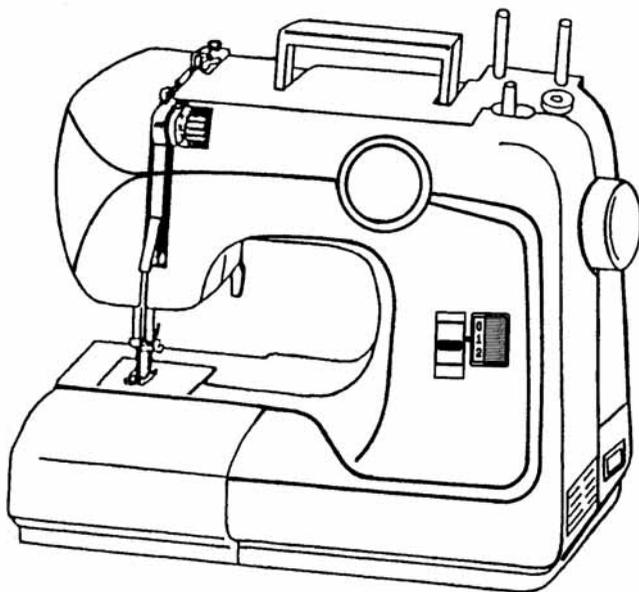


INSTRUCTION MANUAL

Empisal

Protea
Elite



FREE ARM SEWING MACHINE

Safety instructions

Like any other electrical device, a sewing machine can cause serious, even life-threatening injuries. To avoid this, and in order to work safely:

- Before initial use of your sewing machine, read these operating instructions thoroughly.
- Keep the operating instructions in a suitable place near the machine. When passing the appliance on to others, always enclose the operating instructions.
- Always disconnect the power supply when leaving the machine unattended. This will prevent the risk of accidents if the machine is switched on accidentally.
- First pull the power plug before changing the bulb or performing maintenance work on the machine. This will prevent possibly life-threatening electric shocks.
- Do not remove the plug from the socket by pulling on the cable. Always grip the plug and not the cable when pulling out the power plug.
- Only use the sewing machine in dry rooms.
- In case of any visible damage on the machine, the foot switch or the power cable: Have the damage repaired by Customer Service before using the sewing machine again.
- Never let children or elderly persons handle the machine unsupervised because they may not properly appreciate the possible dangers. Keep electrical appliances outside the reach of children.
- Never use the machine when the ventilation apertures are blocked. Keep the ventilation apertures of the machine and the foot switch free from fluff, dust and waste material.
- Don't let children play with sewing machine.
- Never use the machines if the air vents are blocked keep the air vents free from dust, fluff and leftovers.
- Never place anything on the foot controller.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.

Warning against injuries and material damages:

According to legislation, you as the user of an electrical appliance are responsible for preventing possible accidents through safety-conscious behaviour:

- Keep your work space tidy. An untidy workplace can lead to accidents.
- Provide adequate lighting when working!
- Do not wear loose clothing or jewellery, as these can be caught in the moving parts. You should also wear a hair net if you have long hair.
- Avoid abnormal posture. Remain steady and in a well-balanced position at all times.
- Be alert! Pay attention to what you are doing. Always take a rational approach to your work. Never work with the sewing machine if you are unable to concentrate or if you are feeling unwell!

If accidents occur as a result of handling the machine with insufficient care, or failure to follow the safety instructions in this manual, then the manufacturer cannot accept liability.

If the supply cord that fixed with foot controller is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person in order to avoid a hazard.

Please use for your sewing machine the ZHEJIANG FOUNDER presser foot, type KD-2902.

