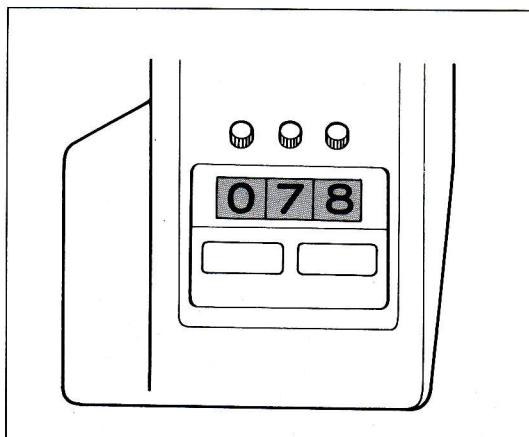
- (1) Clip both ends of the card together using the card snaps.



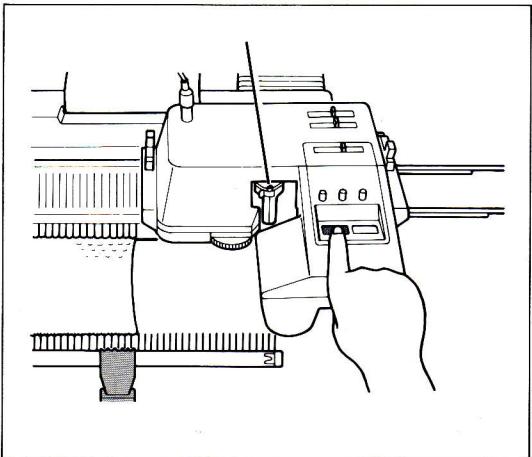
- (2) Set the card at the Set Line and the Card Lock Lever at "O" mark.



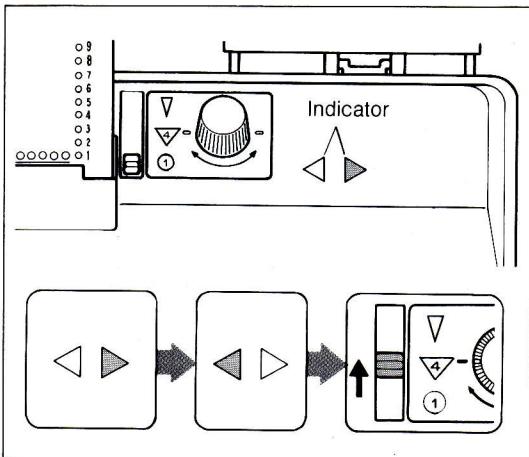
2. Set the levers as shown in the diagram and Tension Dial according to the yarn.



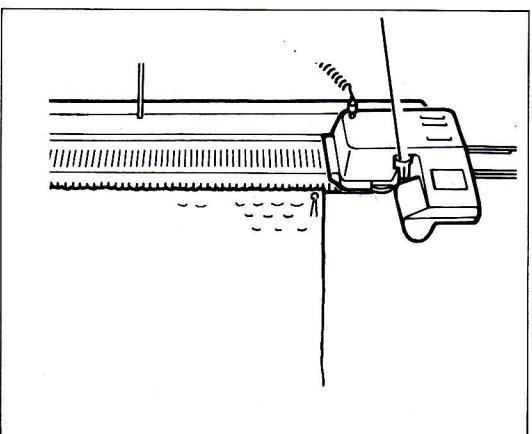
3. Set the Row Counter the number of rows you want to knit. (ex. 78 rows)



4. After making sure that the yarn is thread in the Yarn Guide and the Claw weights are hung on, push the Start Button.



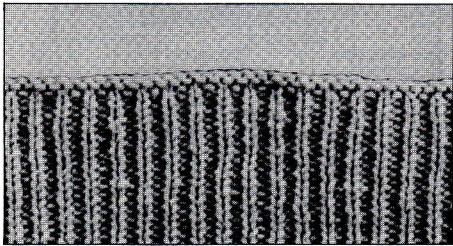
5. After the Indicator shows the same direction as the moving carriage, set the Card Lock Lever at "▽" mark.



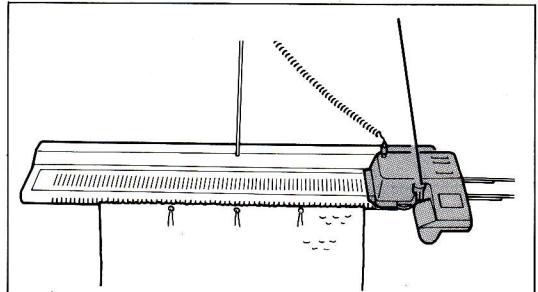
6. The G-Carriage knits the Multi Garter Stitch Pattern for 78 rows and stops automatically when the Row Counter shows 000.

## (5) CASTING-OFF

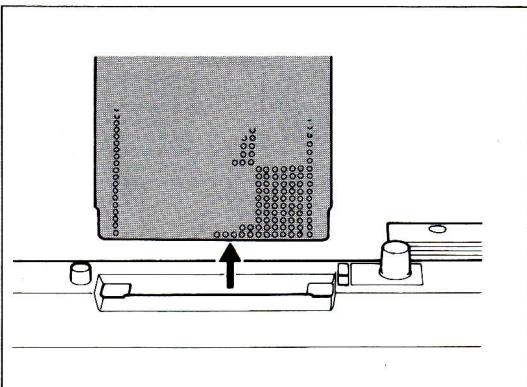
BEFORE CASTING-OFF . . .



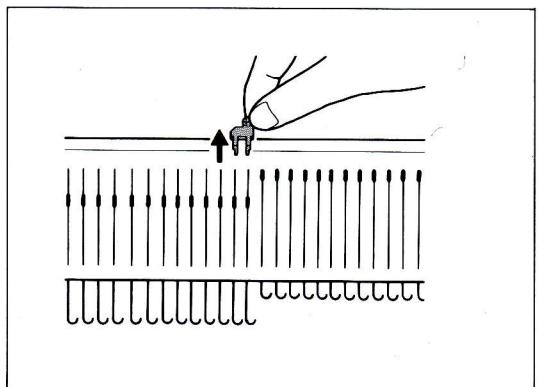
Casting off with the G-Carriage



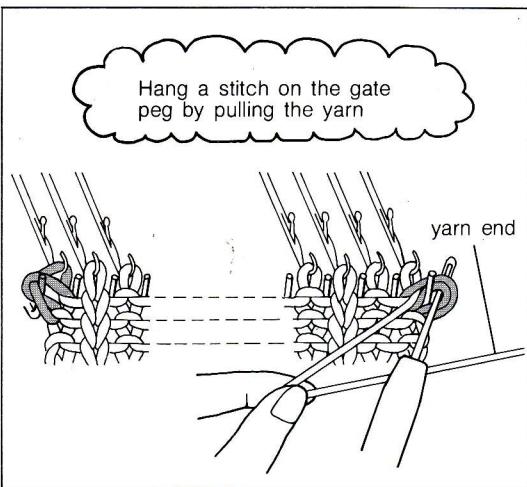
Be sure to place the G-Carriage at the right hand side. (G-Carriage can cast-off from right to left.)



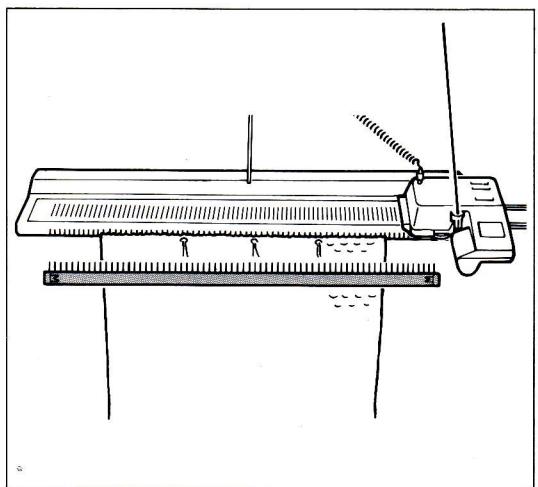
Take out the Punch Card.



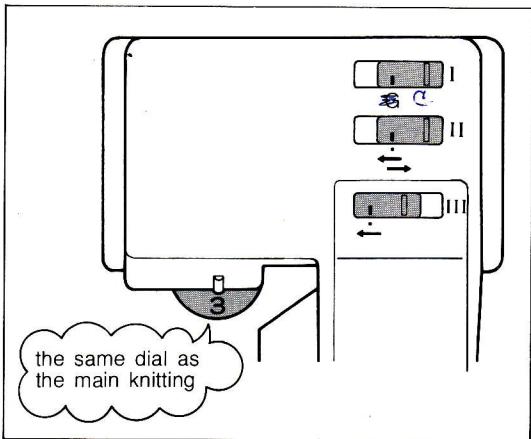
Take off the G-point Cams.



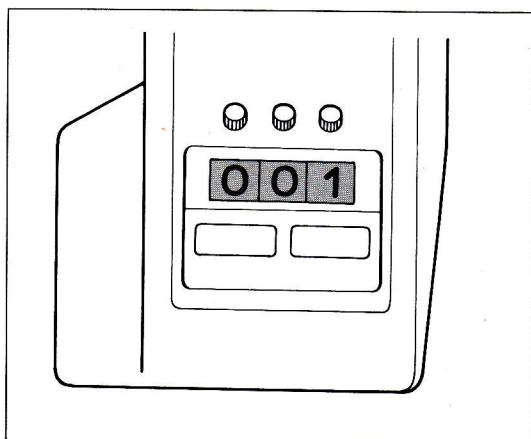
1. Pick up the under stitches of both end stitches and hang them onto the gate pegs as shown in the figure.  
(This is to prevent the knitting swatch from curling when casting-off.)



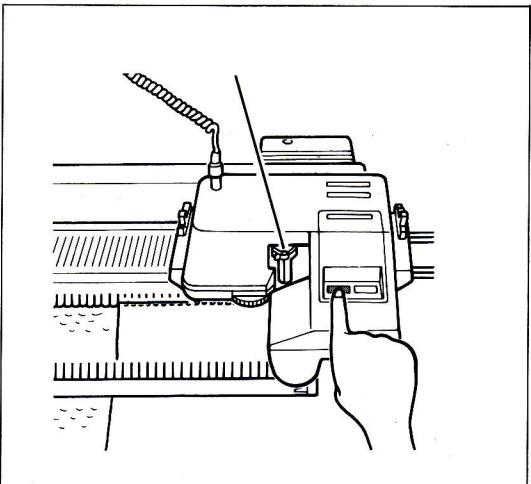
2. Hang the Cast-on Comb about 5 cm under from the gate pegs.  
(Take off the Claw Weights.)



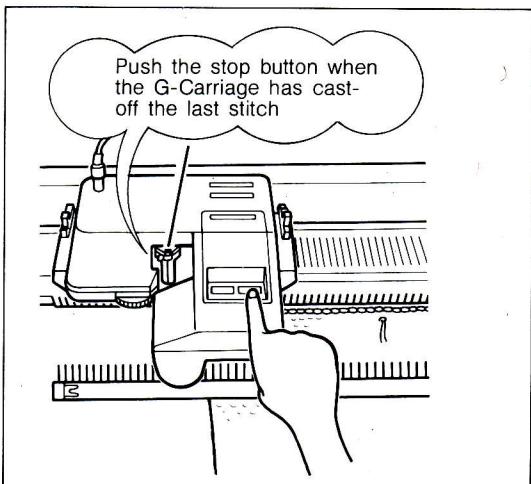
3. Set the levers as shown in the diagram.



