

GLOBAL

ZZ 512 / ZZ 513 H

**Single needle lockstitch zigzag
sewing machine**

**INSTRUCTION / OPERATING MANUAL
PARTS MANUAL**

Before use your new machine, please read the safety instructions below and the explanations given in the instruction manual.

With industrial sewing machines, it is normal to carry out work while positioned directly in front of moving parts such as the needle and thread take-up, and consequently there is always a danger of injury that can be caused by these parts. Follow the instructions from training personnel and instructors regarding safe and correct operation before operating the machine so that you will know how to use it correctly.

SAFETY INSTRUCTIONS

1. Safety indications and their meanings

This instruction manual and the indications and symbols that are used on the machine itself are provided in order to ensure safe operation of this machine and accidents and injury to yourself or other people.

Indications



CAUTION

This instructions which follow this term indicate situations where failure to follow the instructions could cause injury using the machine or physical damage to equipment and surroundings.

Symbols



. . .

This symbol (r) indicates something that you should be careful of. The picture inside the triangle indicates the nature of the caution that must be taken. (For example, the symbol at left means "beware of injury".)



. . .

This symbol (X) indicates something that you must not do.



. . .

This symbol (~) indicates something that you must do. The picture inside the circle indicates the nature of the thing that must be done. (For example, the symbol at left means "you must make the ground connection".)

2.Note on safety

CAUTION

Environmental requirements



Use the sewing machine in an area which is free from sources of strong electrical noise such as high-frequency welders. Sources of strong electrical noise may cause problems with correct operation.



The relative humidity should be within the range of 45%-85% during use, and no dew formation should occur in any devices. Excessively dry or humid environments and dew formation may cause problems with correct operation.



Any fluctuations in the power supply voltage should be within $\pm 10\%$ of the rated voltage for the machine. Voltage fluctuations which are greater than this may cause problems with correct operation.



Avoid exposure to direct sunlight during use. Exposure to direct sunlight may cause problems with correct operation.



The power supply capacity should be greater than the requirements for the sewing machine's electrical consumption.



In the event of an electrical storm, turn off the power and disconnect the power cord from the wall outlet. Lightning may cause problems with correct operation.



The ambient temperature should be within the range of 5° C-35° C during use. Temperatures which are lower or higher than this may cause problems with correct operation.

Installation



Machine installation should only be carried out by a qualified technician.



All cords should be secured at least 25mm away from any moving parts. Furthermore, do not excessively bend the cords or secure them too firmly with staples, otherwise there is the danger that fire or electric shocks could occur.



Contact your dealer or a Qualified electrical work that may need to be done.



The sewing machine weighs approximately 36KG. The installation should be carried out by two or more people.



If using a work table which has casters, the casters should be secured in such a way so that they cannot move.



Be sure to connect the power cord until installation is complete. The machine may operate if the treadle is depressed by mistake, which could result in injury.



Use both hands to hold the machine head when tilting it back or returning it to its original position. If only one hand is used, the weight of the machine head may cause your hand to slip, and your hand may get caught.




Be sure to connect the ground. If the ground connection is not secure, you run a high risk of receiving a serious electric shock, and problems with correct operation may also occur.





Be sure to wear protective goggles and gloves when handling the lubricating oil and grease, so that they do not get into your eyes or onto your skin. Otherwise inflammation can result. Furthermore, do not drink the oil or eat the grease under any circumstances, as they can cause vomiting and diarrhea. Keep the oil out of children.


▲ CAUTION

Sewing


 This sewing machine should only be used by operators who have received the necessary training in safe use beforehand.


 The sewing machine should not be used for any applications other than sewing.


 Be sure to wear protective goggles when using the machine.
If goggles are not worn, there is the danger that if a needle breaks, parts of the broken needle may enter your eyes and injury may result.


 Turn off the power switch at the following times. The motor will keep turning even after the power is switched off as a result of the motor's inertia wait until the motor stops fully before starting work. The machine may operate if the treadle is depressed by mistake, which could result in injury.


- When threading the needle
- When replacing the bobbin and needle
- When not using the machine and when leaving the machine unattended


 If using a work table which has casters, the casters should be secured in such a way so that they cannot move.

 Attach all safety devices before using the sewing machine.
If the machine is used without these devices attached, injury may result.


 Do not touch any of the moving parts or press any objects against the machine while sewing. As this may result in personal injury or damage to the machine.


 Use both hands to hold the machine head when tilting it back or returning it to its original position. If only one hand is used, the weight of the machine head may cause your hand to slip, and your hand may get caught.


 If an error occurs in machine, or if abnormal noises or smells are noticed, immediately turn off the power switch. Then contact your nearest dealer or a qualified technician.


 If the machine develops a problem, contact your nearest dealer or qualified technician.

Cleaning

 Turn off the power switch before carrying out cleaning. The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work. The machine may operate if the treadle is depressed by mistake, which could result in injury.

 Use both hands to hold the machine head when tilting it back or returning it to its original position. If only one hand is used, the weight of the machine head may cause your hand to slip, and your hand may get caught.

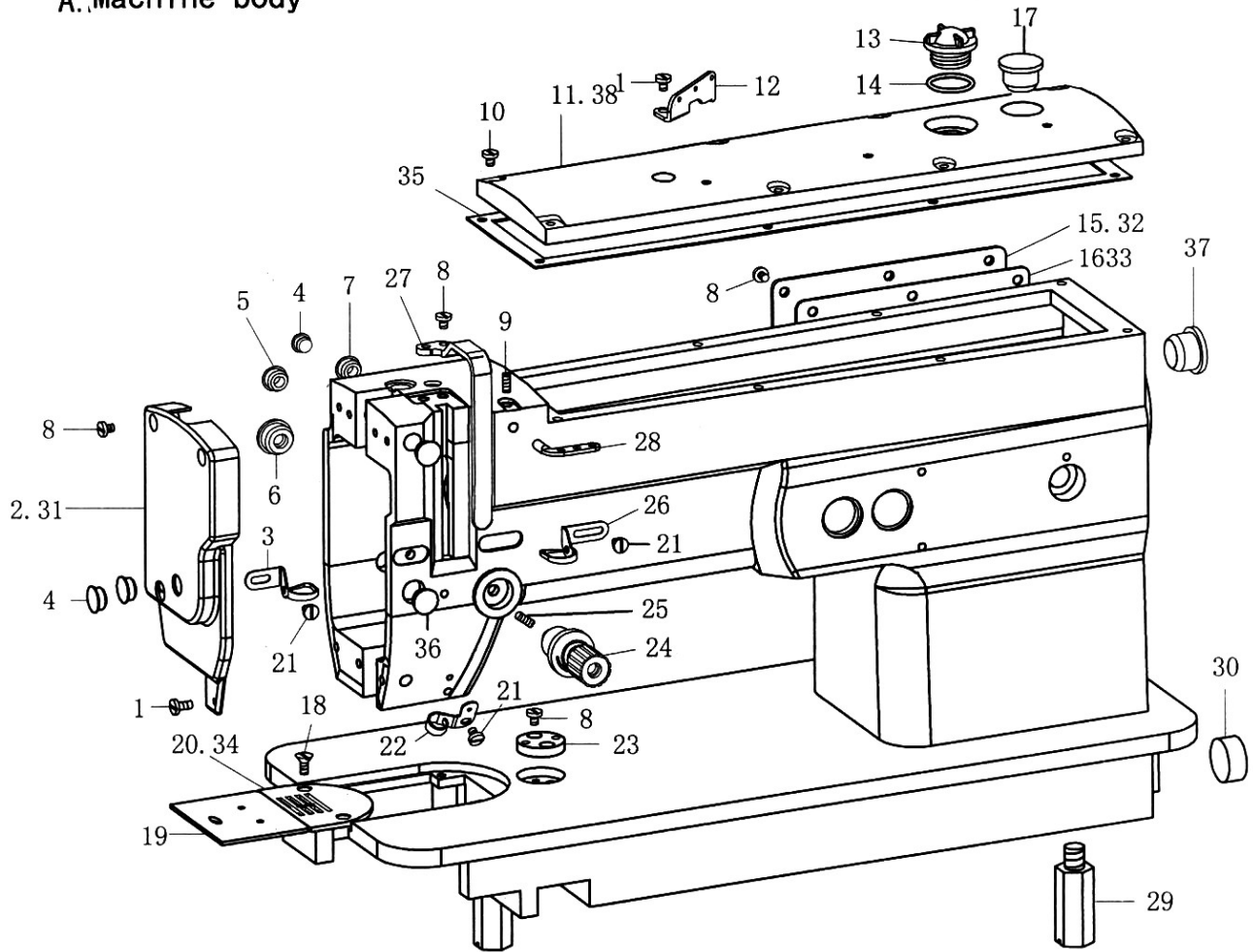
 Be sure to wear protective goggles and gloves when handling the lubricating oil and grease, so that they do not get into your eyes or onto your skin, otherwise inflammation can result.
Furthermore, do not drink the oil or eat the grease vomiting and diarrhea.

