



**KG93**  
**Instruction Manual**  
**For**  
**G-Carriage**

**brother**

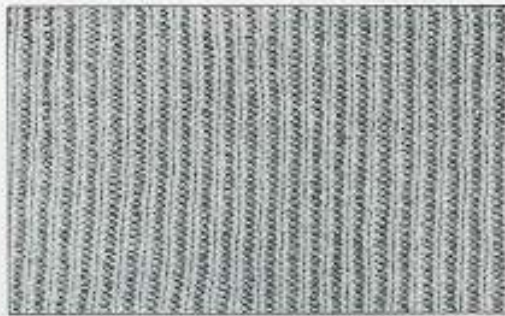
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## THE POSSIBILITIES OF THE G-CARRIAGE

The G-Carriage is a knitting carriage which is capable of knitting plain and purl stitches in one row as well as automatic cast-on and cast-off. When used in conjunction with the KH-930/950 a vast range of stitch pattern designs are available to you simply by selecting the number from "STITCH WORLD", or designing your own pattern.

### 1. Rib knitting



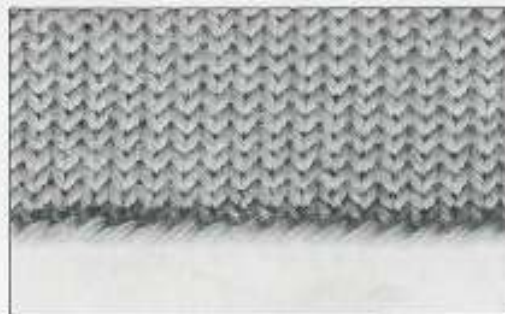
1 x 1 rib No. 532

### 2. G-Stich pattern designs

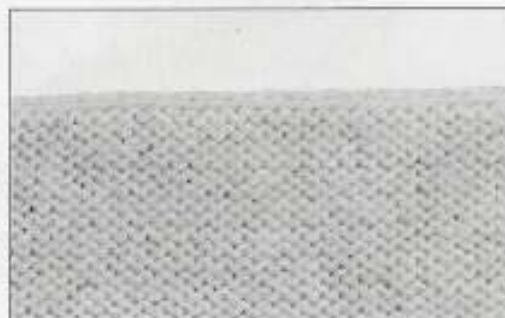


No. 547

### 3. Cast-on

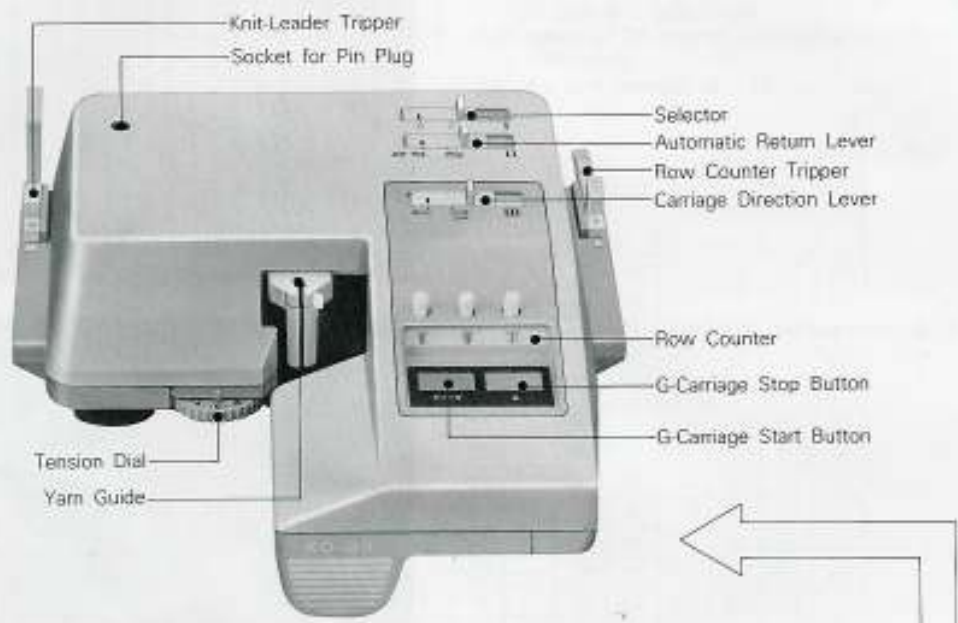


### 4. Cast-off

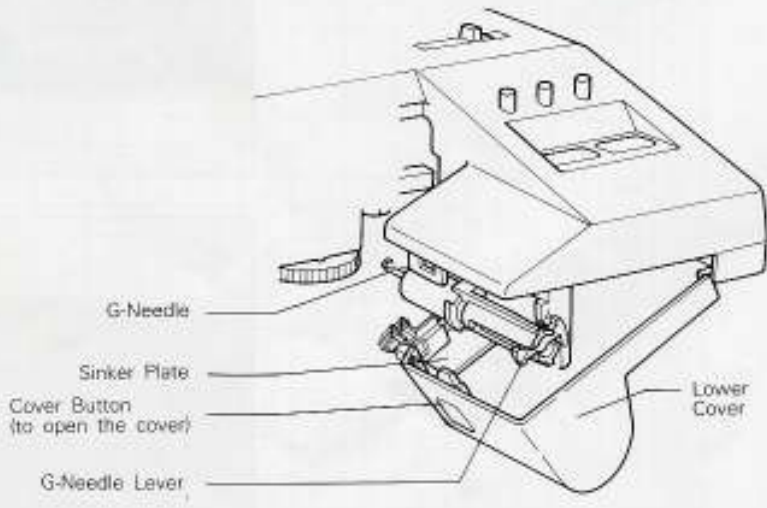


# PART NAMES

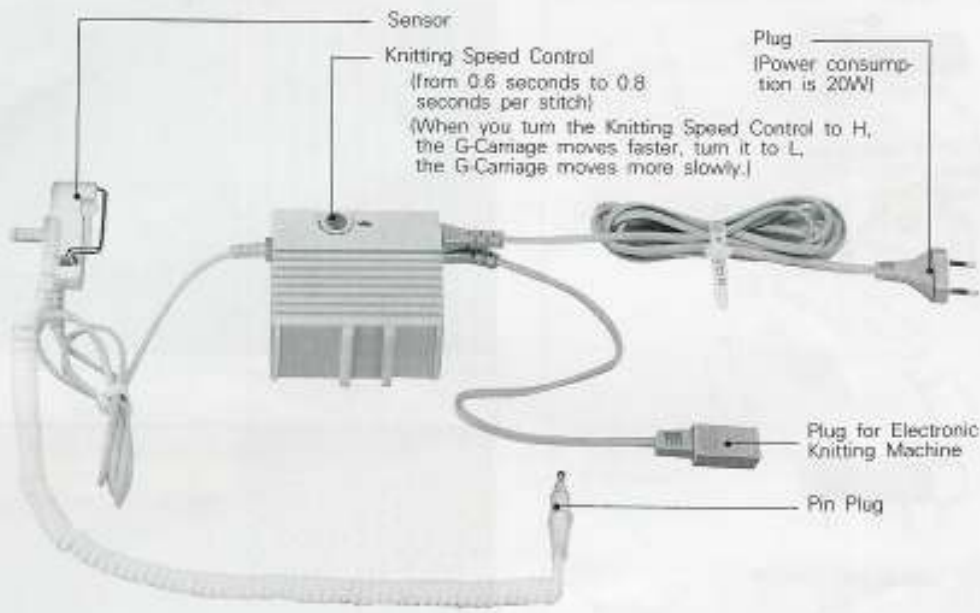
## • G-CARRIAGE



INSIDE THE COVER



• ADAPTOR

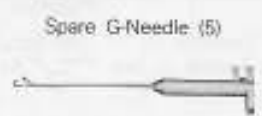


• ACCESSORIES

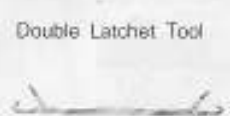


Weight

for increasing more than 2 stitches



Spare G-Needle (5)



Double Latchet Tool

G-Point Cams



for 1 stitch  
(1 for right 1 for left)



for 2 stitches (2)



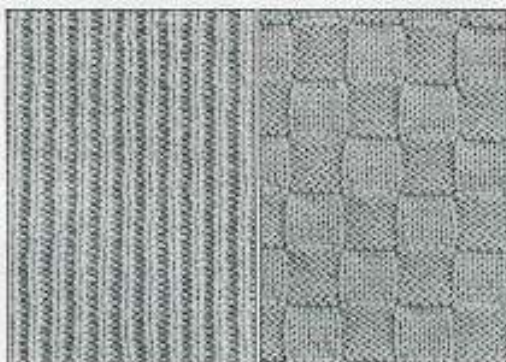
for 3 stitches (2)

# PREPARING TO KNIT

## (1) SELECTOR

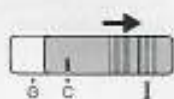


Use the Selector when knitting Ribs or G-Stitch Pattern Designs.

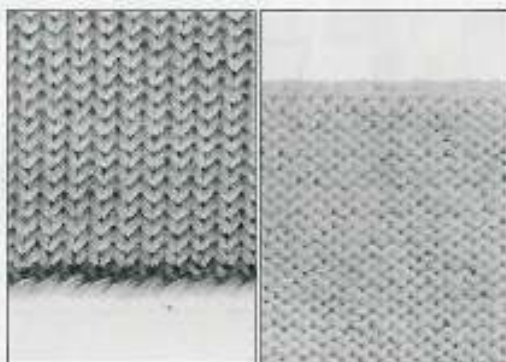


Ribs

G-Stitch Pattern Designs

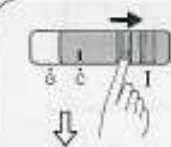


For Cast-on and Cast-off

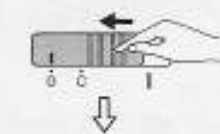


Cast-on

Cast-off

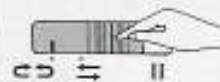


If you switch the Selector to "C" the Automatic Return Lever will switch to the "↔" setting.



When you want to set the Selector to "G" and the Automatic Return Lever to "↔", you must switch them in the order below.

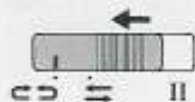
1. Selector ... G



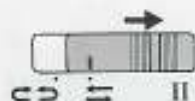
2. Automatic Return Lever ... "↔".

\*If you switch the Automatic Return Lever to "↔" when the Selector is in position "C", the Selector is moved to the left slightly which is not the correct position.

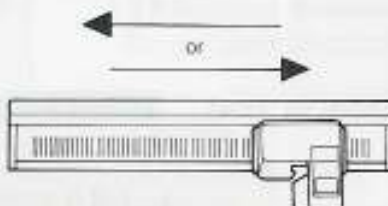
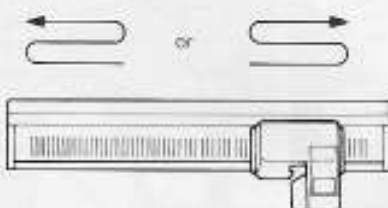
## (2) AUTOMATIC RETURN LEVER



The Carriage will move back and forth across the bed automatically until the Row Counter reads 000.

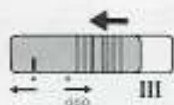


When knitting only one row push the Stop Button at the end of that row.

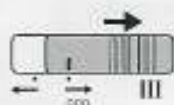


## (3) CARRIAGE DIRECTION LEVER

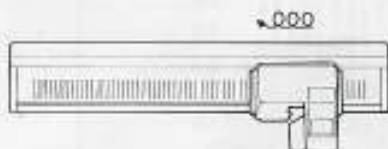
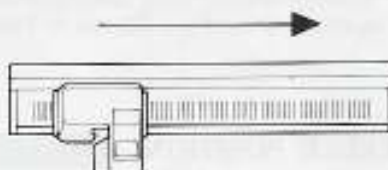
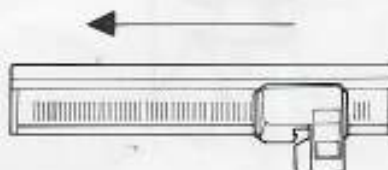
To alter the direction of the G-Carriage set the Carriage Direction Lever before starting to knit. Ensure the G-Carriage is stationary before setting the Carriage Direction Lever.



To operate the G-Carriage to the left.



① To operate the G-Carriage to the right.

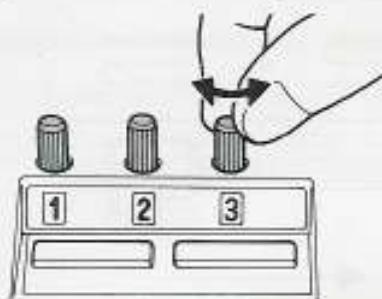


② To cast on  $\leftarrow 000$ .

The G-Carriage can cast on only from right to left, always place the G-Carriage at the right to cast on.

- \*To set the Carriage Direction Lever—stop the G-Carriage when it has cleared the edge of the knitting.
- \*When the Automatic Return Lever is set at "CS" the Carriage Direction Lever works automatically and displays the direction which the G-Carriage is moving.
- \*The Carriage Direction Lever works in conjunction with the Row Counter. The number displayed by the Row Counter decreases as the Carriage Direction Lever changes.

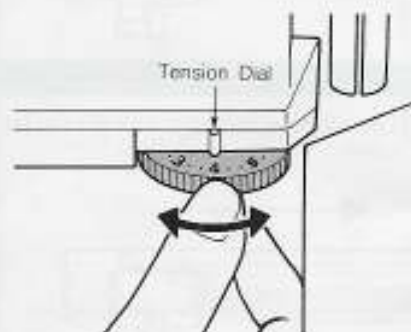
#### (4) ROW COUNTER



Set the Row Counter to the number of rows you want to knit. The G-Carriage moves across the bed (knitting 1 row). The Row Counter automatically reduce its total by 1. When the Row Counter shows 000 the G-Carriage stops.

\*Should you not want to set the Row Counter for any particular number, set it at a very high one so that it does not stop unexpectedly.

#### (5) TENSION DIAL

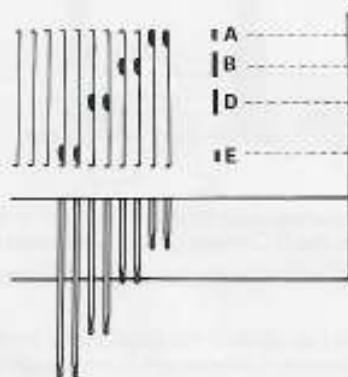


The Tension Dial is different to that of the K-Carriage, the chart below gives a rough guide to tension settings.

YARN	TENSION DIAL	
	CAST-ON, RIB KNITTING	STITCH PATTERN
VERY FINE (2 ply)	1-2	2-3
FINE (3 ply)	2-4	3-6
MEDIUM (4 ply)	3-5	5-8
THICK (5 ply)	6-8	7-10
VERY THICK	7-9	8-10

**NOTE:** Sometimes thick, fancy yarns, such as tweed and boucle and yarn with no elasticity such as silk, cotton and linen are difficult to knit so take extra care when using these yarns.

#### (6) NEEDLE POSITION



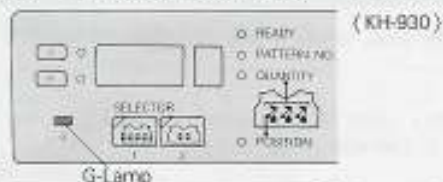
A Non-working position  
B Working position

D You cannot use these positions with the G-Carriage.  
E

Do not use the G-Carriage if there are needles missing from the needlebed.



## (7) G-LAMP (KH-930) · PATTERN POSITION LAMP (KH-950)



G-Lamp

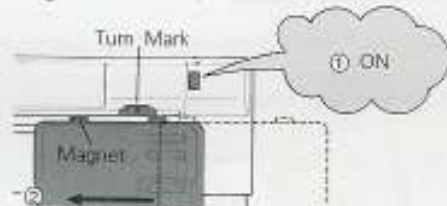


Pattern Position Lamp

\* The G-Lamp or Pattern Position Lamp shows the machine is ready to work with the G-Carriage. (When you cast off, you turn off the Power switch, so the Lamp does not light up.)

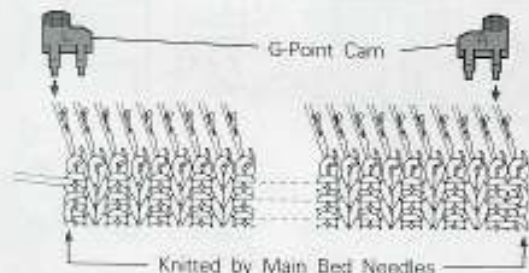
\* Ensure the G-Lamp or Pattern Position Lamp is lit before starting to knit (if it is not lit the pattern will not be correct).

To light the G-Lamp or Pattern Position Lamp



- ① Turn on the power.
- ② Place the G-Carriage outside the Turn Mark. When the first Magnet passes the Turn Mark the G-Lamp or Pattern Position Lamp lights up.

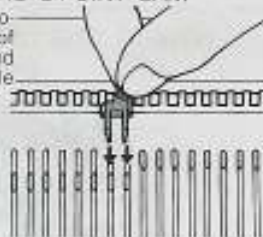
## (8) G-POINT CAM



The G-Point Cams override the patterning and are placed at the edge of the knitting so that these stitches are always reversed by the G-Carriage. The result is an even edge that may be used as a finished edge or for seam allowance.

### ● HOW TO USE THE G-POINT CAM

- (1) Place the catch towards the back of the needlebed and push into the needle tracks.



- (2) Push back and down firmly to fix into position.

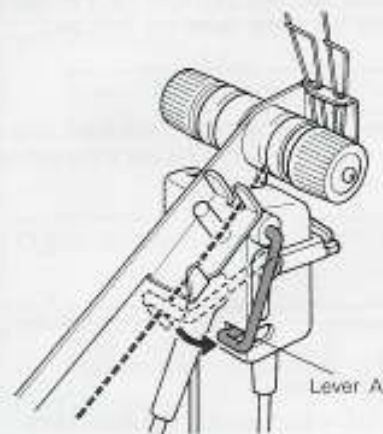


- Whenever the black square "■" appears in the stitch pattern design the G-Carriage reverses the stitch when knitting. However wherever you place the G-Point Cam the stitch is reversed.
- You may use a 1 x G-Point Cam, or a 2 x G-Point Cam or a 3 x G-Point Cam.
- G-Point Cams may be placed anywhere on the needlebed and next to each other.

\* As you increase or decrease stitches transfer the G-Point Cam.  
\* Remember to remove the G-Point Cams when you are not using them.

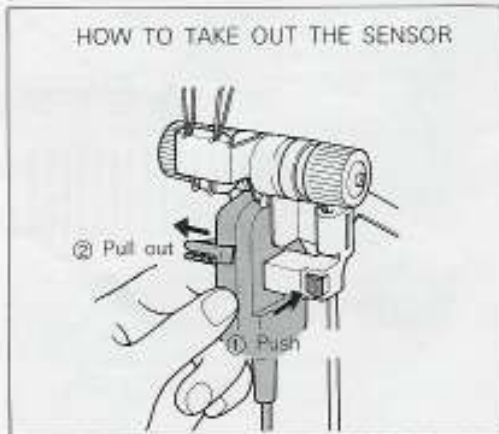
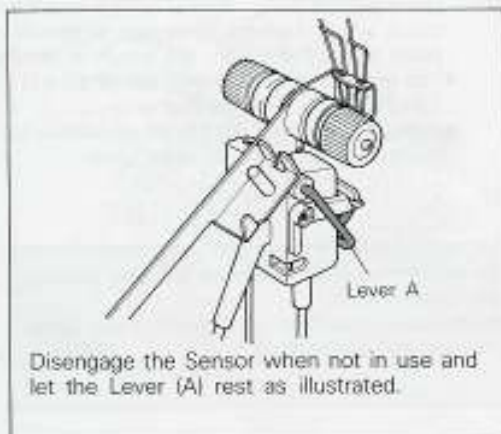
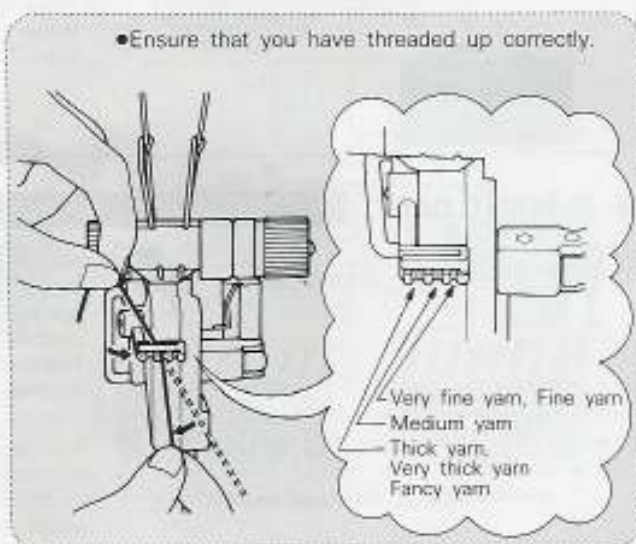
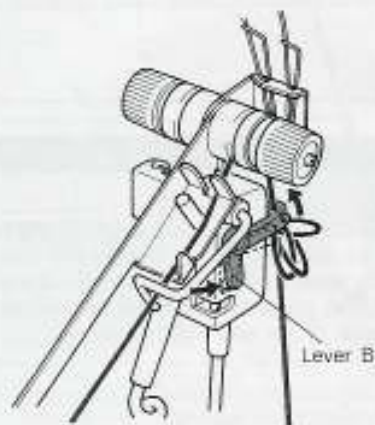
## (9) SENSOR

The Sensor checks that the yarn runs smoothly through the machine and does not run out or get tangled.