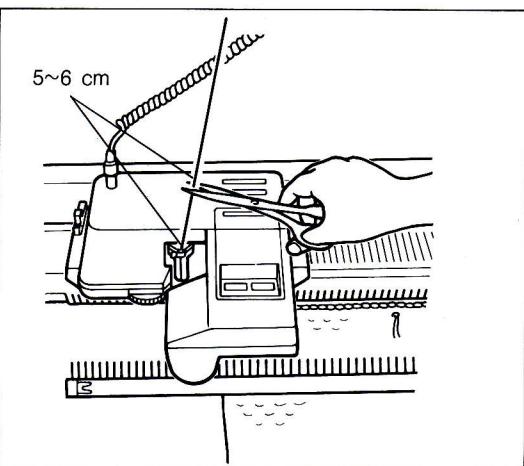
4. Set the Row Counter at 001.



5. Make sure the yarn is thread in the Yarn Guide and push the Start Button.

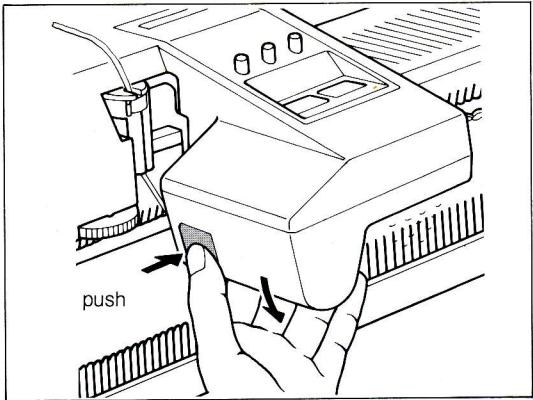


6. Push the Stop Button after the G-Carriage has completed the cast-off.

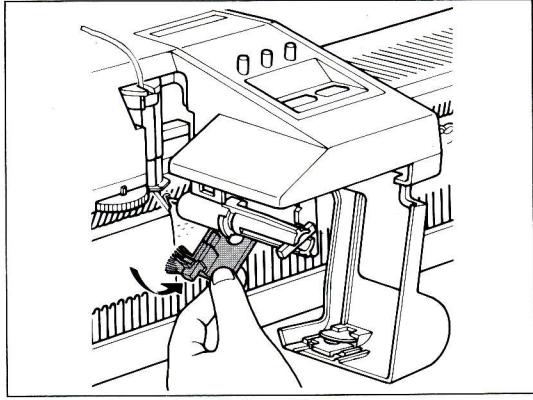


7. Cut the yarn.

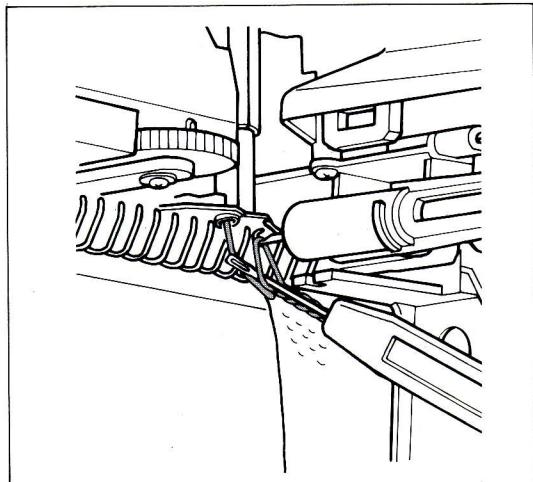
8. Take off the knitting swatch



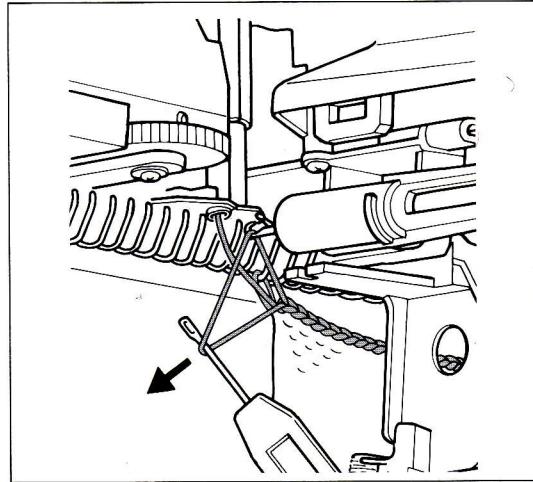
(1) Push the Cover Button and open the Lower Cover.



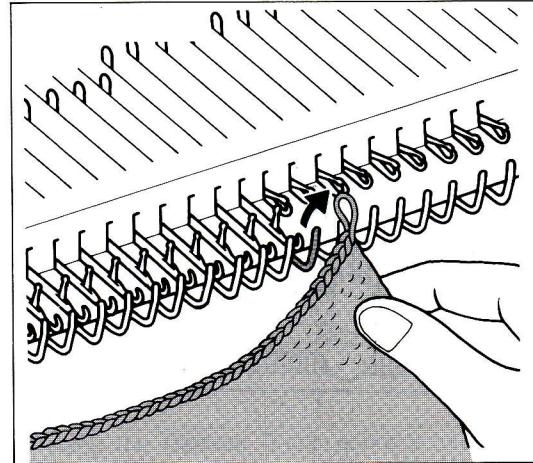
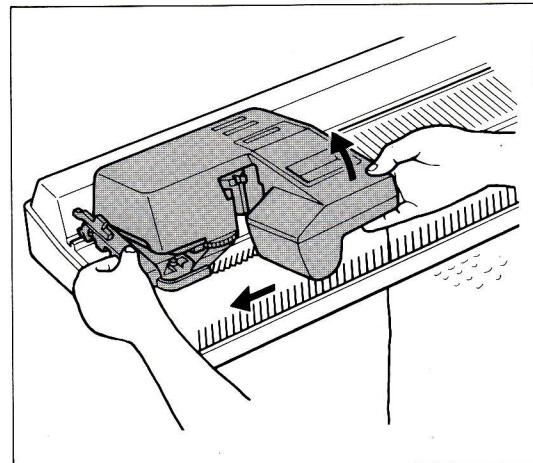
(2) Pull down the Sinker Plate.



(3) Put the Transfer Tool into the stitch on the Needle-G and pull out the yarn.

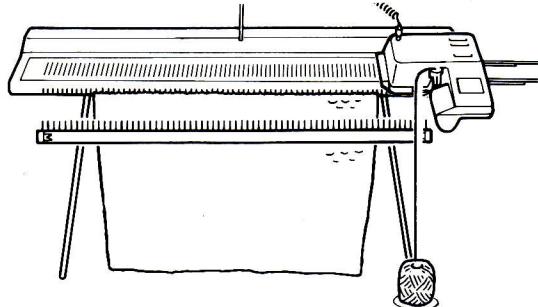


(4) Close the Lower Cover and move it to the left side by pulling up the front part of the G-Carriage.

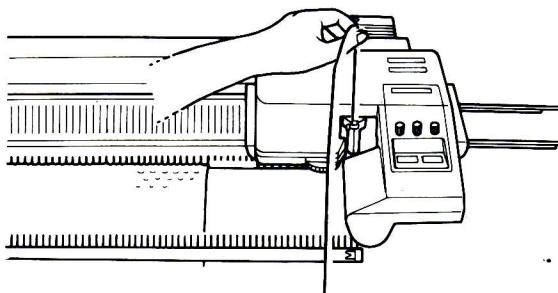


(5) Take off the Cast-on Comb and remove the both end stitches on the gate pegs.

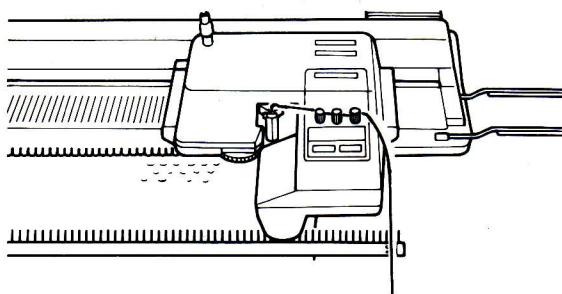
## WHEN YOU WANT TO MAKE A LOOSE CAST-OFF



1. Take the yarn out of the Yarn Tension Unit and place it at your feet. Refer to page 8 and set the Senser Lever at the back.



2. Push the Start Button and pull the yarn slightly.

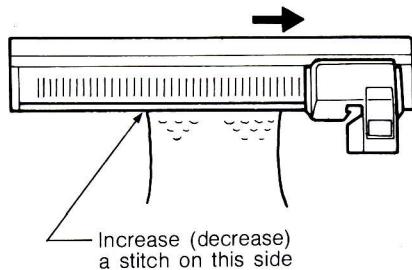


3. After casting-off a few stitches, release and place the yarn behind the knobs of the Row Counter.

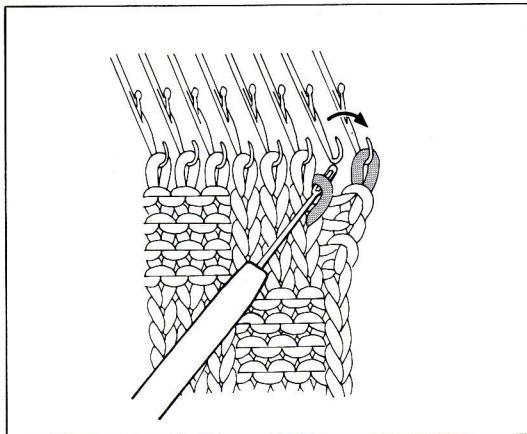
# BASIC TECHNIQUES

## 1. INCREASING/DECREASING

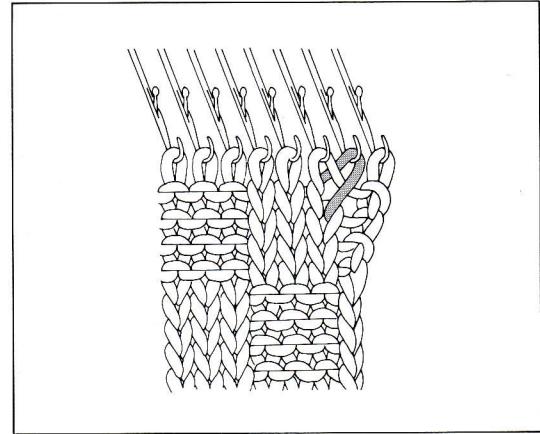
### INCREASING/DECREASING ONE STITCH



#### INCREASING

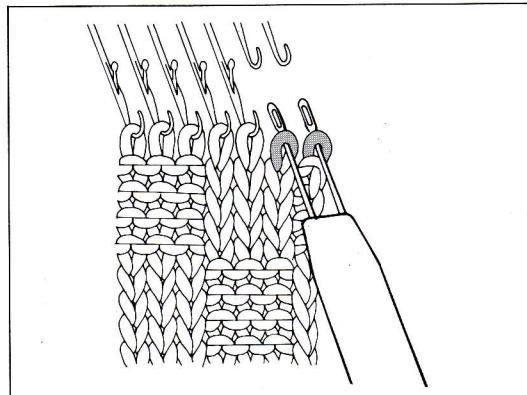


1. Transfer the end stitch to the adjacent empty needle.  
Then pick up the loop below the 2nd end stitch  
as shown in the diagram.

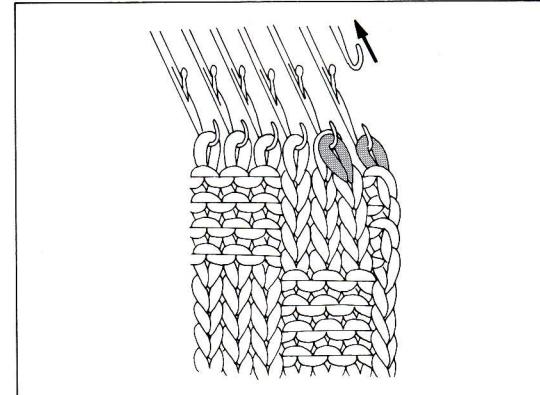


2. Hook the loop onto the empty needle.

#### DECREASING



1. Pick up the end two stitches on the Transfer Tool.

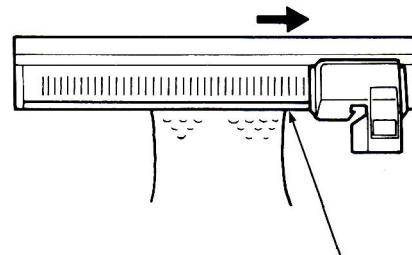


2. Transfer the two stitches one needle inside of  
the knitting swatch and push back the empty  
needle to A position.

## INCREASING/DECREASING MORE THAN TWO STITCHES

Before increasing or decreasing .....

