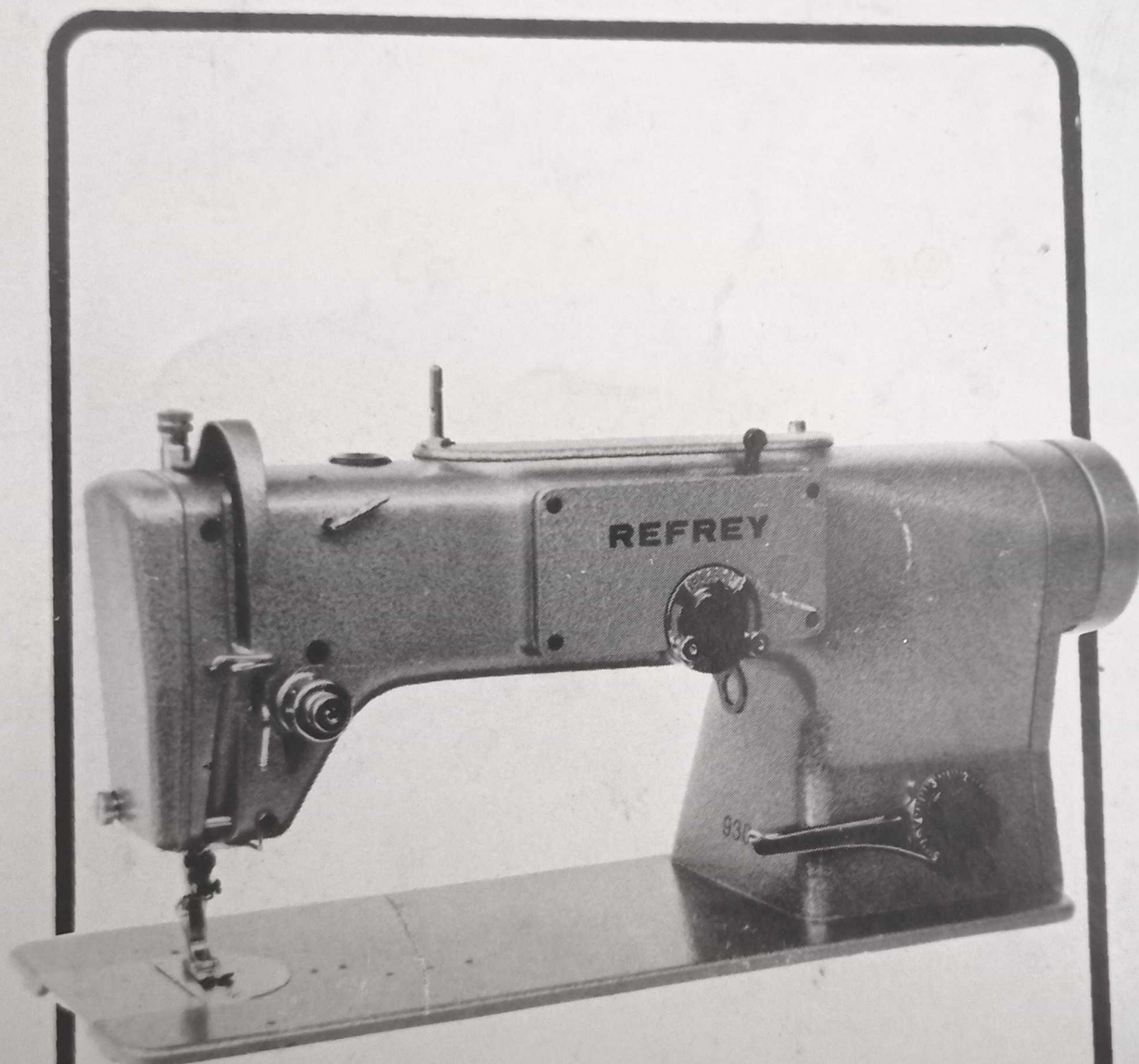


INDUSTRIAL SEWING MACHINES  
**REFREY 930-931**



**Instructions**

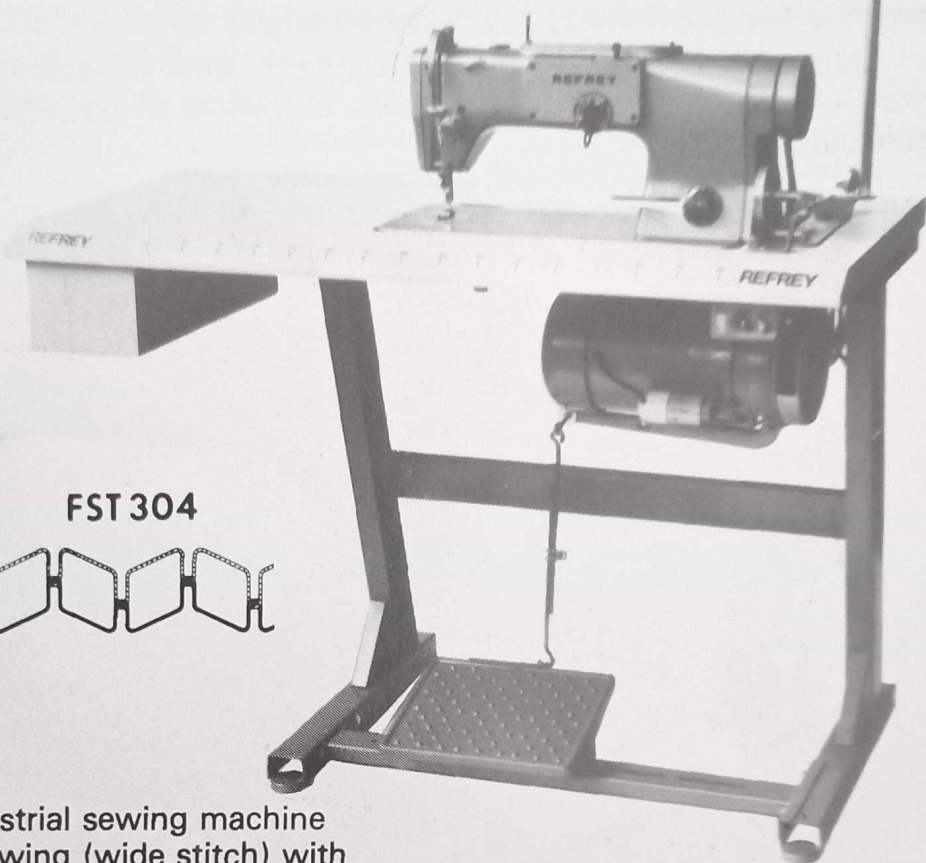
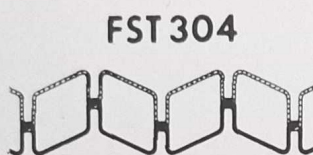
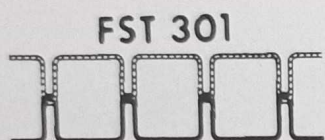
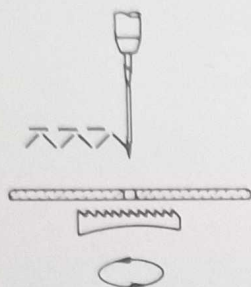
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# REFREY 930

SEWING AND EMBROIDERING MACHINE, UNIVERSAL AND ZIG-ZAG, NORMAL CONVEYOR, LONG ARM, FLAT STAND, ROTARY HOOK.



REFREY 930 is a fast industrial sewing machine for straight and zig-zag sewing (wide stitch) with double backstitch, reversible in the three needle positions (left, centre and right), extremely modern and manufactured to carry out a series of jobs pertaining this sort of machines and thus comply with the present industrial ready made sewing, arctcraft workshops and general tailoring demands.

## TECHNICAL DATA

SEWING MACHINE	930-50	930-61	930-62	930-81	930-82
Sewing maximum speed, stit/min .....	2.800	2.800	2.400	2.400	2.000
Maximum zig-zag width in mm. ....	5	5	5	8	8
Maximum stitch length in mm. ....	4,5	4,5	4,5	5,5	5,5
Needle system .....	134kK	134kK	134kK	134kK	134kK
Presser foot rising in mm. ....	8,5	8,5	8,5	8,5	8,5
<b>ENGINE</b>					
Engine power in CV .....	1/3 to 1/2 C.V.				
Engine speed r.p.m. ....	1.400				

## INDUSTRIAL TABLE:

Board and tube or section end, yarn carrier on board and bobbin holder.

Electro-mechanic and electro-pneumatic units provided with thread trimmer and complementary automatisms (on demand). Request our catalogue.

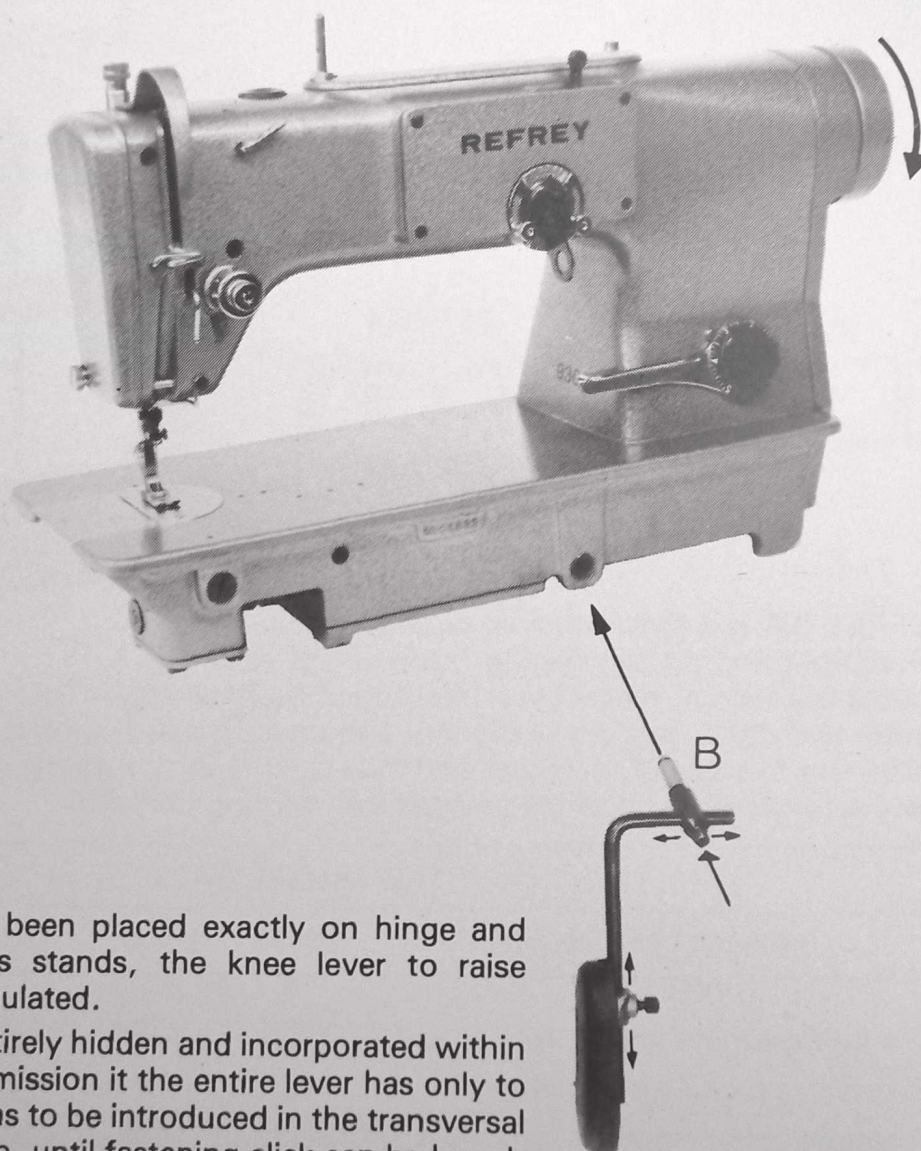


## Machine assembling

---

Before connecting machine, *make sure that network source electric power* is the same as the one indicated in the small engine characteristics plate.

