# TechSew


## 20U53

Industrial ZigZag Sewing Machine

Instruction Manual

## 1.APPLICATIION

The Techsew 20U53 Zigzag machine is for;
- Zigzag and ornamental stitching in a variety of width and stitch length
- Perfect straight stitching
- Superfine control of stitch length ensures perfect satin stitching

This machine is manufactured for artisan zigzag sewing and is suited for sewing light weight and medium weight materials.

## 2.NOTES ON SAFETY

The machine must only be commissioned in full knowledge of the instruction manual and operated by persons with appropriate training.

Before putting into service, also read the safety notes and the instruction manual of the motor supplier.

The machine must be used only for the purpose intended. Use of the machine without the safety devices belonging to it is not permitted.

When gauge parts are exchanged (e.g.needle,presser foot, needle plate, feed dog and bobbin),during threading, when the workplace is left unattended, and during service work, the machine must be isolated from the mains by switchingoff the main switch of disconnecting the main plug.

On mechanically operated clutch motors without start inhibitor, it is necessary to wait until the motor has stopped.

General servicing work must be carried ou only by appropriately trained persons.

Repairs, conversion and special maintenance work must only be carried out by technicians or persons with appropriate training.

For service or repair work on pneumatic systems, the machine must be isolated from the compressed air supply system. Exceptions to this are only adjustments and function checks made by appropriately trained technicians.

Work on the electrical equipment must be carried out only by electricians or appropriately trained persons.

Work on parts and systems under electric current is not permitted, except as spectified in regulations EN50110.

Conversions or changes to the machine must be made only on adherence to all safety regulations.

For repairs, only replacement parts approved by us must be used.

Commissioning of the sewing head is prohibited until such time as the entire sewing unit is found to comply with EC regulations.

**Meanings of the symbols:**

Danger spot!
Items requiring special attention

Danger of injury to operative or service staff.
Be sure to observe and adhere to these safety notes!

Earth

## 3.COMMISSIONING

To avoid disturbances or damages, it is absolutely necessary to observe the following instructions:

Before you put the machine into operation for the first time, clean it throughly and oil it well (see page 2).

Have the mechanic check whether the motor can be used with existing mains voltage or not, and that junction box is correctly connected. Do not start the machine if the voltage is not correct!

When the machine runs, the balance wheel must rotate toward the operator. If it does not, have the electrician change the wires on the motor.

## 4.LUBRICATION

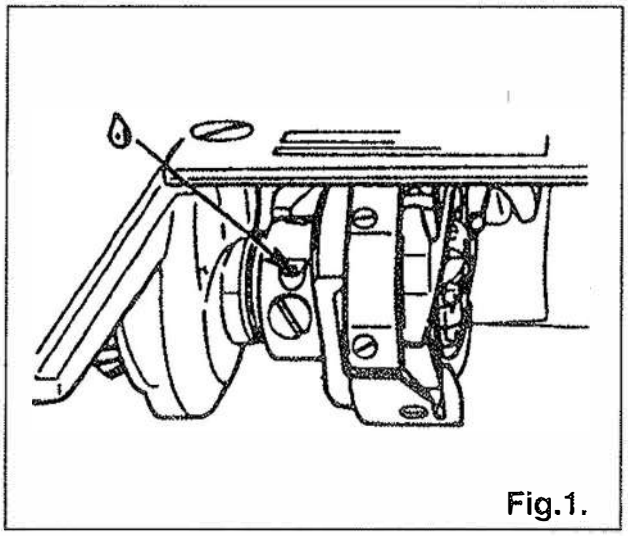
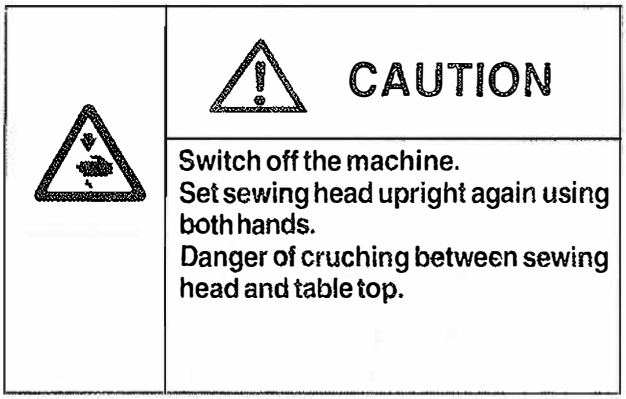


Fig.1.



**CAUTION**

**Switch off the machine.**
**Set sewing head upright again using both hands.**
**Danger of cruching between sewing head and table top.**

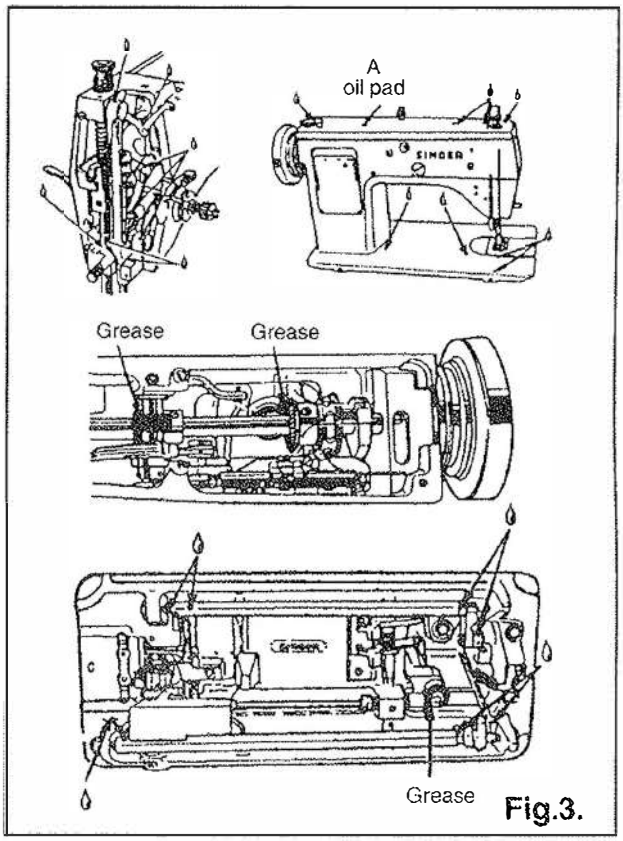
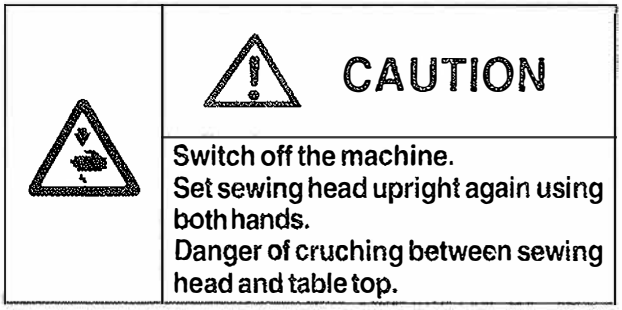



Fig.3.



