

INSTRUCTION MANUAL

FOR **SINGER**

MACHINES

20U	51
	53
	62
	63

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1. APPLICATION

This SINGER Artisan Zigzag Machine is for:

- Zigzag and ornamental stitching in a variety of width and stitch length.
- Perfect straight stitching.
- Superfine control of stitch length insures perfect satin stitching.

Model 20U 51 (9mm Bight, for Treadle)
53 (9mm Bight)
62 (12mm Bight, for Embroidery)
63 (12mm Bight)

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 switching off the main switch or disconnecting the mains 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 out 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 specified 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 thoroughly 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. INSTALLING THE BELT GUARD (20U53/62/63)

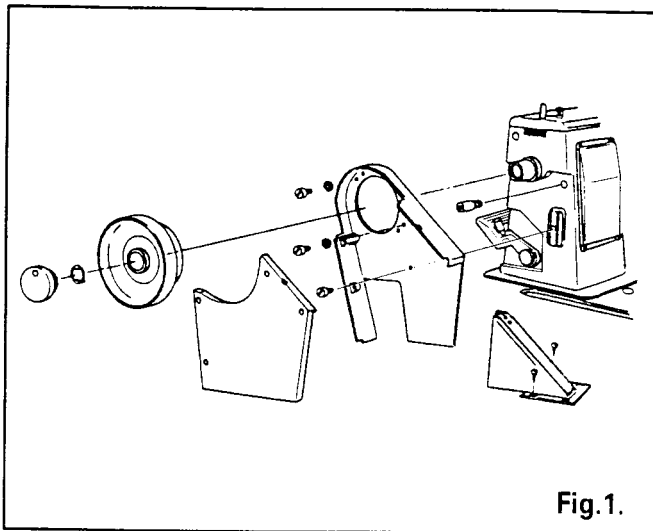


Fig. 1.

	CAUTION
	<p>Switch off the machine. Set sewing head upright again using both hands. Danger of crushing between sewing head and table top. Do not run machine without belt guard! Danger of accidents!</p>

Above table surface

Align the belt guard so that hand wheel and V-belt move freely, then screw it down in this position. (See Fig. 1)

Below table surface

Install belt guard so that motor pulley and V-belt will rotate freely without interference.

5. LUBRICATION

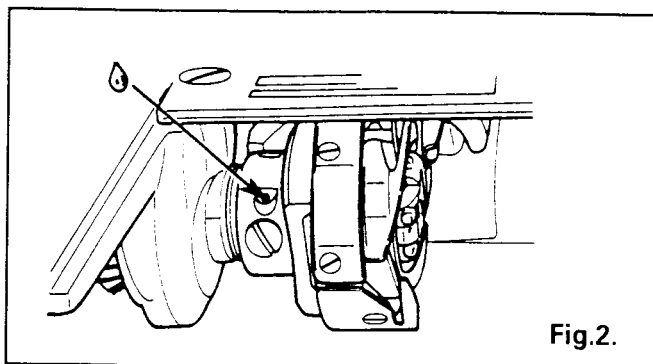


Fig. 2.

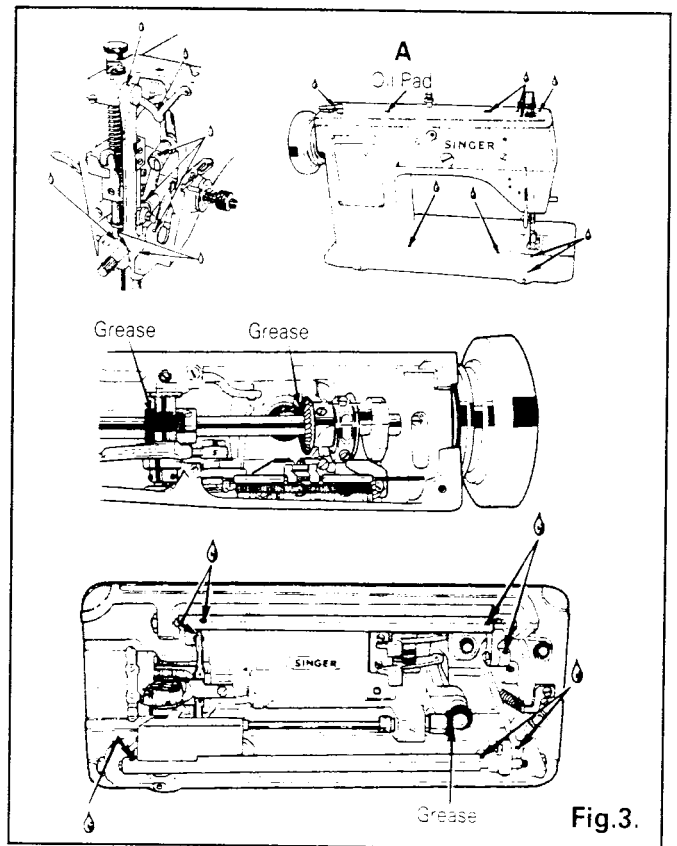


Fig. 3.

	CAUTION
	<p>Switch off the machine. Set sewing head upright again using both hands. Danger of crushing between sewing head and table top.</p>

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. (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 20U53/62/63 machines
Only use oil with a viscosity of 45.0 mm²/sec. at 38 °C and a density of 0.888 g/cm³ at 15 °C.
We recommend SINGER B-oil.
- (2) For 20U51 machine
Only use oil with a viscosity of 20.0 mm²/sec. at 38 °C and a density of 0.888 g/cm³ at 15 °C.
We recommend SINGER C-oil.

6. 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.

Machine class	51, 53, 62, 63		
Application of class	For light-weight materials	For medium-weight materials	For medium-heavy weight materials
Max. thread size(Nm)-Synthetic*	120	60	30
Needle size (1 / 100 mm)	10	12 ~ 16 (80 ~ 100)	18 ~ 19 (110 ~ 120)
Needle catalog (Needle system)	1910 - 05 (135 x 9)		
* or an equivalent size of other types of thread			

7. INSERTING THE NEEDLE

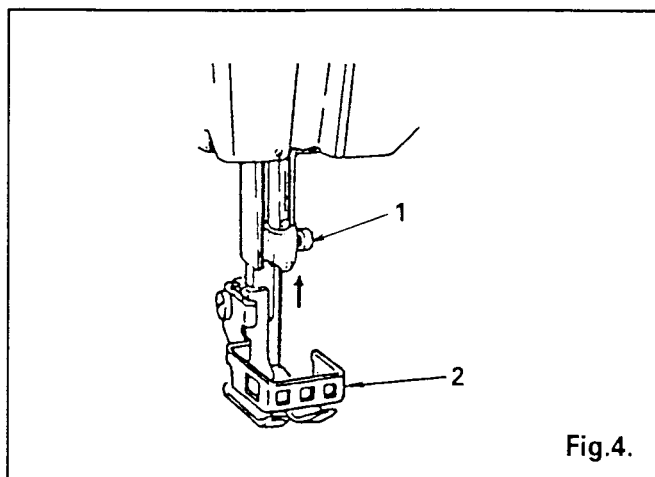
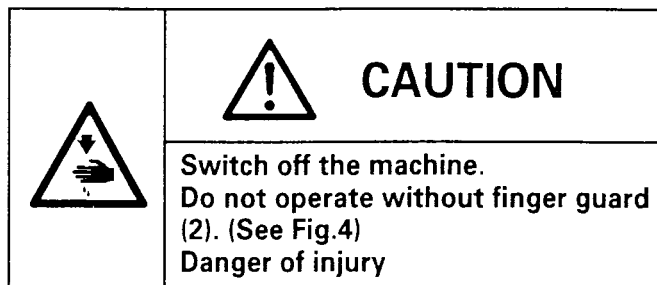


Fig.4.