Once electrical connection is carried out, note if machine turns in the correct direction —FORWARDS—. If otherwise, two wires at engine terminals box must be interchanged.



### Knee lever coupling

Once machine has been placed exactly on hinge and board shock absorbers stands, the knee lever to raise presser foot can be regulated.

Its mechanism is entirely hidden and incorporated within arm and plate. To commission it the entire lever has only to be caught and B bolt has to be introduced in the transversal shaft plate up to its stop, until fastening click can be heard.

Whenever machine is required to be raised from board or tilted above it, do not forget to remove first knee lever.

### Trapezoid belt

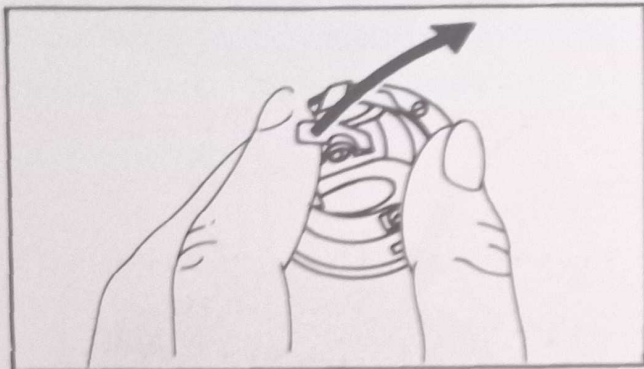
Whenever trapezoid belt removal is required, disassemble it first from engine pulley.

When trapezoid belt change is required, disassemble its protective defense, loosening first the lockscrews.



## General instructions

### Shuttle bobbin and pod



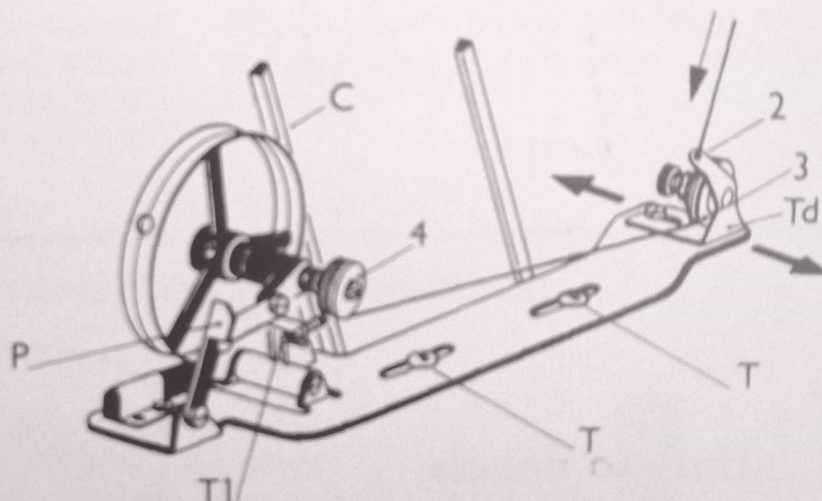
How to remove pod and shuttle bobbin from machine.

Yarn guide lever is placed at its highest position turning wheel. Lock is opened and pod is removed with bobbin. When lock is loosened bobbin is freed and comes out from pod.

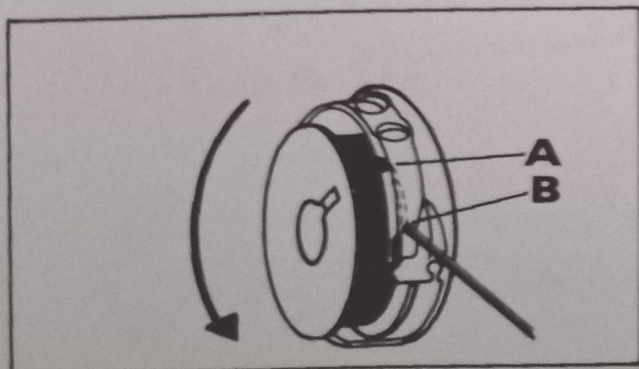
### Lower thread winding in bobbin

Thread course:

1. Bobbin holder (not shown)
2. Yarn carrier
3. Tension device disks
4. Shuttle bobbin
- T Lockscrew
- T1 Adjusting screw (it regulates yarn quantity wound in bobbin)
- Td Yarn carrier tensioning device
- C Trapezoid belt
- P Clutch lever



### How to place bobbin in pod and lower thread needling



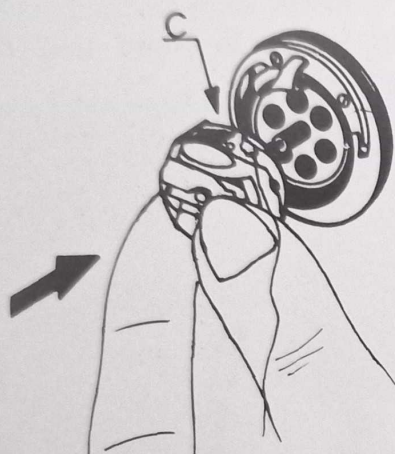
Once bobbin is full, place it in pod, taking care that at yarn pulling bobbin turns counterclockwise as shown by arrow on illustration.

Further to having placed bobbin in pod, slide yarn through A slot placing it under tensioning spring and withdraw it by guiding end B of mentioned spring.

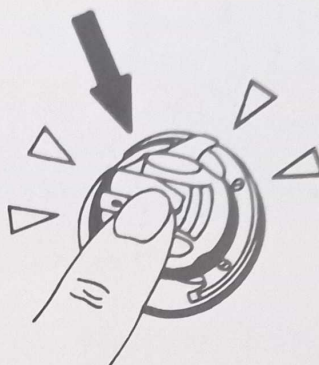


## How to place pod in hook

To place pod in its place, needle must be raised to its highest position. Then grab pod and introduce it on pod holder with slot C upwards pressing slightly up to the bottom, which can be heard by a slight snap.



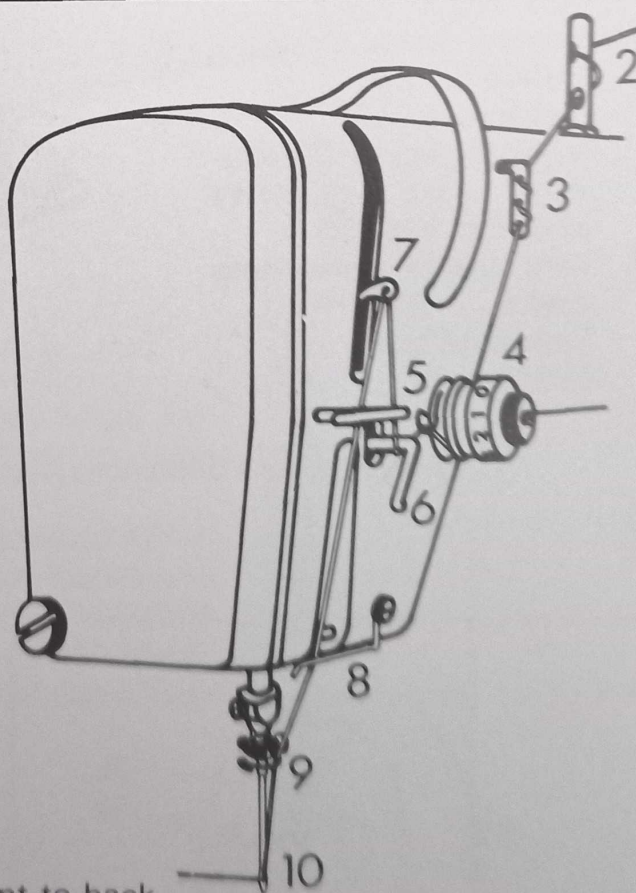
If lock cannot be easily closed it means that there are thread remnants at hook bottom and which are to be removed. Remember that thread end must surpass pod and must not remain caught by lock.



## How to needle upper thread

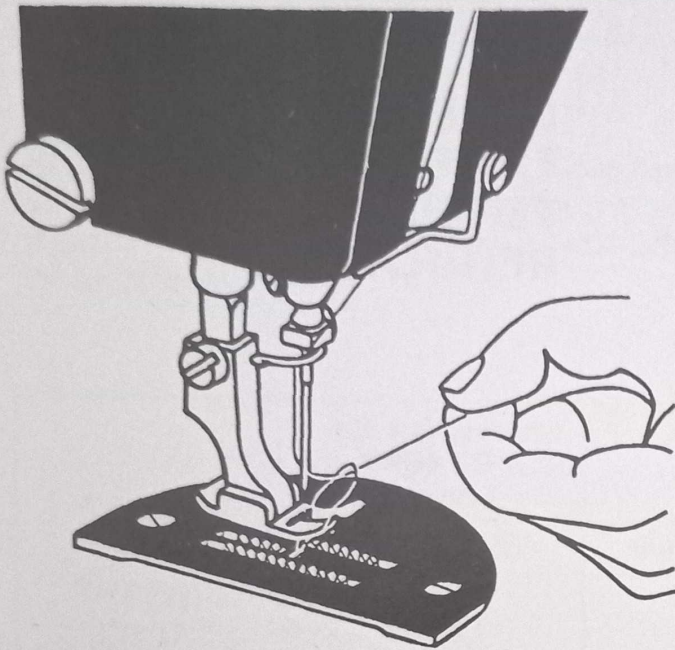
Thread course:

1. Bobbin holder yarn carrier (not shown)
2. Yarn carrier bolt
3. Pre-tensioning
4. Tensioning device disks
5. Recovery spring
6. Yarn carrier hook
7. Yarn guide lever
8. Lower yarn guide
9. Needle holder yarn guide
10. Needle, thread is needled from front to back.

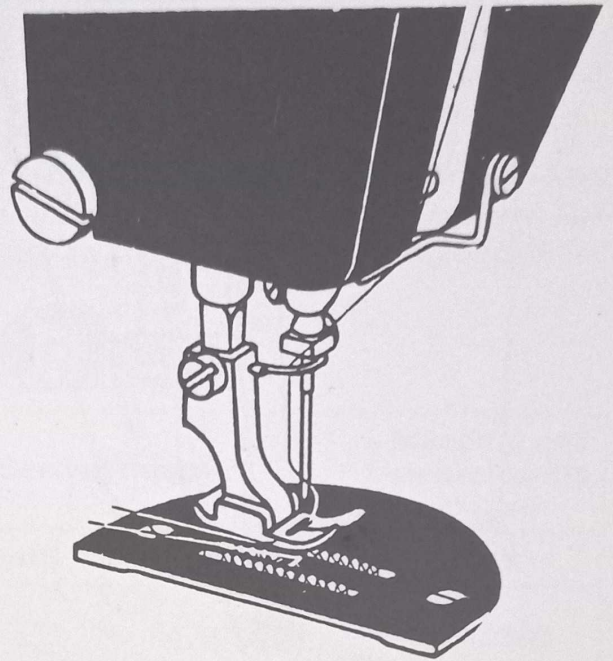




## How to raise lower thread



Hold upper thread end already needled. Turn wheel towards you and at the same time pull slightly from upper thread. In this way, lower thread will be raised through needle plate orifice.



