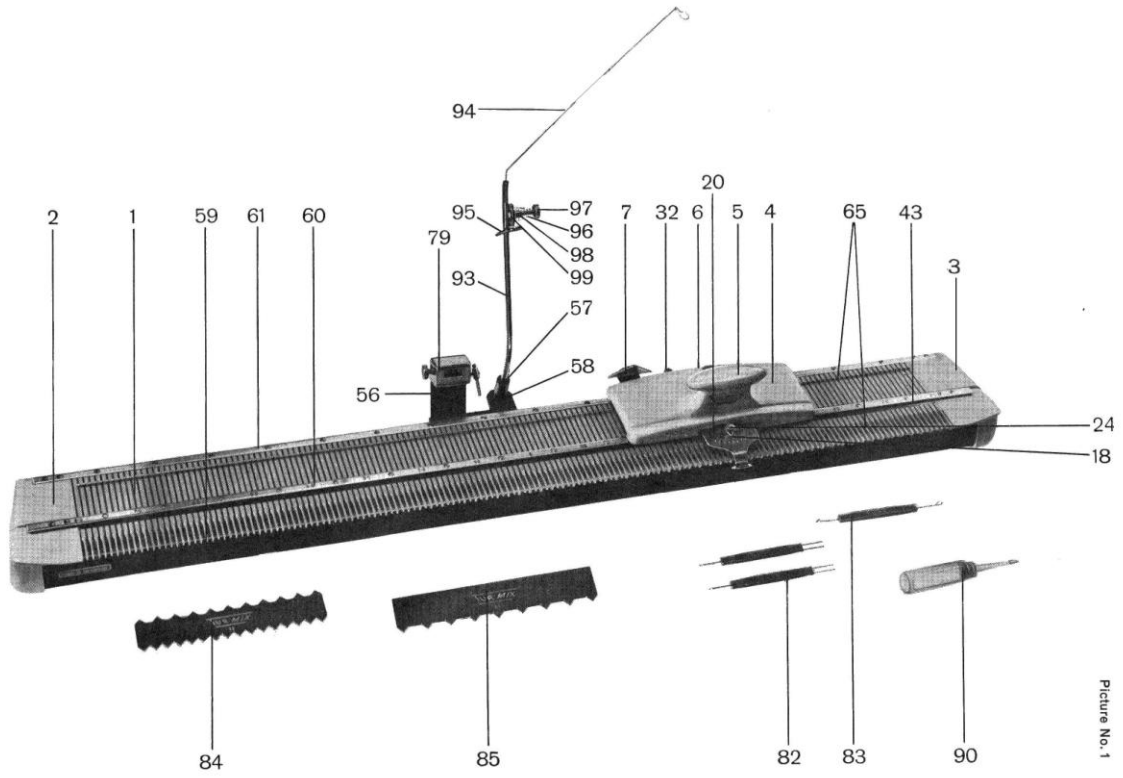




**Instruction for Use  
of Handknitting Machine**

**SV 577**



Picture No. 1

NAMES OF PARTS SHOWN ON PAGE 2
--------------------------------

<b>Chassis</b> .....	<b>59</b>
<b>Needle Bed (Segment)</b> .....	<b>1</b>
<b>Lateral End Bars</b> .....	<b>2/3</b>
<b>SUPPORT:</b> .....	<b>58</b>
<b>Holders for Thread Tensioner</b> .....	<b>57</b>
<b>Holders for Row Counter</b> .....	<b>56</b>
<b>Thread Tension Support</b> .....	<b>93</b>
<b>Thread Tension Spring</b> .....	<b>94</b>
<b>Thread Guiding Eyelet</b> .....	<b>95</b>
<b>Bearing Axle</b> .....	<b>98</b>
<b>Braking Disc</b> .....	<b>99</b>
<b>Braking Spring</b> .....	<b>96</b>
<b>Regulation Nut</b> .....	<b>97</b>
<b>Row Counter</b> .....	<b>79</b>
<b>Shifting Cam for Row Counter Lever</b> .....	<b>7</b>
<b>Slider Rail</b> .....	<b>61</b>
<b>Slider Rail with Number Gauge</b> .....	<b>60</b>
<b>Steel Ribbon Spring</b> .....	<b>43</b>
<b>Latch Needle</b> .....	<b>65</b>
<b>Slide Cover</b> .....	<b>4</b>
<b>Handle</b> .....	<b>5</b>
<b>Shifting Knob</b> .....	<b>6</b>
<b>Fair Isle Screws</b> .....	<b>32</b>
<b>Scale Plate with Thread Guide</b> .....	<b>20</b>
<b>Pointer</b> .....	<b>18</b>
<b>Handle of Pointer</b> .....	<b>24</b>
<b>Hand Hook with Working Hook &amp; Latch Needle</b> .....	<b>83</b>
<b>Hand Hooks with Single End Double Punch</b> .....	<b>82</b>
<b>Needle Guiding Ruler</b> .....	<b>84</b>
<b>Needle Ruler</b> .....	<b>85</b>
<b>Drop Oiler</b> .....	<b>90</b>

## Description of the knitter and operation of the different parts

(Part Numbers mentioned in the following text correspond with those on picture No. 1)

The TURMIX Handknitter, Model SV 577, is well designed, efficiently built and extremely easy to operate, so that anyone can learn to work rapidly and reliably with it in a short time. In the first place, it is important to become familiar with the knitter and its main parts in order to understand the actual knitting process taking place and the mode of operation for the different knitting stitches.

The machine consists of a metal base, the **chassis** (59), the four polyamide segments mounted on it and forming the actual **needle bed** (1), and the lateral **end parts** (2/3).

Located at the back, in the centre of the chassis, is a **support** (58) carrying the **holders** (56/57) for the **thread tensioner** and the **row counter**.

**The thread tensioner support** (93) is placed in the holder so that it curves towards the back and the two small lateral cams engage in the corresponding slots. Located at the upper end of the support, in order to tense the thread, are:

the **thread guiding eyelet** (95), the **bearing axle** (98) with **braking discs** (99), **braking spring** (96) and **regulation nut** (97), and the **thread tension spring** (94).

The **row counter** (79) is firmly mounted on the left of the thread tensioner and the **shifting cam** (7) on the slide lifts the small lever on the right of the row counter at every row, thereby activating the counting mechanism. To return to zero, the screw on the left of the counting mechanism is turned clockwise.

The front edge of the single segments and thus of the needle bed (1) is shaped in such a way that the stitches formed during knitting are automatically taken down. This is effected by means of special teeth alternately shaped into long or short catch hooks which retain the stitches already knitted, and push them down.

At the rear edge of the needle bed as well as approximately at its centre, are the **slider rails** for the slide.

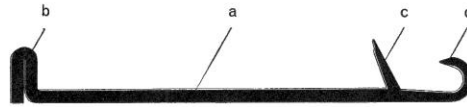
The rearmost rail (61) also limits the bottom stop of the needles. The **front rail** (60) serves at the same time as a numbered gauge for the needles and acts as their upper stop.

There are **latch needles** (65) in the needle bed. Beginning at the centre with the zero needle, they are subdivided on both sides into groups of ten.