Power rating: 220 - 240V ~ , 50Hz

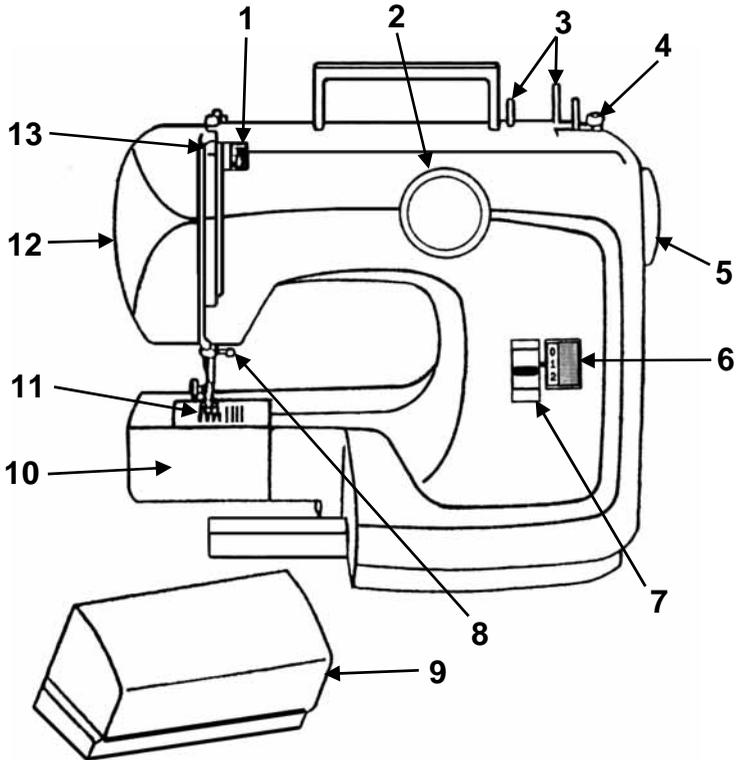
Current rating: 1.0A

Protection Class : II

CONTENTS

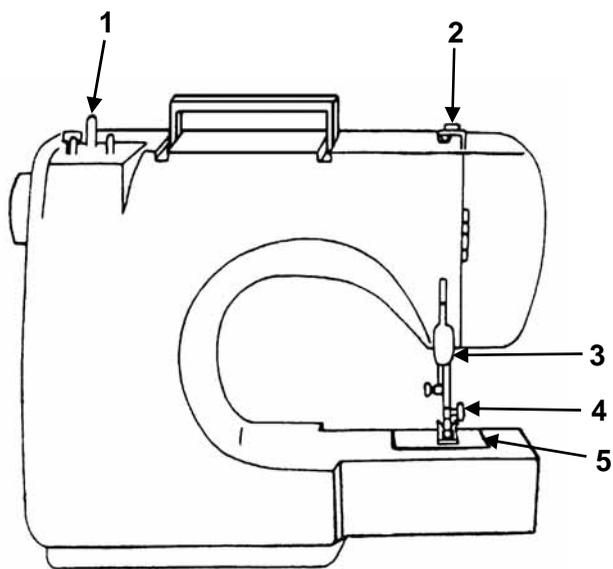
Name of parts	3-4
Accessories	5
Before sewing (Power supply and sewing lamp)	6
Removing extension table	7
Free-arm sewing	7
Winding the bobbin	8
Removing bobbin case and bobbin	9
Inserting bobbin into bobbin case	9
Inserting bobbin case into shuttle race	10
Threading upper thread & Twin needle threading	11
Drawing up the bobbin thread	12
Changing sewing directions	12
Levelling machine	13
Adjusting thread tension	14
Changing needle	15
Insert "darning plate"	15
Fabric-Thread-Needle-table	16
Sewing (pattern selector) and operation table	17
To start sewing	18
How to finish stitches	19
Straight stitch	20
Zigzag sewing	20
Automatic embroidery	20
Overcasting	21
Straight and zigzag stretch stitches	21
Blind stitch	22-23
Button sewing	24
Binding	24
Zipper sewing	25
Buttonhole sewing	26
Hemming	27
Twin needle	28
Embroidery	28
Quilter	29
Seam guide	29
Maintenance (Cleaning and oiling)	30
Checking performance problems-Troubleshooting	31

NAME OF PARTS (FRONT VIEW)



1. Thread tension dial
2. Pattern selector dial
3. Spool pins
4. Bobbin winder stopper
5. Hand wheel
6. Stitch length dial
7. Reverse button
8. Thread guide and needle clamp
9. Extension table
10. Shuttle cover
11. Presser foot
12. Face cover
13. Take up lever

REAR VIEW



1. Bobbin winder spindle
2. Upper thread guide
3. Presser foot lever
4. Thumb screw
5. Needle plate

ACCESSORIES



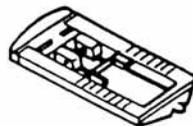
Bobbin



Felt



Zigzag foot
(on machine)



Buttonhole foot



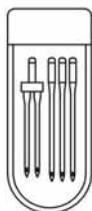
Screw driver



Needle plate
screw driver



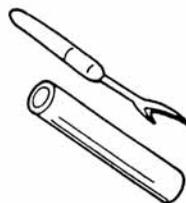
Zipper foot



Needle

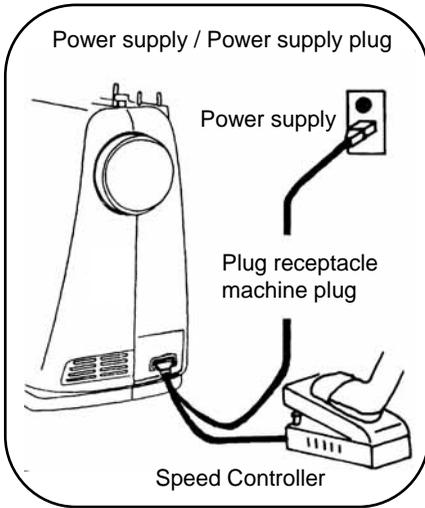


Darning plate



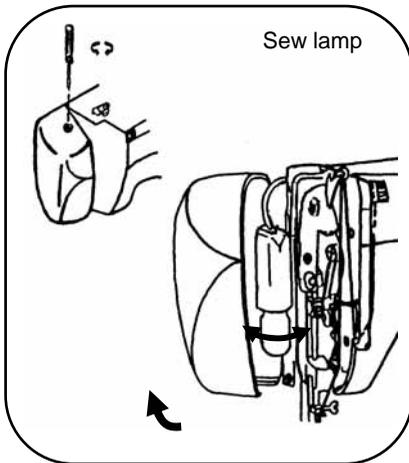
Buttonhole cutter

BEFORE SEWING



1. Fit plug into the machine.
2. Insert plug into the main socket.
3. Sewing speed can be varied by the foot control.

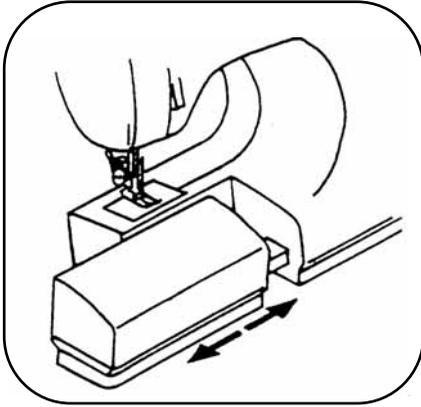
Warning: Please always unplug the power plug before you change the bulb or perform maintenance work to the machine so that you prevent deadly peril and electric shock.



Bulb replacement:

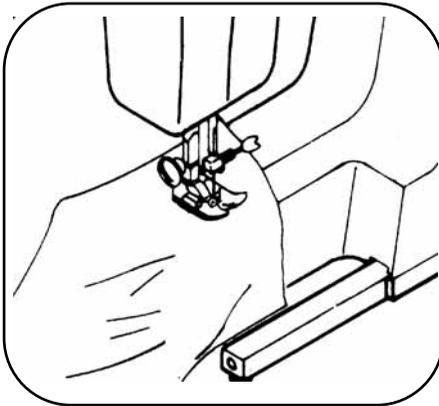
1. Open face cover in direction of arrow.
2. Remove bulb by unscrewing it counter-clockwise.
3. Install a new bulb by screwing it in clockwise.
4. Use a 15 watt bulb. (max)

REMOVING EXTENSION TABLE



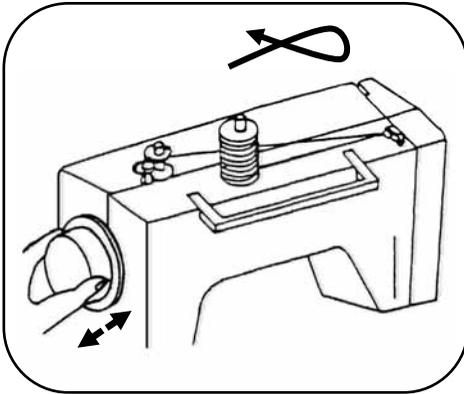
Hold the left end of the table and pull it out in direction of the arrow.