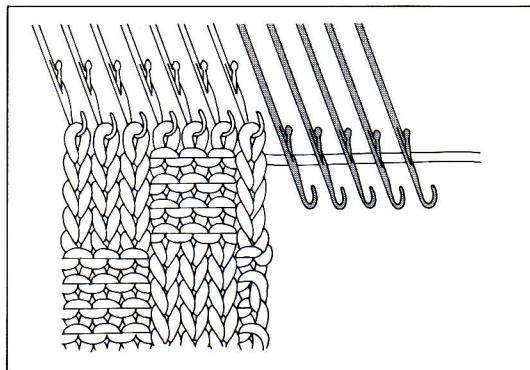
1. Switch the Self Turning Lever at [ ← ] position on the row you want to increase (decrease).
2. Push the Stop Button after the G-Carriage has past more than 5 needles from the knitting.



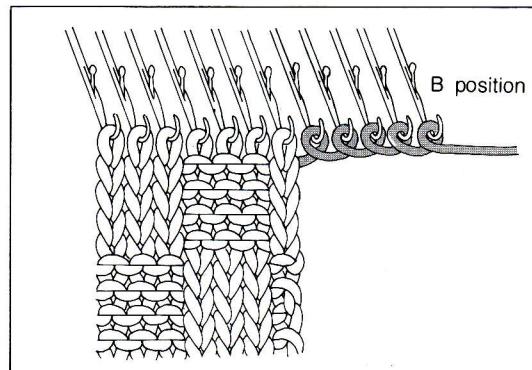
To knit the next row .....

1. When you knit the next row after increasing (decreasing), switch the Self Turning Lever at [ ↘ ] position again and the Carriage Direction Lever at the suitable direction.
2. Then push the Start Button.

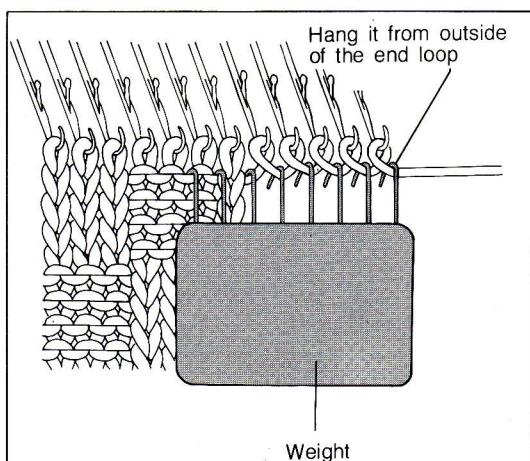
### INCREASING



1. Bring forward the amount of needles to be increased to D position and open the latches.

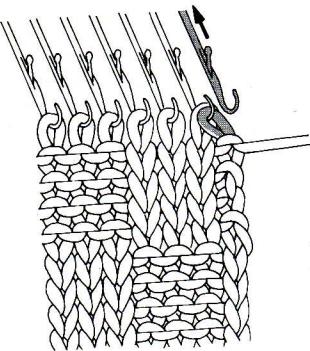


2. Wind the yarn in the hook loosely and line them at B position.

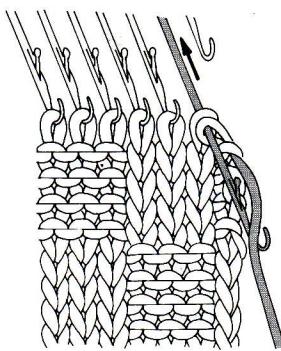


3. Hook the Weight onto the loops as shown in the diagram.

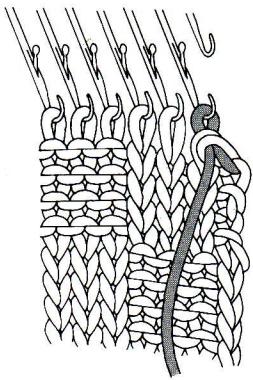
## DECREASING



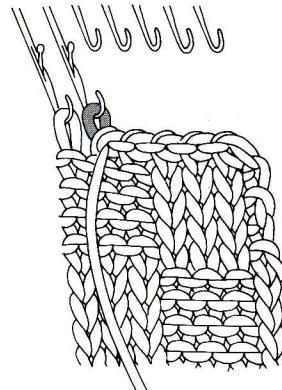
1. Hook the end stitch onto the adjacent needle and push back the empty needle to A position.



2. Put the end two stitches on the stem by bringing the needle to D position.  
After hooking the yarn push it back to B position to form a new stitch.



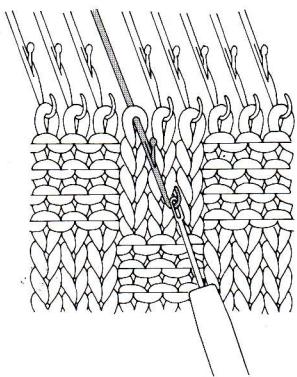
3. You have decreased one stitch.



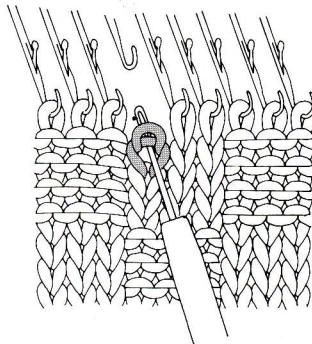
4. Repeat steps. (1~3)

## 2. HOW TO UNRAVEL AND PICK UP STITCHES

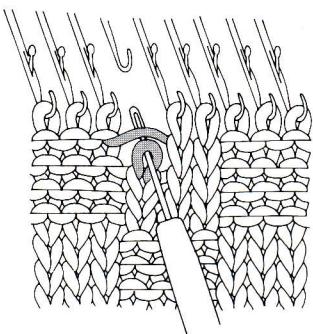
**UNRAVELLING** (In case of having both plain and purl stitches in one row.)



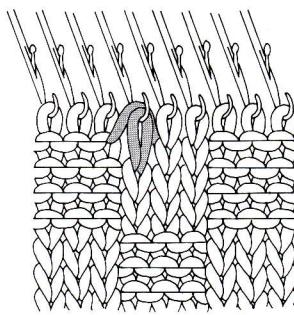
1. Arrange the needles in B position using the Transfer Tool, if necessary.



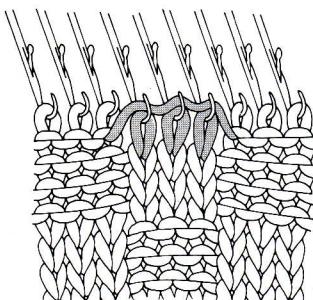
2. Insert the Transfer Tool into the stitch under the Needle-G (plain) stitch and take it off.



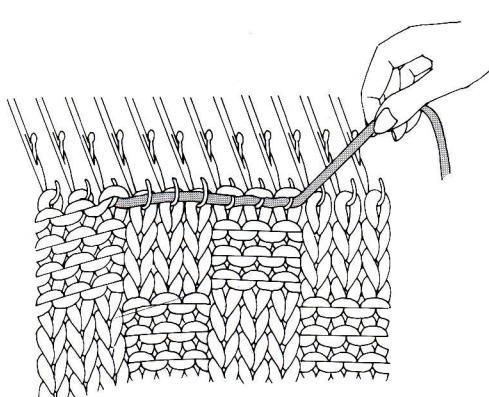
3. Push down the Transfer Tool slightly and unravel one row.



4. Hook the stitches in the needle again as shown in the diagram.

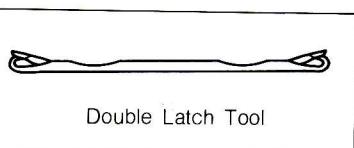


5. Unravel all the plain stitches of that row made by the Needle G.



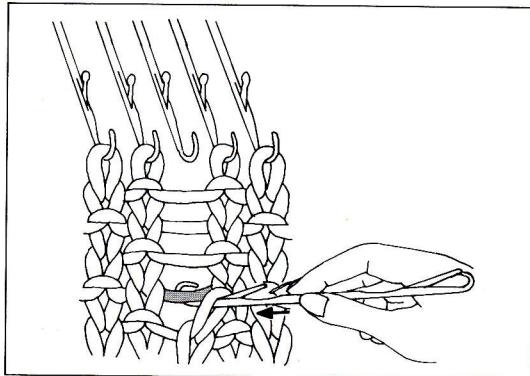
6. Pull the yarn end slightly sideways and up to unravel the stitches.

## \*PICKING UP USING THE DOUBLE LATCH TOOL

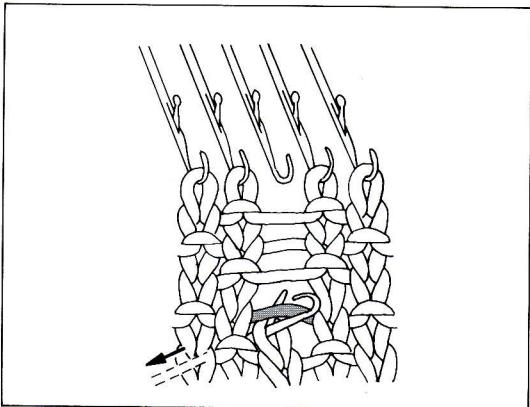


Double Latch Tool

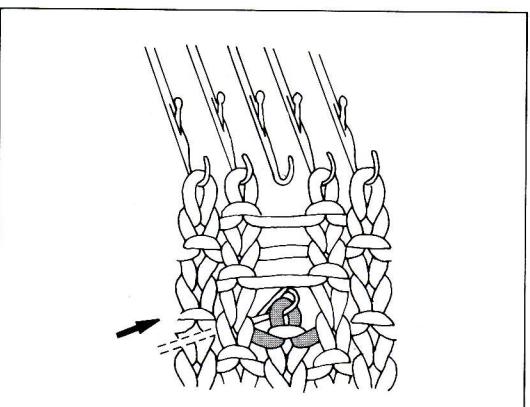
### PURL STITCH (KH stitch)



1. Pick up the last stitch that has not dropped using the Double Latch Tool.

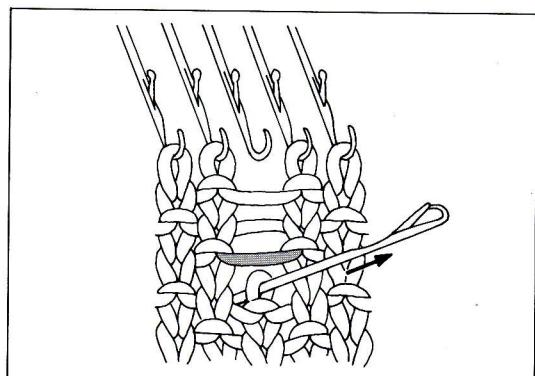


2. Insert it and catch the next cross yarn onto the hook and pull it back from behind the knitting.

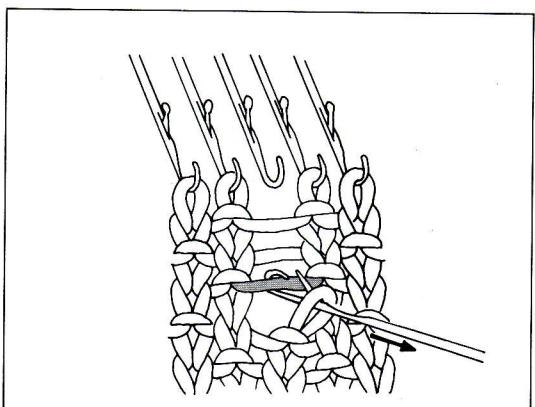


3. Push back the Double Latch Tool. It forms a purl stitch.

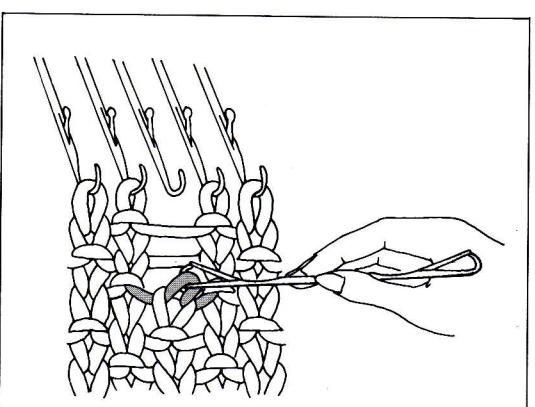
### PLAIN STITCH (Needle-G stitch)