 Use only the proper replacement parts as specified

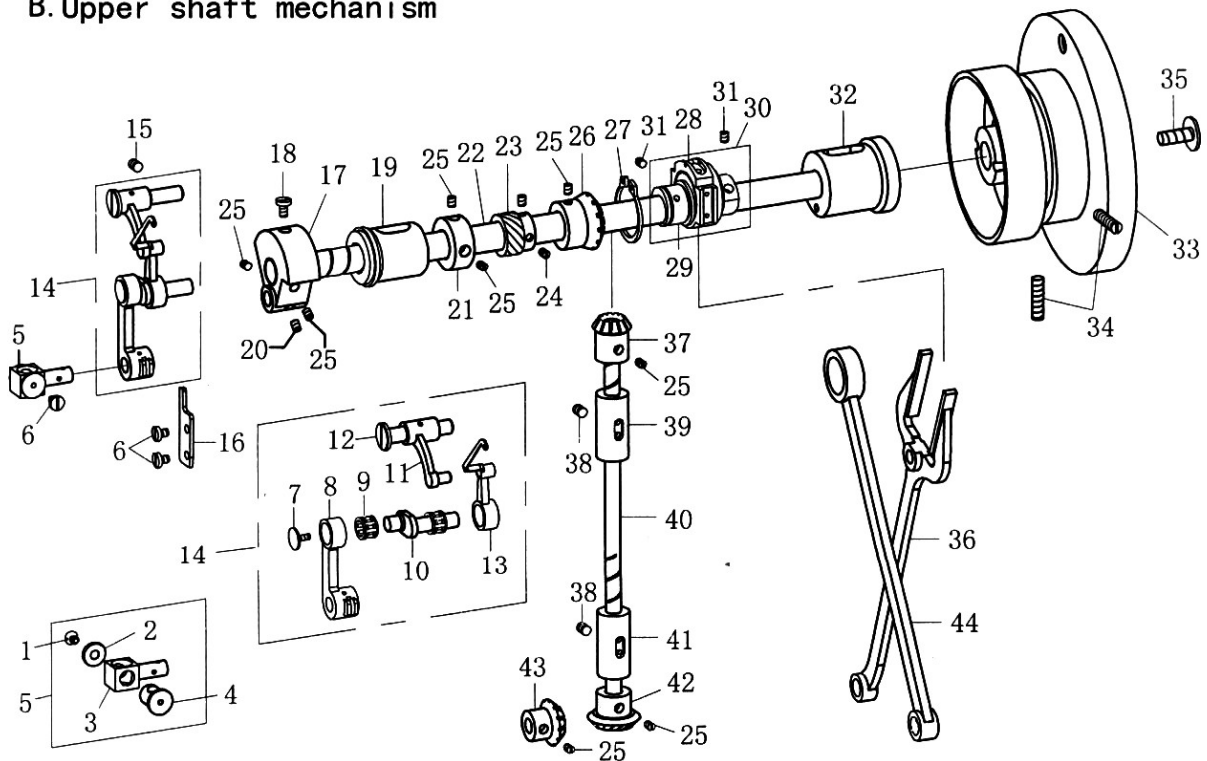
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A. Machine body



B. Upper shaft mechanism



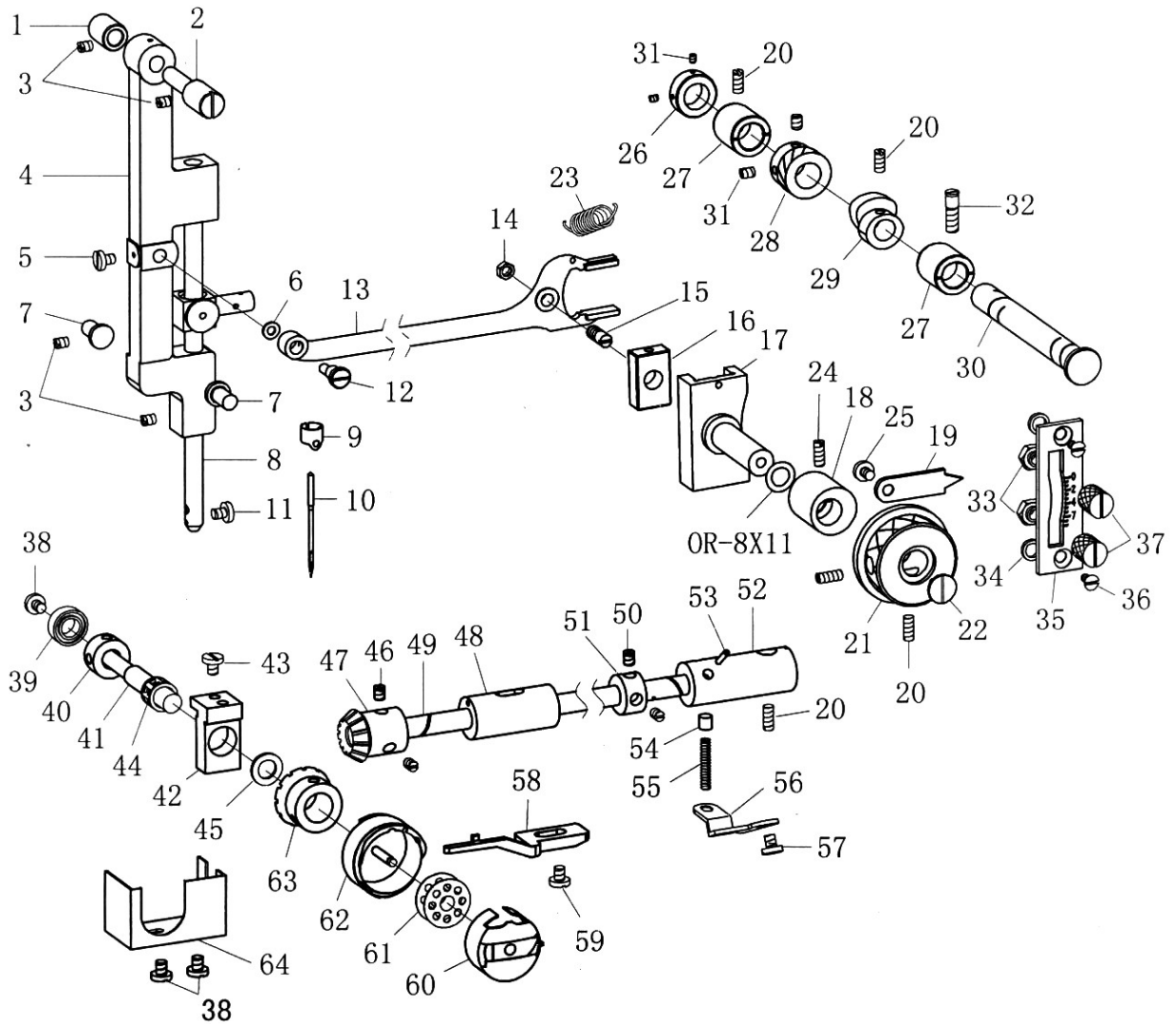
A. Machine body

	01	Y43-D8X6	11/64-40X5	3	01	20	1530A-20	1	
01	02	1530A-2	1530	1		21	Y35-D7X7	9/64-40X7	3
	03	1530A-3	DY2-29	1		22	810-28		1
	04	P11. 8X5	(D=11)	4		23	1530A-23	DY2-22	1
	05	P10. 8X4	(D=10)	3		24	1530A-24	DY2-901	1
	06	P15. 8X6	(D=14. 5)	1		25	Y59-D0X7	15/64-28X7	3
	07	P8. 8X5	(D=8)	1		26	1530A-26	DY2-5	1
	08	Y43-D7X7	11/64-40X7	8		27	1530A-27		1
	09	Y43-D0X6	11/64-40X6	8		28	810-19		1
	10	Y43-D7X9	11/64-40X9	8		29	1530A-29		3
	11	1530A-11		1		30	P24X7	(D=23. 5)	1
	12	1530A-12	33A-35	1	02	31	2530A-31		1
	13	1530A-13		1	02	32	2530A-32		1
	14	0R-18		1	02	33	2530A-33		1
01	15	1530A-15		1	02	34	2530A-34		1
01	16	1530A-16		1		35	P13	(D=12)	1
	17	P18. 5	(D=18)	1		36	P8	(D=7)	1
	18	810-263	11/64-40X7	2		37	P20X4		1
	19	1530A-19		1					

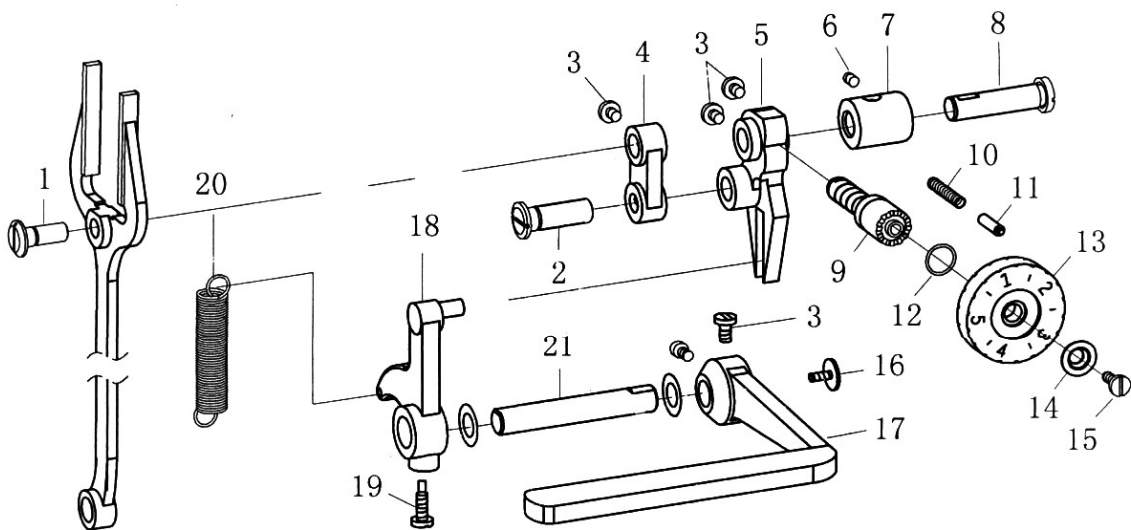
B. Upper shaft mechanism

	01	1530B-1	11/64-40X3. 5	1		23	1530B-23		1
	02	1530B-2		1		24	Y43-SD0X4	11/64-40X4	2
	03	1530B-3		1		25	Y63-SD0X6	1/4-40X6	10
	04	1530B-4		1		26	810-116		1
	05	1530B-5		(1		27	S26		1
	06	Y43-D8X6	11/64-40X6	3		28	810-129		1
	07	1530B-7		1		29	1530B-29	DY4-904B	1
	08	1530B-8		1		30	1530B-30	DY4-904	(1
	09	08X12X08		2		31	Y59-D0X7	15/64-28X7	1
	10	1530B-10		1		32	810-133		1
	11	1530B-11		1		33	1530B-33	33B-69	1
	12	1530B-12		1		34	Y59-D0X15	15/64-28X15	2
	13	1530B-13		1		35	810-136	11/32-28X13	1
	14	1530B-14		1		36	1530B-36		1
	15	Y59-D0X15	15/64-28X15	1		37	810-117		1
	16	1530B-16		1		38	Y59-D0X11	15/64-28X11	2
	17	1530B-17		1		39	810-119		1
	18	810-105	9/32-28X10	1		40	1530B-40		1
	19	810-103		1		41	810-120A	D=17. 5	1
	20	Y63-D0X5	1/4-40X5	1		42	810-124		1
	21	810-102		1		43	810-125		1
	22	1530B-22		1		44	1530B-44	33B-74	1