Stretch slightly upper and lower threads and pass them laterally under presser foot.

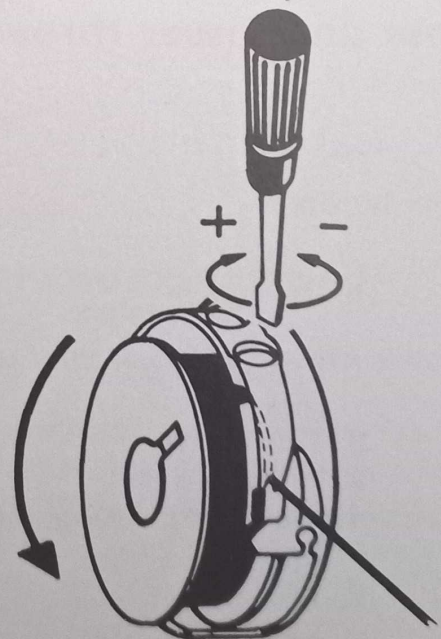
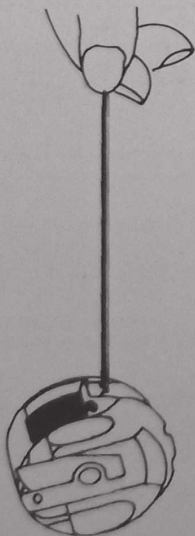
## Lower thread tension regulation



Right rotation  
— Tension increases

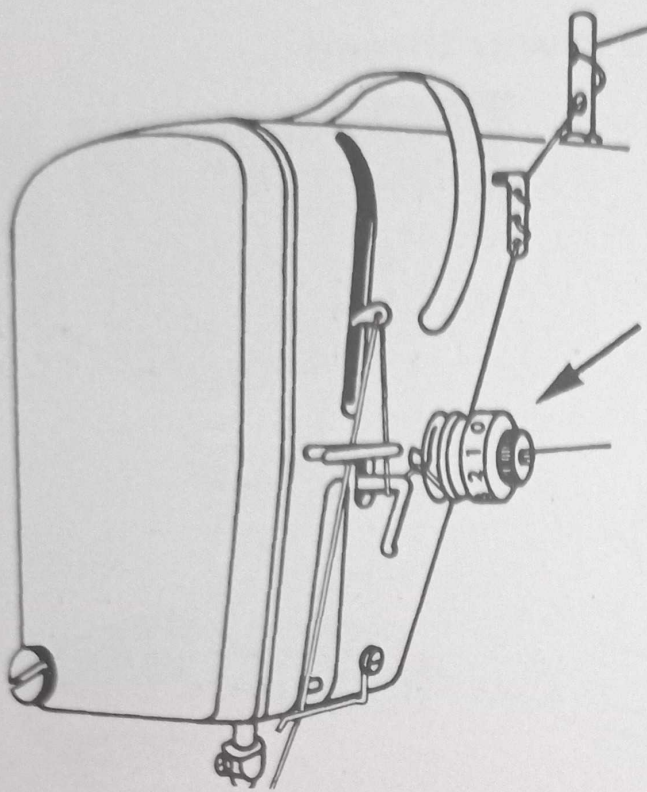


Left rotation  
— Tension decreases



Spring tension is correct when it is exactly enough to hold pod and bobbin pending from thread end in bobbin.

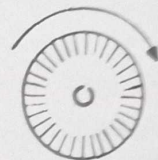




## UPPER THREAD TENSION REGULATION

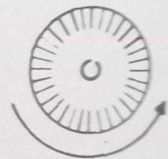
Right rotation:  
— Tension increases

0-1-2-3-4-5-6-7-8-9



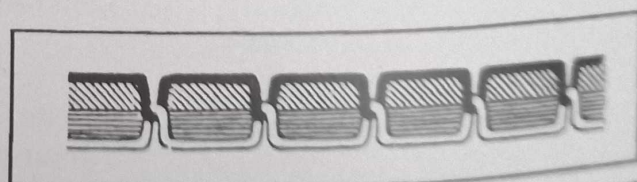
Left rotation:  
— Tension decreases

9-8-7-6-5-4-3-2-1-0

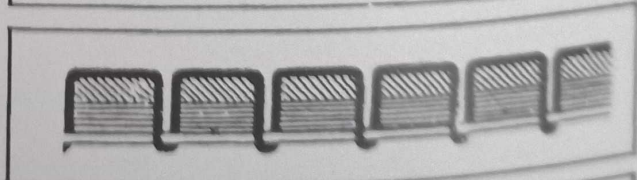


## Upper and lower threads tension

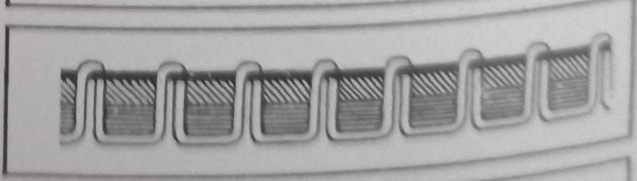
Correct tensions.



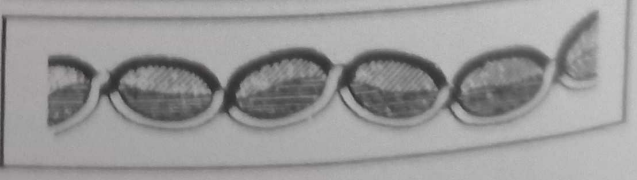
Excessive lower tension or poor upper tension.



Excessive upper tension or poor lower tension.



Excessive upper and lower tensions.





## Needle and thread

### How to place needle

Release lockscrew, turning it left. Hold needle between thumb and forefinger with *long slot to the front*, that is towards sewing person. Further, fasten needle lockscrew. It is important to place needle to the needle-holder bottom and that it remains fixed fastened by its screw.

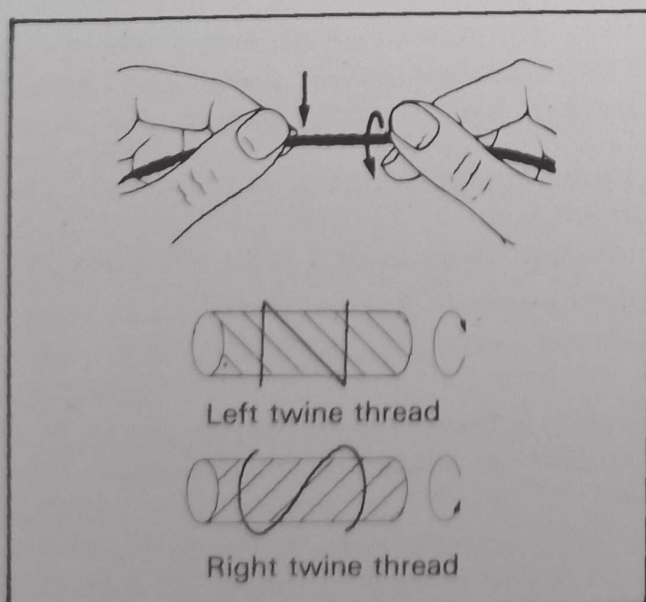
NEEDLES AND THREADS CHART	134 KK system or 265-50 EO K SI Needles	Sewing thread		Mending and embroidering thread
	Needle Nr.	6-ply (matt)	3-ply (matt)	2-ply
	60	—	170—200	80—100
	70	70—100	70—140	50—80
	80	50—60	50—70	30—40
	90	40—50	30—40	—
	100	20—30	—	—

### Sewing, mending and embroidering thread choices

Straight sewing: Nr. 60-90, 3 and 6-ply  
 Mending: Nr. 50-80, 2-ply  
 Embroidering: Nr. 40-80, 2-ply  
 Zigzag sewing: Nr. 60-90, 3 ply only  
 Ornamental sewing: Nr. 30-40, 2-ply

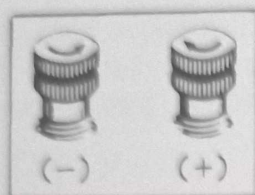
### LEFT AND RIGHT TWINE THREADS

Whenever possible, use **only left twine threads** to embroider and mend for upper thread; lower thread can be of right or left twine.



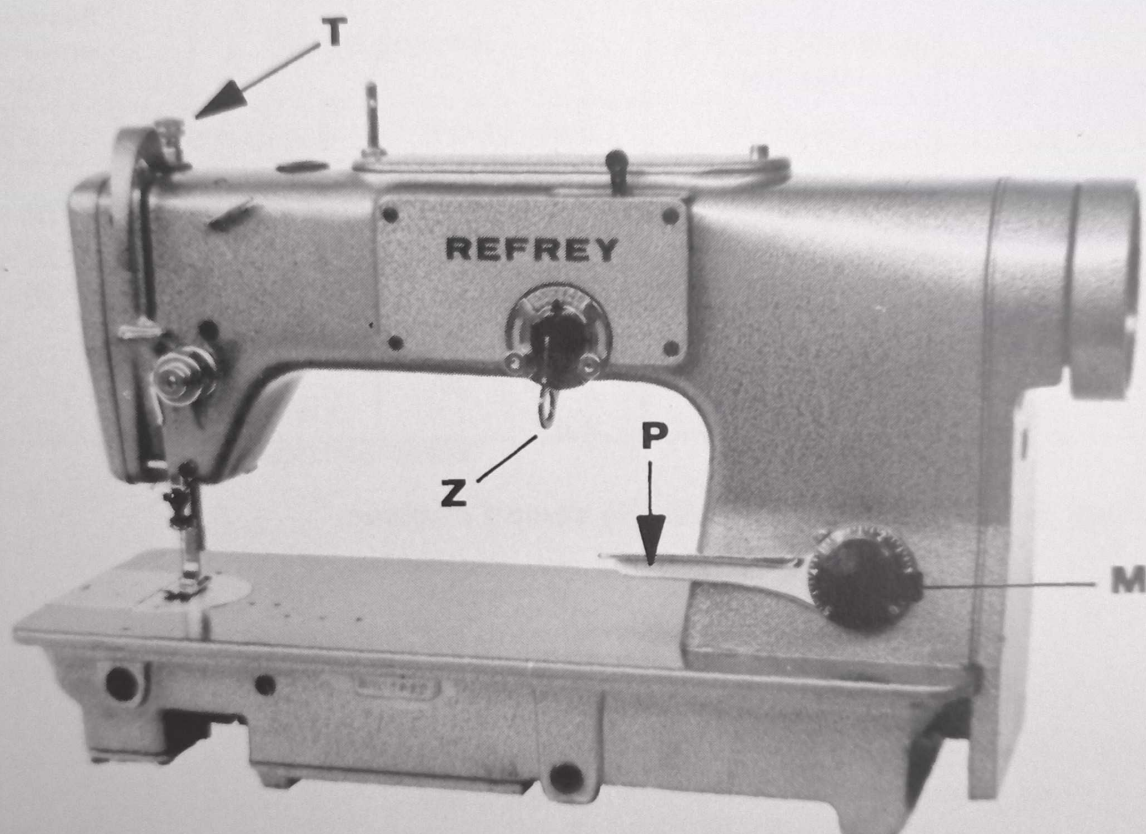


## Presser foot pressure regulation



Pressure regulation is made by hand by turning T knurled screw provided to this purpose.