FREE-ARM SEWING

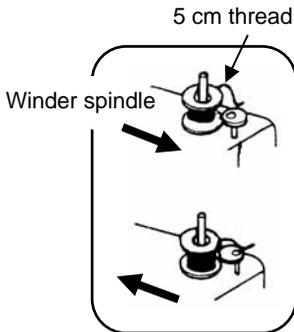


1. This sewing machine can be used as a flat bed machine but easily converts to a free arm machine by removing the extension table.
2. Especially useful for sewing sleeves, pant legs, tubular fabrics etc. more easily.
3. To sew tubular items just slip the sleeve or leg of pants on the free arm as shown on the illustration.

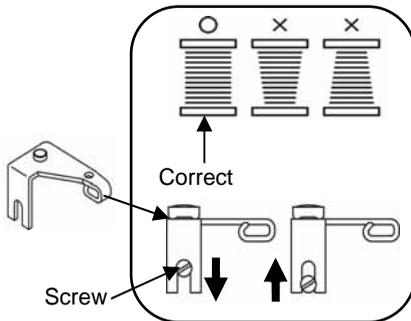
WINDING THE BOBBIN



1. Release coupling knob.
2. Thread as shown.
3. When bobbin is filled, re-engage coupling knob.

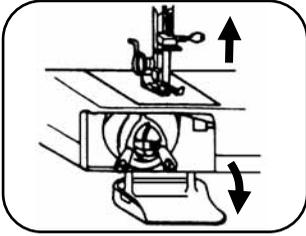


Push bobbin winder spindle in direction of the arrow. When bobbin winding is completed, return spindle to its original position.



When bobbin winding is incorrect, release the screw of the upper thread guide and adjust up or down until bobbin the winding is balanced.