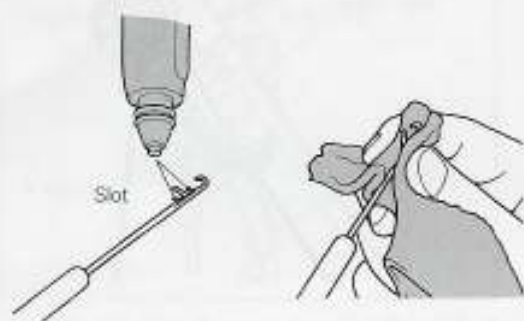
•Sensor Lever (A) falls when the yarn runs out, the G-Carriage stops automatically.

•Sensor Lever (B) is pushed up when the yarn is knotted or becomes entangled, the G-Carriage stops automatically.



## HOW TO USE THE G-CARRIAGE

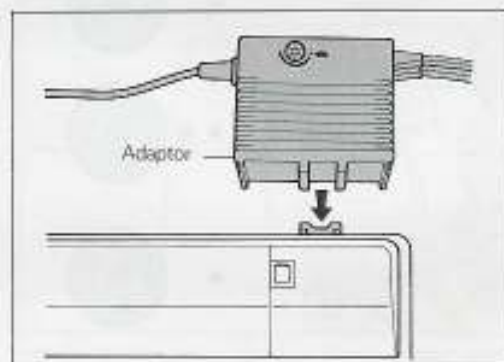
### (1) PREPARATION



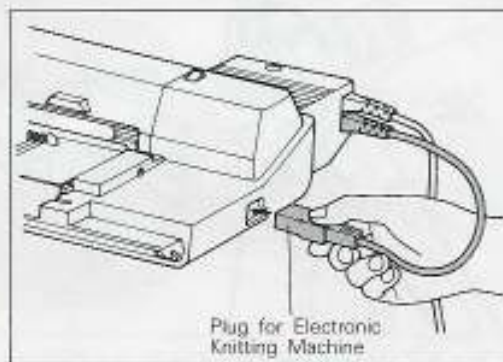
Oil the slot in the stem slightly and wipe off the excess. Check the G-Needle before knitting (Refer to p.48.)



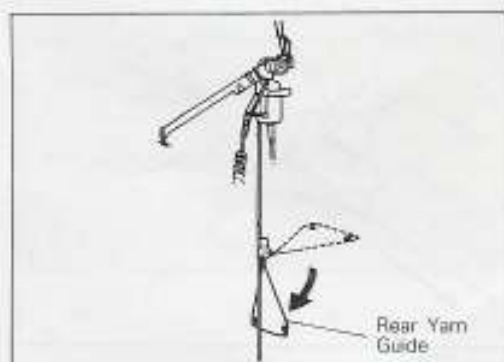
1. Fix the Sensor attached with the Adaptor onto the Yarn Tension Unit setting the marks together.



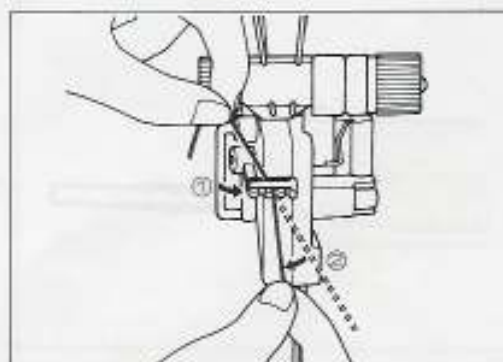
2. Plug the Adaptor into the knitting machine.



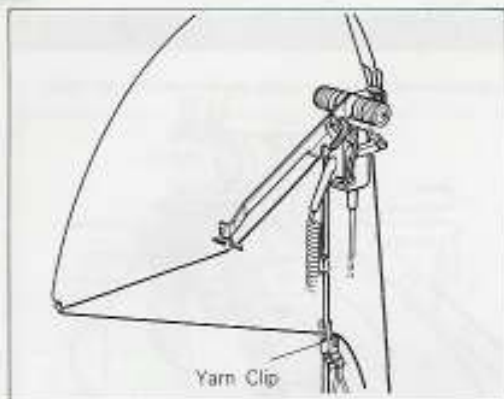
3. Check that the Power Switch is off. Plug the power cord of Adaptor into the knitting machine.



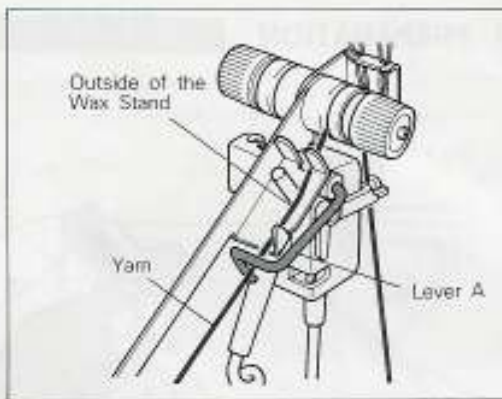
4. Fold down the Rear Yarn Guide.



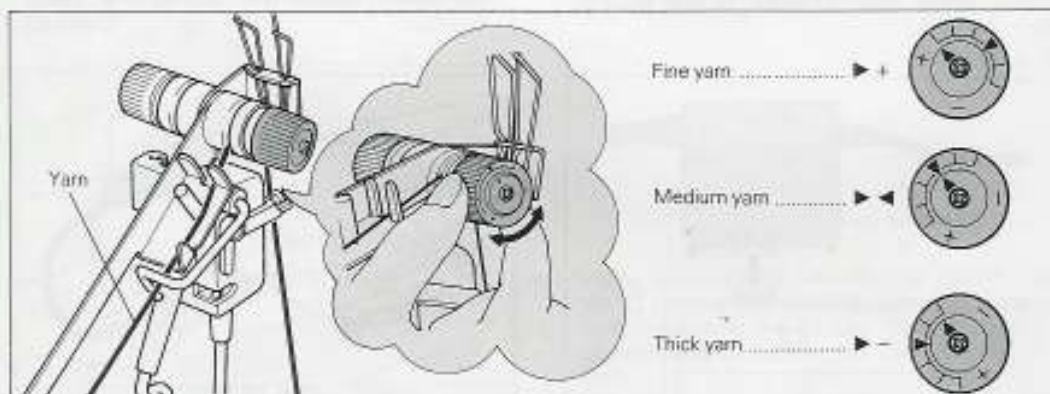
5. Thread the yarn through the Yarn Tension Unit.  
1) Check that the yarn is in the correct place for its weight - see page 8.



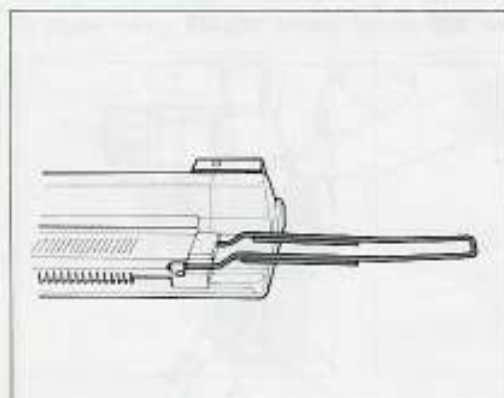
2) Thread the Yarn Tension Unit and place the yarn under the Yarn Clip.



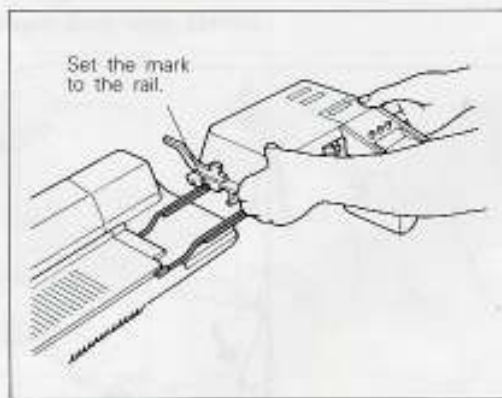
6. Place the Sensor Lever A onto the yarn.



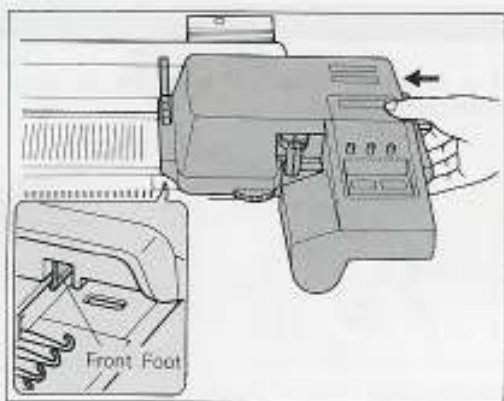
7. Set the arrow mark according to the thickness of the yarn.



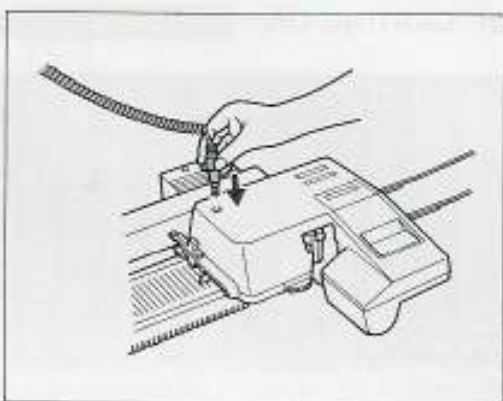
8. Set the Extension Rails at the both sides of the machine.



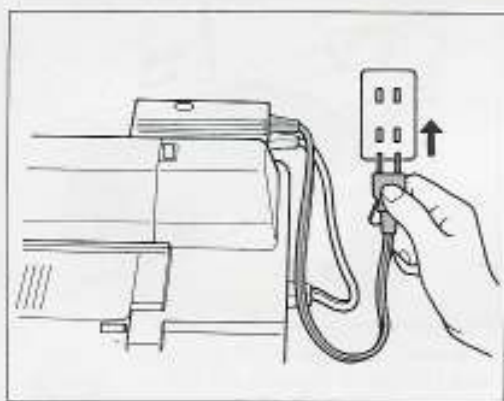
9. Hold each side of the G-Carriage and put it on the Extension Rail.



10. Push the G-Carriage until it stops. Ensure that the front foot engages the needlebed.

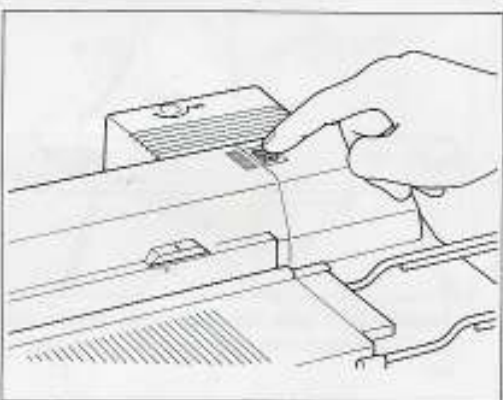


11. Insert the Pin Plug.



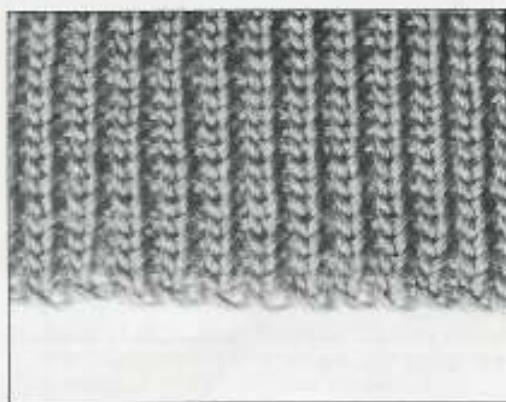
12. Plug into the mains power.  
(When you have finished knitting and want to put the machine away, unplug the mains power and then unplug the Pin Plug.)

\*When the G-Carriage is not being used for a few hours, unplug from the mains power.



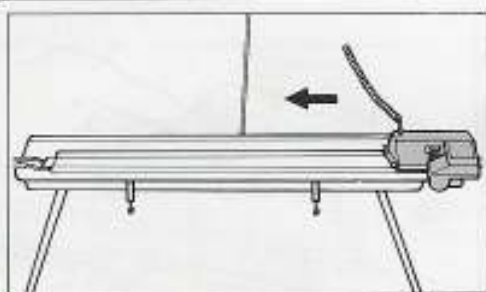
13. Turn the Power Switch on.

## (2) CASTING-ON



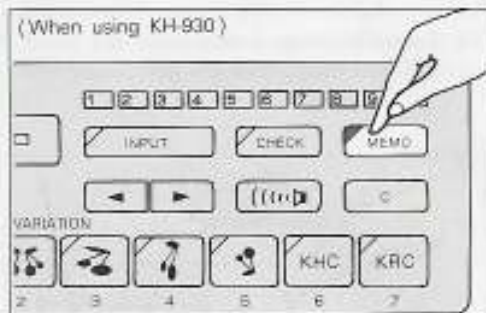
The G-Carriage casts on using the 'e' wrap method automatically.

### BEFORE CASTING-ON



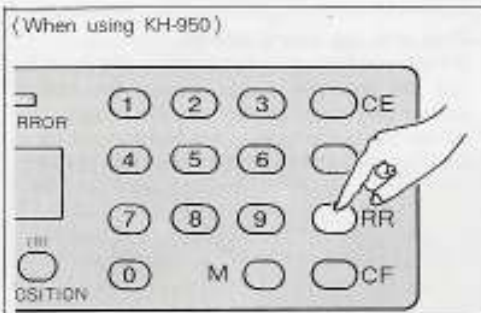
1. Always start with the G-Carriage at the right, the G-Carriage can only cast on from right to left.

(When using KH-930)



2. Push the Memo Key to light the Memo Lamp.

(When using KH-950)

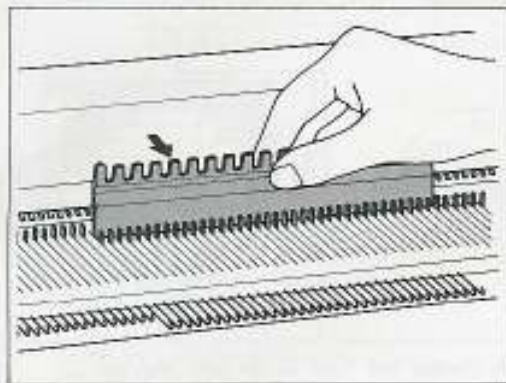


2. Mode 990 → M Key → M Key  
→ Pattern No. - 901 → M Key  
Push M Key repeatedly until ready lamp is lit.  
Then push RR Key. (If a pattern card is in the machine it will go back to the set line.)

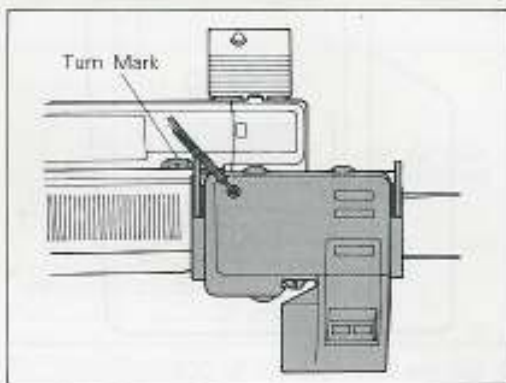
#### NOTE

The G-Carriage casts on over the needles represented by the blank (white) squares "□" in the stitch pattern design. When the Memo Lamp is lit or RR Key is pushed, you can cast on over all the needles regardless of the stitch design.

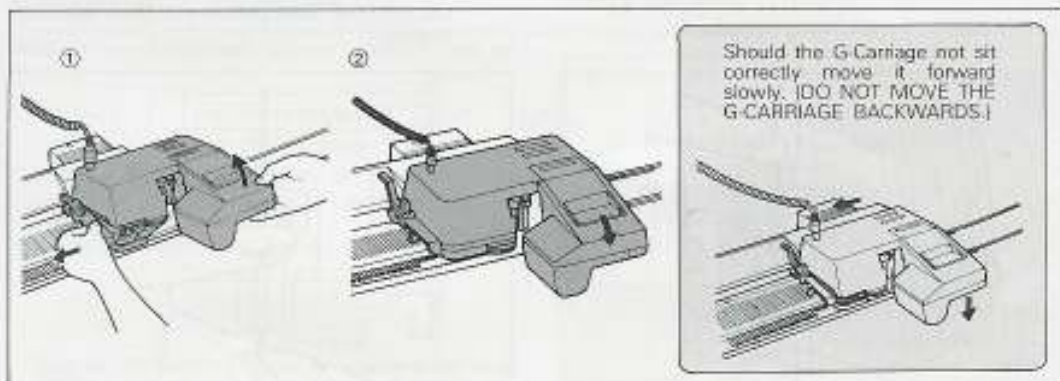
## LET'S CAST-ON



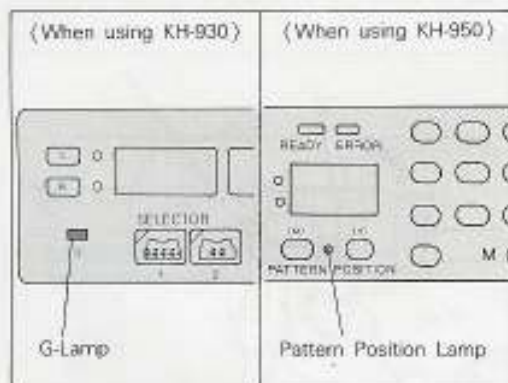
1. Push needles to B position (working position).



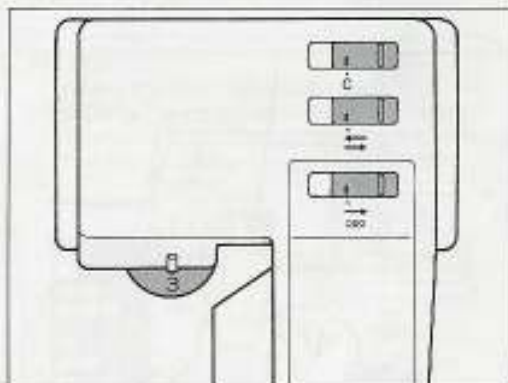
2. Ensure that the G-Carriage is outside the right Turn Mark.



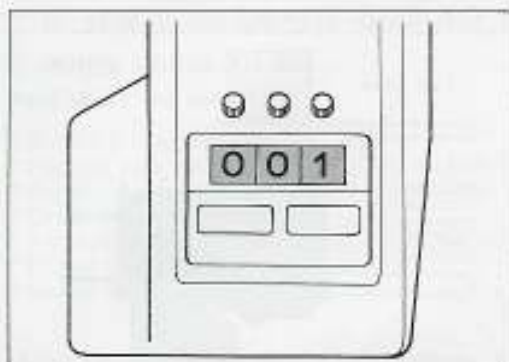
3. Move the G-Carriage to the edge of the knitting needles by lifting it with your right hand and pulling it with your left hand.



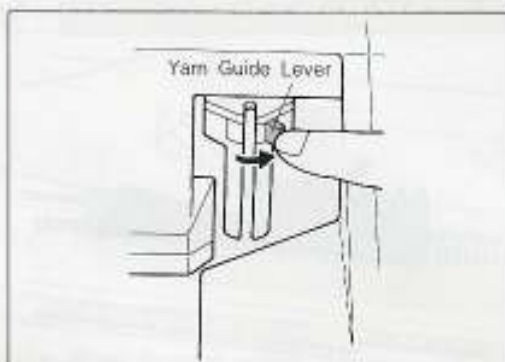
4. Ensure that the G-Lamp or Pattern Position Lamp is lit. (The lamp lights up when the G-Carriage passes the Turn Mark.)



5. Set the Levers as shown in the illustration and the Tension Dial according to the yarn you are using. (Refer to page 6.)