C. Lower shaft mechanism



D. Stitch regulator mechanism



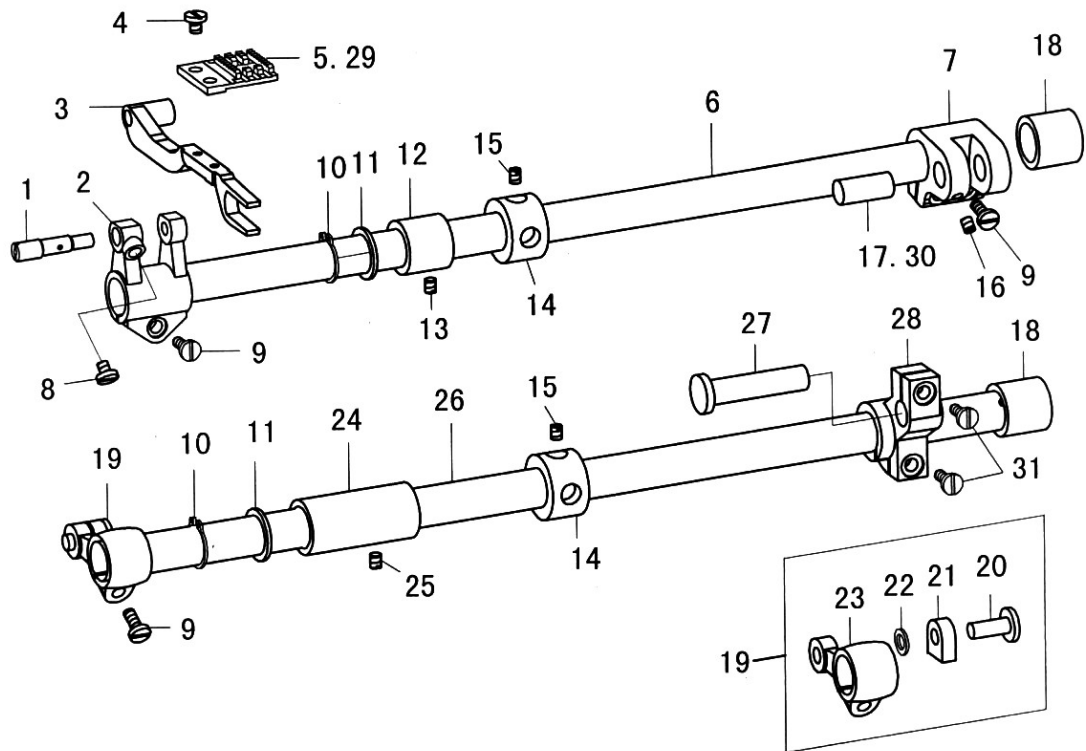
C. Lower shaft mechanism

01	1530C-1		1	32	1530C-32	15/64-28	4
02	1530C-2		1	33	Y43-LM7X3	11/64-40X3	2
03	LW-M4X4	M4-0.75X4	6	34	1530C-34	DY8-201	2
04	1530C-4		1	35	1530C-35		1
05	Y43-D8X6	11/64-40X6	1	36	1530C-36	11/64-40X10	2
06	W5X10X1	W5X10X1	1	37	1530C-37	11/64-40	2
07	1530C-7		2	38	Y35-D6X6	9/64-40X6	3
08	1530C-8		1	39	696ZZ		1
09	91C-38		1	40	1530C-40		1
10	DPX5		1	41	1530C-41		1
11	Y3144-D4X4.5	1/8-44X4.5	1	42	1530C-42		1
12	1530C-12		1	43	LT-M4X10	M4-0.7X10	2
13	1530C-13		1	44	08X12X08		1
14	Y71-LM11X4	9/32-28X4	1	45	W8X16X1		1
15	1530C-15		1	46	Y63-SD0X6	1/4-40X6	2
16	1530C-16		1	47	1530C-47		1
17	1530C-17		1	48	810-119	D=17	1
18	1530C-18	DY8-155	1	49	1530C-49		1
19	1530C-19		1	50	Y59-D0X5	15/64-28X5	2
20	Y59-D0X7	15/64-28X7	4	51	810-122		1
21	1530C-21		1	52	1530C-52	D=17.5	1
22	Y4728-D14X8	3/16-28X8	1	53	1530C-53		1
23	1530C-23		1	54	1530C-54		1
24	Y59-D0X11	15/64-28X11	1	55	810-160		1
25	810-263	11/64-40X7	1	56	1530C-56		1
26	1530C-26		1	57	Y59-D8X10	15/64-28X10	1
27	1530C-27		2	58	1530C-58	DY4-241	1
28	1530C-28		1	59	Y43-D9X9	11/64-40X9	1
29	1530C-29		1	62	1530C-62		1
30	1530C-30		1	63	1530C-63		1
31	Y43-SD0X4	11/64-40X4	4	64	1530C-64		1

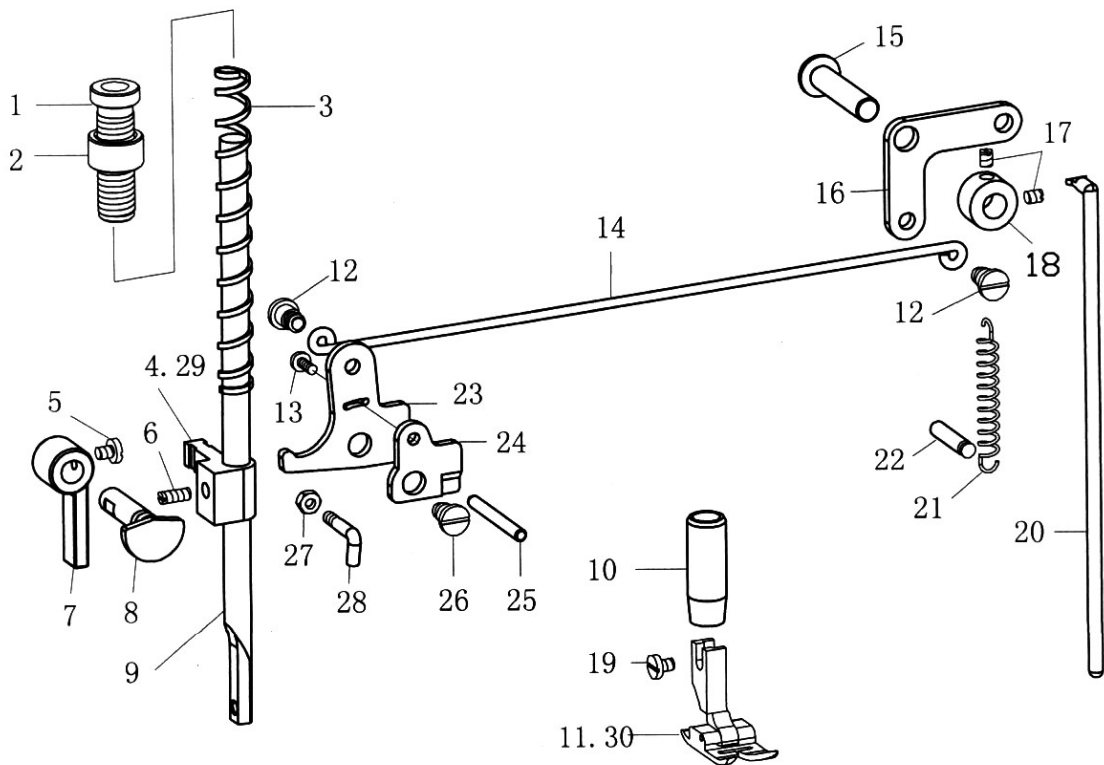
D. Stitch regulator mechanism

01	1530D-1		1	12	OR-14		1
02	810-152		1	13	1530D-13	(0-5)	1
03	Y59-D8X10	15/64-28X10	5	14	1530D-14		1
04	1530D-4		1	15	Y4728-D8X15	3/16-28X15	5
05	1530D-5		1	16	Y4728-D14X8	3/16-28X8	5
06	Y59-D0X11	15/64-28X11	1	17	810-167		1
07	810-158S		1	18	810-906		1
08	810-159		1	19	810-171	15/64-28X10	1
09	1530D-9	15D-24	1	20	810-172		1
10	810-160		1	21	810-169		1
11	810-162	DY6-96	1				