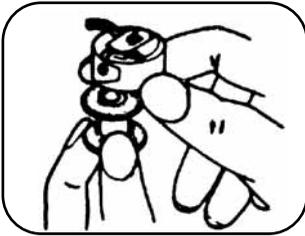
REMOVING BOBBIN CASE AND BOBBIN



1. Raise the needle to its highest position and open shuttle race cover.

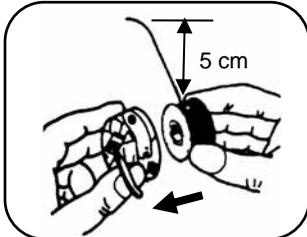


2. Open the hinged latch of the bobbin case and pull the bobbin case out of the machine.

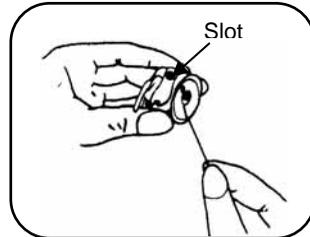


3. Release the latch and the bobbin will fall out easily.

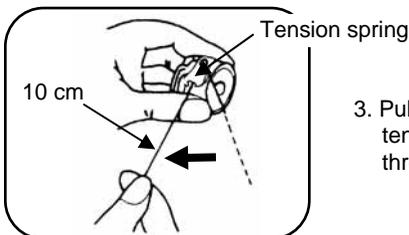
INSERTING BOBBIN INTO BOBBIN CASE



1. Pull 5 cm of thread from bobbin and insert it into bobbin case as shown.

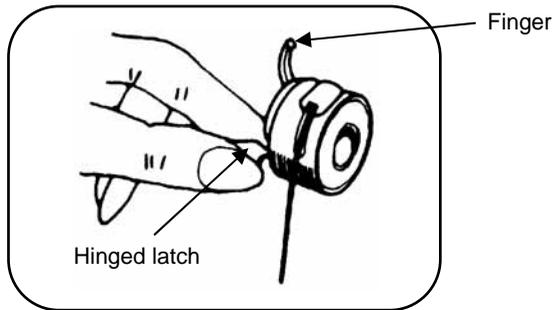


2. Guide the end of thread into the slot.

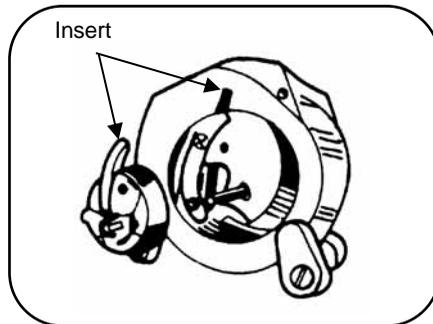


3. Pull the thread through the slot and under the tension spring and draw out about 10 cm of thread.

INSERTING BOBBIN CASE INTO SHUTTLE RACE



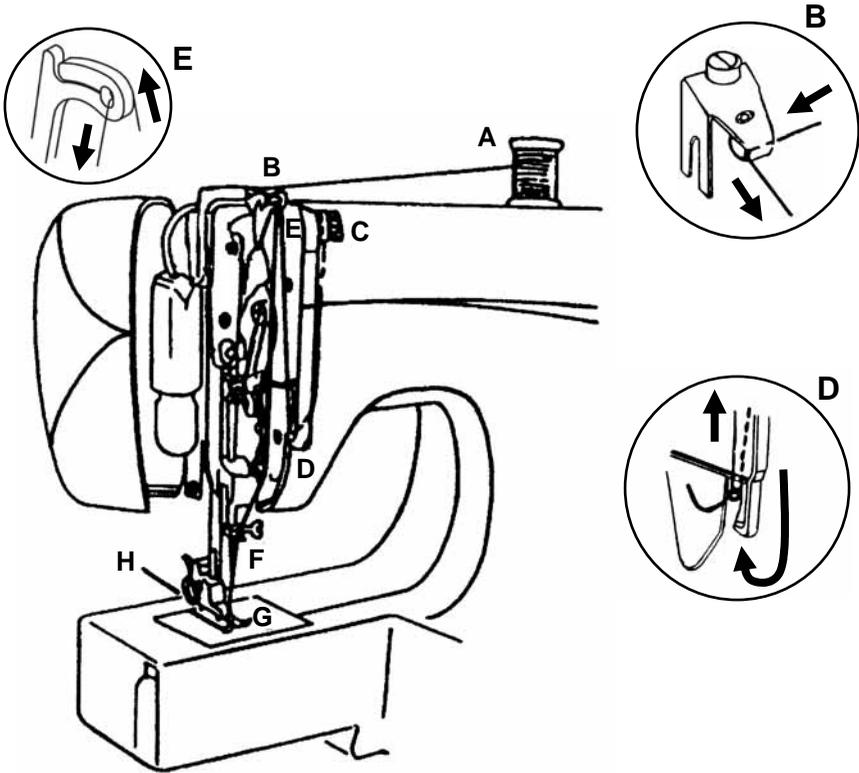
1. Raise the needle to its highest position. Pull the thread to the front, open the latch of the bobbin case and hold it.



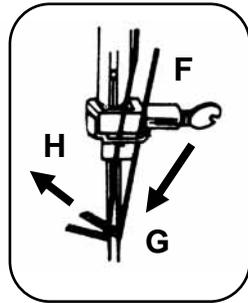
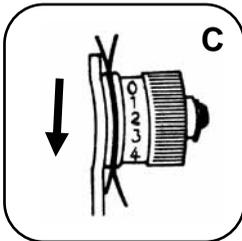
2. Holding the latch open, place bobbin case onto the center pin in the shuttle and release latch.

THREADING UPPER THREAD

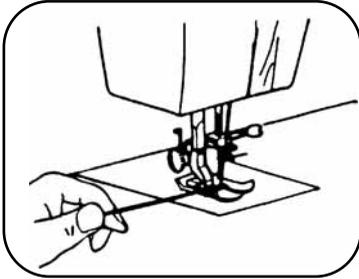
Pass the thread from A to H as shown.



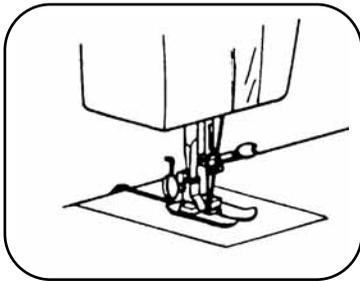
Twin needle threading.



DRAWING UP THE BOBBIN THREAD

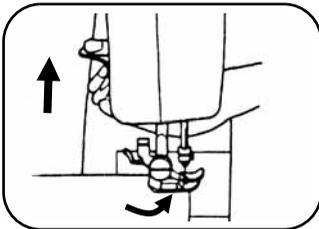


1. Hold the upper thread with left hand, turn the hand wheel slowly towards you until the needle goes down and comes up. Then stop the hand wheel when the take up lever is at its highest position.
Lightly draw up the upper thread, by which the lower thread will be brought up in a loop.

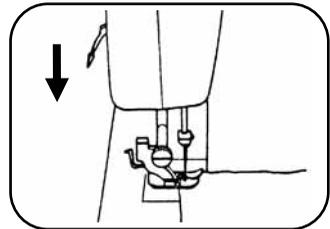


2. Pull out both threads and place them together under presser foot to the rear of the machine.
3. Place fabric under presser foot from the front, lower presser foot.
4. Start to sew.

CHANGING SEWING DIRECTIONS

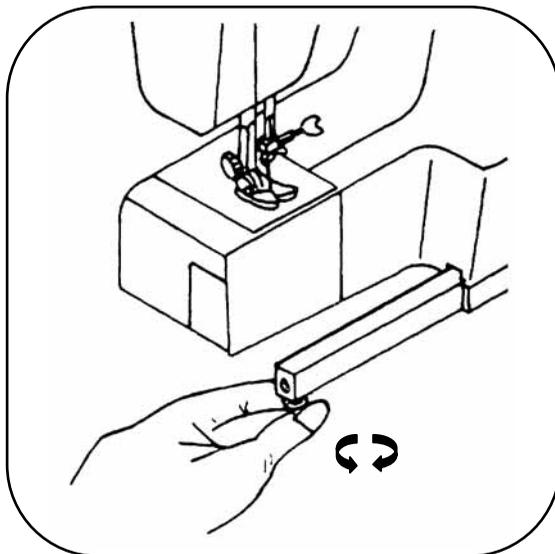


1. Lower needle down into fabric and raise presser foot, pivot the fabric around the needle to change direction as desired.



2. Lower the presser foot and start to sew.

LEVELLING MACHINE

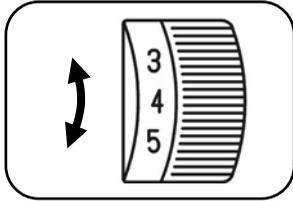


 Down

 Up

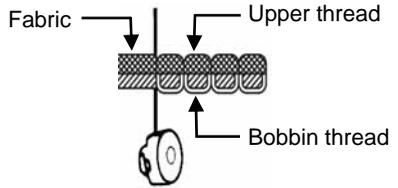
ADJUSTING THREAD TENSION

Normal upper thread tension: 4 – 6

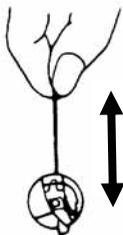
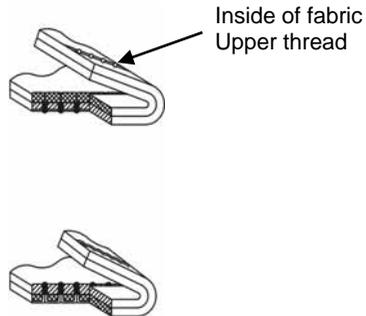


Upper thread tension may be adjusted by turning the thread tension dial.