Turning screw RIGHT, pressure INCREASES over fabric and opposite IT DECREASES pressure.



### Stitch length regulation

Stitches length is adjusted by means of M stitch regulator control as from a nil 0 value —fabric does not advance— up to a maximum 5 value, increasing as control M is increasingly turned right. On the opposite, as button is turned left, stitch length decreases.

### Exchanging to backwards stitching

Pulling P reverse lever to its maximum lower stop, machine sews backwards with the same stitch length as it had been adjusted by means of M control to sew forward.

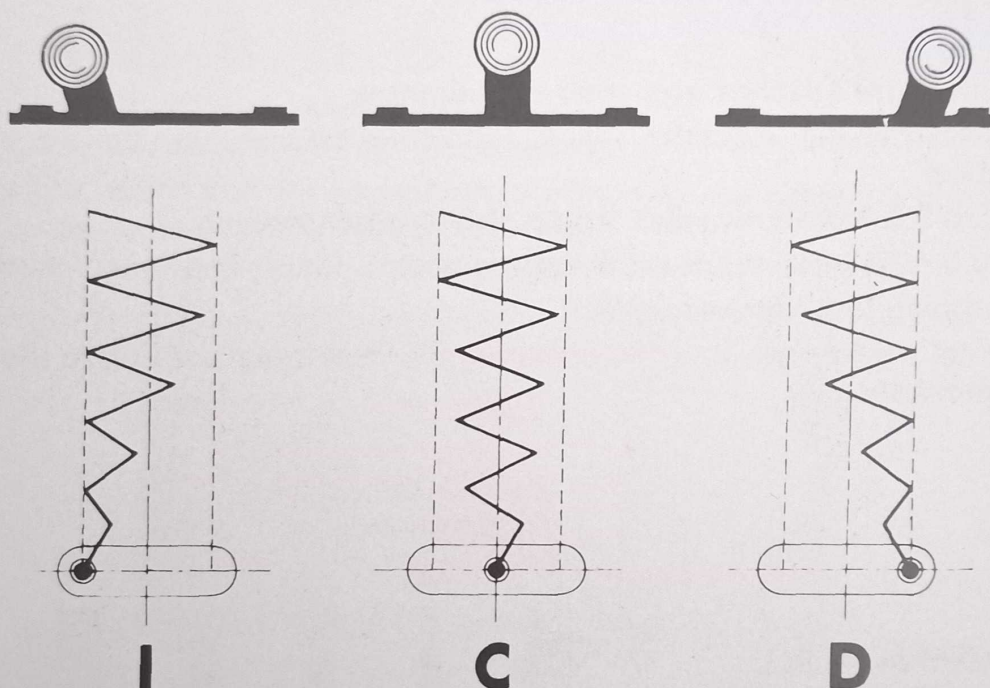


# ZIGZAG

## The three I-C-D (left, centre, right) needle positions

### I-C-D Control

- Position I (left). — Needle starts from left and advances towards right.
- Position C (centre). — Needle starts from centre and symmetrically advances both ways.
- Position D (right). — Needle starts from right and advances only towards left.

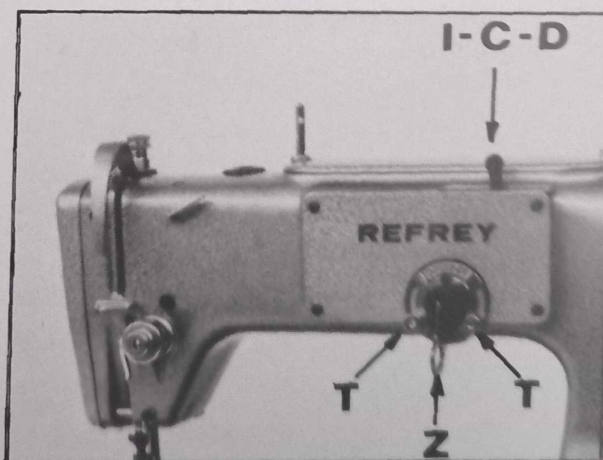


## Backstitching width regulation (Control Z)

To sew a straight backstitch, that control position must be 0. 0 figure indicates that the machine is in a position to sew a straight backstitch.

As zigzag control drives away from 0 position, needle reproduces a wider zigzag backstitch, on the opposite as control is drawn closer to 0, needle reduces zigzag width, this control can be freely operated both ways.

If zigzag control is positioned at a distant fixed position from 0, needle reproduces a constant width zigzag backstitch. On the opposite, if the position is alternatively and rhythmically modified, the needle will reproduce, through the zigzag control, a different width zigzag backstitch corresponding to the subsequent control positions. Beautiful ornamental effects of an ilimited range can be thus obtained.





Zigzag width control must never be operated if machine is stopped, this control must only be operated with needle away from fabric, that is to say at its highest position.

### T, zigzag width stops

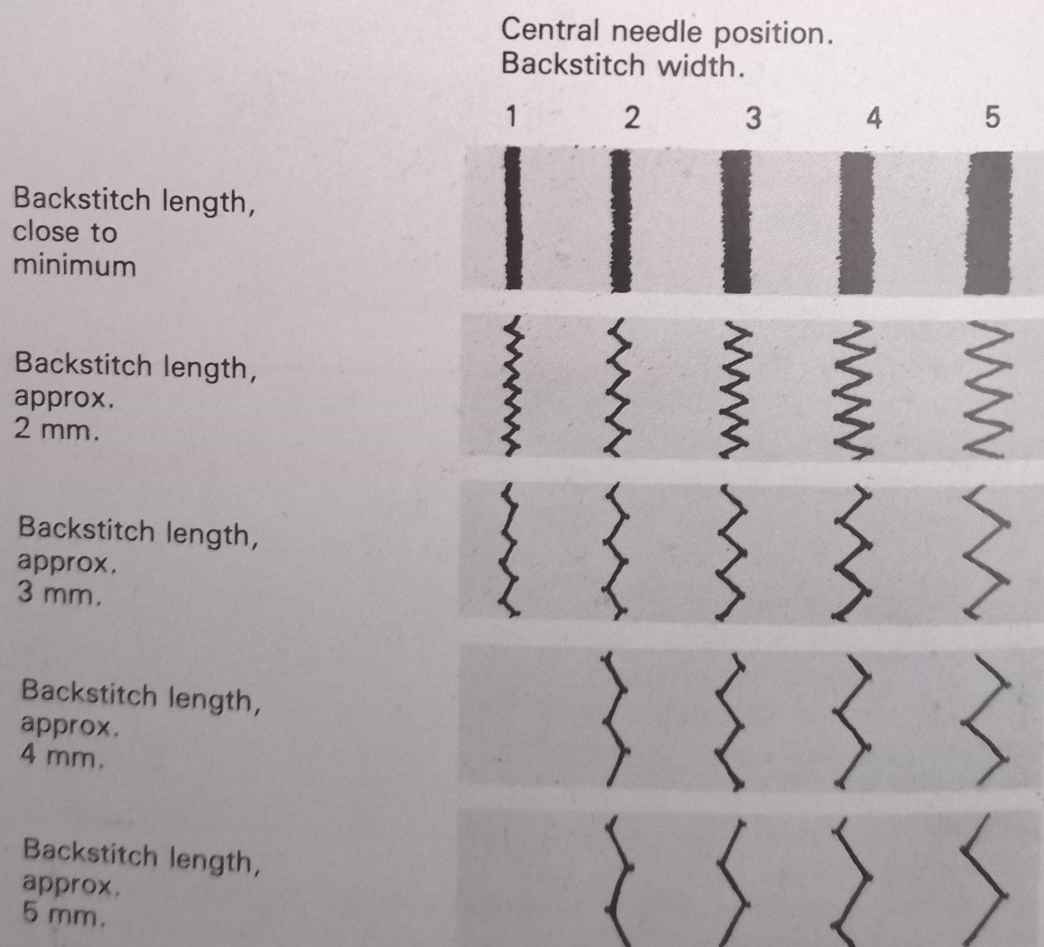
Stops are placed to left and right of zigzag width control and are used to limit zigzag width and can be independently displaced by just loosening the corresponding nut. Through combination of these two stops the zigzag required width limit can be obtained.

### Zigzag ornamental stitches and their coordinates

As it has been already indicated, the zigzag stitches become from the combined three elements effect:

1. From 0.5 to 5.5 milimetres stitch length (fabric advancement).
2. From 0 to 8 milimetres stitch width (zigzag width), (according to sub-models).
3. Needle position (left, centre, right).

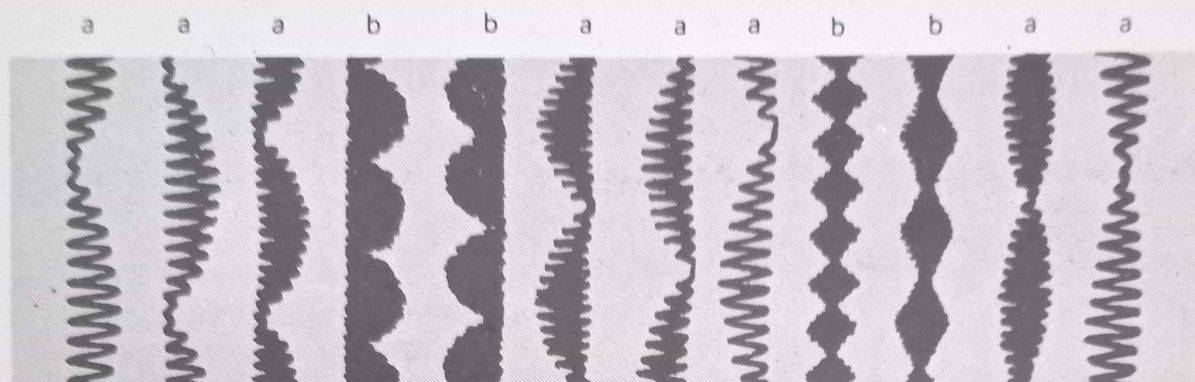
Ornamental stitches are obtained operating the mentioned controls in the adequate way throughout sewing.





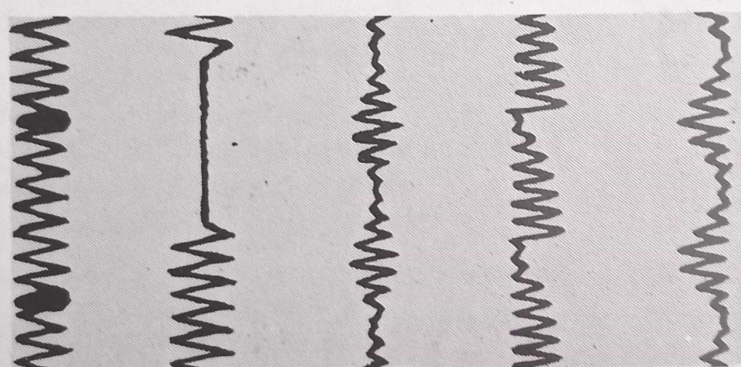
Stitches length and width regulation provide the following ornamental sewing:  
It is understood that intermediate values can be used both for stitch width as length.