**CAUTION**

**Switch off the machine.**
**Set sewing head upright again using both hands.**
**Danger of cruching between sewing head and table top.**

◊ -Rotating hook and area under throat plate.
Turn hand wheel over toward you until oil hole in rotating hook appearin sight.
Apply one or two drops of oil to the oil hole (see Fig.2)

Loosen and remove screws and remove face plate by sliding it downward.

Remove screws and lift off arm top cover.
Clean and oil the places indicated.

Apply sufficient oil to all oil felt shown in Fig.3
Apply a small amount of grease to gear teeth indicated with word ' Grease' in Fig.3.

Also apply a drop of oil to all other oiling points shown with marks ◊ .

Keep oil pad (A) under arm top cover saturated with oil.

**CHOICE OF OIL**

(1) For (20U73/73B/83/83B) machines
Only use oil with a viscosity of 45.0 $mm^2/sec$ at 38 °C and a density of 0.888 $g/cm^3$ at 15 °C .

## 5.NEEDLE AND THREAD

Selection of the proper needle depends not only on the machine model, but also on the material and thread used. For selection of proper needle and thread sizes to be used on the various machine models please refer to the table below.

| Model | 20U53 | | |
|---|---|---|---|
| Application of class | For light-weight materials | For medium-weight materials | For medium-heavy weight materials |
| **Max.thread size(Nm)-Synsthetic*** | 120 | 60 | 30 |
| **Needle size (1/100mm)** | 10 | 12~16 ( 80~100 ) | 18~19 ( 110~120 ) |
| **Needle catalog (Needle system)** | **(135x5, 135x9)** | | |
| ***or an equivalent size of other types of thread** | | | |

## 6.INSERTING THE NEEDLE

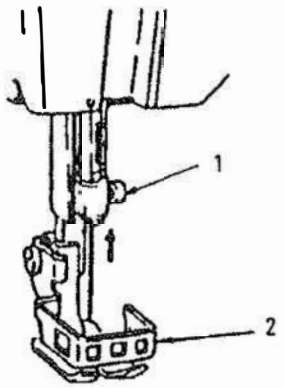



Fig.4.

**CAUTION**

**Switch off the machine.**
**Do not operate without finger guard. (2) (See Fig.4)**
**Danger of injury !**

Use needle cat. No. 1910-05 needle system (135X9) only.

Raise needle bar to its highest position by turning hand wheel toward you.

Loosen needle set screw (1) (See Fig.4) Insert the needle in the needle bar and push it up as far as it will go.

Make sure its long groove faces toward the front. Tighten needle set screw (1) securely.

## 7.TO REMOVE THE BOBBIN CASE

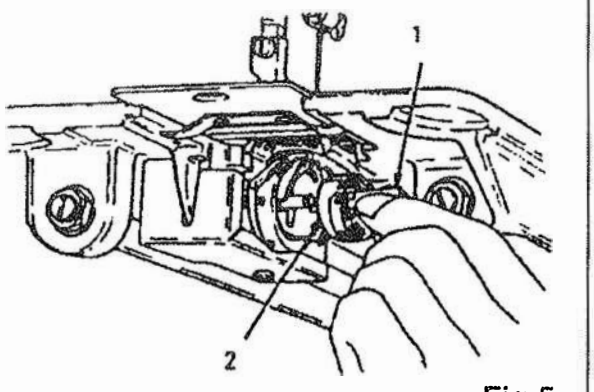



Fig.5.

**CAUTION**

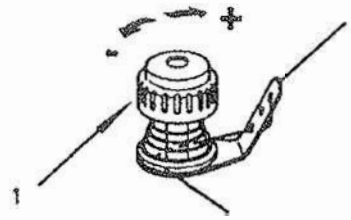
**Switch off the machine.**
**Do not operate machine with throat plate left open.**

1.Open bed slide.

2.Raise latch (1) (see Fig.5).

3.Lift out bobbin case (2) (see Fig.5).

## 8.TO WIND THE BOBBIN




Threading the pre-tension for bobbin winding

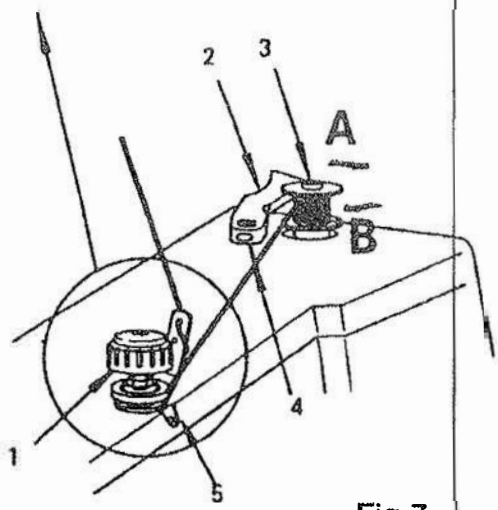



Fig.7.

**CAUTION**

**Do not guide or hold thread when winding the bobbin.**

1.Place bobbin on bobbin winder spindle (3), Fig.7, pushing it on as far as it will go.

Pre-tension (1) (see Fig.7).
+ .....More tension.
..... Less tension.

2.Push latch (2) in the direction indicated by arrow (A), then start the machine (see Fig.7).

Bobbin winder spindle (3), rotate in the direction indicated by arrow (B) (see Fig.7).

To adjust the amount of thread on bobbin, loosen screw (4) on latch (2) and swing the latch (2) away from you or toward you, as required.

For more thread on bobbin, swing latch (2) away from you.

For less thread on bobbin, swing latch (2) toward you. If thread winds unevenly on bobbin, loosen screw (5) and move pre-tension (1) up or down, as required , and tighten screw (5).

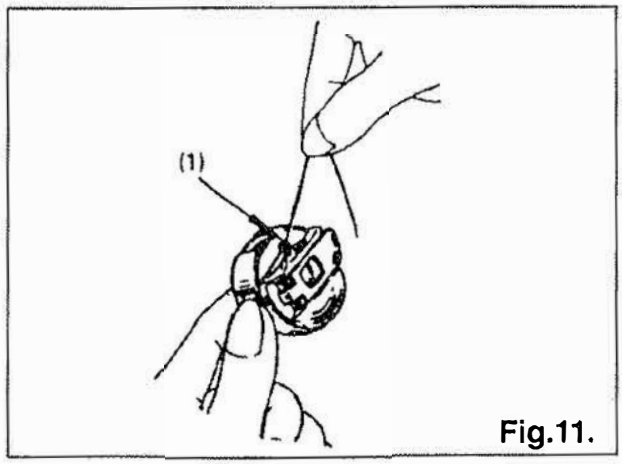


Fig.11.

1.Hold bobbin case so that thread unwinds in the direction shown in Fig.8, and put bobbin in bobbin case.

2.Pull thread into notch (1), and draw it under tension spring (2) (see Fig.9).

3.Draw thread out from slot(2) on end of spring (1), (Fig.10) and pass it through bobbin case thread guide (1),Fig.11. Allow about 4 inches of thread to hang freely from bobbin.