4. Insert the Double Latch Tool and pull it back as shown in the diagram.

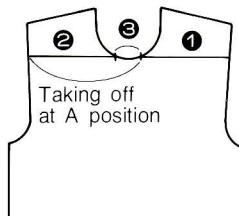


5. Catch the next cross yarn in the hook.



6. Pull the new yarn through the yarn on the stem to form a plain stitch.

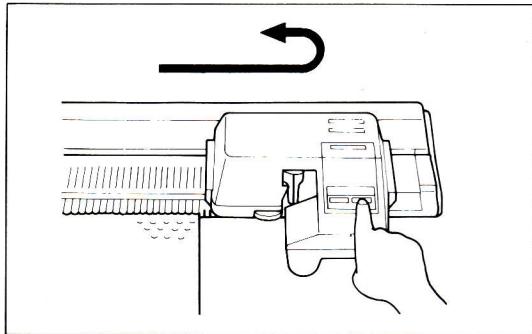
### 3. HOW TO SHAPE A NECK LINE



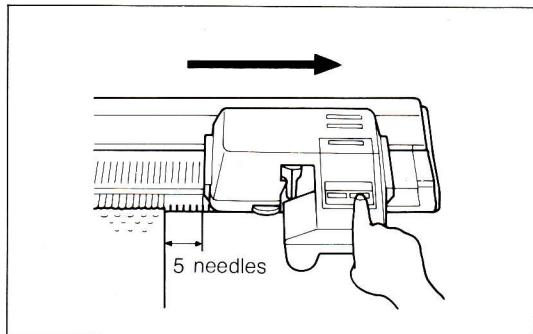
\* It is impossible to place the needles at D or E position when using the G-Carriage. So, shape a neck line by using A (Non working) position.

\* If you are making a double length pattern, (the Card Lock Lever at "▼" mark) remember to knit the right side first.

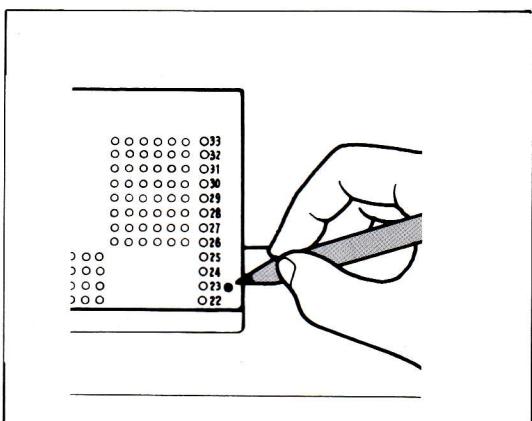
1. Stop the G-Carriage when you want to begin knitting separately.



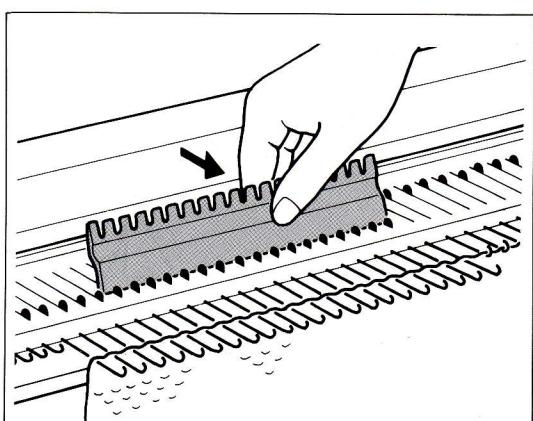
In (self turning) case  
Push the button after the direction of the carriage has changed.



In case  
Push the button after the carriage has passed more than 5 needles from the knitting.

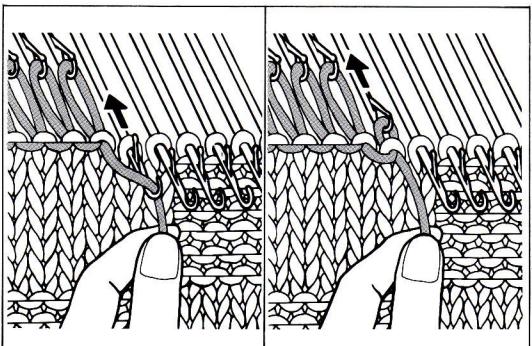


2. Mark the Punch Card at one row higher, as the card has not fed yet.

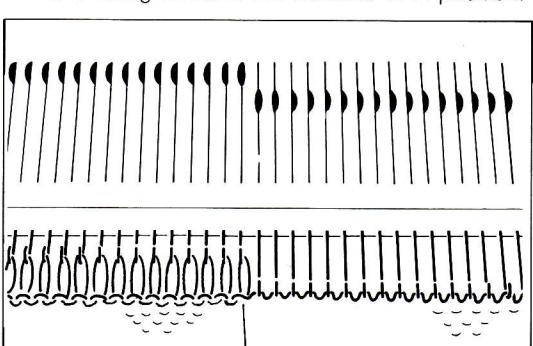


3. Take off part ② and ③ using the cast on thread in the following way.

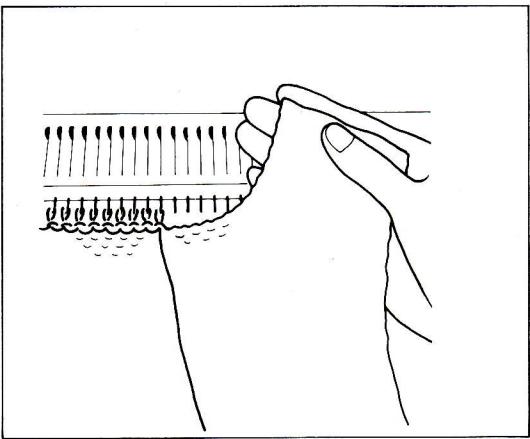
3-1 Bring forward the needles to E position.



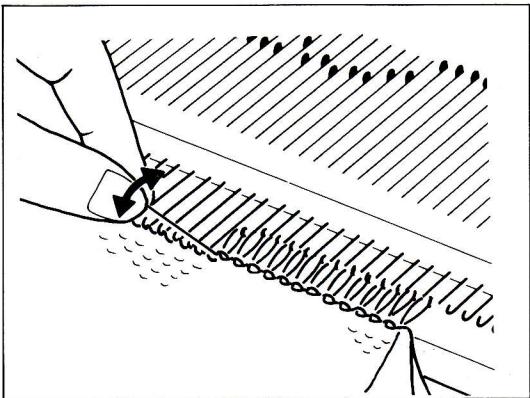
- 3-2 Hook the cast-on thread in and put the needle back to A position.



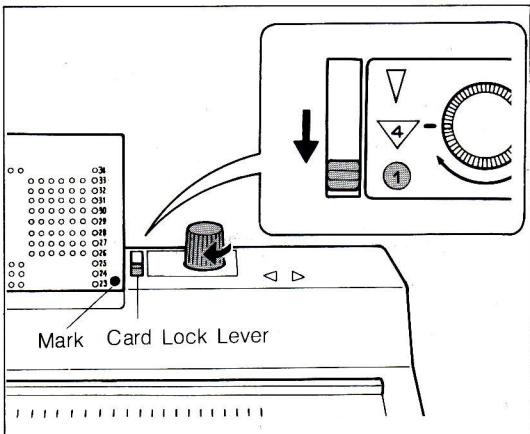
- 3-3 The stitches in A position cannot be knitted.



4. Knit the right shoulder first.  
Shape the shoulder line by decreasing the stitches.

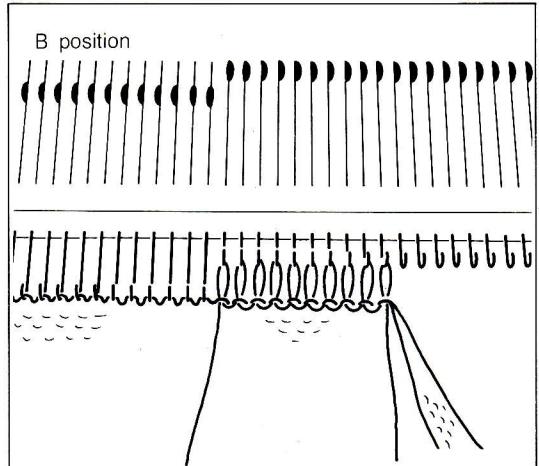


5. Unravel the cast on thread of part ② (left shoulder) and make sure all the stitches are in the hooks.

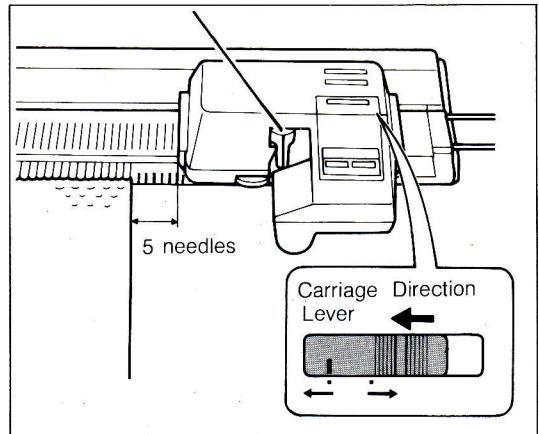


7. Set the Punch Card at the mark you made before and the Card Lock Lever at "O" mark.  
\* Feed back the Knit Leader, too.

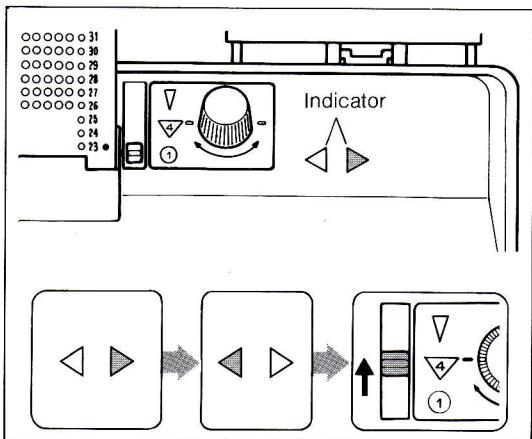
NOTE: If the knitting width is too narrow, sometimes the Knit-Leader and the Row Counter might not be fed. So in this case feed them by hand.



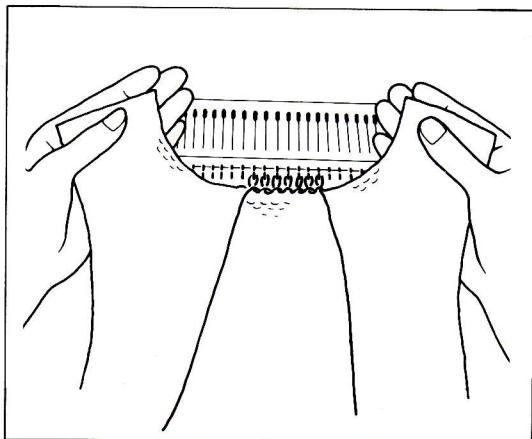
6. Arrange the needles of part ② to B position.  
(part ③ needles still remain at A position.)