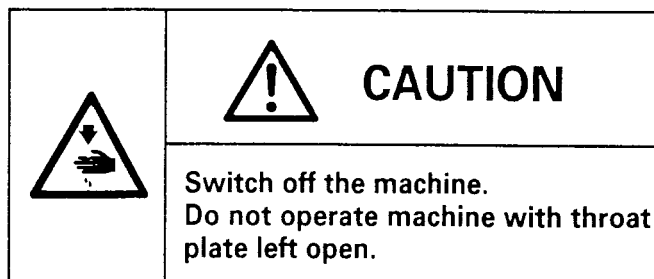
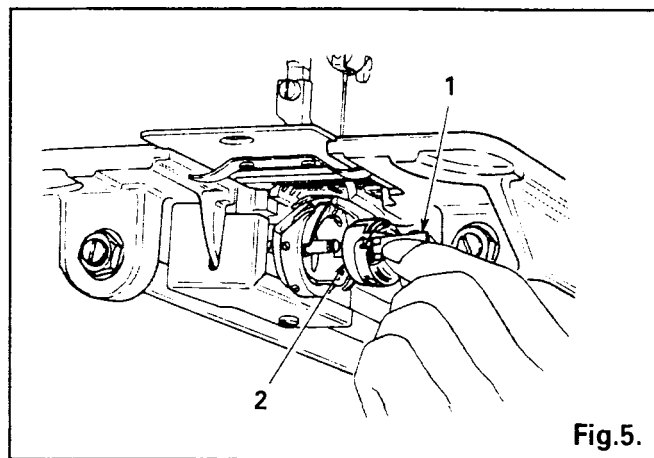
Use needle cat. No. 1910-05 needle system (135 X 9) only.

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

Loosen needle set screw (1), 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.

8. TO REMOVE THE BOBBIN CASE



1. Open bed slide.
2. Raise latch (1), Fig.5.
3. Lift out bobbin case (2), Fig.5.

9. TO WIND THE BOBBIN

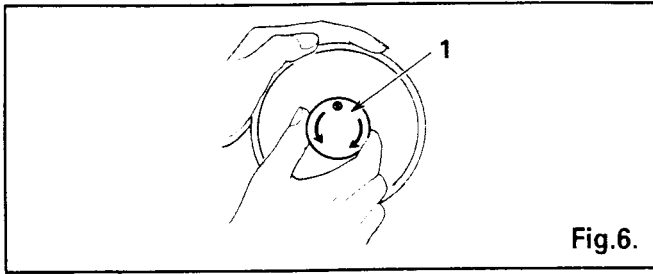


Fig. 6.

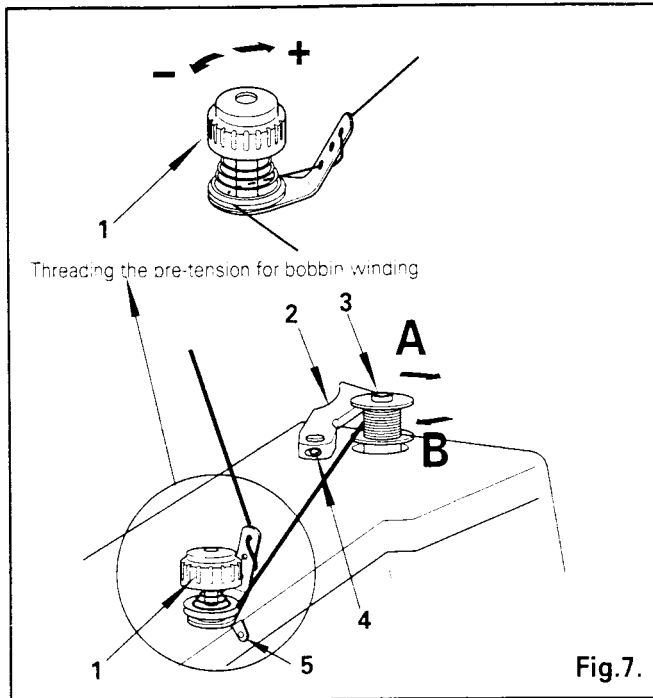
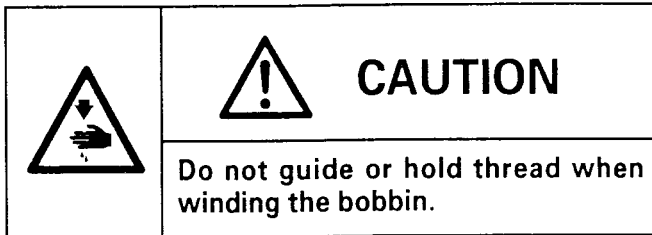


Fig. 7.



1. Stop motion of needle by loosening stop-motion screw (1), Fig. 6. Hold hand wheel with left hand and turn stop-motion screw toward you with right hand.
2. 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.
3. Push latch (2) in the direction indicated by arrow (A), then start the machine. (See Fig. 7)

Bobbin winder spindle (3) rotates 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).

10. THREADING THE BOBBIN CASE

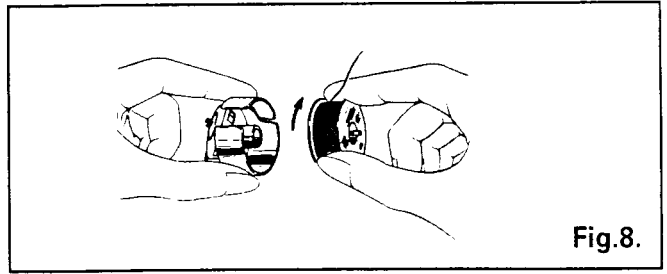


Fig. 8.

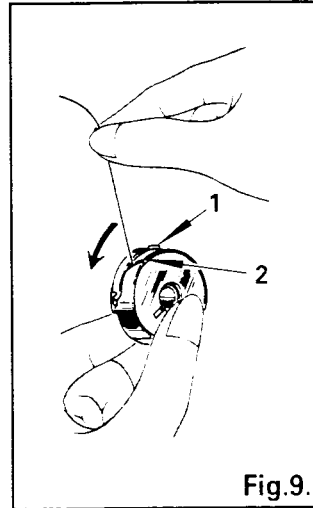


Fig. 9.

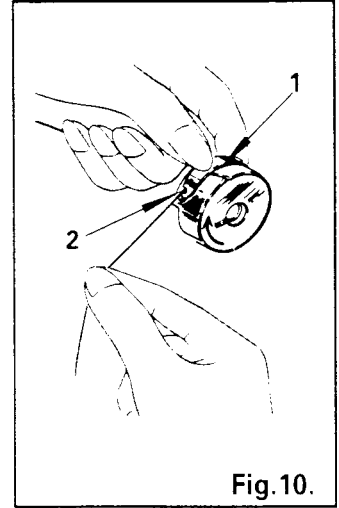


Fig. 10.

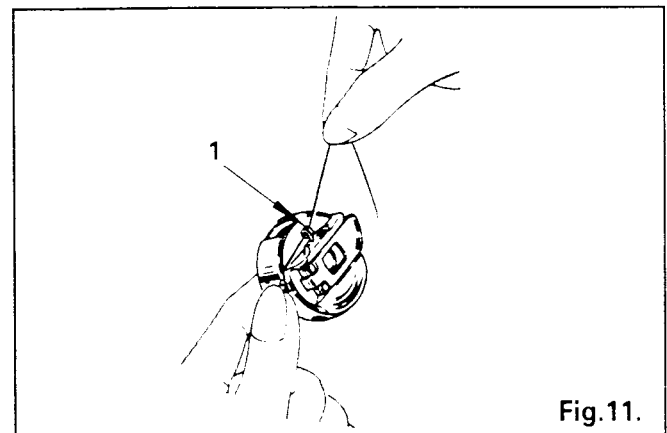


Fig. 11.