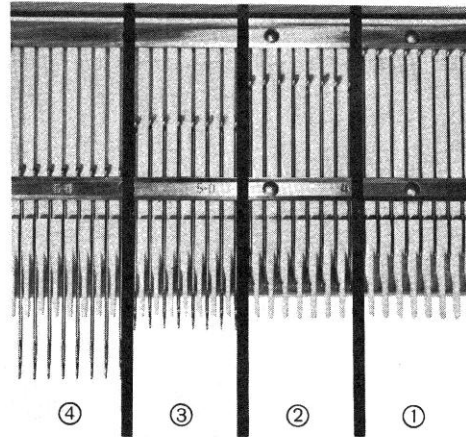
Immediately in front of the numbered gauge and built into the needle bed, there is a **steel ribbon spring** (43) which keeps the needles down uniformly over the entire width of the machine and assures smooth slide travel.

Below the numbered gauge, invisible from outside, and passing through all the segments, is a spiral spring serving as a brake lining and fixing the individual needles.

The **latch needle** (65) consists of the shaft a) the butt b), the head with latch c) and hook d).



The needles move in needle channels built into the segments and occupy **four basic positions**:



- 1) **Non-working Position:** The needle butts touch the rear slider rail (bottom stop) and are not shifted by the slide mechanism passing over them.
- 2) **Working Position 1:** The needle butts are at a distance of about  $\frac{1}{2}$ " from the rear slider rail, the points being located directly behind the catch hook of the needle bed.

This is the position for all ordinary knitting work and patterns. The fabric is hanging in the needle heads by the stitches formed last. The needles are continuously picked up by the slide as it is passed over the needle bed, the needle latches are automatically opened by the thread guide, and the wool for forming the new stitches is like-wise inserted automatically.

- 3) **Working Position 2:** The needle butts are approximately at the centre of the rear part of the needle bed, the points being located about  $\frac{1}{4}$ " beyond its front edge. The row of stitches knitted last is behind the opened latches.

This position is required if the wool is inserted in the opened latches by hand, either **additionally with the wool in the thread guide** in order to knit two consecutive rows in the same operation for **imitation Fair Isle patterns**, or **without wool in the thread guide** in order to knit several colours consecutively for **original Fair Isle patterns**.

- 4) **Holding Position:** The needle butts are touching the numbered gauge (upper stop). They are not picked up by the slide as it is passed over the needle bed. Instead of the knitted stitch only a loop of wool is laid over the needle.

For several kinds of work, such as heels, shortened rows, fancy patterns, etc., we speak of "pushing the needles back to the needle bed". This represents an intermediate position between Working Positions 1 and 2.

In this case the stitches do not lie in the needle head but on the closed latches. These are automatically opened by the thread guide and the stitches correctly knitted in the case of **heels, shortened rows, simple fancy patterns etc.** If several loops of wool are lying above the needles (in the case of elaborate fancy patterns), when passing the slide over the needle bed it is advisable to draw the knitting down lightly with the free hand, so that single loops of wool do not slide off the latches.

## The Slide

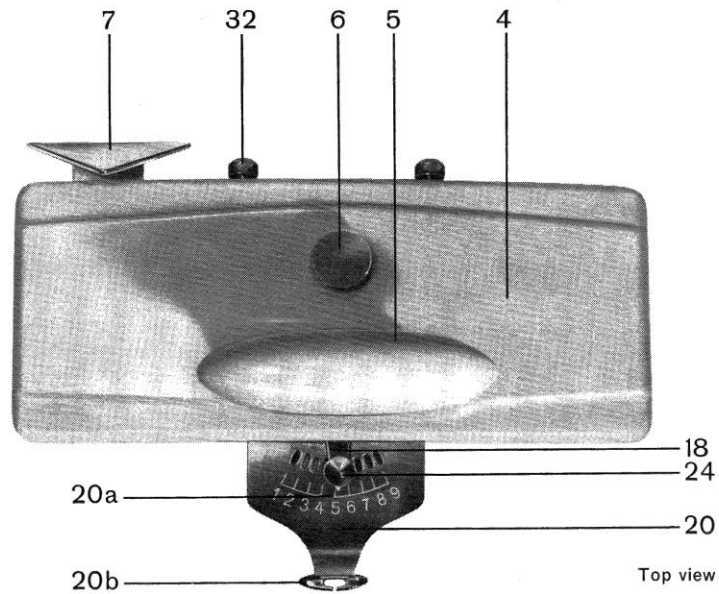
The slide is the most important part of a handknitter. When passed over the needle bed, it moves the needles located in the knitting position. The mechanism of the lock inside the slide determines the different motions of the needles and governs the stitch formation.

The slide of the TURMIX Handknitter, Model SV 577, is composed of **lock case** (upper part) (see picture) and **lock plate** (lower part) (see picture).

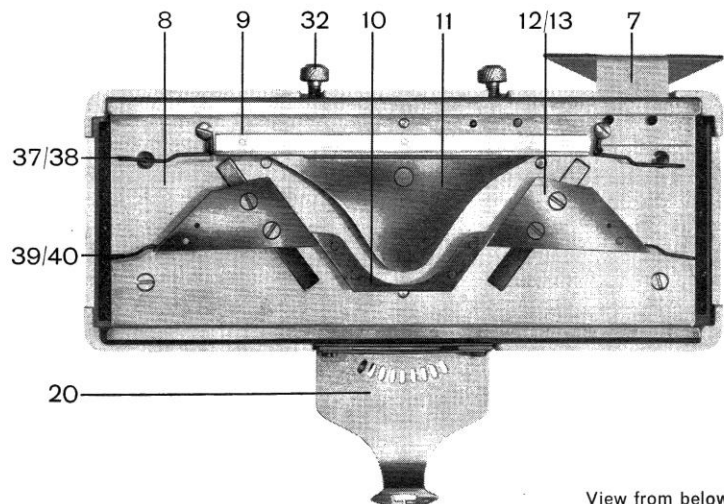
The **lock case** consists of housing (4) and handle (5) and serves as a cover and guide for the lock plate.

Owing to its simple construction, the lock plate (8) is far superior to other designs.

The large triangular centre piece (needle raising cam) (11) serves to catch the needles when the slide is moved in and continuously to push them to the front. It can be retracted by pulling up the **shifting knob** (6) behind the handle, i. e., its function can be eliminated to permit the slide to be passed over the needles without knitting if required for certain work, such as Fair Isle Patterns, corrections, etc.



Top view



View from below

Located on both sides of the needle raising cam are the sprung **needle lowering cams** (12/13), which have the task of continually drawing back the needles pushed forward. They are adjustable and different stitch sizes can be obtained by shifting them. Furthermore, they can be blocked by tightening the two screws at the rear of the lock plate. This is required almost exclusively for knitting original and imitation Fair Isle patterns, and these screws are therefore called **Fair Isle screws** (32).

The **spring switches** (39/40) on the lowering cams and the **needle guiding switches** (37/38) on the guiding angle (9) guide needles located between the basic positions either into the slide mechanism or past it.

Also at the rear of the lock plate, on the left of the Fair Isle screws, is a triangle (shifting cam) (7) which serves to lift the row counter lever.

Mounted at the front of the lock plate is the **scale plate with thread guide** (20). The stitch size can be selected with the scale (20a). When knitting, the wool is introduced into the thread guide (20b) through the small slit.

**To set the desired stitch size**, the small pointer (18) on handle (24) is slightly raised, and lowered into the notch at the appropriate number. The pointer is connected to the two sprung lowering cams (invisible from outside) which, as mentioned above, determine the stitch length by drawing the needles back to a greater or lesser extent.

### **The Making of the Stitch**

The stitches are formed on the knitter on the same principle as in handknitting: Push in, take the thread, draw through, slip the stitch.