NOTE: When straight stitching, a better result can be obtained if bobbin thread is not threaded through bobbin case thread guide (1),Fig.11.

## 9.THREADING THE BOBBIN CASE.

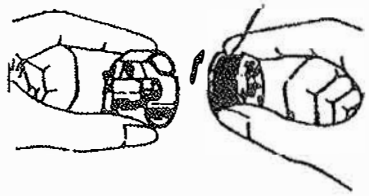


Fig.8.

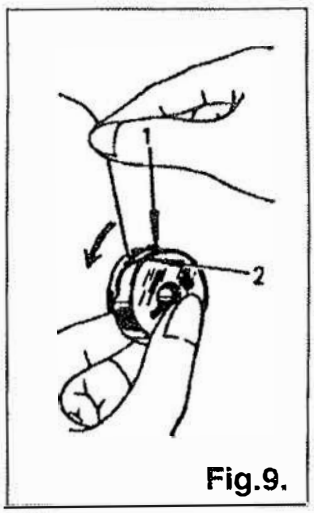


Fig.9.

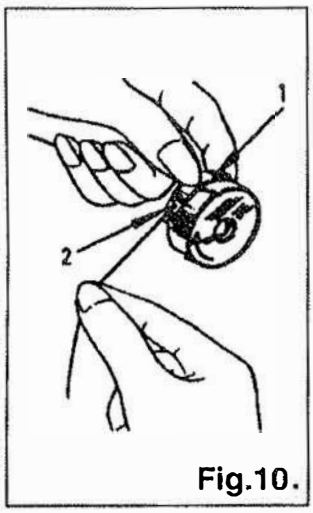


Fig.10.

## 10.TO REPLACE THE BOBBIN CASE.

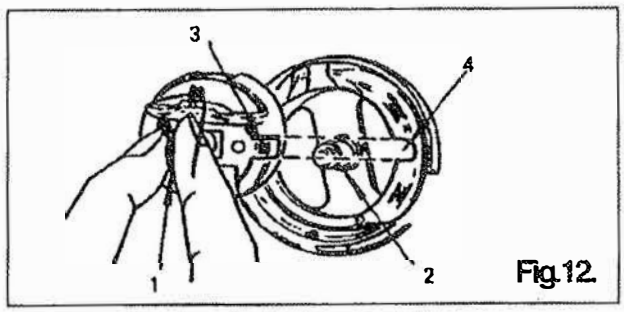


Fig.12.

**CAUTION**

**Switch off the machine.**
**Do not run machine without closing bed slide. Danger of injury!**

Hold bobbin case by latch (1) and place it on spindle of bobbin case holder (2) so that position finger (3) enters notch (4) at right of bobbin case holder (see Fig.12). Release latch and press bobbin case firmly in place to assure proper position. Close bed slide.

## 11.THREADING THE NEEDLE

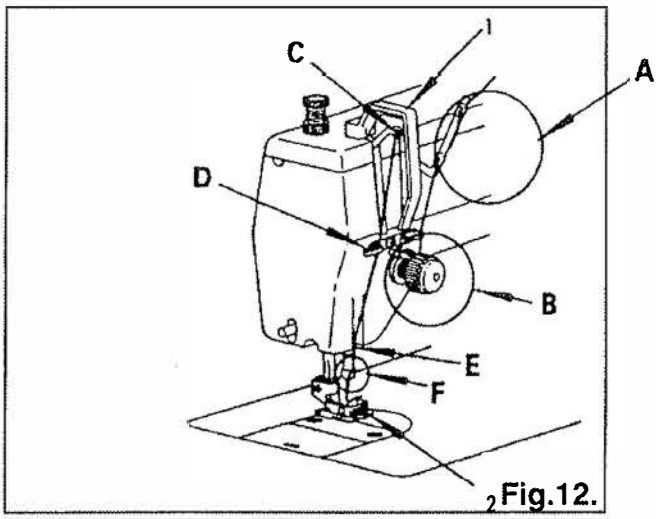


Fig.12.

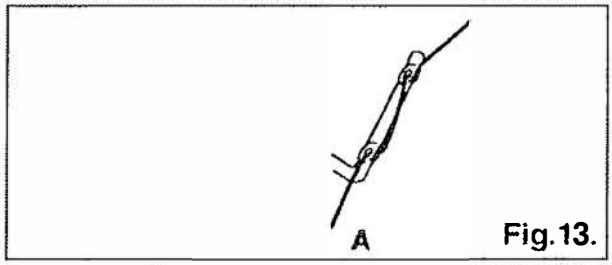


Fig.13.

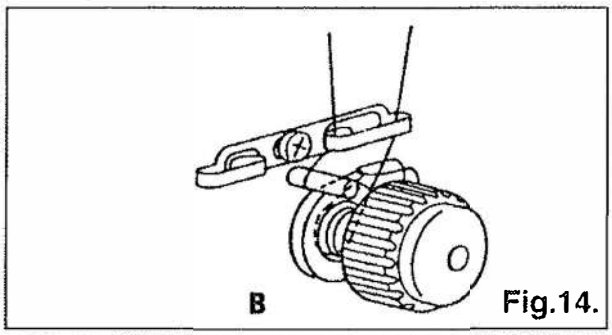


Fig.14.

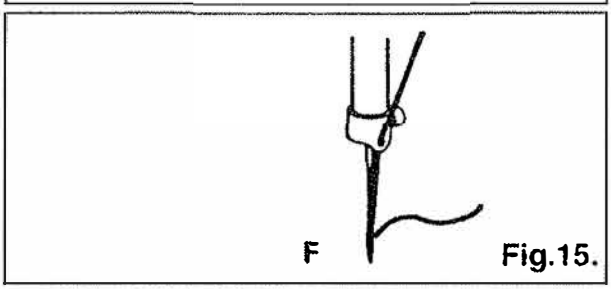


Fig.15.

**CAUTION**

**Switch off the machine.**
**Do not operate without thread take-up guard.**
**Do not operate without finger guard**
**Danger of injury!**

1.Lead thread from the thread unwinder through all the threading points A (Fig.14),B (Fig.15), C (Fig.13), D (Fig.13), and E (Fig.13) in the order shown.
2.Thread the needle from front to back, as shown in Fig.15.
3.Draw about 3 inches of thread through eye of needle.

## 13.TO ADJUST PRESSER FOOT PRESSURE

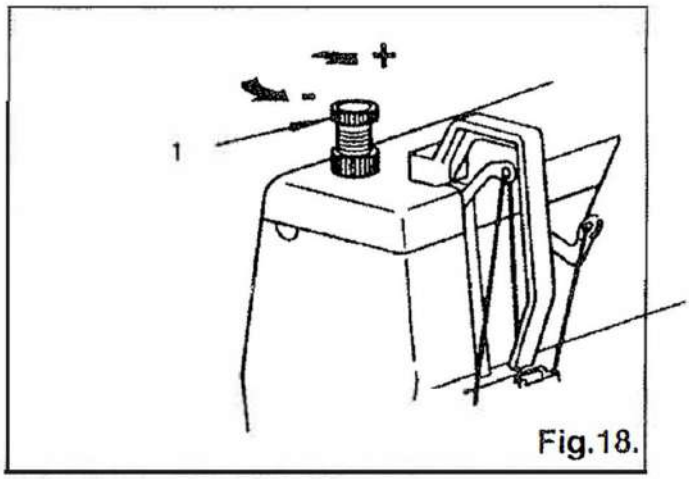


Fig.18.