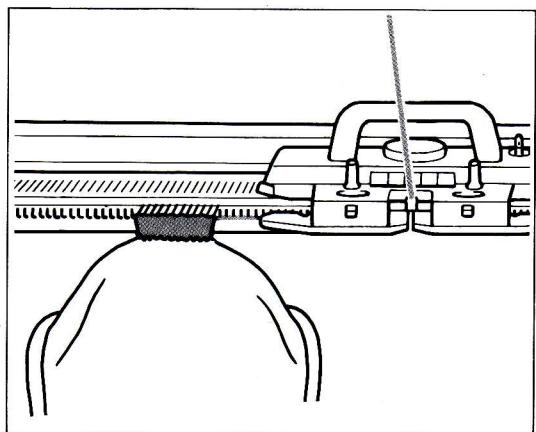
8. Place the G-Carriage at the right side of the knitting, thread the Yarn Guide, switch the Carriage Direction Lever at [ ← ] position, then push the Start Button.



9. After the Indicator shows the same direction as the moving the G-Carriage, set the Card Lock Lever at  $\nabla$  mark.

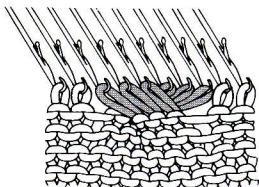


10. Knit the left shoulder.

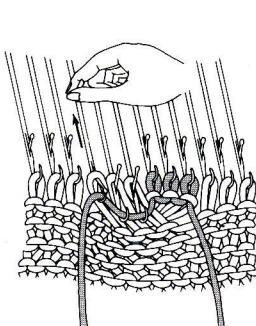


11. As for part ③, cast off with waste yarn by using the K carriage.

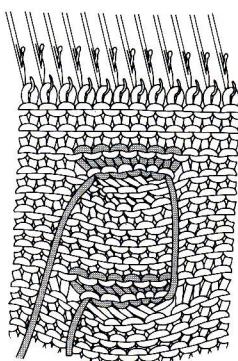
#### CABLE KNITTING



1. Cross the stitches using the Transfer Tools.

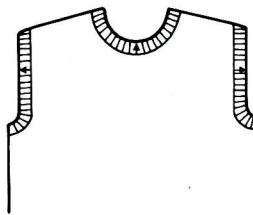


2. Knit the crossed stitches by hand (loosely) with the same yarn. Then operate the G-Carriage.

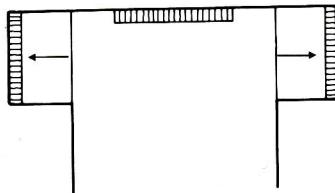


#### 4. WHEN YOU HAVE TO KNIT ONE ROW WITH THE K-CARRIAGE SUCH AS THE FOLLOWING CASES . . .

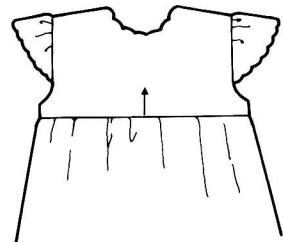
EX.



When you pick up stitches to knit a neckband or armbands.

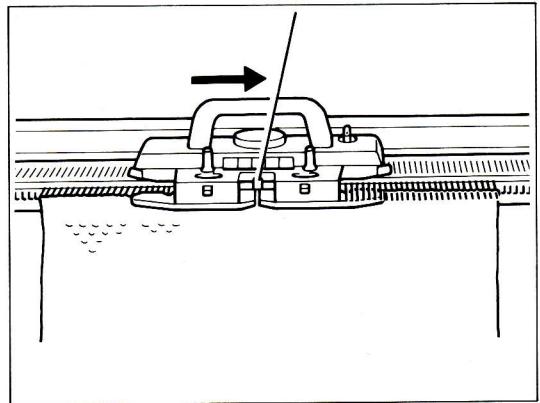


When you pick up stitches to knit sleeves.

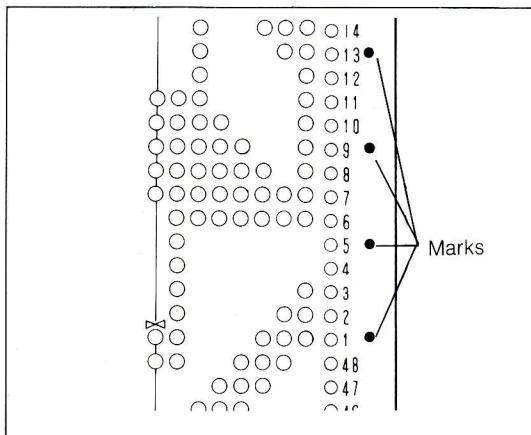


When you want to make gather on a garment and hook more than two stitches on one needle.

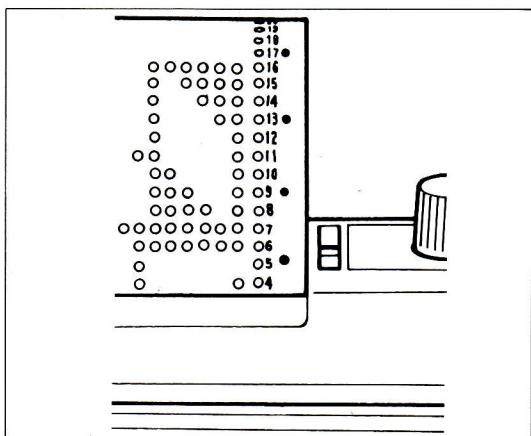
Bring forward the needles to E position and knit one row from left to right with the K-Carriage. Then operate the G-Carriage.



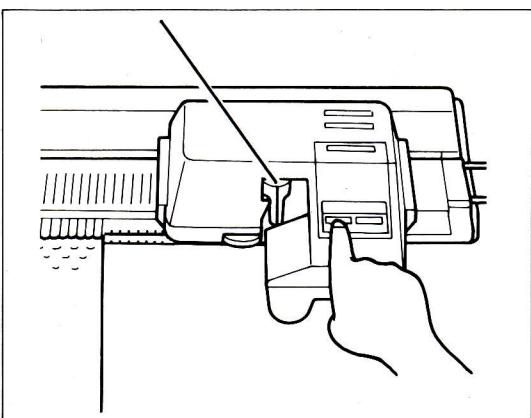
## 5. WHEN YOU WANT TO CHANGE THE YARN IN THE WAY OF KNITTING



1. Mark on the Punch Card where you want to change the yarn.  
ex. Change the yarn every 4 rows.

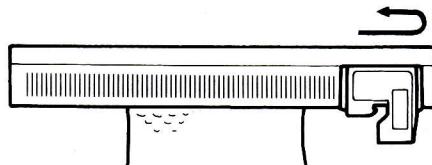


2. Start knitting.  
Push the Stop Button one row before the marked row.

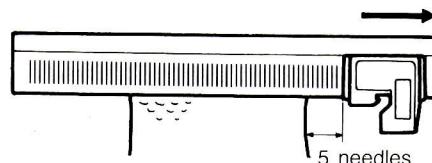


3. Change the yarn and continue knitting.

\* The numbers at the right side of the card are printed 7 rows higher than the corresponding punched holes.

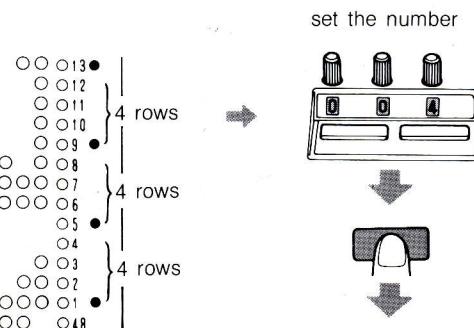


In case  
Stop the G-Carriage after its moving direction has changed.



In case  
Stop the G-Carriage after it has passed more than 5 needles from the knitting.

**NOTE:** In (self turning) position, set the number of the Row Counter at the number you want to knit before changing. The G-Carriage stops automatically.



The G-Carriage stops after knitting 4 rows

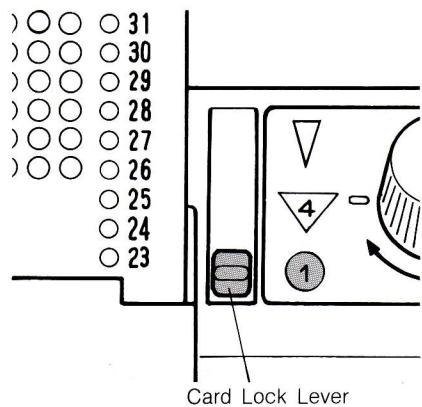
## USEFUL HINTS

### 1. IF THE G-CARRIAGE SHOULD STOP MOVING

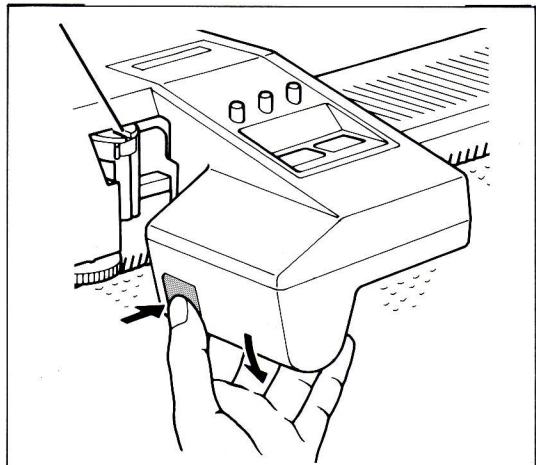
First of all, check the following points . . .

- \* Does the Row Counter show the number 000?
- \* Has the yarn run out and the Set Lever fallen down?
- \* Is the yarn all right?  
Has it got entangled with anything?
- \* Check the Sinker plate.  
Are there any knots or entanglements under the Sinker Plate?
- \* Make sure that the plug has been put in.
- \* Make sure that the levers are switched correctly.

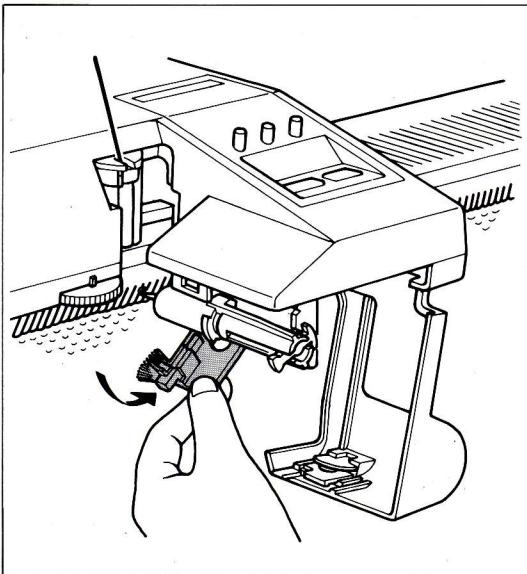
**After you have checked those points, push the Start Button again.  
If the G-Carriage is still jamming, set it again as the following way.**



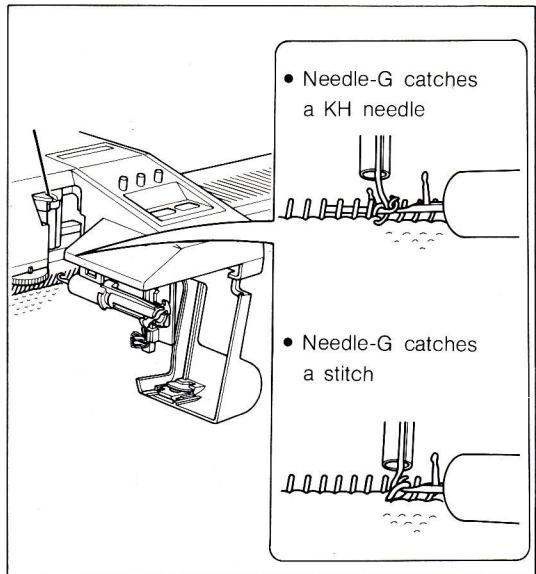
1. Switch the Card Lock Lever at "O" mark.