When applied to the machine, we obtain the following operations:

"Push in": The slide pushes the needles forward when moved in. At the same time the stitches knit last slide rearwards out of the needle head, opening the latches.

"Take the thread": The thread guide automatically places new wool in the empty needle head.

"Draw through and slip": The further progress of the slide causes the needles to be drawn back again. The stitches lying on it are thus brought forward, close the latches and slide off over their top. At the same time the loops in the needle head are drawn through the stitches being slipped, thereby forming new stitches.

## **Accessories:**

Only very few accessories are required for the TURMIX Handknitter, Model SV 577:

**Handhook with latch needle** (83) and **punches** (82) so that any desired pattern can be executed even on this simple machine.

**Needle guiding ruler** (84) and **needle ruler** (85) to facilitate division and sorting of the needles.

**The green working hook** (83) has a latch needle at one end for crocheting knit stitches on the purl side of the knitting (for method of working, see Ribbed Border), and a handhook at the other end for transferring single stitches or hanging up hems, drawing up knitted stitches for certain patterns, etc.

**The two punches** (82) with one eyelet at one end and two eyelets at the other are used for transferring knitted stitches on to other latch needles, for instance when increasing or decreasing, for casting off, lace and cable patterns, etc. The method of working is simple:

Hold punch horizontally so that it points in the same direction as the needle in the needle bed, and place eyelet in the hook of the latch needle. Holding punch in the same direction, draw needle forward until the stitch slides rearwards out of the needle head over the opening latch. Next push the needle back into the needle bed. During this operation the stitch on the needle first passes over the latch, closing the latter, and, if the needle is pushed back still further, slides over the closed latch on to the punch. Lift eyelet out of needle head, place punch vertically (eyelet with stitch on it pointing upwards) and guide around catch hook on needle bed to right or left. Then, holding punch horizontally again, hang eyelet into hook of corresponding needle. Turn punch upwards slightly and transfer the stitch on it to the needle head.

Working with the **double punch** is similar except that two stitches are taken up at a time and transferred over one or two needles.

**Needle guiding ruler** (84) and **needle ruler** (85) serve for shifting groups of needles into the different positions and for dividing up needles in case of patterns.

**Needle ruler** with a) division 1-1 picks up all the needles and  
with b) division 1-4 picks up every fourth needle.

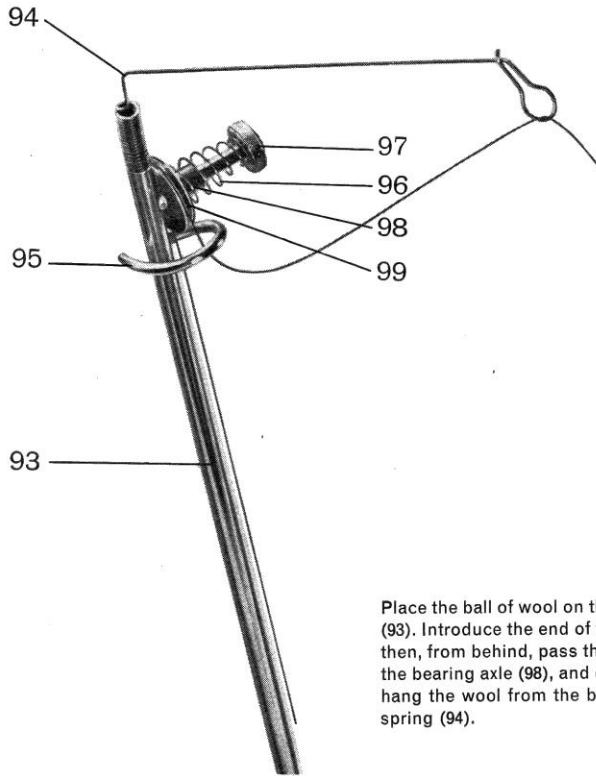
**Needle guiding ruler** with a) division 1-2 picks up every second needle and  
with b) division 1-3 picks up every fourth needle.

**Mode of operation:** Hold needle guiding ruler with both hands and apply obliquely behind needle butts so that the needles are pushed forward in an **oblique line** and undesirable closing of the latches is avoided.

## Preparations for Knitting

### Setting up the Machine:

For working, place the machine on any kind of table and push it to the edge. Place the support of the thread tensioner in the holder at the back of the machine in such a way that it curves out to the rear, the lateral cams engaging in the corresponding slots.



### Threading:

It is important that the wool should run easily and evenly through the thread tensioner. It is therefore advisable to place hand-wound balls of wool in a small box so that they do not jump about, and to start machine-wound balls from the inside. Jerky unwinding of the wool results in jerky knitting and also, if tension on the wool is too great while the stitches are being formed, in irregular knitwear.

Place the ball of wool on the right next to the support of the thread tensioner (93). Introduce the end of the wool into the guiding eyelet (95) from the side, then, from behind, pass the wool between the braking discs (99) and around the bearing axle (98), and downwards again through the guiding eyelet. Next hang the wool from the back towards the front in the eyelet of the tension spring (94).

### Adjusting Thread Tension:

Thread tension can be adjusted, i. e. slackened or increased with the regulation nut on the bearing axle. The tension is increased if the nut is turned in, and slackened if it is turned out.  
General guide for adjustment:

For standard stocking and sweater wool (3 to 4-ply) some 4–4 threads of the bearing axle must project beyond the regulation nut.

For thicker wool (knit with stitch size set at 7–9) the regulation nut must be on the extreme outside.

### Setting of Stitch Size:

Setting of stitch size is very important as it gives the knitwear the correct elasticity and the desired density. The scale plate with a selector disc from 1–9, located at the front of the slide, is used for setting.

1–2 for very fine wool and yarns

3–6 for standard stocking and sweater wool (3 and 4-ply)

7–9 for thicker wool.

Very coarse sports wool is knitted using every second needle and a smaller setting of about 5–7.

For detailed instructions on working with thick wool see "Knitting different kinds of wool" on page 18.

These details are only intended as a general guide. Each kind of wool gives rise to a different stitch pattern. Furthermore, individual wishes regarding closer or looser knitwear differ widely. It is therefore definitely advisable to knit a test square before starting on a garment (see page 19).



## General Knitting Work

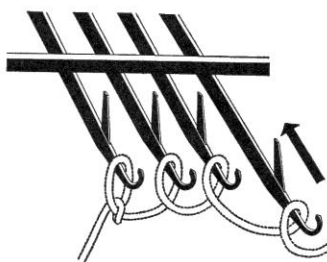
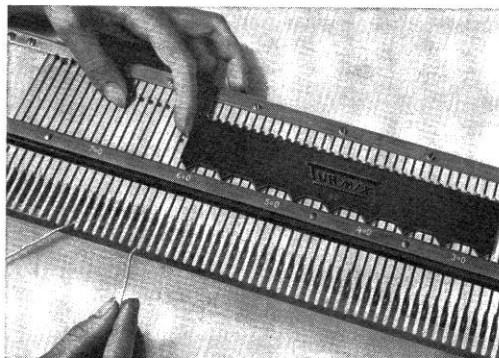
### Closed Edge Casting on

Place as many needles in Working Position I as stitches are required. To fix the correct Working Position I proceed as follows:

Put needle ruler No. 85 between numbered slider rail (60) and needle butts as shown on photograph.

Leave ruler No. 85 on needle bed.