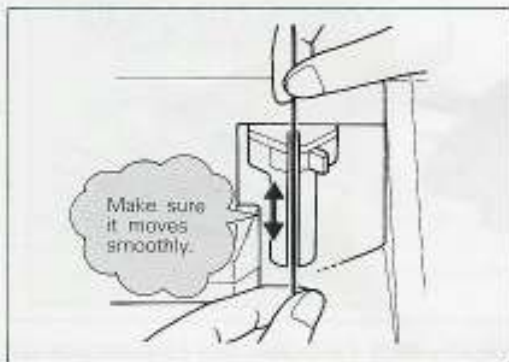
6. Set the Row Counter to 001.



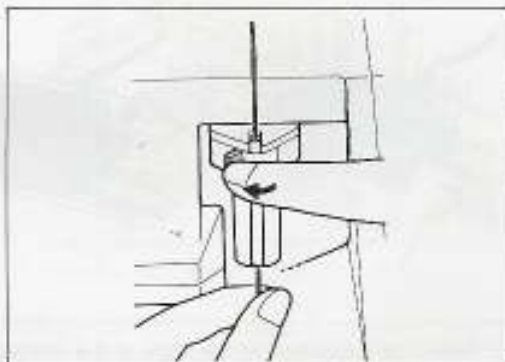
7. Thread the Yarn Guide with the yarn.

1) Open the Yarn Guide Lever.

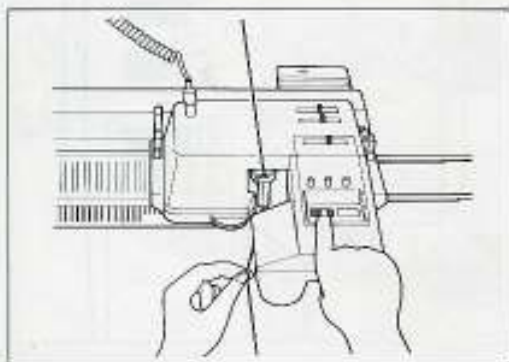
\*Should it be difficult to thread the Yarn Guide because the Yarn Guide is on the right side move the Yarn Guide to the left by pushing the Start Button and then the Stop Button.



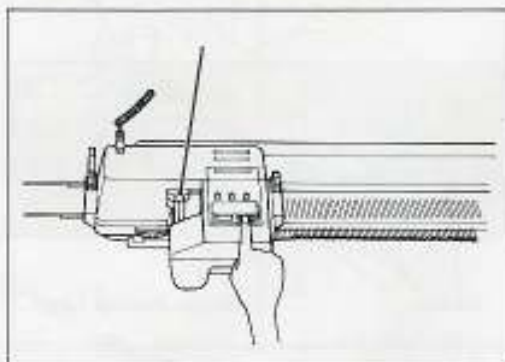
2) Thread the yarn and ensure that it moves smoothly.



3) Close the Lever.

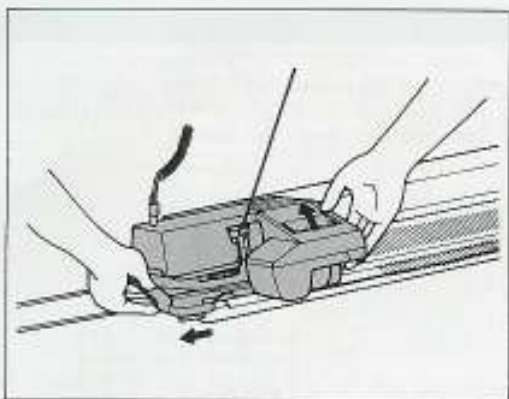


8. Holding the end of the yarn, push the Start Button. (Once the needles catch the yarn you may release it.)

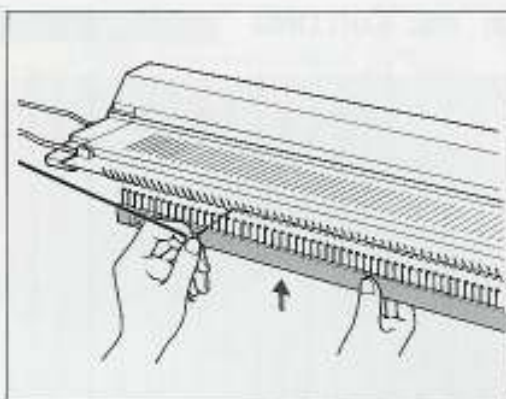


9. Once the G-Carriage has completed the automatic cast-on push the Stop Button.

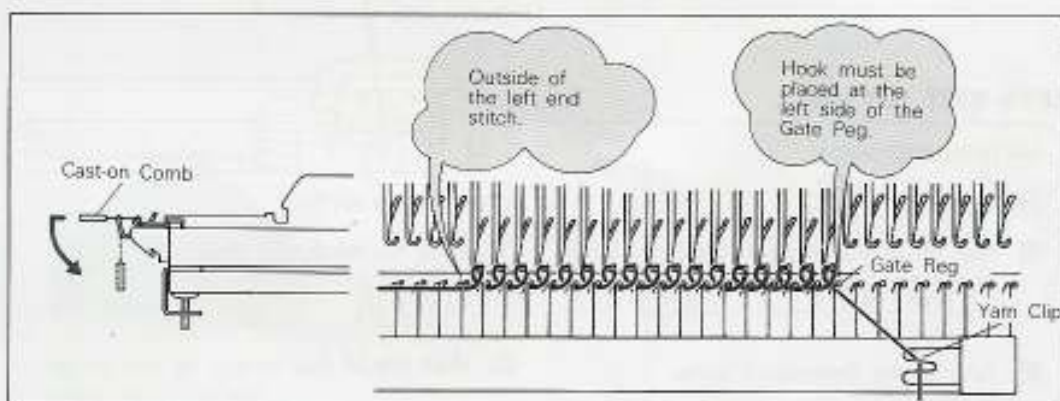




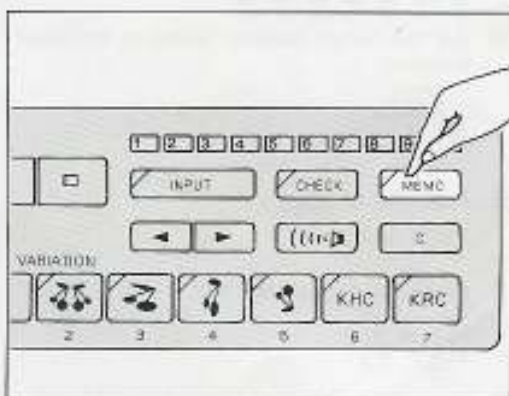
10. In order to hang the Cast-on Comb move the G-Carriage to the left by lifting and then pulling it away from the edge of knitting.



11. With the hooks towards the machine pull the yarn end through the Comb.

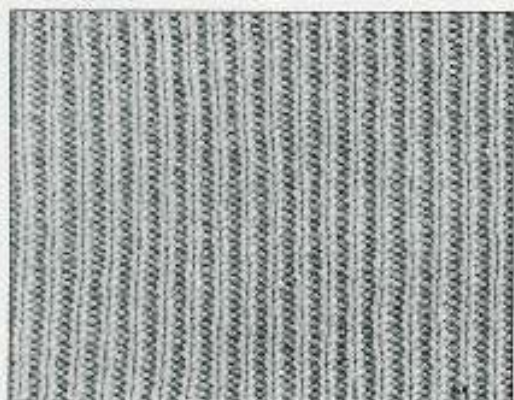


12. Hang the Cast-on Comb as shown in the figure.



13. \*When using KH-930, push the Memo Key to turn off the Memo Lamp.  
\*When using KH-950, you don't have to do anything.

### (3) RIB KNITTING



No. 532

- By using the pattern No. 532 (1x1 rib), 533 (2x1 rib), 534 (2x2 rib), 535 (3x3 rib) and 536 (4x4 rib) you can knit these rib fabrics.



G-Carriage Needle knits

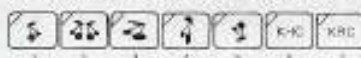
KH Needle knits

#### LET'S KNIT 1x1 RIB

##### PATTERN PROGRAM

(When using KH-930)

- 1 Turn off all the Variation Lamps.



- 2 Turn on the Selector (I) Lamp.



- 3 Push the Step Key.

- 4 Enter the pattern No. 532 after deleting the number by the CE Key.

○  ○ = PATTERN NO.

- 5 Push the Step Key.

○  ○ = POSITION

- 6 Push the Step Key.

○  ○ = READY

(When using KH-950)

- 1 Enter the Mode No. 990.

○  ○

- 2 Push the M Key.

- 3 Set all Pattern Variation Switches to the lower position.



- 4 Set the Pattern Selector Switch to the lower position.



- 5 Push the M Key.

PATTERN NO.

- 6 Enter the Pattern No. 532.

○  ○

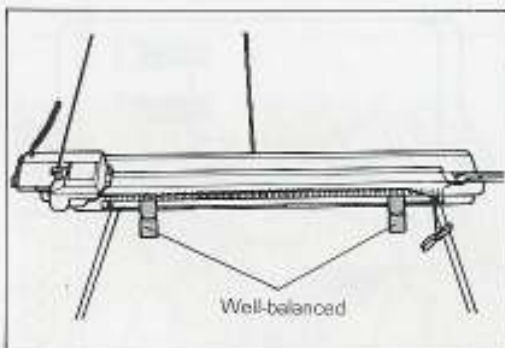
- 7 Push the M Key.

READY ERROR

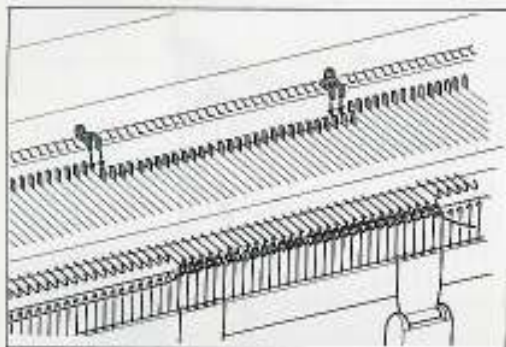
- 8 Push the CF Key.

## LET'S START KNITTING

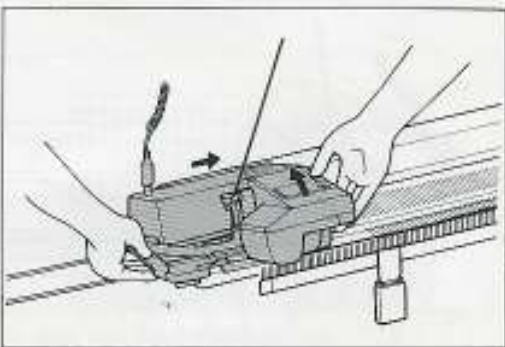
The illustration shows the G-Carriage at the left side of the machine.



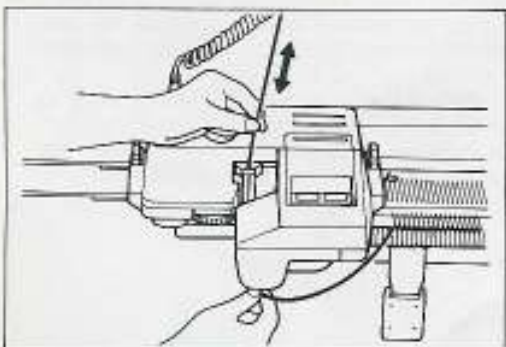
1. Hang the Claw weights on the Cast-on Comb.  
\* Do not hang the Claw weights directly onto the knitting switch.



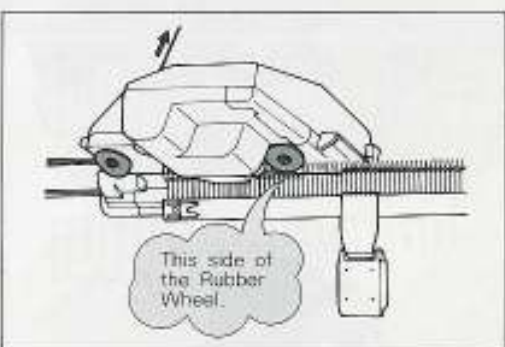
2. Place the G-Point Cams (1 stitch) in the needle tracks of both end needles.



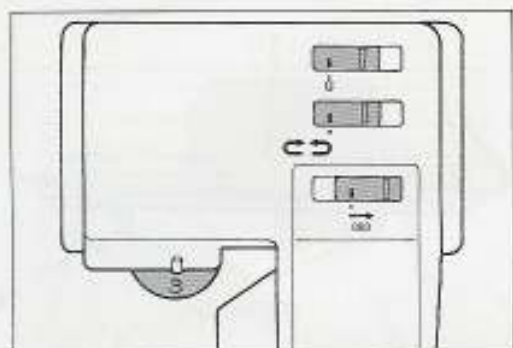
3. Hold the front part of the G-Carriage up and move it to the left edge of the knitting switch by pushing it with your left hand. (Make sure the G-Lamp or Pattern Position Lamp is on.)



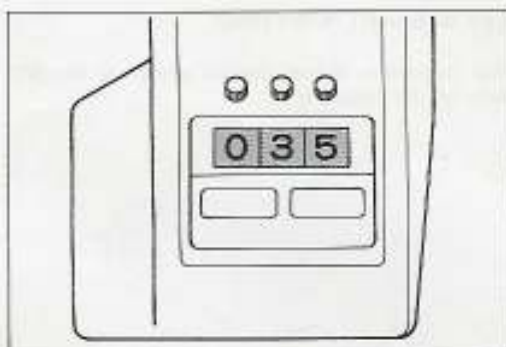
4. Check that the yarn is not caught by the hook of the Cast-on Comb and moves smoothly in the Yarn Guide.



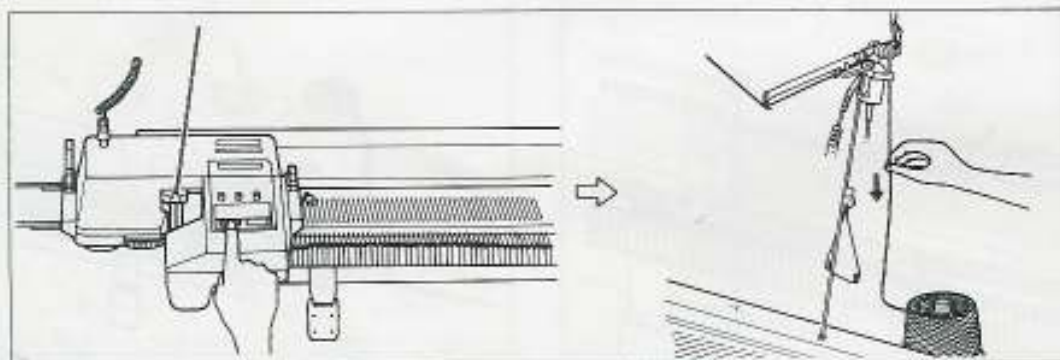
5. Pass the yarn over this side of the Rubber wheel pulling it up slightly.



6. Set the Levers as illustrated and the Tension Dial according to the yarn being used. (Refer to page 6.)



7. Set the Row Counter to the number of rows you want to knit (for example 35 rows).  
\* Moving the Carriage Direction Lever alters the Row Counter.

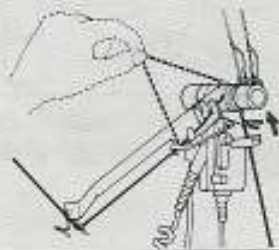


8. Push the Start Button. Then, pull the yarn from underneath the Sensor until the first stitch is knitted.

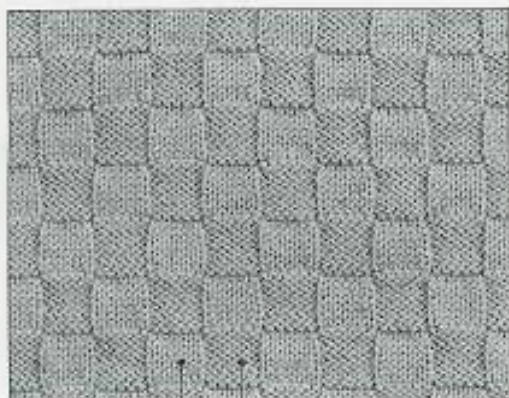
#### NOTE

The G-Carriage will knit in rib for 35 rows and then stop automatically when the Row Counter shows 000.

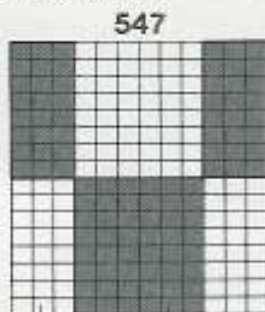
- WHENEVER YOU PUSH THE START BUTTON... In order to keep the tension even pull the yarn from underneath the Sensor until the first stitch is knitted.
- If there is a knot in the yarn the Sensor will stop the G-Carriage. Pull out the knot and ensure that the yarn will continue to run through the machine smoothly then push the Start Button.



## (4) G-STITCH PATTERN DESIGNS



- You can knit a variety of G-Stitch pattern designs from "Stitch World" or you can input your own G-Stitch pattern designs.



KH Needle makes the stitch  
G-Needle makes the stitch

### LET'S KNIT G-STITCH PATTERN DESIGNS

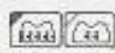
#### PATTERN PROGRAM

(When using KH-930)

- ① Turn off all the Variation Lamps.



- ② Turn on the Selector (1) Lamp.



- ③ Push the Step Key.

- ④ Enter the Pattern No. 547 after deleting the number by the CE Key.



- ⑤ Push the Step Key.

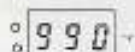


- ⑥ Push the Step Key.



(When using KH-950)

- ① Enter the Mode No. 990.



- ② Push the M Key.

- ③ Set all Pattern Variation Switches at the lower position.

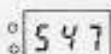


- ④ Set the Pattern Selector Switch at the lower position.



- ⑤ Push the M Key.  
PATTERN NO.

- ⑥ Enter the Pattern No. 547.



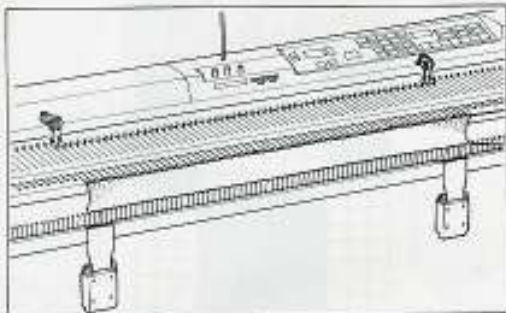
- ⑦ Push the M Key.



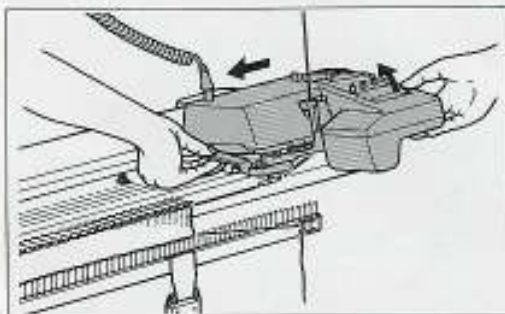
- ⑧ Push the CF Key.

## LET'S START KNITTING

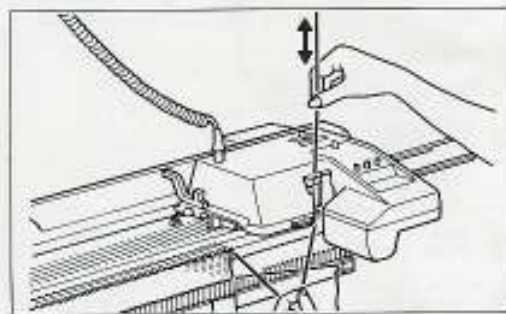
The illustration shows the G-Carriage at the right of the machine.



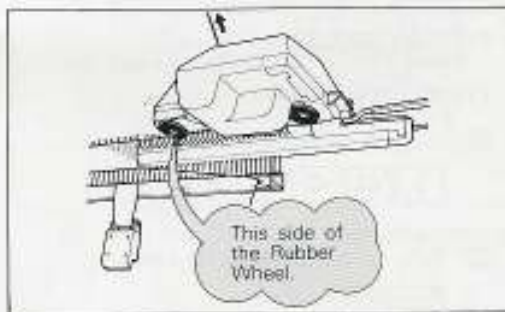
1. Hang the Claw Weights on the Cast-on Comb, place the G-Point Cams (for 1 stitch) in the needle tracks of the end needles.



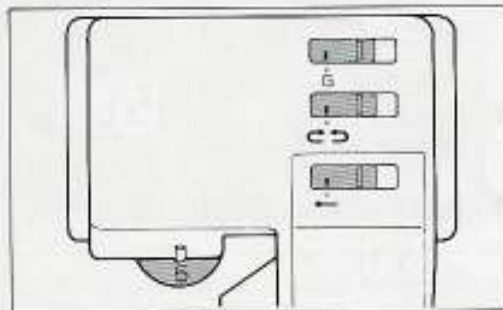
2. Lift the front of the G-Carriage and move it to the right edge of the swatch by pulling it with your left hand. (Ensure that the G-Lamp or Pattern Position Lamp is lit.)