To regulate the presser foot pressure, turn knurled thumb screw (1), Fig.18, toward left ro right as required.
+.....More pressure
-.....Less pressure

## 14.TO ADJUST NEEDLE THREAD TENSION

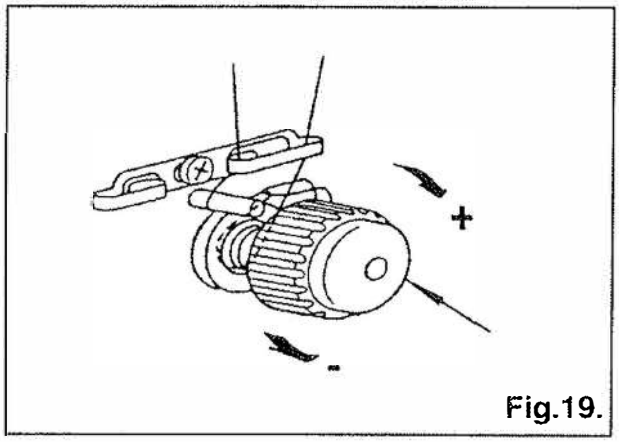



Fig.19.

Regulate needle thread tension withn tension regulating knob (1), Fig.19.

+.....More tension
-.....Less tension

## 15.REGULATING THE TAKE-UP SPRING

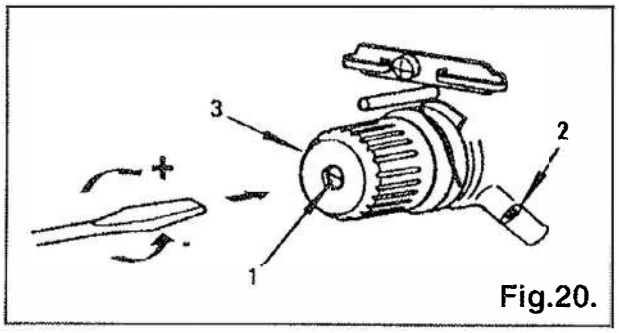



Fig.20.

Using a screwdriver in slot of stud (1), Fig.20, regulate take-up spring tension by turning stud (1), as required.

+.....More tension
-.....Less tension

To adjust the amount of take-up spring movement, loosen screw (2), Fig.20, and set take-up spring height by turning the entire tension assembly (3) toward left or right, as required. Securely tighten screw (2).

## 16.TO ADJUST BOBBIN THREAD TENSION

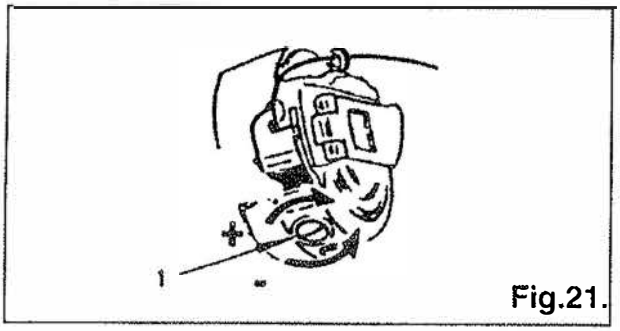



Fig.21.

Regulate bobbin thread tension with tension regulating screw (1), Fig.21.

+.....More tension
-.....Less tension

## 17.NEEDLE POSITION SELECTOR

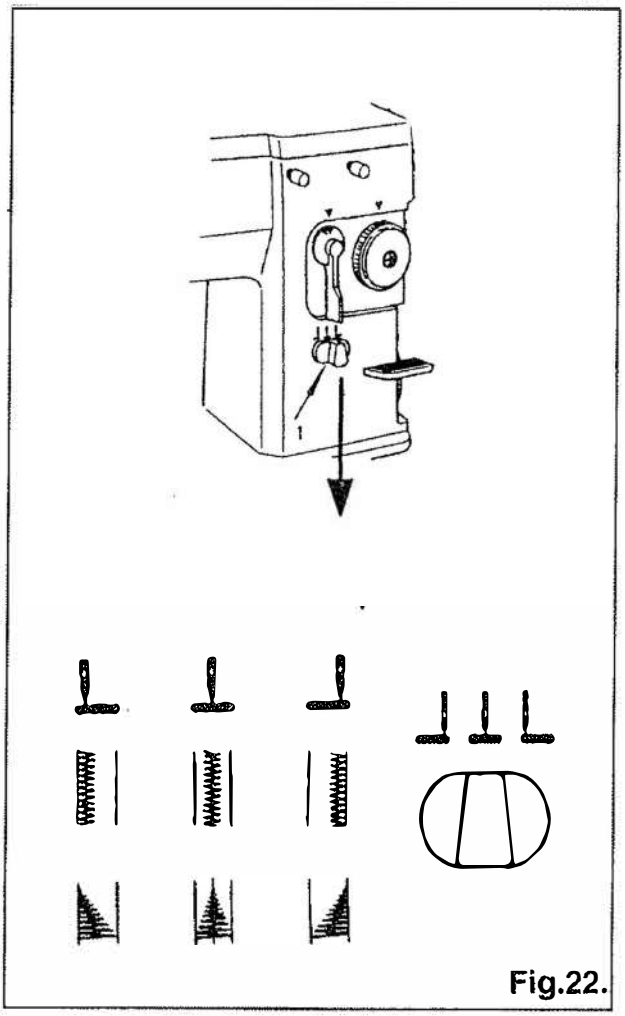
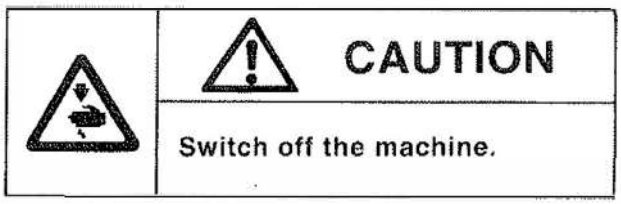



Fig.22.




Left, Center and Right needle position settings are available for placement of both straight and zigzag stitching (see Fig.22).

To position, push lever in and move to desired setting.

Do not make any needle position adjustment while the needle is in the fabric.