When dividing up the needles, care must be taken that at the beginning and end of the needle row there are long catch hooks inside the outermost needle. Move the slide (without wool in the thread guide) once or twice over the needles in order to open all the latches. Leave slide **on right-hand side**. Thread the wool in the thread tensioner but do not introduce in thread guide. Push the extreme left-hand needle forward by the butt until the point is about half an inch from the edge of the



needle bed. Form a slip loop with the end of the wool and place the loop in the open needle head. Next draw back the needle into the initial position (Working Position I) and tighten the loop of wool to stitch size. \*Using the left hand, push the next needle forward by the butt. Hold the wool in the right hand and wind around needle anticlockwise so that the stitch formed lies in the needle head. Bring needle back into Working Position I\*. Keep on repeating from \* to \* until all the needles have been cast on. While doing so, always hold the wool loosely in the right hand so that the stitches do not become too tight. Before moving the slide over the needles the first time to cast-on, please check with ruler 85 whether the distance between slider rail and needle butts is still correct. Now needle ruler No. 85 can be taken away. Then introduce the wool in thread guide and move the slide over the row of needles. The cast on row is thus formed and knitting can be started.

### Open Edge Casting on

If open edge casting on is required for borders to be knitted on subsequently or for kimono sweaters started at the centre both back and front, etc., it is advisable to do the closed edge casting on with a differently coloured wool (odd wool), knitting one or two rows and then continuing with the proper wool. Afterwards the differently coloured beginning can simply be removed to obtain the open stitches.

### A quick method of open edge casting on for test squares, etc., is the following:

Bring the desired number of needles into Working Position I. Thread wool in wool tensioner and thread guide, with the finger press the end of the wool against the machine on the side on which the slide is placed, and hold. Next simply move the slide to and fro, knitting as many rows as are required until all the stitches have engaged properly.

### In general, the following points must be observed when knitting:

Hold the slide in such a manner that the hand lies on the handle and also lightly on the lock case.

When the whole row has been knitted, do not move the slide too far beyond the row of needles. It should stop immediately above the last one or two needles in the Working Position or just beyond them, otherwise the edge stitch would be drawn too tight and remain on the needle instead of sliding off.

Every workpiece curls up slightly at the sides towards the centre, causing tension obliquely towards the middle of the fabric and somewhat impairing the functioning of the catch hooks on the edge stitches. The knitted piece must therefore be pulled by the edge stitches after every 6 to 10 rows. This applies mainly to fine and thick wool. When working with medium wool, adequate stitch size and ordinary thread tension, pulling is usually unnecessary.

### Stocking stitch (one side knit stitches, one side purl stitches)

If the slide is continuously moved from one side to the other after casting on, a row of stitches in stocking pattern (one side knit stitches, one side purl stitches) is formed at each to and fro motion.

## Increasing of Stitches

### a) Increasing Single Stitches on the edge of the fabric

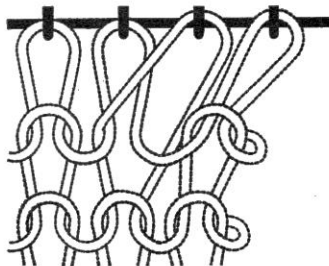
Bring the next empty needle on the side of the slide into Working Position I and move slide over fabric. A loop of wool is thus formed in the empty needle, which is automatically knitted into a stitch in the next row.

A loose stitch is always formed at the edge in this type of increase, so that it is only suitable if the knitted fabrics are later joined by an ordinary or a mattress stitch seam.

If, after a single stitch increase, only a small catch hook on the needle bed serves for taking down the edge stitch, it may happen that the latter is not perfectly knitted. To avoid this, the knitting must be lightly pressed against the machine with the fingers at the appropriate point when the slide is moved over the outermost stitches.

### b) Increasing Single Stitches inside the edge stitch

In this type of increase the edge stitches remain uniform just as in plain knitting. Increasing in this way is therefore suitable for fabrics which are to be joined by invisible seams. Furthermore, these increases can be applied at both ends of the row of needles simultaneously without having to check on the location of the slide with the wool.



#### Mode of operation:

Bring the next empty needle into Working Position 1. Using the single punch (for manipulation method see "Accessories"), push outermost stitch on to newly placed needle. To avoid that the now empty needle leaves a hole when knitting proceeds, the last-knit stitch but one (i. e. the third from the edge) can be drawn one row lower with the green handhook and transferred to the empty needle head (see picture), or the cross-link joining the edge stitch to the last stitch but one can be taken and hung twisted on the empty needle.

### c) Several stitches together at the edge of the fabric

If the work is to be increased by several stitches simultaneously, this must be done on the side on which the slide with the wool is placed.

**Mode of operation:** Bring the desired number of needles into Working Position I. Then push these needles forward singly, one after the other, until a loop of wool can be laid into the opened latches, withdraw them to Working Position I and then knit over them.

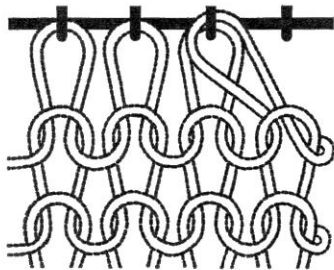
**When increasing on the right side of the knitting,** the loops of wool are placed on the needles anticlockwise as in the case of closed edge casting on.

**When increasing on the left side,** they must be placed clockwise.

## Decreasing of Stitches

Single stitches can be cast off simultaneously at both ends of the row of needles irrespective of the side on which the slide with the wool is placed.

When decreasing single stitches at the edge of the knitting and inside the edge stitch, the same applies as mentioned for joining the fabrics for increasing by single stitches at the edge of the fabric and inside the edge stitches.



### a) Single stitches at the edge of the fabric

Using the single punch (for manipulation method see "Accessories"), lift the stitch from the last needle and transfer to the last but one. Place empty needle in Non-working Position. In the next row the two superposed stitches are automatically knitted together.

**b) Single stitches inside the edge stitch**

Using the double punch (for manipulation method see "Accessories"), lift the stitches from the two outermost needles and hang up again on adjacent needles. Bring empty needle into Non-working Position. Thus the last stitch but one is decreased and automatically knitted together in the following row.

**c) Several stitches together at the edge of the fabric**

is carried out in the same manner as casting off a whole row.

**Casting off**

Casting off can be started on the right or the left side provided that the slide with the wool is placed on the same side.

**Mode of operation:** Remove wool from thread guide. Using the single punch, hang last stitch but one on hook of outermost needle. Knit these two stitches together by hand, i. e. grasp needle by the butt and push forward until the two stitches come to lie behind the opened latch, place the wool in the empty needle head and draw back needle until the latch closes and the two stitches slide off over it. Using the punch, push the newly formed stitch on to the empty last needle but one. Repeat the whole process until all the stitches required are cast off.

So that the knitwork does not contract near the cast off stitches but retains its normal width, the first cast off stitch can be transferred back onto the outermost empty needle. In this way the wool is always tensed to the correct width while the casting off is done.

**Transferring a fabric onto a handknitting needle**

Push all the needles completely to the front so that their butts rest against the numbered gauge (Holding Position). Place the fabric (which is behind and retained by the catch hooks of the needle bed) in front of the catch hook. For this purpose, using the green handhook, take the knitted stitches behind the long catch hooks and draw them in front of the latter. Then, starting at the outermost needle, introduce the auxiliary needle into the stitch from behind and push back the corresponding needle by its head, using the thumb, until the latch closes and the stitch slides over it completely on to the auxiliary needle. Repeat this procedure until the required number of stitches are transferred.