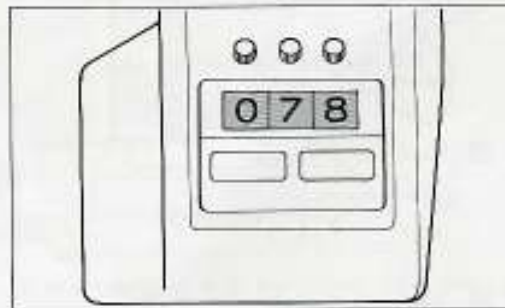
3. Check that the yarn is not caught by the hook of the Cast-on Comb and moves smoothly in the Yarn Guide.



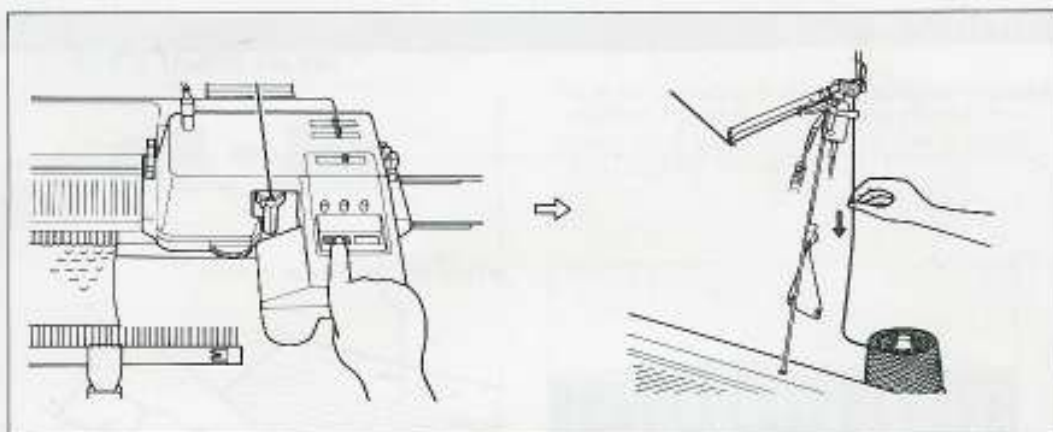
4. Pass the yarn over this side of the Rubber Wheel pulling it up slightly.



5. Set the Levers as shown in the figure and the Tension Dial according to the yarn. (Refer to page 6.)



6. Set the Row Counter to the required number of rows (for example 78).



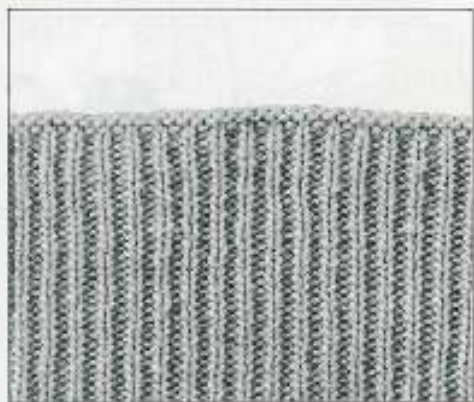
7. Push the Start Button. Then pull the yarn from underneath the Sensor until the first stitch is knitted.

The G-Carriage knits the G-Stitch pattern design for 78 rows and stops when the Row Counter reads 000.

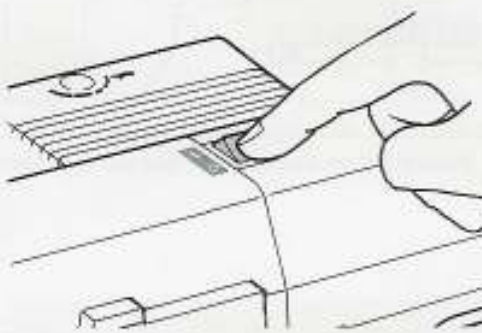


## (5) CASTING-OFF

BEFORE CASTING-OFF

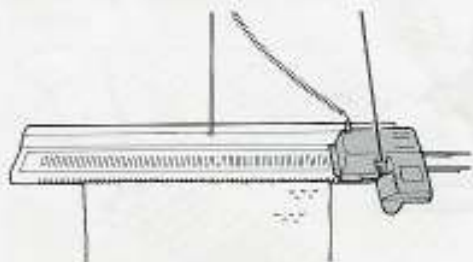


- Turn off the Power switch.

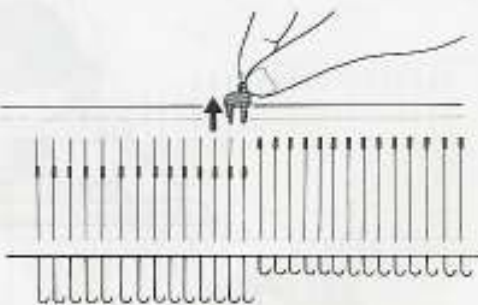


Check that the Power is OFF. If the power is on the G-Carriage will only cast-off black squares. REMEMBER TO TURN THE POWER OFF TO CAST-OFF.

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

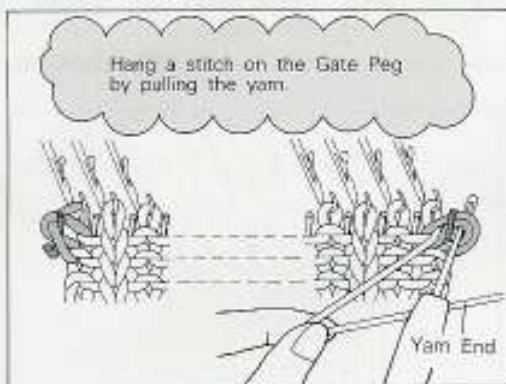


- Remove the G-Point Cams when casting-off.

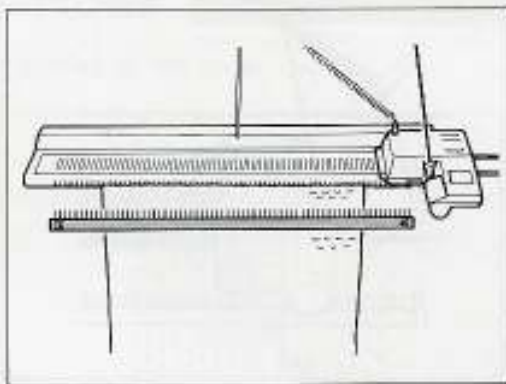




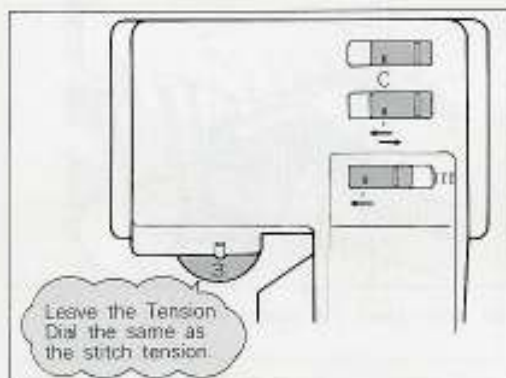
## LET'S CAST-OFF



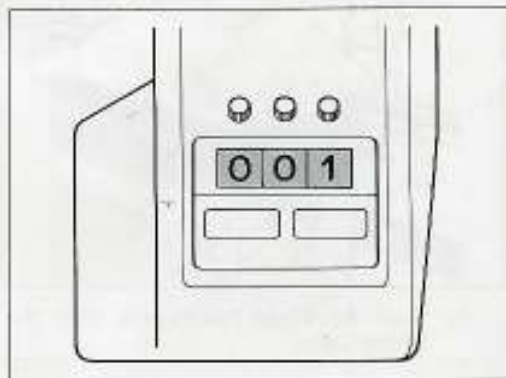
1. Pick up the under stitches of both end stitches and hang them onto the Gate Pegs as shown in the figure. (This is to prevent the knitting swatch from curling when casting-off.)



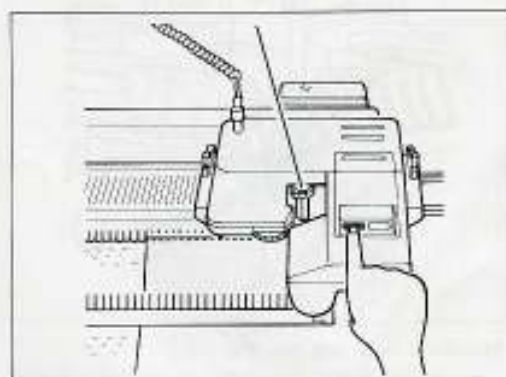
2. Hang the Cast-on Comb about 5 cm from the Gate Pegs. (Take off the Claw Weights.)



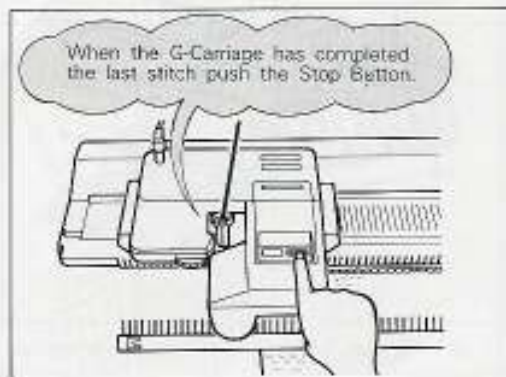
3. Set the Levers as shown in the figure.



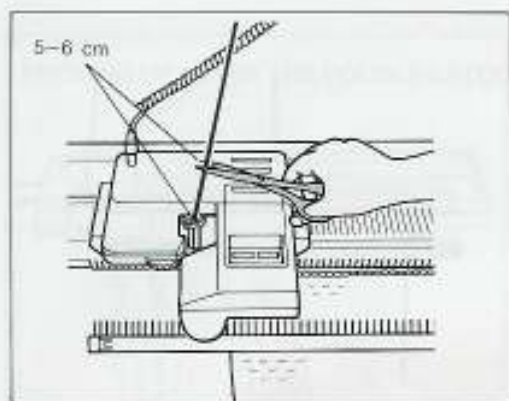
4. Set the Row Counter to 001.



5. Ensure that the yarn is threaded through the Yarn Guide and push the Start Button.

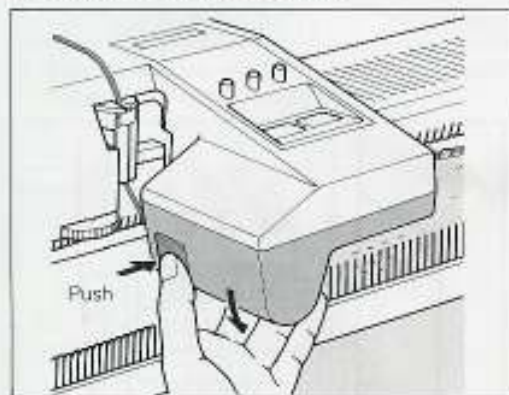


6. Push the Stop Button after the G-Carriage has completed the cast-off.

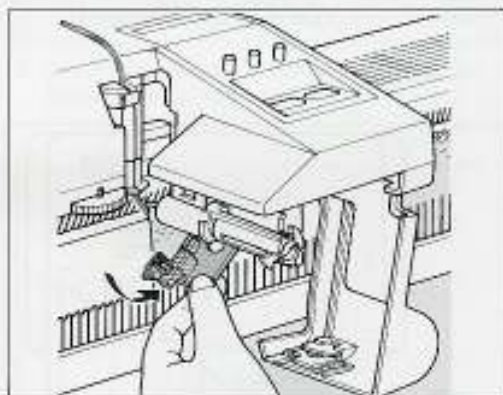


7. Cut the yarn.

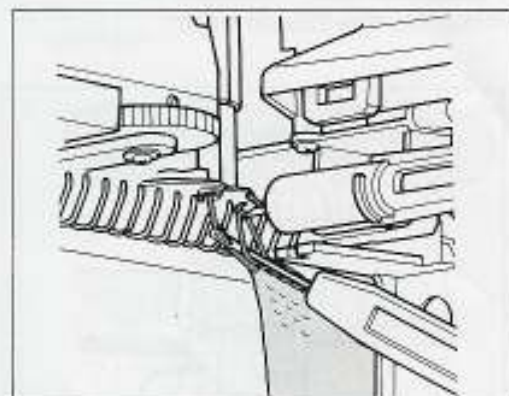
8. Take off the knitting switch.



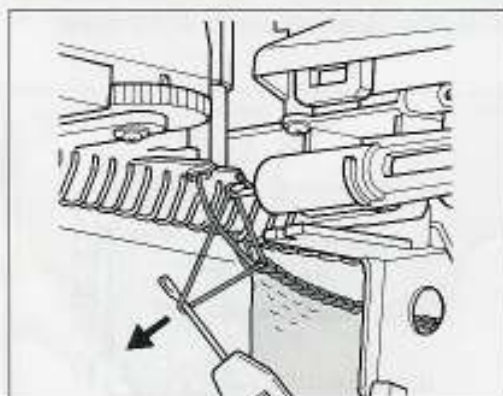
(1) Push the Cover Button and open the Lower Cover.

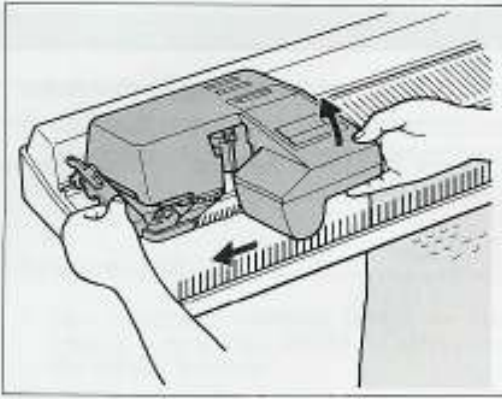


(2) Pull down the Sinker Plate.

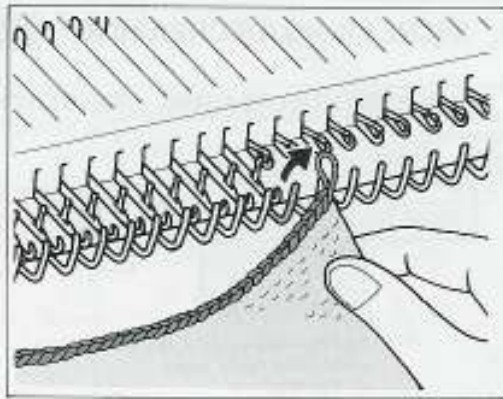


(3) Put the Transfer Tool into the stitch on the Needle-G and pull out the yarn.



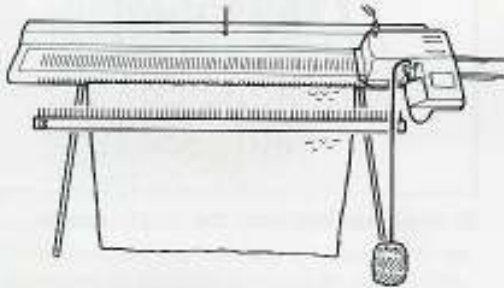


(4) Close the Lower Cover and move it to the left side by pulling up the front part of the G-Carriage.

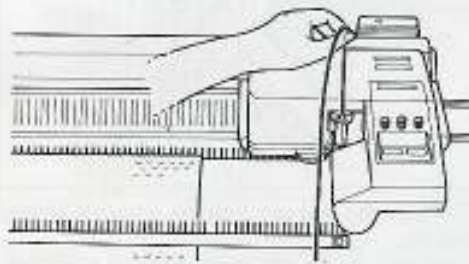


(5) Take off the Cast-on Comb and remove both the end stitches on the Gate Pegs.

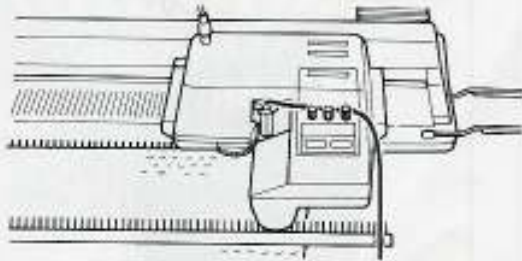
WHEN YOU WANT TO MAKE A LOOSE CAST-OFF



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



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



3. After a few stitches have been cast-off place the yarn behind the knobs of the Row Counter.

# BASIC TECHNIQUES

## 1. INCREASING/DECREASING

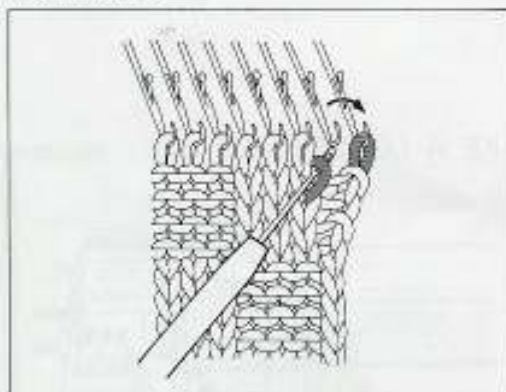
### INCREASING/DECREASING ONE STITCH



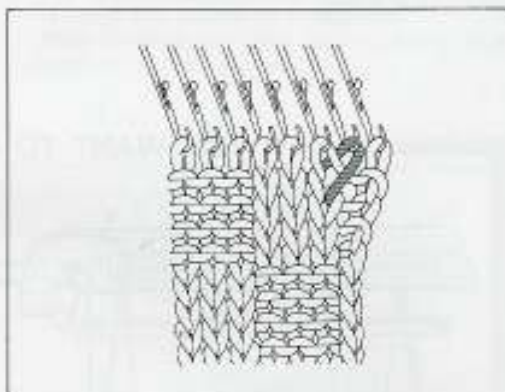
You can increase or decrease a stitch on both sides of the machine.

As you increase or decrease stitches move the G-Point Cam.

### INCREASING

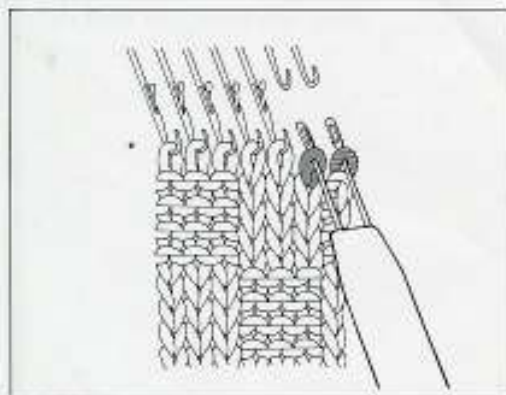


1. Transfer the end stitch to the adjacent empty needle. Then pick up the loop below the 2nd end stitch as shown in the illustration.

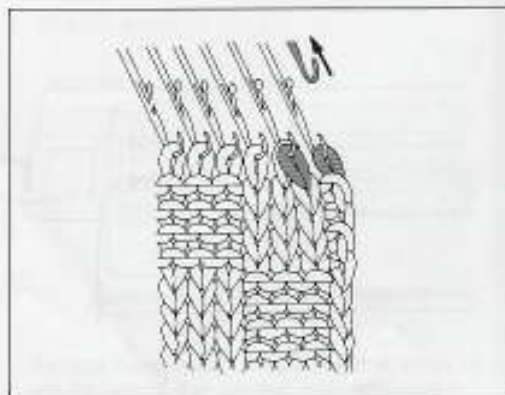


2. Hook the loop onto the empty needle.

### DECREASING



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

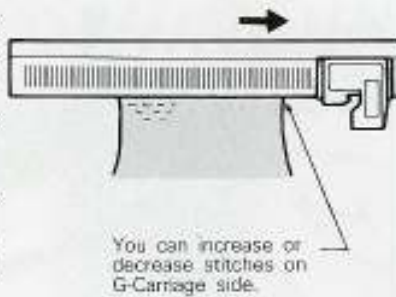


2. Transfer the two stitches one needle inside of the knitting swatch and push back the empty needle to A position.

## INCREASING/DECREASING MORE THAN TWO STITCHES

### Before increasing or decreasing .....

1. While the G-Carriage is knitting the row on which you wish to decrease switch the Automatic Return Lever to " ← ".
2. When the G-Carriage has cleared the knitting push the Stop Button.

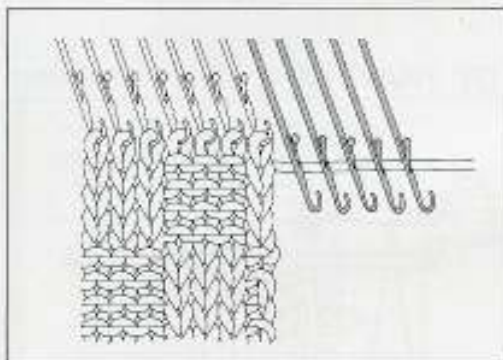


You can increase or decrease stitches on G-Carriage side.

