

**KNITTER**

**INSTRUCTION MANUAL**



*Empisal-Knitmaster*®

MODEL - 326

ENGLISH

ENJOY KNITTING WITH YOUR NEW

*Empisal-Knitmaster*<sup>®</sup>

326 PUNCH CARD KNITTER



Congratulations on the purchase of our new EMPISAL-KNITMASTER 326 Knitter.

You must often have wished you could dress yourself and your family in knitwear that you really like.

Follow the instructions and illustrations carefully and in no time at all you will be machine knitting – not only knitting, but also ENJOYING using your new knitting machine.

This little book has been revised many times, but if you have new suggestions which could help you and many others, write in – further ideas for alterations to improve it and make it easier to follow are always welcome.

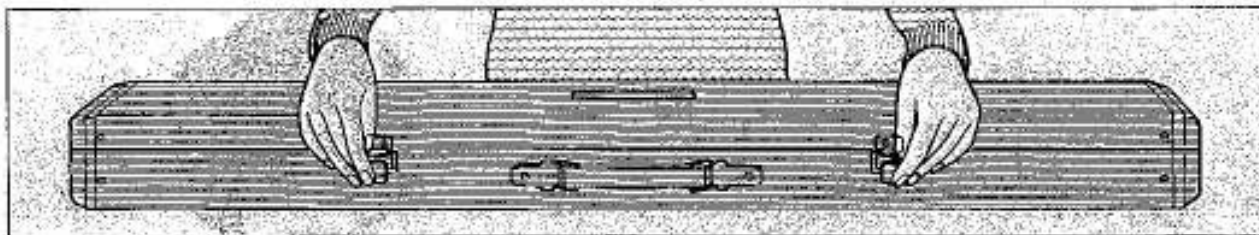
You will have fun learning to knit and this booklet will help you. Should anything go wrong, PLEASE DO NOT WORRY – read the instructions again and soon you will be knitting with confidence and enthusiasm.

REMEMBER – ONLY PRACTICE MAKES PERFECT.

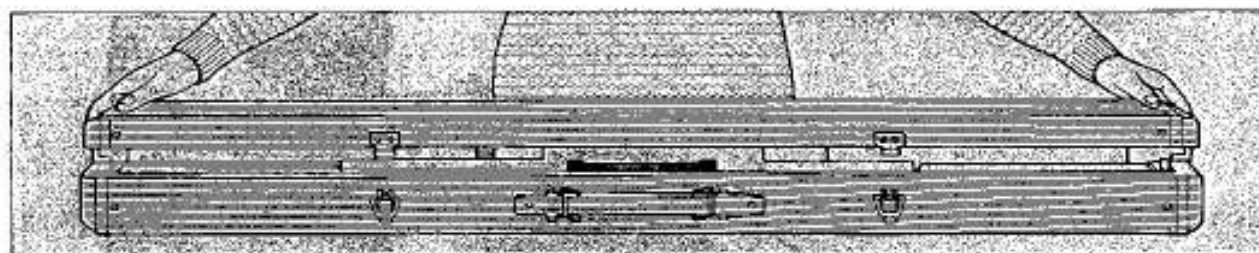
Your

Knitting Companion

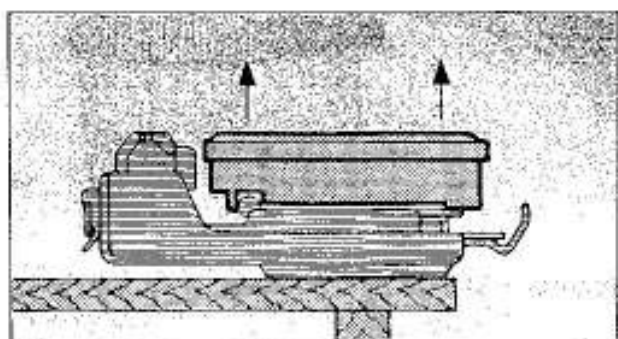
## UNPACKING THE MACHINE



1. Place the machine on a flat table with the brandname on top and the handle away from you.
2. Unlock both latches on the back of the machine.

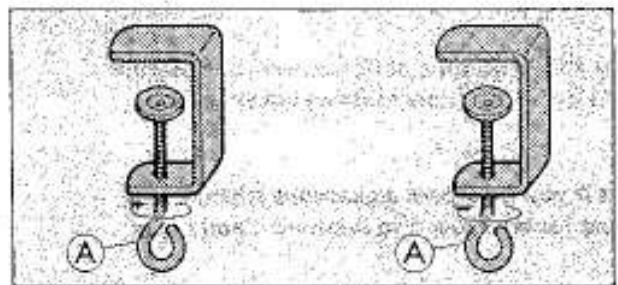


3. Lift machine lid slightly, pull it towards you and remove it completely from the machine.



## SETTING UP THE MACHINE

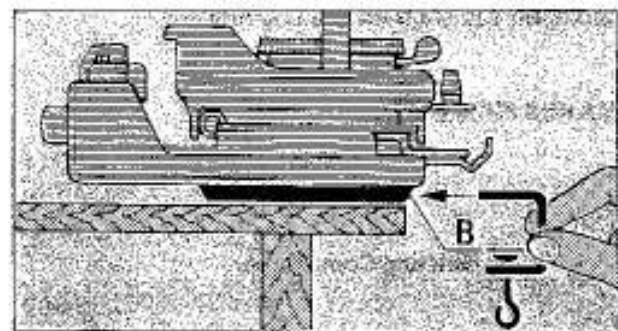
Lift the accessory box and remove it from the machine.



## THE TABLE CLAMPS

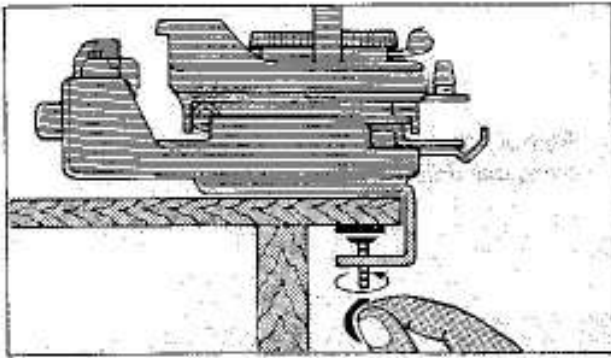
Remove the two table clamps from the accessory box.

Turn screw 'A' in arrow direction as far down as it will go.

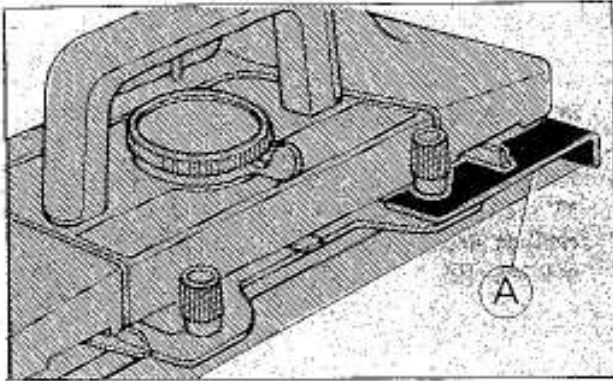


Ensure that machine is flush with the table edge.

Insert table clamps into slots 'B' underneath the machine.



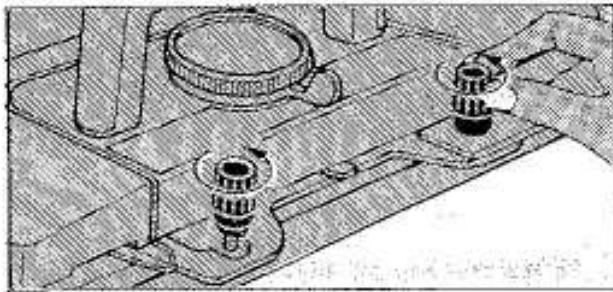
Tighten both clamps firmly by turning screws in arrow direction.  
(DO NOT USE FORCE.)



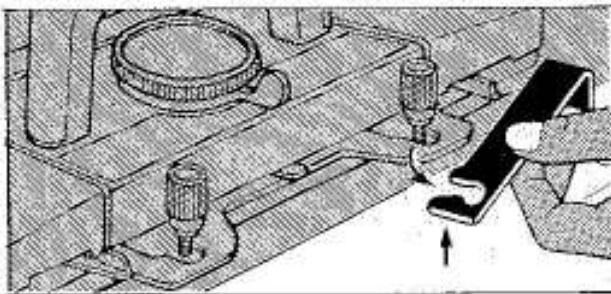
#### CARRIAGE LOCK PLATE

With lock plate 'A' the carriage is secured to the right side of the needle bed in order to eliminate damage during transport.

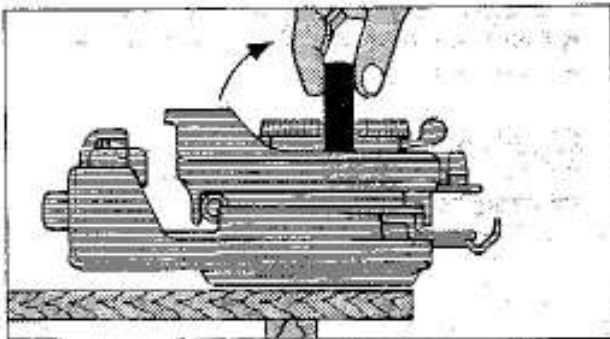
**NOTE:** When machine is not in use please secure carriage to needle bed.



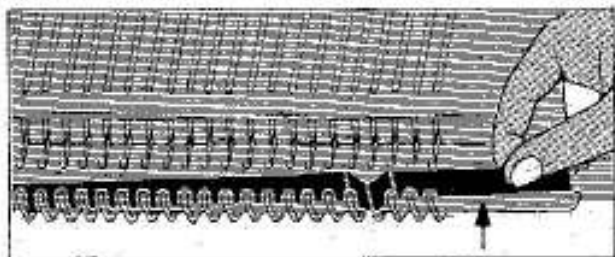
Loosen both thumb screws by turning them in arrow direction.



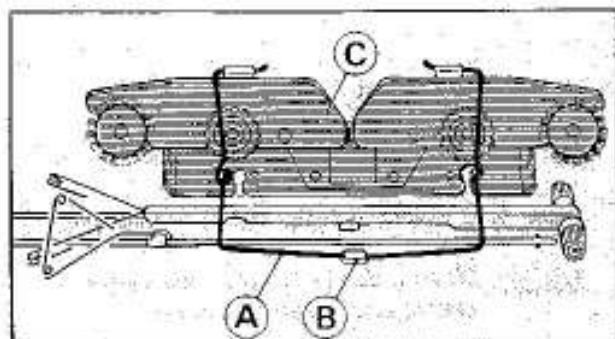
Remove lock plate by moving it towards you and lifting it up.



Raise carriage handle until it snaps into a locked vertical position.

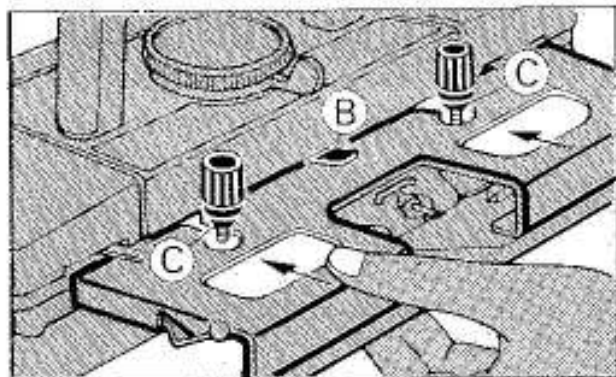


Remove the cardboard needle protector from the sinker gate.

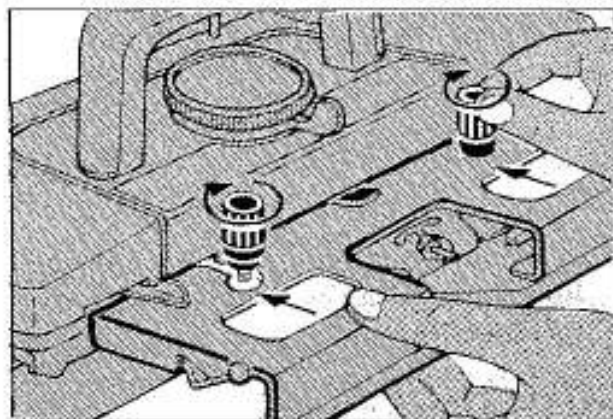


### SINKER ARM ASSEMBLY

Release wire spring 'A' from holding bracket 'B' located inside the machine lid and remove sinker arm assembly 'C' from the machine lid.

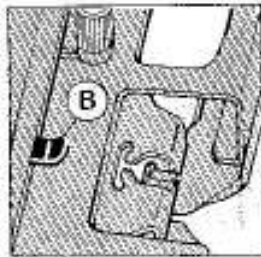


Slide sinker arm assembly under holding bracket 'B' and two thumb screws 'C'.



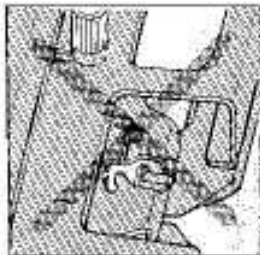
Push sinker arm assembly as far back as it will go and tighten thumb screws firmly by turning them in arrow direction.

**IMPORTANT:**  
Before proceeding further, check the following two points carefully.



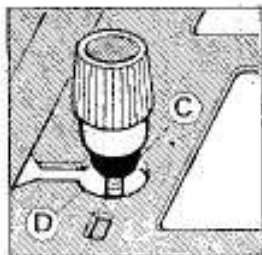
1. CORRECT

1. Ensure that holding bracket 'B' is ON TOP of the sinker arm assembly



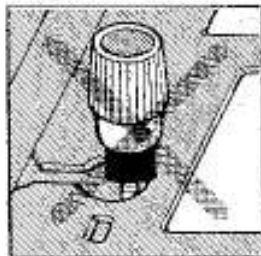
INCORRECT

NOT BELOW as shown in illustration.



2. CORRECT

2. Ensure that thumb screws 'C' fit correctly INTO cut-out 'D' of sinker arm assembly



INCORRECT

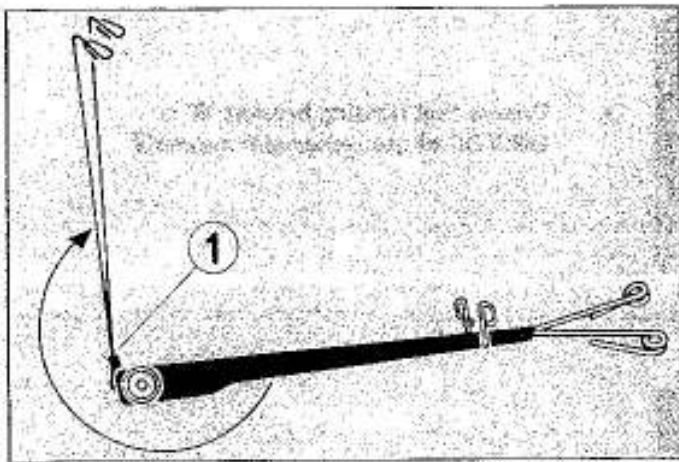
NOT ON TOP of sinker arm assembly as shown in illustration.

### SETTING UP THE YARN BRAKE

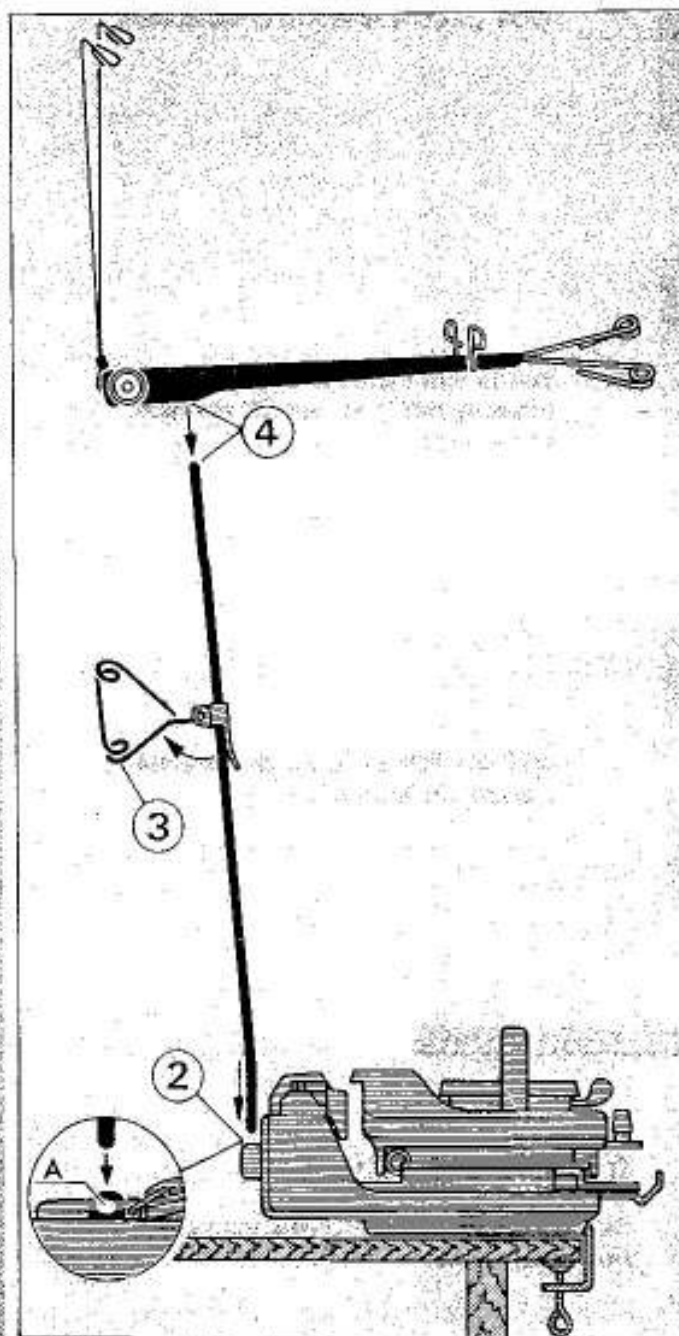


#### YARN BRAKE ASSEMBLY

Remove yarn brake rod 'D' and yarn brake 'E' from machine lid.

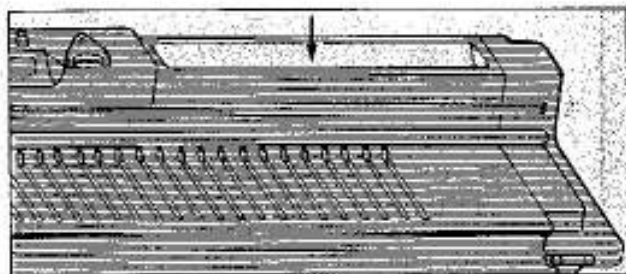


1. Turn the two take-up springs upwards as shown by the arrow until they snap into position.

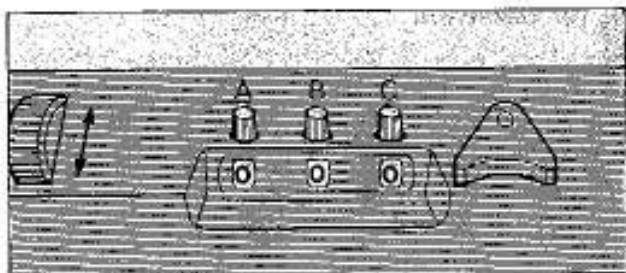


2. Insert the short bent end of yarn brake rod with yarn clip 'A' facing you into the left side handle bracket socket.
3. Raise the rear yarn guide.
4. Place yarn brake securely onto the yarn brake rod.

## THE MAIN PARTS OF THE MACHINE

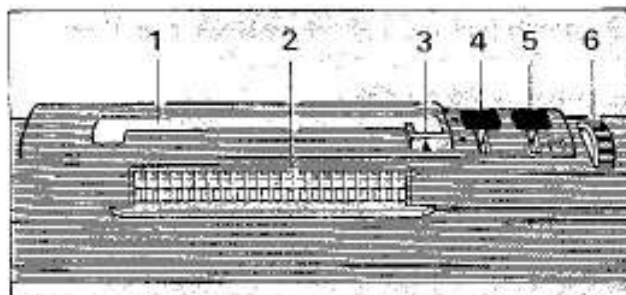


ACCESSORY TRAY



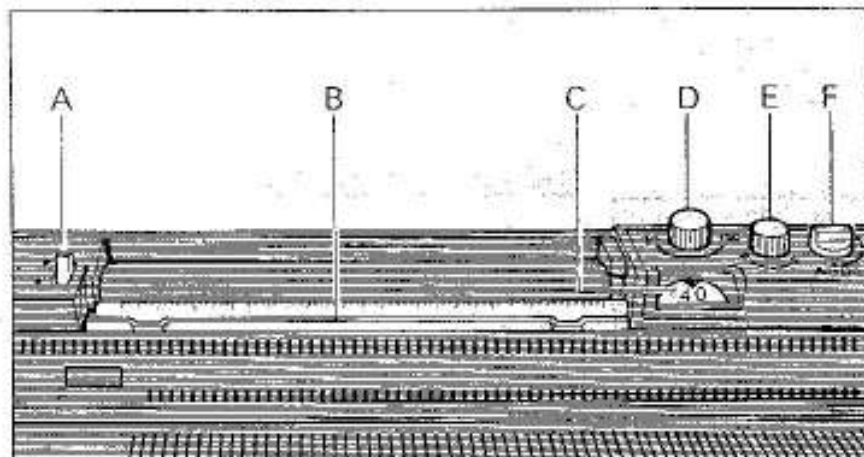
ROW COUNTER

Note: All three numbers on row counter can be adjusted individually by turning plastic knobs 'A', 'B' and 'C' in either direction.