Correct

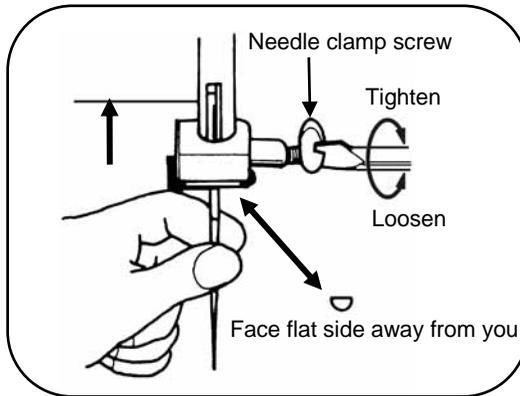


Incorrect



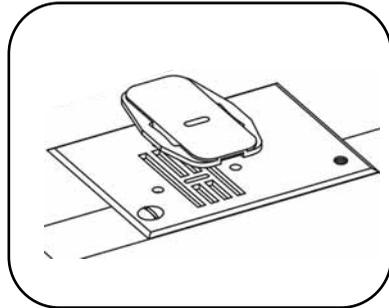
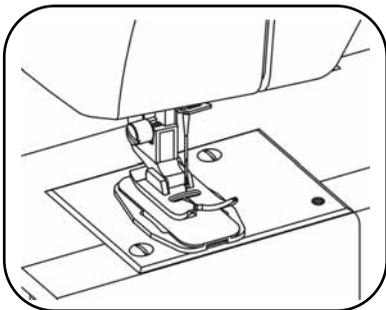
Lower thread tension can be increased by turning the screw of the bobbin case slightly to the right (clockwise). Turning it to the left (counter-clockwise) decreases tension.

CHANGING NEEDLE



1. Raise the needle bar to its highest position.
2. Loosen needle clamp screw and remove the old needle.
3. With the flat side of the needle facing away from you, insert the needle as far up as it will go.
4. Tighten the needle clamp screw securely.

INSERT "DARNING PLATE"



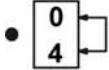
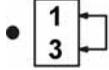
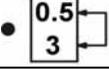
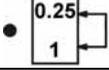
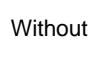
Sometimes you will want to control the feeding of fabric yourself. Turn the needle bar to its highest position and raise the presser foot over the needle plate, aligning two pins of the darning plate with holes of needle plate. You may then determine the movement of the fabric by yourself. See page 24 for button sewing application.

FABRIC-THREAD-NEEDLE-TABLE

Please pay attention to the following list as a guide for sewing different types of fabric.

	Fabric	Thread	Needle	Length of Stitches		Indication of Upper Tension
				Straight stitch	ZZ	
				Stitch Length Dial		
Light 	Nylon	80 Cotton	70 (10)	1 - 3	1 - 4	
	Tricot	60 S Fiber silk				
	Silk	50 Silk				
	Wool silk	50 S Fiber silk	80 (12)			
Medium 	Gingham	60-80 Cotton	80-90 (12-14)	0.5 - 3	0.5 - 4	
	Thin Jersey	60 S Fiber	80 (12)			
	Gabardine	50 Silk				
Heavy 	Denim	50 Cotton	90-100 (14-16)	0.5 - 3	0.5 - 4	
	Jersey	50 S Fiber	80-90 (12-14)			
	Tweed	50 Silk	80-90 (12-14)			

SEWING (PATTERN SELECTOR) AND OPERATION TABLE

	Stitch patterns	Stitch length	Presser foot	Darning plate		
A	Straight stitch					
B-E	Zigzag					
F	Blind stitch					
G	Blind hem					
H	Three step zigzag stitch					
I	Slant over edge					
J	Single overlock stitch					
K	Honeycomb stitch					
L	Zigzag stitch					
M	Straight stretch stitch					
N	Automatic embroidery					
O						
P						
Q						
R-T	Buttonhole					
	Free-hand embroidery					

TO START SEWING

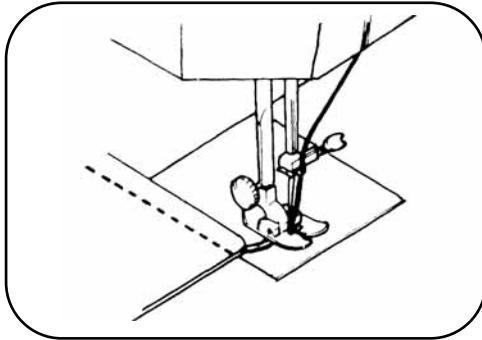
Important hints:

1. Raise the take-up lever to its highest position before starting and after stopping sewing.
2. Hold both threads about 10 cms to the rear of the machine for the first two or three stitches.
3. Sufficient fabric should be placed under needle before lowering the presser foot.
4. Depress foot/speed control and start to sew.
5. Test the machine stitches on a scrap of fabric you plan to use, adjusting the machine for the length of the stitch and tension suitable to your fabric.
6. Separate the machine from the power system if you leave it unsupervised.

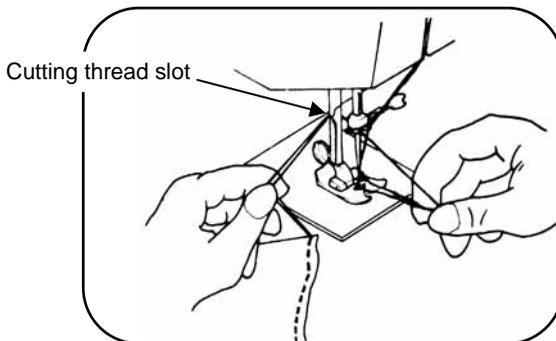
Attention:

1. When turning the balance wheel manually, always turn it toward you.
2. Guide the cloth gently with your hand.
3. To prevent breaking needles, always raise the needle out of the fabric when you stop sewing.