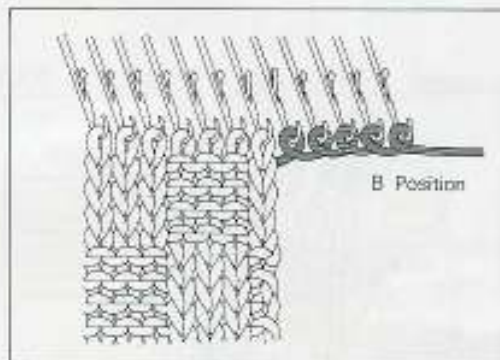
### To knit the next row .....

1. Now increase or decrease. Switch the Automatic Return Lever to " → " and set the G-Carriage Direction Lever to the correct direction.
2. Push the Start Button.

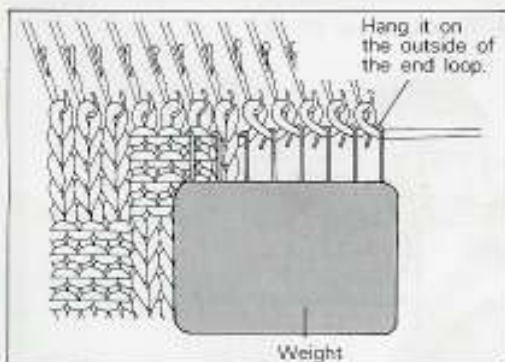
## INCREASING



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

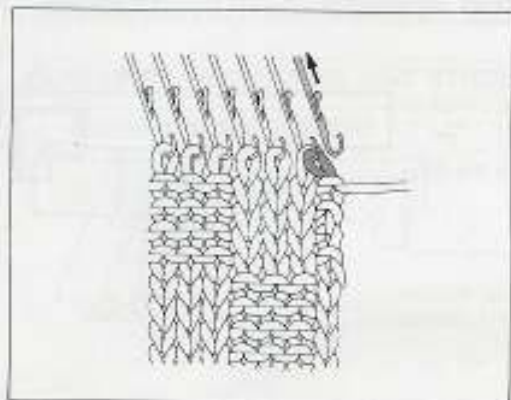


2. Wind the yarn in the hook loosely and align the needles in B position.

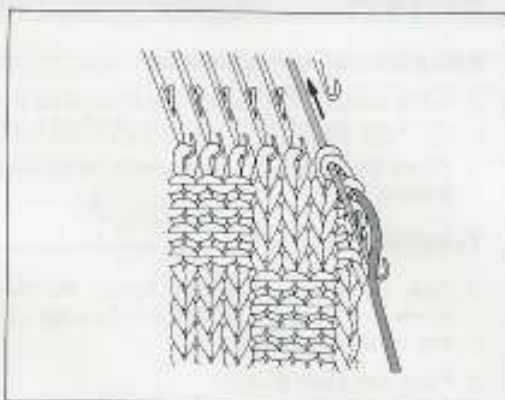


3. Hang the weight onto the loops as illustrated.

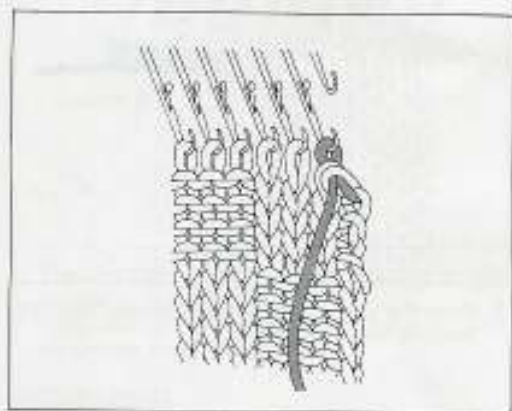
**DECREASING**



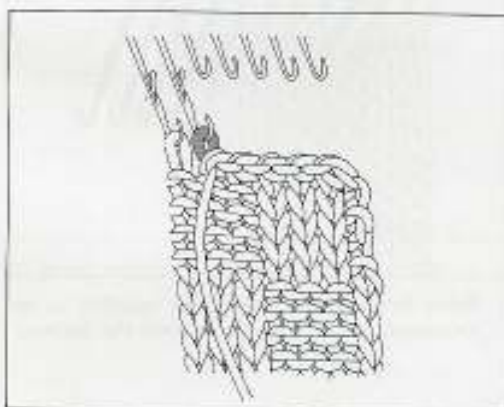
1. Hook the end stitch onto the adjacent needle and push back the empty needle to A position.



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.



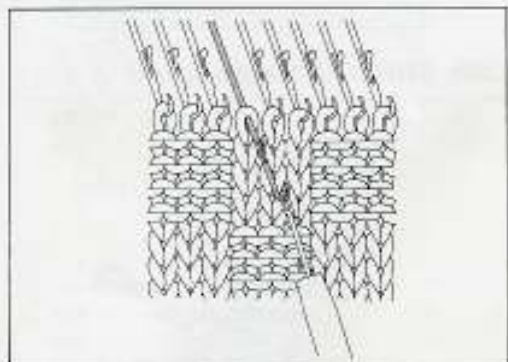
3. You have decreased one stitch.



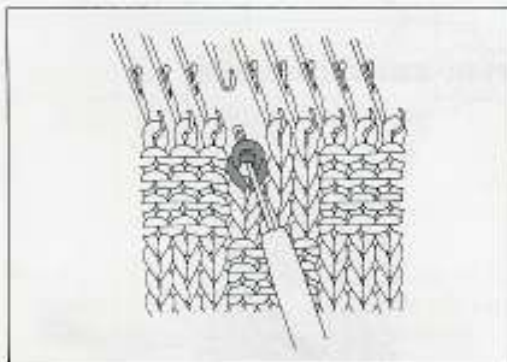
4. Repeat steps. (1~3)

## 2. HOW TO UNRAVEL AND PICK UP STITCHES

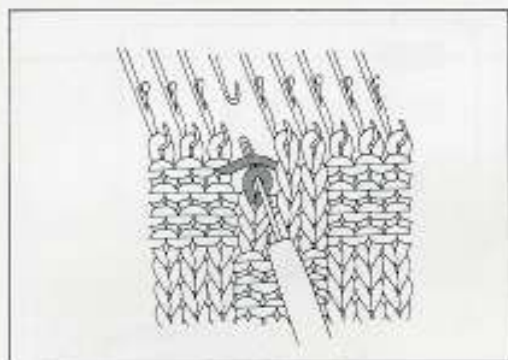
**UNRAVELLING** (When there are plain and purl stitches in the same row.)



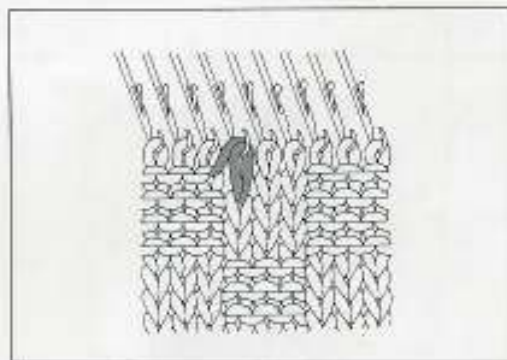
1. Arrange the needles in B position using the Transfer Tool, if necessary.



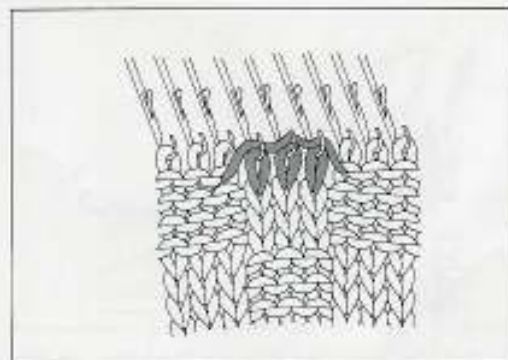
2. Insert the Transfer Tool into the stitch under the plain stitch made by the G-Needle and take it onto the Transfer Tool.



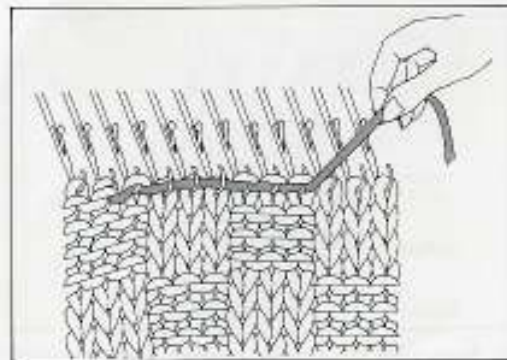
3. Push down the Transfer Tool slightly and unravel one row.



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



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



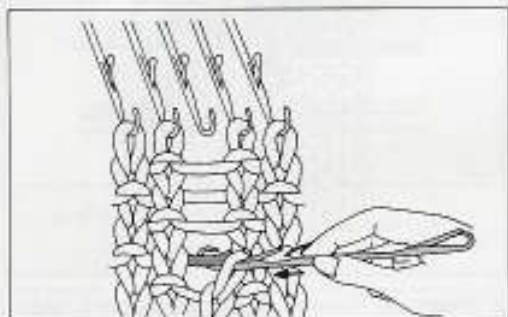
6. Then pull the yarn end slightly sideways and up to unravel the purl stitches and clear the yarn.

**\*PICKING UP USING THE DOUBLE LATCHET TOOL**

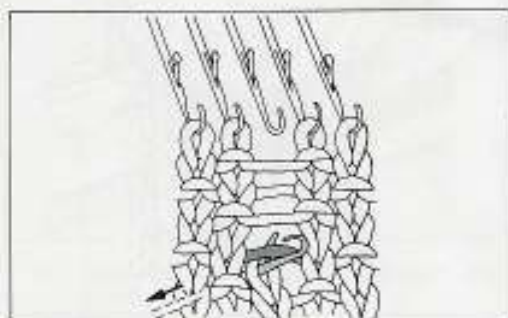


Double Latchet Tool

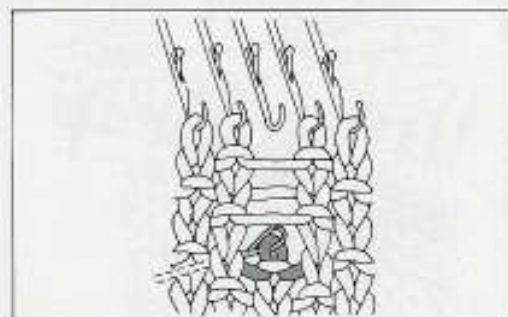
**PURL STITCH (KH stitch)**



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

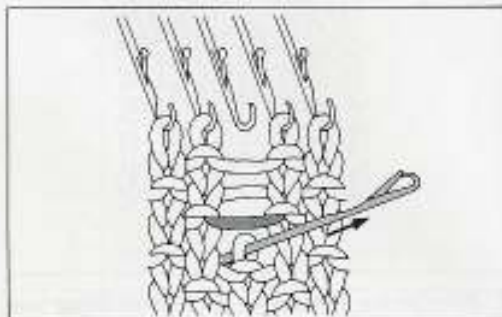


2. Catch the horizontal loop with the hook and pull backwards.

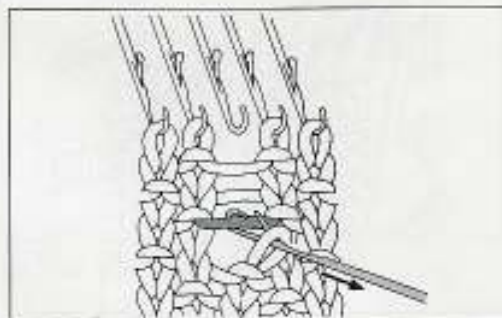


3. Push back the Double Latchet Tool to form a purl stitch.

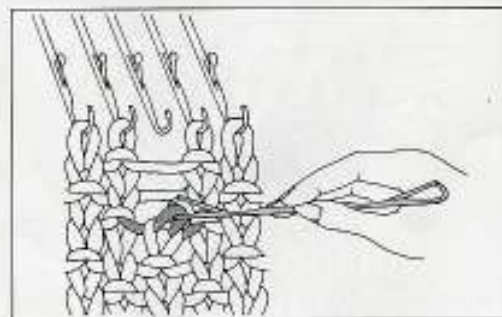
**PLAIN STITCH (G-Needle stitch)**



4. Insert the Double Latchet Tool and pull it backwards as illustrated.



5. Catch the next horizontal loop with the hook.

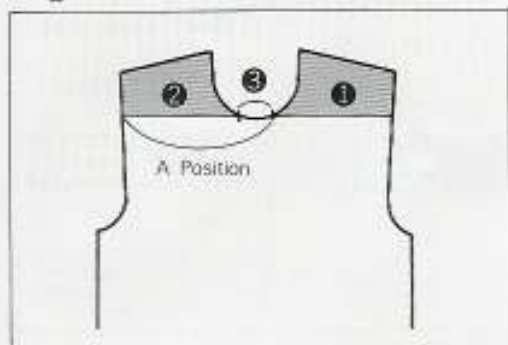


6. Pull the new yarn through the stitch on the stem to form a plain stitch.



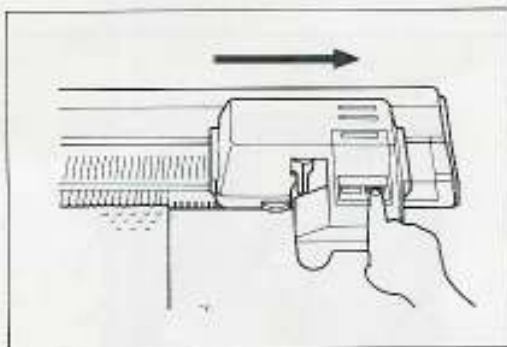
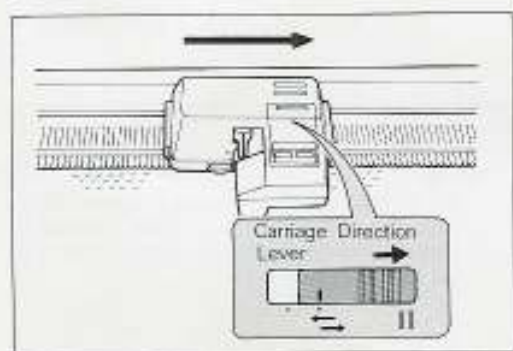
### 3. HOW TO SHAPE A NECK LINE

#### ① WHEN USING KH-930



\*It is not possible to place needles in D (Upper Working Position) or E (Holding Position) when using the G-Carriage. You must use A position (Non-working Position).

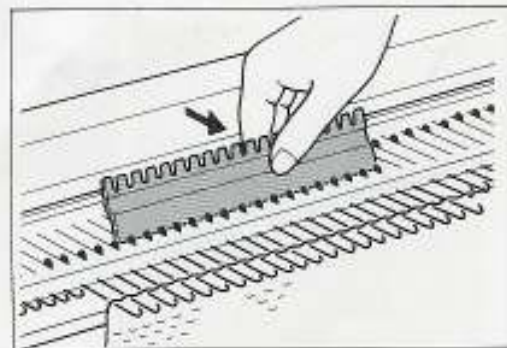
1. Stop the G-Carriage at the point where you must divide for the neck.



While the G-Carriage is knitting the last row before you must divide for the neck...

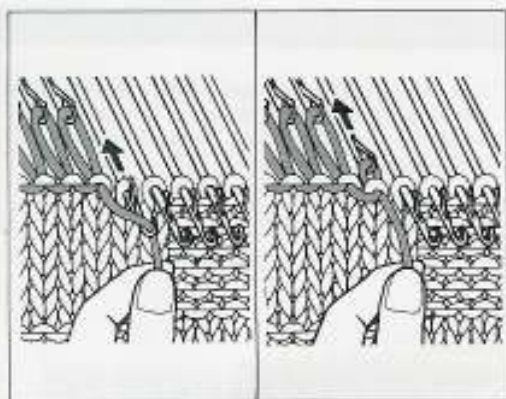
- (1) Switch the Automatic Return Lever to "II".

- (2) When the G-Carriage clears the knitting push the Stop Button.

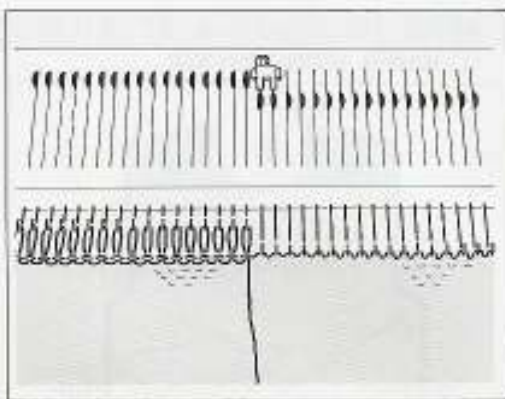


2. Push the M key. (Lamp is lit.) The Computer memorizes all the data about the row where you began the neckline division.

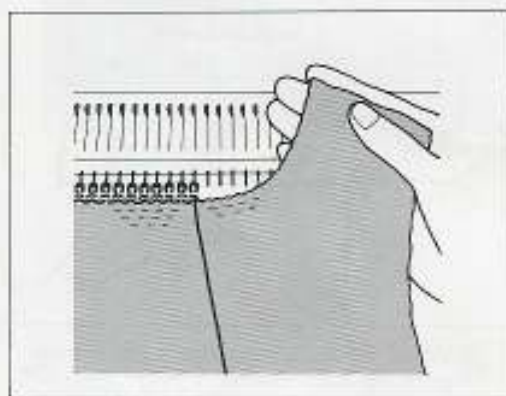
3. Take off part ② and ③ using the Cast-on Thread in the following way.  
(1) Bring forward the needles to E position.



(2) Place the Cast-on Thread into the hooks of the needles and push back to A position.

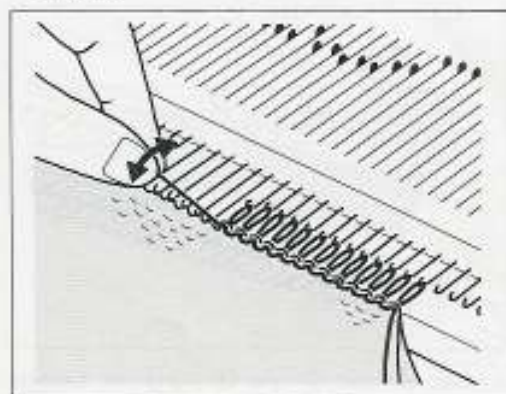


(3) The needles in A position will not knit.

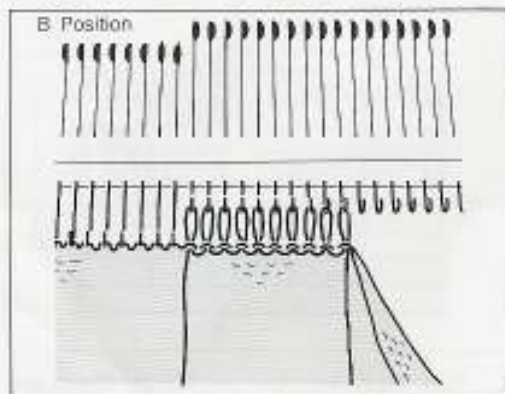


4. Knit the right shoulder first.  
Shape the shoulder line by decreasing the stitches.

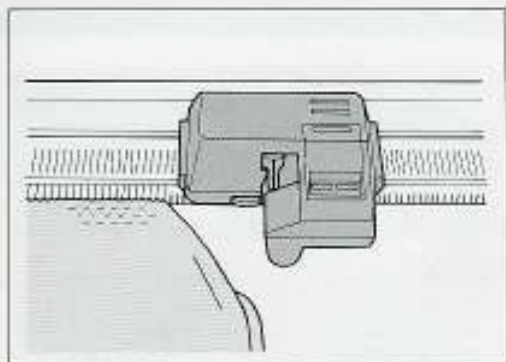
**NOTE:**  
When the knitting is narrow it is possible that the Knit-Leader and Row Counter trippers may not be triggered, so you must do this by hand.