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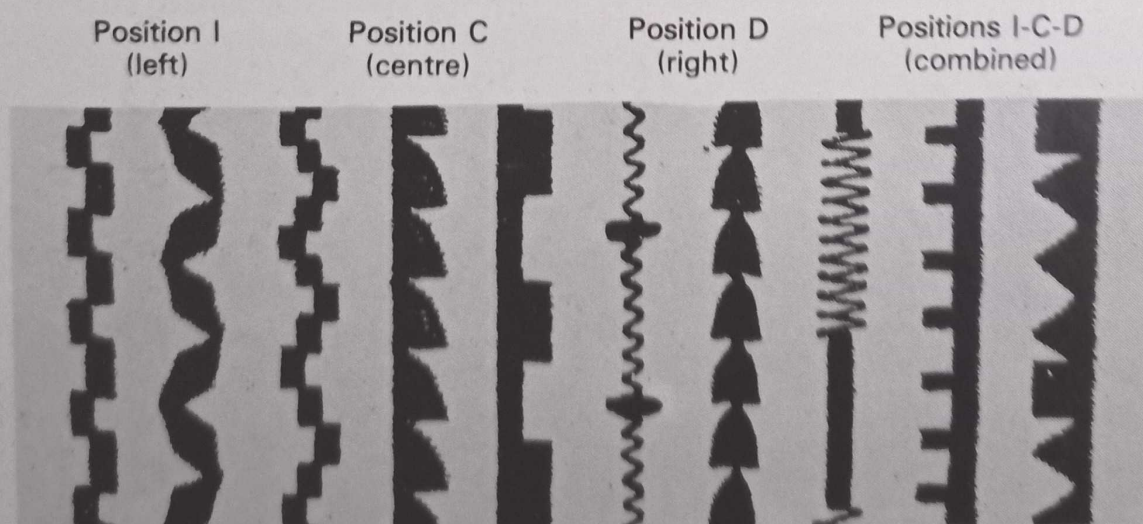
- a. Normal length stitches, presser foot for sewing.  
b. Short stitches, presser foot for embroidering.

At length, width and needle position modification, the following ornamental sewing can be made, among many others:



Backstitch length	2-0	2	2	2	aprox. 2 mm.
Backstitch width	4	0-5	0-5	0-5	aprox. 0-5 mm.
Needle position	C	C	C	I	D

Modifying needle position by means of position control, the following effects can be obtained, among many others:

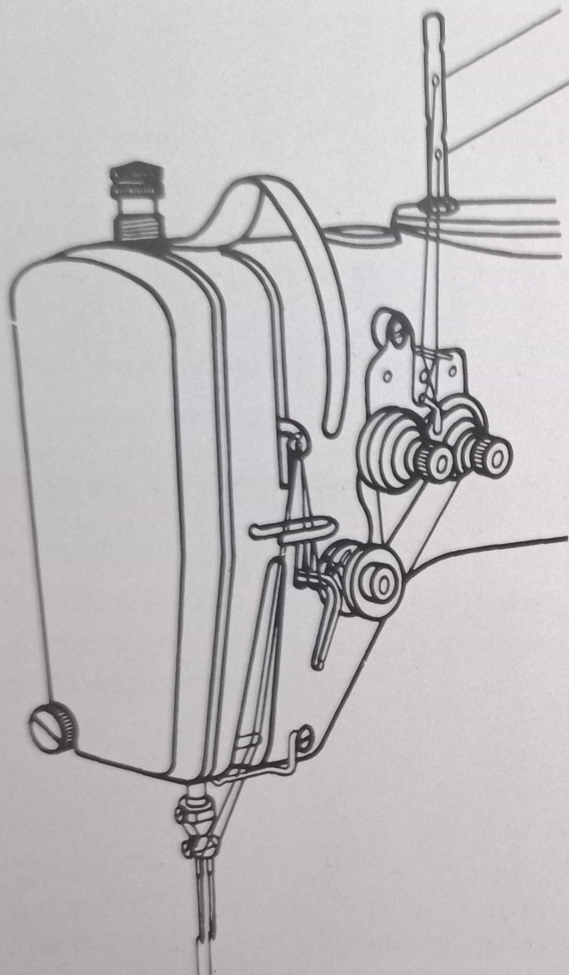




## Two needles sewing

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### Two upper threads needling

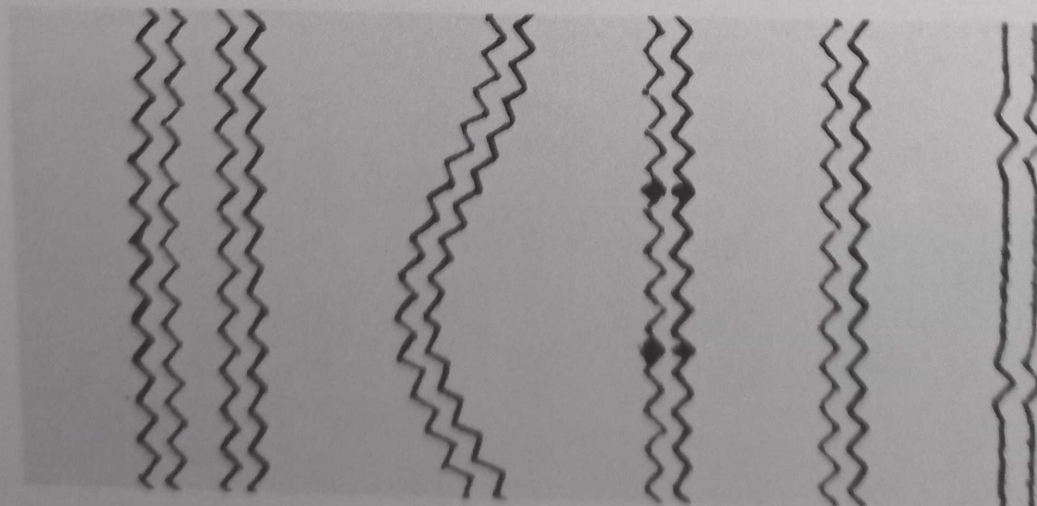


### Zigzag ornamental sewing with two needles.

Utilizing a double needle holder and sewing presser foot, a double ornamental sewing can be made and better effects can be obtained if different colour threads are used.

If using the two-milimetre double needle holder, a small zigzag movement can besides be made but care must be taken to make transversal needle displacement

light enough so that needles do not pierce needle plate to the right nor left. Z width control must not surpass 2 as a maximum.





# Machine maintenance carried out by operator

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## Cleaning

In order to ensure a machine good functioning, it is mandatory to clean it as below indicated:

Thread remnants are formed throughout sewing, particularly around rotary hook (shuttle) which might hinder machine good functioning. It is absolutely necessary to remove them frequently, at least once a week.

To clean those parts located under needle plate and therefore, the hook parts, machine head must be tilted backwards (removing knee lever).

Once in a while front cover must be removed as well as needle plate. All visible parts must then be cleaned with a brush or clean rag, in particular needle bar and its operating mechanism, the rotary hook, the fabric conveyor, and the needle plate, in order to remove all dirt and remnants formed during sewing.

## Lubrication

**REFREY 930** machines are provided with a multiple lubrication system:

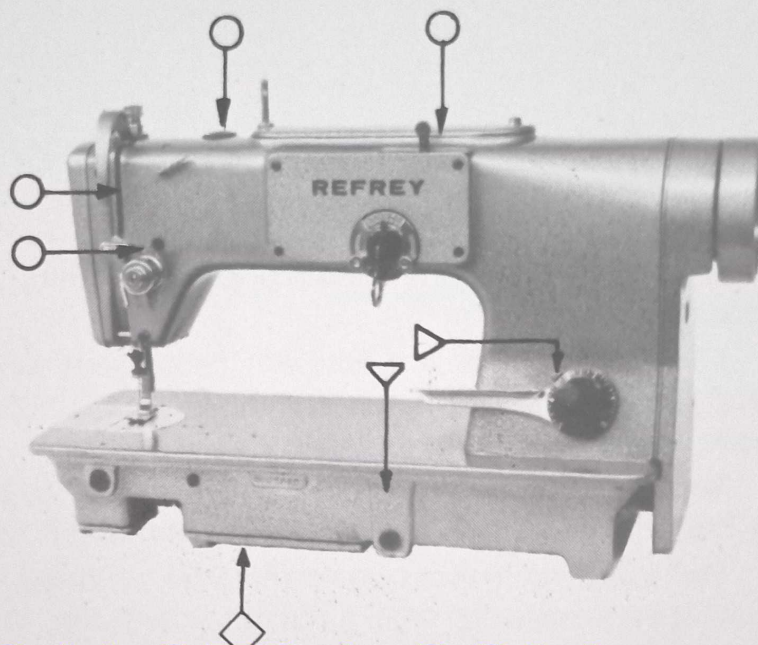
- a) Permanent lubrication sealed bearings at arm and plate driving shafts. Through these large duration and nil maintenance bearings employ, central lubrication system has been suppressed, which up-to-date was necessary in high speed machines.
- b) Fundamental mechanisms splashing lubrication, these parts are located at stand plate housing.
- c) Branched ends capillarity lubrication to other parts.

By means of this combined lubrication system, these machines are greased with a **MINIMUM** maintenance, as per the following instructions:



## Oiling standards

Despite the permanent lubrication sealed bearings, as well as of hook automatic greasing and some parts splashing lubrication, there are some points at machine which operator must grease from time to time, as per the below indications, always taking care not to pour too much oil as latter could overflow greasers and stain work.



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**1. Frequently grease** with a good sewing machines oil:

REFREY type sewing machines oil.

Viscosity at 50°C from 1.75 to 1.80° Engler.

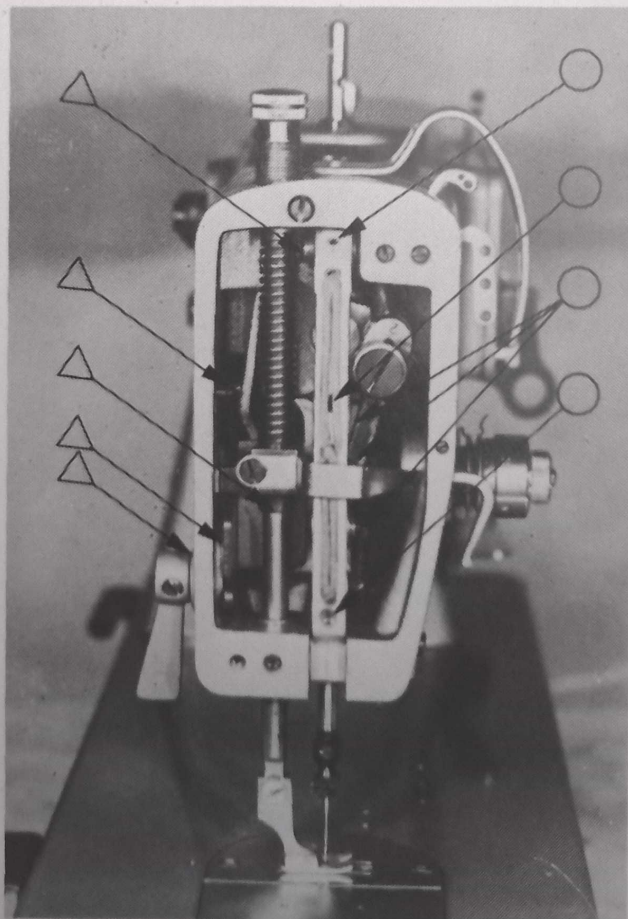
- Needle bar (upper and lower bushing ends).
- Needle bar driving mechanism (greasers and ends).
- Parts with easy access at front cover removal.
- Heading upper greasing.