E. Feed mechanism



F. Presser foot mechanism



E. Feed mechanism

	01	1530E-1		1	01	17	810-226	1
	02	1530E-2		1		18	1530E-18	2
	03	1530E-3		1		19	1530E-19	1
	04	Y3144-D5X6	1/8-44X6	2		20	1530E-20	1
01	05	1530E-5		1		21	1530E-21	1
	06	1530E-6		1		22	W6X10	1
	07	810-222		1		23	1530E-23	1
	08	Y43-D7X7	11/64-40X7	1		24	1530E-24	1
	09	Y43-D8X13	11/64-40X13	3		25	Y59-D0X11	15/64-28X11
	10	S-15		2		26	1530E-26	1
	11	W15X20		2		27	1530E-27	1
	12	1530E-12		1		28	1530E-28	33C-241
	13	Y59-D0X7	15/64-28X7	1	02	29	2530E-29	1
	14	810-211		2	02	30	2530E-30	1
	15	Y63-SD0X6	1/4-40X6	4		31	Y4728-D8X15	3/16-28X15
	16	Y43-D0X6	11/64-40X6	1				

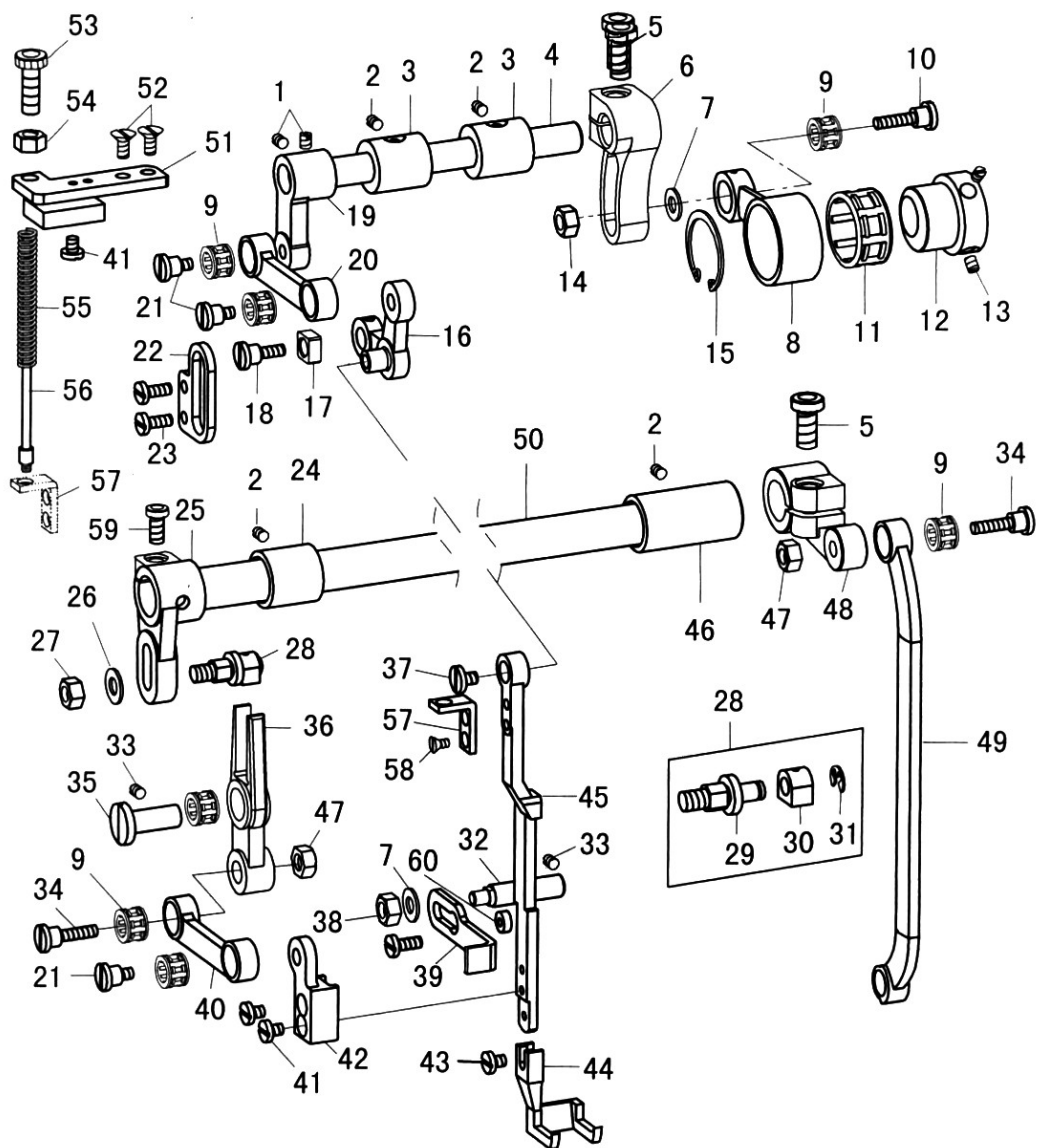
F. Presser foot mechanism

	01	810-184		1		16	1530F-16	1
	02	42C-4	10-143	1		17	Y59-D0X5	15/64-28X5
	03	810-187		1		18	810-122	1
01	04	1530F-4		1		19	Y35-D7X7	9/64-40X7
	05	Y43-D7X7	11/64-40X7	1		20	1530F-20	L=200
	06	Y59-D0X7	15/64-28X7	1		21	1530F-21	1
	07	1530F-7		1		22	1530F-22	1
	08	1530F-8		1		23	1530F-23	1
	09	1530F-9	DY10-137	1		24	1530F-24	1
	10	810-202		1		25	1530F-25	DY10-125
01	11	1530F-11		1		26	1530F-26 (S)	15/64-28 37D-25
	12	1530F-12	3/16-28X5 341F-25	2		27	Y35-LM6X3	9/64-40X3
	13	Y43-D9X7	11/64-40X7	1		28	1530F-28	1
	14	1530F-14		1	02	29	2530F-29	1
	15	1530F-15		1	02	30	2530F-30	1