PATTERN PANEL

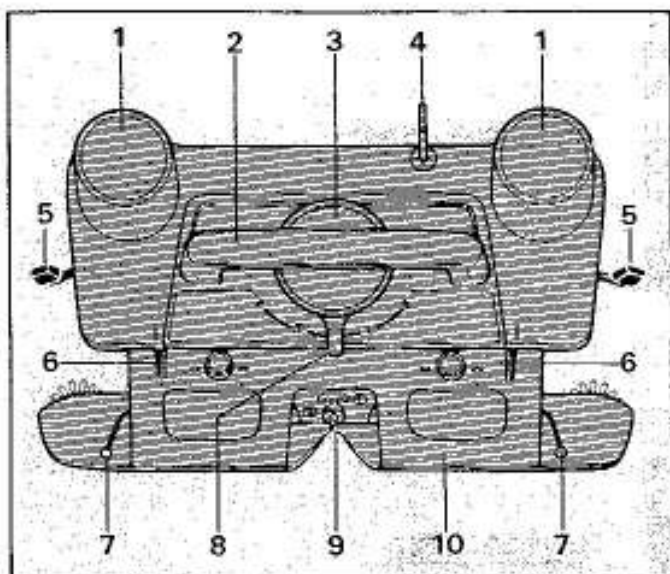
1. Punch card insertion slot
2. Touch levers
3. Card row indicator
4. Card release knob
5. Pattern variation knob
6. Feeding dial



KNIT RADAR

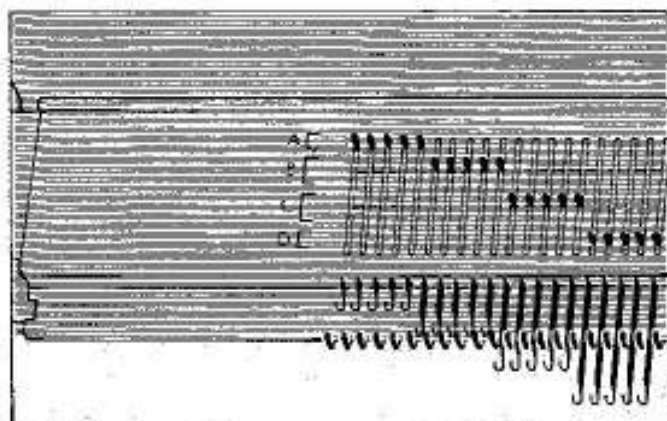
- a) Paper lock lever
- b) Stitch scale holder
- c) Row indicator dial
- d) Row indicator knob
- e) Paper feed knob
- f) Row dial





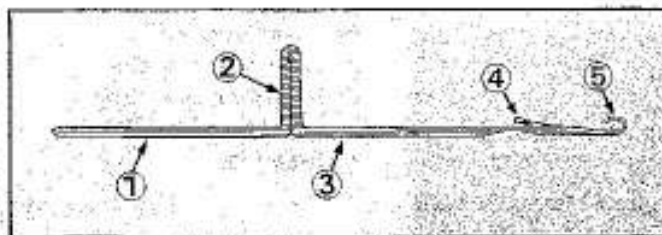
### CARRIAGE PARTS

1. Pattern memory (left and right)
2. Carriage handle
3. Tension dial
4. Row counter tripper
5. Side levers (left and right)
6. Front levers (left and right)
7. Weaving yarn holder (left and right)
8. Cam lever
9. Yarn feeder
10. Sinker arm



On both the LEFT and RIGHT side of the needle bed you will see markings A, B, C and D. These are the various needle positions used during knitting.

- A — non-knitting position.
- B — plain knitting and stitch patterns.
- C — for end needle when front lever to I.
- D — holding position for partial knitting - front levers MUST be set to I.



### THE LATCH NEEDLE

1. Shank
2. Butt
3. Stem
4. Latch
5. Hook

## HOW STITCHES ARE FORMED

The movement of the latch needle, in and out of the needle bed while knitting, is controlled by the carriage.



1. As the needle moves out, the stitch automatically opens the latch.



2. The needle moves out further and the stitch slides behind the latch.



3. The yarn is automatically fed onto the hook by the yarn feeder - preparing for a new stitch.



4. The needle moves back inside the needle bed, causing the old stitch to close over the yarn inside the hook.

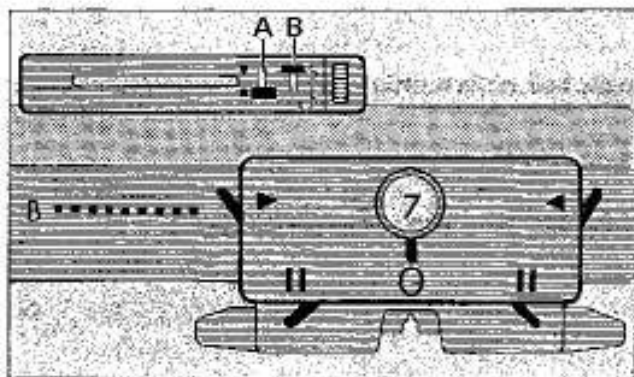
The latch needle will ONLY drop a stitch if there is NO yarn in the needle hook when the needle returns into the needle bed.



5. The needle is pulled backwards, causing the old stitch to slide to the front and closing the needle latch.

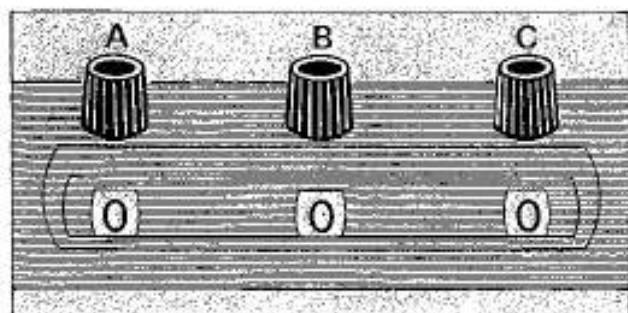


6. When the needle is completely pulled back - the old stitch starts to slide over the closed latch and a new stitch is formed in the needle hook.

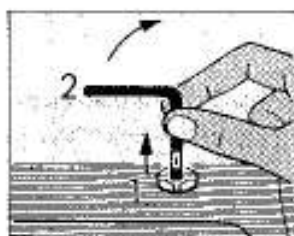


### CARRIAGE ON RIGHT SIDE

Card release knob 'A'	to ●
Pattern variation knob 'B'	to S
Right side lever	to ►
Left side lever	to ►
Tension dial	to 7
Cam lever	to 0
Right front lever	to II
Left front lever	to II



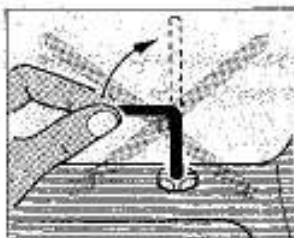
Adjust row counter numbers to '0' by turning knobs 'A', 'B' and 'C'.



CORRECT

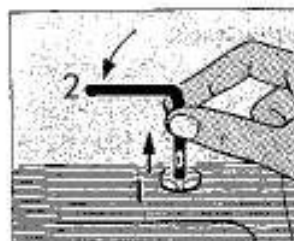
### ROW COUNTER TRIPPER

To engage the row counter tripper, hold same in the centre, lift it up and then turn it to the back.



INCORRECT

DO NOT hold row counter tripper on the side and then turn, as shown in illustration, as this will damage the row counter tripper holding bracket.



### NOTE:

To disengage, hold row counter tripper in the centre, lift it up and then turn it to the side.

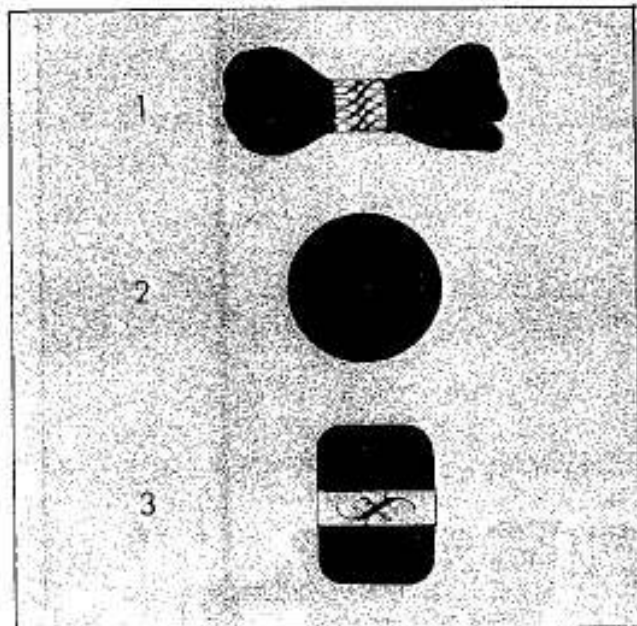
## PREPARATION OF YARNS

As the preparation of yarns is very important, please read the next chapter very carefully.

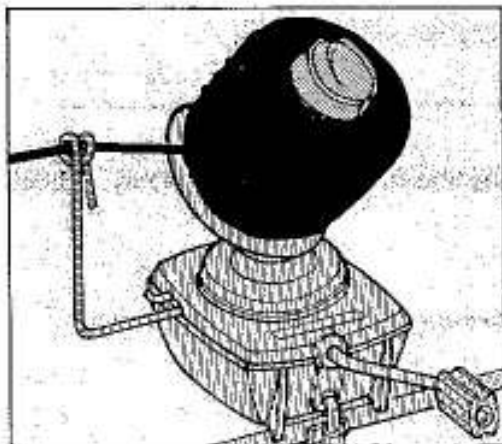
The machine is designed to knit a wide range of yarns.

In the beginning, however, we recommend you start off with a new ball of medium, 4-ply yarn -- NOT WITH LEFTOVERS.

As you become accustomed to machine knitting you will be able to use all types of yarns - so please be patient.



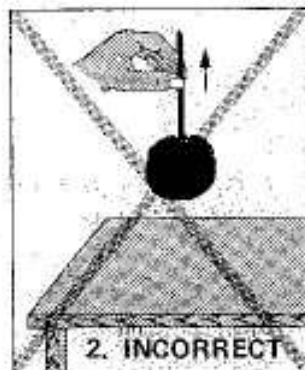
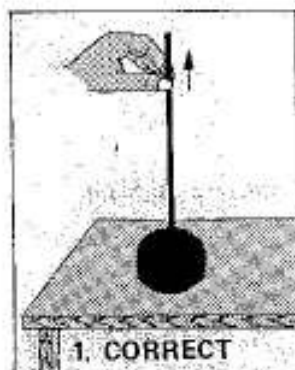
1. It is impossible to knit from a hank of yarn. You will have to rewind it using a yarn winder.
2. This hand wound ball is not suitable for machine knitting. It will roll around and become tangled. You **MUST** rewind it using a yarn winder.
3. It is not recommended that you use a pull skein of yarn as it is impossible to knit with the outside end of the yarn. We do not recommend pulling the yarn from the centre as the yarn does not always draw smoothly and there may be knots.



### AUTOMATIC YARN WINDER

#### USEFUL OPTIONAL EXTRA ACCESSORY

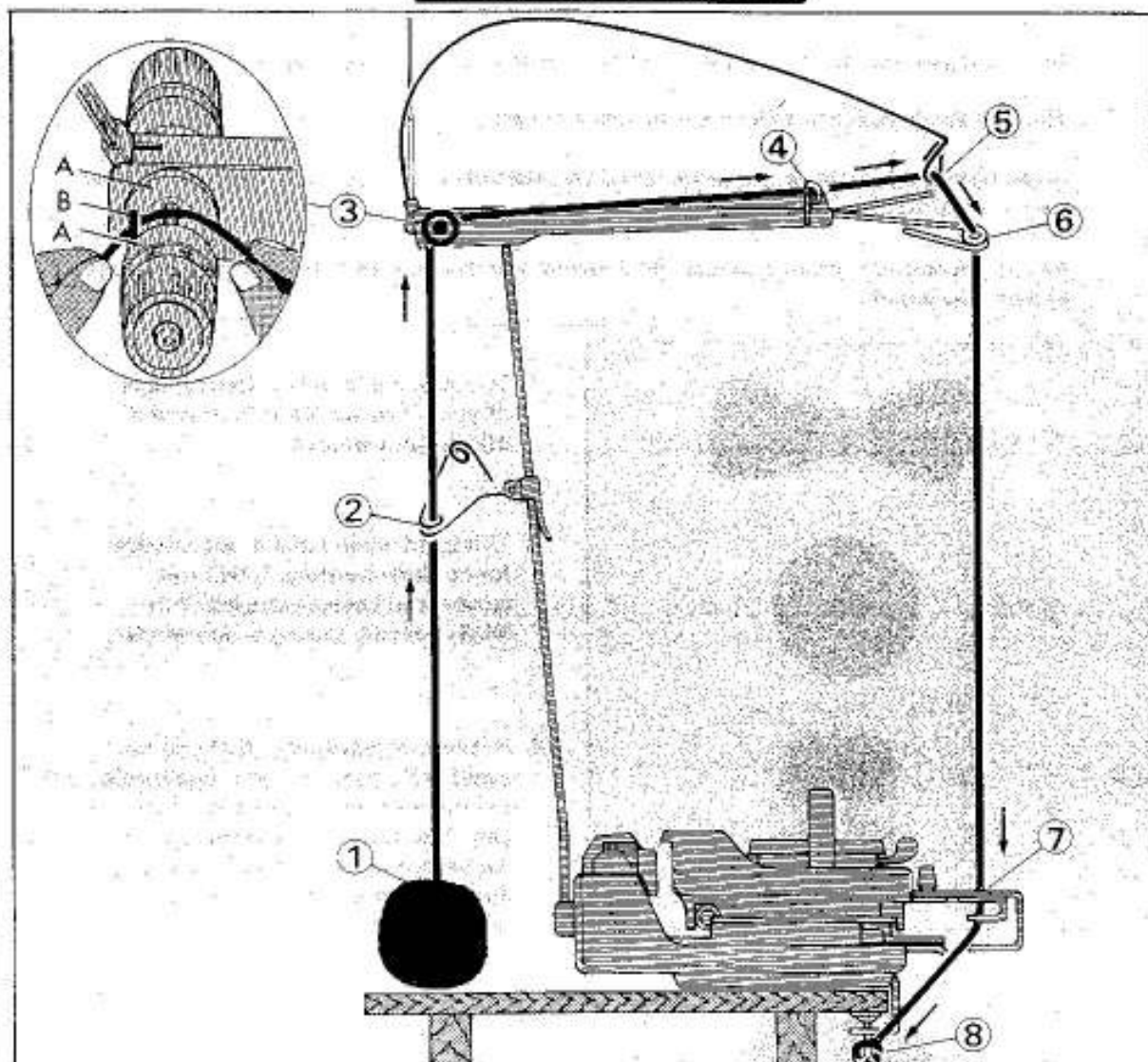
The yarn winder will wind the yarn speedily and perfectly ready for machine knitting. It saves a great deal of time by winding the yarn into a ball in only a few seconds.



### IMPORTANT TEST

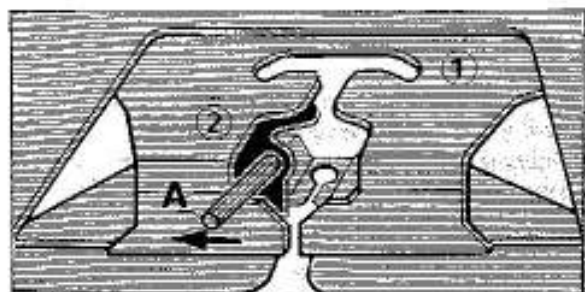
When the yarn is pulled from the centre of the ball - the thread must come out freely without lifting the ball from the table - see illus. 1.

## THREADING THE MACHINE

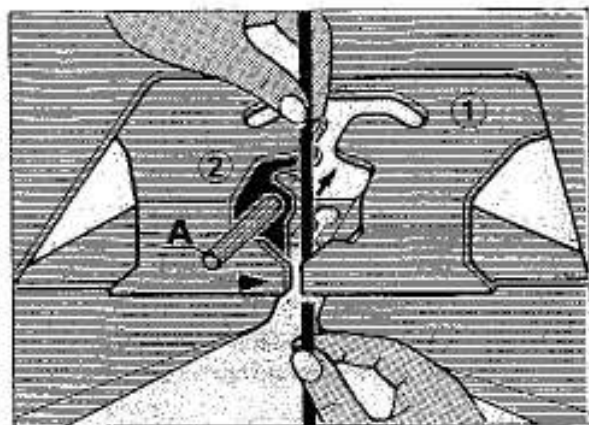


### CARRIAGE ON RIGHT SIDE

1. Pull the yarn end out of the centre of the ball ensuring that the yarn comes out easily without lifting the ball from the table.
2. Thread yarn through the yarn guide eyelet.
3. Place the yarn between the two tension discs 'A' and ensure that yarn lies underneath of pin 'B'.
4. Thread yarn through yarn guide eyelet.
5. Thread yarn through yarn guide eyelet on take-up spring.
6. Thread yarn through yarn guide eyelet.

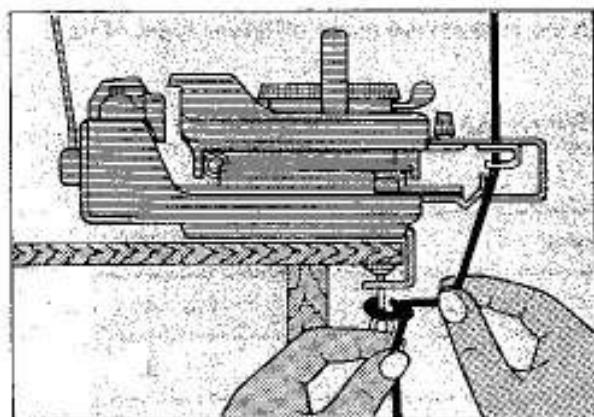


7. Open the yarn feeder by moving guide pin 'A' to the left.

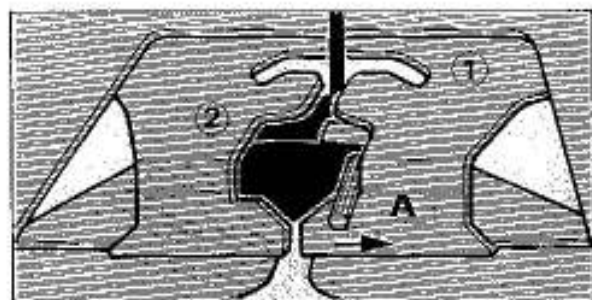


Hold the yarn with both hands and slide it into the yarn feeder.

Close the yarn feeder by moving guide pin 'A' to the right.



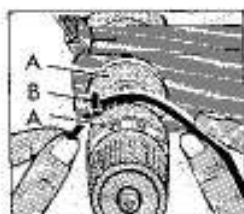
8. Fasten end of yarn onto the right side table clamp.



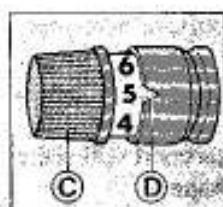
### IMPORTANT

Before starting to knit ensure

a) Yarn lies correctly in yarn feeder.



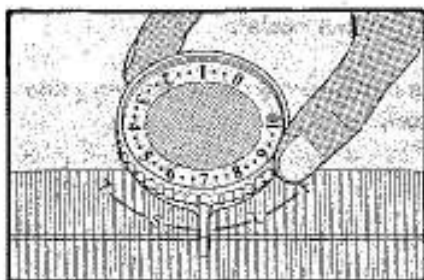
b) Yarn is placed BETWEEN discs 'A' and UNDER pin 'B'.



c) Yarn brake tension is adjusted correctly by turning plastic dial 'C' until required number corresponds with cut-out 'D' on tension disc.

## TENSION AND STITCH SIZE

JUST AS IN HAND KNITTING, IT IS IMPORTANT TO HAVE THE RIGHT STITCH SIZE FOR THE YARN THAT YOU USE.



In the centre of the carriage is the tension dial.

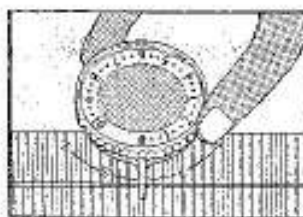
The tension dial has 30 different tension settings and you will be able to choose the right stitch size most suitable for the yarn used.

It is quite impossible to tell you which tension setting to use as there are many different types of yarn available.

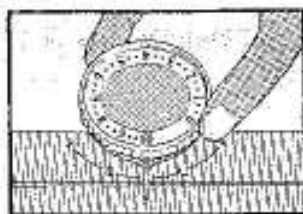
Before starting to knit a garment it is essential and necessary to knit a tension swatch. Below you will find a general tension guide.

Yarn Type	Yarn Brake	Tension Dial
Lightweight	4 - 7	1 - 4
Medium	3	5 - 8
Heavy	1 - 2	9 - 10

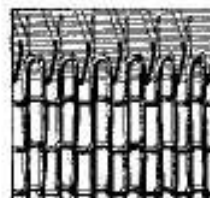
**NOTE:** Sweaters are usually knitted one or even two points looser than you would use for a skirt. The reason is that a sweater is comfortable when it has more stretch but a skirt will stretch out of shape unless the tension is a little tighter.



When the tension dial is set to 0 - the **TIGHTEST** tension is obtained (smallest stitch).

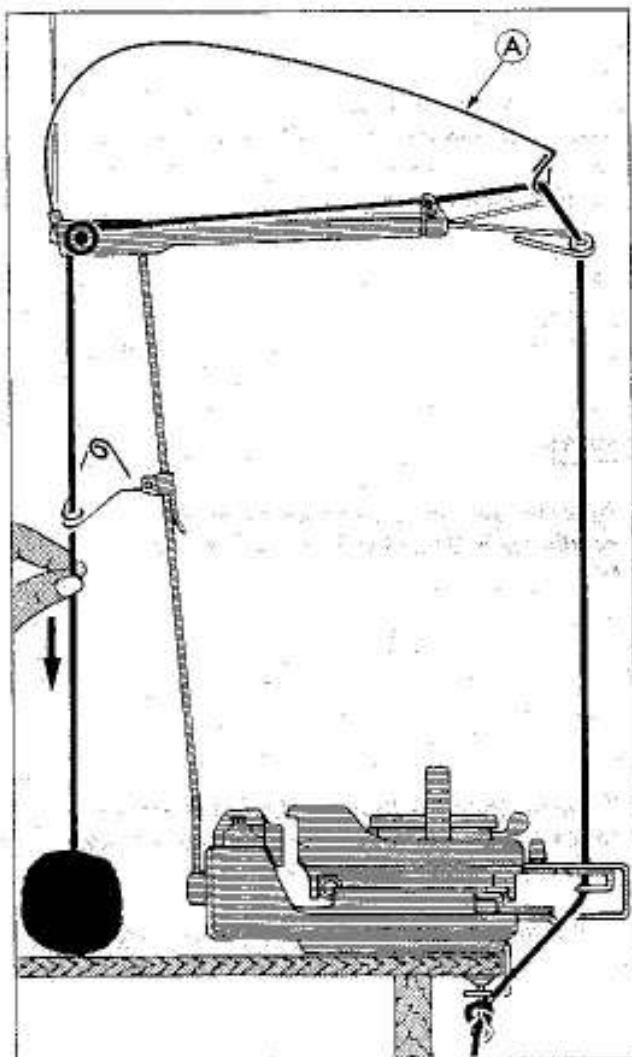


When the tension dial is set to 10 - the **LOOSEST** tension is obtained (largest stitch).



**IF YOUR TENSION IS TOO TIGHT** - it will be difficult, or even impossible to knit and you will use more yarn, thus wasting money and your knitwear will be hard and uncomfortable to wear.

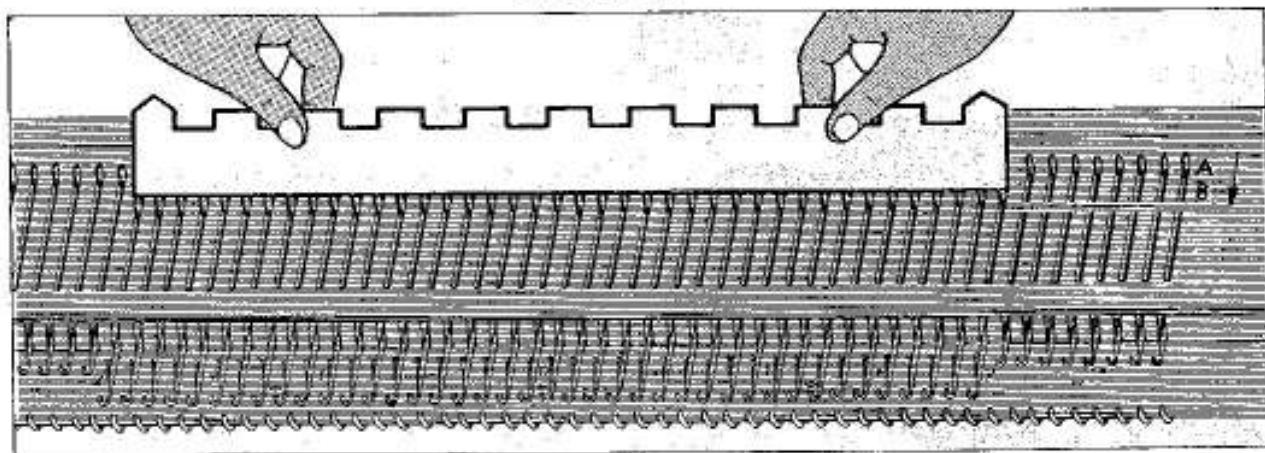
**IF YOUR TENSION IS TOO LOOSE** - your knitted garment will either have no shape or will very soon lose its shape.