## 18.STITCH WIDTH REGULATOR

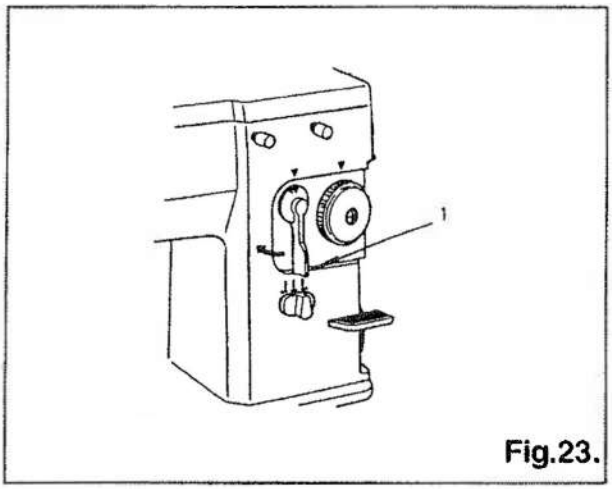



Fig.23.

The width of zigzag stitch is controlled with the spring biased stitch width regulating lever(1),Fig.23.

Maximum zigzag width;

| | |
|---|---|
| 20U73/73B | 0~9 mm |
| 20U83/83B | 0~12 mm |

Do not make any needle position adjustment while the needle is in the fabric.

## 19.HOW TO CONTROL THE WIDTH OF ZIGZAG STITCH

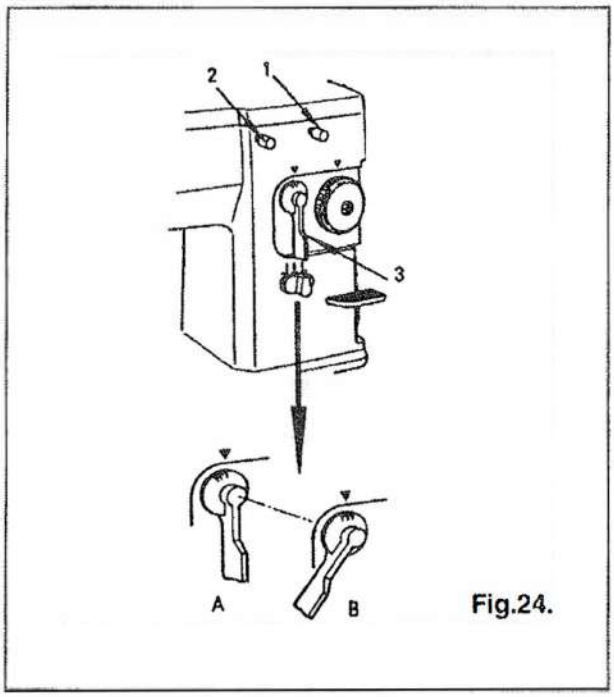



Fig.24.

To obtain minimum to maximum width (20U73/73B:9mm. 20U83/83B:12mm) zigzag stitches, first loosen thumb screw (2),Fig.24. to permit the stitch width regulator (3), Fig.24 to return to its zero position (see A, Fig.24) and retighten thumb screw (2).

Then loosen thumb screw (1),Fig.24. turn stitch width regulator (3) clockwise as far as it will go and while holding the regulator (3) in this position (see B,Fig.24), retighten thumb screw (1).

You can now regulate the stitch width regulator within the range of zero to maximum.

## 20.NEEDLE BAR FRAME CLAMPING DEVICE

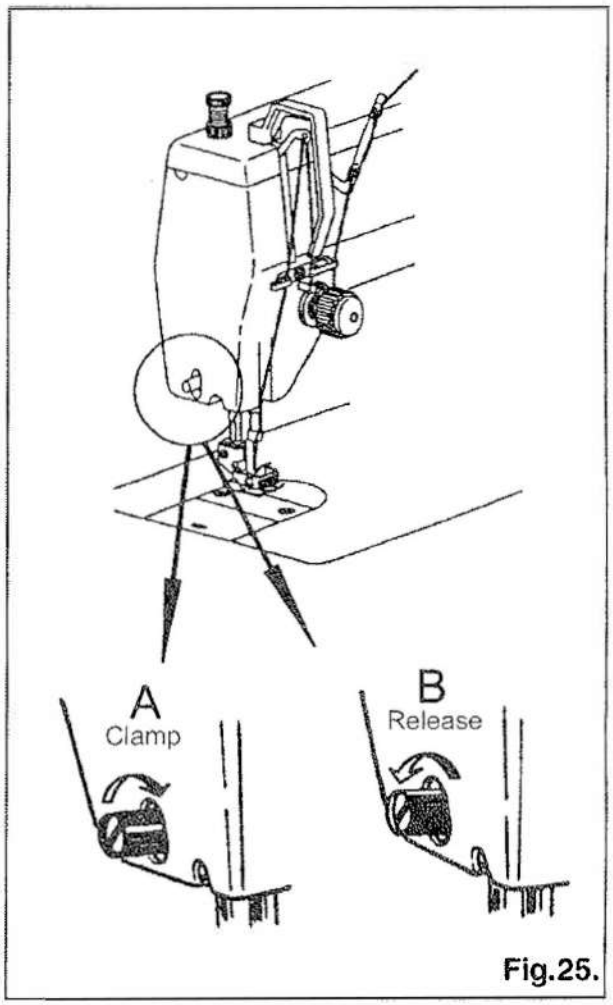
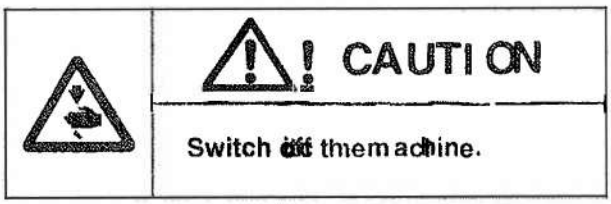



Fig.25.




When straight stitching, a better sewing result can be obtained by locking the needle bar frame immovable with the clamping device (see Fig.25).

A: Clamp
B: Release

## 22.FITTING FOR STRAIGHT AND ZIGZAG STITCHING

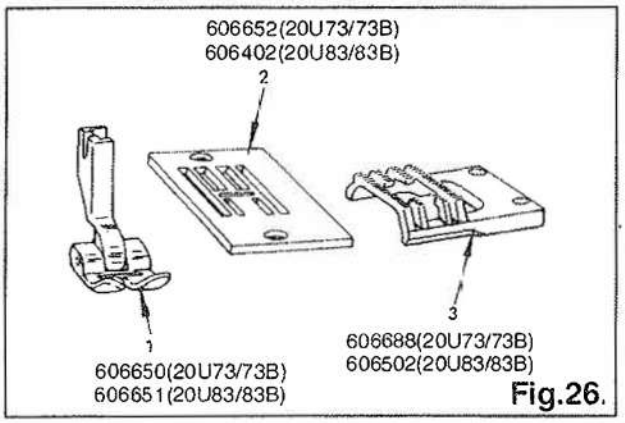


Fig.26.