**Transferring a fabric from a handknitting needle onto the knitter**

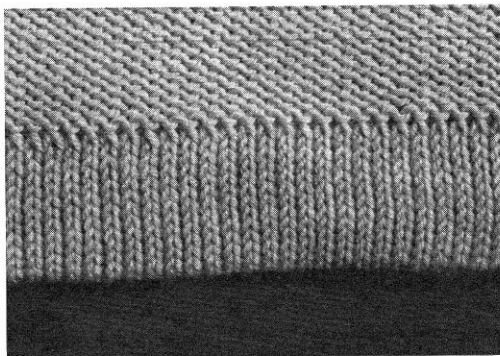
Bring the required number of needles into Working Position I and move the slide over the needles once or twice to open all the latches.

Then push the needles forward a little until the points are about half an inch from the edge of the needle bed. Next, starting on the left, push the single stitches, one after the other, on the open needle heads, using the fingers (or the handhook). When all the stitches have been hung up in this way, push the fabric behind the catch hooks, introduce the wool in the thread guide and start knitting.

## Special Knitting Works

**The Hem**

A hem is often used in sweaters and jackets instead of an ordinary border, and also for threading an elastic into trousers, socks, etc.

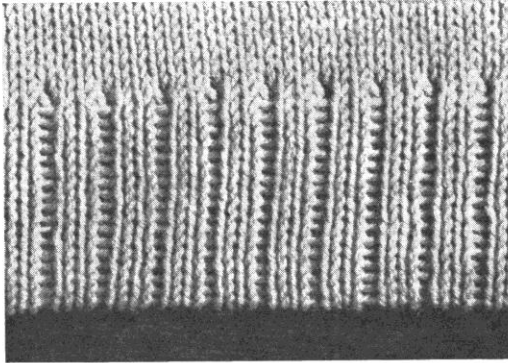


**Mode of operation:** Cast on the number of stitches required for the knitwork (closed edge casting on, see page 9) and knit double the number of rows required for the width of the hem. Check whether all the latches are open and lay them back if necessary with the green handhook. Next, beginning at the right side of the knitting, take the outermost cast on stitch with the green handhook and hang in head of outermost needle, continue by always taking the next stitch and placing it onto the corresponding needle until the entire hem is hung up. Proceed as usual. The double stitches in the needle heads are automatically knitted together in the next row.

### Hem with Picot Edge

The hem can be very attractively decorated with a picot edge, particularly for children's wear. For this purpose a row of holes must be worked in midway along the rows to be knitted.

**Mode of operation:** Using the single punch (for manipulation method see "Accessories"), lift off every second stitch and hang up on the adjacent needle to the right or left. Leave the empty needles in Working Position I. When they are knitted over, small holes are automatically formed, since the double stitches are knitted together in the next row whereas the empty needles only take up loops forming real stitches in the next row. Hang up the hem after the required number of rows.



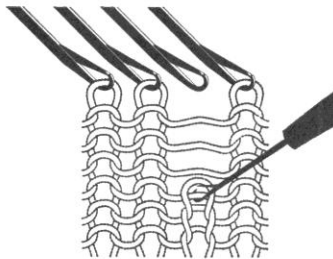
### False Ribbing for Borders

Borders with false ribbing are knitted double like a hem and are therefore very solid, and a useful substitute for genuine ribbing which requires far more time. Bring the number of needles required for the knitwear into Working Position I, eliminate then every third needle, i. e. push it back completely to the rear slider rail. Cast on closed edge as described on page 9. After the first row of stitches has been formed, set the stitch size 1 to 2 numbers smaller and knit double the number of rows required for the height of the border. Next bring back the needles eliminated into Working Position I and hang up the cast on stitches as for the hem. Care must be taken that a knitted stitch is always placed on the empty needles and not the large loop which has been formed for the stitch omitted, as otherwise small holes would appear at these points. When the entire border has been hung up, continue knitting with all needles and normal stitch size.

### Genuine Ribbing

In a purl fabric knit stitches cannot be formed directly but must be crocheted. This is done by lifting the stitch off the needle, dropping it for the required number of rows and working it up as a knit stitch by means of the latch needle at the end of the green working hook. These deliberately dropped stitches can be deliberately at random and assembled into patterns of knit one, purl one, rib, knit two, purl two, rib, etc. It is advisable to have the stitch size smaller than for the main part of the fabric.

To crochet the dropped stitch, first take hold of it with the latch needle, preferably introducing it in advance into the loop from the front. Then hold the auxiliary needle vertically and push downwards until the stitch slides behind the latch and the latter opens. Next pull up the working hook until the first crosslink to be knitted comes to lie in the needle head and the latch closes over it. Then pull up completely. The stitch lying on the hook now slips over the latch and the first knit stitch is formed. Reintroduce needle in front of next crosslink, repeating this procedure up to the uppermost row; then hang the stitch on to the empty needle. Proceed in the same way for all knit stitches required.



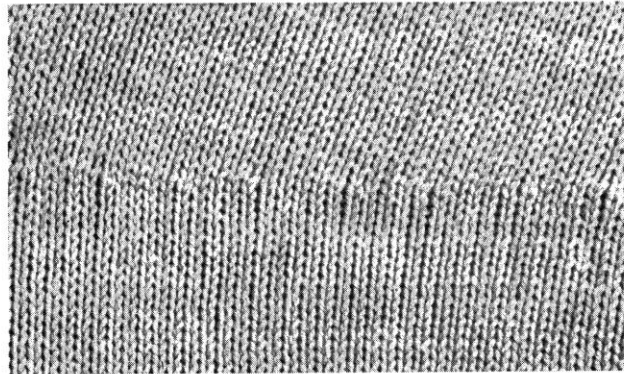
### Shortened Rows

Shortened rows are made to adapt the knitwear to the shape of the body, e. g. trouser seats are raised, sweaters are provided with transverse darts, etc. A number of needles are brought into Holding Position together and, distributed over several rows, are knit back in groups.

#### a) Shortened rows on the side of the fabric

Using the needle ruler, push forward into Holding Position as many needles on the side opposite the slide as are required for the shortened rows. Knit one row with the needles still in Working Position I. \*The slide is thus above the

needles which have been pushed forward. Push the needle last used into Holding Position as well. Thus no hole is formed when turning the row. Knit one row. Then push back to the needle bed on the side opposite the slide, adjacent to the needles in Working Position I, as many needles as are required for the next shortening. Knit one row.\* Repeat these actions from \* to \* until all the needles are again in Working Position I.



#### b) Shortened rows at centre of fabric

Using the needle ruler, push as many needles into Holding Position on the side opposite the slide as desired for shortening. Knit one row with the needles which are still in Working Position I. Bring the needle used last into Holding Position as well. Push the same number of needles into Holding Position on the other side. Knit one row with the needles remaining in Working Position I. \*Also bring the needle used last into Holding Position and push back to the needle bed on the side opposite the slide, adjacent to the needles in Working Position I, as many needles as are required for the individual shortening. Knit one row.\* Repeat from \* to \* until all the needles are again in Working Position I.

#### "American" Heel Shaping

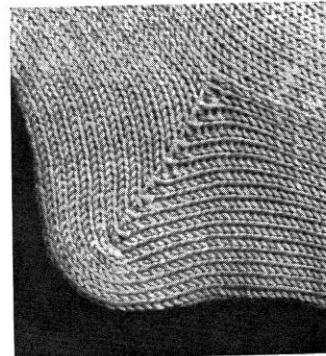
The "American" heel is extremely easy to knit. It is made by bringing the needles intended for heels and turns into Holding Position one by one both sides and then knitting them back again one by one into Working Position I.