2. Push the Cover Button and open the Lower Cover.

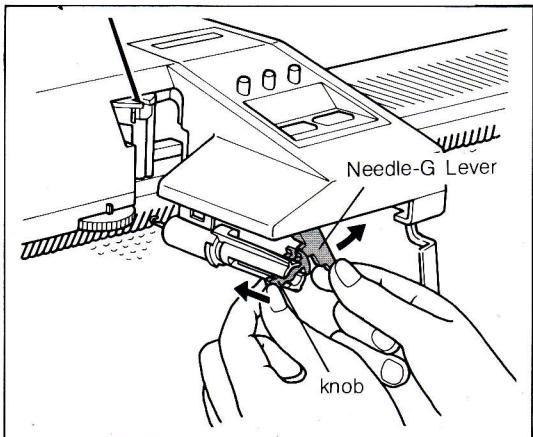


3. Release the Sinker Plate.

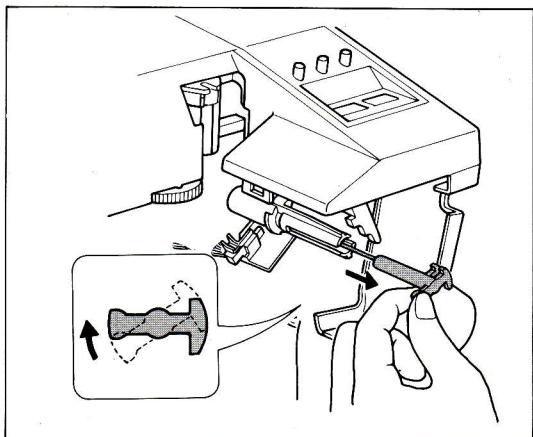


4. Check the Needle-G. If there are any entanglements, take the Needle-G out and adjust it again.

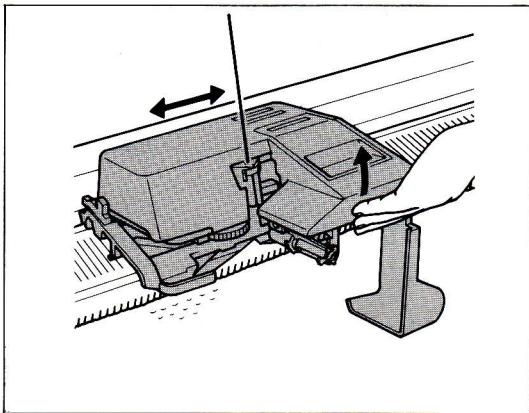
Once you hold up the front part of G-carriage, slide it outside of the knitting. Do not put it in the midst of the knitting (Where the needles are in B position) by force.



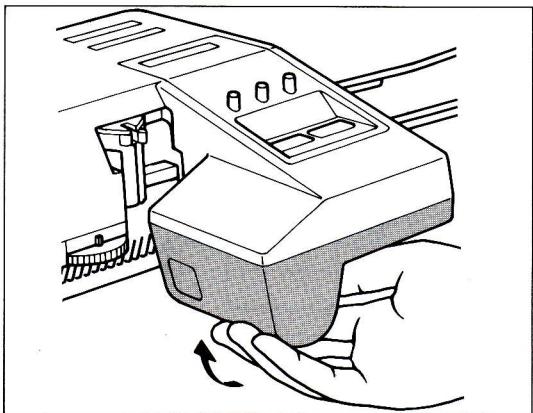
4-1 Take out the Needle-G Lever holding its plastic knob.  
Push the Needle-G in.



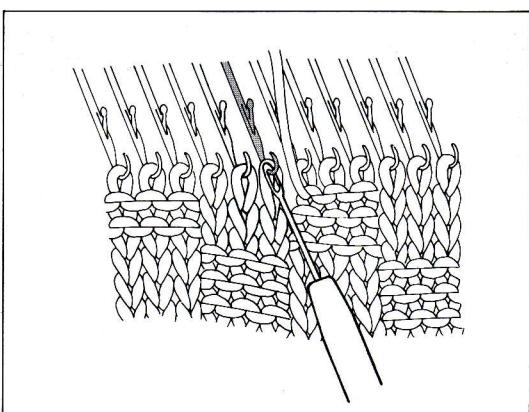
4-2 Pull the Needle-G out. If it catches KH needle, revolve Needle-G to right to pull it out horizontally.  
(Refer to page 36.)



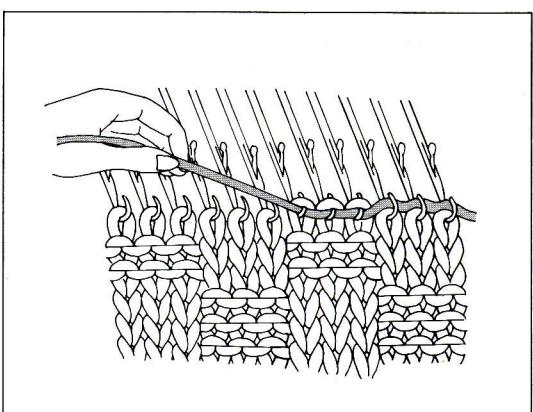
5. Hold the front part of the G-Carriage up and move back to the beginning of the row.



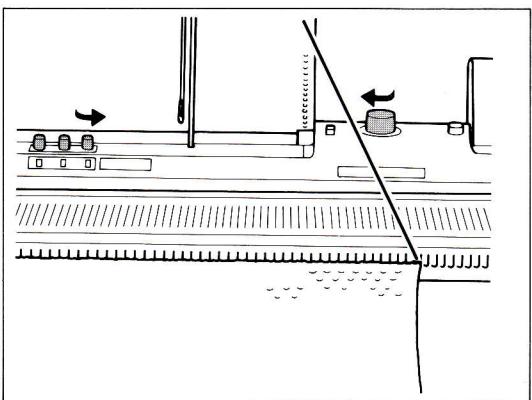
6. Close the Lower Cover.



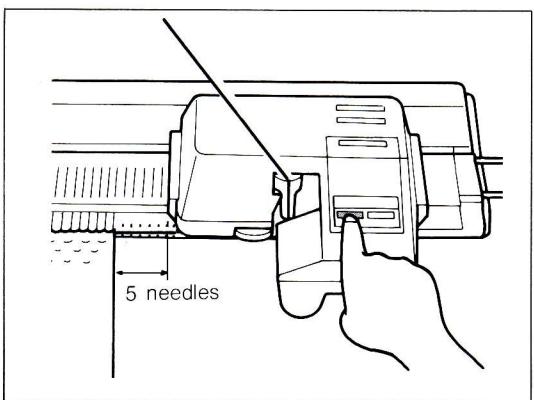
7. If the stitches are out of the hooks put them in the hooks by using the Transfer Tool.



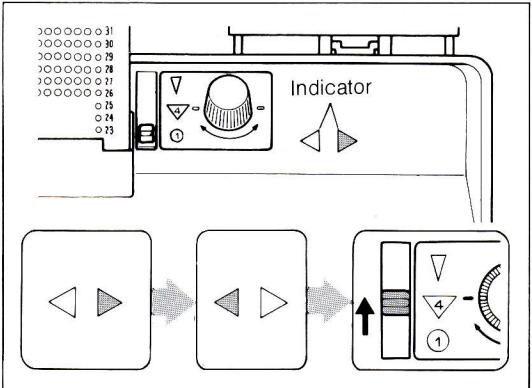
8. Refer to page 23 and unravel the row where the carriage has jammed. Make sure all the stitches are in the hooks and line the needles at B position.



9. Adjust the Knit Leader and the Row Counter if they have moved on.

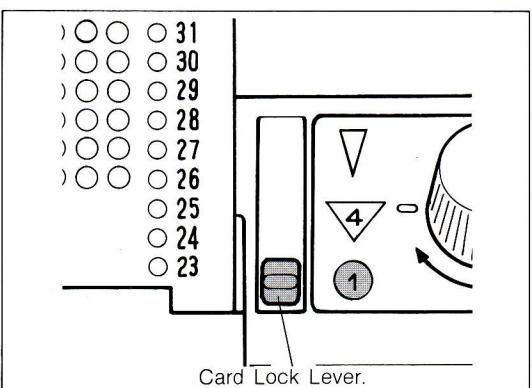


10. Set the G-Carriage at more than 5 needles away from the knitting and thread the yarn in the Yarn Guide, then push the Start Button.

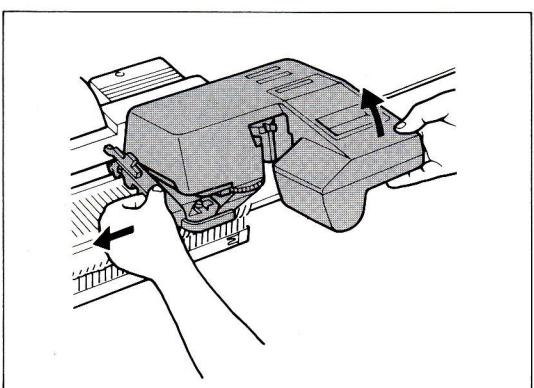


11. After you make sure that the Indicator shows the same direction as the moving of the G-Carriage, set the Card Lock Lever at "▽" mark.  
(Leave the Lever at "○" mark in rib pattern knitting.)

## 2. HOW TO MOVE THE G-CARRIAGE WITHOUT YARN



1. Set the Card Lock Lever at "O" mark.

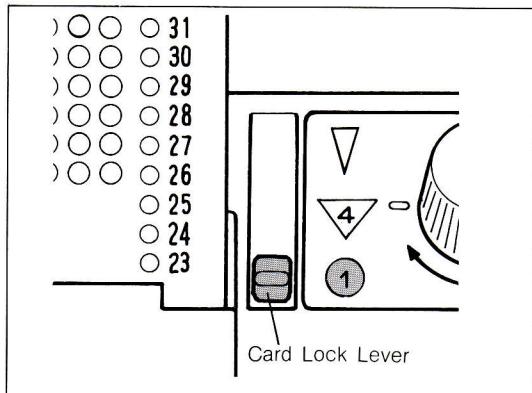


2. Move the G-Carriage by holding the front part up.

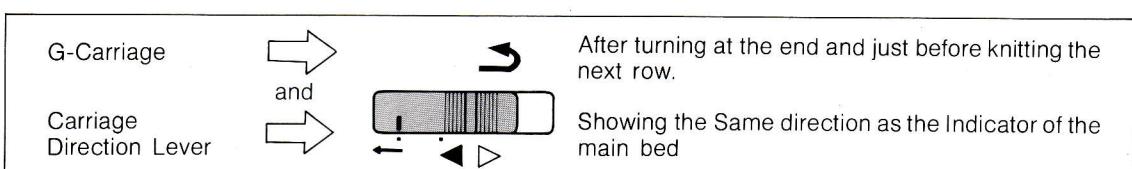
### 3. HOW TO UNRAVEL SEVERAL ROWS

#### BE CAREFUL ABOUT THE FOLLOWING POINTS

- \* Check the position of the G-Carriage and the Carriage Direction Lever.  
After the G-Carriage has turned over and the Carriage Direction Lever has switched, the Punch Card is fed one row and the arrow of the Indicator changes.
- \* In a Double Length Pattern, the card is fed only when the carriage moves from left to right.