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), 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.

11. TO REPLACE THE BOBBIN CASE

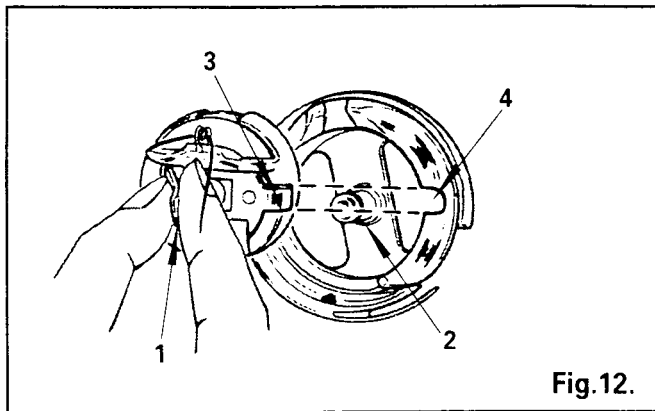
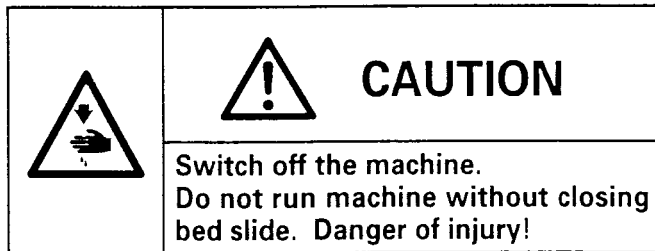


Fig.12.



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.

12. THREADING THE NEEDLE

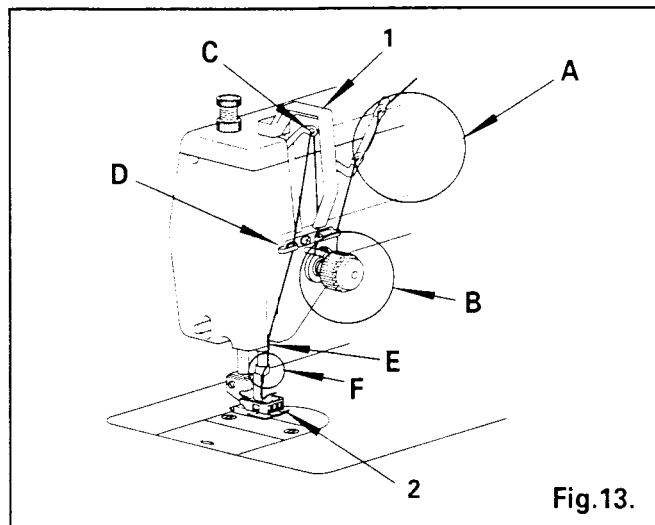


Fig.13.

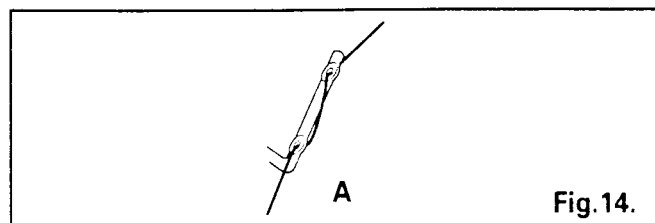


Fig.14.

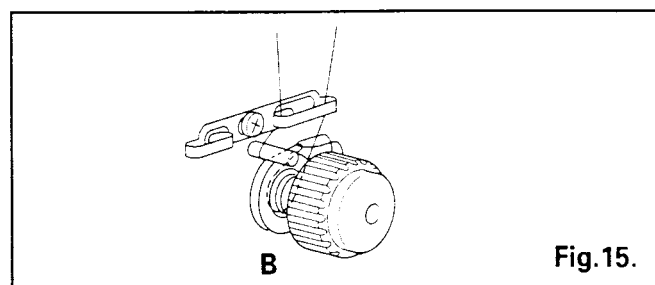


Fig.15.

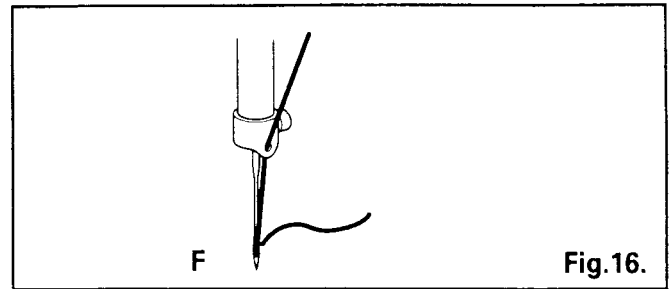
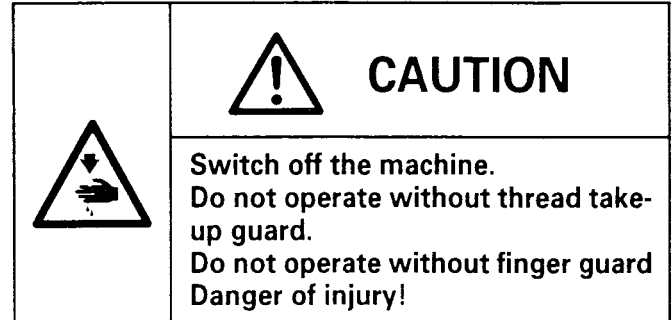


Fig.16.



1. Lead thread from the thread unwinder through all the threading points A (Fig.14), B (Fig.15), C (Fig.13), D (Fig.13), E (Fig.13) and F (Fig.16) in the order shown.
2. Thread the needle from front to back, as shown in Fig.16.
3. Draw about 3 inches of thread through eye of needle.

13. TO ADJUST STITCH LENGTH (20U51/53/63)

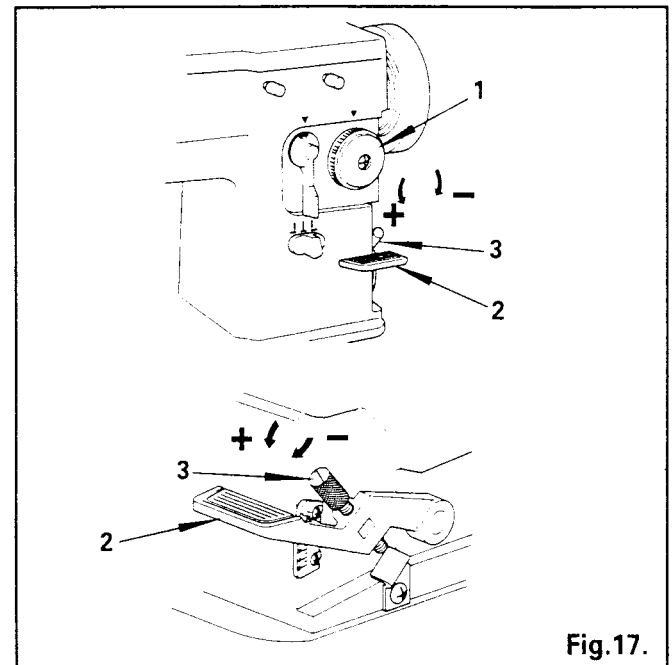


Fig.17.