**Mode of operation:** \*On the side on which the slide with the wool is placed, push the outermost needle in Working Position I completely to the front into Holding Position. Knit one row.\* Repeat from \* to \* until about one-third of the needles remain in Working Position I at the centre of the fabric.

\*Then, on the side on which the slide with the wool is placed, push back with the finger to the needle bed the needle last brought into Holding Position. Knit one row.\* Repeat from \* to \* until all the needles are back in Working Position I.

#### "American" Toe Shaping

The "American" method of shaping the toe is the same as for the "American" heel, except that fewer stitches (about 6 to 8, depending on the size of the socks or stocking) remain at the centre when approaching the point.



#### Horizontal Buttonholes in the Knitwear

Push the needles intended for the width of the buttonhole forward until the latches open and the stitches in them slide to the back. Next knit each of these needles separately by hand, using a differently coloured wool, i. e. place wool in empty needle head and draw back the needle by the butt until the latch closes and the stitch behind it slides off over it. Then continue knitting as usual.

To finish the buttonhole, separate the differently coloured wool and edge the open stitches with buttonhole stitches.

#### Vertical Buttonholes in the Knitwear

First bring one needle into Holding Position in order to mark the position of the buttonhole. Next, on the side opposite the slide starting from this needle, push all the needles into Holding Position. Knit 4 to 8 rows, depending on the length of the buttonhole. Take the wool out of the thread guide and break, pull up shifting knob, pass slide to other side and push shifting knob down again. Then push the needles previously in Working Position I forward and the needles in Holding Position back to the needle bed. Introduce the wool again in thread guide and knit 4 to 8 rows for the second half of the buttonhole. Push the needles from Holding Position back to the needle bed and continue knitting as usual. When making up the knitwear, edge the buttonhole opening with buttonhole stitches.

### Vertical Slits in the Knitwear

Vertical slits intended to take zip-fasteners or for making buttonhole backing ribbons, etc., are worked in the same manner as vertical buttonholes. If they are used as front or back openings on upper parts, neck and shoulder shaping must be taken into account when estimating the height of the opening.

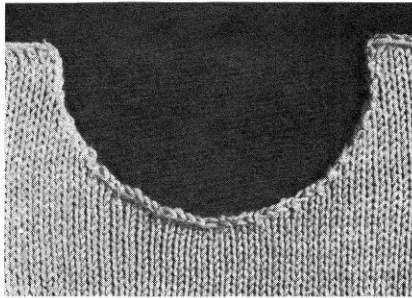
Divide the fabric in the middle. On the side opposite the slide push half the needles into Holding Position and knit the first side with the remaining ones, taking care that on the slit side the edge stitches are correctly taken down. It is best to hold the finger lightly against the machine at the appropriate spot. When the desired number of rows has been obtained, cast off the stitches or transfer them to a handknitting needle, according to the kind of work. Break the wool and bring the empty needles into Non-working Position. To knit the other half, bring the slide on to the side opposite the slit, thread the wool again and hold the end of the wool in your fingers. Then push the needles from Holding Position back to the needle bed and continue knitting. Finish the second half of the slit in the same manner as the first.

### Neck Shapings

For any kind of neck shaping, round or V-formed, the number of stitches necessary for the neck width must first be determined. As a rule one-third of the total width of the fabric is allowed for each shoulder shaping, and one-third for the neck opening. The required number of stitches for the latter must then be distributed over the selected shape and cast off or decreased accordingly.

#### a) Round Neck Shapings

Round shapings should fit the neck closely, therefore, the stitches for these openings have to be cast off in stages. Divide the fabric in the middle and finish the two halves separately.



**Mode of operation:** On the side opposite the slide, bring half the needles into Holding Position and knit one row. Then, for the shaping, starting from the centre, cast off successively every other row as follows: First 4, 3, and two to four times 2, and then one stitch only at a time until the total number required has been reached. Always place the empty needles in Non-working Position immediately. After the shaping continue straight up to shoulder height. Work the second side similarly, but all shaping reversed.

#### b) V-shaped Openings

For V-shapings the decreases are distributed over the entire length of the opening. If the latter is deep, the distance between the different decreases becomes greater; if the opening is small, the distance will be less. Hence the number of rows required for the total height must first be determined. This number divided by half the number of stitches of the neck width gives the number of rows between the different decreases.

**Mode of operation:** The opening is knitted in two parts in the same way as the vertical slit, except that the various decreases have to be made at the distance calculated. Using the single punch (for manipulation method see "Accessories"), lift off the outermost stitch and place on the adjacent needle. Always bring the empty needle into Non-working Position immediately.

## Pattern Knitting and samples of the various methods

### Simple Patterns

A number of patterns can be knitted simply by different settings of the stitch size.

The favourite pattern of this kind is the "false garter stitch" with one row knitted tightly and one row knitted loosely, which can be set automatically. The pattern is mostly used with the purl side taken for the outside and is particularly suitable for baby garments, borders, etc.

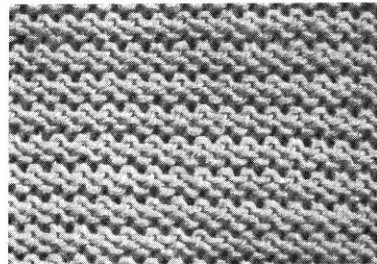


**Mode of operation:**

Set stitch size at 2-3 and tighten Fair Isle screw on left.

Knit 1 row.

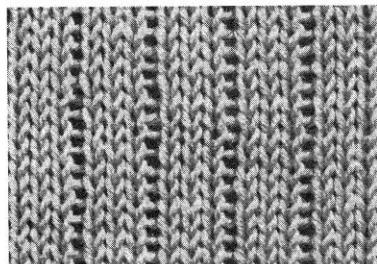
Set stitch size at 7-8 and continue knitting as usual.



**Another group of patterns** are knitted by eliminating single needles at certain intervals. These needles are brought into Non-working Position and left there throughout the work. **False ribbing** is knitted in this way (see page 12).

A very practical pattern of this kind for underwear or children's socks is the following one:

Eliminate every 4th needle, i. e., using the single punch (for manipulation method see page 7), lift the stitch off the needle and hang it on the right or left adjacent needle. Push back the empty needles to the rear slider rail and continue knitting as usual.



**Pattern with Drawn-up Stitches**

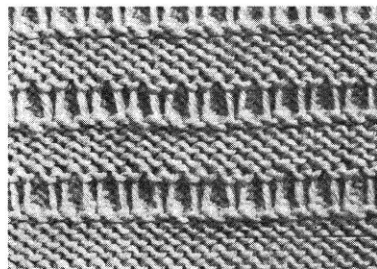
This kind of pattern is formed when stitches in lower-lying rows are caught and drawn up to the needles in Working Position. If this is done over the whole row of needles and with all the stitches of the third or fourth row beneath the last row being knitted, **worked-in pipings** are obtained.

Another example of this kind of pattern:

Knit 10 rows.

Using the green working hook, hang up every 2nd stitch of the 5th row beneath the last row being knitted on the appropriate needle in knitting position.

Knit 10 rows and repeat the pattern on the same stitches.



**Fancy Patterns with needles in Holding Position**

For these patterns the needles are pushed forward into Holding Position at certain intervals, one or more rows are knitted on them, after which they are brought back into Working Position. In order to knit back the needles previously in Holding Position, they are pushed back to the needle bed and, if only two or three loops of wool are placed on them, the slide is simply run over them. For more elaborate fancy patterns with more loops of wool on the needles, it is advisable to hold the fabric down lightly with the free hand, otherwise individual loops of wool might slip off over the closed latches.