- d) Before starting to knit, pull the yarn down at the back of the yarn brake, in arrow direction, until all slack yarn has been taken up and take-up spring 'A' is nearly in a horizontal position.

**YOU ARE NOW READY TO CAST ON.**

### CAST-ON



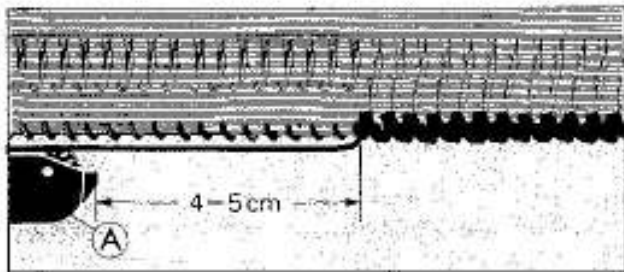
Remove the 1x1 needle pusher from the accessory box.

Use the straight edge of the 1x1 needle pusher and bring 20 needles on each side of centre '0' from 'A' (non knitting) position to 'B' (knitting) position.

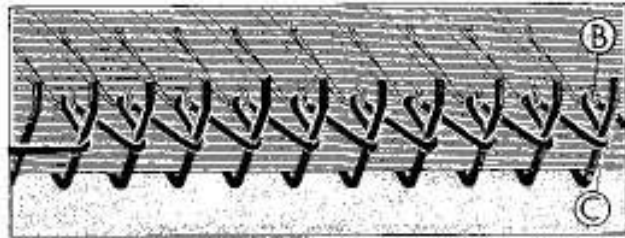
You now have 40 needles in 'B' (knitting) position.

**ALL OTHER NEEDLES MUST BE IN 'A' (non knitting) POSITION.**



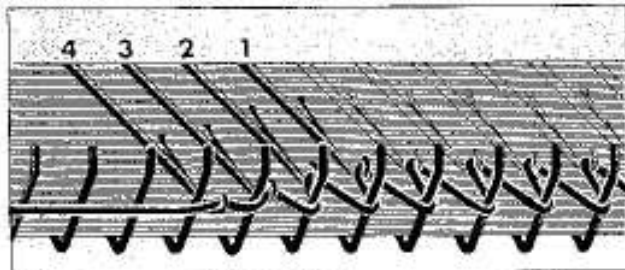


Knit 1 row by moving carriage slowly from right to left until sinker arm plate 'A' has passed the last needle in 'B' position by approximately 4 to 5 cm.



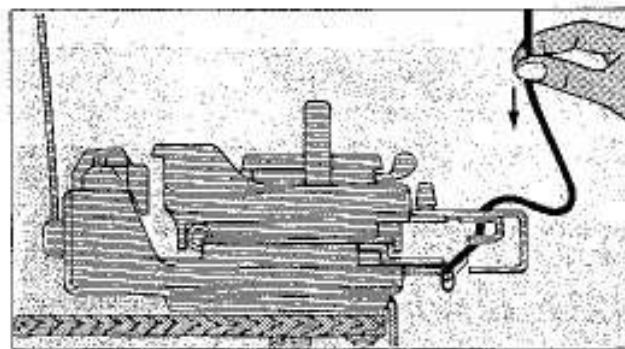
**NOTE:**

An even loop has been formed between needle hook 'B' and sinker gate pin 'C'.



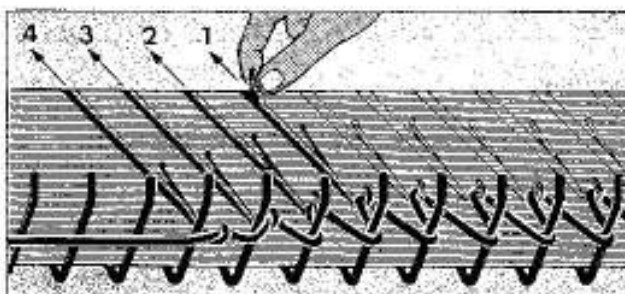
When knitting the first row it might happen that the loops get smaller towards the left side (see illus. needles 1,2,3 and 4.)

This is incorrect and can be easily corrected.



**CORRECTION:**

Hold yarn above yarn feeder and pull it down to form a loop.

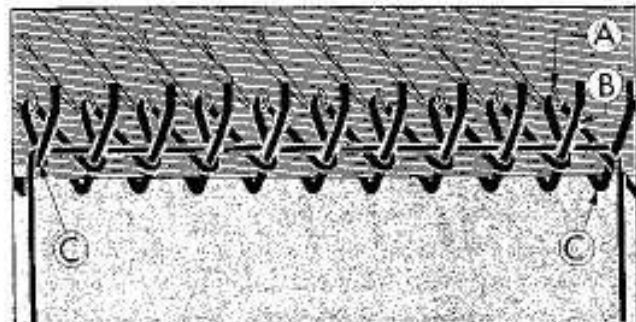


Starting from the smallest loop furthest away from the carriage, in this instance needle No. 1, push the needles with small loops back to 'B' position - ONE BY ONE.



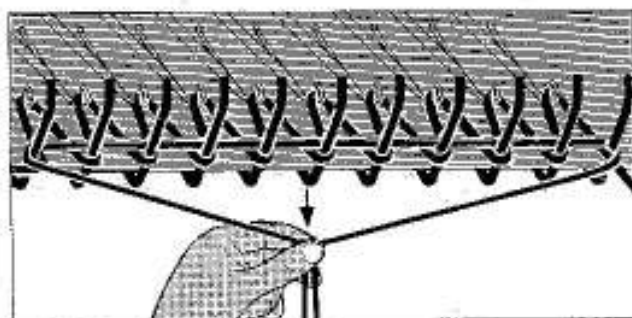
### NYLON CORD

Remove nylon cord from the accessory box, open it and check that there are no knots in the nylon cord before using same as otherwise you cannot pull it out of the knitting after casting on.

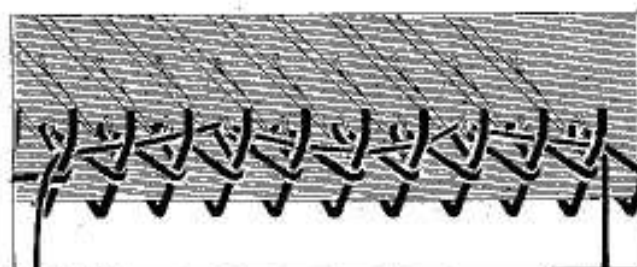


Lay the nylon cord across the yarn loops between needle hooks 'A' and sinker gate pins 'B'.

Pass it around and down the last sinker gate pin 'C' on left and right side of needles with loops.

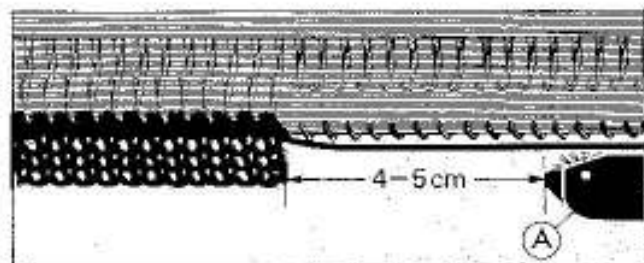


Hold both ends together and pull down firmly so that the nylon cord is below the needle hooks.



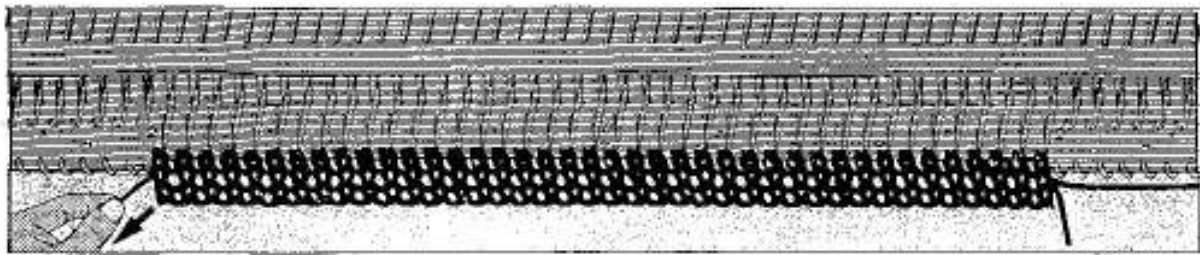
INCORRECT

Before knitting ensure that nylon cord lies correctly across the loops and is pulled down sufficiently as otherwise it will become loose and entangled.

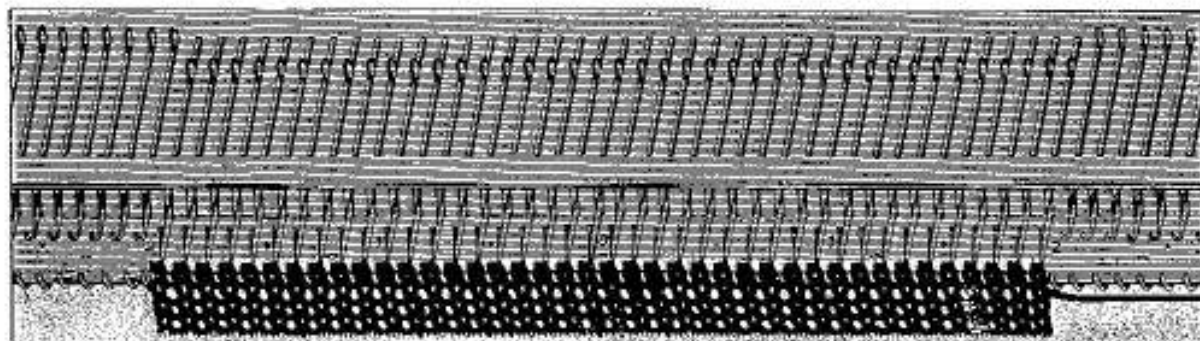


Knit 5 rows stopping with carriage on the right side.

ENSURE AT ALL TIMES THAT SINKER ARM PLATE 'A' HAS PASSED THE LAST KNITTED NEEDLE BY APPROXIMATELY 4 TO 5 CM BEFORE CHANGING DIRECTION.



Pull out nylon cord either to the left or right side and unfasten yarn end from right side table clamp.

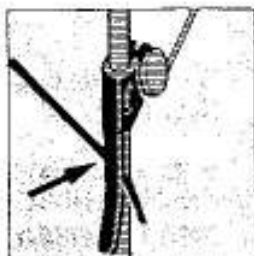


Continue knitting until your first ball of yarn has been knitted — this is the best way to get the right rhythm for machine knitting and to feel confident with your new knitting machine.

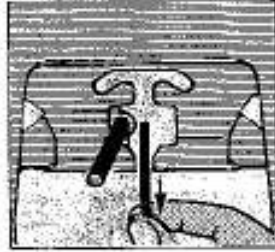
### HOW TO REMOVE THE KNITTING FROM THE MACHINE WITHOUT CASTING OFF



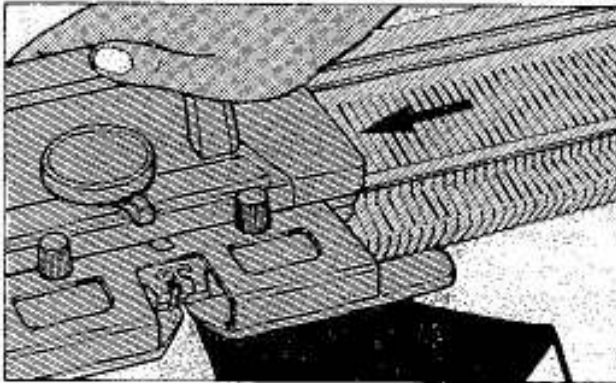
1. Open feeder; break off main yarn above feeder.



2. Hook yarn end into yarn clip on uprod.



3. Pull yarn out of feeder and let it hang loosely on the side of the fabric.



Remove tension swatch from machine by moving carriage across knitted fabric.

The knitting comes away automatically from the needles, but it will have an open edge.

**YOU HAVE NOW COMPLETED THE MOST IMPORTANT PART OF MACHINE KNITTING.**

### YOU ARE NOW MACHINE KNITTING

IF YOU HAVE HAD ANY DIFFICULTY IN KNITTING THE FIRST ROWS, CHECK TO SEE IF—

1. The carriage ALWAYS passes ALL the needles in KNITTING position before returning to knit the next row.
2. The yarn is suitable for your tension setting.
3. The yarn is threaded correctly.
4. The yarn is properly wound into a ball suitable for machine knitting.

REMEMBER — ALWAYS move the carriage past all the needles in knitting position before changing direction for the next row.

BUT — moving the carriage TOO FAR beyond the knitting, results in loose yarn tension, and the yarn will tangle around the brushes below the Sinker Arm which will cause the carriage to jam or the yarn to break.

## PATTERN KNITTING WITH A PUNCH CARD

The following basic stitch patterns can be knitted  
on the

*Empisal-Knitmaster*<sup>®</sup>

326 Knitting Machine



\* SINGLE MOTIF PATTERNS

\* LACE PATTERNS

\* TUCK STITCH PATTERNS

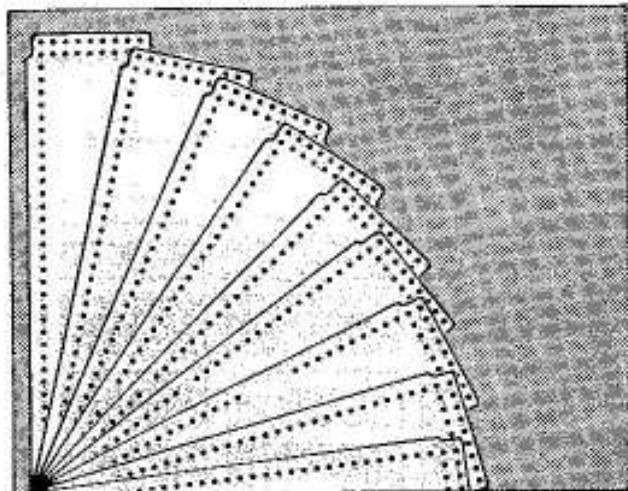
\* PUNCH LACE PATTERNS

\* SLIP STITCH PATTERNS

\* FAIR ISLE PATTERNS

\* PLAITING PATTERNS

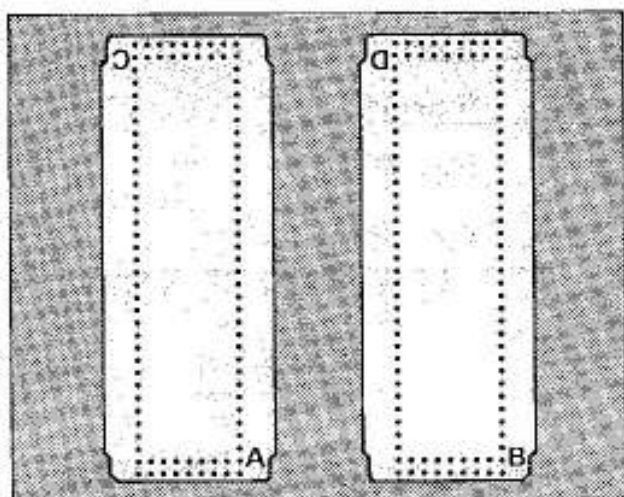
\* WEAVING PATTERNS



## THE PUNCH CARD

20 Pattern Cards are supplied with the machine.  
The cards are numbered from 1 - 20.

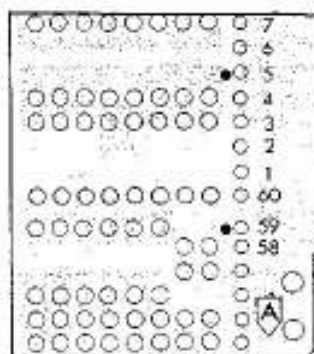
**IMPORTANT:** Do not fold or bend card.



Each card can be used in four different ways  
and are marked 'A', 'B', 'C' and 'D'.

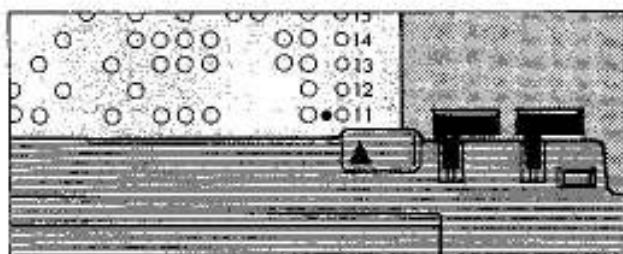
'A' indicates the basic pattern.

If 'B', 'C' or 'D' side of the card is inserted  
into the pattern panel, direction of pattern  
can be changed.



## COLOUR CHANGE INDICATION

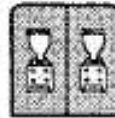
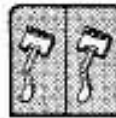

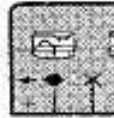
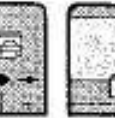

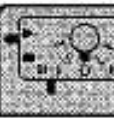
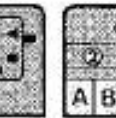





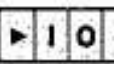

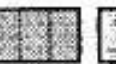

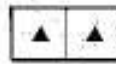
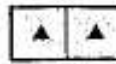




Card No. 5, 6-03 and 19-03 have red dots next  
to a number indicating that yarn colour can  
be changed.



When red dot appears above card row indicator  
mark ▲ you can change colour by removing  
main yarn from feeder No. 1 and threading  
different colour yarn into main feeder No. 1.

MOTIF PATTERNS (Page 1 - 5)

A-1 A-5 (24-33)  Empisal-Knitmaster®

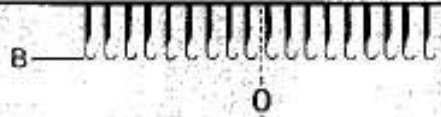
O									R
C					A 16 ● S				
1					12 12				33
B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	

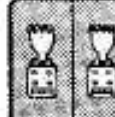

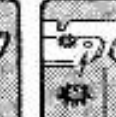
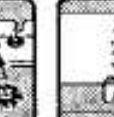


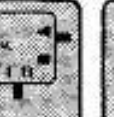
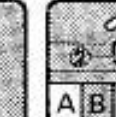
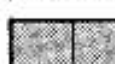



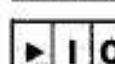








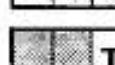


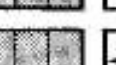
TUCK PATTERNS (Page 6 - 13)

SLIP PATTERNS (Page 14 - 18)


LACE PATTERNS (Page 20 - 21)

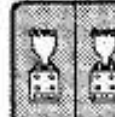



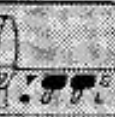

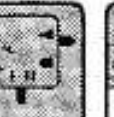
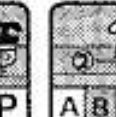
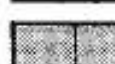







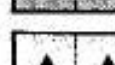




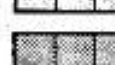



FAIR ISLE PATTERNS (Page 23 - 29)

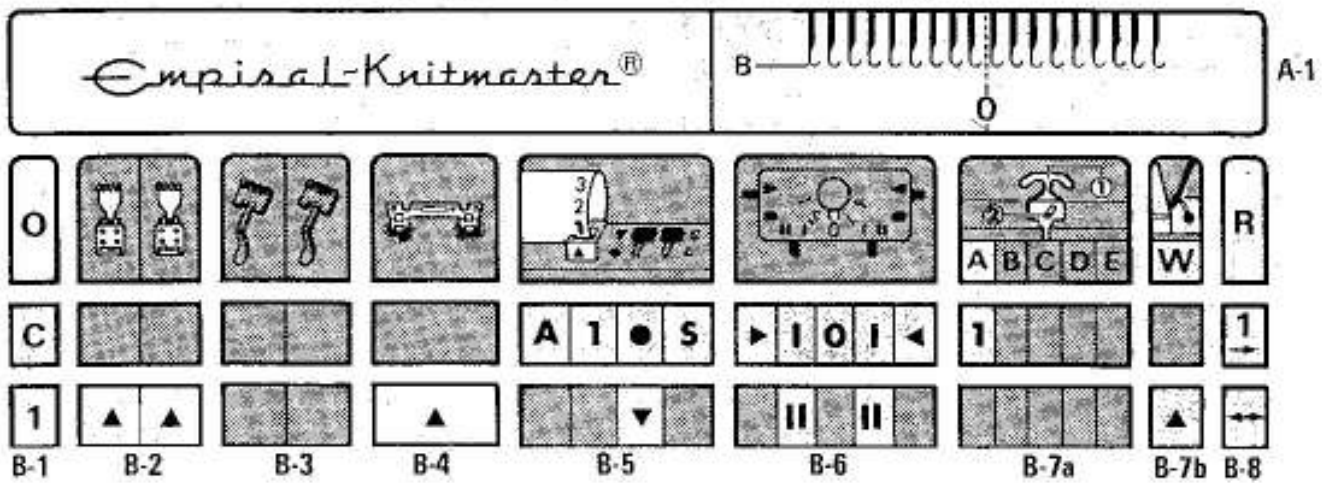
Empisal-Knitmaster®  A-1

O									R
C				A 1 ● S					
1									
B-1	B-2	B-3	B-4	B-5	B-6	B-7a	B-7b	B-8	

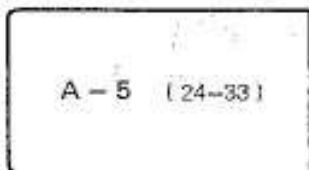
PLATTING PATTERNS (Page 19)

Empisal-Knitmaster®  A-1

O									R
C					● S				
1									
B-1	B-2	B-3	B-4	B-5	B-6	B-7a	B-7b	B-8	



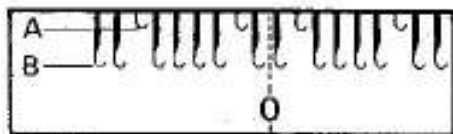
EXPLANATION OF PATTERN CARD SYMBOLS



A - 1 PUNCH CARD REFERENCE NO.

A - 5 indicates punch card reference No. In this instance use card No. 5 side 'A'

( 24 - 33 ) indicates how many stitches and rows to one complete pattern. Left number stands for STITCHES Right number stands for ROWS.



A - 1 NEEDLE ARRANGEMENT

Select required needles as shown in this column.



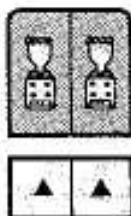
B - 1 OPERATION PROCEDURE

'C' indicates memorise pattern into memory drums.

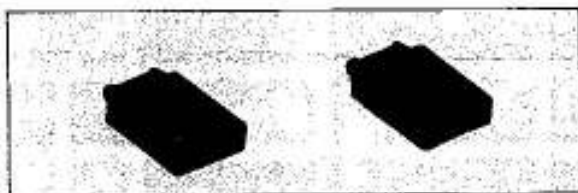
Numbers indicate operation procedure.