1530F-26 SM1/4-40X7.5

1530F-26 (S) SM15/64-28X7.5

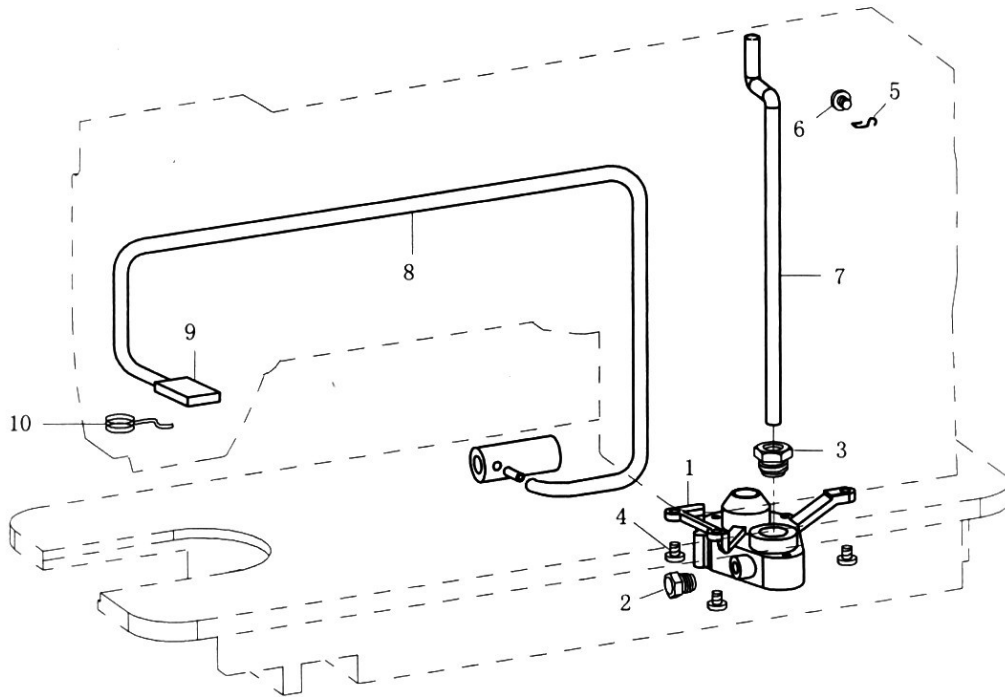
G. Upper feed mechanism



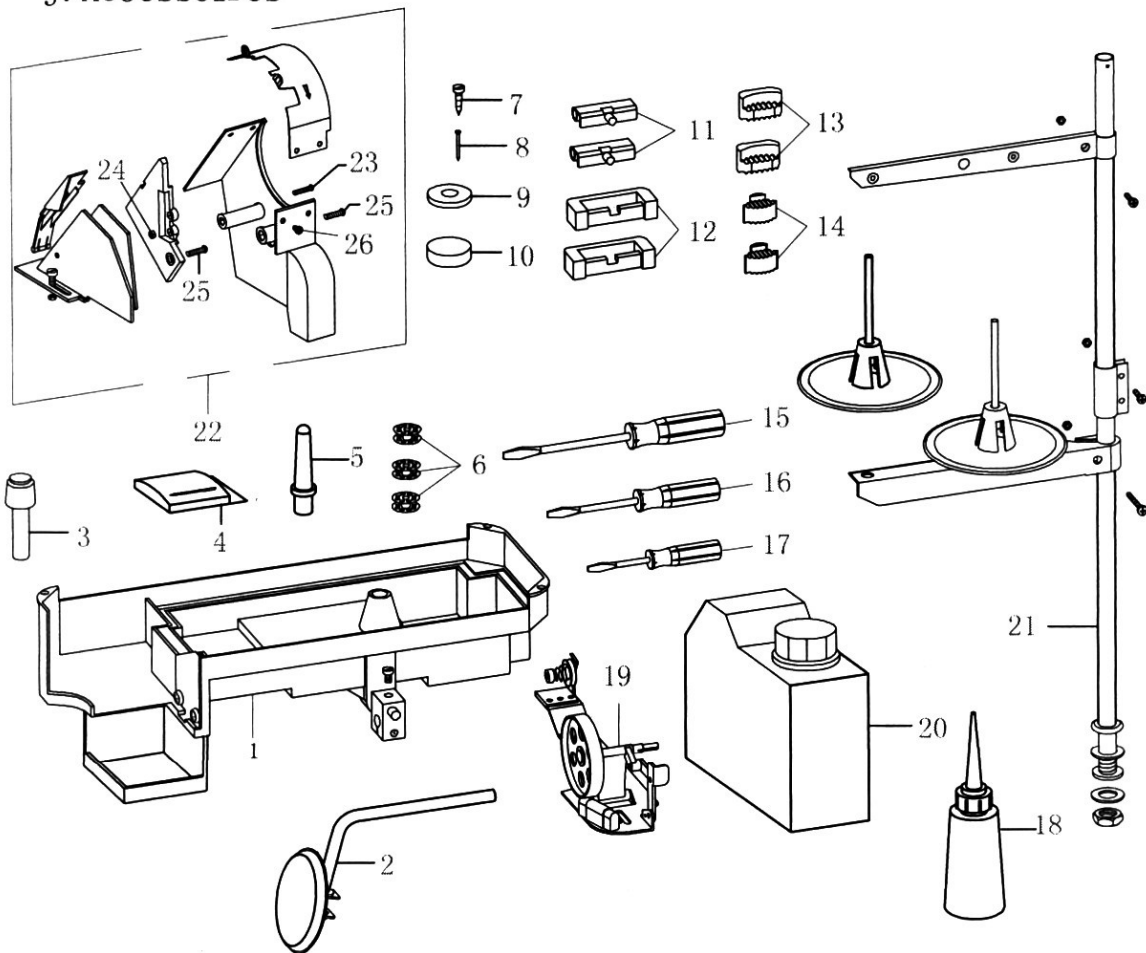
G.Upper feed mechanism

01	LW-M6X5	M6X5	2	31	E-4		1
02	Y43-D0X6	11/64-40X6	4	32	2530G-32		1
03	2530G-3	DY8-155	2	33	Y59-D0X7	15/64-28X7	2
04	2530G-4	37E-4	1	34	2530G-34	1/4-40X16 37E-34	2
05	LT-M6X20	M6X20	2	35	2530G-35	DY8-208	1
06	2530G-6	37E-6	1	36	640E-63	37E-36	1
07	W6X12		2	37	Y4728-D12X7	3/16-28X7 810-165	1
08	2530G-8		1	38	Y59-LM9X3	15/64-28X3	1
09	8X12X8		6	39	2530G-39		1
10	2530G-10	M6	1	40	2530G-40		1
11	24X28X13		1	41	Y35-D6X6	9/64-40X6	2
12	2530G-12		1	42	2530G-42		1
13	Y63-SD0X6	1/4-40X6	2	43	Y35-D7X7	9/64-40X7	1
14	LM10X6-M6	M6	1	44	2530G-44		1
15	S-24	S-24 (R28)	1	45	2530G-45		1
16	2530G-16		1	46	640E-46		1
17	2530G-17		1	47	Y63-LM10X5	1/4-40X5	2
18	2530G-18	3/16-28X7	1	48	2530G-48		1
19	2530G-19		1	49	2530G-49		1
20	2530G-20	37E-20	1	50	640E-43	L=360	1
21	2530G-21	1/4-40X6 37E-21	3	51	2530G-51		1
22	2530G-22		1	52	810-263	11/64-40X7	2
23	Y43-D7X7	11/64-40X7	2	53	2530G-53	DY8-151	1
24	2530G-24	DY8-193	1	54	Y71-LM11X4	9/32-28X4L	1
25	640E-57	DY8-212	1	55	2530G-55	DY8-170	1
26	W6. 5X13		1	56	2530G-56	DY8-171	1
27	Y6324-LM10X5	1/4-24X5	1	57	2530G-57		1
28	2530G-28	DY8-194	(1	58	810-255	9/64-40	2
29	2530G-29	DY8-194B	1	59	YT-M6X14	M6X14	1
30	2530G-30	DY8-194A	1				

I. Lubrication



J. Accessoires



I. Lubrication

01	1530J-1	1530G-51	1	06	1530J-6	Y43-D8X6	1
02	1530J-2	11/32-28 G-52	1	07	1530J-7	1530G-57	1
03	1530J-3	11/32-28 G-53	1	08	1530J-8	1530G-58	1
04	Y43-D8X13	11/64-40X13	3	09	1530J-9	1530G-59	1
05	1530J-5	1530G-55	1	10	1530J-10	1530G-60	1

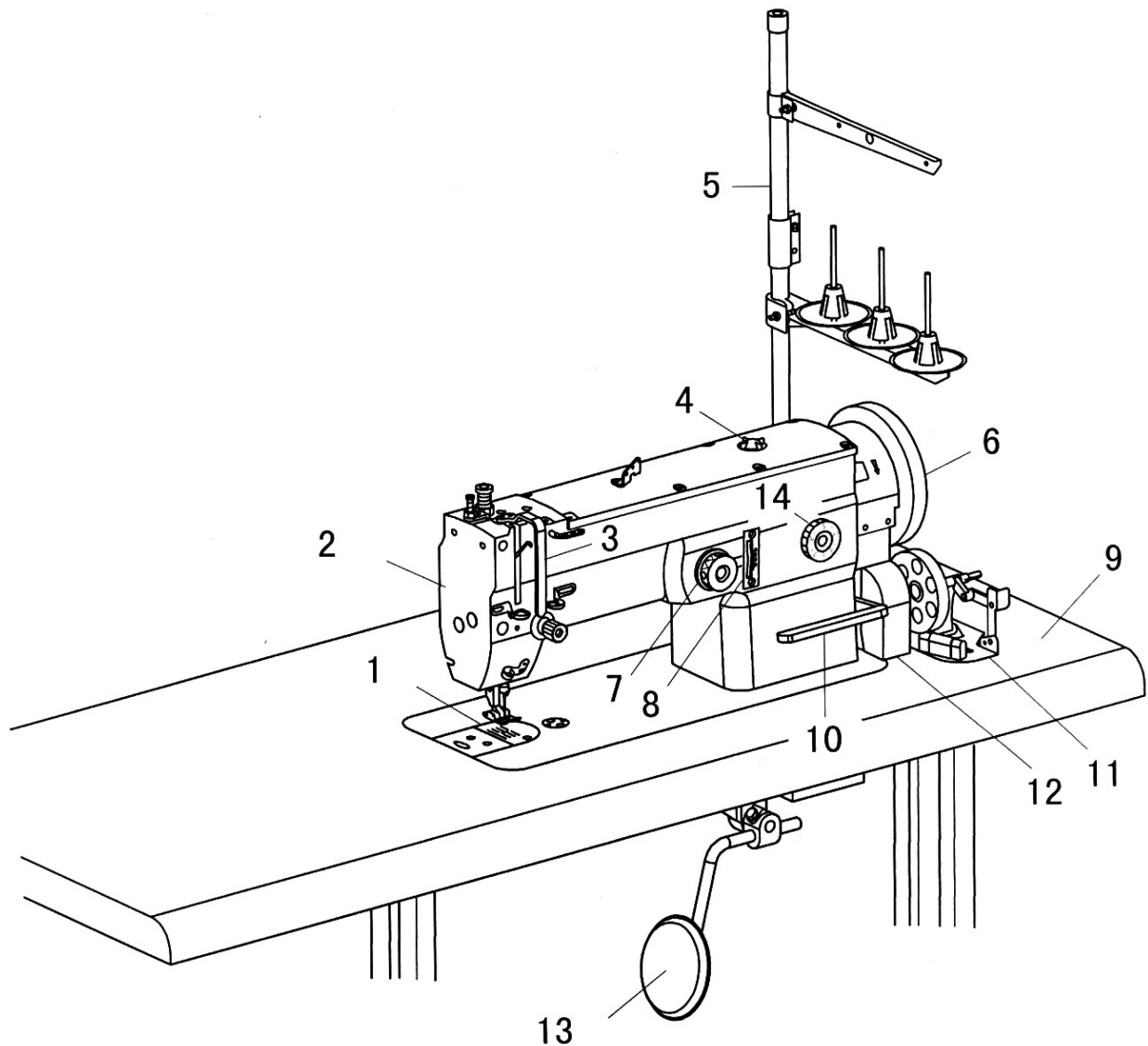
J. accesorios

01	1530K-1		1	14	1530K-14		2
02	1530K-2		1	15	810-821		1
03	1530K-3		1	16	810-807		1
04	DPX5		4	17	810-806		1
05	810-811		1	18	810-804		1
06	1530C-61		3	19	810-816		1
07	M5. 5X25		4	20	1530K-20		1
08			4	21	FP-2L		1
09	W6X12		4	22	1530K-22		1
10	1530K-10		1	23	YT-M4X18	M4X18	1
11	1530K-11		2	24	LM7X3-M4	M4	1
12	1530K-12		2	25	Y59-D8X10	15/64-28X10	2
13	1530K-13		2	26	Y43-D8X6	11/64-40X6	6

J-1: Knee lifting pad ass'y

01	1530K-1-1		1	09	E-9		1
02	LT-M6X12		2	10	1530K-1-10		1
03	1530K-1-3		1	11	1530K-1-11	8X15	1
04	1530K-1-4		1	12	1530K-1-12	SM5/16-28	1
05	1530K-1-5		1	13	1530K-1-13		1
06	Y59-LM10X4	15/64-28X4	2	14	YT-M5X12		2
07	Y59-D0X25	15/64-28X25	2	15	LM8X3-M5		2
08	810-171	15/64-28X15	1	16	W5X10		2

L. Name of major parts



1. Need plate
2. Face plate
3. Thread take-up
4. Oil window
5. Cottonstand assy
6. Pully
7. Hand turn wheel
8. Indicating board
9. Rubber hinge assy