**2. From time to time greasing** (weekly):

- ▽ Presser foot raising mechanism.  
Pod holder.
- ▽ All remaining greasers with ball lock.
- ▽ All red marked greasing orifices.

**3. Add oil:**

- ◇ We recommend a crankcase oil change if permanently using sewing machine, at least once a year, even if little oil has apparently been consumed.  
See to use a demi-fluid oil to that purpose:

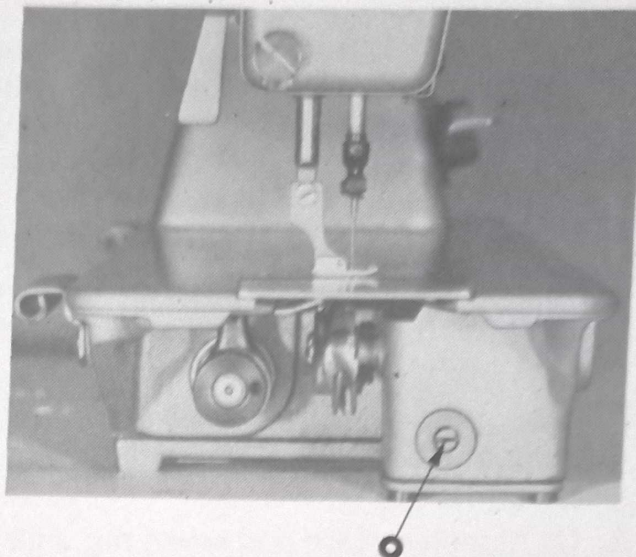


SAE 30 TYPE  
Viscosity at 50°C-6.5 to 9° Engler



#### 4. Grease with consistent grease.

- Whenever an excessive heating is noted at hook gearing box.



### Machine maintenance carried out by technician

We advise sewing machine technician to periodically comply with cleaning and lubricating work recommended to be carried out by operator.

Technician must pay special attention to crankcase and hook oil change as well as to the necessary cleaning and general oiling revisions.

#### Crankcase oil change

When machine has been quite frequently or constantly at work, oil change must be made because oil has become dirty or it has lost its lubricating properties. This will take place approximately after six-months to one-years permanent servicing.

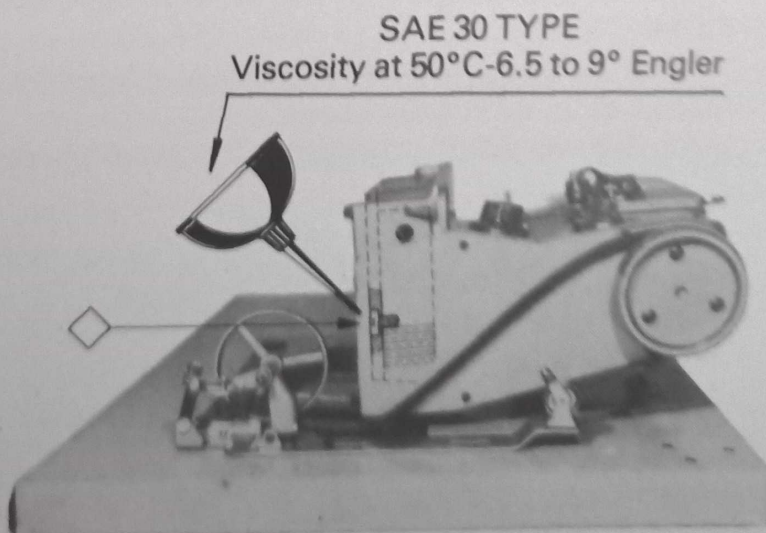
To remove used oil remove oil drain screw placed at crankcase cover and collect used oil in an adequate container.

In these conditions, new oil can be poured in crankcase, according to the following paragraph:

#### How to pour oil in crankcase

Tilt machine backwards and pour oil with the indicated specifications in loading orifice up to lower orifice level. If changing oil this is obtained by pouring approximately 50 cubic centimetres oil.

Once oil level is verified, lock loading orifice with its corresponding screw and joint.

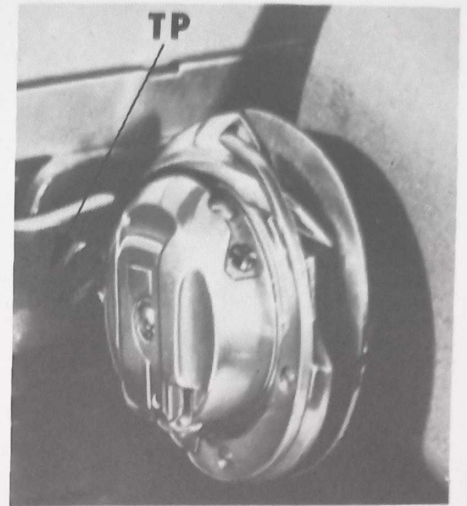




## Hook cleaning

The most important and delicate sewing machine part is the rotary hook (shuttle). Its maintenance calls for particular attention and since it is one of the most sensitive parts subject to greater fatigue it must be frequently cleaned.

1. To that purpose, remove pod with its bobbin and needle. Further, pour enough oil on hook guide, that is on friction surface between pod holder and hook body.
2. Raise presser-foot and turn machine alternatively at different speeds until oil has expelled all remnants out from hook.
3. Oil friction surface and sew a rag until all oil traces disappear from sewing.



**HOOK MUST NOT BE DISASSEMBLED UNLESS IF BLOCKED** and providing it is impossible to remove threads causing blockage by turning hand wheel forward and backwards.

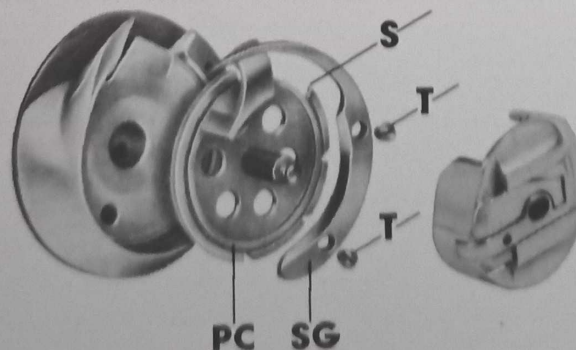
In case this test gives no positive result, do not force hook and disassemble it as follows:

## How to disassemble hook

In case of obstruction blockage, hook can be partially disassembled without entirely removing it from machine. Do as follows:

1. Remove needle, needle plate and conveyor.
2. Tilt machine backwards.
3. Disassemble TP pod holder stop.
4. Loosen the two T lockscrews from SG (blind hook) hook supplement. At special 107 W hook, hook supplement is secured on rear part with three screws, therefore to carry out this operation the entire hook must be disassembled from machine, loosening its three lockscrews.
5. Place hook so that its end surpasses some 2 or 3 millimetres from end S of PC pod holder. Pod holder can be easily removed in this position by slightly balancing it and at the same time slowly turning hand wheel. Better still, pour some oil drops on hook guide.
6. Further to thread and dirt causing obstruction removal, clean carefully hook by means of an oil soaked brush.

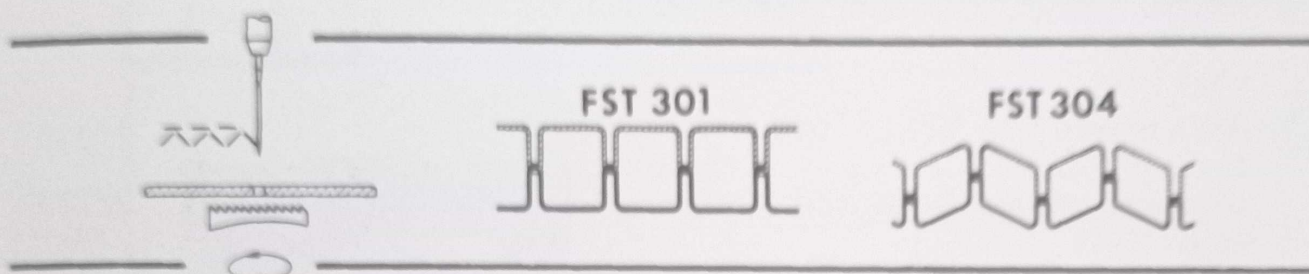
Hook is assembled carrying out the same operations in reverse way.





## REFREY 931 AUTOMATIC

SEWING AND EMBROIDERING MACHINE, UNIVERSAL AND ZIGZAG, WITH ONE OR TWO NEEDLES, NORMAL CONVEYOR, LONG ARM, FLAT STAND, ROTARY HOOK AND INTERCHANGEABLE CAMS.