Regulating the stitch length:

To regulate the stitch length, turn feed regulating dial (1), Fig.17, toward left or right as required.

- + To lengthen
- To shorten

Changing to reverse feed :

Push lever (2), Fig.17, down for reverse feed and release for forward feed.

To regulate the reverse stitch length, turn thumb screw (3), Fig.17 toward left or right as required.

- + To lengthen
- To shorten

**14. TO ADJUST PRESSER FOOT PRESSURE
(20U51/53/63)**

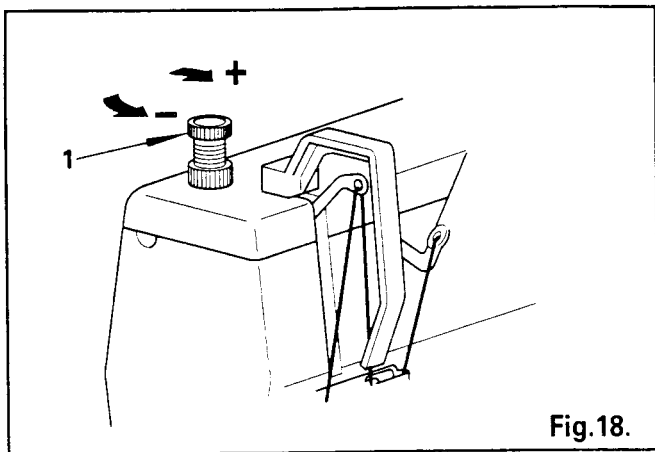


Fig.18.

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

15. TO ADJUST NEEDLE THREAD TENSION

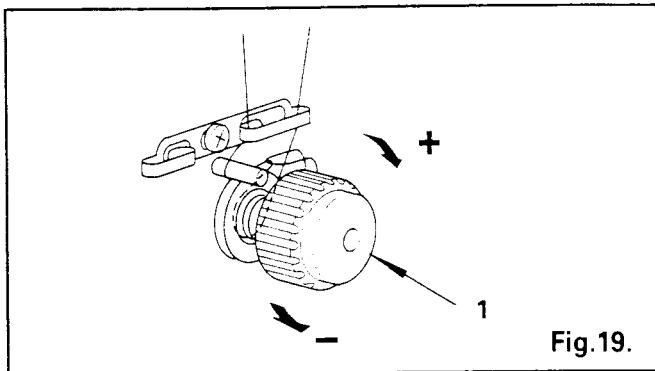


Fig.19.

Regulate needle thread tension with tension regulating knob (1), Fig.19.
 + More tension
 - Less tension

16. REGULATING THE TAKE-UP SPRING

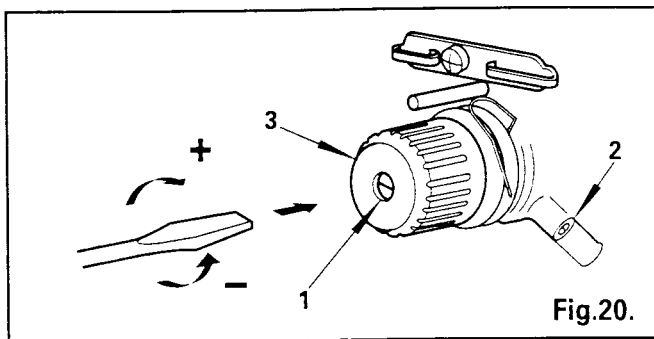


Fig.20.

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).

17. TO ADJUST BOBBIN THREAD TENSION

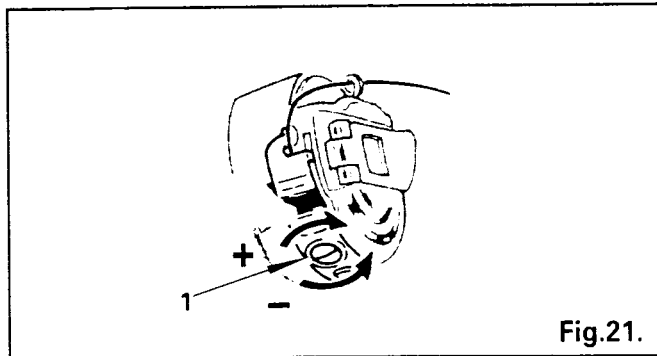


Fig.21.

Regulate bobbin thread tension with tension regulating screw (1), Fig.21.
 + More tension
 - Less tension

18. NEEDLE POSITION SELECTOR

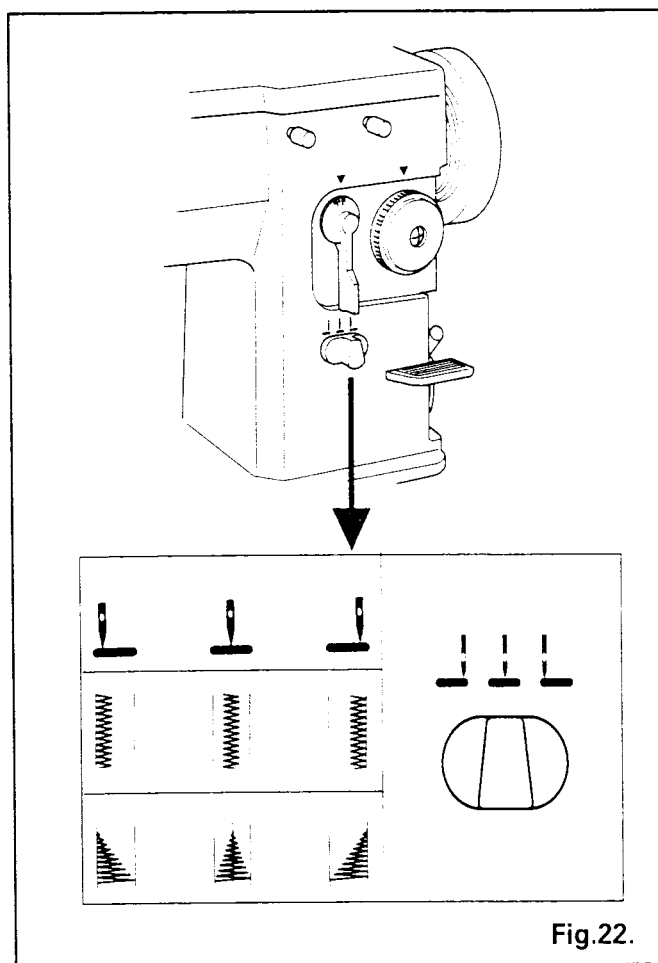


Fig.22.

		CAUTION
Switch off the machine.		

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.

19. STITCH WIDTH REGULATOR

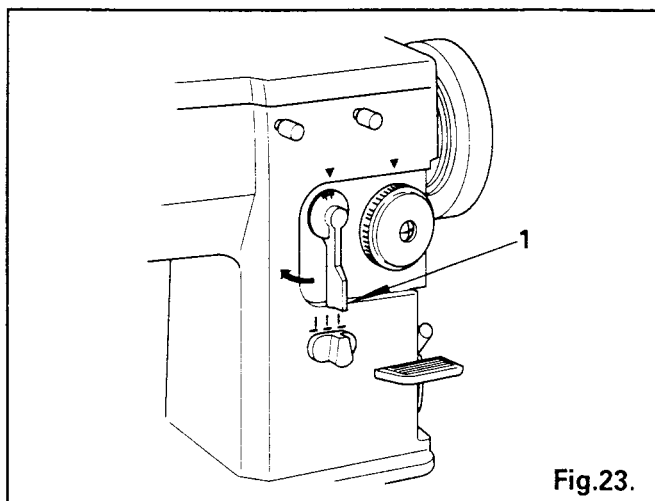


Fig.23.