10. Reverse lever
11. Bobbin winder assy
12. Belt coverassy
13. Cover .K-Lifter plate
14. Stitch length dial assy

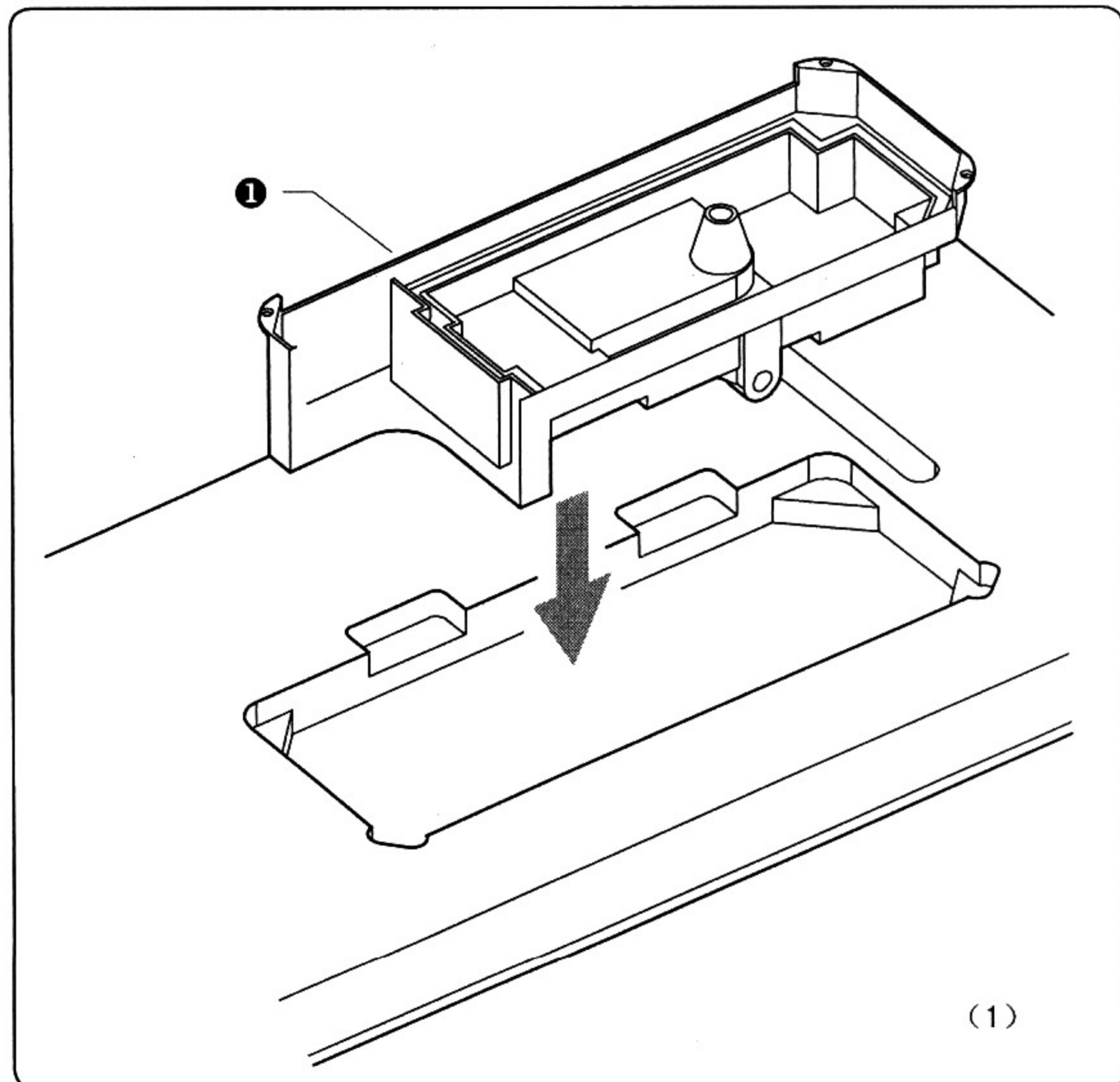
M. Machine specifications

Item \ Model	ZZ 512	ZZ 513 H
Speed	1800spm	1450spm
Zigzag width	8 mm	8 mm
Needle size	DPx5	DPx17
Thead take-up capacity	73mm	73mm
Needle bar capacity	34mm	34mm
Presser foot operating		3-7mm
Presser foot rising rate	7mm	7mm
Shuttle	Big shuttle	Big shuttle
Usage	Light-weight materials to medium-weight materials	Medium-weight materials to heavy-weight materials

N. Installation

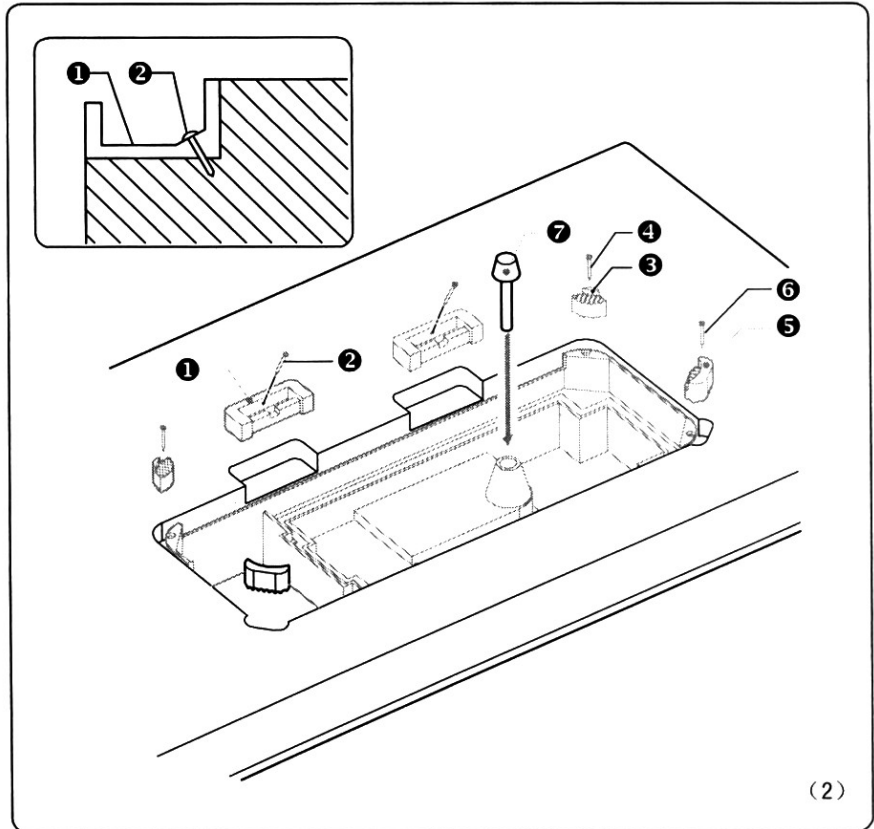
Oil Pan

As figure (1) shown:
Push ❶ in table.



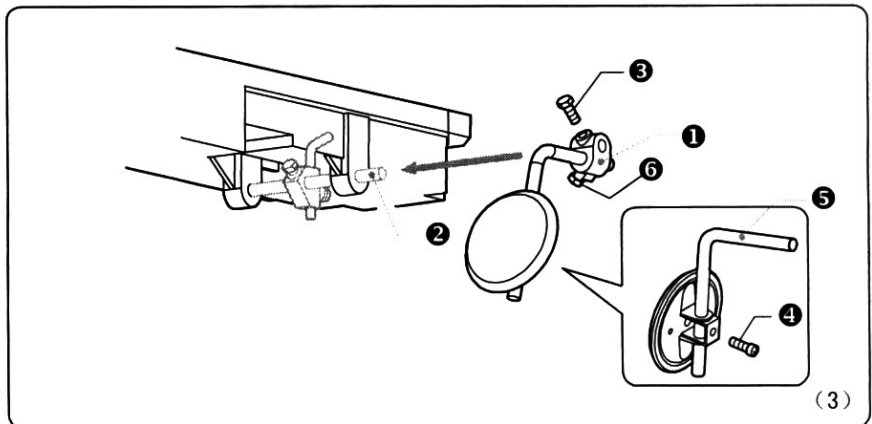
As figure (2) shown:

Fix the hinge seats **1** and the support rubbers **3 5** supplied with the machine on table using nails **2**. Then push **7** in the oil pan

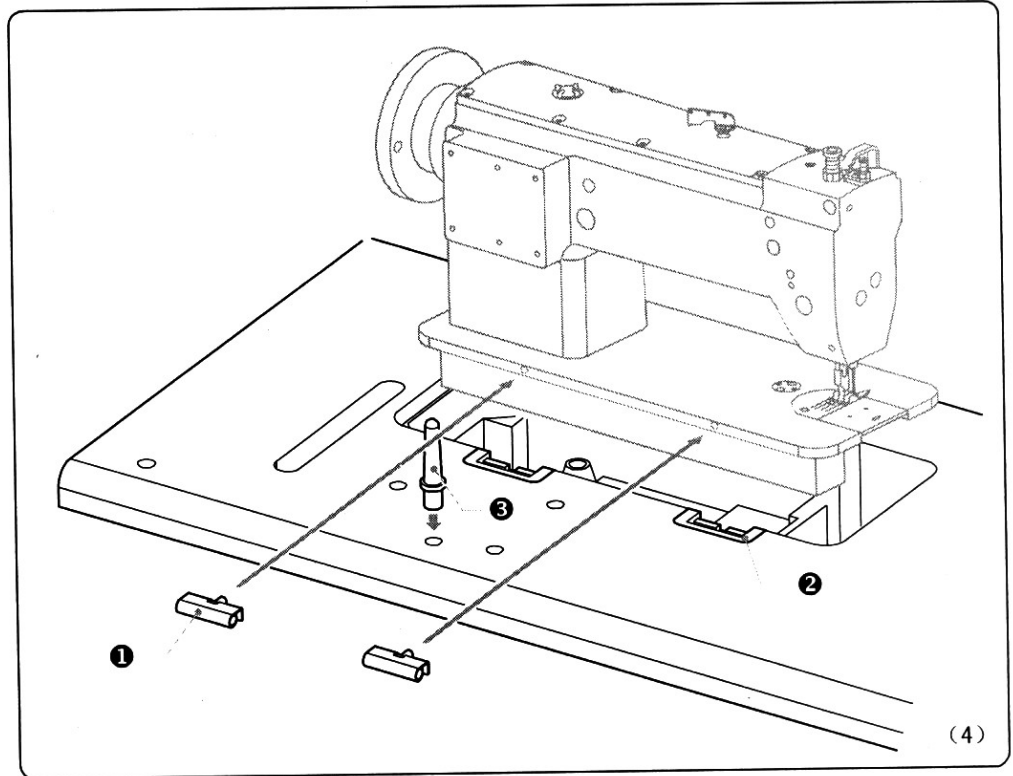


As figure (3) shown:

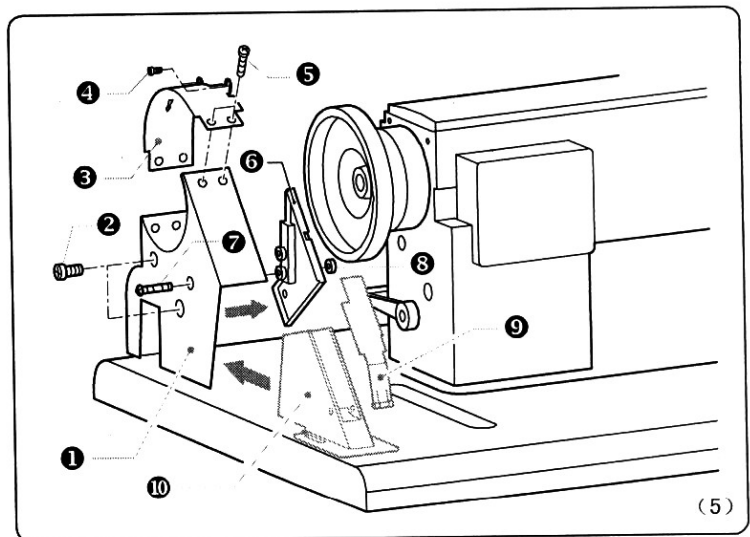
Cover .K-Lifter plate
Adjust knee pan joint **2**. Kneel lifter vertical shaft installing arm **1** and knee pad lever **5** to the direction of knee lifter lever shaft **2** and assemble these components. Adjust the direction of the pad with setscrews **3 4** and **6**.



As figure (4) shown:
 Head hinge ① push in
 the machine.
 Tap the head rest ③
 securely into the table
 hole.



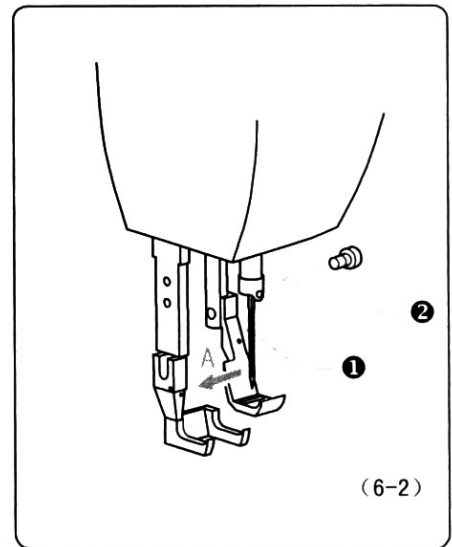
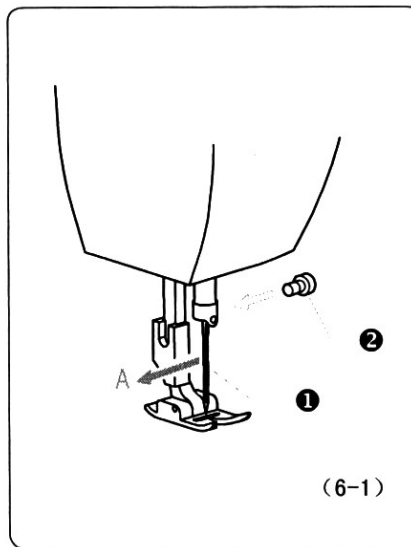
As figure (5) shown:
 Apply screw ② to tighten belt cover U ①
 to machine cover.
 Apply screw ④ to tighten belt cover C ③
 to machine cover.
 Apply screw ⑤ to tighten belt cover C ③
 and cover U ①.
 Apply screw ⑦ ⑧ to tighten ⑥.



0. Adjustment

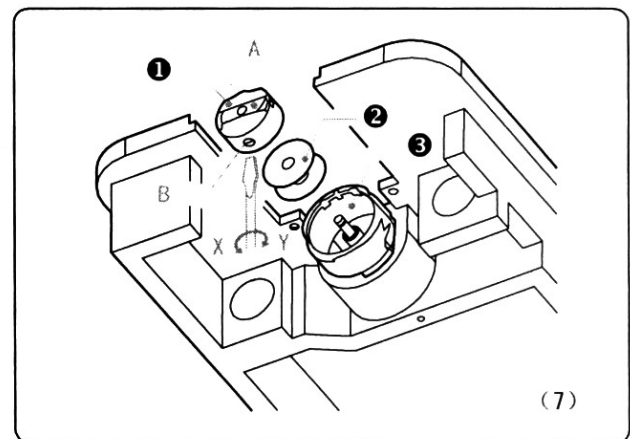
Installing the needle

As figure (6-1 6-2) shown:
 Rotate handwheel to make needle bar rise to the maximum high, loosen tighten screw ② plug needle ① to the top needle's groove side face to A then fasten screw ②.

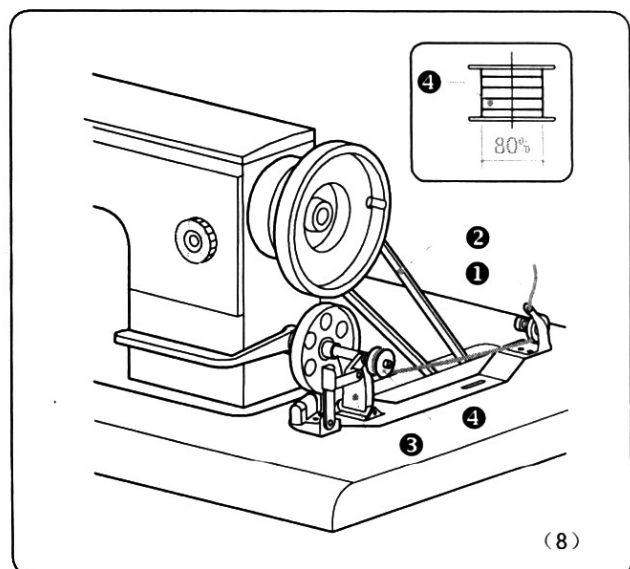


As figure (7) shown:

- <1> Open the case cover, then take out the bobbin case ①. Install bobbin ② into bobbin case ①, open the case cover, snap bobbin case ① into shuttle ③ then assemble together.
- <2> Turn tension adjustment screw (B) clockwise Y to increase the bobbin thread tension, or counterclockwise X to decrease it.



As figure (8) show connect lower thread ① move handle of the winding shaft ③ to snap the wheel to bit ② 梭 and rotate it 80% of the winding amount in bobbin ④ will be best.



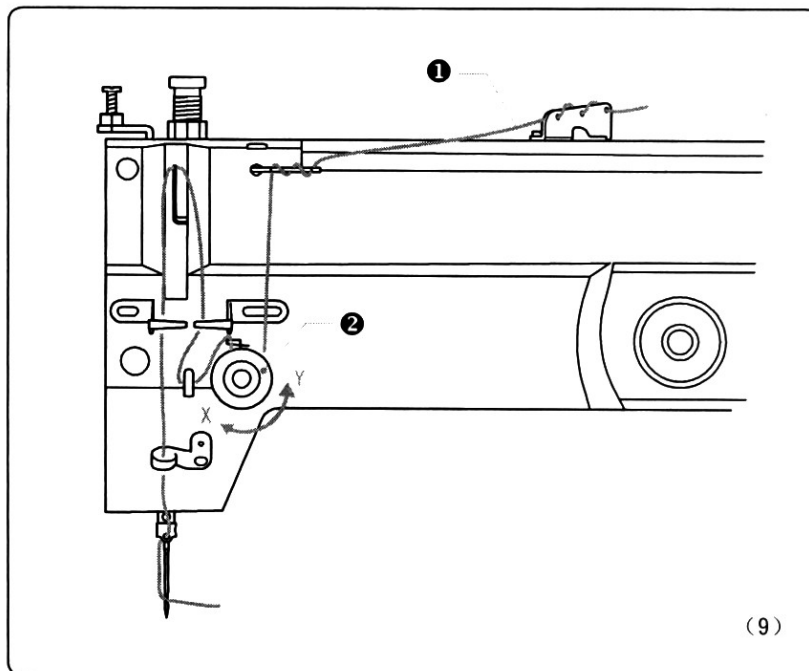
As figure (9) shown:

<1> Threading the upper thread

Insert the upper thread ① as figure shown.

<2> Face line tension adjustment

Rotate clipper ②, the upperline tension in direction X increase and Y direction decrease.