HOW TO FINISH STITCHES



1. Sew to the edge of seam.
2. Push the reverse button and sew in reverse for about 3-4 cms.
3. Raise needle to its highest position.
4. Lift the presser foot and pull the fabric out of the back of the machine.



5. Cut threads as shown on the thread cutter.

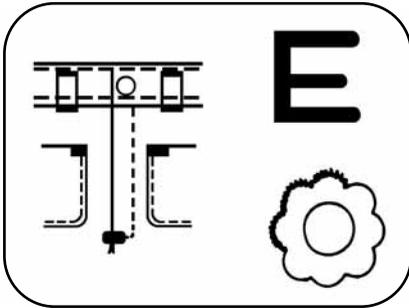
STRAIGHT STITCH

1. This type of stitching is used most frequently.
2. The zigzag presser foot can be used for both straight and zigzag sewing.
3. For sewing light fabric, use a smaller stitch size. (Refer to page 16 for dial setting).

ZIGZAG SEWING

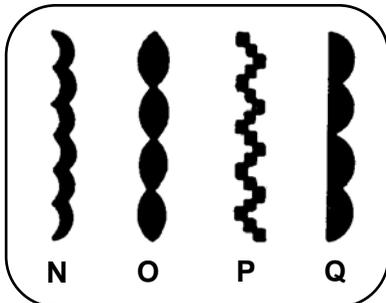


Pattern selector position



Satin stitching can be used for sewing initials, patterns, appliqué, etc.

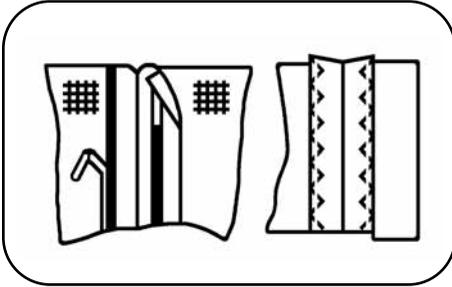
AUTOMATIC EMBROIDERY



These stitches have a wide range of decorative and utility applications and are particularly suitable for woven fabrics. The Scallop stitch (N) is ideal for edging collars, cuffs, tablecloths, serviettes etc. For all the stitches, the stitch length can be reduced to achieve a close “satin stitch” if required.

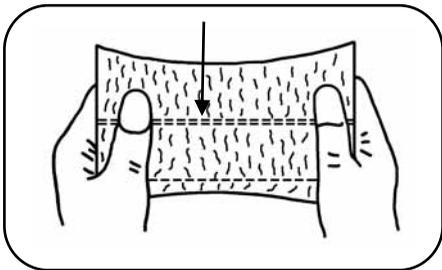
With satin stitch a paper backing, will improve the result.

OVERCASTING



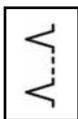
Use these stitches for oversewing rough edges.

STRAIGHT AND ZIGZAG STRETCH STITCHES

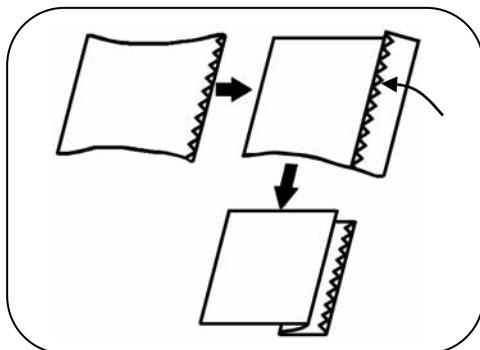


Use this stitch with knitted, tricot or other stretchy fabrics. The stitch enables your seam to stretch without breaking the thread.

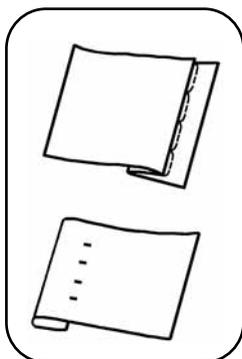
BLIND STITCH (Optional)

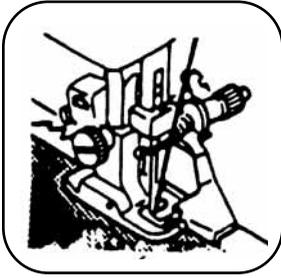


1. Fold fabric as shown.



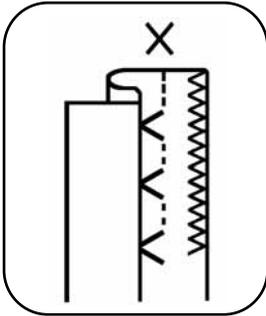
2. Finish the seam as shown.



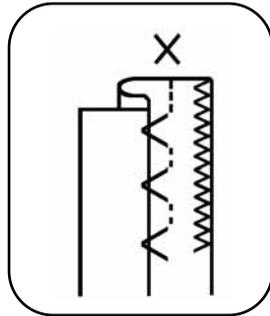


Adjust the width to obtain the correct seam.

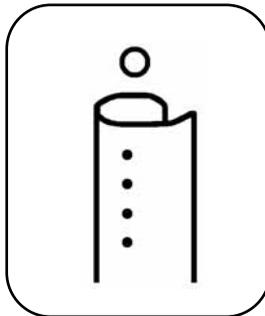
Wrong: Needle is not piercing edge to fold at all.



Needle pierces the edge of fold too much.

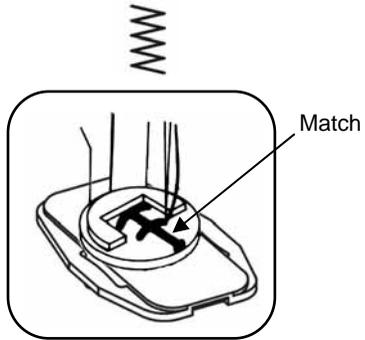
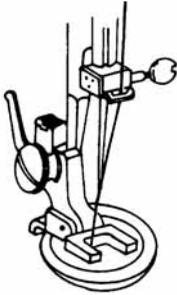


Correct seam.