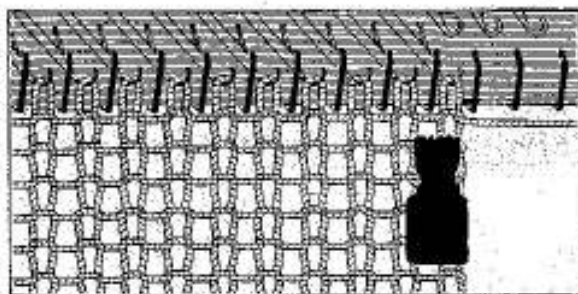
## B - 2 CLAW WEIGHTS



Triangle (▲) mark indicates that claw weights should be used.



Remove the two claw weights from the accessory box and attach to fabric when knitting double welts and patterns.

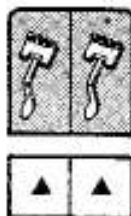


Fit one each claw weight on the left and right side of knitted fabric.

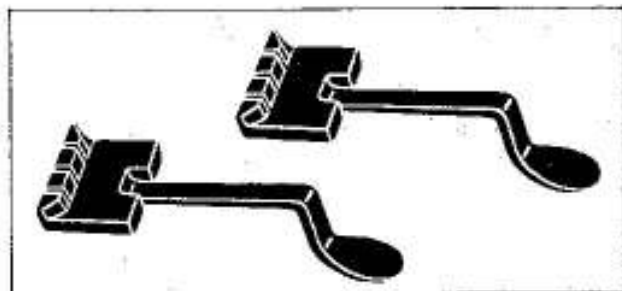
For MOTIF KNITTING hang the claw weights on the inner side of motif pattern.

After knitting 30-40 rows move claw weights upwards close to the needles.

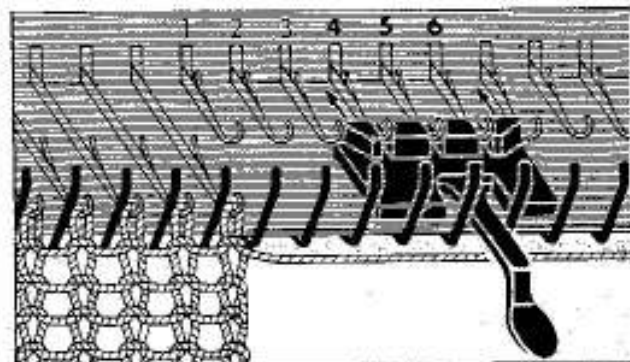
## B - 3 YARN SEPARATOR FINGERS



Triangle (▲) mark indicates that yarn separator fingers should be used.

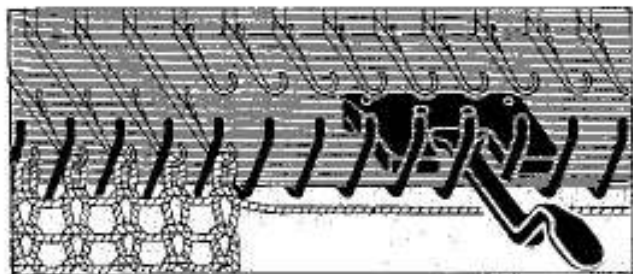


Remove yarn separator fingers from accessory box.



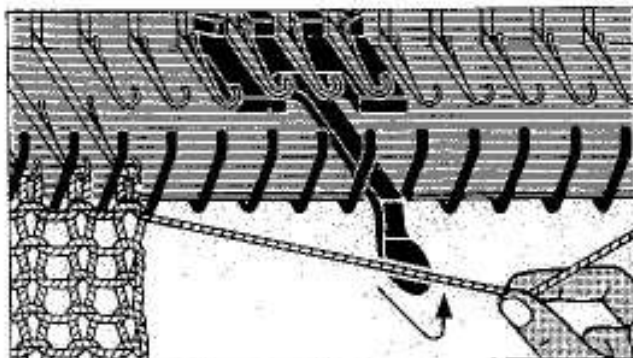
Insert under the 4th, 5th and 6th non-working needle on left and right side of knitted fabric the yarn separator finger and push backwards as far as it will go. (See illustration).

ENSURE THAT OVAL SIDE FACES DOWNWARDS.

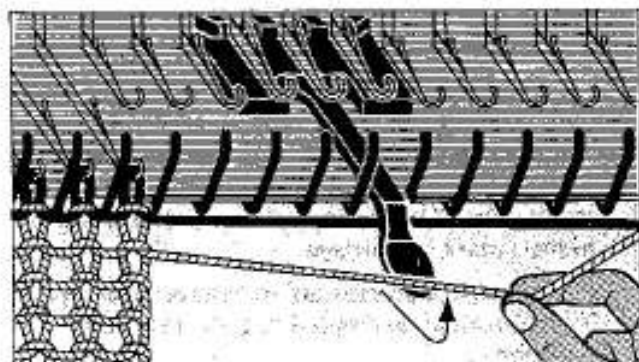


INCORRECT

DO NOT insert yarn separator finger with oval part facing upwards.

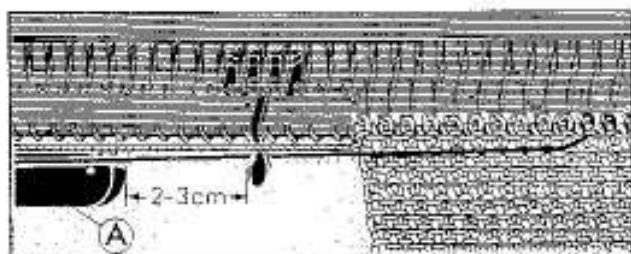


When knitting TUCK and TUCK LACE patterns yarn must lie on top of yarn separator finger.



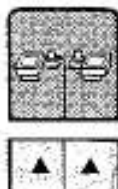
When knitting MOTIF patterns yarn must be arranged as follows:

- |                    |   |
|--------------------|---|
| <u>MAIN YARN</u>   | must lie on top of yarn separator finger.     |
| <u>SECOND YARN</u> | must lie underneath of yarn separator finger. |

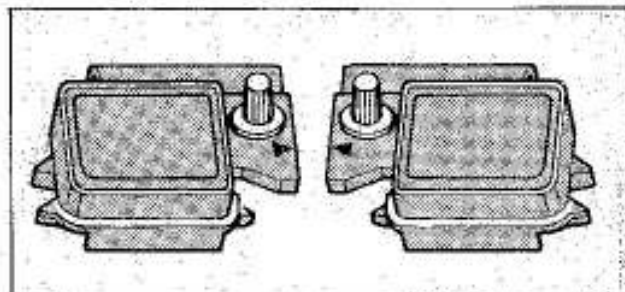


IMPORTANT: Ensure that sinker arm plate 'A' has passed the yarn separator finger by approximately 2 - 3 cm before knitting next row.

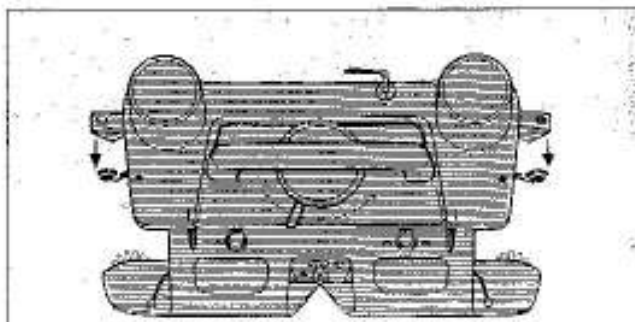
**B - 4a MAGIC CAM**



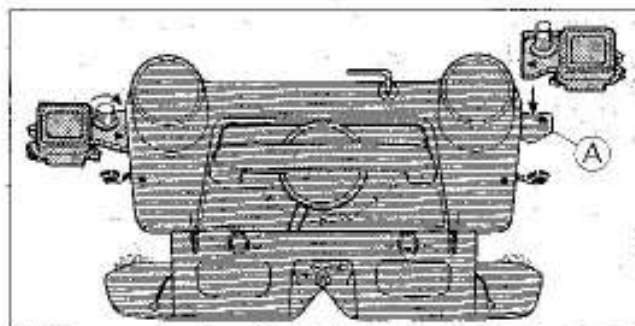
The triangle (▲) mark indicates that magic cam must be attached to carriage.



Remove the two magic cams (left and right) from the accessory box and attach to the carriage as follows:

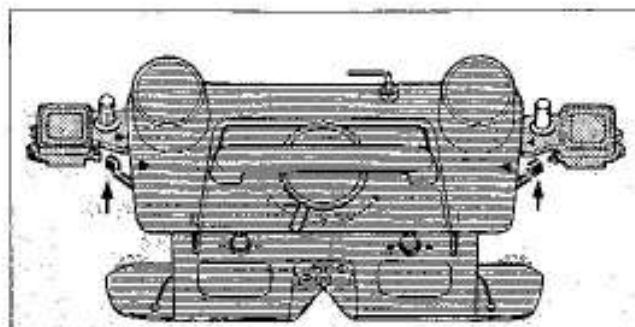


Set both side levers . . . . . to ▼



Place left and right magic cam onto extension plates 'A' ensuring that the triangle mark on magic cam is facing you and corresponds with triangle mark on carriage.

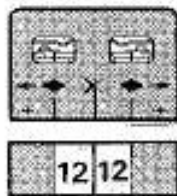
Fasten magic cam securely to extension plates 'A' by turning the knurled nuts in clockwise direction.



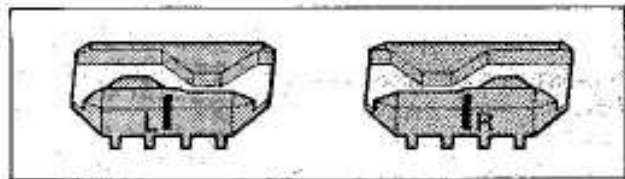
Set both side levers . . . . . to ▲

**IMPORTANT: DO NOT SET THE TENSION DIAL 'A' HIGHER THAN 7 DURING MOTIF KNITTING.**

**B - 4b POINT CAM**



The numbers indicate position of point cam.



Remove the two point cams (left and right) from the accessory box and place on needle bed as follows:

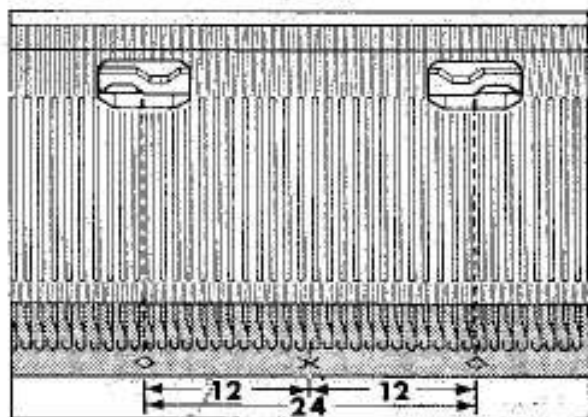
- LEFT POINT CAM (yellow colour)
- RIGHT POINT CAM (red colour)



**NOTE:** On the front of the needle bed underneath the needles is a vinyl tape with the following markings:

- X indicates centre of pattern
- ◆ indicates width of pattern

0-100 on left and right side of centre '0' indicates number of needles.



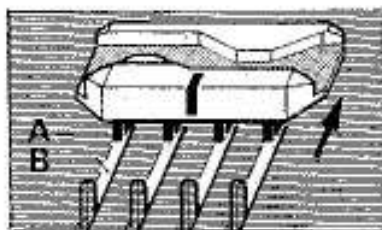
Select the nearest two (◆) marks where you would like to knit the motif pattern and place the left and right point cams on the needle bed behind the needle butts of needles in 'B' position.

**LEFT POINT CAM:**

Black line must be in centre of (◆) mark between 12th and 13th needle from the centre of (X) mark.

**RIGHT POINT CAM:**

White line must be in centre of (◆) mark between 12th and 13th needle from the centre of (X) mark.



**IMPORTANT:**

Ensure that studs 'A' fit correctly into needle bed grooves 'B'.


Before starting to knit push both point cams back as far as they will go.

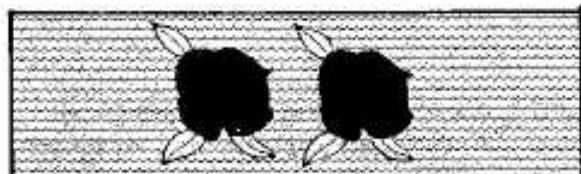


If point cams are placed as in above illustration you will be able to knit one motif pattern.

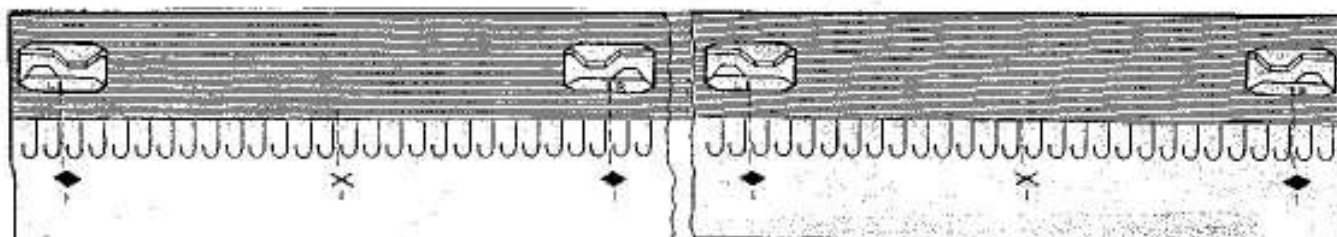




You can knit more than one motif pattern in one row by placing the point cams further apart.

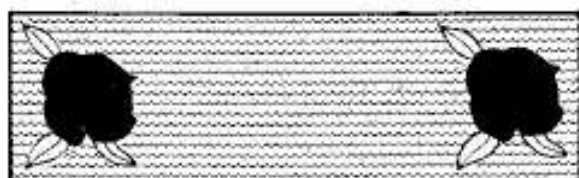
**NOTE:** Ensure that black line on left point cam and white line on red point cam is in centre of diamond  mark.



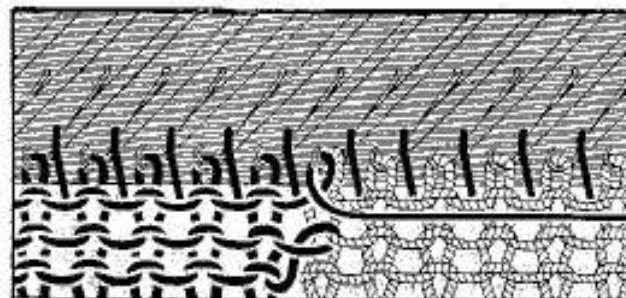
If point cams are placed as in above illustration you will be able to knit two motif patterns next to each other.



You can also knit more than one motif pattern in different places by simply placing the second point cam set in a different position on the needle bed between two  - - - -  marks.



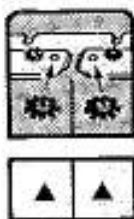
If point cams are placed as in above illustration you will be able to knit two motif patterns in different places.



For a better finish when doing single motif patterns we recommend the following:

After each row is knitted, wind contrast yarn around needle hook of first needle (side nearest the carriage) adjacent to last stitch of motif knitted.

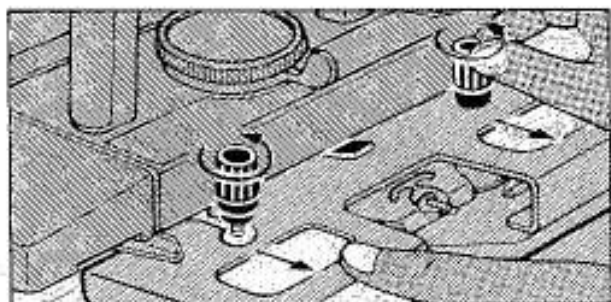
## B - 4 ROUND BRUSHES



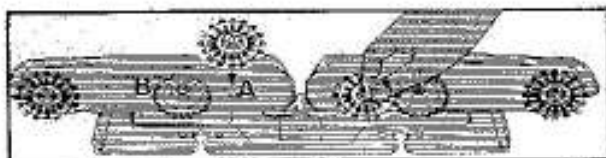
The triangle (▲) mark indicates that the round brushes must be attached to the sinker plates.



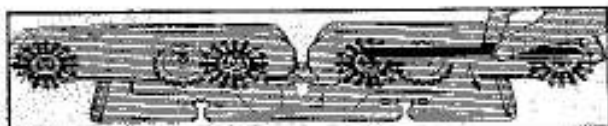
Remove the two round brushes from the accessory box and attach to the sinker plates as follows:



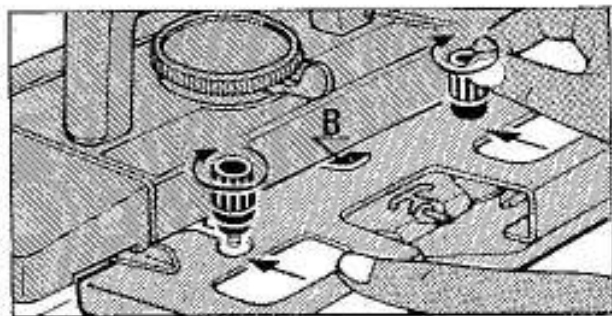
Loosen both thumb screws and remove sinker arm assembly from the carriage.



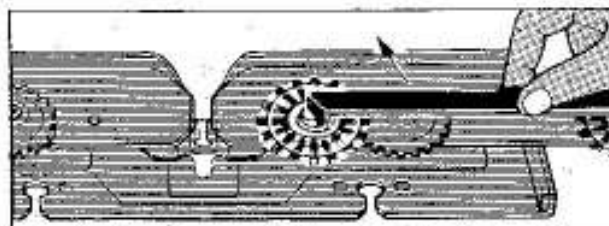
Turn sinker arm assembly upside down and screw the two round brushes into holes 'A' located next to fabric gears 'B'.



Use a screwdriver or the short bent end of the needle retaining bar pusher to tighten screws securely.  
**DO NOT USE FORCE.**



Fit sinker arm assembly to carriage and tighten knurled nuts firmly ensuring that holding bracket 'B' is on top of sinker arm assembly and both knurled nuts fit correctly into cut-out of sinker arm.



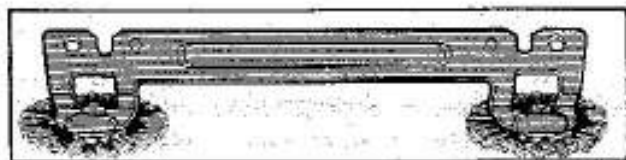
For plain or other pattern knitting, remove the round brushes from the sinker arm assembly.

## B - 4 WEAVING BRUSH

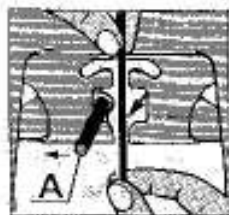
### ASSEMBLY



The triangle (▲) mark indicates that the weaving brush assembly must be attached to the carriage.

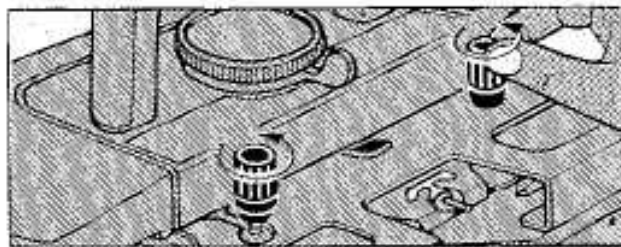


Remove weaving brush assembly from accessory box and attach to carriage as follows:

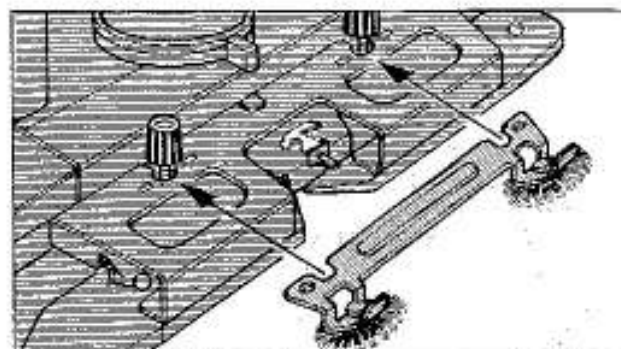


If you attach weaving brush during knitting -

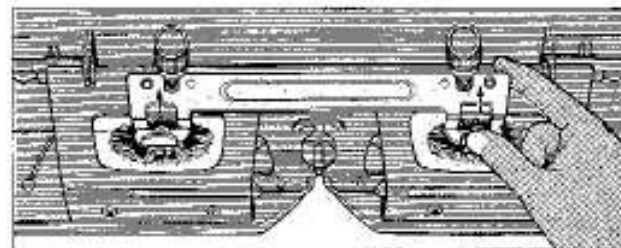
Carriage on right side.  
Open feeder by moving pin 'A' to the left.  
Remove main yarn from feeder and lay it around yarn clip on right side of machine.



Loosen both thumb screws by turning them in arrow direction.



Install the weaving brush on top of the sinker arm assembly and under the two thumb screws.



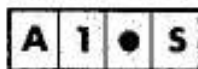
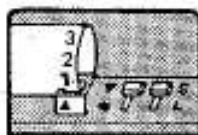
Ensure weaving brush and sinker arm assembly fits correctly.



Tighten both thumb screws firmly.

Remove main yarn from yarn clip; thread into feeder; close feeder.

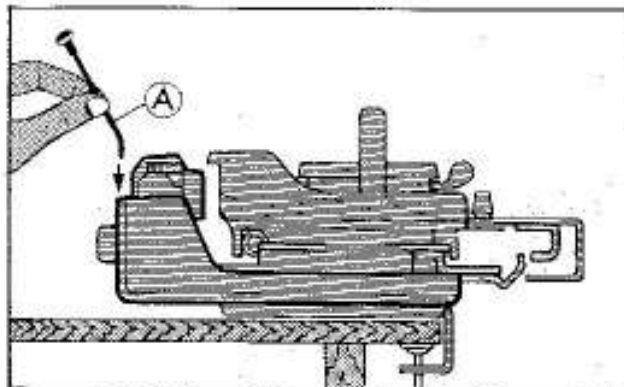
**B-5 PATTERN PANEL**  
and **PUNCH CARD**



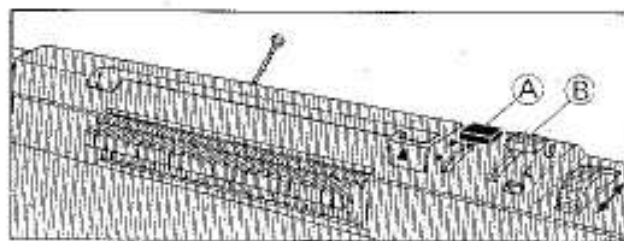
A-1 indicates that 'A' side of card must be inserted into pattern panel slot.

● indicates that card release knob must be set to (●) mark.

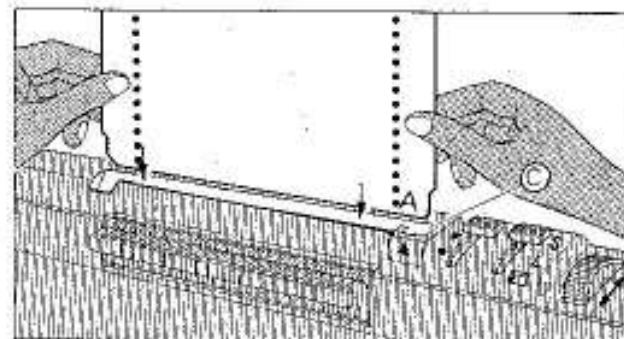
S indicates that pattern variation knob must be set to 'S' mark.