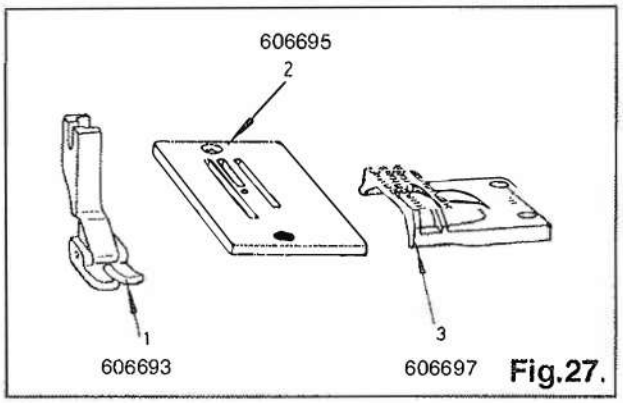


Fig.27.

General Purpose Presser Foot (1). Throat Plate (2) and Feed Dog (3) as shown in Fig.26, are used for straight and zigazg stitching.

Straight Stitch Presser Foot (1), Throat Plate (2) and Feed Dog (3) as shown in Fig.27, are used for straight stitching only.

## 23.CHANGING THE THROAT PLATE AND FEED DOG

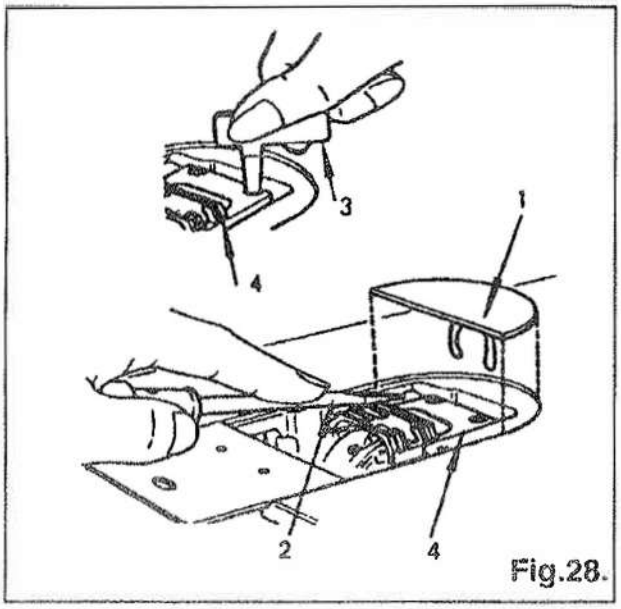


Fig.28.

**CAUTION**

**Switch off the machine.**

1. Open bed slide, then remove throat plate. (Use screwdriver (3) Fig.28, furnished with machine for removal and replacement of throat plate and feed dog.)
2. Using a screwdriver (2), remove bed plate (1) and remove feed dog (4) (see Fig.28).
3. To replace general prupose or straight stitch feed dog, fasten feed dog to machine temporarily and replace general purpose or straight stitch throat plate. Set feed dog correctly in position so that it will not hit the edges of feed dog slots in the throat plate.
4. Replace bed plate and press it firmly in place.

## 24.TO MOUNT THREAD UNWINDER

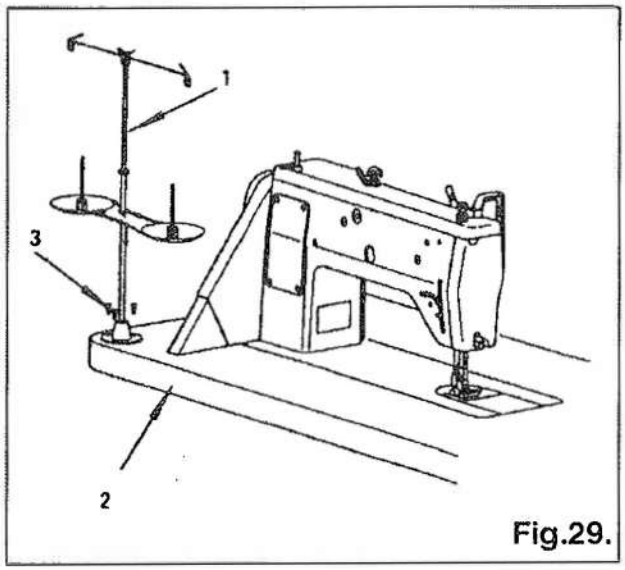


Fig.29.

Fasten thread unwinder (1) to table (2) with wood screws (3) as shown in Fig.29.

## 27.KNEE LIFTER

### TO MOUNT KNEE LIFTER

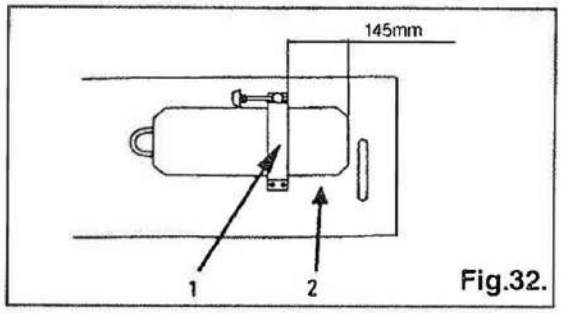


Fig.32.

Fasten knee lifter bracket (1) to underside of table (2) 145 mm from table cut-out as shown in Fig.32.

**CAUTION**

**Switch off the machine.**
**Set sewing head upright again using both hands.**
**Danger of crushing between sewing head and table top.**

### KNEE OPERATING PRESSER FOOT LIFT

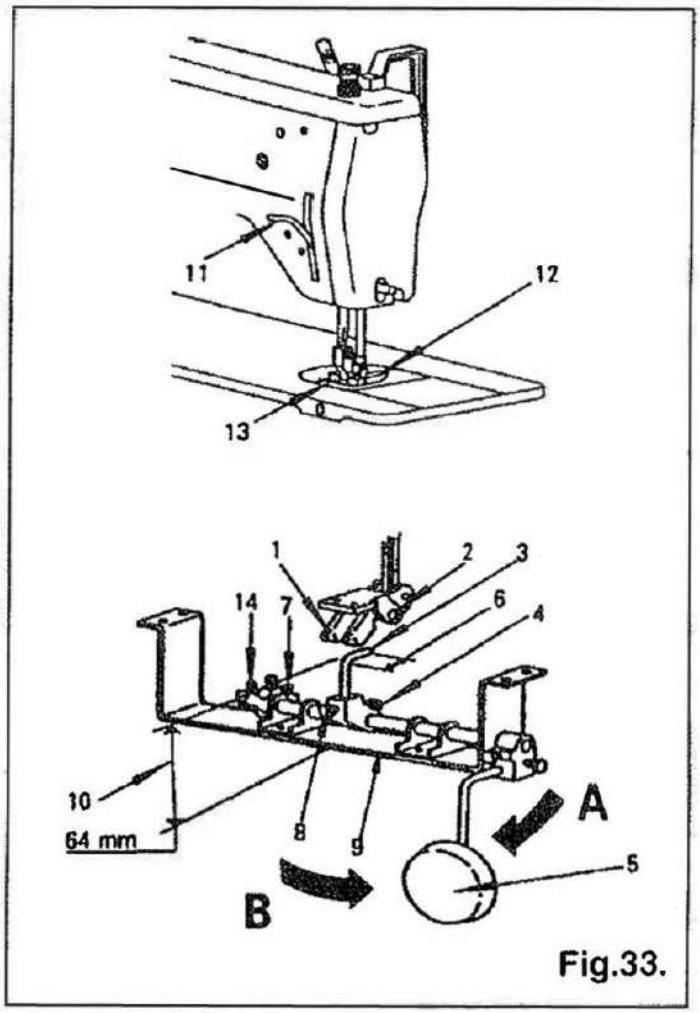


Fig.33.