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



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

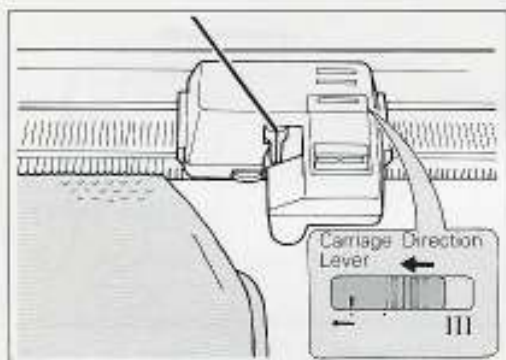


7. Set the G-Carriage at the right side of the knitting.

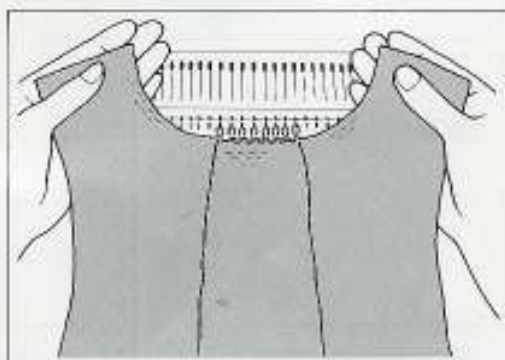
\*Set the Knit-Leader back to the point where the neck division began.



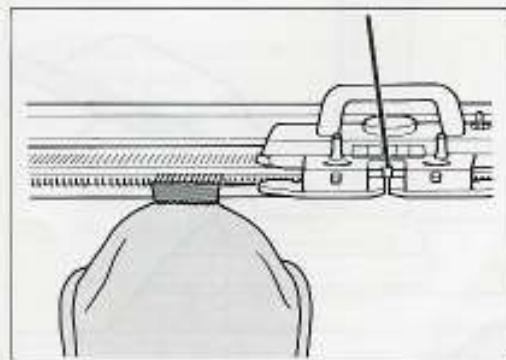
8. Push the M Key (the Lamp goes out).  
(All the data relating to the pattern is now ready for use.)



9. Thread the Yarn Guide. Switch the Carriage Direction Lever to "←". Push the Start Button.



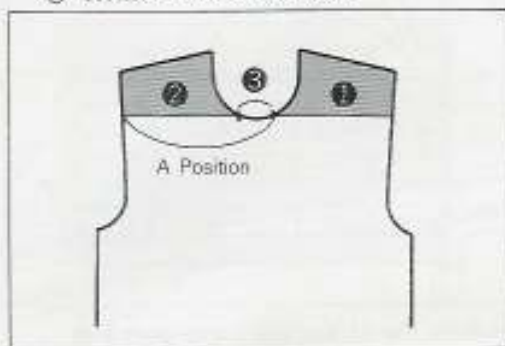
10. Knit the left shoulder to match reversing shapings.



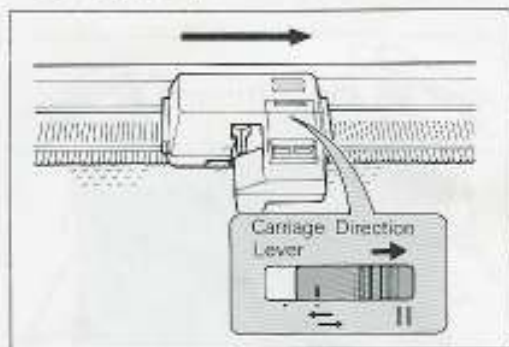
11. As for part ③ cast-off with waste yarn by using the K-Carriage.

### 3. HOW TO SHAPE A NECK LINE

#### ② WHEN USING KH-950

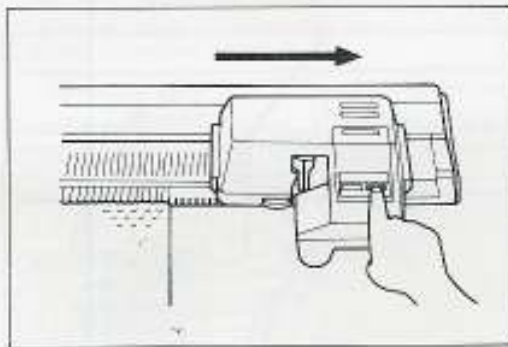


1. Stop the G-Carriage at the point where you must divide for the neck. (The G-Carriage is on the right of the needlebed.)

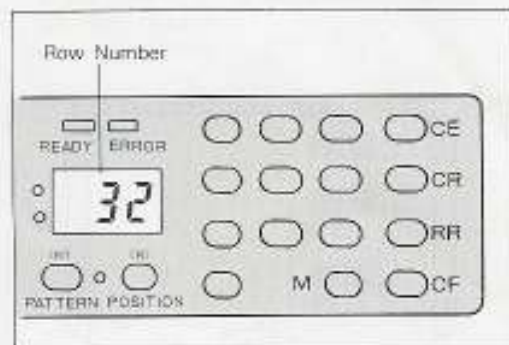


While the G-Carriage is knitting the last row before you divide for the neck...

- (1) Switch the Automatic Return Lever to "II".

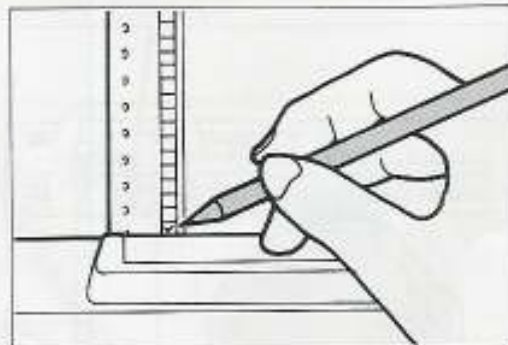


- (2) When the G-Carriage clears the knitting push the Stop Button.



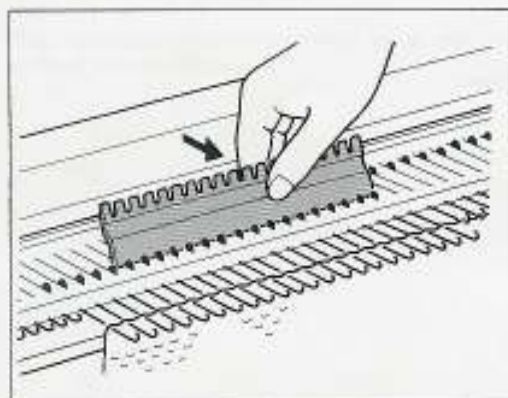
2. When you knit stitch design from "STITCH WORLD" remember the row number indicated in the Display.

\*When the Display indicates the memo data, change the display to see the row number by pushing the Green Key.

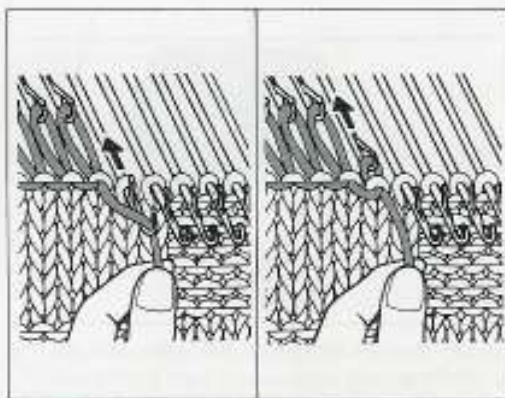


3. When knitting with the pattern card, place a mark in the L-window of the pattern card.

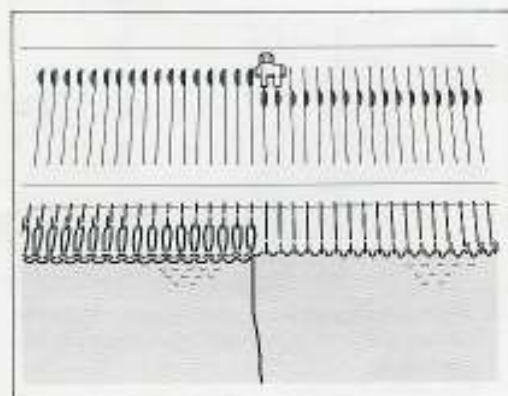
- \*It isn't possible to put needles in D (Upper Working Position) or E (Holding Position) when you use the G-Carriage. You must therefore use A position (Non-working Position).
- \*When you are working in Double Length Pattern (No. 4 Variation Switch), your last row before you separate for the neck should be an even number row.
- \*When you are knitting a Reflection Pattern (No. 5 Variation Switch) don't forget which direction you are knitting in (i.e. from top to bottom, or bottom to top).



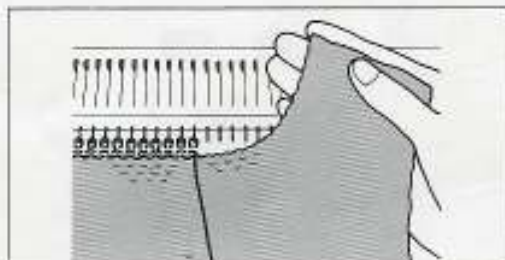
3. Take off part ② and ③ using the Cast-on Thread in the following way.  
 (1) Bring forward the needles to E position.



- (2) Place the Cast-on Thread into the hooks of the needles and push back to A position.



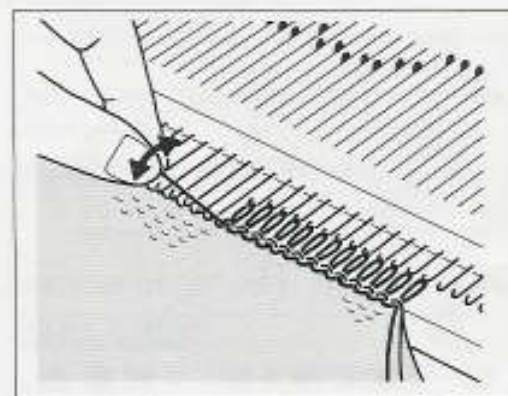
- (3) The needles in A position will not knit.



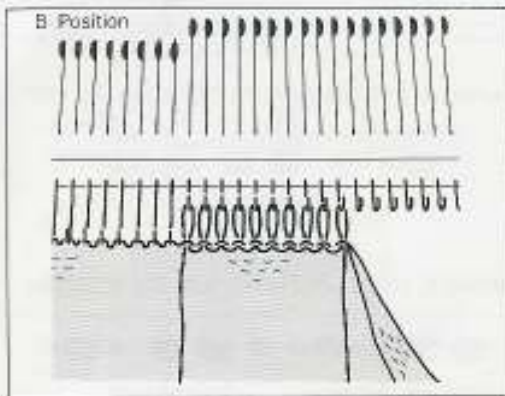
4. Knit the right shoulder first.  
 Shape the shoulder line by decreasing the stitches.

**NOTE:**

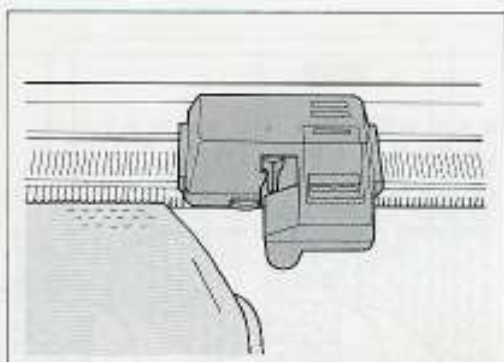
When the knitting is narrow it is possible that the Knit-Leader and Row Counter trippers may not be triggered, so you must do this by hand.



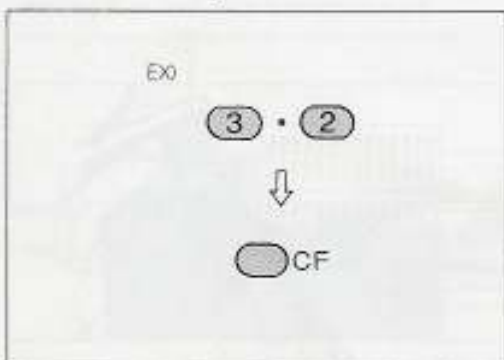
5. Unravel the Cast-on thread of part ② (left shoulder) and make sure all the stitches are in the hooks.



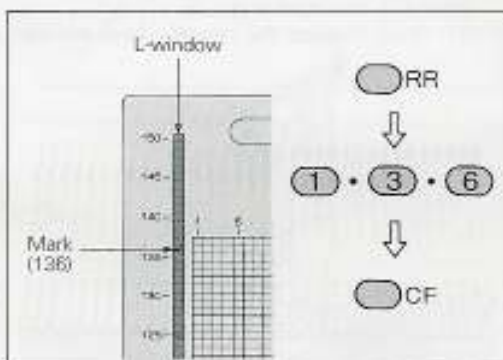
6. Arrange the needles of part ② to B position.  
 (Part ③ needles still remain at A position.)



7. Set the G-Carriage at the right side of the knitting.  
 \* Set the Knit-Leader back to the point where the neck division began.

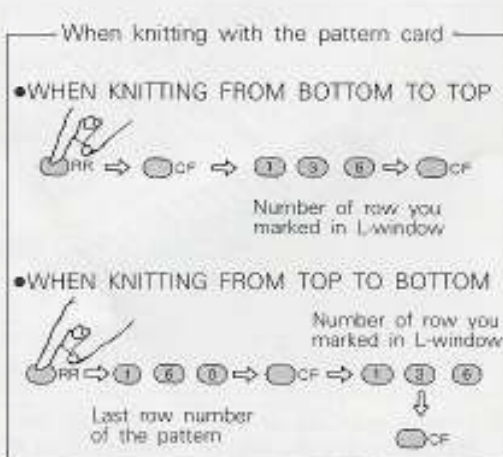
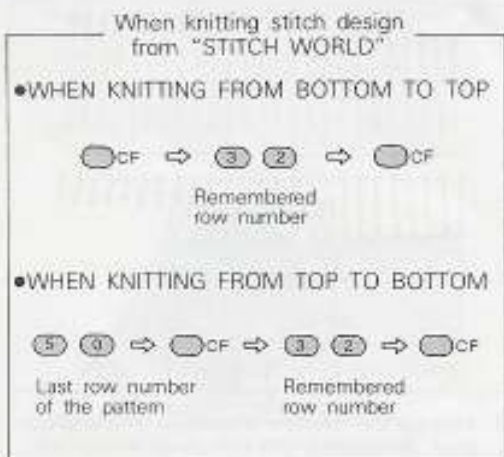


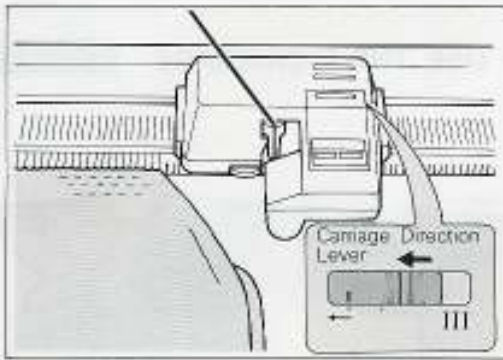
8. When knitting stitch design from "STITCH WORLD", enter the row number you remembered in Step 2 and push the CF Key.



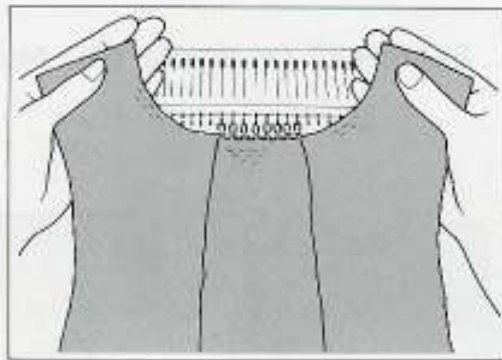
8. When knitting with the pattern card, return the pattern card to the mark you made in the L-window:  
 (1) Push RR Key.  
 (2) Enter the number of the row you marked and push CF Key.

— WHEN USING REFLECTION PATTERN VARIATION (Switch No. 5) —

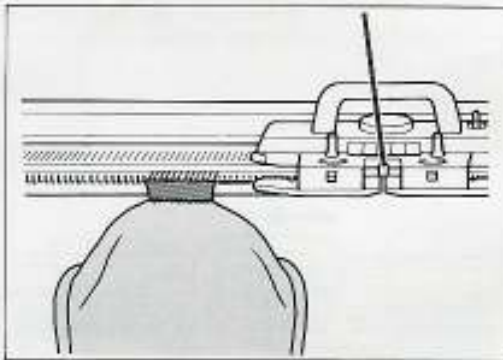




9. Thread the Yarn Guide. Switch the Carriage Direction Lever to " ← ". Push the Start Button.

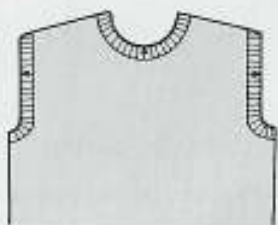


10. Knit the left shoulder to match reversing shapings.

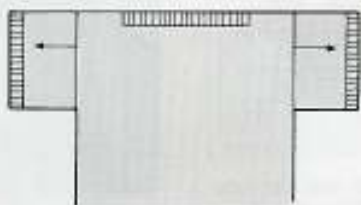


11. As for part ③ cast-off with waste yarn by using the K-Carriage.

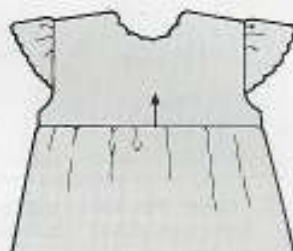
#### 4. EXAMPLES OF WHEN YOU MUST USE THE K-CARRIAGE



① When you pick up stitches to knit a neckband or armbands.

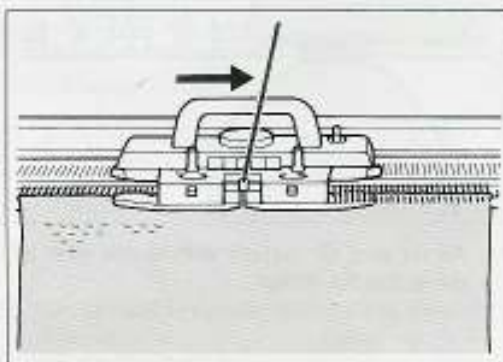


② When you pick up stitches to knit sleeves.

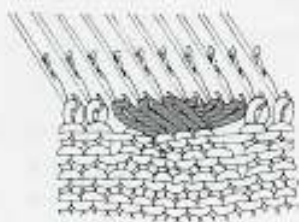


③ When you want to make gathers on a garment and hook more than two stitches on one needle.

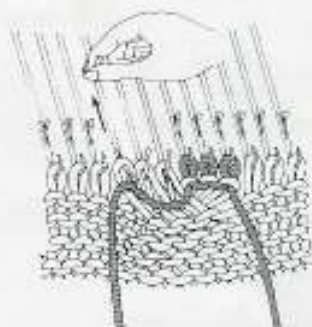
Bring forward the needles to E position and knit one row from left to right with the K-Carriage. Then operate the G-Carriage.



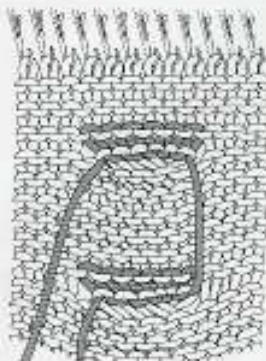
#### 5. CABLE KNITTING



1. Cross the stitches using the Transfer Tools.

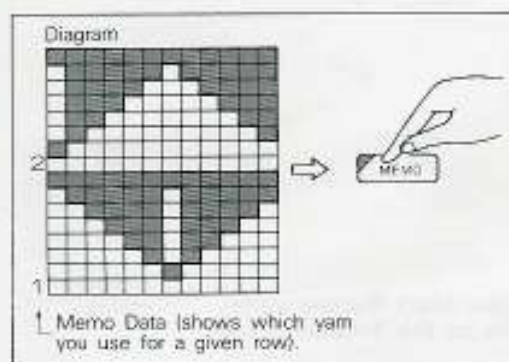


2. Knit the crossed stitches by hand (loosely) with the same yarn. Then operate the G-Carriage.

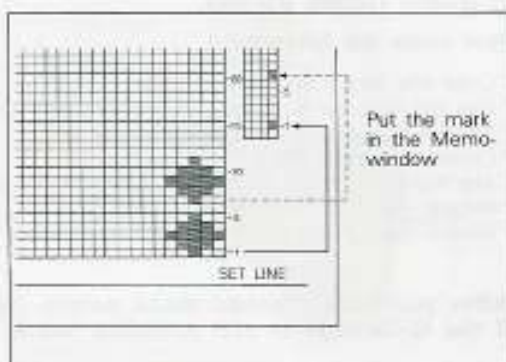




## 6. CHANGING THE YARN



(When using KH-930)  
Using the "Memo" Key enter instructions. (See KH-930 instruction Manual page 52.)



(When using the pattern card with KH-950)  
Mark the Memo-window where you want to change the yarn.

- When the Automatic Return Lever is set to "↔".

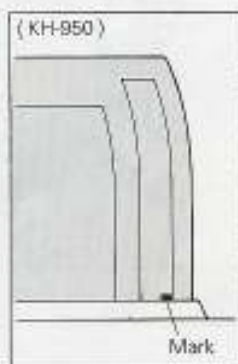
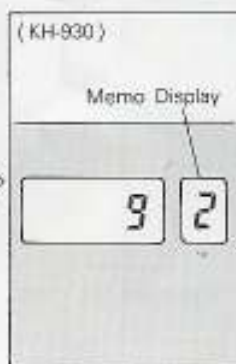


Observe the Memo Display or Memo-window when the Carriage Direction Lever changes.