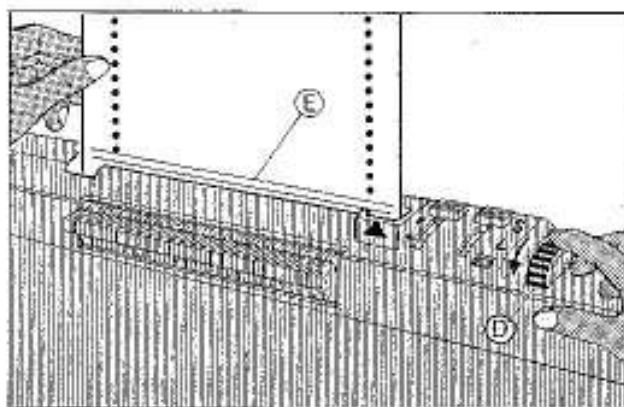
Remove card guide pin 'A' from the accessory box and insert it into the hole located at the back of the pattern panel.



Set card release knob 'A' to ▼  
Set pattern variation knob 'B' to S

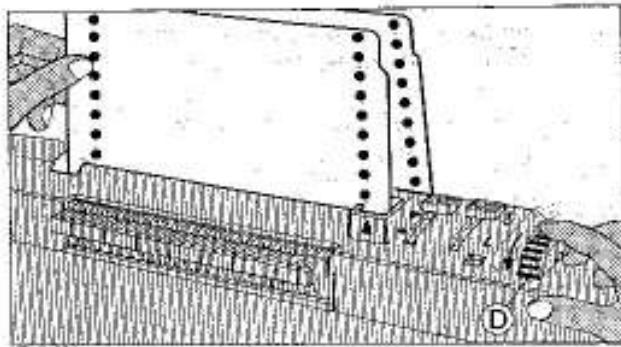


Remove card from vinyl envelope. Holding card straight with the letter 'A' on the bottom right hand corner facing you, insert it into the pattern panel slot 'C' and push it down slightly.

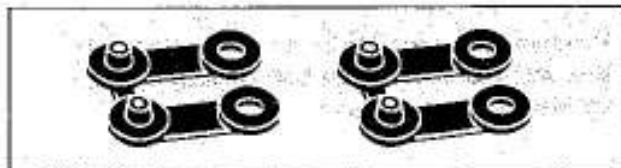


Turn feed dial 'D' slowly towards you and at the same time check that the red indication lines 'E' on the card are parallel with the front of the pattern panel.

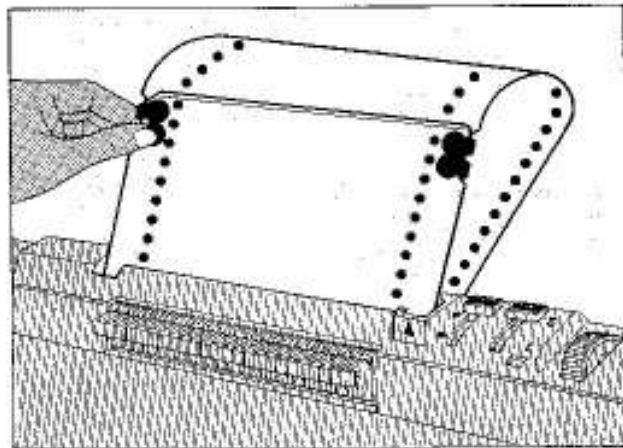




Continue turning feed dial 'D' towards you until the card comes out at the back of the pattern panel and front and back edge of card are in line.



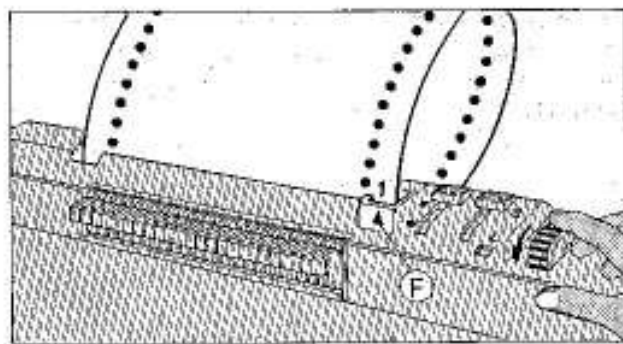
Remove two card clips from the accessory box.



Overlap the ends of the card with the letter 'C' on top.

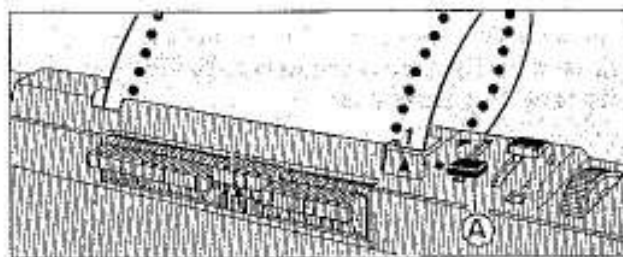
Line up the 2 holes on each side.

Insert card clips and join card ends by pressing clips together.



Turn feed dial until No. 1 printed on the card appears above the triangle mark 'F' on pattern panel.

NOTE: No. 1 is always the beginning of a pattern.



Set card release knob 'A' to ●

## PATTERN PANEL FUNCTION



### CARD RELEASE KNOB '4'

If knob is set . . . . . to ●  
Punch card is locked and will not feed when carriage is moved across needle bed, also feed dial '6' cannot be turned.

If knob is set . . . . . to ▼  
Punch card is free and will turn when carriage is moved across needle bed. Card can also be turned by moving feeding dial '6'.

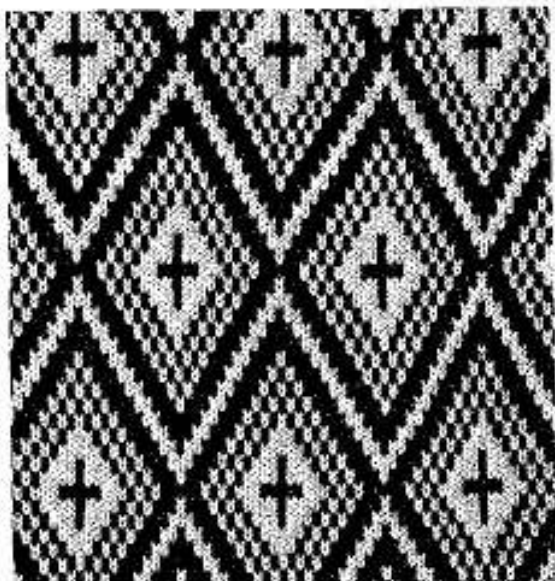
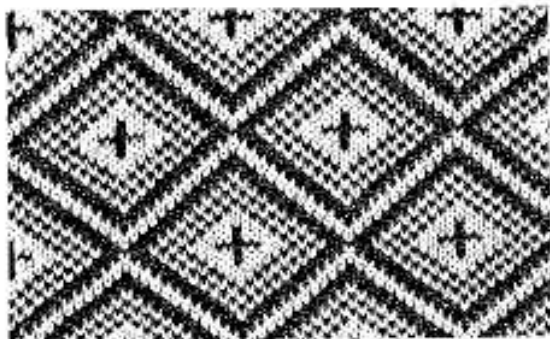
### PATTERN MEMORY INDICATOR '7'

Blue colour indicates that next pattern row is memorised in memory drums.

Red colour indicates that previous pattern row will be repeated.

### PATTERN VARIATION KNOB '5'

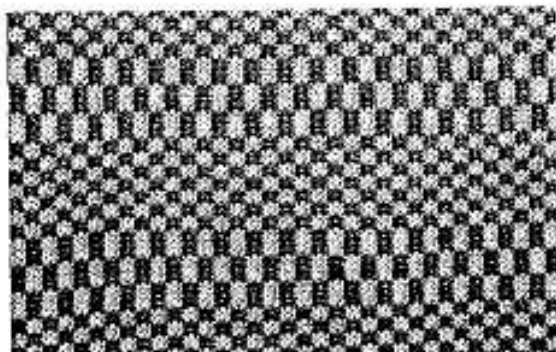
If knob is set . . . . . to S  
card moves every row and a standard pattern can be knitted.



If knob is set . . . . . to L  
card moves only every second row and expanded patterns can be knitted.

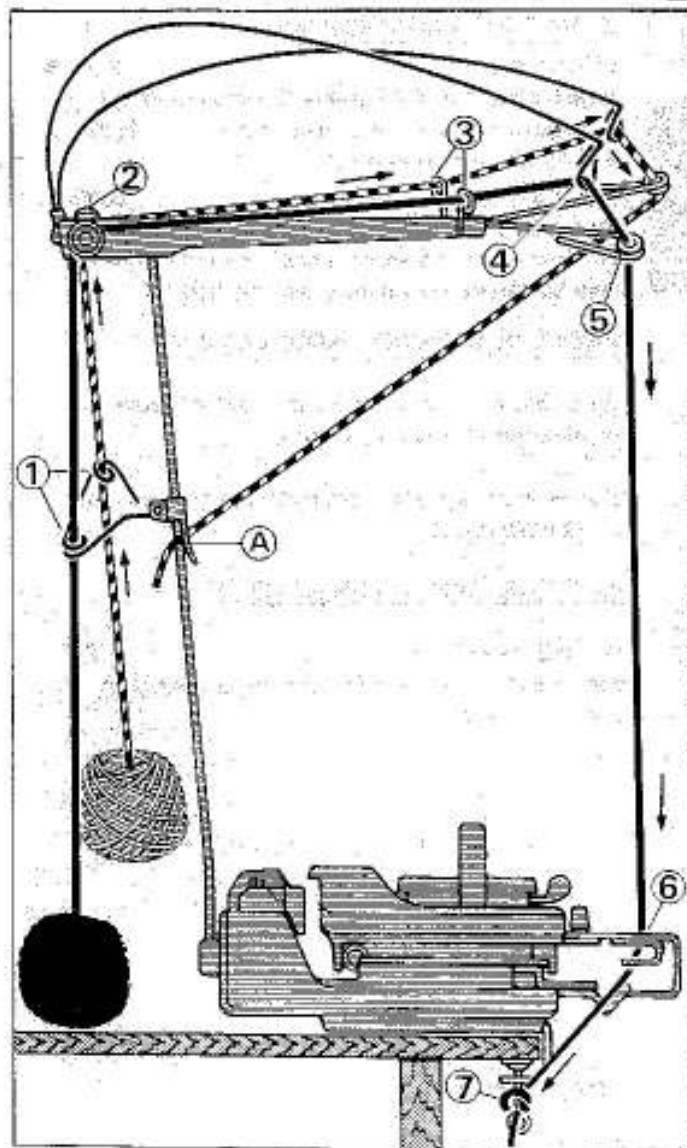
### NOTE:

When knitting expanded patterns with pattern variation knob '5' set to 'S', always start first row of pattern knitting from right to left.



Very interesting patterns can be knitted by simply changing pattern variation knob '5' during pattern knitting.

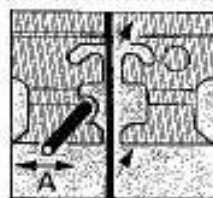
## HOW TO THREAD YARN BRAKE FOR TWO COLOUR KNITTING



Place carriage on right side.

Thread machine with the yarn with which you intend to knit the garment (main yarn) as follows:

1. Through yarn guide eyelet.
2. Between the two tension discs and underneath stop pin.
3. Through yarn guide eyelet.
4. Through take-up spring eyelet.
5. Through yarn guide eyelet.



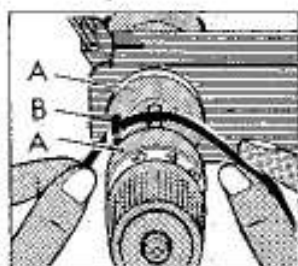
6. Into main feeder No. 1 by pushing pin 'A' to the left and sliding yarn into slot.  
Close feeder by pushing pin 'A' to the right.

7. Fasten yarn end onto right side table clamp.

Thread a second ball of yarn in contrast colour (waste yarn) in the same way as main yarn up to yarn guide eyelet 5.

Pull yarn downwards and hook yarn end into yarn clip 'A' on uprod.

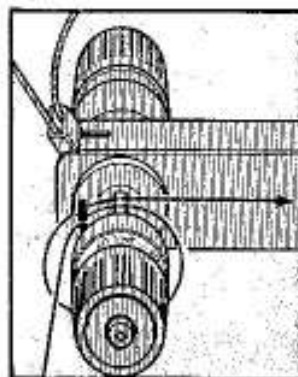
When second colour yarn is required, remove yarn from yarn clip 'A' and thread into feeder as per instructions given.



### IMPORTANT:

Before continuing check that the yarn is placed BETWEEN discs 'A' and UNDER pin 'B'

Adjust yarn brake tension.



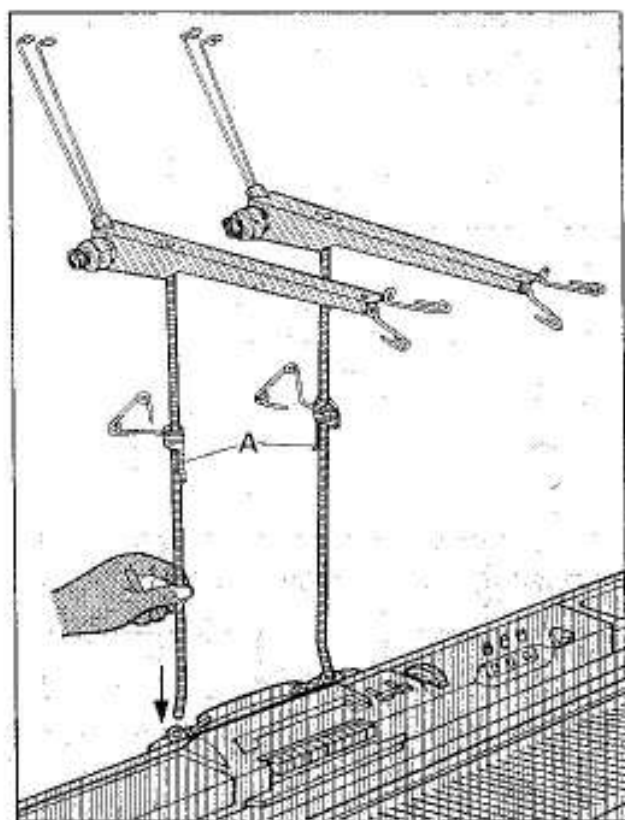
**FOR PUNCH LACE** you have to use a thin cotton thread same colour as main yarn or a transparent nylon thread.

In order to keep the thread under tension, thread has to be turned once completely around the yarn brake centre pin (See illustration).

Adjust yarn brake tension to No. 5.

**NOTE:** As many patterns can be knitted in 3 or 4 colours, we recommend you purchase an additional yarn brake complete with uprod which can be easily fitted to your machine.

## HOW TO ASSEMBLE FOUR YARN BRAKES



### RIGHT YARN BRAKE

On the right side of handle, insert short bent end of yarn brake rod with yarn clip 'A' away from you, into bracket socket.

Raise right yarn guide by pulling it to the left until it passes the yarn rod and turn it towards the back.



Turn take-up spring upwards and place yarn brake onto yarn brake rod.

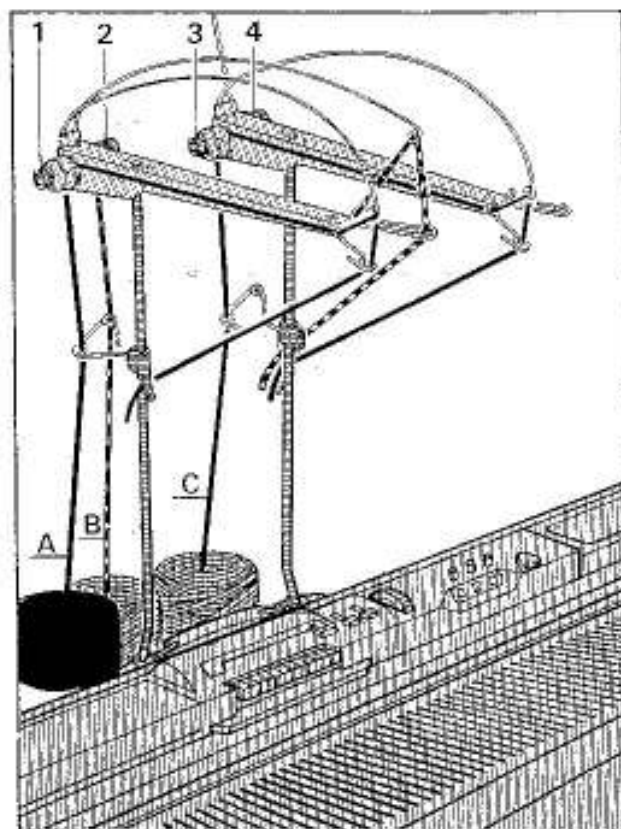
### LEFT YARN BRAKE

On the left side of handle, insert short bent end of yarn brake rod with yarn clip 'A' facing you, into bracket socket.

Raise rear yarn guide.

Turn take-up spring upwards and place yarn brake onto yarn brake rod.

## THREADING OF YARN BRAKE



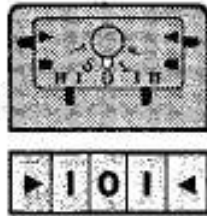
### THREE COLOURS

1. Thread MAIN YARN 'A' into yarn brake No. 1 and hook yarn end into left side yarn clip.
2. Thread COLOUR 'B' into yarn brake No.2 and hook yarn end into right side yarn clip.
3. Thread COLOUR 'C' into yarn brake No.3 and hook yarn end into right side yarn clip.

### FOUR COLOURS

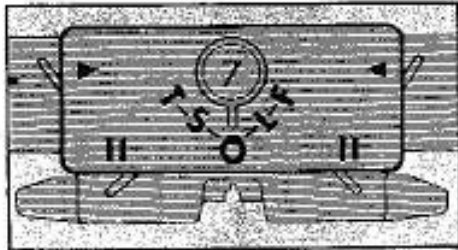
Thread COLOUR 'D' into yarn brake No. 4 and hook yarn end into right side yarn clip.

**B - 6 CARRIAGE SETTING**



This column indicates carriage setting. In this instance you would set:

- LEFT SIDE LEVER . . . . . to ▶
- LEFT FRONT LEVER . . . . . to I
- CAM LEVER . . . . . to O
- RIGHT FRONT LEVER . . . . . to I
- RIGHT SIDE LEVER. . . . . to ◀



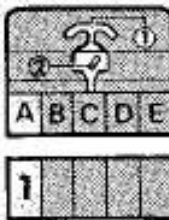
**CAM LEVER SETTING**

- 'T' . . . . . TUCK STITCH
- 'S' . . . . . SLIP STITCH
- 'O' . . . . . PLAIN KNITTING
- 'L' . . . . . PUNCH LACE
- 'F' . . . . . FAIR ISLE

	MOTIF		TUCK STITCH		SLIP STITCH		PLATTING		LACE		PUNCH LACE		FAIR ISLE		WEAVING	
SIDE LEVER SETTING	▶	◀	▶	◀	▶	◀	▶	◀	▶	◀	▶	◀	▶	◀	▶	◀
FRONT LEVER SETTING	I	I	I	I	II	II	I	I	I	I	I	II	II	II	II	II
CAM LEVER SETTING	F		T		S		T		T		L		F		O	

**B - 7 FEEDER THREADING**

Knitting with one colour only using feeder No. 1



'A' indicates that main yarn is only used.

'1' indicates that main yarn must be threaded into feeder No. 1.

**B - 7 FEEDER THREADING**

Knitting with two colours using feeder No. 1 only.

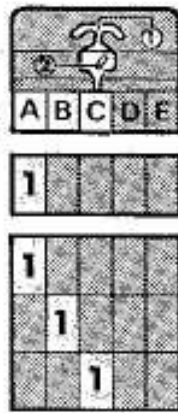


'A' and 'B' indicates that two colours are used.

'1' indicates that yarn in feeder No. 1 must be changed whenever a colour change is necessary.

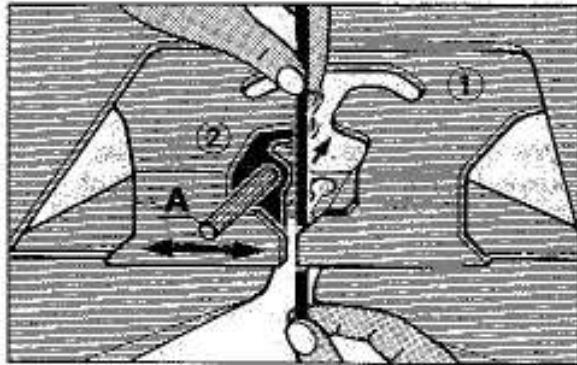
## B - 7 FEEDER THREADING

Knitting with more than one colour using feeder No. 1 only.



'A', 'B' and 'C' indicates that three colours are used.

**1** indicates that yarn in feeder No.1 must be changed whenever a colour change is necessary.



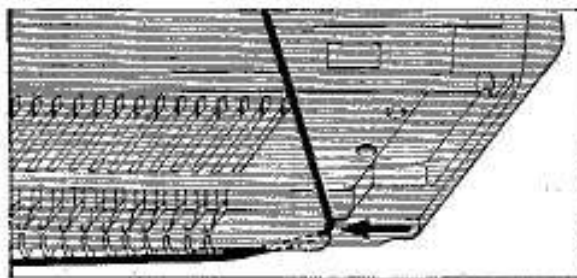
Thread yarn brake with main colour.

Open main feeder.

Thread main yarn into feeder No. 1.

Fasten yarn end to table clamp.

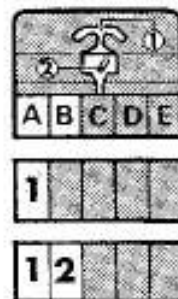
Close feeder.



When knitting with more than one colour, lay yarns not used around yarn clip on side of machine.

## B - 7 FEEDER THREADING

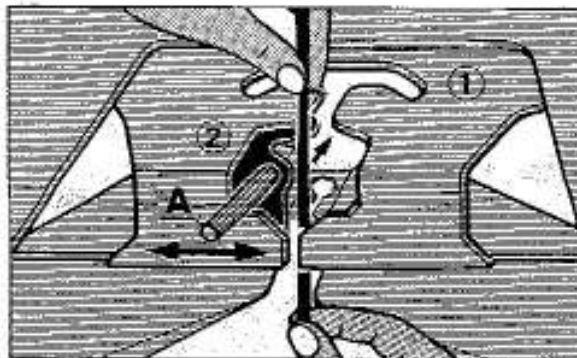
Knitting with more than one colour using feeder No. 1 and 2.



'A' and 'B' indicates that two colours are used.