**Draw the fabric down after each row in which the needles were knitted back.**

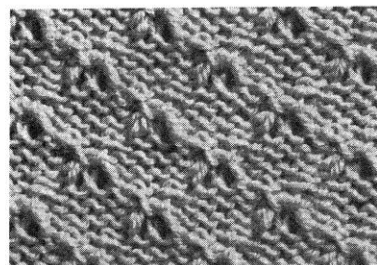
Examples:

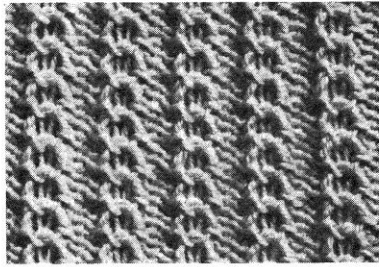
\* Bring every 6th needle into Holding Position.

Knit 3 rows.

Push the needles previously in Holding Position back to the needle bed and knit 1 row.\*

Repeat pattern from \* to \* in alternate sequence.



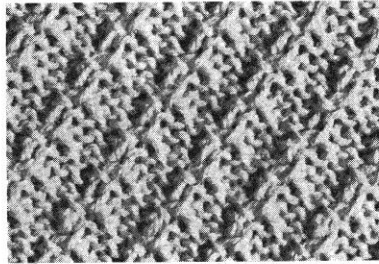


\* Bring every 4th needle into Holding Position (using needle guiding ruler 1-4 for this purpose).

Knit 2 rows.

Push back the needles previously in Holding Position to the needle bed and knit 1 row.\*

Repeat pattern from \* to \*.



\* Bring every 4th needle into Holding Position (using needle guiding ruler 1-4).

Knit 2 rows.

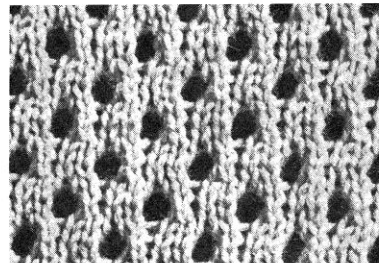
Push the needles previously in Holding Position back to the needle bed and knit 1 row.\*

Repeat pattern from \* to \*, shifting one stitch to the right each time.

### Lace Patterns

Lace patterns are formed by lifting stitches off their needles with the punches, hanging them over to the left or right adjacent needles or from both sides on the centre needle and then leaving the empty needles in Working Position. The double stitches (decreases) are automatically knitted together in the next row, while on the empty needles a loop (chain stitch) is formed which becomes a real stitch in the second row.

The stitch size must be set one number looser than for ordinary knitting.

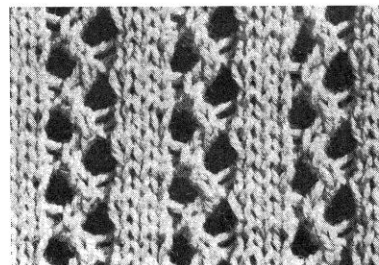


Examples:

\* Using the single punch, lift every 4th stitch and place on the 5th needle.

Knit 3 rows.\*

Repeat from \* to \* in alternative sequence.



Using the single punch, transfer every 6th stitch on to every 7th needle and bring the empty needle into Non-working Position for the entire work.

Knit 1 row.

\* Hang the stitch to the right of the gap created on to the adjacent needle on the left of the gap.

Knit 2 rows.

Hang the stitch to the left of the gap onto the adjacent needle on the right of the gap.

Knit 2 rows.\*

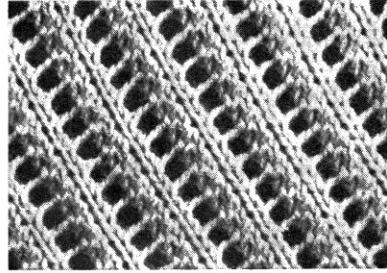
Repeat the pattern from \* to \*.



\* Using the double punch, lift every 3rd and 4th stitch and place on the 3rd and 2nd needles.

Knit 2 rows.\*

Repeat the pattern from \* to \*, shifting one stitch to the right each time.



#### Imitation Fair Isle Patterns

With imitation Fair Isle knitting it is possible to obtain effective two-colour patterns simply and rapidly. The two colours are knitted one after the other in the same operation, so that two rows are formed at a time.

The basic method is as follows:

Tighten both Fair Isle screws securely, thread basic colour into wool tensioner and thread guide, and bring the needles which are to receive the contrasting colour into Working Position II (see page 5). If the whole row, i. e. every second, third or fourth stitch, is to be differently coloured, the needle guiding rulers are used for this purpose (for manipulation method see page 7). To secure, wind the end of the contrasting colour for the first row around an empty needle on the side of the slide, then place the wool in the opened latches of the entire row of needles in Working Position II and loosely hold it in the hand on the side opposite the slide. Run the slide over the needles, thereby knitting two rows in one pass, the first with the contrasting colour and the second with the basic colour.

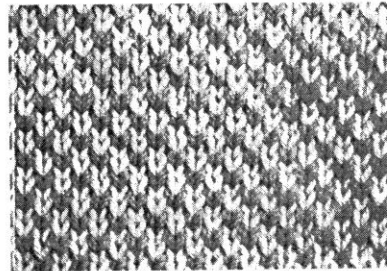
When calculating knitwear, it must be borne in mind that the row counter only indicates one row at a time.

Examples:

\* Using needle guiding ruler 1-2, bring every 2nd needle into Working Position II.

Insert contrasting wool and knit 1 row.\*

Repeat from \* to \* in alternate sequence.



\* Knit 4 rows in basic colour.

Using the needle ruler 1-1, bring all the needles into Working Position II.

Insert contrasting wool and knit 1 row.

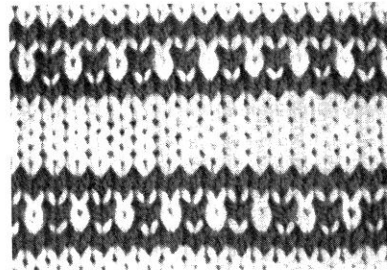
Bring every 2nd needle into Working Position II, using needle guiding ruler 1-2.

Insert contrasting wool and knit 1 row.

Using the needle ruler 1-1, bring all the needles into Working Position II.

Insert contrasting colour and knit 1 row.\*

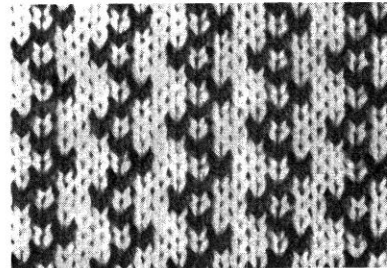
Repeat from \* to \*.



\* Using needle ruler 1-4, bring every 4th needle into Working Position II.

Insert contrasting wool and knit 1 row.\*

Repeat from \* to \*, but shifting the pattern alternatively twice one stitch to the left and twice one stitch to the right.



## Changing defective latch needles

Changing a defective latch needle is a very simple matter:

Close latch of defective needle. Slightly raise front slider rail (numbered gauge) at a point adjacent to the defective needle by means of a flat object (preferably a screwdriver). Grasp the defective needle by the butt and draw out **towards the rear**. Then, from behind, place the new needle with the **latch open** in the empty needle channel and push through beneath slider rail. Lower sliding rail.