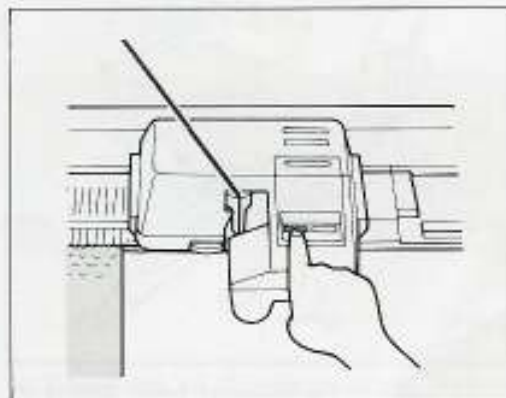
- When the Automatic Return Lever is set to "←".



Observe the Memo Display or Memo-window as soon as the G-Carriage starts after you change the Carriage Direction Lever.

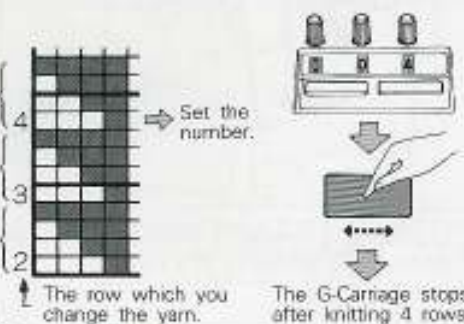


2. Stop the G-Carriage with the Stop Button as soon as the number you have entered comes up in the Memo Display (KH-930) or the mark in the Memo-window comes at the card inlet (KH-950).



### NOTE:

When the Automatic Return Lever is set to "↔" set the Row Counter to required number of rows before changing the yarn. The G-Carriage will stop automatically.



## USEFUL HINTS

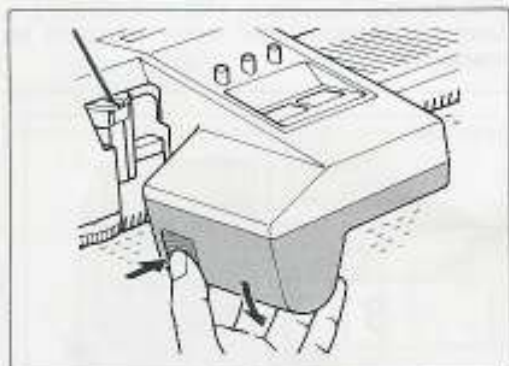
### 1. IF THE G-CARRIAGE SHOULD STOP

#### ① WHEN USING KH-930

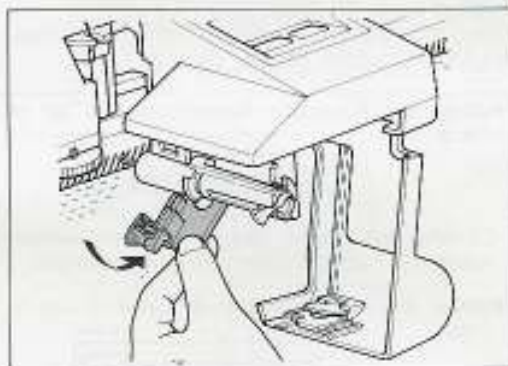
First check the following:

- \*Does the Row Counter read 000?
- \*Has the yarn run out and the Sensor Lever fallen?
- \*Are there any knots or tangles in the yarn?
- \*Check the Sinker Plate.
- \*Are there any knots or tangles under the Sinker Plate?
- \*Ensure the plug is firmly in position.
- \*Ensure the Levers are in the correct position.

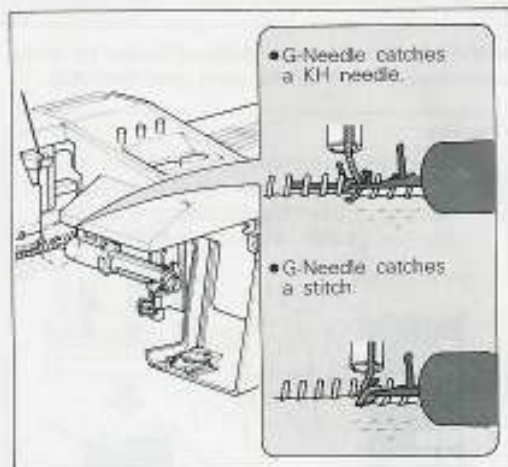
After you have checked those points, push the Start Button again.  
If the G-Carriage is still jamming, set it again as the following way.



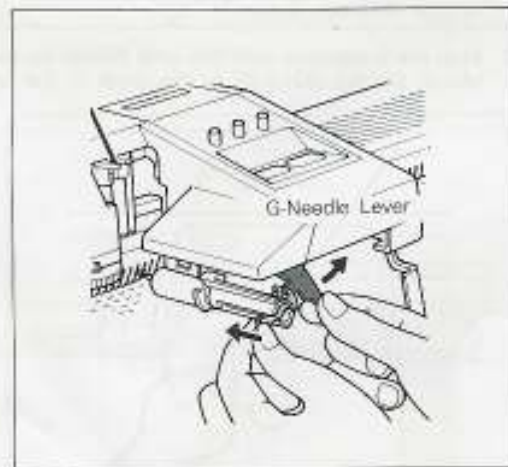
1. Push the Cover Button and open the Lower Cover.



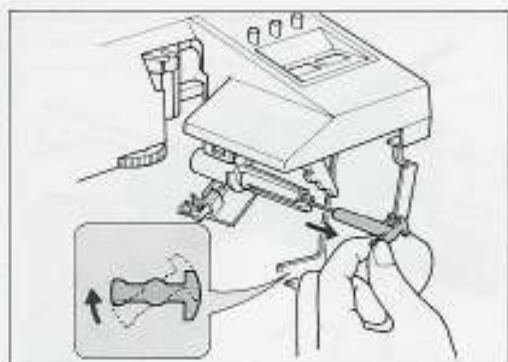
2. Release the Sinker Plate.



3. Check the G-Needle. If there are any tangles remove the G-Needle and re-adjust.



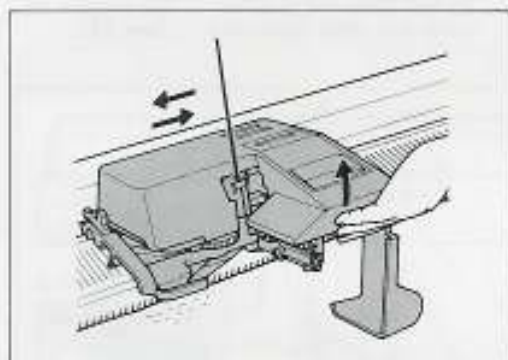
1) Take out the G-Needle Lever holding its plastic knob. Push the G-Needle into place.



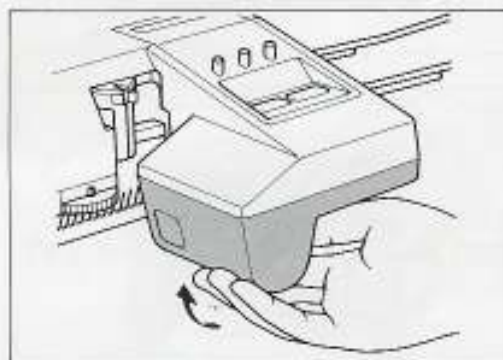
2) Pull the G-Needle out. Should it catch onto a KH needle, revolve the G-Needle to the right and pull it out horizontally.



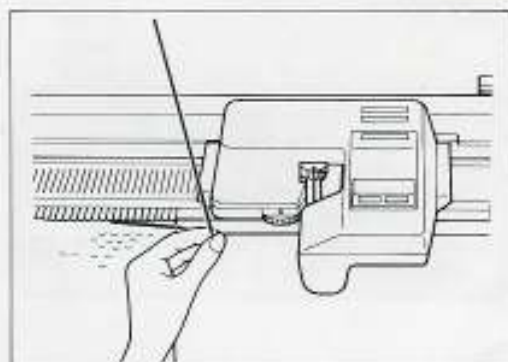
4. After checking the G-Needle (refer to page 42) place it back into position.



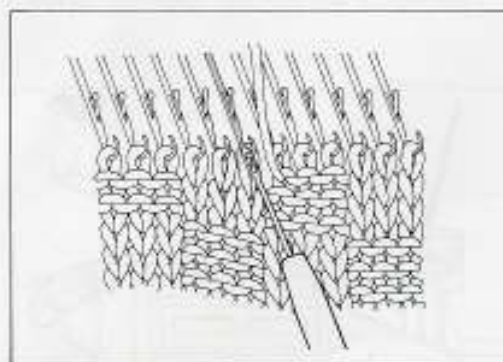
5. Lift the front of the G-Carriage and move it in the direction that the Carriage Direction Lever indicates and position it clear of the knitting.



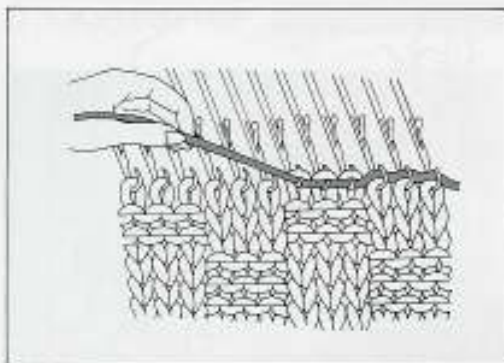
6. Close the Lower Cover.



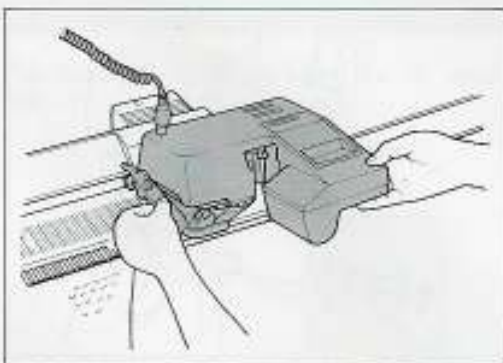
7. Take out the yarn from the Yarn Guide.



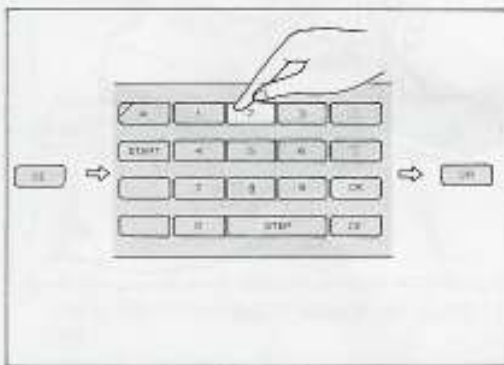
8. If the stitches are out of the hooks, put them in the hooks by using the Transfer Tool.



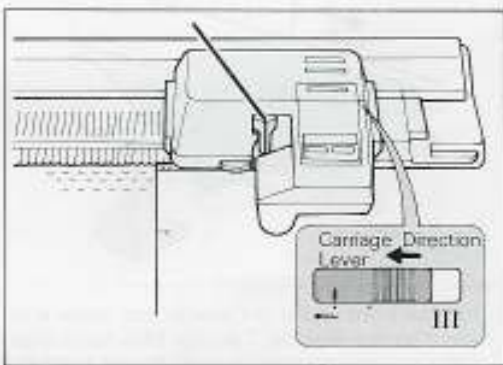
9. Refer to page 29 and unravel the row where the G-Carriage has jammed and remember the number of rows you have unravelled. Make sure all the stitches are in the hooks and align the needles at B position.



10. Should the yarn be at the opposite side of the knitting to the G-Carriage, move the G-Carriage to the yarn and place it outside the Turn Mark. (In this case add one row to the number of rows you have unravelled ... See 11.)



11. Enter the number of unravelled rows after pushing CE key and push down the CR Key.



12. Thread the yarn in the Yarn Guide and set the Carriage Direction Lever.



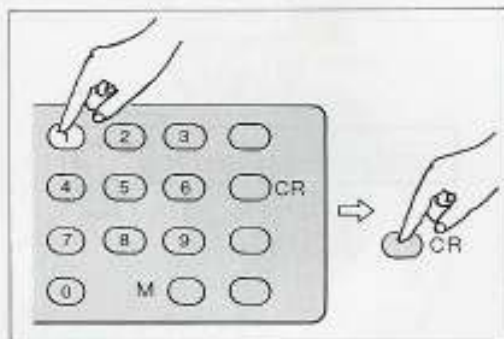
13. Adjust the Row Counter and the Knit-Leader. Then start knitting.

- When you unravel with the G-Carriage placed clear of the knitting. Follow the step 5, 7, 8, 9, 10, 11, 12 and 13.
- \* Should the yarn be at the opposite side of the knitting to the G-Carriage in Step 7, add one row to the rows you have unravelled ... See 11.

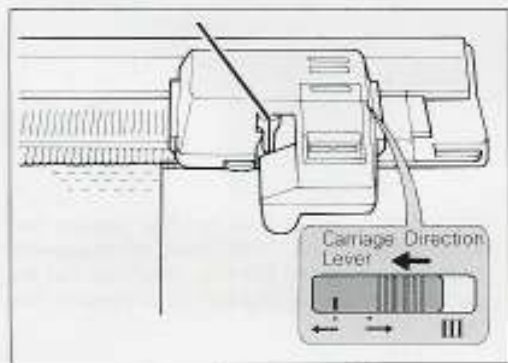
## 1. IF THE G-CARRIAGE SHOULD STOP

### ② WHEN USING KH-950

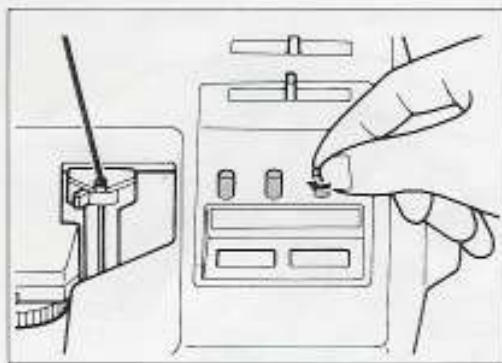
1. Follow the step 1-9 on p.40-42.



10. Enter the number of unravelled rows and push the CR Key.



11. Place the G-Carriage on the same side of the needlebed as the yarn end and set the Carriage Direction Lever.



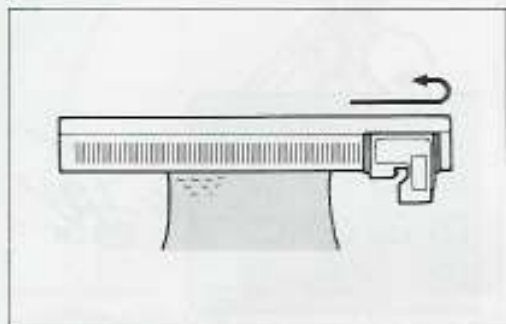
12. Make the appropriate adjustments to the G-Carriage Row Counter and Knit Leader. Now begin knitting again.

●When you unravel with the G-Carriage placed clear of the knitting

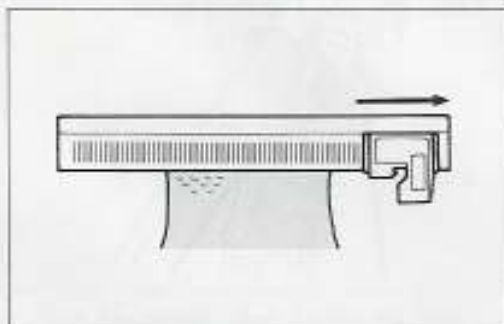
- ① Follow the step 5, 7, 8 and 9 on p.41-42.  
\* Should the yarn be at the opposite side of the knitting to the G-Carriage in step 7, add one row to the rows you have unravelled. See 10 (on this page).
- ② Follow the step 10-12 on this page.

## 2. TURNING OFF THE POWER MID KNITTING

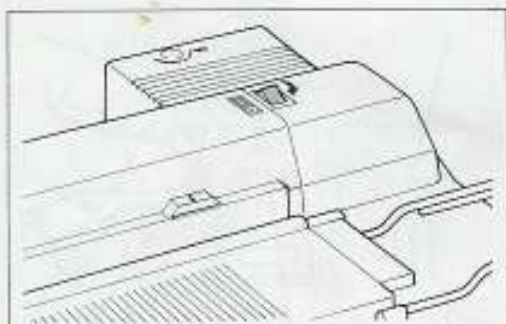
1. Stop the G-Carriage after it has completed the last row required.



•When the Automatic Return Lever is set to "←" stop it after its moving direction has changed.



•When the Automatic Return Lever is set to "→" stop it just as it clears the knitting.

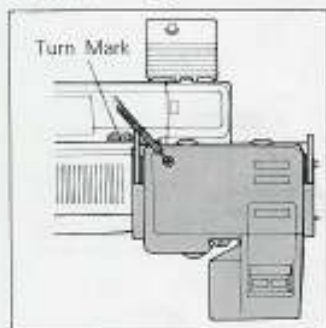


\*When you want to take out the pattern card whilst knitting with KH-950, turn off the switch without pushing the RR Key. Then take out the pattern card by turning the Card Feeding Dial back.

2. Turn off the Power Switch.

**\*To start knitting again.**

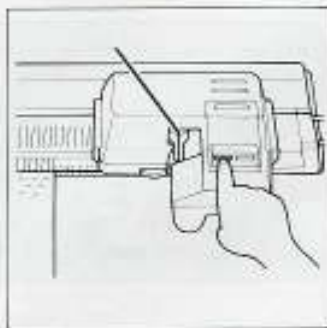
① When using KH-930 or not taking out the pattern card with KH-950



1. Place the G-Carriage outside the Turn Mark.



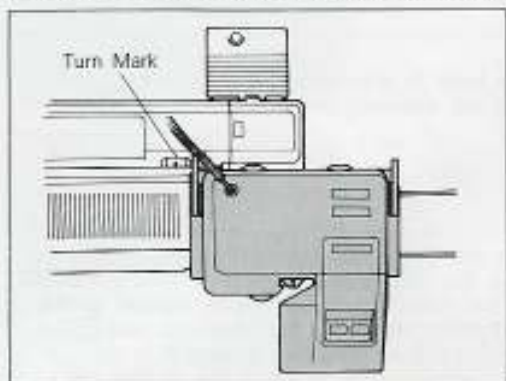
2. Turn the Power Switch on.



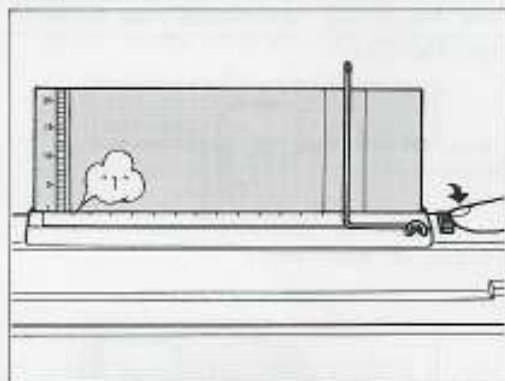
3. Move the G-Carriage to the edge of the knitting and ensure the G-Lamp or Pattern Position Lamp is lit.  
4. Set the Carriage Direction Lever and then start knitting.

\*To start knitting again.

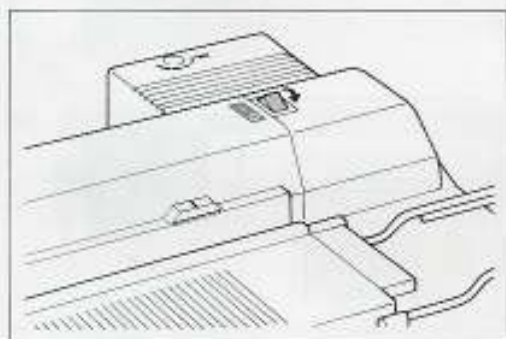
② When taking out the pattern card whilst knitting with KH-950



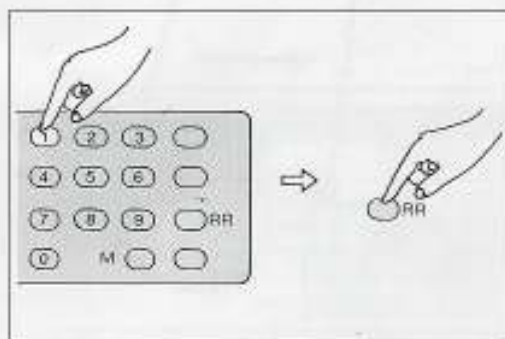
1. Place the G-Carriage outside the Turn Mark



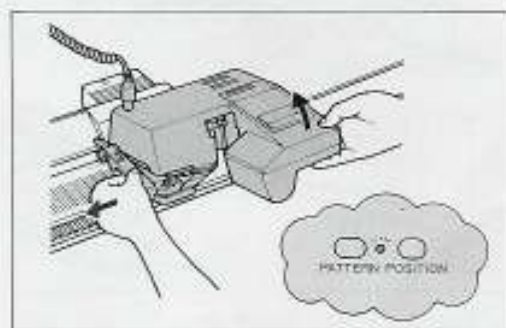
2. Insert the Pattern Card. Turn the Card Feeding Dial and set the Card on the 1st row in the L-window.