**1** indicates that main yarn must be threaded into main feeder No.1.

**2** indicates that second colour must be threaded into feeder No. 2.



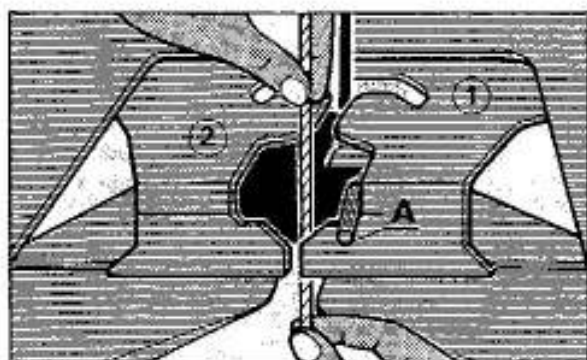
a) Thread yarn brake with main yarn.

Open main feeder.

Thread main yarn into feeder No. 1.

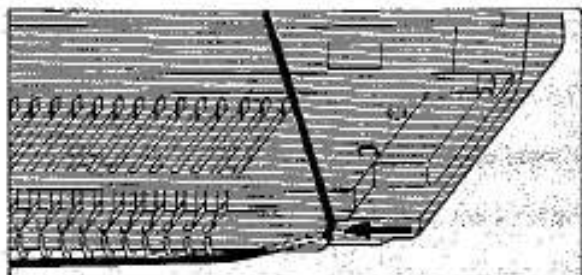
Fasten yarn end to table clamp

Close feeder.



- b) Thread yarn brake with second colour yarn.  
Thread second colour yarn into feeder No.2  
to the left side of pin 'A'.  
Fasten yarn end to table clamp.

**NOTE:** When knitting punch lace patterns -  
Thread nylon or cotton thread into feeder  
No.2 to the left side of pin 'A'.  
Fasten thread end to table clamp.



If you knit with three or more colours, lay  
yarns not in use around yarn clip on side of  
machine.

**B-7a and B-7b**  
**FEEDER THREADING**  
for  
**PLATTING PATTERN**

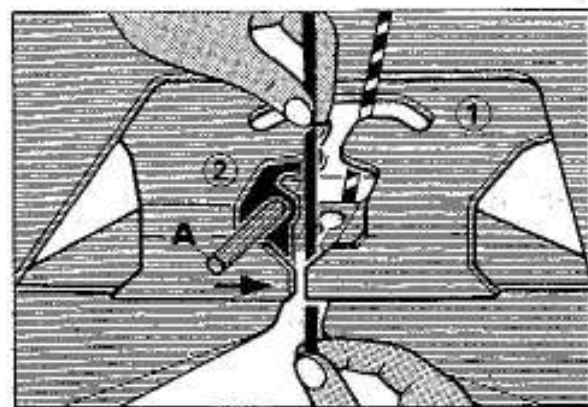


B-7a Triangle (▲) mark indicates that plating  
yarn must be threaded into feeder No.1  
as follows:

B-7b 'A' indicates that main yarn is threaded  
into main feeder No. 1.

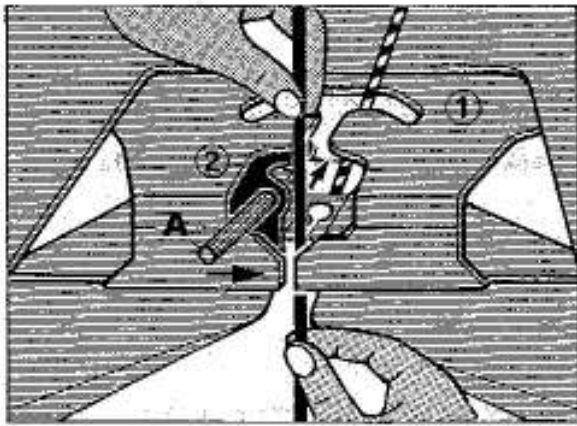


- a) Thread yarn brake with plating yarn.  
Move carriage to extreme right.  
Open main feeder.  
Thread plating yarn from the top into main  
feeder No. 1 and pull yarn behind yarn  
feeder hole 'B'.  
Fasten yarn end to table clamp.



- b) Thread yarn brake with main yarn.  
Thread main yarn into feeder No. 1.  
Fasten yarn end to table clamp.  
Close feeder.

**NOTE:** If you thread feeder as above -  
MAIN YARN will be on the right side  
of fabric.  
PLATTING YARN will be on the left  
side of fabric.

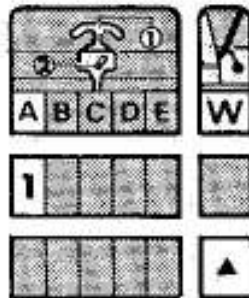


If you prefer to use the plating yarn on the right side of fabric, thread feeder as follows:

- a) Thread main yarn from the top into main feeder No. 1 and pull yarn behind yarn feeder hole 'B'. Fasten yarn end to table clamp.
- b) Thread plating yarn into feeder No. 1, close feeder by moving pin 'A' to the right and fasten yarn end to table clamp.

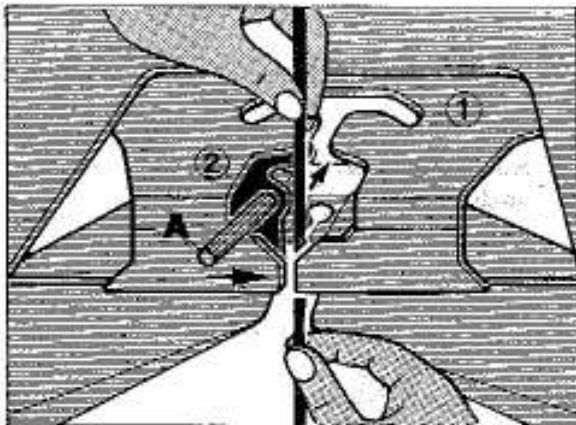
B - 7a and B - 7b

FEEDER THREADING  
for  
WEAVING PATTERNS

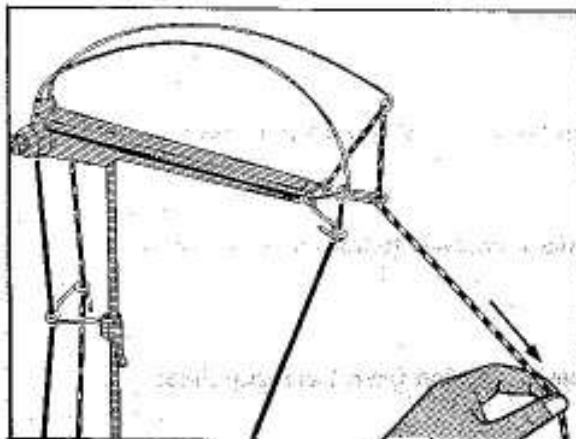


B-7a indicates that main yarn is threaded into main feeder No. 1.

B-7b Triangle (▲) mark indicates that weaving yarn must be threaded as follows:



Carriage on right side.  
Thread yarn brake with main yarn.  
Open feeder.  
Thread main yarn into feeder No. 1.  
Fasten yarn end to table clamp.  
Close feeder.



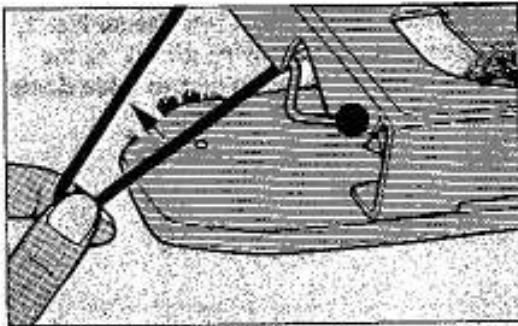
Thread yarn brake with weaving yarn.  
Pull yarn downwards towards carriage in front of main yarn and fasten yarn end to table clamp.





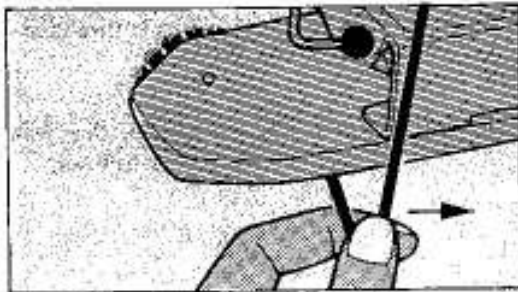
### KNITTING FROM RIGHT TO LEFT

Hook weaving yarn into left side yarn holder.



### KNITTING FROM LEFT TO RIGHT

a) Remove weaving yarn from left yarn holder by moving same backwards and underneath of sinker arm.

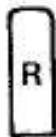


b) Move weaving yarn to the right side of sinker arm.



c) Hook weaving yarn into right side yarn holder.

## B - 8 KNITTING INSTRUCTIONS



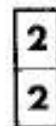
'R' column indicates knitting procedure.



Single arrow pointing to the right indicates to knit from left to right.



Double arrow pointing to left and right indicates to knit as many rows as required.

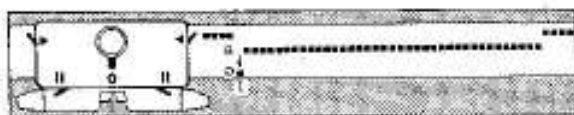
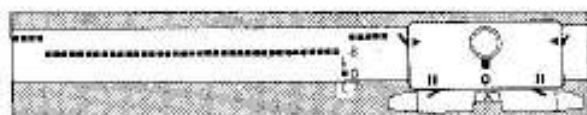


Arrow on side of card indicates repeat operation from 1 as many times as required.

## NEEDLE ARRANGEMENT and FRONT LEVER SETTING for PLAIN KNITTING

NEEDLE ARRANGEMENT	FRONT LEVERS TO		WEAVING	FAIR ISLE	SLIP STITCH	PUNCH LACE	TUCK STITCH	TUCK PLATTING
	Left	Right						
1 Needle on carriage side to 'D' position			●	●				
1 Needle opposite carriage to 'D' position					●			
1 Needle left and right side to 'D' position.						●		
2 Needles opposite carriage to 'D' position							●	●

### WEAVING PATTERN



**CARRIAGE SETTING:** Cam lever to 0  
 Front lever to II  
 Side lever to 4

**IMPORTANT:** For correct pattern knitting it is necessary to bring the last needle knitted on carriage side from 'B' to 'D' position after every row knitted.

### FAIR ISLE PATTERN



**CARRIAGE SETTING:** Cam lever to F  
 Front lever to II  
 Side lever to 4

**IMPORTANT:** For correct pattern knitting it is necessary to bring the last needle knitted on carriage side from 'B' to 'D' position after every row knitted.

## SLIP STITCH PATTERN



**CARRIAGE SETTING:** Cam lever to S  
Front lever to II  
Side lever to ←



**IMPORTANT:** At the beginning of every row, bring last needle knitted on the opposite side of carriage from 'B' to 'D' position.

## PUNCH LACE PATTERN



**CARRIAGE SETTING:** Cam lever to L  
Front lever to II  
Side lever to ←

**IMPORTANT:**

- Always start to knit from right to left.
- Before starting to knit bring last needle knitted on left and right side of fabric from 'B' to 'D' position.
- KNIT 2 ROWS.

Repeat operation (b) and (c).

## TUCK STITCH PATTERN and TUCK STITCH PLATTING PATTERN



**CARRIAGE SETTING:** Cam lever to T  
Front lever to II  
Side lever to ←

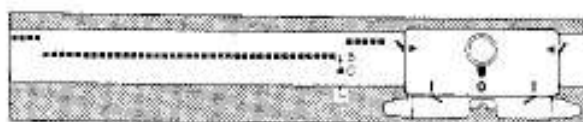


**IMPORTANT:** We recommend at the beginning of every row you bring the last 2 needles on the opposite side of carriage from 'B' to 'D' position in order that the end stitches are correctly knitted.

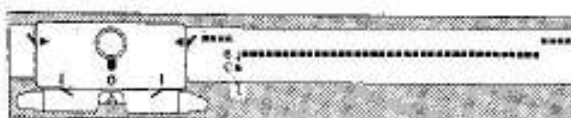
## NEEDLE ARRANGEMENT and FRONT LEVER SETTING for PARTIAL KNITTING

NEEDLE ARRANGEMENT	FRONT LEVERS TO		WEAVING	FAIR ISLE	SLIP STITCH	PUNCH LACE	TUCK STITCH	TUCK PLATTING
	Left	Right						
1 Needle on carriage side to 'C' position.			●	●				
1 Needle opposite carriage to 'C' position					●			
1 Needle left and right side to 'C' position						●		
2 Needles opposite carriage to 'C' position							●	●

### WEAVING PATTERN

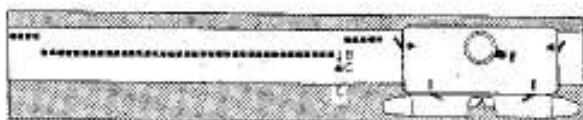


**CARRIAGE SETTING:** Cam lever to 0  
 Front lever to 1  
 Side lever to 4

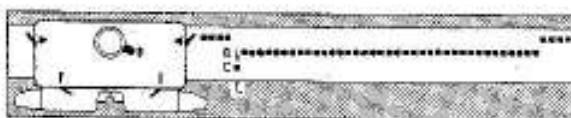


**IMPORTANT:** For correct pattern knitting it is necessary to bring the last needle knitted on carriage side from 'B' to 'C' position after every row knitted.

### FAIR ISLE PATTERN



**CARRIAGE SETTING:** Cam lever to F  
 Front lever to 1  
 Side lever to 4



**IMPORTANT:** For correct pattern knitting it is necessary to bring the last needle knitted on carriage side from 'B' to 'C' position after every row knitted.

## SLIP STITCH PATTERN

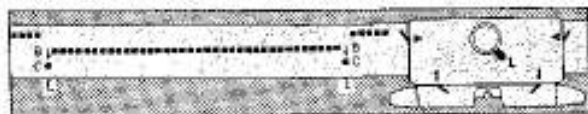


**CARRIAGE SETTING:** Cam lever to S  
Front lever to I  
Side lever to ◀



**IMPORTANT:** At the beginning of every row bring last needle knitted on opposite side of carriage to 'C' position.

## PUNCH LACE PATTERN



**CARRIAGE SETTING:** Cam lever to L  
Front lever to I  
Side lever to ◀

**IMPORTANT:**

- Always start to knit from right to left.
- Bring last needle knitted on left and right side of fabric to 'C' position.
- Knit 2 rows (right to left, left to right).

Repeat operation (b) and (c).

## TUCK STITCH PATTERN and TUCK STITCH PLATTING PATTERN




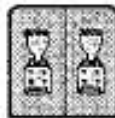


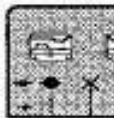
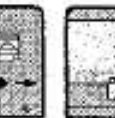

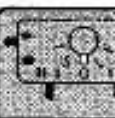
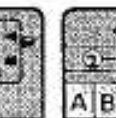
**CARRIAGE SETTING:** Cam lever to T  
Front lever to I  
Side lever to ◀



**IMPORTANT:** We recommend at the beginning of every row you bring last 2 needles on the opposite side of carriage to 'C' position in order that the end stitches are correctly knitted.

# HOW TO READ THE PATTERN CARDS

## MOTIF KNITTING

A-5 (24-58)						Empisal-Knitmaster®			
O									R
C					A 1 ● S	▶ I O I ◀	1		1
1	▲ ▲	▲ ▲	▲ ▲	12 12	▼	F	1 2		15
2					16		1 2		33
3					48		1 2		10

USE PUNCH CARD NO. A-5

**OPERATION - C** Stop with carriage on left side of fabric.

Insert punch card No. 5 side 'A' into pattern panel slot.

Set the No.-1 above the triangle (▲) mark.

Set card release knob . . . . . to ●

Set pattern variation knob . . . . . to S

Set carriage left side lever . . . . . to ▶

Set carriage left front lever . . . . . to I

Set carriage cam lever . . . . . to O

Set carriage right front lever . . . . . to I

Set carriage right side lever . . . . . to ◀

Thread main yarn into feeder No. - 1.

KNIT ONE ROW from left to right.

**OPERATION - 1** Attach claw weights to fabric.

Place the yarn separator fingers under the empty needles.

Attach the magic cams to the carriage.

Place black line of left point cam between the 12th and 13th needle on the left from the centre of (X) mark.

Place white line of right point cam between the 12th and 13th needle on the right from the centre of (X) mark.

Set card release knob . . . . . to ▼

Set cam lever . . . . . to F

Thread colour 'B' into yarn feeder No. - 2.

KNIT 15 ROWS.

**OPERATION – 2** No. 16 on punch card must be above the triangle (▲) mark.

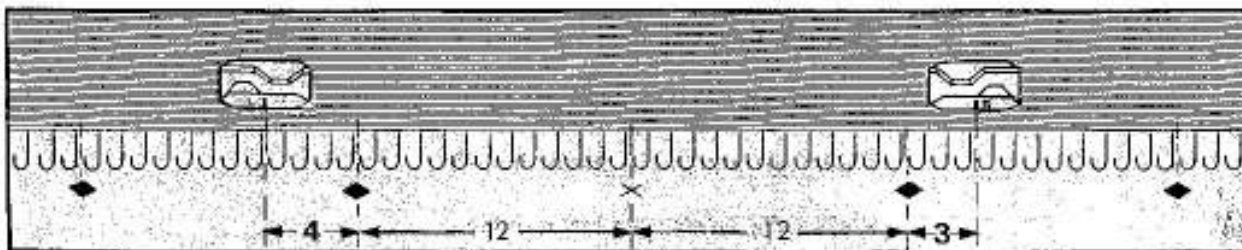
Remove colour 'B' from yarn feeder No. - 2 and thread colour 'C' into yarn feeder No. - 2.

KNIT 33 ROWS.

**OPERATION – 3** No. 48 on punch card must be above the triangle (▲) mark.

Remove colour 'C' from yarn feeder No. - 2 and thread colour 'B' into yarn feeder No. - 2.

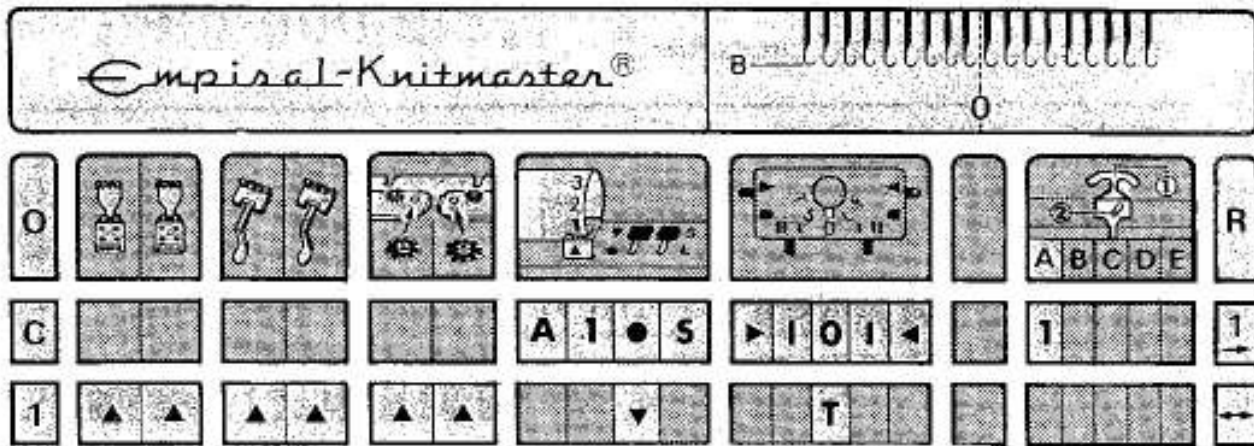
**NOTE:** When using Card No. 19-03, the point cams are placed differently in operation 1. See illustration below.



Left point cam 4 needles to the left of  
Right point cam 3 needles to the right of

(◆) mark.  
(◆) mark.

## TUCK STITCH PATTERN



USE ANY ONE OF THE PUNCH CARDS SHOWN IN THE PATTERN BOOK

OPERATION - C Stop with carriage on left side of fabric.

Insert punch card side 'A' into pattern panel slot.

Set the No. - 1 above the triangle (▲) mark.

Set card release knob . . . . . to ●

Set pattern variation knob . . . . . to S

Set carriage left side lever . . . . . to ▶

Set carriage left front lever . . . . . to |

Set carriage cam lever . . . . . to O

Set carriage right front lever . . . . . to |

Set carriage right side lever . . . . . to ◀

Thread main yarn 'A' into yarn feeder No. - 1.

**KNIT ONE ROW** from left to right.

OPERATION - 1 Attach claw weights to fabric.

Place the yarn separator fingers under the empty needles.

Attach the round brushes to the sinker plate.

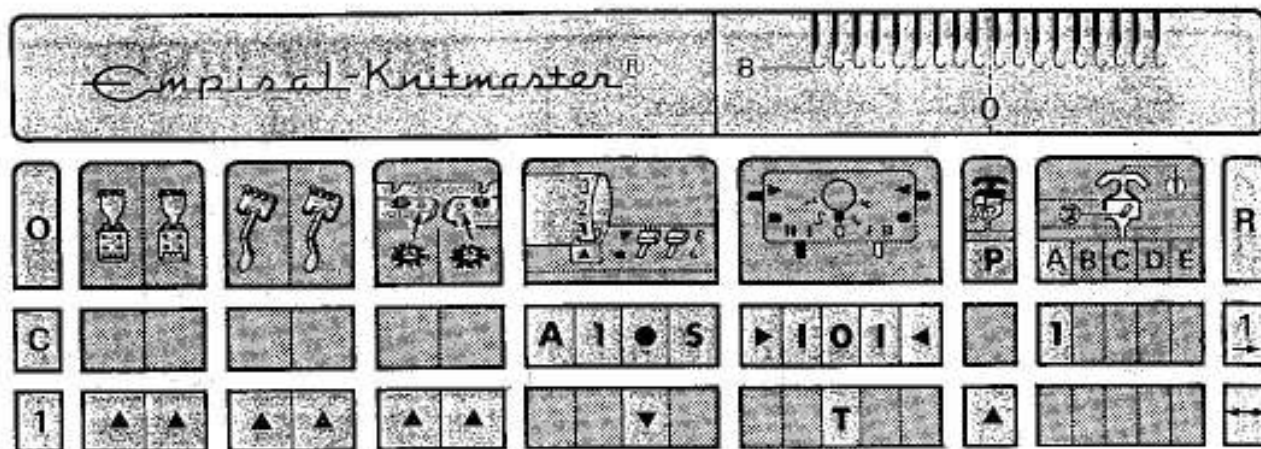
Set card release knob . . . . . to ▼

Set carriage cam lever . . . . . to T

**KNIT AS MANY ROWS AS REQUIRED.**



## PLATTING PATTERN



USE PUNCH CARD NO. 11-A or 12-A

**OPERATION - C** Stop with carriage on left side of fabric.

Insert punch card side 'A' into pattern panel slot.

Set the No. - 1 above the triangle (▲) mark.

Set card release knob . . . . . to ●

Set pattern variation knob . . . . . to S

Set carriage left side lever . . . . . to ►

Set carriage left front lever . . . . . to |

Set carriage cam lever . . . . . to O

Set carriage right front lever . . . . . to |

Set carriage right side lever . . . . . to ◀

Thread main yarn 'A' into yarn feeder No. - 1.

KNIT ONE ROW from left to right.

**OPERATION - 1** Attach claw weights to fabric.

Place the yarn separator fingers under the empty needles.

Attach the round brushes to the sinker plate.