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

Maximum zigzag width;

20U51 / 53	0 ~ 9 mm
20U62 / 63	0 ~ 12 mm

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

20. HOW TO CONTROL THE WIDTH OF ZIGZAG STITCH

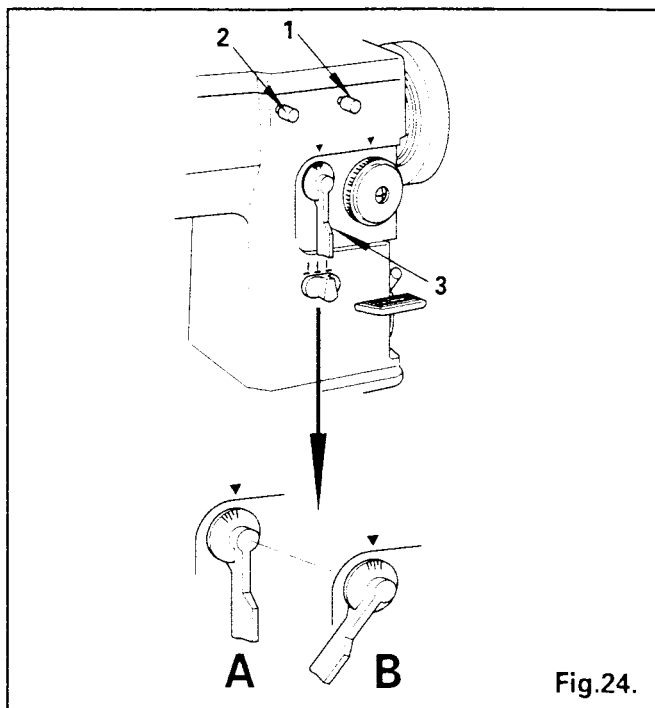


Fig.24.

To obtain minimum to maximum width (20U51/53; 9mm, 20U62/63; 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.

21. NEEDLE BAR FRAME CLAMPING DEVICE (20U51/53/63)

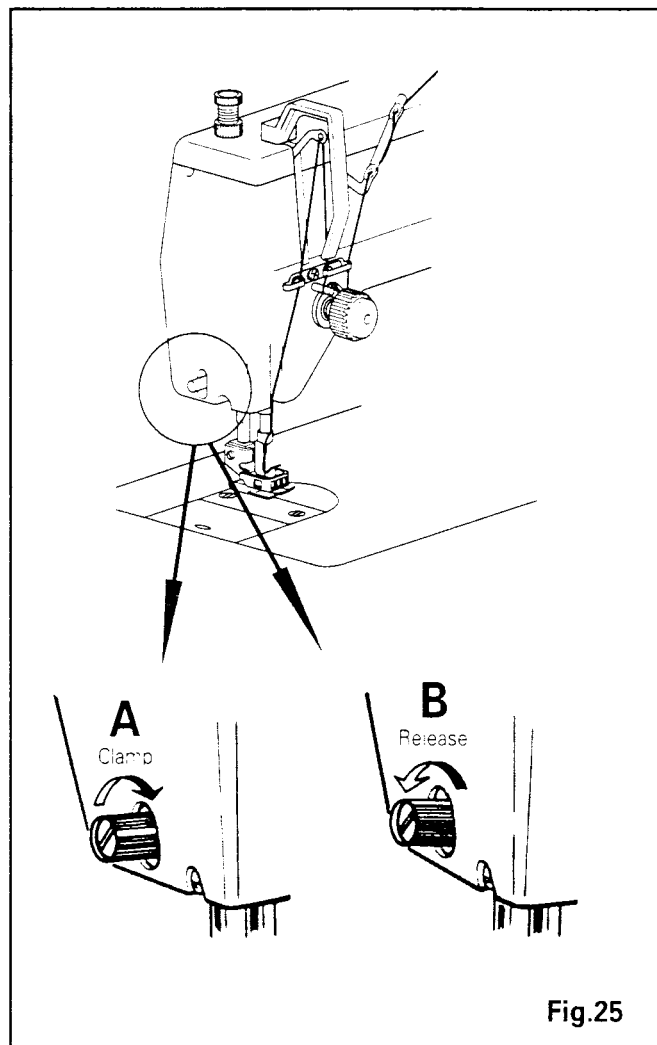
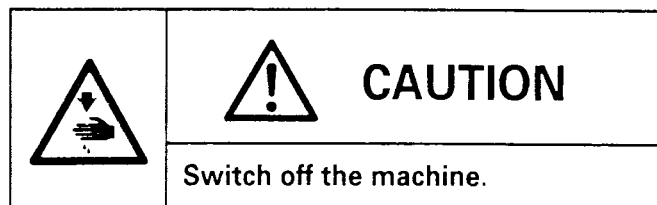


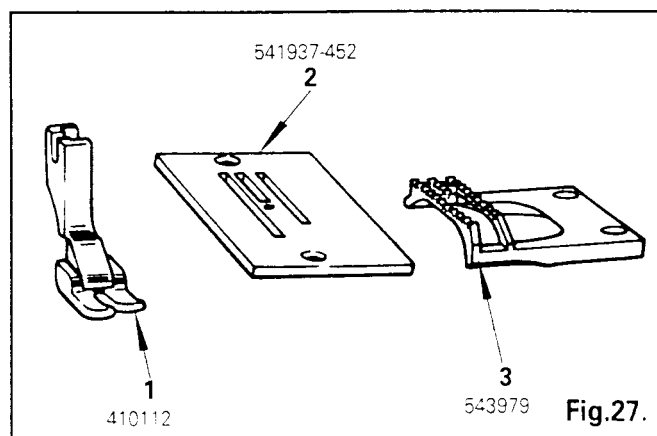
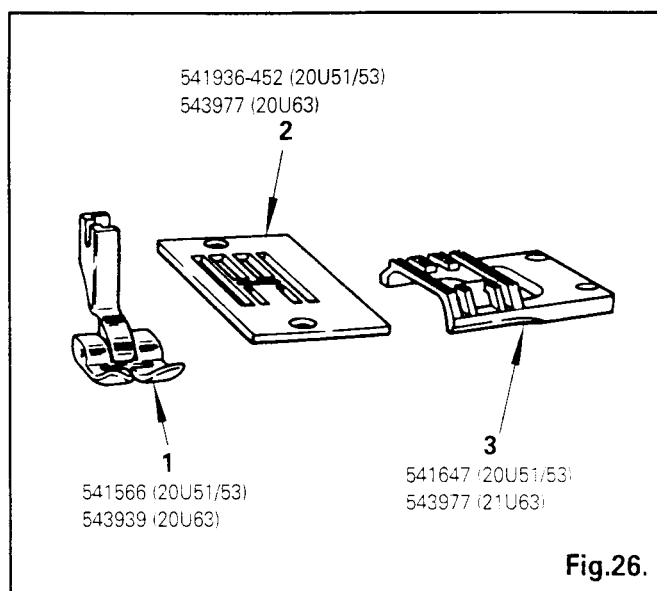
Fig.25