Bell.cranks (1) and (2) shown in Fig.33 are fastened to the underside of the bed. Bell crank (1) is used for lifting and lowering the presser foot with knee, and bell crank (2) is used for controlling the stitch width (see Fig.33).

To raise or lower the presser foot with knee, loosen screw (4) holding the knee ligter shaft arm (3) and move knee lifter shaft arm (3) just under the bell crank (1), and firmly tighten screw (4) (see Fig.33).

Loosen the lock nut holding screw (7) and turn screw (7) as required, so that the bent end (6) of knee lifter shaft arm (3) will be alomost horizontal when knee lifter knee plate (5) is pushed as far as it will go in the direction indicated with arrow (A), then firmly tighten the lock nut (see Fig.33).

With knee lifter shaft arm (3) set in position as described above, loosen screw (8) and move knee lifter shaft arm (3) up op down as required, so that height (10) from its bent end (6) to bracket (9) is 64 mm (see Fig.33).

Raise presser foot (12) with presser foot lifter (11).Then loosen the lock nut holding screw (14) and turn screw (14) as required, so that knee lifter knee plate (5) when pushed in the direction indicated with arrow (B), will stop at a point (presser foot (12) raised approx.9 mm from throat plate (13) surface ) where presser bar lifter (11) will drop down from its raised position when presser bat is lifted a little higher than its normal up position. Then firmly tighten the lock nut (see Fig.33).

When knee lifter knee plate (5) is pushed in the dirction indicated with arrow (B), the presser foot (12) will rise and when knee plate (5) is released, presser foot (12) will be lowered (see Fig.33).

**KNEE OPERATING STITCH WIDTH CONTROL**

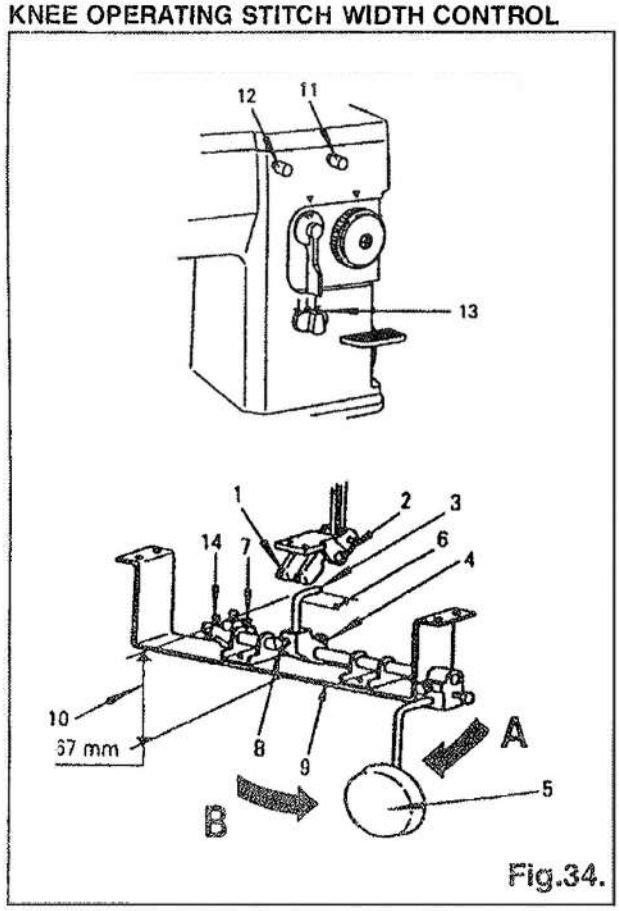



Fig.34.

**CAUTION**

**Switch off the machine.**
**Set sewing head upright again using both hands.**
**Danger of crushing between sewing head and table top.**

Bell cranks (1) and (2) shown in Fig.34 are fastened to the underside of the bed. Bell crank (1) is used for lifting and lowering the presser foot with knee and bell crank (2) is used for controlling the stitch width.

To control the stitch width with knee, loosen screw (4) holding the knee figter shaft arm (3) and move knee lifter shaft arm (3) just under the bell crank (2) and firmly tighten screw (4) (see Fig.34).

Loosen the lock nut holding screw (7) and turn screw(7) as required, so that the bent end (6) of knee lifter shaft arm (3) will be almost horizontal when knee lifter knee plate (5) is pushed as far as it will go in the direction indicated with arrow (A). Then firmly tighten the lock nut (see Fig.34).

With knee lifter shaft arm (3) set in position as described above, loosen screw (8) and move knee lifter shaft arm (3) up or down as required, so that geight (10) from its bent end (6) to bracket is 67 mm (see Fig.34).

Loosen stitch width regulating plate thumb screws (11) and (12) so that stitch width regulator (13) can be moved from zero to maximum stitch width.(20U73/73B:9mm, 20U83/83B: 12mm) (see Fig.34). Loosen the lock nut holding screw (14) and turn screw (14) as required, so that knee lifter knee plate (5) when pushed in the direction indicated with arrow (B), will stop at the maximum stitch width position of stitch sidth regulator (13). Then firmly tighten the lock niut (see Fig.34).

Stitch width will become wider when knee lifter knee plate (5) is pushed in the direction indicated with arrow (B) and will become smaller when knee plate is released (see Fig.34).

## 28.FITTINGS FOR BUTTONHOLE STITCHING

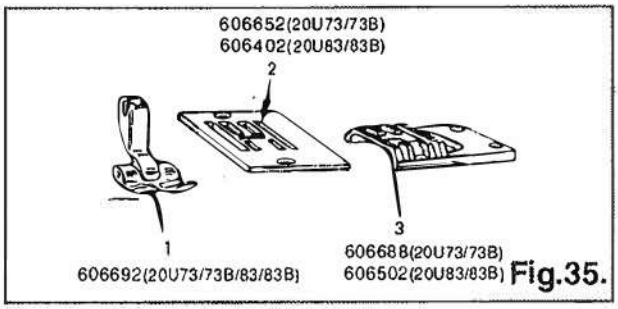



Fig.35.

**CAUTION**

**Switch off the machine.**

Buttonhole Foot (1),General Purpose Throat Plate (2) and Feed Dog (3) as shown in Fig.35 are used for buttonhole stitching.