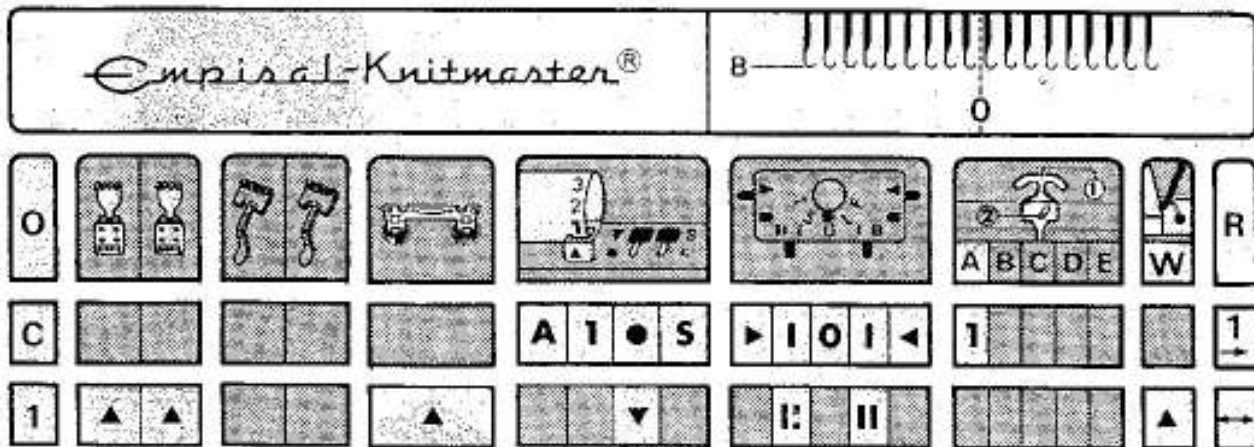
Set card release knob . . . . . to ▼

Set carriage cam lever . . . . . to T

Thread plating yarn behind feeder No. - 1.

KNIT AS MANY ROWS AS REQUIRED.

## WEAVING PATTERN



USE PUNCH CARD NO. -1A FOR PRACTICE

OPERATION - C Stop with carriage on left side of fabric.

Insert punch card side 'A' into pattern panel slot.

Set the No. - 1 above the triangle (▲) mark.

Set card release knob . . . . . to ●

Set pattern variation knob . . . . . to S

Set carriage left side lever . . . . . to ►

Set carriage left front lever . . . . . to |

Set carriage cam lever . . . . . to O

Set carriage right front lever . . . . . to |

Set carriage right side lever . . . . . to ◄

Thread main yarn 'A' into yarn feeder No. - 1.

KNIT ONE ROW from left to right.

OPERATION - 1 Attach claw weights to fabric.

Attach weaving brushes to the carriage.

Set card release knob . . . . . to ▼

Set carriage left and right side levers . . . . . to ||

Thread weaving yarn.

KNIT AS MANY ROWS AS REQUIRED.

## HELPFUL HINTS



### CASTING-ON PROBLEMS:

When you cast-on it is always best to cast-on with a very loose tension, i.e. from 7 upwards.

This gives you a large loop between the gate and the needle hook and when you lay your nylon thread across these loops, it is easy for you to pull the thread well down below the needle hooks thus enabling the hooks to pass **OVER THE NYLON THREAD** of your next row.

If the first row of stitches is too tight or if you do not pull the nylon thread well down, then when you knit your next row the needles will incorrectly pass **UNDER THE NYLON THREAD** causing it to be 'knitted in' thereby either jamming your carriage or spoiling your cast-on. In this case you will have to restart the casting-on.

### STITCHES ARE NOT KNITTED ON THE SIDE:

If you return the carriage **BEFORE IT HAS PASSED THE LAST NEEDLES IN 'B' POSITION BY SEVERAL CM.**, it can happen that the first stitches of the row are not knitted and sometimes it may happen that a complete row is not knitted. In the case that stitches are not knitted, unravel this row and re-start it again - also set the row counter back. If a complete row is not knitted, slide the carriage completely off the needle bed and re-start from the other side - also set the row counter back.

## DROPPED STITCHES ON THE SIDE:

Dropped stitches will occur on the sides of your knitting if your yarn brake is not properly threaded and your take-up spring is not automatically taking up all slack yarn between the feeder mouth and the needles. Loose loops may also form on the sides.

Dropped stitches or loose loops may occur at the sides of your knitting if you move your carriage too far past the knitting after knitting a row - then too much yarn is pulled from the yarn brake and you have slack yarn between the carriage and the knitting.

This is easily avoided if you just pull back any slack yarn behind the yarn brake.

## DROPPED STITCHES IN THE CENTRE:

Can be caused by:-

- too loose or too tight a tension
- a tension unsuitable for the pattern
- yarn is not suitable for the pattern

Inside your sinker arm are two rectangular black brushes. As you move your carriage, these brushes brush open and hold open your needle latches so that your yarn feeder can lay yarn into the hooks as the carriage passes the needles.

If these brushes are badly worn, or if the sinker arm has not been placed into the carriage properly, then the brushes cannot serve their function and dropped stitches will result. Dropped stitches are easy to repair.

## DROPPED STITCHES:

These can be caused by a knot in the yarn or by yarn which has been badly or too tightly wound, thus preventing the smooth flow of yarn from the ball to the knitting.

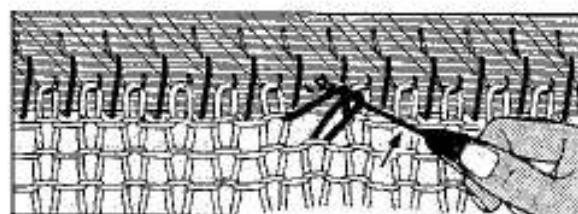
## HOW TO REPAIR A DROPPED STITCH:

Once you are accustomed to machine knitting, you will very seldom drop a stitch.

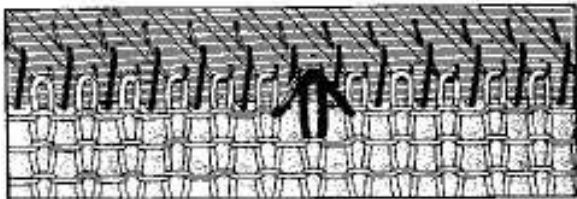
But as soon as you notice a dropped stitch, you should repair it. So, let's try -



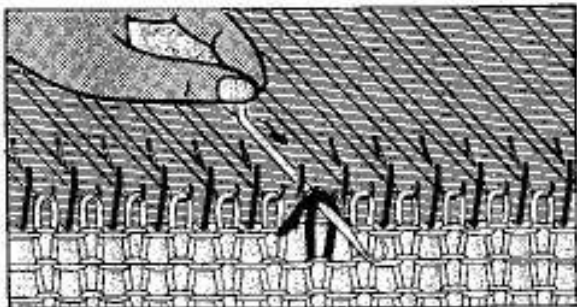
Insert the transfer tool inside the dropped stitch.



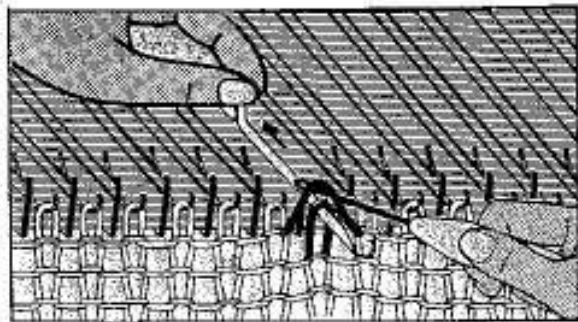
Hook the transfer tool into the empty needles. Lift the loose bar of yarn and the stitch onto the empty needle.



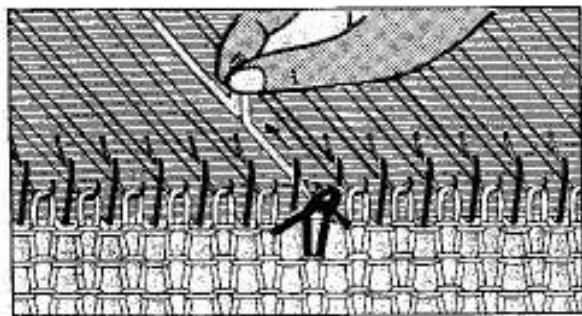
There is now 1 stitch and 1 bar on the empty needle.



First, push the needle up to 'D' position, then pull the needle slightly back - just until the bar and the stitch are behind the latch - then STOP.



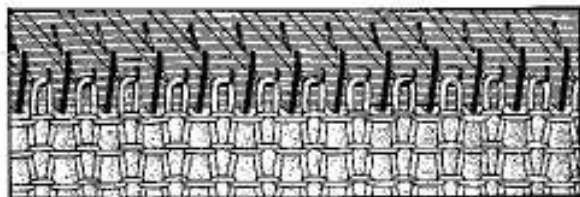
Lift the loose bar of yarn over the latch INTO the hook and leave the stitch BEHIND the latch.



Pull the needle back down towards 'B' position thus pulling the bar of yarn through the stitch.

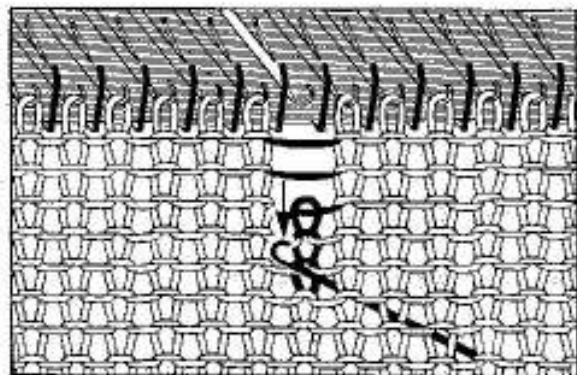


Push the needle further back towards 'A' position to enable it to form a bigger stitch.



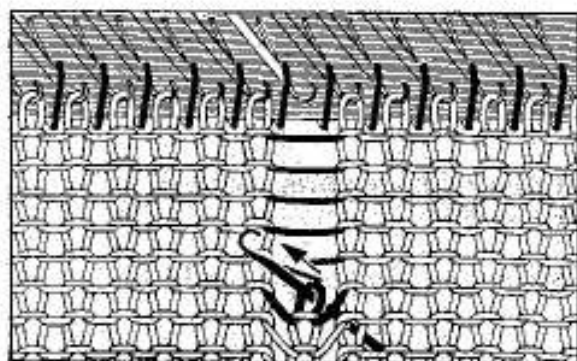
Pull your knitting down and sideways until gradually the newly repaired stitch assumes the same shape as all other stitches.

## REPAIRING A LADDER OF DROPPED STITCHES

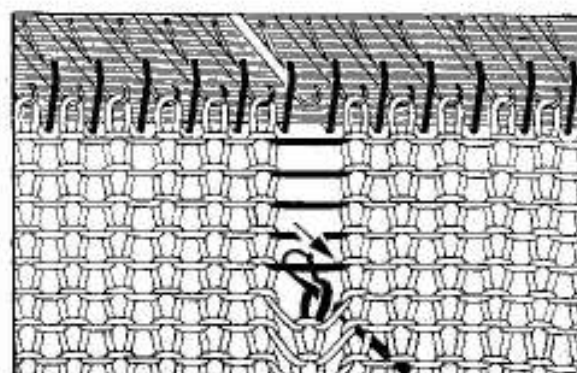


Insert the latchet hook from behind your knitting through a stitch a few rows below the dropped stitch.

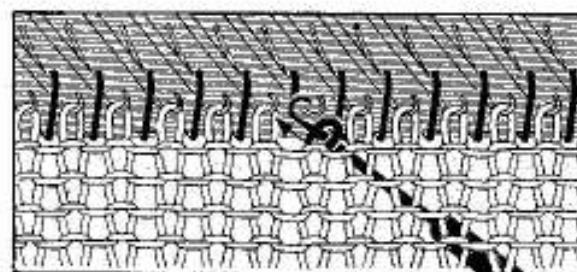
Undo stitches down to the latchet hook by pulling down on the latchet hook.



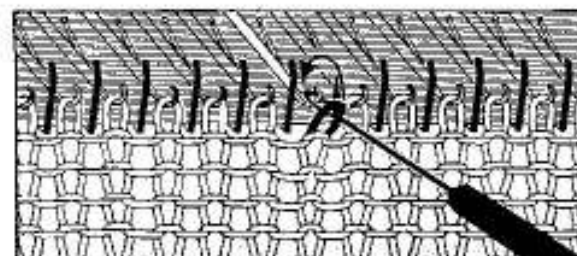
Push the latchet hook towards you so that the stitch comes behind the latch, and the hook catches the cross thread.



Draw back the latchet hook. The cross thread is trapped in the closed latch. Pull the cross thread through the loop thus forming a knitted stitch.



Push the latchet hook towards you again until the stitch is BEHIND the latch. Catch the next cross thread in the hook and pull it through the stitch. Repeat until you reach the top.



Pull the last stitch rather tight to make a bigger loop. Insert transfer tool into this loop from the front. Carefully remove this stitch from the latchet hook and place it on the needle with your transfer tool.

## UNDOING ROWS – UNRAVELLING

Unravelling is quick and very simple to do and may save quite a considerable amount of time.

### IT MAY BE NECESSARY TO UNRAVEL –

If you have knitted too many rows.

If you have made a mistake in your knitting or pattern.

If your carriage jams and it is necessary to release the carriage and re-start the row where the fault occurred.

If you have one or more dropped stitches in the middle of a row, it is much easier to unravel 2 or 3 rows and then just lift the dropped stitches back onto their respective needles.

**YOU CAN ONLY UNRAVEL WHEN ALL YOUR STITCHES ARE INSIDE THE NEEDLE HOOKS.**



**TO UNRAVEL 4 ROWS PROCEED AS FOLLOWS:**

Remove the yarn from the yarn feeder.



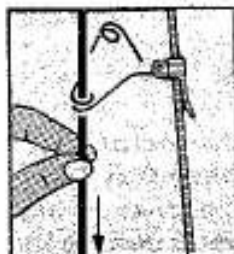
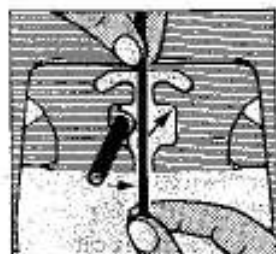
Hold the knitting down with your left hand and with your right hand pull the yarn sideways, as illustrated.



Lift the yarn upwards and very slightly backwards and you will notice that the stitches of the previous row automatically slide back into the needle hooks.

Repeat pulling the yarn and lifting the stitches of the previous row into the needle hooks until you have unravelled 4 rows.

When unravelling from the **LEFT**, you must pull the thread towards the **LEFT**.

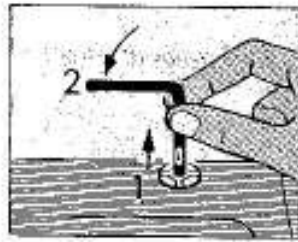


Thread yarn back into the yarn feeder.

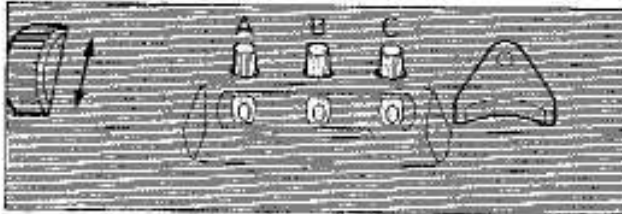
Pull back all the loose yarn behind the yarn brake.

**DO NOT FORGET TO SET BACK THE ROW COUNTER FOR THE NUMBER OF ROWS UNRAVELLED.**

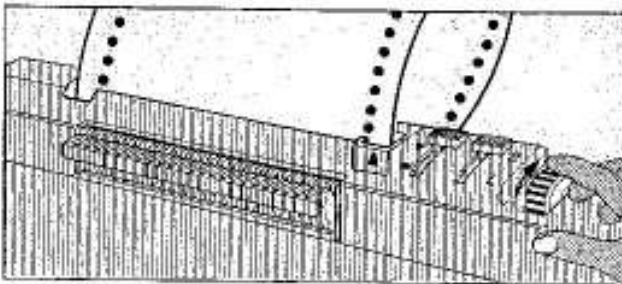
# HOW TO RESET ROW COUNTER, PUNCH CARD AND CARRIAGE AFTER UNRAVELLING



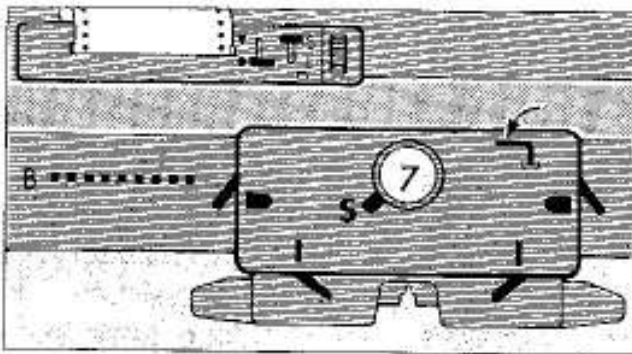
a) Disengage row counter tripper.



b) Turn row counter numbers back as many rows as unravelled.



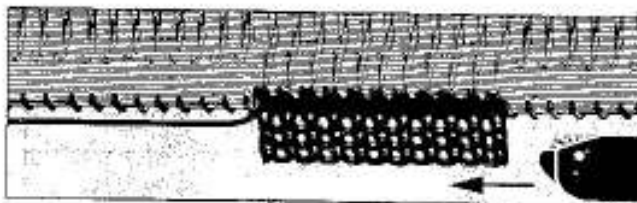
c) Turn punch card back as many times as rows unravelled.



d) To memorise pattern in memory drums:

- Set card release knob . . . . . to ●
- Set pattern variation knob . . . . . to S
- Set both side levers . . . . . to ■
- Set cam lever . . . . . to S
- Set both front levers . . . . . to I

Ensure that needles are in 'B' position and proceed as follows:

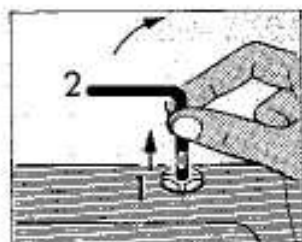


e) If yarn end is on opposite side of carriage move carriage only once across the needle bed.

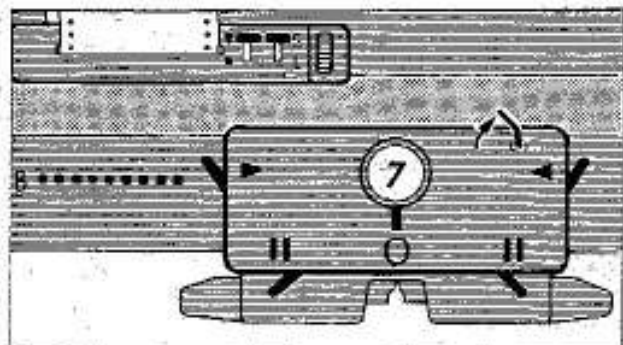


f) If yarn end is on same side as carriage move carriage twice across the needle bed.





g) Engage row counter tripper.

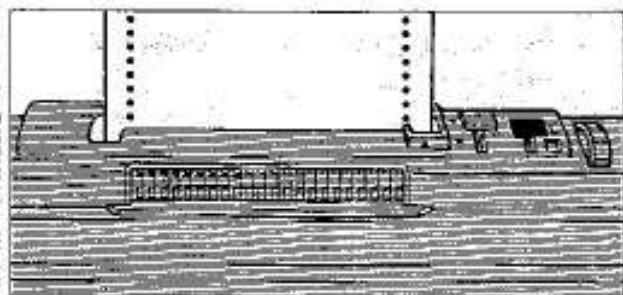


h) Set card release knob . . . . . to ▼

Set pattern variation knob in accordance with pattern instructions.

Set carriage side levers, front levers and cam lever in accordance with pattern instructions.

Continue to knit.

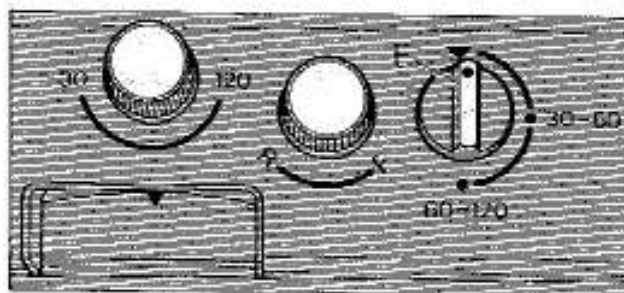


**NOTE:** If pattern variation knob is set to 'L' during pattern knitting and you have to unravel rows, preset the punch card as follows:

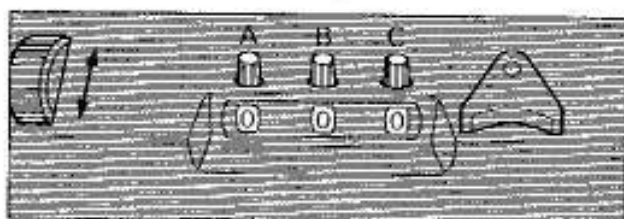
PATTERN MEMORY INDICATOR RED	
ROWS UNRAVELLED	TURN PUNCH CARD BACK BY
1	1 ROW
2	1 ROW
3	2 ROWS
4	2 ROWS
5	3 ROWS
6	3 ROWS
7	4 ROWS

PATTERN MEMORY INDICATOR BLUE	
ROWS UNRAVELLED	TURN PUNCH CARD BACK BY
1	NONE
2	1 ROW
3	1 ROW
4	2 ROWS
5	2 ROWS
6	3 ROWS
7	3 ROWS

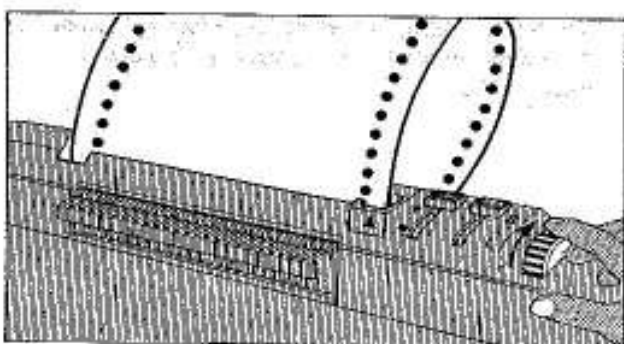
## HOW TO RESET KNITRADAR AFTER UNRAVELLING



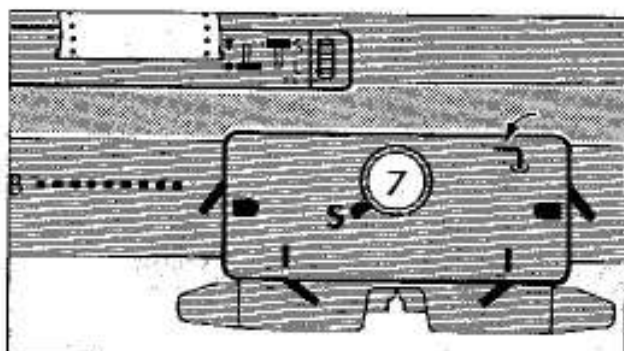
Set row setting dial 'F' to ▼  
Unravel required rows.



Disengage row counter tripper.  
Turn row counter numbers as many rows as unravelled.



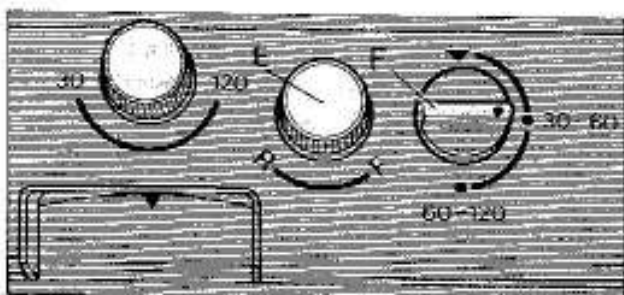
Turn punch card back as many rows as unravelled.