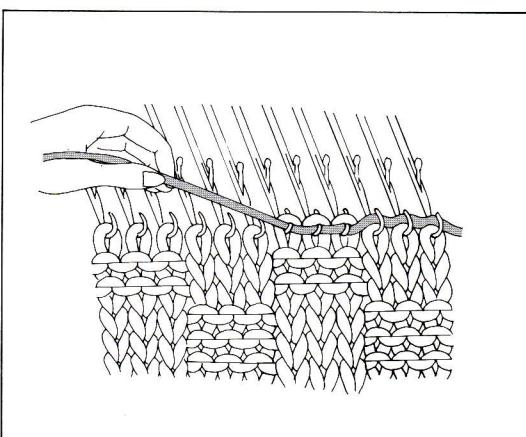


1. Set the Card Lock Lever at "O" mark.
2. Feed back the card one row in the following case.

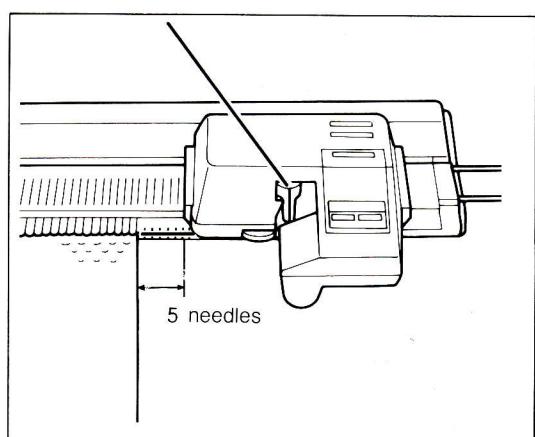


You don't have to feed back the card

- {
- except the above case
  - when the Indicator shows this direction in the Double Length Pattern



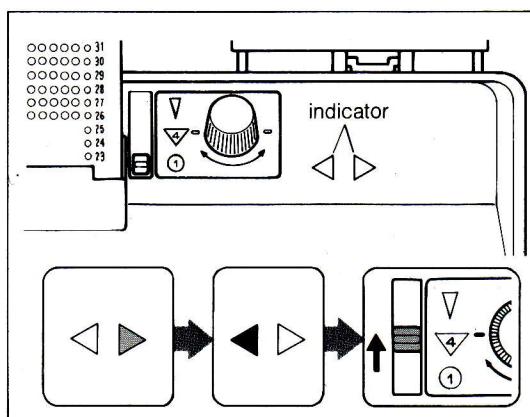
3. Remember the amount of rows unravelled.



4. Set the G-Carriage at the yarn end side. Thread the Yarn Guide.

5. Feed back the card according to following chart.

Number of unravelled row	Number of rows to feed back		
	Normal Pattern	Double Length Pattern	
		the yarn end is at right	the yarn end is at left
1	0	0	0
2	1	0	1
3	2	1	1
4	3	1	2
5	4	2	2
6	5	2	3
7	6	3	3



6. Push the Start Button.

After you make sure that the Indicator shows the same direction as the moving the G-Carriage, set the Card Lock Lever at "▽" mark.

## NEEDLE-G

\* Needle-G is one of the most important parts of the G-Carriage. Check the following points before you use the G-Carriage.

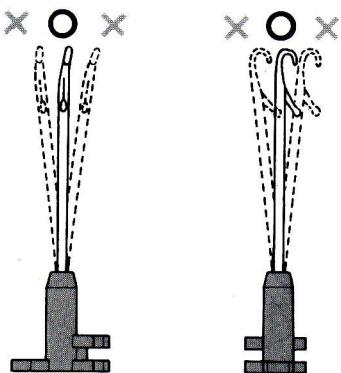
Needle-G

KH needle

Needle-G

The needle is slightly bent.

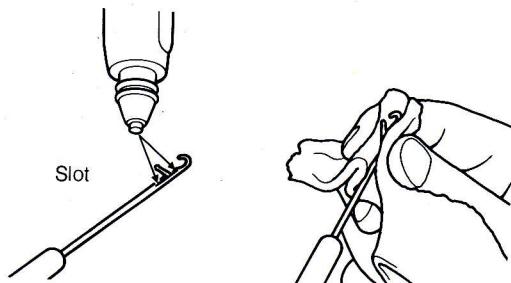
The latch can springs back a little bit.



- Is the stem all right?

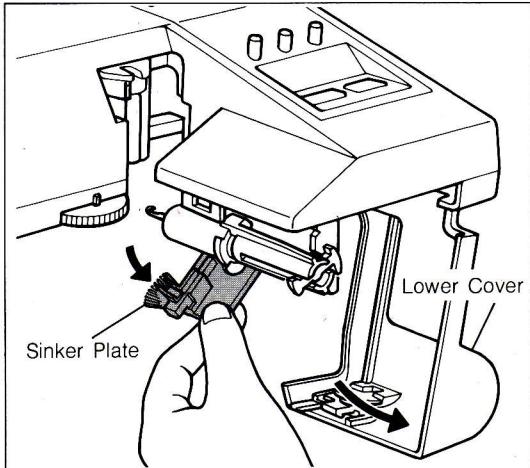
- Is the latch all right?

- Is the hook all right?

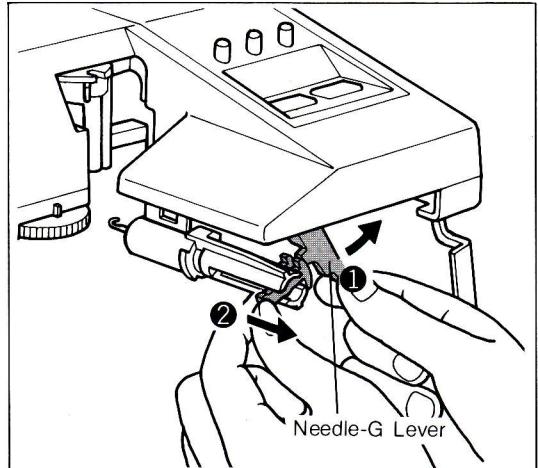


Oil the slot in the stem slightly and wipe off the excess.

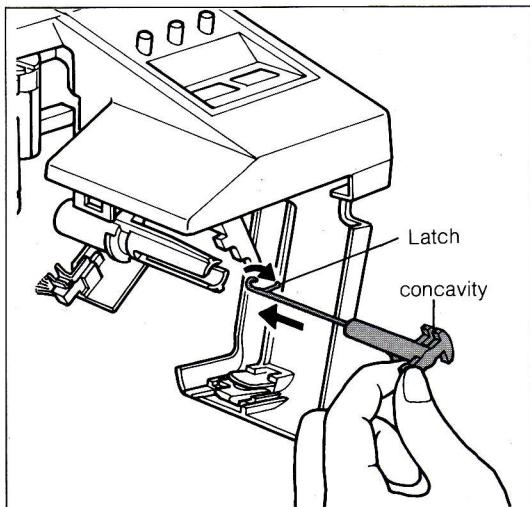
## HOW TO CHANGE THE NEEDLE-G



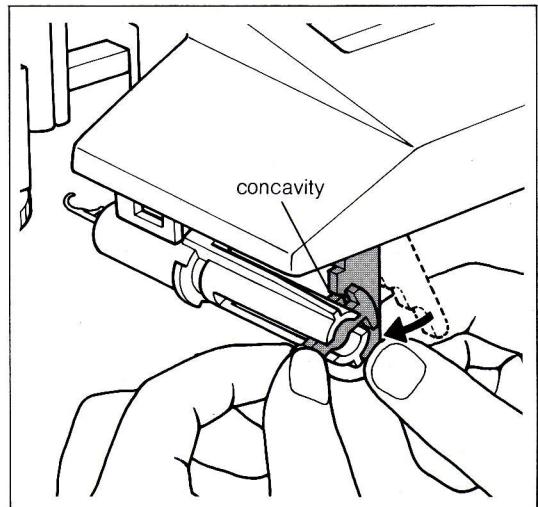
1. Push the Cover Button and open the Lower Cover.  
Release the Sinker Plate.



2. Take off the Needle-G lever to pull out the Needle-G.



3. Put in the new needle opening its latch as shown in the diagram.



4. Fix the Needle-G by putting the lever in the concavity of the plastic stem of the Needle-G.

## 4. CLEANING AND MAINTENANCE

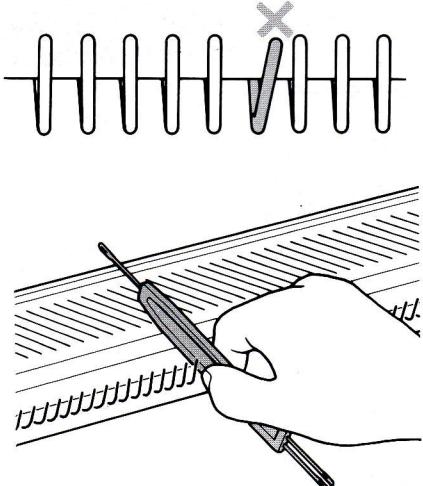
### CLEANING AND OILING IS THE KEY TO KEEP THE G-CARRIAGE IN A GOOD CONDITION AND TO KNIT SMOOTHLY.

- \* Take the G-Carriage off the needlebed and clean any dust and lints with a soft cloth.
- \* Wipe the metal parts with an oiled cloth.
- \* Wipe the rear rail (and the Racks) of the knitting machine, too.
- \* Wipe the plastic parts with a soft cloth using a neutral detergent solution.
- \* Do not use alcohol, benzin, thinner nor gasoline.
- \* Do not oil the machine directly.

**TAKE CARE FOR THE GATE PEGS AND NEEDLES OF YOUR KNITTING MACHINE  
THEY ARE IMPORTANT KEYS FOR BETTER KNITTING, TOO**

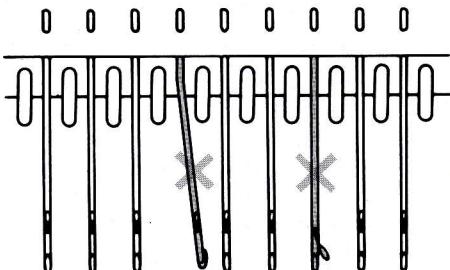


IF ANY GATE PEGS ARE BENT . . .



Repair the gate peg using the Transfer Tool as shown in the diagram.

CHECK ALL THE KH NEEDLES . . .



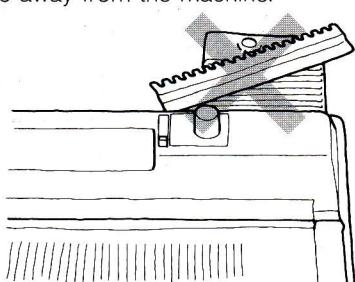
Check all the needles by bringing them to E position.

Check latches and hooks, too.