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

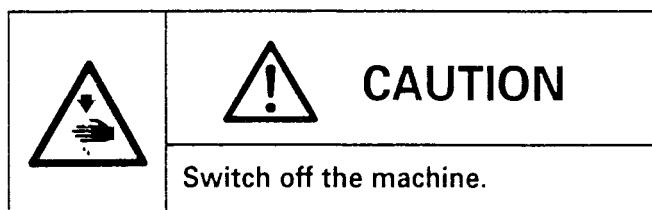
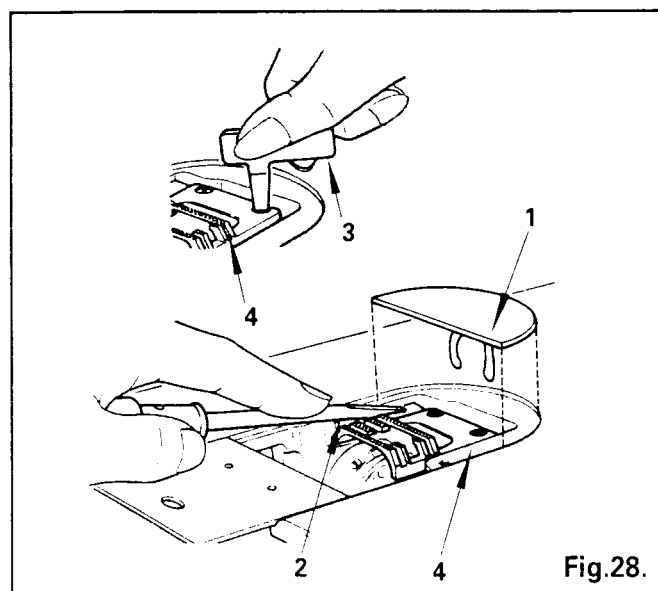
22. FITTINGS FOR STRAIGHT AND ZIGZAG STITCHING (20U51/53/63)



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

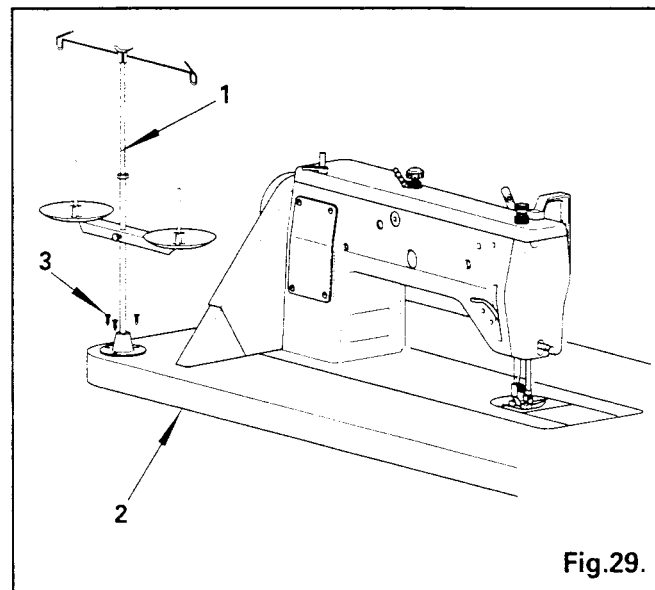
Straight Stitch Presser Foot (1), Throat Plate (2) and Feed Dog (3) as shown in Fig.27, are used for straight stitching only.

23. CHANGING THE THROAT PLATE AND FEED DOG



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 purpose 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



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

25. TO USE THE SPOOL CAP

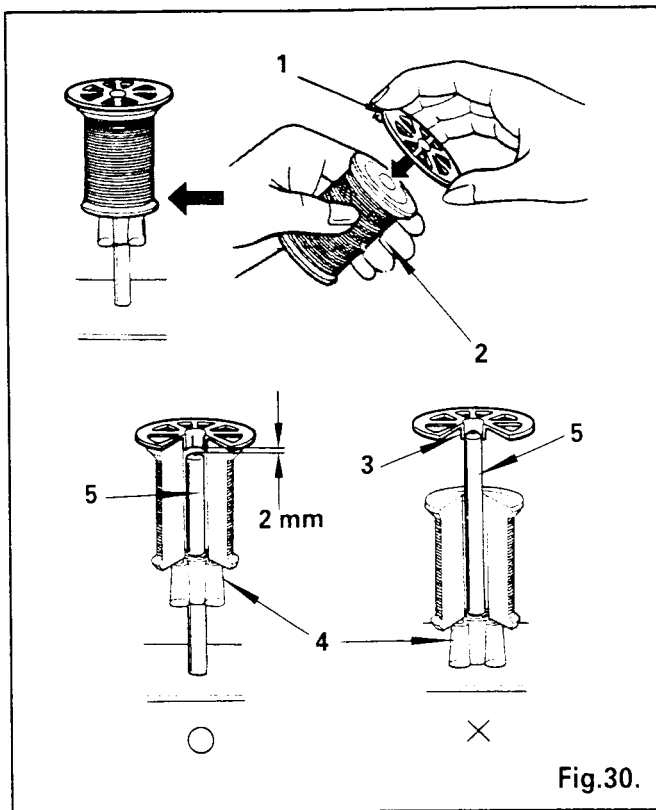


Fig.30.

When using a reel type thread spool, fit the spool cap (1) supplied with the machine onto the thread spool (2), Fig.30.

Set height of spool rest (4) so there is approximately 2 mm clearance between top end of spool pin (5) and the tip of the slotted spigot (3) of the spool cap. (See Fig.30)

The spool cap should never be fitted on the spool pin. Forcing it onto the spool pin may result in breaking the slotted spigot of the spool cap. (See Fig.30)

26. TO USE THE ANTI-SPILL SLEEVE

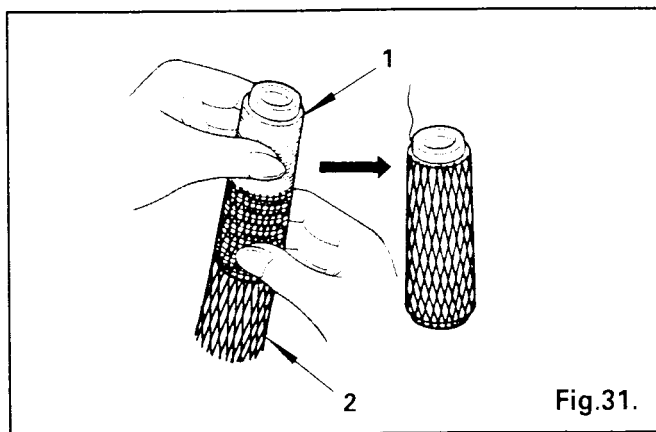


Fig.31.

When using synthetic threads that easily spill off the cone (1), slip the anti-spill sleeve (2) furnished with the machine over the thread from the bottom of cone (1) leaving the thread end to hang free at the top of anti-spill sleeve (2) as shown in Fig.31.

27. KNEE LIFTER

TO MOUNT KNEE LIFTER

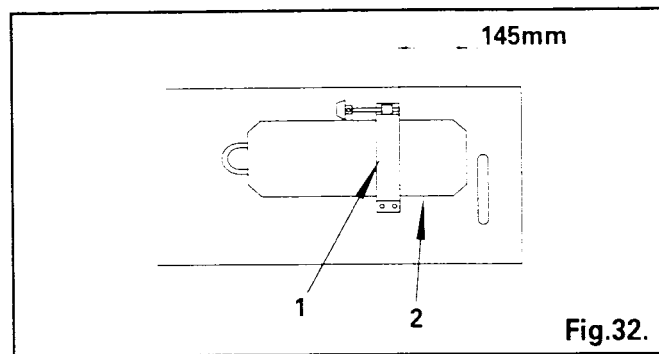


Fig.32.