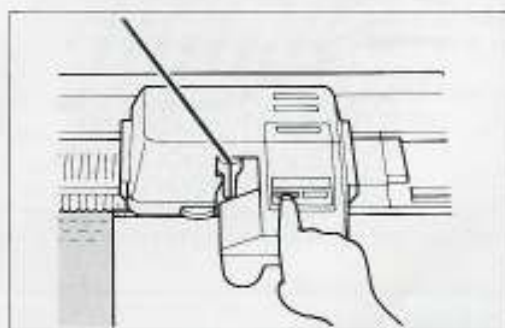
3. Turn the Power Switch on.



4. Enter the number shown in the L-window ① and push the RR Key. The Card should return to the correct position for you to start knitting again, as it will have memorised which row number you were on.



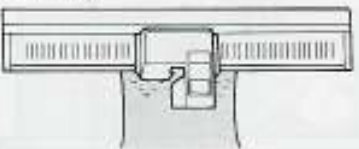

5. Move the G-Carriage to the edge of your knitting. Make sure the Pattern Position Lamp is lit.

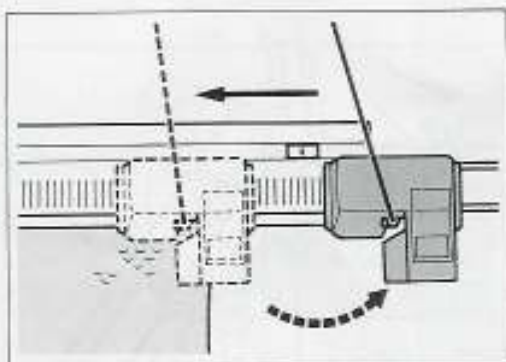


6. Set the Levers and start knitting again.

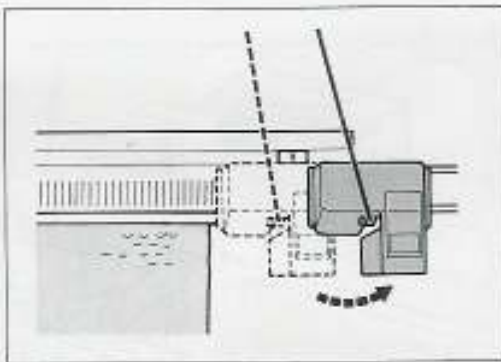
### 3. WHEN THE POWER IS CUT OFF MID KNITTING

First check your position.

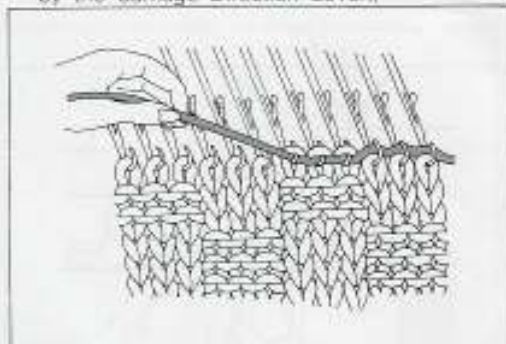
<p>THE PLACE THE G-CARRIAGE HAS STOPPED</p> <p>MID KNITTING</p> 	<p>you have to unravel a row. Use the following procedure.</p>
<p>CLEAR OF KNITTING</p> 	<p>You don't have to unravel the row. Skip the Step 2 and 4.</p> <ul style="list-style-type: none"> <li>• But when the G-Carriage is moving to the knitting switch in "↔" position, push <b>CR</b> → <b>←</b> as explained in Step 4. (The machine may count this as one row.)</li> </ul>



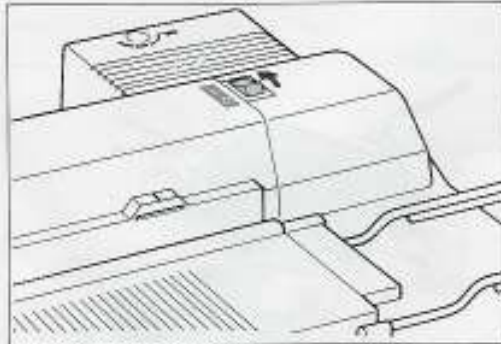
1. Move the G-Carriage to outside the Turn Mark. Should the G-Carriage be in the middle of the knitting take it back to the beginning of the row. (The opposite direction to what is shown by the Carriage Direction Lever.)



\* Should the G-Carriage be clear of the knitting move it further away regardless of the direction the G-Carriage is moving.

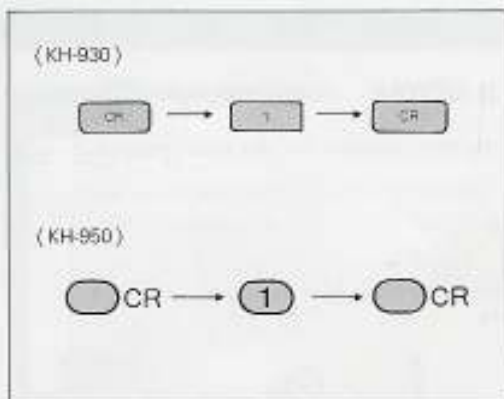


2. Unravel the row.

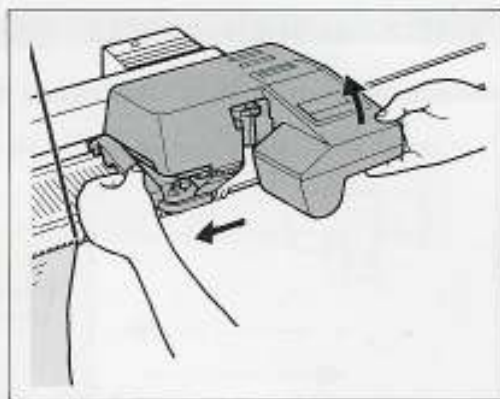


3. Turn the Power Switch on.

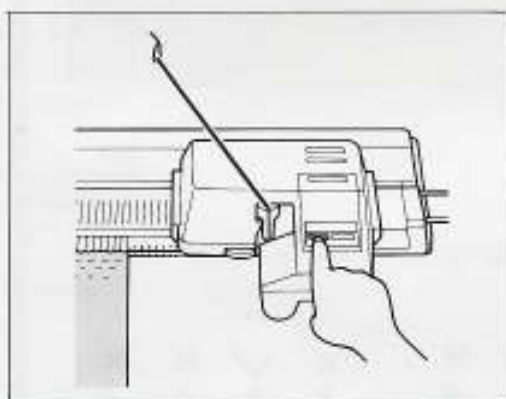




4. Push CR key.  
Enter **1** then push CR key again.



5. Move the G-Carriage to the edge of the knitting.  
Make sure that the G-Lamp or Pattern Position Lamp is lit.



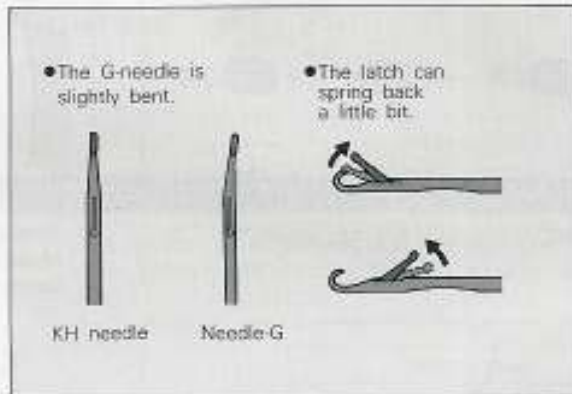
6. Start knitting again.



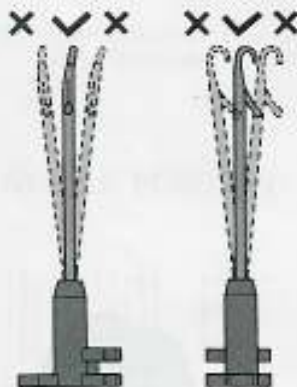
## 4. CHECKING THE G-NEEDLE

### CHECKING THE G-NEEDLE

\*Should the G-Needle become bent it will start to drop stitches so you must replace it.



•Is the stem all right?



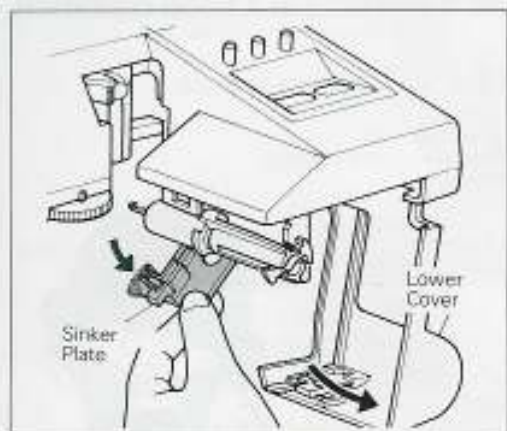
•Is the latch all right?



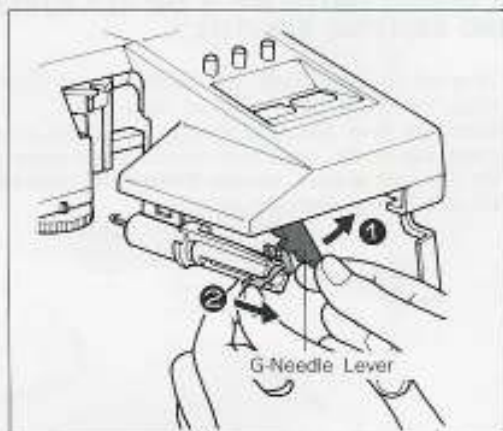
•Is the hook all right?



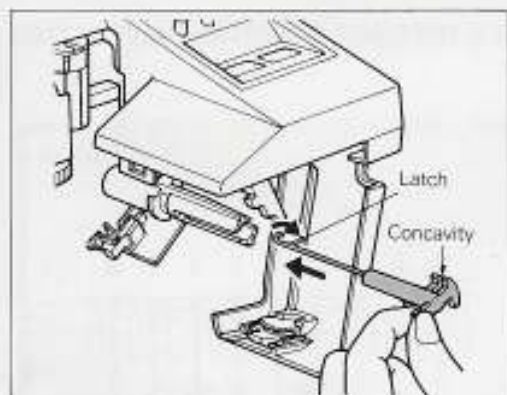
## 5. CHANGING THE G-NEEDLE



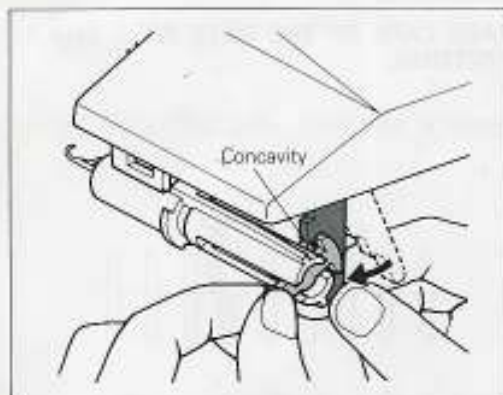
1. Push the Cover Button and open the Lower Cover.  
Release the Sinker Plate.



2. Take off the G-Needle Lever and pull out the G-Needle.



3. Replace the G-Needle opening the latch as illustrated.



4. Secure the G-Needle by placing the Lever in the concavity of the plastic stem of the G-Needle.

## 6. CLEANING AND MAINTENANCE

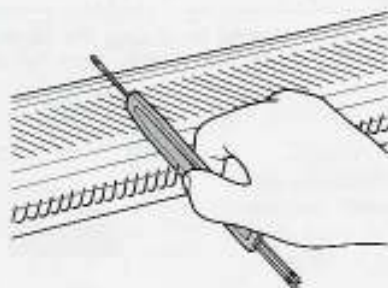
**CLEANING AND OILING IS THE KEY TO KEEP THE G-CARRIAGE IN A GOOD CONDITION AND KNITTING SMOOTHLY.**

- \*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.



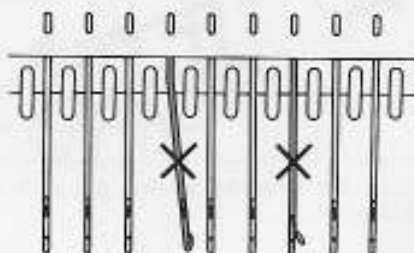
**TAKE CARE OF THE GATE PEGS AND NEEDLES THEY ARE IMPORTANT FOR BETTER KNITTING.**

IF ANY GATE PEGS ARE BENT...



Repair the Gate Peg using the Transfer Tool as shown in the figure.

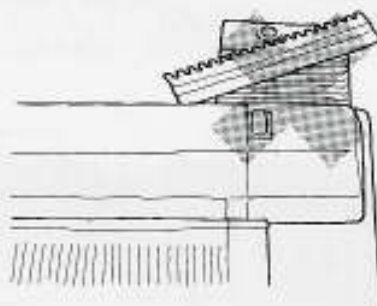
CHECK ALL THE KH NEEDLES...



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 replace the damaged needles with new ones.

## PRECAUTIONS

\* Don't worry about the heat from the Adaptor when you have been using it for a long time but do not obstruct the heat loss.



\* Do not place in direct heat or direct sunlight.

\* Do not move or pull the knitting roughly as you may upset the G-Carriage working smoothly.

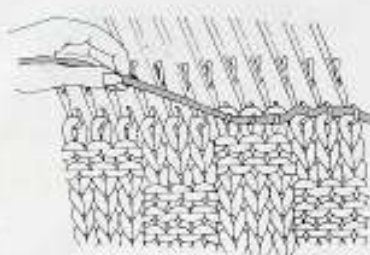
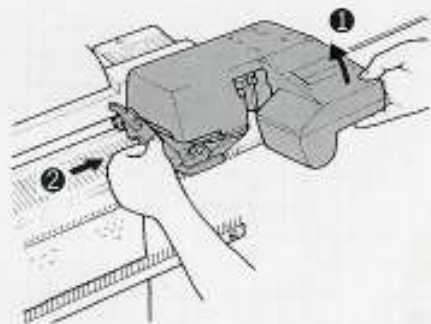


\* See that your child does not touch the G-Carriage while you are away from the machine.

\* Do not lift the front of the G-Carriage in the middle way of the knitting.  
If you lift up and put it down onto the working needles, it will damage the G-Carriage.

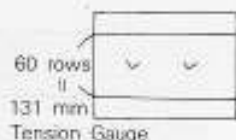
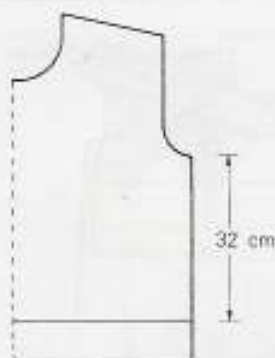
If you lift . . . .

1. Lift the front of the G-Carriage and move it in the direction that the Carriage Direction Lever indicates and position it clear of knitting.
2. Unravel the last row and start knitting again. (Refer to 7-13 on p.41.)



# 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

$$32 \text{ cm} = 30 \text{ cm} + 2 \text{ cm}$$

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

$$136 \text{ (rows of 30 cm)} + 9 \text{ (rows of 2 cm)} = 145 \text{ rows.}$$

Set the row counter at 145.

Tension Gauge Measurement	Tension Gauge														
	10cm	20cm	30cm	40cm	50cm	60cm	70cm	80cm	90cm	100cm	20cm	30cm	40cm	50cm	
10cm	10	20	30	40	50	60	70	80	90	100	200	300	400	500	
11	9	18	27	36	45	54	63	72	81	90	180	270	360	450	
12	8	16	24	32	40	48	56	64	72	80	160	240	320	400	
13	8	16	24	32	40	48	56	64	72	80	160	240	320	400	
14	8	16	24	32	40	48	56	64	72	80	160	240	320	400	
15	8	16	24	32	40	48	56	64	72	80	160	240	320	400	
16	8	16	24	32	40	48	56	64	72	80	160	240	320	400	
17	8	16	24	32	40	48	56	64	72	80	160	240	320	400	
18	8	16	24	32	40	48	56	64	72	80	160	240	320	400	
19	8	16	24	32	40	48	56	64	72	80	160	240	320	400	
20	8	16	24	32	40	48	56	64	72	80	160	240	320	400	
21	8	16	24	32	40	48	56	64	72	80	160	240	320	400	
22	8	16	24	32	40	48	56	64	72	80	160	240	320	400	
23	8	16	24	32	40	48	56	64	72	80	160	240	320	400	
24	8	16	24	32	40	48	56	64	72	80	160	240	320	400	
25	8	16	24	32	40	48	56	64	72	80	160	240	320	400	
26	7	14	21	28	35	42	49	56	63	70	140	210	280	350	
27	7	14	21	28	35	42	49	56	63	70	140	210	280	350	
28	7	14	21	28	35	42	49	56	63	70	140	210	280	350	
29	7	14	21	28	35	42	49	56	63	70	140	210	280	350	
30	7	14	21	28	35	42	49	56	63	70	140	210	280	350	
31	7	14	21	28	35	42	49	56	63	70	140	210	280	350	
32	7	14	21	28	35	42	49	56	63	70	140	210	280	350	
33	7	14	21	28	35	42	49	56	63	70	140	210	280	350	
34	7	14	21	28	35	42	49	56	63	70	140	210	280	350	
35	6	12	18	24	30	36	42	48	54	60	120	180	240	300	
36	6	12	18	24	30	36	42	48	54	60	120	180	240	300	
37	6	12	18	24	30	36	42	48	54	60	120	180	240	300	
38	6	12	18	24	30	36	42	48	54	60	120	180	240	300	
39	6	12	18	24	30	36	42	48	54	60	120	180	240	300	
40	6	12	18	24	30	36	42	48	54	60	120	180	240	300	
41	6	12	18	24	30	36	42	48	54	60	120	180	240	300	
42	6	12	18	24	30	36	42	48	54	60	120	180	240	300	
43	6	12	18	24	30	36	42	48	54	60	120	180	240	300	
44	6	12	18	24	30	36	42	48	54	60	120	180	240	300	
45	6	12	18	24	30	36	42	48	54	60	120	180	240	300	
46	6	12	18	24	30	36	42	48	54	60	120	180	240	300	
47	6	12	18	24	30	36	42	48	54	60	120	180	240	300	
48	6	12	18	24	30	36	42	48	54	60	120	180	240	300	
49	6	12	18	24	30	36	42	48	54	60	120	180	240	300	
50	6	12	18	24	30	36	42	48	54	60	120	180	240	300	
51	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
52	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
53	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
54	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
55	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
56	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
57	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
58	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
59	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
60	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
61	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
62	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
63	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
64	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
65	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
66	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
67	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
68	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
69	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
70	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
71	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
72	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
73	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
74	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
75	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
76	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
77	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
78	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
79	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
80	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
81	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
82	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
83	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
84	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
85	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
86	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
87	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
88	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
89	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
90	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
91	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
92	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
93	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
94	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
95	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
96	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
97	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
98	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
99	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
100	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
101	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
102	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
103	5	10	15	20	25	30	35	40	45	50	100	150	200	250	
104	5	10	15	20	25	30	35	40	45	50	100	150	200	250	

### IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

**BLUE -NEUTRAL**

**BROWN -LIVE**

**NOTE.** As the colours of the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

Connect BROWN wire to terminal marked L or coloured RED.

Connect BLUE wire to terminal marked N or coloured BLACK.

WHEN USING A B.S. 1363 FUSED PLUG A 3 AMP. FUSE MUST BE FITTED.

If the terminals of the plug are unmarked consult a qualified electrician before use.

Model	Power Source
KH910/KH950	AC(~) 240V 50HZ 40W
KH930	AC(~) 240V 50HZ 25W
KG88/89/88II/89II/93	AC(~) 240V 50HZ 20W

### IMPORTANT

When leaving the machine or when servicing or changing mechanical parts or accessories, the machine or set must be disconnected from the supply by removing the plug from the socket-outlet.

Before removing AC line cord or when unit is not in use always disconnect mains plug from wall socket.

To prevent electric shock DO NOT remove cover, NO user serviceable parts inside. Refer servicing to qualified service personnel.

This product is manufactured to comply with the radio interference requirements of EEC directive.  
82/499/EEC.

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