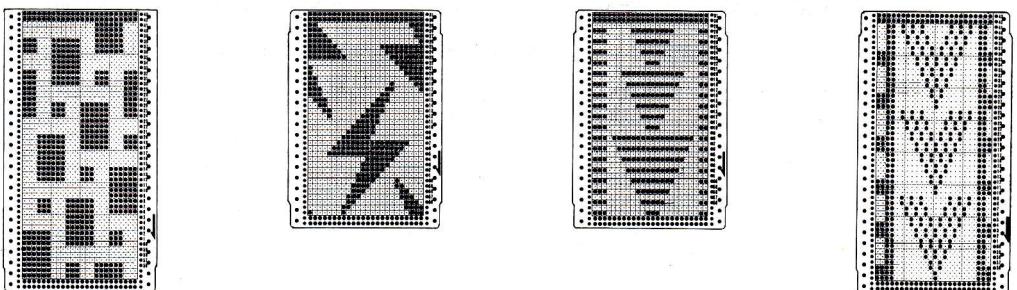
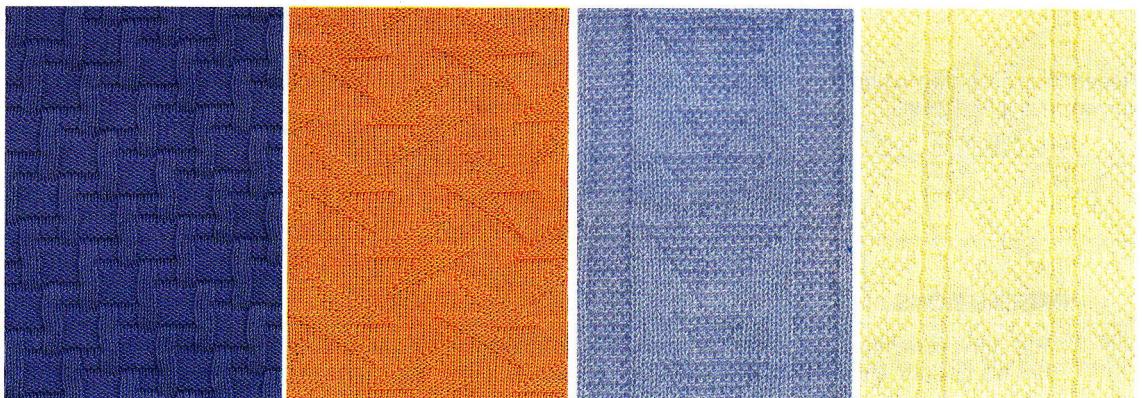
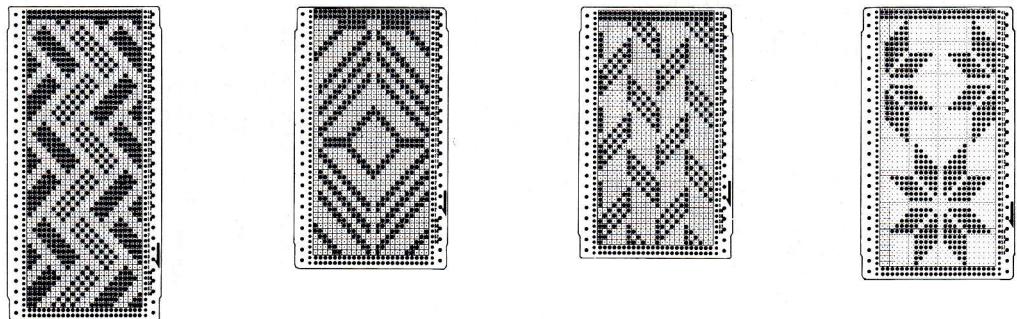
Refer to the Instruction Manual of your knitting machine and change the damaged needle to new ones.

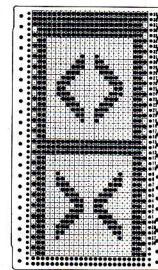
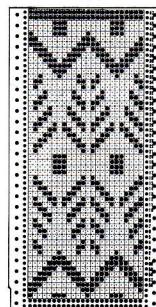
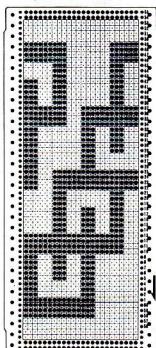
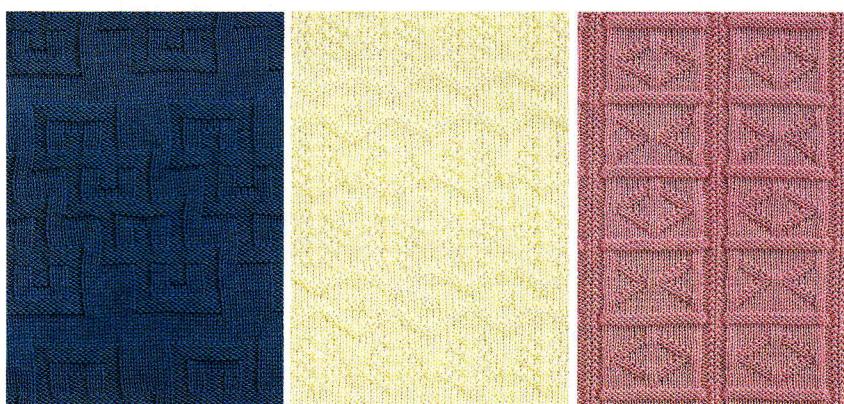
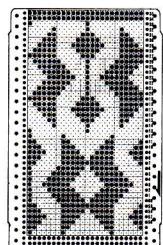
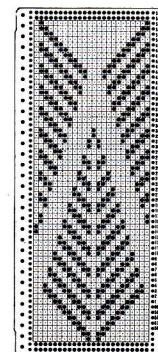
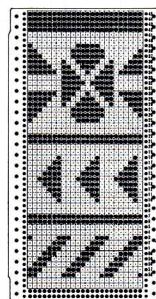
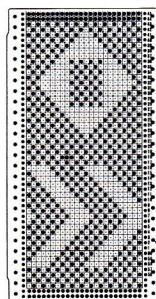
### PRECAUTIONS

- \* You don't have to worry about the heat of the Adaptor when using it for a long time.  
But do not put anything on the Adaptor that stands in the way of giving off of the heat.
- \* Do not leave it in a location near heat sources or in a place used in direct sunlight.
- \* See that your child does not touch the G-Carriage while you are away from the machine.
- \* Do not move or pull the knitting by force while it is working.  
It might cause something wrong.



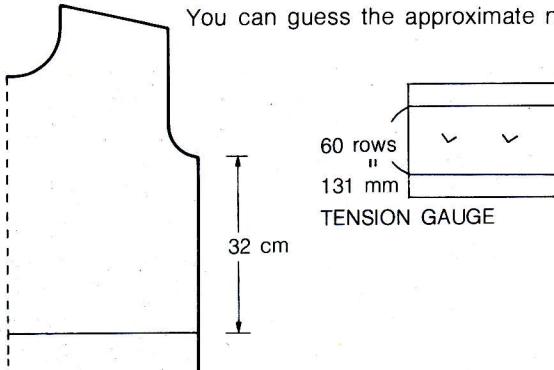
## VARIOUS PATTERNS





## COMPARISON CHART

You can guess the approximate number of rows from the following chart.



If the length of 60 rows is 131 mm and you want to knit 32 cm . . .

32 cm = 30 cm + 2 cm

Look at the row number of 30 cm and 2 cm of 130~132 mm and add them.

136 (rows of 30 cm) + 9 (rows of 2 cm) = 145 rows.

Set the row counter at 145.

Tension Gauge Measure- ment	1cm	2cm	3cm	4cm	5cm	6cm	7cm	8cm	9cm	10cm	20cm	30cm	40cm	50cm
60mm	10	20	30	40	50	60	70	80	90	100	200	300	400	500
61	9	19	29	39	49	59	68	78	88	98	196	295	393	491
62	9	19	29	38	48	58	67	77	87	96	193	290	387	483
63	9	19	28	38	47	57	66	76	85	95	190	285	380	476
64	9	18	28	37	46	56	65	75	84	93	187	281	375	468
65	9	18	27	36	46	55	64	73	83	92	184	276	369	461
66	9	18	27	36	45	54	63	72	81	90	181	272	363	454
67	8	17	26	35	44	53	62	71	80	89	179	268	358	447
68	8	17	26	35	44	52	61	70	79	88	176	264	352	441
69	8	17	26	34	43	52	60	69	78	86	173	260	347	434
70	8	17	25	34	42	51	60	68	77	85	171	257	342	428
71	8	16	25	33	42	50	59	67	76	84	169	253	338	422
72	8	16	25	33	41	50	58	66	75	83	166	250	333	416
73	8	16	24	32	41	49	57	65	73	82	164	246	328	410
74	8	16	24	32	40	48	56	64	72	81	162	243	324	405
75	8	16	24	32	40	48	56	64	72	80	160	240	320	400
76	7	15	23	31	39	47	55	63	71	78	157	236	315	394
77	7	15	23	31	38	46	54	62	70	77	155	233	311	389
78	7	15	23	30	38	46	53	61	69	76	153	230	307	384
79	7	15	22	30	37	45	53	60	68	75	151	227	303	379
80	7	15	22	30	37	45	52	60	67	75	150	225	300	375
81	7	14	22	29	37	44	51	59	66	74	148	222	296	370
82	7	14	21	29	36	43	51	58	65	73	146	219	292	365
83	7	14	21	28	36	43	50	57	65	72	144	216	289	361
84	7	14	21	28	35	42	50	57	64	71	142	214	285	357
85 ~ 86	6	13	20	27	34	41	48	55	62	69	139	209	279	348
87 ~ 88	6	13	20	27	34	40	47	54	61	68	136	204	272	340
89 ~ 90	6	13	20	26	33	40	46	53	60	66	133	200	266	333
91 ~ 92	6	13	19	26	32	39	45	52	58	65	130	195	260	326
93 ~ 94	6	12	19	25	31	38	44	51	57	63	127	191	255	319
95 ~ 96	6	12	18	25	31	37	43	50	56	62	125	187	250	312
97 ~ 98	6	12	18	24	30	36	42	48	55	61	122	183	244	306
99 ~ 100	6	12	18	24	30	36	42	48	54	60	120	180	240	300
101 ~ 102	5	11	17	23	29	35	41	47	52	58	117	176	235	294
103 ~ 104	5	11	17	23	28	34	40	46	51	57	115	173	230	288

Tension Gauge Measure- ment	1cm	2cm	3cm	4cm	5cm	6cm	7cm	8cm	9cm	10cm	20cm	30cm	40cm	50cm
105 ~ 106mm	5	11	16	22	28	33	39	45	50	56	113	169	226	283
107 ~ 108	5	11	16	22	27	33	38	44	50	55	111	166	222	277
109 ~ 110	5	10	16	21	27	32	38	43	49	54	109	163	218	272
111 ~ 112	5	10	16	21	26	32	37	42	48	53	107	160	214	267
113 ~ 114	5	10	15	21	26	31	36	42	47	52	105	157	210	263
115 ~ 116	5	10	15	20	25	31	36	41	46	51	103	155	206	258
117 ~ 118	5	10	15	20	25	30	35	40	45	50	101	152	203	254
119 ~ 120	5	10	15	20	25	30	35	40	45	50	100	150	200	250
121 ~ 122	4	9	14	19	24	29	34	39	44	49	98	147	196	245
123 ~ 124	4	9	14	19	24	29	33	38	43	48	96	145	193	241
125 ~ 126	4	9	14	19	23	28	33	38	42	47	95	142	190	238
127 ~ 129	4	9	13	18	23	27	32	37	41	46	93	139	186	232
130 ~ 132	4	9	13	18	22	27	31	36	40	45	90	136	181	227
133 ~ 135	4	8	13	17	22	26	31	35	40	44	88	133	177	222
136 ~ 138	4	8	13	17	21	26	30	34	39	43	86	130	173	217
139 ~ 141	4	8	12	17	21	25	29	34	38	42	85	127	170	212
142 ~ 144	4	8	12	16	20	25	29	33	37	41	83	125	166	208
145 ~ 147	4	8	12	16	20	24	28	32	36	40	81	122	163	204
148 ~ 150	4	8	12	16	20	24	28	32	36	40	80	120	160	200
151 ~ 153	3	7	11	15	19	23	27	31	35	39	78	117	156	196
154 ~ 156	3	7	11	15	19	23	26	30	34	38	76	115	153	192
157 ~ 159	3	7	11	15	18	22	26	30	33	37	75	113	150	188
160 ~ 162	3	7	11	14	18	22	25	29	33	37	74	111	148	185
163 ~ 165	3	7	10	14	18	21	25	29	32	36	72	109	145	181
166 ~ 168	3	7	10	14	17	21	25	28	32	35	71	107	142	178
169 ~ 172	3	6	10	13	17	20	24	27	31	34	69	104	139	174
173 ~ 176	3	6	10	13	17	20	23	27	30	34	68	102	136	170
177 ~ 180	3	6	10	13	16	20	23	26	30	33	66	100	133	166
181 ~ 184	3	6	9	13	16	19	22	26	29	32	65	97	130	163
185 ~ 188	3	6	9	12	15	19	22	25	28	31	63	95	127	159
189 ~ 192	3	6	9	12	15	18	21	25	28	31	62	93	125	156
193 ~ 196	3	6	9	12	15	18	21	24	27	30	61	91	122	153
197 ~ 200	3	6	9	12	15	18	21	24	27	30	60	90	120	150
201 ~ 204	2	5	8	11	14	17	20	23	26	29	58	88	117	147
205 ~ 209	2	5	8	11	14	17	20	22	25	28	57	86	114	143