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

KNEE OPERATING PRESSER FOOT LIFT

(20U51/53/63)

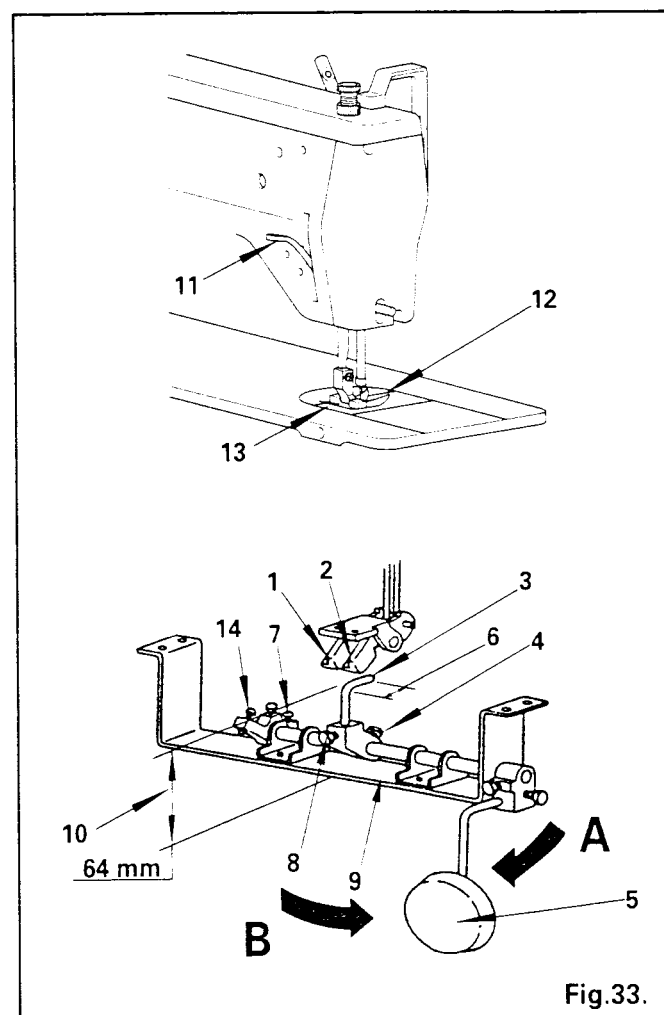


Fig.33.



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. 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 lifter 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 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.33)

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 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 bar 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 direction 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

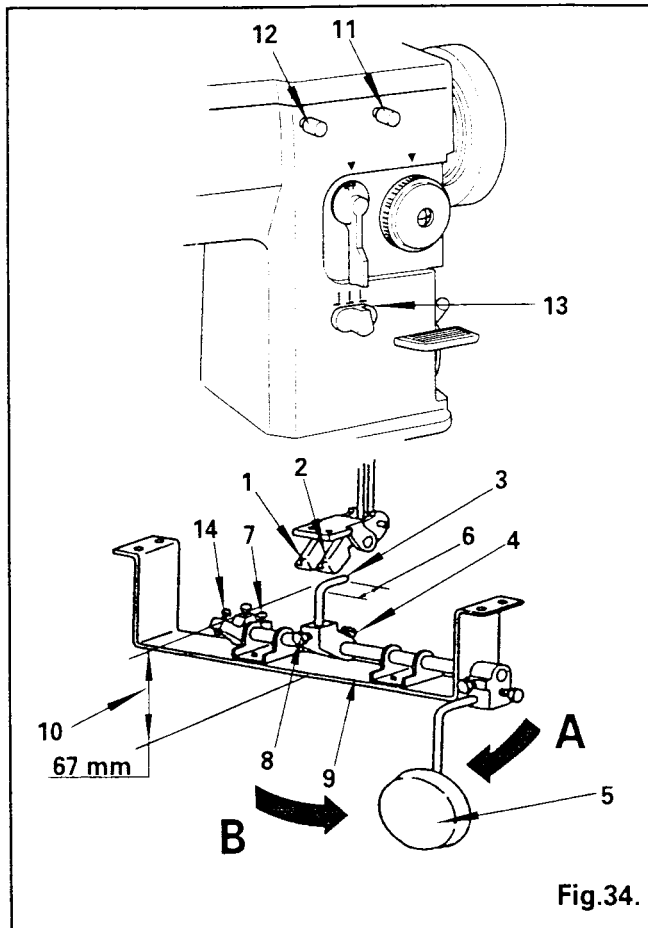


Fig.34.

	CAUTION
	<p>Switch off the machine. Set sewing head upright again using both hands. Danger of crushing between sewing head and table top.</p>

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 lifter 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 height (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. (20U51/53: 9 mm, 20U62/63: 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 width regulator (13). Then firmly tighten the lock nut. (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 (20U51/53/63)

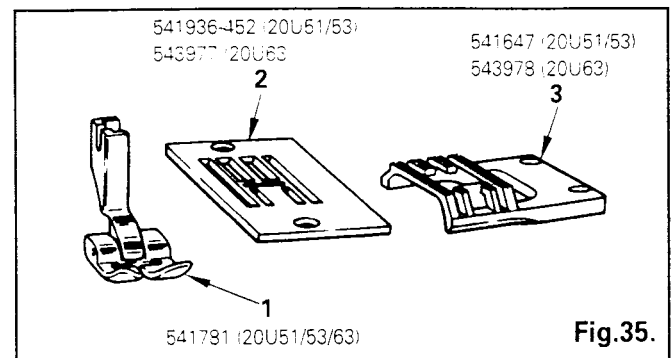


Fig.35.

	CAUTION
	<p>Switch off the machine.</p>

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

29. FITTINGS FOR HEM SEWING
(20U51/53/63)

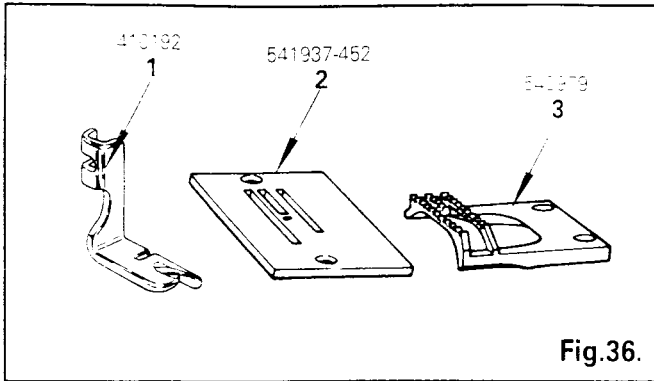


Fig. 36.

		CAUTION
Switch off the machine.		

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

30. FITTINGS FOR ZIPPER AND CORD SEWING
(20U51/53/63)

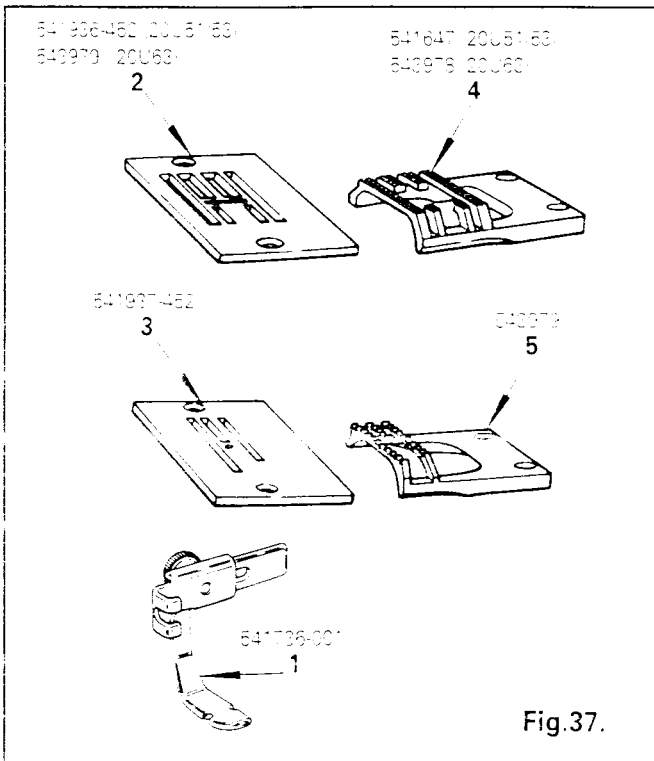


Fig. 37.