## Care of the Knitter

Care of the TURMIX Hand Knitter, Model SV 577, is also extremely simple.

When the machine is not in use, do not expose it uncovered to dust for any length of time.

Clean the needle bed regularly with a soft rag and free the single needle channels of wool residue with a small brush, first pushing the needles back up to the slider rail and then forward right up to the numbered gauge.

Also thoroughly clean the lock of the slide of wool fibres and dust with a soft rag or brush.

Before resuming work on the knitter, oil the needle butts and the lock plate mechanism with good-quality sewing machine oil.

**New knitters must be frequently oiled until they are well run in, i. e. the needle butts should be brushed lightly with sewing machine oil every time before use.**

## Knitting different kinds of wool

On the TURMIX Hand Knitter, Model SV 577, all standard wool can be knitted, from the thinnest kind to quite coarse double knitting wool. It is advisable to buy a good brand of wool. At first this might appear a little more expensive, but the softer, more pliable and elastic the material is, the more agreeable the garments will be to wear, the more handsome and durable will be the shade of colour and the longer will the material retain its good appearance even after many a wash. Furthermore, a good wool can be unravelled and used again even after prolonged wearing and much washing, so that it always pays to choose the better quality.

The directives on page 8 serve as a general guide for setting stitch size in order to knit different kinds of wool. The range of stitch size settings in the SV 577 is very wide, so that even rough and less elastic wool can be knitted to present a soft and pliable appearance, or thin wool for special purposes worked very loosely.

**If thin wool is loosely knitted** (setting 8-9), the fabric must be lightly pulled down after each row or at least after every second one (particularly the edge stitches).

**If coarse wool (double knitting wool) is knitted**, the following must be observed:

- Set stitch size to 9.
- Slacken tension completely (regulation nut must be completely outside).
- After each row pull fabric down (particularly the edge stitches). The first few rows will be found to be a bit troublesome, and it is necessary to knit carefully until the fabric can be held properly.
- Take out the slide after a few rows and **tighten both Fair Isle screws** until the needle lowering cams on the lock are firmly blocked. Reinsert the slide and knit the entire work with blocked lowering cams.

**Very coarse double knitting wool** is knitted with every second needle, using stitch size setting 6-7. Slacken thread tension and pull fabric down after each row.

## Calculating models and stitch samples

When making knitwear it is quite possible to follow good handknitting instructions. These are usually accompanied by a model sketch with the most important measurements of width, height, arm hole, neck, etc., indicated in inches. To obtain well-fitting knitwear, it is advisable accurately to check such measurements with one's own or with those of the desired size and to enter any necessary alterations and additions on the sketch. It must also be borne in mind that the same material as that indicated is usually not available and that other kinds of wool produce different stitch patterns. Or again a piece of knitwear is required knitted more loosely or more closely than the one in the model.

### It is therefore indispensable to make a test square on the knitter.

If really good results are to be obtained, this test square must not be too small. (The wool can, of course, be unraveled later on.) It is best to cast on **50 stitches** and knit **50 rows** in the selected stitch size and the desired knitting pattern. Then remove the piece from the knitter, pull it lengthways several times and afterwards let it lie for some time. It will thus assume the same stitch pattern as the finished work. Pin the "rested" test square to a base board, avoiding distortion. Next cut out a square of soft cardboard 4" high by 4" wide. Place the cardboard on the test square and count the number of stitches fitting the 4" width and the number of rows fitting the 4" height. From this information it is possible to calculate the number of stitches for the width and the number of rows for the height on the model sketch.

Example: Supposing that in the test square 30 stitches have been found for a width of 4" and that 16" is entered on the sketch for the lower edge of a sweater (casting on edge), then we have the following calculation:

$$\begin{aligned}4'' &= 30 \text{ stitches} \\1'' &= 30 \div 4 = 7\frac{1}{2} \text{ stitches} \\16'' &= 16 \times 7\frac{1}{2} = \mathbf{120 \text{ stitches.}}\end{aligned}$$

Or supposing that in the stitch sample 45 rows have been counted for a height of 4" and according to the sketch 20" are required for the overall height of the sweater, the following calculation is obtained:

$$\begin{aligned}4'' &= 45 \text{ rows} \\1'' &= 45 \div 4 = 11\frac{1}{4} \text{ rows} \\20'' &= 20 \times 11\frac{1}{4} = \mathbf{225 \text{ rows.}}\end{aligned}$$

## Sources of error

Difficulties and minor errors during knitting usually occur only at the beginning until the various manipulations and adjustments on the machine have become familiar. During the description of the different working processes, reference was already made to some of the various points which must be given special attention. The following is another summary of all the main factors that might affect the quality of the knitting.

### The slide moves stiffly: Check whether

- threading is correct and the wool is not being held somewhere,
- the wool unwinds evenly from the ball and not jerkily (which is often the case in hand-wound balls of wool),
- the stitch size is correctly set for the ply of wool used,
- the thread tension is correctly set (not too tense so as not to interfere with the wool supply, nor too slack for the wool to be always at the same tension),
- the slide or the needle channels are clogged with wool fibres,
- the Fair Isle screws are loosened several turns during ordinary knitting and the needle lowering cams in the lock plate are springy,
- the needle butts are well oiled.

### Casting on row badly knitted:

1. If, when casting on, the loops formed around the needles are too small, the slide runs stiffly and the wool might even break.
  - When casting on, bring back the needles exactly in Working Position 1 and hold the wool loosely in hand.

2. If, when casting on, the loops around the needles are too long, the stitches will not be knitted correctly, i. e. the casting on loop and the newly formed loop will remain in the needle head and fail to slip off.

- When casting on, bring back the needles exactly in Working Position I and hold wool loosely in hand.

**Badly knitted edge stitches:** Check whether

- there are long catch hooks at the beginning and the end of the row of needles inside the outermost needles. If this is impossible (when increasing or decreasing), hold the outermost stitches lightly against the chassis with the finger when moving the slide over them.
- After a few rows, pull the fabric down by the edge stitches.

**Dropped stitches at the edge:**

- Adjust thread tension, since it is either too tight or too loose.
- After a few rows, pull the fabric down by the edge stitches.

**Badly knitted stitches in the fabric:** Check whether

- there are any defective needles in the needle bed (latches sticking, bent or broken).
- If **coarse and rather unelastic wool** or **thin wool** with a very loose stitch size setting (8-9) is being used, pull the fabric down after each row so that it does not get caught beneath the catch hooks.

**Dropped stitches in heels:**

- Adjust thread tension, which is too loose.
- Preferably adjust stitch size to one number below that used for ordinary knitting.
- At the edge of the first row take care when passing the slide over the first needle in Holding Position that the wool does not wind around the long catch hook outside the needle row, thereby forming a large loop of wool at the outermost stitch.

**Irregular stitch pattern (slightly distorted stitches):**

- Adjust thread tension, which is too loose.

**Small "ribs" in the stitch pattern:**

- Over the entire fabric:

Check whether both Fair Isle screws are loosened and both needle lowering cams springy and neither of them blocked.

- At the edge:

Adjust thread tension, which is too loose.

**Imitation Fair Isle Patterns:**

If the knitted row is very tight and the slide runs stiffly, check whether both Fair Isle screws have been well tightened and whether neither of the needle lowering cams has been slightly displaced or got stuck.

- Remove the slide from the slider rail. Loosen Fair Isle screws. Thereby the displaced needle lowering cams slide into their set position.
- **Tighten Fair Isle screws well**, reinsert the slide and continue knitting.

**TURMIX**