BUTTON SEWING (Optional)

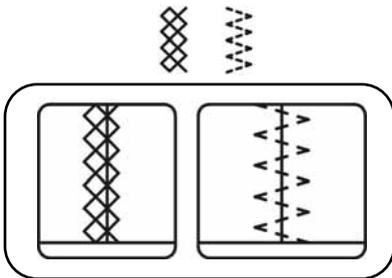
Utilize the button presser foot.



(Use Darning plate see page 15)

1. Place the darning plate properly.
2. Place button presser foot in position and attach it firmly.
3. Place the button between presser foot and fabric and lower the presser foot.
4. Manually turn hand wheel towards you, ensuring that the needle enters into both holes of button without obstruction. (Increase or decrease width setting).
5. Sew about 7 stitches.
6. Pull both threads to the underside and tie them together.

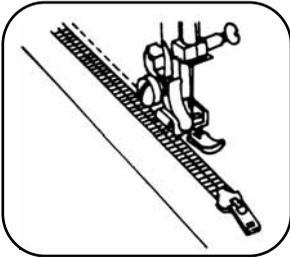
BINDING



To sew fabrics edge select the multi-zigzag stitch.

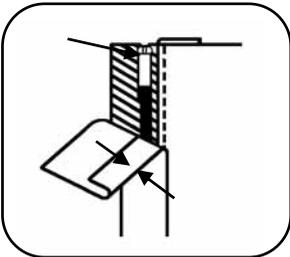
ZIPPER SEWING

Utilize the zipper foot.

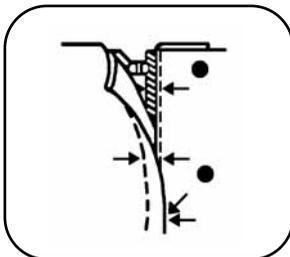


Select straight stitch.

1. Zipper foot is designed to sew close to a raised edge, thus preventing sewing on zipper.
2. Place zipper foot in position and attach firmly.
3. Fold the fabric about 2 cm and place the fabric under foot.



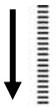
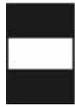
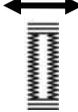
1. To sew the left side of the zipper, set the zipper on the right side of the needle.
2. To sew the right side of the zipper, set it on the left side of the needle.

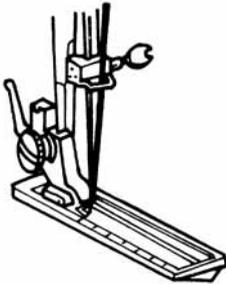


Sew as illustrated.

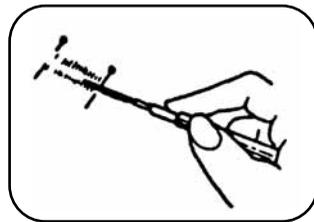
BUTTONHOLE SEWING

Utilise the foot of the buttonholes.
Set the stitch length dial.

Pattern selector dial	Steps	Setting
		<ol style="list-style-type: none"> 1. Set dial to "1" position 2. Sew left side 3. Raise the needle
		<ol style="list-style-type: none"> 4. Set dial to "2" position 5. Sew 5-6 stitches 6. Raise the needle
		<ol style="list-style-type: none"> 7. Set dial to "3" position 8. Sew right side 9. Raise the needle
		<ol style="list-style-type: none"> 10. Set dial to "4" position 11. Sew 5-6 stitches 12. Raise the needle

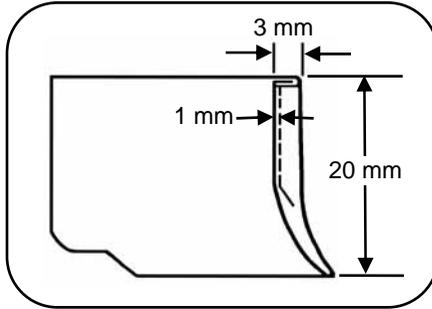


Before sewing, fit buttonhole foot as shown.

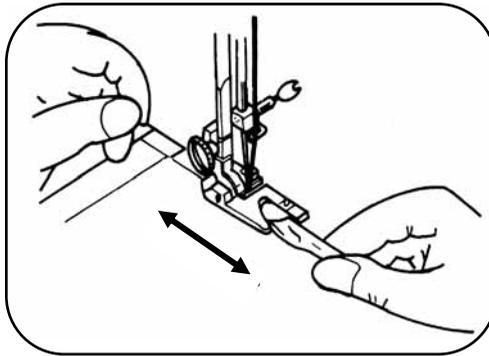


Cut buttonhole along centre with cutter as shown.

HEMMING (Optional)



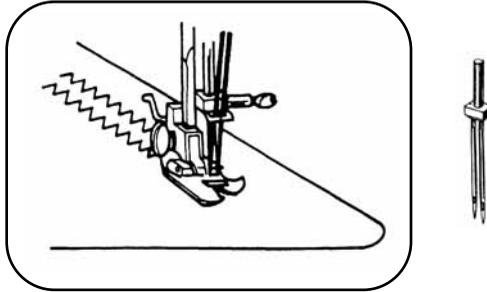
1. Raise the foot and the needle to its highest position. Replace the foot with the picot foot.
2. Fold over the fabric edge by about 3 mm and place it under the foot. Secure the folded edge with a few stitches. Slide the hem of your project into the picot foot by pulling the threads.



3. Lower the foot and sew the hem.
4. While sewing fold the fabric to the left a little and guide it into the hemmer foot.
5. Make sure that the fabric does not move under the right half of the foot. The fabric must be fed into the scroll of the hemmer sufficiently so that the project edge runs freely through the groove under the foot.
Only suitable materials can be used and some practice may be necessary to achieve the best results.