		CAUTION
Switch off the machine.		

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

31. CARING FOR YOUR MACHINE

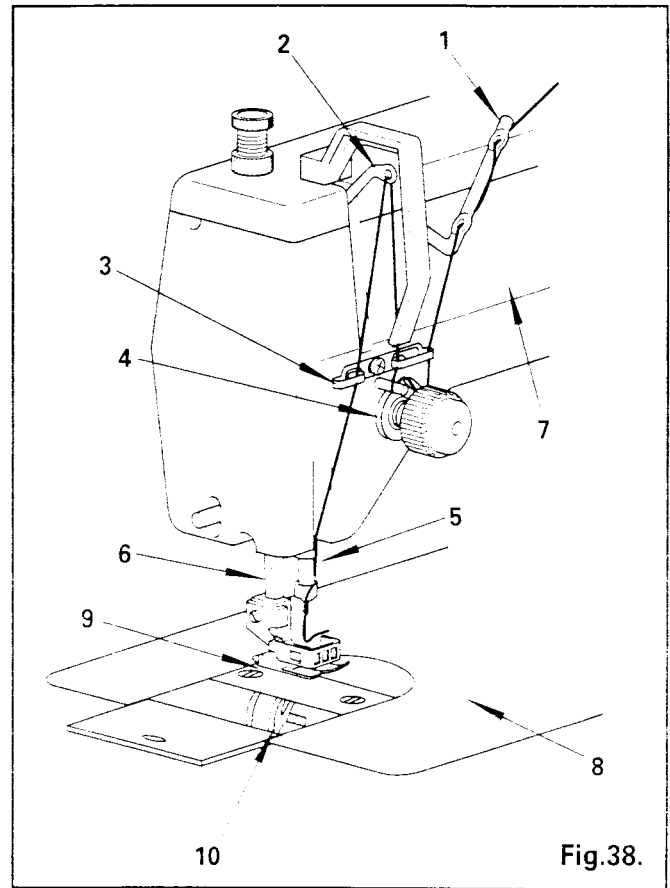


Fig. 38.

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

Your SINGER 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 cleaned 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.

32. TROUBLESHOOTING CHART

Whenever sewing difficulty is encountered, check and make adjustments as follows.

Problem	Cause	Solution
Needle thread breaks	<ol style="list-style-type: none"> 1. Is machine properly threaded ? 2. Are thread guides or tension disc area lint-free ? 3. Is needle-thread tension too tight ? 4. Is needle bent or have a blunt point ? 5. Is needle inserted correctly ? 6. Is needle the correct size for thread and fabric ? 7. Is thread free of slubs and knots ? 	<ol style="list-style-type: none"> 1. Correct needle threading 2. Remove lint and fluff in bobbin case and hook 3. Adjust needle thread tension 4. Insert new needle 5. Insert needle correctly 6. Select proper needle size and thread 7. Remove slubs and knots
Bobbin thread breaks	<ol style="list-style-type: none"> 8. Is bobbin threading correct ? 9. Is thread tangled or caught ? 10. Is thread tension correct ? 11. Does bobbin rotate smoothly ? 	<ol style="list-style-type: none"> 8. Correct bobbin threading 9. Untangle thread from bobbin case and hook 10. Adjust needle and bobbin case thread tension 11. Check whether bobbin thread is wound correctly
Stitches skip	<ol style="list-style-type: none"> 12. Is needle inserted correctly ? 13. Is needle bent or have blunt needle point ? 14. Is size of needle and thread suitable for fabric ? 15. Is threading correct ? 	<ol style="list-style-type: none"> 12. Insert needle correctly 13. Insert new needle 14. Select proper needle size and thread 15. Correct needle threading
Needle breaks	<ol style="list-style-type: none"> 16. Is needle properly inserted ? 17. Is needle bent ? 18. Is needle the correct size for the fabric ? 19. Is needle clamping screw loose ? 20. Is the fabric pulled while sewing ? 	<ol style="list-style-type: none"> 16. Insert needle correctly 17. Insert new needle 18. Select proper needle and thread for fabric 19. Tighten needle set screw 20. Do not pull fabric while sewing
Fabric fails to feed	<ol style="list-style-type: none"> 21. Is feed regulating dial properly adjusted ? 22. Is presser foot pressure adjusted properly ? 	<ol style="list-style-type: none"> 21. Lengthen stitch length by feed regulating dial 22. Increase presser foot pressure
Fabric puckers	<ol style="list-style-type: none"> 23. Is needle threading correct ? 24. Is needle point blunt ? 25. Is thread tension too tight ? 	<ol style="list-style-type: none"> 23. Correct needle threading 24. Insert new needle 25. Adjust needle tension properly
Rotating heavy Noisy	<ol style="list-style-type: none"> 26. Is there any lint or fluff on feed dog ? 27. Is there any lint in rotating hook ? 	<ol style="list-style-type: none"> 26. Remove lint and fluff from feed dog 27. Remove lint and fluff from rotating hook
Machine fails to start	<ol style="list-style-type: none"> 28. Are electrical plugs properly connected ? 29. Is power and light switch turned on ? 	<ol style="list-style-type: none"> 28. Turn on power switch 29. Connect plug to power source

If you still have difficulty in sewing even after making adjustments, contact your nearest Service Center.

33. SPECIFICATIONS

Machine class	ε *	53	62	63
For sewing	Light medium			
Stitch type	301 Lockstitch, 304 (Zigzag lockstitch)			
Max. speed *	2,500 r.p.m.		2,000 r.p.m.	
Max. stitch bight	9.0 mm		12.0 mm	
Max. stitch length	5.0 mm			5.0 mm
Needle bar stroke	34.8 mm			
Presser bar lift (manual)	6.35 mm			
Presser bar lift (knee lifter)	9.0 mm			
Needle catalog (needle system)	CAT.1910-05 (135 X 9)			
Needle size	See page 3 for table on "NEEDLE AND THREAD"			
Machine pulley	Effective dia. for V-belt 74 mm			
Oil	SINGER "C" Oil	SINGER "B" Oil		
Workspace width	211 mm			
Workspace height	130 mm			
Bedplate dimensions	399 mm X 178 mm			
Net weight (head only)	19.5 Kg	19.0 Kg	20.0 Kg	
Gross weight (with accessories)	21.0 Kg	20.5 Kg	21.5 Kg	
Noise **	n=1,600 r.p.m. < 76 dBA			

* Maximum speed will vary depending on fabric, threads and sewing condition.

** Noise measurement according to DIN 4563-45-A-1.

Relationship between zigzag bight and maximum speed

Machine class	51 / 53		62 / 63	
Zigzag bight	0 mm ~ 5 mm	5mm ~9mm	0 mm ~ 5 mm	5 mm ~ 12 mm
Max. speed	2,500 r.p.m	2,000 r.p.m	2,000 r.p.m	1,800 r.p.m