To memorise pattern in memory drums:

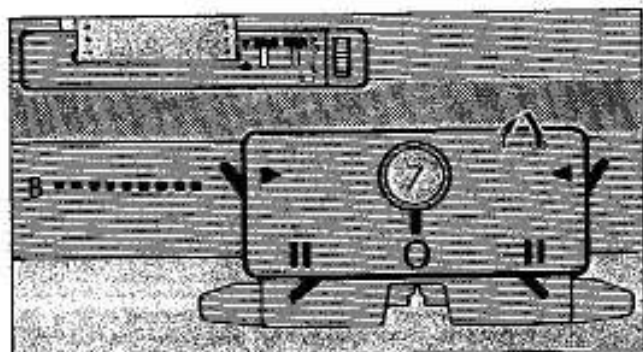
Set card release knob . . . . . to ●  
Set pattern variation knob . . . . . to S  
Set both side levers . . . . . to ■  
Set cam lever . . . . . to S  
Set both front levers . . . . . to |

Ensure needles are in 'B' position.  
Move carriage once or twice across the needle bed and stop on side of yarn end.



Set row setting dial 'F' to original setting.

Turn back pattern graph as many rows as unravelled by simply turning paper feed knob 'E' in 'R' direction.



Engage row counter tripper.

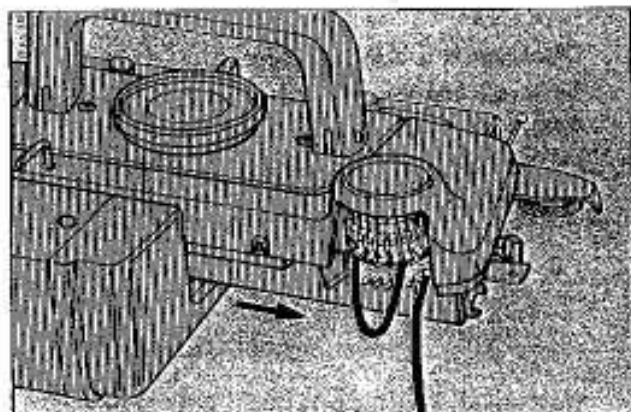
Set card release knob . . . . . to ▼

Set pattern variation knob in accordance with pattern instructions.

Set carriage side levers, front levers and cam lever in accordance with pattern instructions.

Continue to knit.

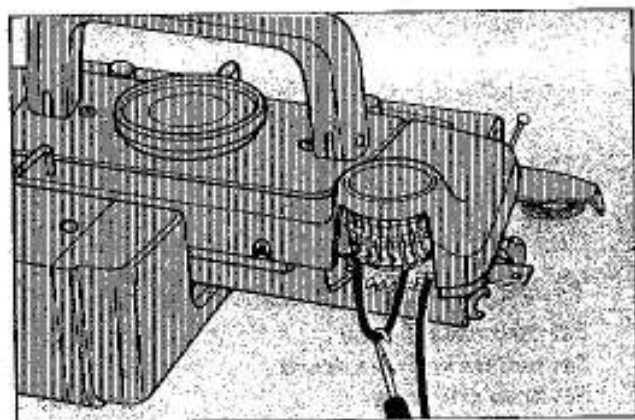
**IF YARN IS ENTANGLED IN THE MEMORY DRUMS**



While knitting ensure that the rear of the carriage is clear of yarn.

It may happen that accidentally the yarn does become entangled inside the memory drums.

To remove yarn, move carriage halfway across the needle bed to free the jammed memory drums.

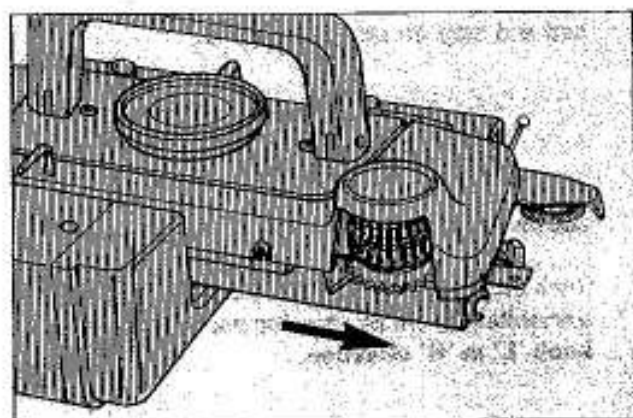


Carefully remove yarn using the latchet tool.

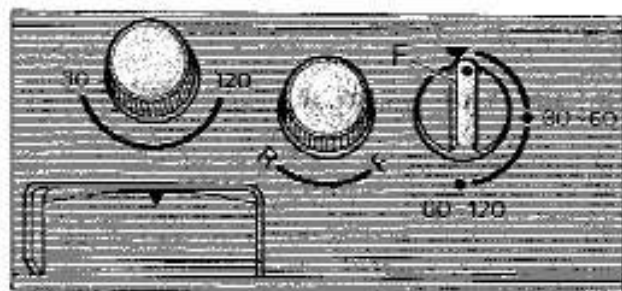
**NOTE:** Do not use force as this will damage the drums.

If this happens during pattern knitting proceed as per instructions on Page 59.

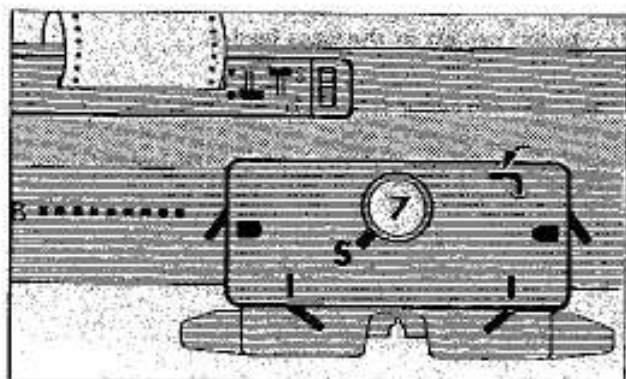
**IF CARRIAGE IS ACCIDENTALLY REMOVED FROM MACHINE**



If carriage is accidentally removed from machine during pattern knitting, proceed as per instructions on Page 59.



Set row setting dial 'F' . . . . . to ▼



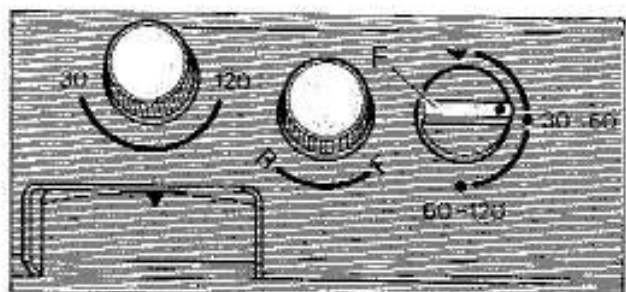
Disengage row counter tripper.

To memorise pattern in memory drums:

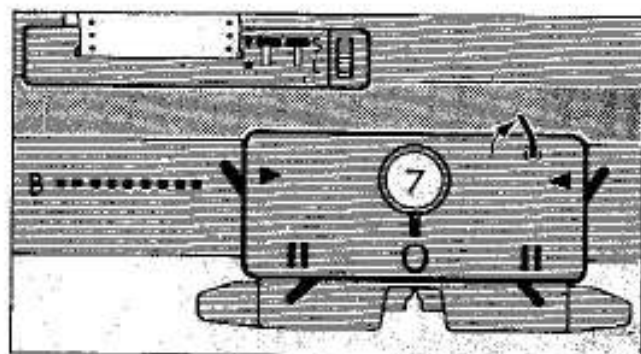
- Set card release knob . . . . . to ●
- Set pattern variation knob . . . . . to S
- Set both side levers . . . . . to ■
- Set cam lever . . . . . to S
- Set both front levers . . . . . to I

Ensure needles are in 'B' position.

Move carriage once or twice across the needle bed and stop on side of yarn end.



Set row setting dial to original setting.



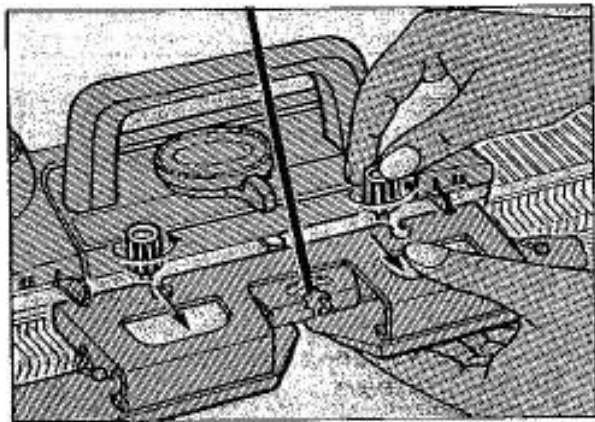
Engage row counter tripper.

- Set card release knob . . . . . to ▼
- Set pattern variation knob in accordance with pattern instructions.
- Set carriage side levers, front levers and cam lever in accordance with pattern instructions.

Continue to knit.

## IF THE CARRIAGE JAMS

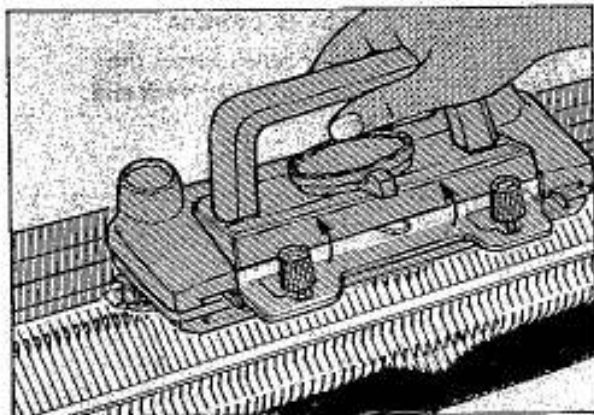
SOMETIMES THE CARRIAGE MAY JAM IN THE MIDDLE OF A ROW. IF THIS HAPPENS IT IS NOT SERIOUS, AND NO CAUSE FOR WORRY. DO NOT FORCE OR HIT THE CARRIAGE TO GET IT LOOSE –



### PROCEED AS FOLLOWS:

Set the row counter out of action. Loosen the two knurled nuts which secure the sinker arm assembly to the carriage. Pull the sinker arm towards you OFF the carriage. If necessary, cut the yarn to separate the sinker arm from the carriage. Take care that there are no needle hooks caught in the yarn feeder.

You can now easily lift up the carriage from the front of the needle bed and it will still be held by the guide rail at the back of the needle bed.



Hold the carriage up in its raised position and move it across the needle bed away from the knitting in the direction from which it came.

Replace the carriage onto the needle bed.

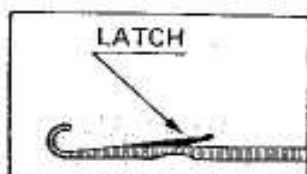
Remove the yarn from the yarn feeder. Check that there is no yarn twisted around the brushes below the sinker arm assembly. If there is, clear it and replace the sinker arm assembly back onto the carriage.

Set the row counter back into action. Unravel the last row. If the last row has been counted, set the row counter back. Rethread the yarn.

### THE CARRIAGE IS HEAVY TO MOVE IF –

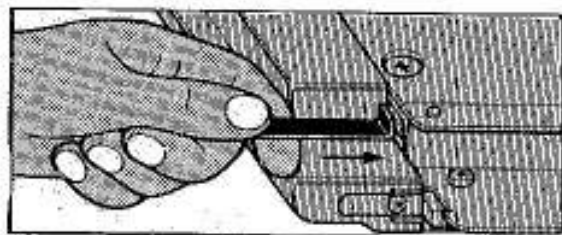
1. The yarn is wound too tightly and does not flow easily into the needles.  
The yarn you are using is too hard or too heavy.  
The yarn is unsuitable for use on your machine.  
The yarn is not suitable for the pattern which you are knitting.
2. The tension is either too loose or too tight.
3. Your machine is dirty or needs oiling.
4. The yarn brake has been incorrectly threaded.
5. The yarn was tangled in the yarn brake during knitting.

## HOW TO CHANGE A NEEDLE



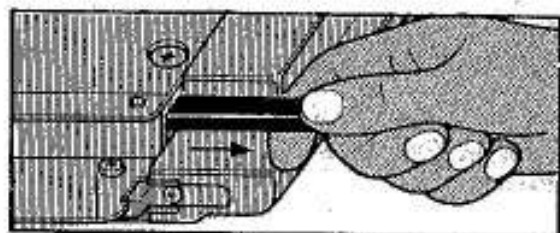
Needle with damaged latches will cause faulty knitting or dropped stitches and therefore need to be changed.

The needle latch must move easily and lie flat over the needle hook.

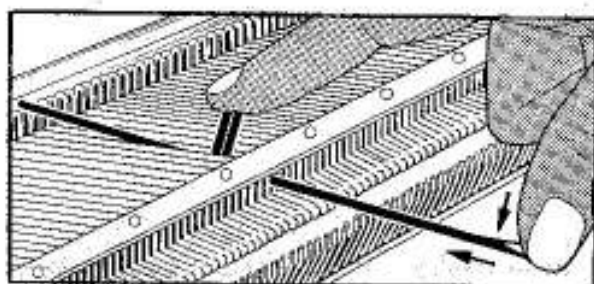


At each side of the needle bed you can see the needle retaining bar.

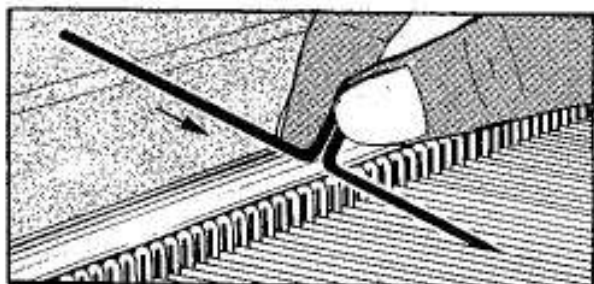
If the damaged needle is at the right half of the centre - push the raised end of the copper plate into the needle bed at the right.



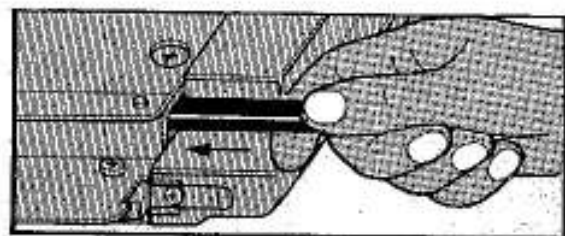
The needle retaining bar is then pushed out of the needle bed at the left and you can pull it out of the needle bed until the damaged needle lies free.



Push the damaged needle by the butt up to 'D' position. With your thumb push the needle hook down as shown, unless the needle is badly worn, the heel will lift out of the needle bed. If not, use the work hook - slide it inside the needle bed from the top and bring the shank of the needle below the opening of the needle bed to let it come out. Hold the heel of the damaged needle and pull it backwards out of the needle bed.



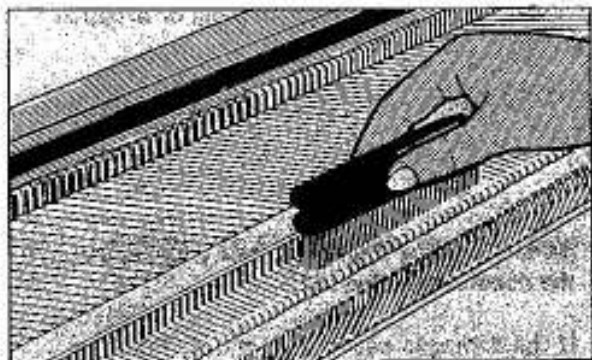
Open the latch of the new needle and slide it into the groove of the needle bed as shown by the arrow - the needle must come to 'D' position - then let the shank slide into the needle bed, move the needle back to 'A' position.



Check that the needle slides smoothly in the needle bed from 'A' to 'D' position.

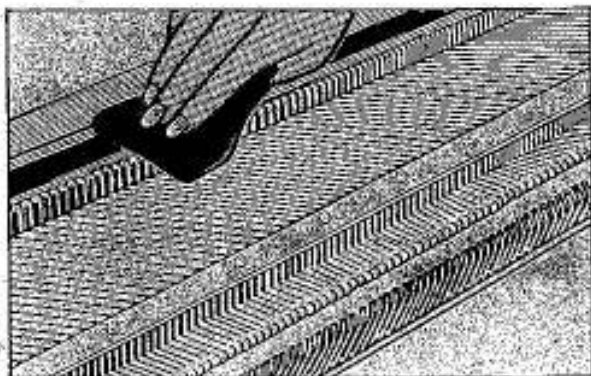
Insert the needle retaining bar back inside the needle bed as shown.

## MAINTENANCE OF THE MACHINE



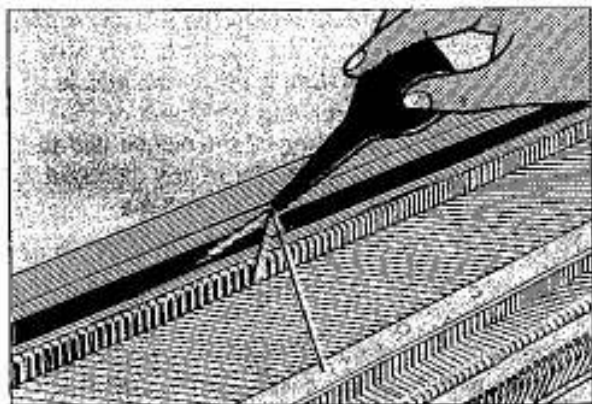
To clean the machine - remove the carriage from the needle bed completely.

Bring all needles up to 'D' position and with the little brush remove all lint from the needle number plate.

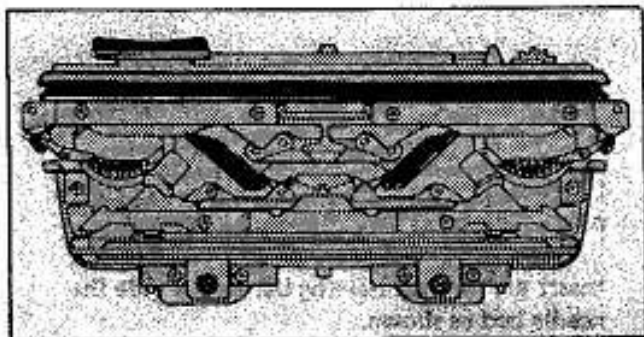


Remove any lint that may be around the brushes below the sinker arm assembly.

With a paper tissue or a soft dry cloth remove oil from guide rail of machine and from below the carriage.



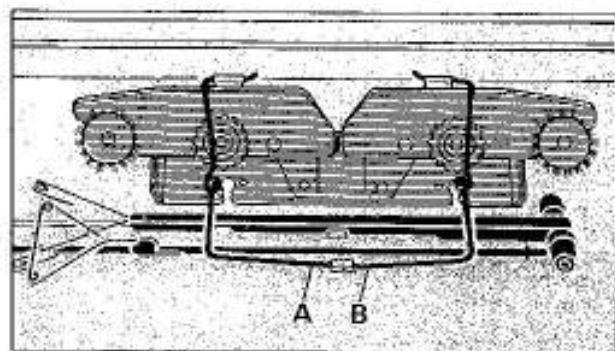
When starting to knit - slide the oil bottle along the guide rail of the machine, the needle butts and the front guide of the needle bed.



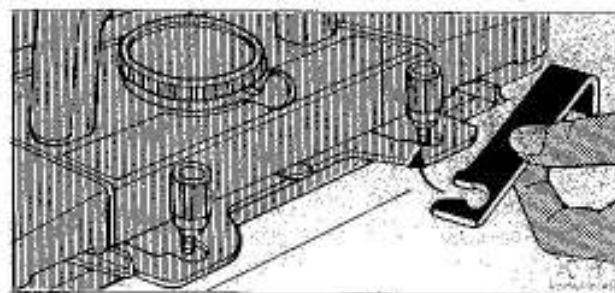
The red marking shows you where the parts below the carriage need oiling before knitting.

Oil lightly.

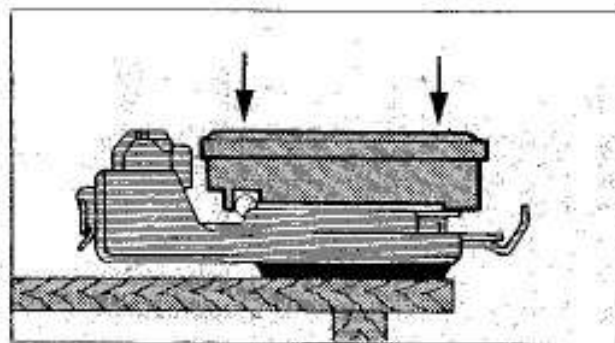
## HOW TO REPACK THE MACHINE



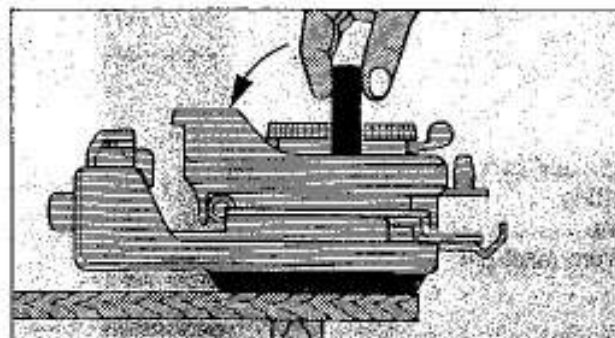
Remove yarn brake and sinker arm assembly from machine and pack into machine lid.



Secure carriage to machine with lock plate.

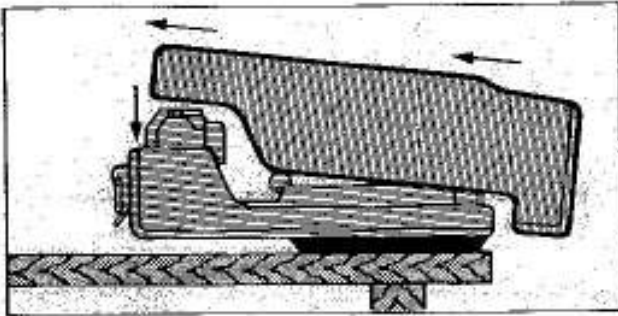


Pack accessories into accessory box and place accessory box onto the left side of needle bed.

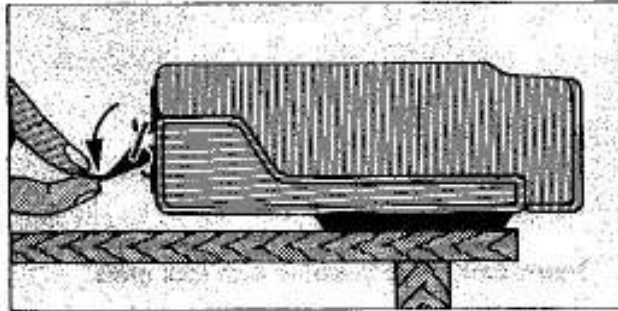


Lower carriage handle.





Place machine lid onto needle bed.



Lock both latches on the back of the machine.

Store machine in a dry place.

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