### TECHNICAL DATA

#### AUTOMATIC 931

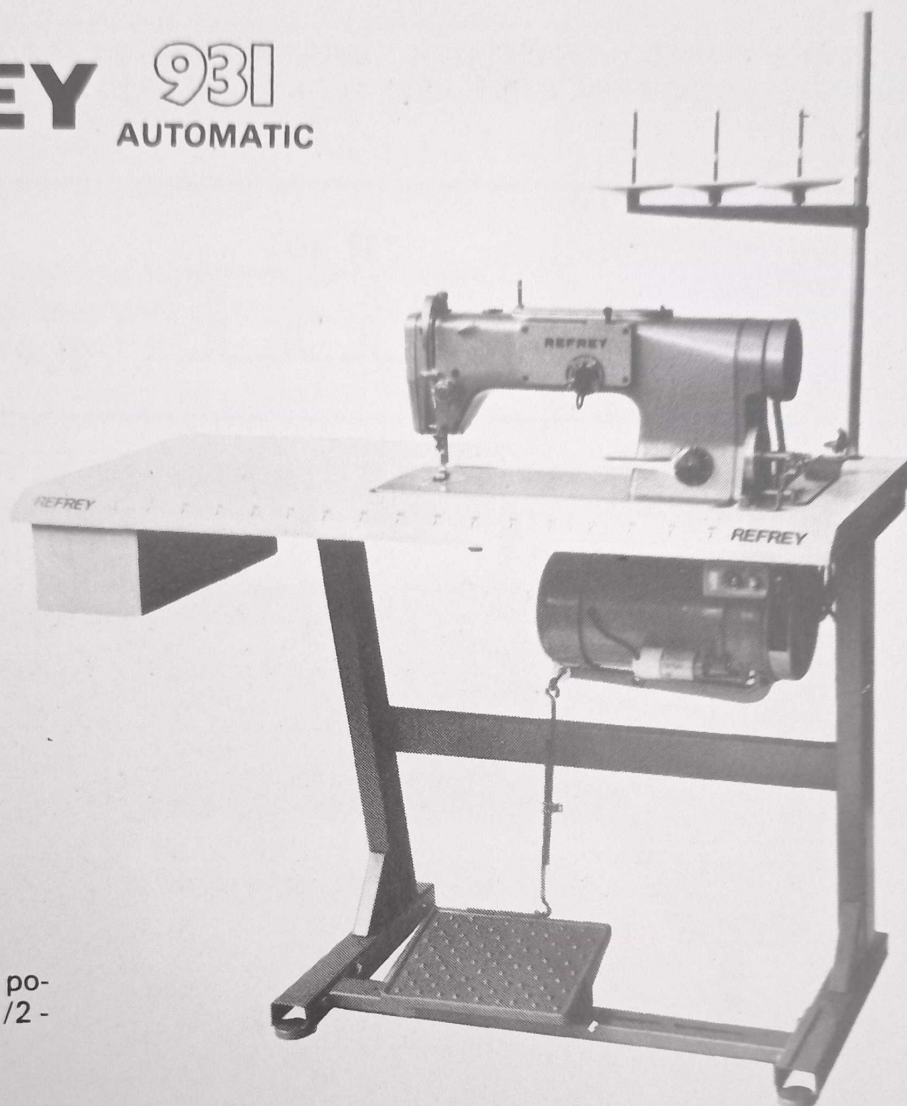
931-617/05      931-627/20

Zig-zag, mm. ....	6	6-8
Needle quantity .....	1	1-2
Needle system, Nr. 60-120 .....	134 SUK	134
107 W rotary hook .....	x	x
Sewing maximum speed .....	2.800	2.400
Automatic maximum speed .....	1.500	1.400
Maximum stitch length in mm .....	4,5	4,5
Presser foot rising in mm .....	8,5	8,5
Bobbin: cotton thread 50/2 m .....	40	40
Thread 40/3 up to 140/2 .....	x	x
Knee lever for presser foot rising .....	x	x
Automatic .....	x	x
Interchangeable cams .....	5	20



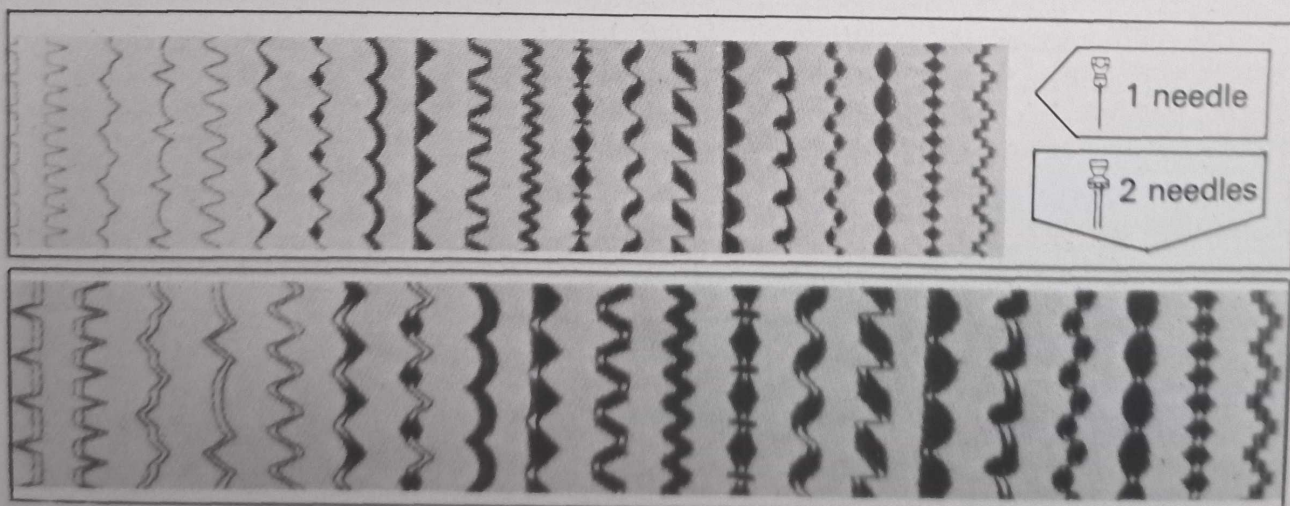
Multiple applications with one or two needles: embroidering, monograms, useful and ornamental sewing **UNDERWEAR • CORSETS • READY MADE GARMENTS**

# REFREY 931 AUTOMATIC



Complete unit: variable power motor, single phase 1/2 - 1/4 C.V.

With automatic system to carry out many useful and ornamental backstitches, with interchangeable cams.





## Automatic System ... 7

REFREY 931 model is provided with an automatic device to carry out ornamental and useful sewing by means of interchangeable cams. This device is coupled at arm rear part, has available a knurled nut to allow fast assembling and disassembling of interchangeable cam. (Fig. 1).

Sewing and reference numbers of the 20 available cams.

176	108	106	109	105	110	103	111	15	102	08	114	118	115	02	104	100	16	101	107

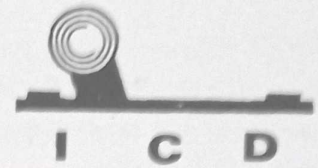


Fig. 1.- Rear view of machine.



## How to change cam

Place control I.C.D. on I position (left)



Turning lock knurled nut left, it can be completely loosened (fig. 2), to allow easy cam disassembling and its replacement. Beware that supporting washer guide-bolt must go into one of cam orifices and that its face showing reference must look outwards. Next, place back washer again, and screw it tight.

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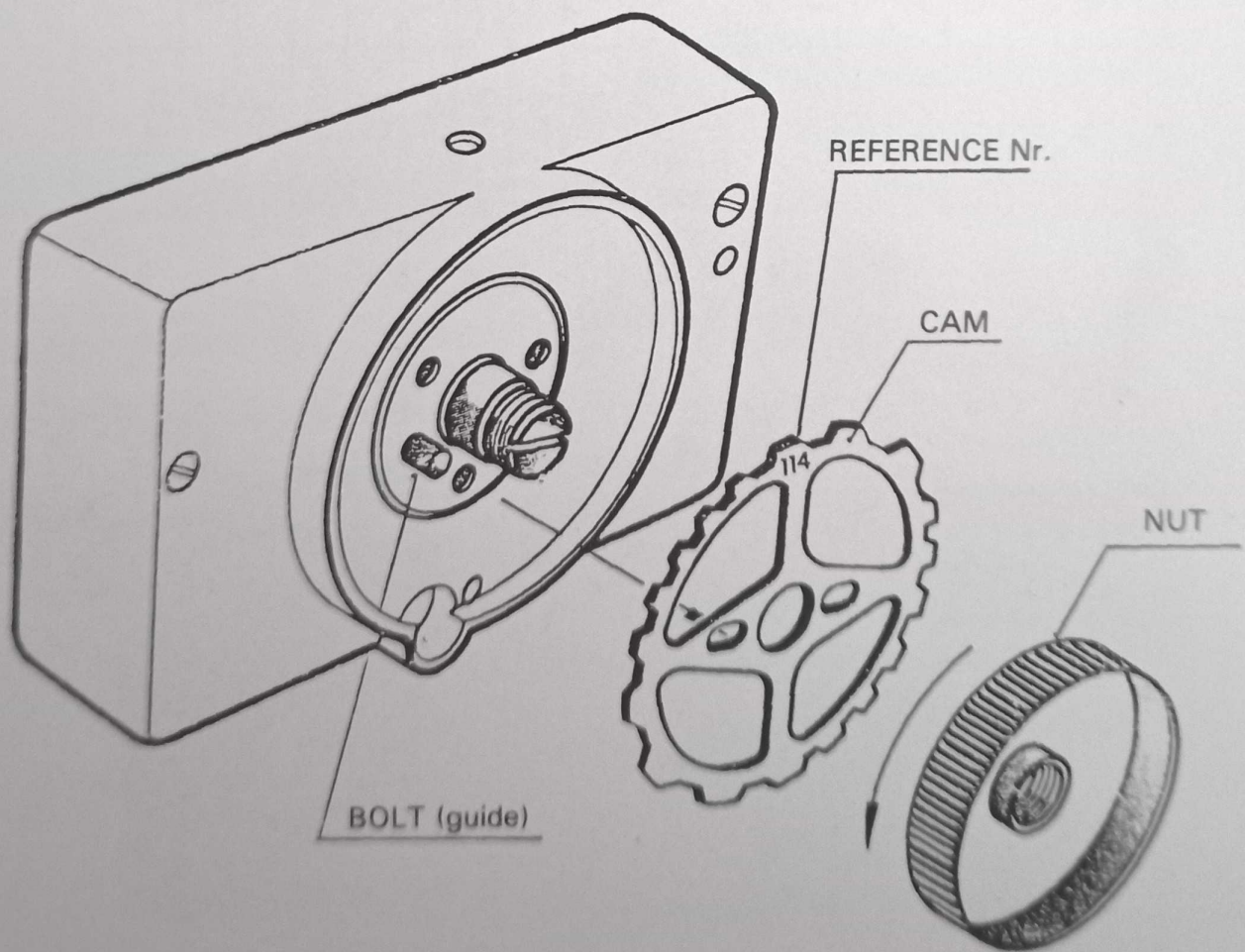


Fig. 2



## How to prepare machine to make ornamental sewing

---

1. Place zigzag width control (control Z) in its 0 position (Fig. 3).
2. Choose cam with required drawing and place it in the automatic device as explained in previous paragraph.
3. Place position I.C.D. control in its D position (right).
4. To make very thick ornamental sewing and festoons, place embroidering presser foot.
5. Upper thread tensioning must be rather slack.
6. Needle and sew as normally.