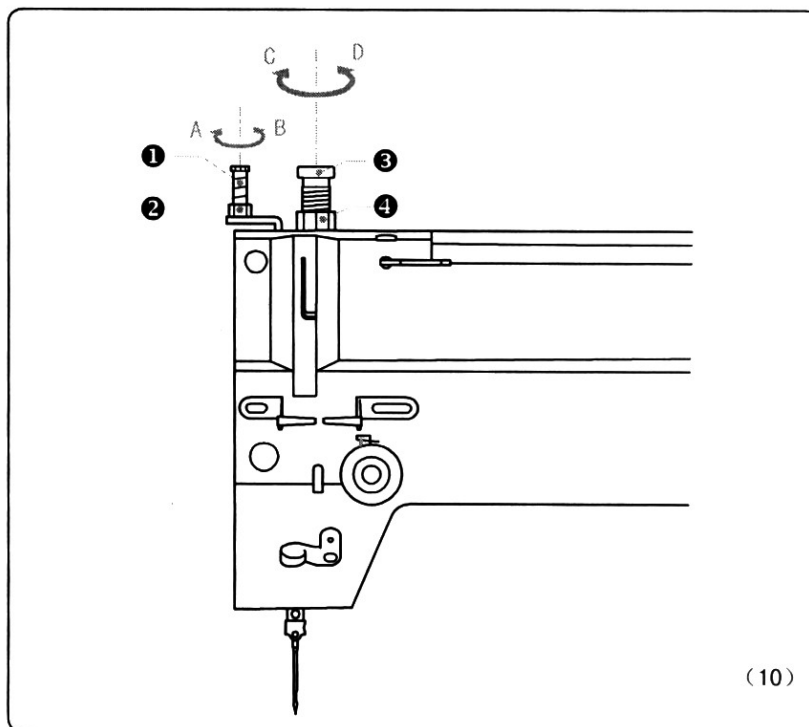


Presser foot pressure adjustment

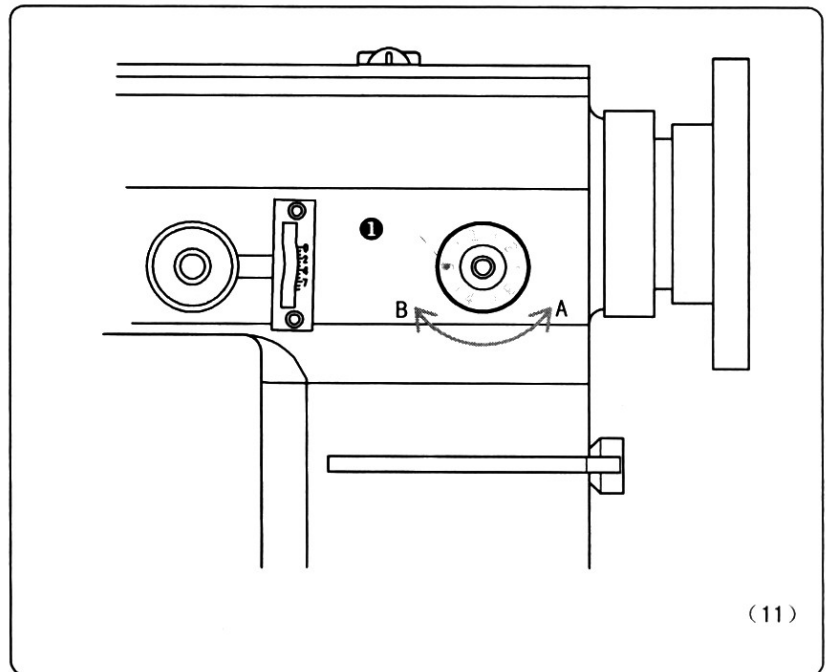
As figure (10) shown:

Rotate screw ①, the outer pressure in A direction increase B direction decrease adjustment fix the nut ②.

Rotate screw ③, the inner pressure in C direction increase D direction decrease after adjustment fix the nut ④.



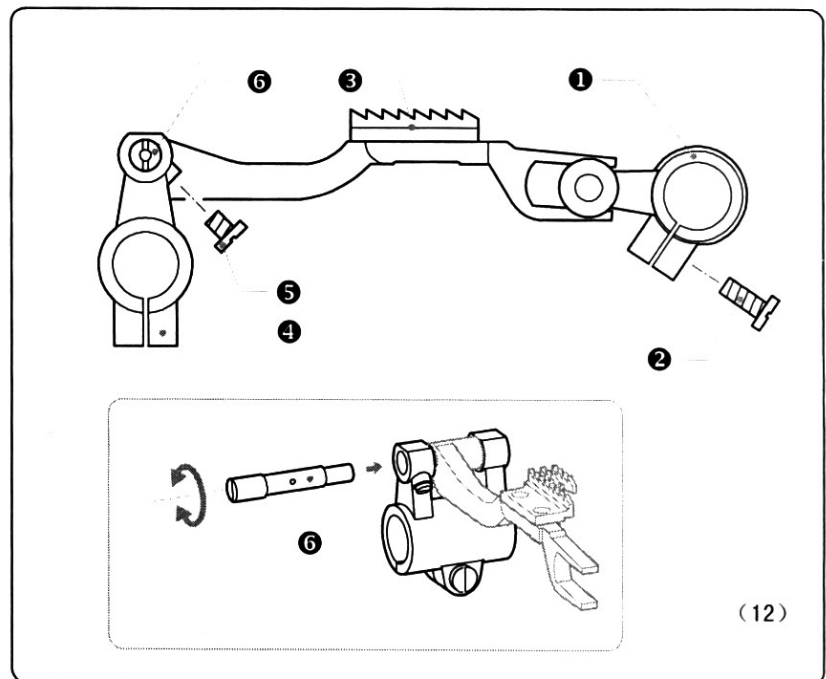
As figure (11) shown:
 Rotate the stitch length dial assy ❶ to adjust the swing span in A direction decrease and B direction increase.



(11)

Feel dog hight adjustment

As figure (12) shown:
 Apply screwdriver to rotate eccentric shaft ❶ in order to adjust the height. Rotate the handwheel. When feed dog rise to the maximum high the distance between needle plate face and the top of feed dog need to be 1.0-1.2mm.



(12)

Span adjustment

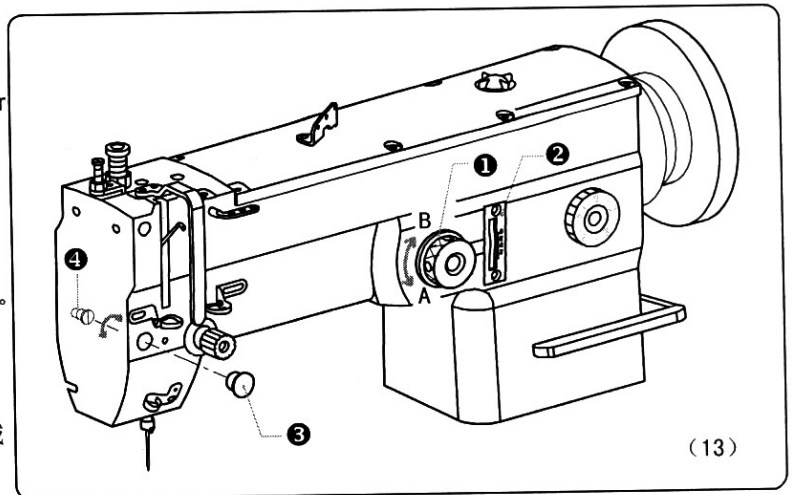
As figure (13) shown:

Macro adjustment

The swing indicator ② indicate the span number in mm rotate the swing handwheel ①, to adjust the swing span in A direction decrease and B direction increase.

Micro adjustment

Open the rubber cork ③ apply screwdriver to rotate eccentric bar ④ to adjust the swing span.



P. TROUBLESHOOT

NO	Trouble	What to do when	Trouble parse	Corrective measures
1	Breaking needle	Direction and height of needle	Wrong direction of upper needle	Correct direction from high to maximum high
		needle	Bend needle	Change needle
		Feed dog travel	Mismatch of needle bar movement feed dog travel	Adjust travel of needle and shuttle
		Needle bar rising	Wrong travel of needle and shuttle	Adjust travel of needle and shuttle
		Needle bar height	Wrong travel of needle and shuttle	Adjust travel of needle and shuttle
		Main distance between needle and shuttl	Wrong traveled needle and shuttle	Correct threading
2	Breaking thread	Ways of threading	Improper threading	Correct threading
		needle	Bent needle or broken needle tip	Change needle
		Direction and height of needle	Upper needle problem	Correct upper needle
		Upper thread tension	Upper thread tension too strong	Adjust upper thread tension
		Lower thread tension	Lower thread tension too strong	Adjust lower thread tension
		Thread take-up spring rate	Rate too big	Adjust spring rate
		Thread take-up spring tension	Thread take-up spring tension too weak	Adjust thread take-up spring tension
3	Wire problem	Thread tension	Shuttle upper thread tension problem	Adjust shuttle and upper thread tension
		Thread take up spring tension	Thread take-up spring tension problem	Adjust thread take-up spring tension
		Presser foot	Presser foot too high	Adjust presser foot height
		Presser foot pressure	Presser foot presser too small	Adjust presser foot pressure
4	Wrinkly of fabric	Feed dog height	Feed dog height too low	Adjust feed dog height
		Presser foot pressure	Presser foot pressure too small	Adjust presser foot pressure
		bobbin	Scratch bobbin	Polish or change
		V belt tension	Belt tension too small	Adjust belt tension
5	Tangled thread	Upper thread tension	Upper thread tension too strong	Adjust upper thread tension
		Lower upper thread tension	Lower thread tension too strong	Adjust lower and upper thread tension
		Thread take-up spring tension	Thread take-up spring tension too problem	Adjust thread take-up spring tension
		Thread take-up spring rate	Rate too big	Adjust thread take-up spring rate
		Presser foot pressure	Presser foot pressure too small	Adjust presser foot pressure
6	Tangled thread	bobbin	When pulling lower thread bobbin reverse	Reverse bobbin
		bobbin	Bobbin does not rotate smoothly	Chang bobbin
		Bobbin winding amount	Too much winding amount	Winding amount should not be more than 80%