## 29.FITTING FOR HEM SEWING

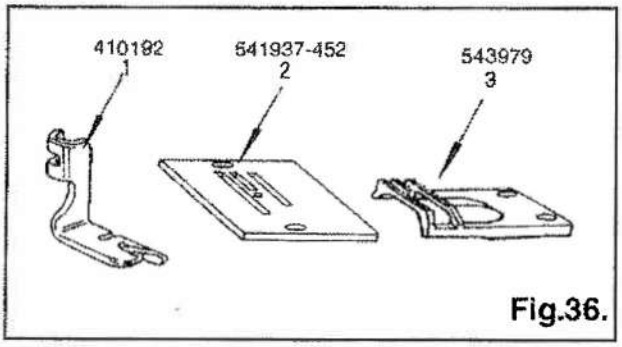



Fig.36.

**CAUTION**

**Switch off the machine.**

Hemmer Foot (1), Straight Stitch Troat Plate (2) and Feed Dog (3) as shown in Fig.36 are used for hem sewing.

## 30. FITTINGS FOR ZIPPER AND CORD SEWING

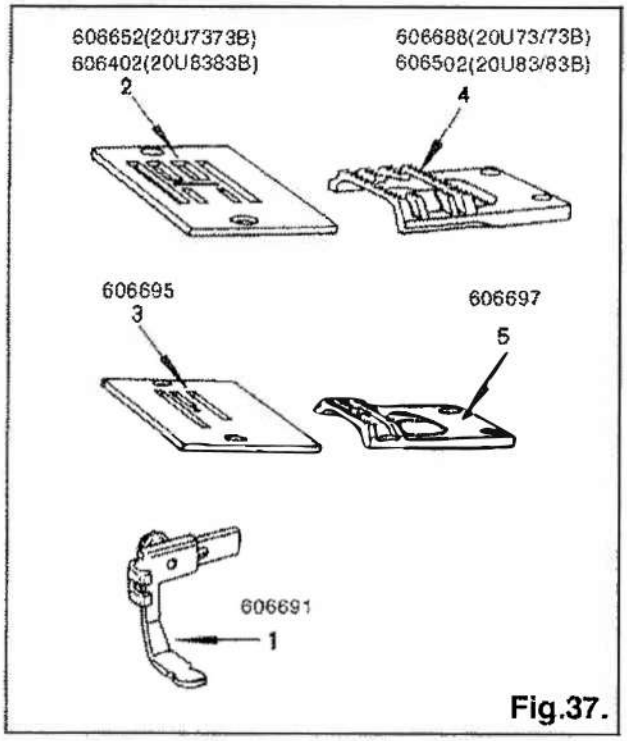



Fig.37.

**CAUTION**

**Switch off the machine.**

Zipper Foot (1), General Purpose (2) or Straight Stitch (3) Thorat Plate and General Purpose (4) or Stright Stitch (5) Feed Dog as shown in Fig.37 are used for zipper and cord sewing.

## 31.CARING FOR YOUR MACHINE

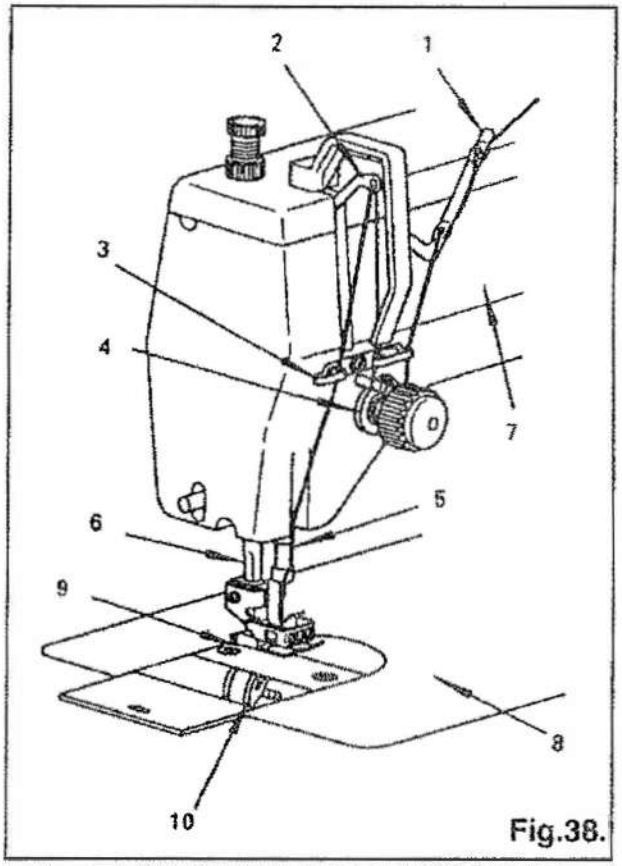



Fig.38.

**CAUTION**

**Switch off the machine.**
**Set sewing head upright again using both hands.**
**Danger of crushing between sewing head and table top.**

Your machine will serve you perfectly for many years if you take a few moments of your time to keep it clean. How often you will need to clean and lubricate the machine will depend on how often you will use it.
When in regular use, the machine should be cleaned periodically to remove lint and fluff which may have accumulated around the working parts. A machine in continuous use should be oiled frequently, especially when the machine is operated at maximum recommended speed.
With a soft cloth, clean; (See Fig.38)

(1)Thread retainer
(2)Take-up lever
(3)Thread guard
(4)Tension discs
(5)Needle bar
(6)Presser bar
(7)Machine arm and bed

With a lint brush, clean; (See Fig.38)

(9)Feed dog
(10)Rotating hook and area under throat plate.
Turn hand wheel over toward you until oil hole in rotating hook appears in sight.
Apply one or two drops of oil to the oil hole.

## 33.SPECIFICATIONS

| | | |
|---|---|---|
| Machine class | 73/73B | |
| For sewing | Light to medium | |
| Stitch type | 301 (lock stitch), 304 (Zigzag lock stitch) | |
| Max. speed* | 2,500 r.p.m. | |
| Max.stitch bight | 9.0mm | |
| Max.stitch length | 5.0mm | |
| Needle bar stroke | 34.8mm | |
| Presser bar lift (manual) | 6.35mm | |
| Presser bar lift (knee lifter) | 9.0mm | |
| Needle catalog (needle system) | CAT.1910-05 (135X9) | |
| Needle size | See page 3 table "NEEDLE AND THREAD" | |
| Machine pulley | 74mm effective dia. for V-belt | |
| Oil | "B" Oil | |
| Workispace width | 211mm | |
| Workspace height | 130mm | |
| Bedplate dimensions | 399mmX178mm | |
| Net weight (head only) | 19.5Kg | |
| Gross weight (with accessories) | 21Kg | |
| Noise** | n=1,600 r.p.m. <76 dBA | |

* Mzximum speed will vary depending on fabric, threads and sewing condition.
** Noise mesurment according to DIN 4563-45-A-1.

### Relationship between zigzag bight and maximum speed

| | | | | |
|---|---|---|---|---|
| Machine class | 73/73B | | | |
| Zigzag bright | 0mm~5mm | 5mm~9mm | | |
| Max. speed | 2,500 r.p.m | 2,000 r.p.m | | |