For automatic embroidering use a maximum 1.500/1.400 s.p.m.speed

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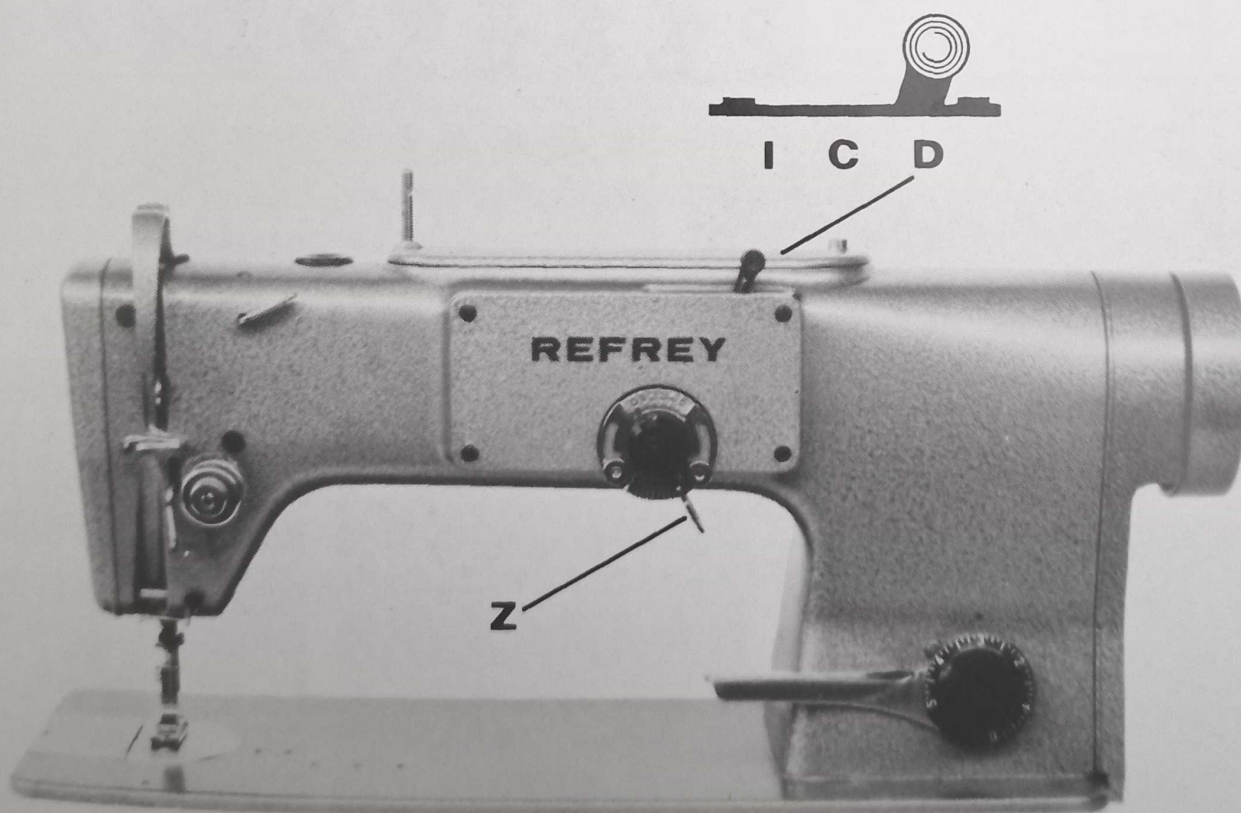
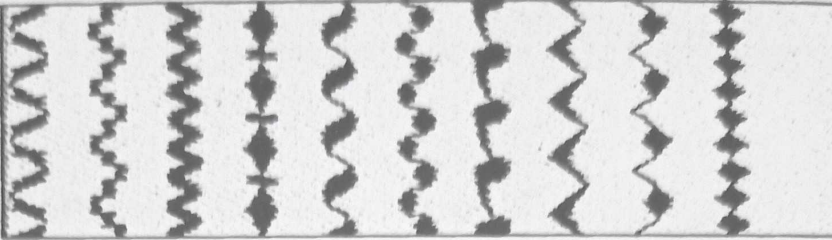
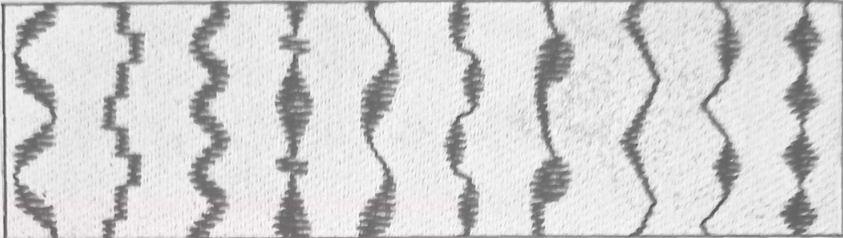


Fig. 3.

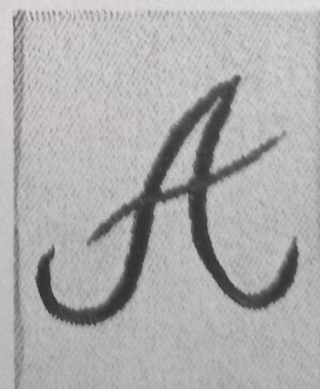
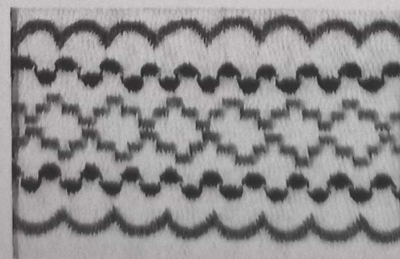
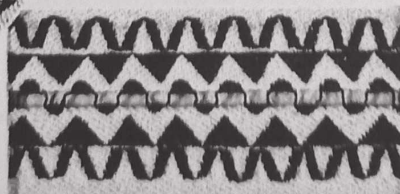
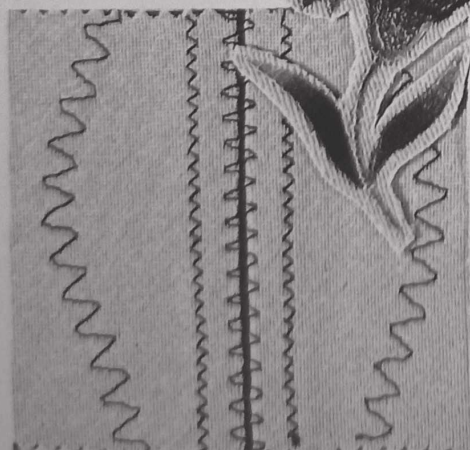
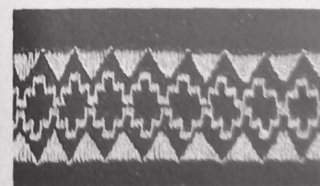
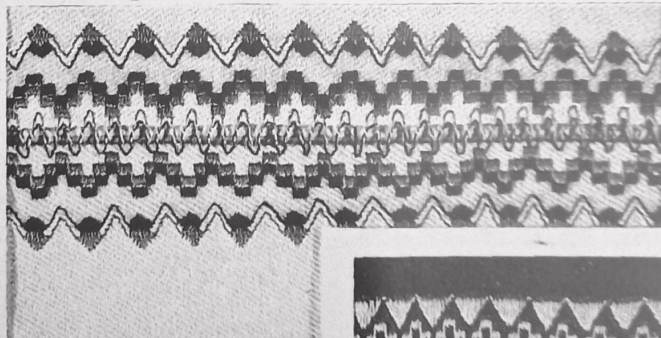
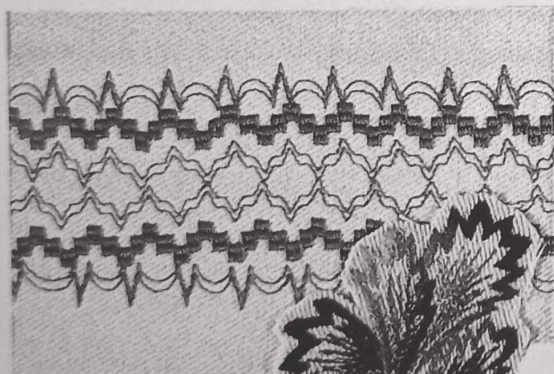
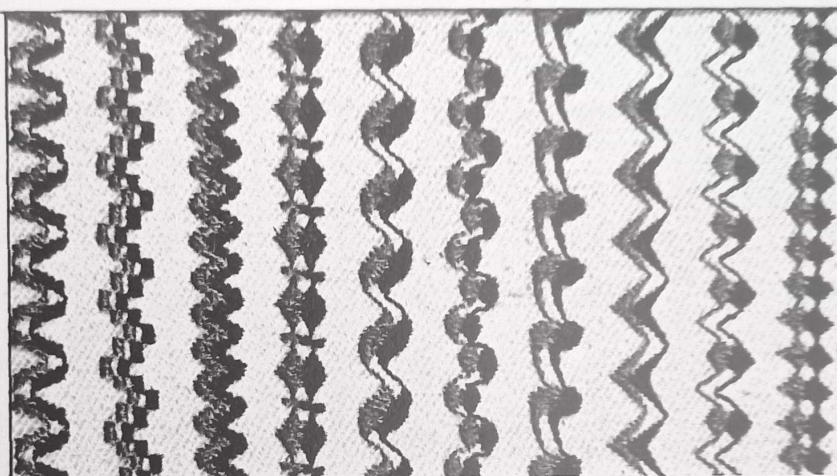


## Ornamental automatic sewing with one needle and different stitch lengths

Stitch length	Zigzag width	
Almost 0	6	
0,5	6	

### Ornamental automatic sewing with two needles

Ornamental sewing can also be modified as made with two needles, whether modifying fabric advancement or thread colours. Further, zigzag backstitching can be made with two needles.

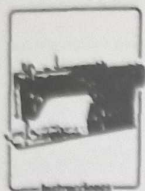


Multiple applications with one or two needles: embroidering, monograms, useful and ornamental sewing.  
UNDERWEAR • CORSETS • READY MADE GARMENTS



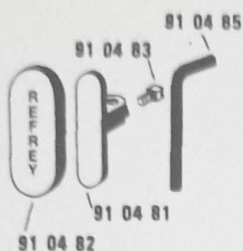
# ACCESORIOS 930 / 931

MANUAL DE INSTRUCCIONES  
REFREY 930-52



MANUAL DE INSTRUCCIONES

Instructions manual

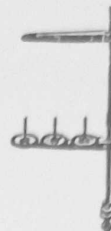


Knee lever



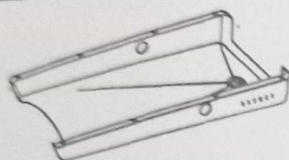
Industrial bobbin holder

90 08 00



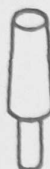
Bobbin holder

92 80 40



Oil deposit

91 51 81



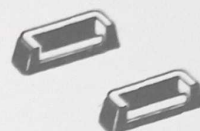
Machine stand

91 51 96



Shock absorber stop

91 51 97



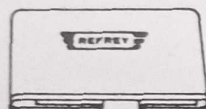
Hinge stand

91 51 98



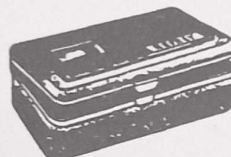
Oil collecting vase

91 51 82



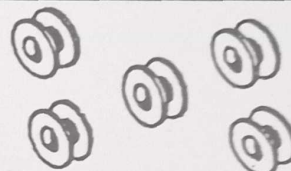
Case

91 19 99



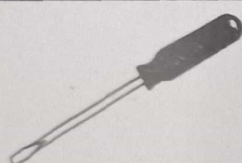
Accessories box

B-250



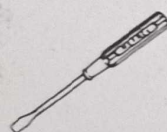
Bobbins

Canilla grande 93 12 80



Long screwdriver

91 19 40



Medium screwdriver

B-251



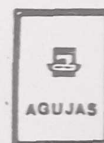
Small Screwdriver

B-252



Oiler

91 19 08-1



Needles

93 19 50

## MODELO 930-52

## MODELO 930-82



Double needle holder  
2 mm.

93 02 32



Double needle holder  
4 mm.

93 02 34



Embroidering  
presser foot

93 15 55



Double needle holder  
2 mm.

93 02 32



Double needle holder  
4 mm.

93 02 34



Embroidering  
presser foot

93 15 50

## MODEL 931-617/05

## MODEL 931-627/20



Embroidering presser foot  
93 15 55



One bag containing  
5 cams



Double needle holder  
2 mm.

93 02 32



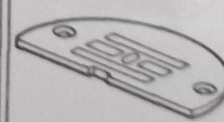
Normal presser foot

931 15 37



Conveyor

931 18 37

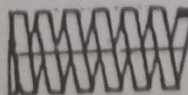


Needle plate

931 17 37



Embroidering presser  
93 15 55



Spring

91 03 36



Two bags with 10 cams each



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