TWIN NEEDLE

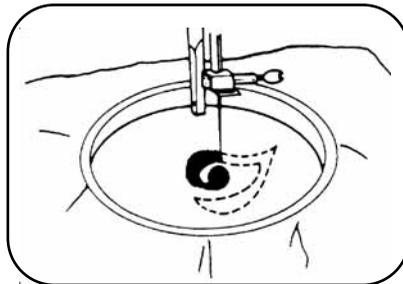
Put in the twin needle with the flat side backwards.



Thread the machine for normal sewing, leading both threads to needle and passing their ends separately through its eye. Sewing width should not exceed the third widest stitch width, as this will break the needles.

ATTENTION: When using the twin needle, adjust the stitch width to maximally 3. Adjusting the stitch width to a higher number causes the needle to break.

EMBROIDERY

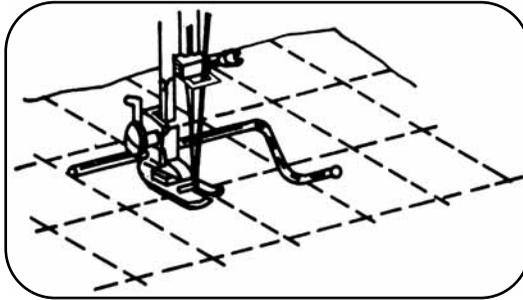


(Use Darning plate see page 15)

Remove the presser foot and attach the darning plate.

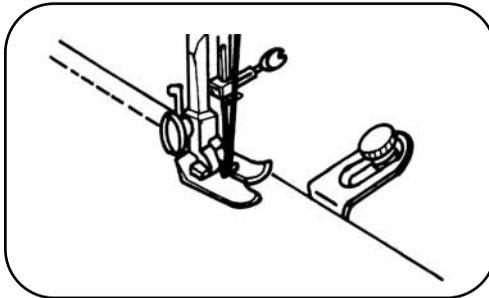
Lower feed dog and move the hooped fabric slowly in the desired direction until the fabric has been embroidered.

QUILTER (Optional)



1. Slide the arm through the hole on top of the presser foot holder.
2. Move the quilting to the required stitch distance.

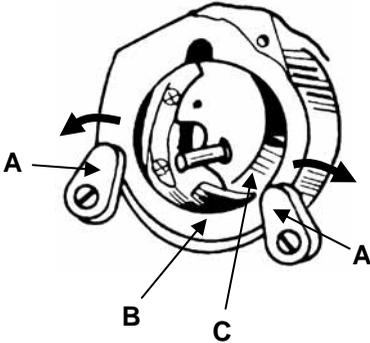
SEAM GUIDE (Optional)



1. Use the seam guide to sew long seams of an equal distance from the edge of the fabric.
2. Screw the guide on the right side of the needle plate and adjust the desired distance.
3. While sewing, the edge of the fabric must touch the guide.

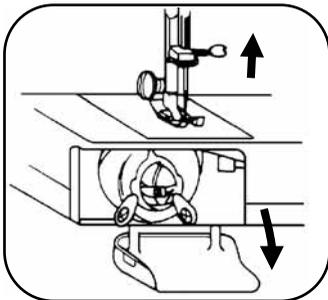
MAINTENANCE

Warning: Please always unplug the power plug before you change the bulb or perform maintenance work to the machine so that you prevent deadly peril and electric shock.

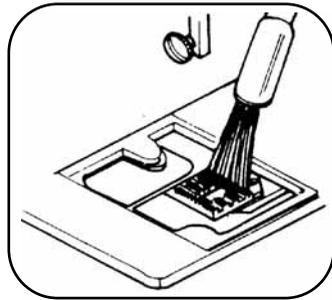


1. Raise needle to its highest position.
2. Take out the bobbin case.
3. Turn the latch knob A as illustrated.
4. Take off shuttle race cover.
5. Take out shuttle hook.
6. Clean and oil shuttle race and hook, thereafter replace all parts in reverse order.

Cleaning shuttle race
(A) Latch knob
(B) Shuttle race cover
(C) Shuttle hook



Open face cover and oil the parts indicated.



Cleaning feed dog.

CHECKING PERFORMANCE PROBLEMS – TROUBLESHOOTING

Problem	Probable cause	What to do
Fabric does not move	<ul style="list-style-type: none"> - Feed teeth down - Stitch length dial "0" position - Light presser foot pressure 	<ul style="list-style-type: none"> - Raise feed teeth - Set dial between 1 and 4 - Increase pressure
Breaking needle	<ul style="list-style-type: none"> - Incorrect insertion of needle - Bent needle - Fabric is being pulled - Needle, thread and fabric do not match 	<ul style="list-style-type: none"> - Re-insert needle - Replace needle - Do not pull fabric - Use correct needle and thread
Breaking upper thread	<ul style="list-style-type: none"> - Faulty adjustment of zigzag width - Improper threading - Tight upper thread tension - Bent needle - Scratches or nicks on bobbin case 	<ul style="list-style-type: none"> - Re-adjust zigzag width - Re-thread machine - Reduce upper thread tension - Replace needle - Polish or replace bobbin case
Breaking bobbin thread	<ul style="list-style-type: none"> - Tight bobbin thread tension - Incorrect insertion of needle - Improper threading - Lint or thread in bobbin case 	<ul style="list-style-type: none"> - Reduce bobbin thread tension - Re-insert needle - Rethread machine - Clean bobbin case
Machine jamming	<ul style="list-style-type: none"> - Excessive tension - Presser foot pressure too strong - Needle, thread and fabric do not match - No oil 	<ul style="list-style-type: none"> - Re-adjust tension - Change pressure accordingly - Reduce proper needle and thread according to type of fabric - Oil moving parts
Puckering	<ul style="list-style-type: none"> - Tension too tight - Sewing foot pressure too strong - Incorrect fabric, needle, and thread 	<ul style="list-style-type: none"> - Reset - Reduce sewing foot pressure - Use correct fabric, needle and thread

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